DATA MANAGEMENT SYSTEM
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Compsoft Limited

DATA MANAGEMENT SYSTEM

User Guide

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ADDENDUM TO DMS CP/M MANUAL

UNLESS YOU ARE USING RELEASE 2.2 YOU SHOULD IGNORE ALL REFERENCES TO THE LETTER WRITER.

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SECTION 1 - AN INTRODUCTION TO DMS

MACHINE REQUIREMENTS

1.1 DMS will run on any computer that supports the following:

1. CP/M 2.n, MP/M1, MP/M 2 with compatibility mode. **
2. 48K free user space.
3. Floppy or hard disks.
4. A VDU with 80 columns and 24 lines.

No support is provided for shared files on multi-user systems.

DMS uses the standard CP/M list device for all output, 80 or 132 character printers are supported. If your printer has expanded print, you may use this for headings or labels.

DMS OVERVIEW

1.2 DMS is a record keeping package using a random hashing technique for the main data file and sorted index files.

Parameters for selections, reports, processing instructions etc. are stored on sequential files.

User are strongly advised not to try and access or change DMS files. Failure to heed this warning will result in all support being withdrawn.

The system uses full cursor addressing for input and amendment of information within user defined screen layouts.

The full file 3 key sort program optimises time and space requirements by only sorting tags for selected records.

Access to data is via a prime key or a sorted index file.

There are no limits to the number of screen layouts, selection parameter files, process files, report layouts etc.

All DMS files are standard CP/M files, and as such may be PIP'ed in the normal way.

** CP/M and MP/M are trademarks of Digital Research.

SECTION 1 - AN INTRODUCTION TO DMS

THE REASON FOR DMS

1.3 There are three prime reasons for DMS:

1. Reduce the cost of software on micro computers.
2. Provide a system that is flexible enough to respond to a users changing needs.
3. By keeping the system simple to understand, to open up possibilities for the non expert to use a microcomputer.

The way that DMS reduces the cost of software is that anyone can use it to tackle their own particular problems. Where there is not a package available to solve a problem, DMS can be used to find a solution.

Until recently, if there wasn't a package for your particular problem, you would have to pay for a special program to be written. This is very costly and has resulted in many jobs still being done by hand, when, in reality, a micro is the ideal tool to use.

With DMS, this cost has been reduced to an acceptable level by allowing the users themselves to explain to the computer what they want from it.

One of the other problems that DMS overcomes is that of changing requirements. What you need from a computer system can change in two ways:
Firstly, there may be changes forced on you from outside, e.g changing laws, takeovers etc.
Secondly, it is a fact that only when you start to use, and see the results from, your computer do you decide what you really wanted.

DMS is a very dynamic system in that you may change your mind as often as you like. DMS will allow for all your changes without any costs being incurred for extra programming.

In fact, one of the uses that DMS is often put to is to show a user what a system will look like. Having agreed on the basic printouts, screen layouts etc, the programmer/system analyst can then design the complete system in a cost effective way.

How DMS works

1.4 DMS is a suite of programs written in a very special way, in that it has not been written with any particular use in mind.
This may seem a strange way to write a program, but what it means is that you, the user, tell DMS exactly what you want it to do. This is not the daunting task it may seem, because DMS will ask you questions in English, and your replies will also be in English.

If you are new to computers you may find it difficult to understand how they work. Now, although DMS is very powerful, there is a simple way to understand how it works and what it is doing.

SECTION 1 - AN INTRODUCTION TO DMS

Everyone is familiar with a card index system where you have a box of index cards. Each card holds information about a particular item e.g. a person or a stock item, and you may have one box of cards for one use and another box for a different use.
Of course, sometimes you may use a filing cabinet instead of a box of cards, but the principle is the same.

DMS is a very sophisticated card index equivalent, and throughout the manual we shall be referring to a card index system in order to explain how DMS is working.

Where to use DMS

1.5 Having purchased DMS you may use it for as many different projects on one machine as you require.

Anywhere you need to keep lists of information is where you can use DMS. There are some users using it for as many as seven different jobs.

To start with our card index analogy, the following is a list of some of the advantages DMS has over even the most sophisticated card index systems:

1. No misplaced cards.
2. Less storage needed.
3. Faster access to each card.
4. Printout of selected cards in any order as often as you like.
5. Faultless calculations.
6. Complex searches through the cards.
7. Password protection of sensitive information.
8. Duplication of the file takes only a few minutes.
9. Changes may be made neatly without bad writing and crossings out.
10. Carry out various operations without losing cards.
11. You may request DMS to get on automatically with these operations while you do other work.

As you read this manual you will realise that you need never use a card index system again.

A few notes on this manual

1.6 Before going any further you should have a quick look at the glossary in the appendix.

Although every attempt has been taken to explain everything you will need to know, we cannot attempt to explain either CP/M or how your particular computer has been set up.

For example, if you have a special VDU you may be best to obtain the help of your dealer when first setting up DMS to run on your particular system.

SECTION 2 - GETTING DMS READY TO RUN ON YOUR MACHINE

Introduction

2.1 These sections will take you from receiving the DMS pack, through copying the master disks, installation and the worked example.

You will do the following:

Backup the DMS master disks.

Generate your system disks.

Configure DMS to run on your computer.

Read a few general topics about DMS and how to use it on your system.

Generate a test file and follow a worked example to give you an insight into how DMS works.

You should know how to use the following functions in CP/M:

Format a disk (floppy users only).

Transfer your system image to a floppy disk.

How to use PIP to copy files from disk to disk.

How to use STAT to find out how much disk space you have.

This particular part of the manual should be read from start to finish. You should allow about 1 hour to set up DMS, and from 1 to 3 hours for the example.

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IF YOU ARE USING A HARD DISK SYSTEM, MAKE SURE THAT ANY OTHER USERS KNOW WHAT IS GOING ON. IF YOU HAVE A TECHNICAL PERSON ON HAND INFORM THEM OF WHAT YOU ARE DOING.

TAKE A COPY OF THE DMS MASTER DISKS

2.2 Before doing anything else you MUST take copies of the DMS master disks.

How you do this will vary from machine to machine. You may have a program called something like COPY, that will allow the whole disk to be copied, or you may need to use PIP.
Hard disk users with only one floppy are advised to PIP all the DMS programs to their hard disk, and then immediately PIP them back to some more floppies.

SECTION 2 - GETTING DMS READY TO RUN ON YOUR MACHINE

DMS will arrive, depending on disk format, on from one to three disks, you must make sure that you copy them all.

If you are in any doubt about this, then phone your dealer rather than make a mistake.

On the general subject of backups. DMS has a very robust file structure and should someone pull the plug on you, there is every chance that your DMS file will be the most likely one to survive.
However, if the disk gets physically damaged then you will lose all your files. YOU MUST TAKE REGULAR backups.

CREATING YOUR DMS MASTER SYSTEM DISK

2.3 If you are a hard disk user then PIP all the DMS files to your hard disk platter, and skip to the section on configuration.

The purpose of this part is to put all the DMS programs on a disk that will also contain a system image for your machine.

The aim is that you should have one disk with all the DMS programs, your copy of CP/M, and PIP and STAT on it.

****
USE YOUR DMS COPIES FOR THE FOLLOWING OPERATIONS
****

The method of doing the above may vary from machine to machine, however there follows a fairly typical session for a floppy system with disks A and B.

Put your CP/M system disk in drive A, and a blank floppy in drive B.

Use your format command to format the disk in drive B to the maximum capacity that your drives will support.

Move your CP/M system image from the disk in drive A to the disk in drive B. This is often done with a program called SYSGEN.

Using PIP, copy PIP.COM and STAT.COM to drive B. The commands will be B:=A:PIP.COM and B:=A:STAT.COM.

Remove your system disk from drive A. Put the disk you have just created in B into drive A. Either press control/C or re-boot your machine.

Having re-booted CP/M, place the first of the DMS master disks in drive B and type PIP A:=B:*.* . This will transfer all the program files from B to A.

SECTION 2 - GETTING DMS READY TO RUN ON YOUR MACHINE

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The total size of all the DMS programs is in the region of 300K. If your diskette capacity is less than this then you will have to copy the DMS programs onto more than one of your diskettes.
You can find out the maximum capacity of one of your diskettes from either your manual, or using the STAT command.
Refer to appendix 1 to work out the best way to do this.

****

When the first disk has finished copying, and bearing in mind the above note, place the second DMS master disk in drive B, type PIP A:=B:*.* .

When all the programs have been copied to the disk(s) in drive A, label this disk DMS MASTER PROGRAMS.

Copy this disk to another floppy, and label it DMS MASTER PROGRAMS (COPY).

To recap, you should now have the following disks:

The two or more original disks that came with DMS.

The copies of the above disks.

One, (or more for users with diskette capacities less than 300K) diskette labelled DMS MASTER PROGRAMS.

A copy of the above disk(s) labelled DMS MASTER PROGRAMS (COPY).

Put all the disks other than the one(s) labelled DMS MASTER PROGRAMS in a safe place.

The next step we have to take is to configure DMS to run on your particular system.

CONFIGURATION OF DMS FOR YOUR SYSTEM

2.4 Introduction

Although DMS is written to run on any computer that will support CP/M, there are a number of features that will vary from one machine to another.

The most frequent difference between one machine and another will be the type of VDU that is being used.

Configuration of DMS is usually very easy, particularly if you have a popular make of computer.
If you find that things are not going too well then you should get some expert help and/or read the section in appendix 7 about configuration.

SECTION 2 - GETTING DMS READY TO RUN ON YOUR MACHINE

The first thing to do is to get DMS up and running. The method is very simple and is the one you will always use.
If you are on a floppy system then put the DMS MASTER PROGRAMS disk in drive A and bring up CP/M. Whatever system you are on you should have the standard CP/M prompt, type DMS and press return.

The main DMS menu will appear on the screen. Select the CONFIGURE option by pressing A, no RETURN is needed.

Generally, when replying to DMS questions, if the question ends with a colon (e.g. Reply Y/N:) you need only reply with one key stroke and do not need to press RETURN.

Having selected A, you will see a menu on the screen with a number of VDU types displayed. At this point it is important to realise that these are not all makes of VDU, some of them refer to the method that the VDU uses to talk to your computer. For example, at Compsoft, we have 3 different makes of VDU, but they all use ADM3A to talk to the computer.

If you can't see your type of VDU on this menu then you will have to supply all the codes needed. This can be a complex job and you should get some expert help and/or read the configuration section in part 4.

For those who have selected a VDU from the menu, we can now carry on.

You will now be asked if you wish to modify the standard terminal codes. Reply N to this question, unless you really know what you are doing.

DMS will now display the codes that you will use to move the cursor around the screen, delete characters and insert characters. Most keyboards will have four keys with arrows pointing up, down, left and right. DMS will default to these keys in most cases. Some screens don't have these keys and you have to use a control key pressed at the same time as another key, DMS represents this by displaying an up arrow, e.g. A means press the control key at the same time as the A key.

If you look on the screen you will see which codes DMS will use.

Changing these codes is very simple, you may, for example, be running Wordstar and require the cursor control codes to be the same in DMS and Wordstar.

Assuming you wish to change these codes, DMS will ask you, one by one, to press the key (or key combination) that you require to use.

The next question is about the printer, and concerns the length and depth of your print. It is set to 132 characters in width and 66 lines per page, if you wish to change it make the correct replies.

When you use the user defined reports there is an option to print a floating currency sign in front of any value fields. This question allows you to select the characters you wish to print.

The only other question about the printer is concerned with the letter writer and its use with a cut sheet feeder. Ignore this question for the time being. When you come to the letter writer you will see that all is explained there.

Lastly, you are asked if you wish to change the standard disk configuration. This defaults to disks A and B. If you want to change this make the correct reply and put a full stop under the disks that you have in your system. Having supplied a list of all the drives on your system, you are asked to specify which drive you will normally have your DMS data files on.

That is the end of the configuration section for a basic VDU.

The longer configuration in appendix 7 should be referenced for the following reasons:

You can't find your screen on the menu.
You wish to use some special enhancement codes e.g. reverse video.
You need special codes in your system when DMS starts and stops running e.g. to release printers.
Your VDU doesn't have an addressable cursor.

All that remains to be done is to ensure that, if you are on a floppy system, you have a blank formatted disk to create your DMS files on.

Following the list of programs, you will find a training section using files that are supplied with the system.

If you are fairly sure that you know what you want to do you can continue and set up your own files. However, it is strongly recommened that you take the time to scan through this manual prior to doing any important work.

****

The following files must be on all your DMS disks:

DMS.COM
BRUN.COM
DMSOVLY2.OVR

SECTION 2 - GETTING DMS READY TO RUN ON YOUR MACHINE

2.5 WHERE THE PROGRAMS NEED TO BE SPLIT OVER MORE THAN ONE DISK YOU WILL NEED TO DECIDE THE BEST SPLIT FOR YOUR APPLICATION, IN ADDITION TO THE ABOVE PROGRAMS THERE ARE THE FOLLOWING:

NAME	USE	OFTEN USED?
DMSCONFG.COM	System configuration	N
DMSCRE8.COM	File creation	Not very often
DMSKEY	Access files by key	
DMSSORT	Sort	Possibly
DMSSEL	Create selection criteria	N
DMSRDFN	Change field names	N
DMSMASK	Set up a screen layout	N
DMSTRAN	Use a screen	Y
DMSLIST	Standard reports	Y
DMSREP	Define user reports	N
DMSPRINT	Print user report	
DMSWP1	Define letters	
DMSWP2	Print letters	
DMSLABEL	Define and print labels.	
DMSSCRN	Browse through a file	
DMSPRCES	Set up a process run	N
DMSPRRUN	Apply a process file	Y
DMSLINK	Used to output user files	
DMSCOPY	Used to input user files	
DMSBACKUP	Backup	
VERIFY	Used to recover files	N

SECTION 2 - GETTING DMS READY TO RUN ON YOUR MACHINE

2.6 INTRODUCTION TO WORKED EXAMPLE

This section should take a maximum of one hour, and will give you a good grasp of the following parts of DMS:

Creating a DMS master file, and adding a few records.

Re-creating a DMS file from a backup file supplied on the distribution disk.

Defining a selection criteria and using it to print a standard sorted report.

Drawing your own screen layout, creating and updating a few records.

Defining a simple processing file and using it to adjust salaries.

Laying out, and printing a user defined report.

You will need:

The DMS MASTER PROGRAM disk you created.

A formatted disk for floppy users.

The back-up copy of the second (or if you had three, the third) DMS distribution disk.

A printer.

Between one and three hours of un-interrupted computer time.

Creating your DMS file

For floppy users, put the MASTER PROGRAM disk in drive A and your formatted flopy in drive B.

Type in DMS.

From the main menu select the CREATE option, and follow the instructions. The prompts are in CAPITAL letters, and the replies in lower case. The prompts are not intended to be exactly the same as they appear on the screen and at various times you will be requested to perform a number of steps by yourself. This should mean that you will have to think a bit, and therefore get a better understanding of what DMS is about.

SECTION 2 - GETTING DMS READY TO RUN ON YOUR MACHINE

File creation

Access CREATE from the main menu.

Type in the following responses to the screen prompts. The gist of the prompts appear on the left in upper case, and the replies on the right in upper and lower case.

```
ENTER DATE      21JAN82
DO YOU WANT TO BASE THIS FILE ON A PREVIOUS FILE DEFINITION   N
ENTER DRIVE ON WHICH DATA FILE IS TO BE CREATED  B
ENTER THE NEW FILE NAME    CLIENTS
ENTER A DESCRIPTION OF THE FILE     Personnel records
```

At this point we have told DMS we are going to create a file that the computer will call CLIENTS and we know as Personnel records.
We are now going to fill in the details about the type of information we wish to store on this file.

```
ENTER THE HEADING FOR FIELD NUMBER 1        NAME
ENTER THE FIELD TYPE  C
ENTER THE FIELD LENGTH   30
```

You have now described the heading, type and length for field 1.
Now input the following field information, remember that we are not entering actual data, but only the description of the data.

ADDRESS1	C	30	
ADDRESS2	C	30	
ADDRESS3	C	30	
DEPARTMENT	C	15	
QUALIFICATIONS	C	40	
EXPERIENCE	C	80	
PENSION SCHEME	C	1	
SALARY	N	10	2
BONUS	N	10	2
JOINING DATE	D		

After each entry you should have confirmed it, and then pressed the space bar after being shown the file definition.

Instead of entering the heading for field number 12, simply type in *END and press return and then the space bar.

Having reviewd the options press P to print the file definition, and after it has been printed press F to format the file on disk.

```
DO YOU WANT TO CHANGE THE DISK IN DRIVE B Y/N   N
ENTER THE REQUIRED NUMBER OF RECORDS   100
```

The file will now be formatted on the disk.

Press E to return to the menu.

SECTION 2 - GETTING DMS READY TO RUN ON YOUR MACHINE

The next thing to do is to add some records to the file. Access the key option.

DO YOU WANT TRANSACTION LOGGING ON THE PRINTER Y/N N

DMS will now display the file definition, press the space bar.

Four options will be shown, press C.

You can now start to key in information. DMS is asking you to supply a name, type in JONES AND CO, reply Y to the question about creating the record.

You can invent the information about the address, department etc.
When you have entered all the information write the record to the file.
Try creating a couple more records, and then call back JONES AND CO by typing this name again. Try doing some changes to this record.

Remember that when you are calling a record back by its key field, the name you type must be exactly the same as you typed before.

This is the standard update routine in DMS, it requires little thought in the design of screen layouts etc. Later on you will see how to layout one or more screens for a file, display only certain fields and attach some processing to your input.

Exit to the main menu by selecting the E option.

The next exercise will be to use an existing file supplied on your distribution diskette.

The file is held as a DMS backup file, and to generate it you will have to use the restore part of the backup program

Make sure that you have your DMS program disk on drive A, select the backup option from the main menu.

Select option R because we are going to restore a file.

Remove the MASTER PROGRAM disk from drive A, and insert disk 2 or 3 of the copied distribution disks.

Press the space bar.

```
ENTER DRIVE FROM WHICH INPUT IS TO COME   A
ENTER NAME OF FILE   PEOPLE
ENTER DRIVE ON WHICH DATA FILE IS TO BE RESTORED   B
```

20 records will be copied to the output on B.

SECTION 2 - GETTING DMS READY TO RUN ON YOUR MACHINE

You will now have three files called PEOPLE.DAT, PEOPLE.INX and PEOPLE.DEF all on B. Together these make up a DMS data file.

There will be another file on your distribution disk called PEOPLE.TRM, PIP this across to drive B as well.

We will now go on to using this file for some further examples, it contains 20 records so we will be able to do some sorting and printing.

Put the DMS MASTER PROGRAM in drive A, and get into DMS main menu.

Select option D for the sort, supply the date and select the file called PEOPLE. N.B. There is no need to type the .DAT.

We will now sort the people file into name within department order. i.e. All the first dept. with all its members in name order, followed by all the second dept with all its members in order, etc.

Here is a print of the file definition for this file:

```
DMS FILE NAME PEOPLE  File Title = Personnel records.....

Created 30/NOV/81   Last accessed 22/JAN/82  Records used = 20
Number of fields = 13  Record length = 344   Maximum records = 20

Field name        No.  Type  Length  Field name       No.  Type Length

NAME              1      C    30     ADDRESS1         2      C   30
ADDRESS2          3      C    30     ADDRESS3         4      C   30
CONTACT NAME      5      C    30     SALUTATION       6      C   30
DEPARTMENT        7      C    15     QUALIFICATIONS   8      C   40
EXPERIENCE        9      C    80     PENSION SCHEME   10     C   1
SALARY            11     N.2  10     BONUS            12     N.2 10
JOINING DATE      13     D    7
```

Now make the following replies on the screen:

```
DO YOU WANT TO USE A PREVIOUSLY DEFINED RECORD SELECTION   N
ENTER THE FIELD FOR KEY 1 OR *END    D
```

You will see that it is not necessary to input the whole field name, in fact there are four ways of inputting the field you require, by full name, by part name, by field number, or just keep pressing return until DMS shows you the one you want.

```
SUPPLY THE START POSITION IN THE FIELD  1
SUPPLY THE NUMBER OF CHARACTERS  6
ENTER THE FIELD FOR KEY 2   N
SUPPLY THE START POSITION IN THE FIELD  1
SUPPLY THE NUMBER OF CHARACTERS   15
ENTER THE KEY FOR FIELD 3   *END
```

SECTION 2 - GETTING DMS READY TO RUN ON YOUR MACHINE

It's OK to carry on, use whichever drive you want as the work disk.

Press the space bar, and when the sort has finished, call the sort file SORT1.

Return to the main menu.

Select the report option H, and then select option A.

Look at the file definition, note there are 20 records on the file.

We will now use the standard DMS report writer to print out details of all the records. We won't print all the fields in each record, just the following: Dept, name, join date, salary and we will request the total salary to be printed. Press the space bar.

Select option A.

```
DO YOU WANT TO USE A PREVIOUSLY SORTED DMS FILE  Y
PLEASE SUPPLY THE FILE NAME    SORT1
OK TO CARRY ON    Y
DO YOU WANT TO USE A PREVIOUSLY RECORD SELECTION    N
ENTER THE NUMBER OF BLANK LINES.....      0
ARE TOTALS OF ALL NUMERIC FIELDS REQUIRED  Y
CHANGE PAGE ON PART FIELD      N
DO YOU WISH TO SELECT INDIVIDUAL FIELDS FOR PRINTING    Y
```

Now select fields 7, 1, 13 and 11

Type *END, check your selections and type Y or N

You can then print the fields you selected.

Follow the instructions for printing the report.

User defined reports

We will now print out a similar report using the user defined report writer.

Get to the main menu, select option H and then option B

Press the space bar, and then answer the following questions:

```
DO YOU WANT TO USE A PREVIOUSLY DEFINED REPORT    N
DO YOU WISH TO SET UP HEADING INFORMATION FOR THIS REPORT    Y
INPUT THE HEADING    Salary printout
DO YOU WANT THE TITLE IN EXPANDED PRINT   N
DO YOU WANT THE TITLE CENTRALISED ON THE PAGE    Y
DO YOU WANT THE PAGES NUMBERED    Y
DO YOU WANT THE REPORT DATED    Y
```

SECTION 2 - GETTING DMS READY TO RUN ON YOUR MACHINE

Now you will see a line of markers on the screen. These can be used as a ruler when you set up sub-headings. If you look at the report we just printed you will see that DMS generated a sub-heading between two lots of dotted lines, now you will set these up for yourself. (if you don't want any, just press return)

However for our example put the following in columns 1, 40, 60

NAME SALARY DEPARTMENT

Press return, and press return again to ignore the second line of headings.

Now we are going to tell DMS which fields we need to print, press the space bar twice after reading the messages.

```
FIELD 1   1
DOWNWARD POSITION   0
START POSITION   1
NUMBER OF CHARACTERS   30
CONFIRM then space bar twice.

FIELD 2 11
DOWNWARD POSITION   0
START POSITION   40
NO. CHARACTERS   10
NUMBER OF DECIMAL PLACES   2
PRINT LEADING POUND SIGN   Y
ACCUMULATE TOTAL   Y
CONFIRM then space bar twice.

FIELD 3   7
DOWNWARD POSITION   60
START POSITION   60
NO. CHARACTERS   15
CONFIRM and press the space bar twice.

FIELD 4   *END
```

WE now go on to tell DMS about the various totals we require:

```
DO YOU WISH TO AMEND THE REPORT   N
DO YOU WANT SUBTOTALS   Y
DO YOU REQUIRE LEVEL 1 TOTAL BREAKS   Y
ENTER REPORT FIELD NUMBER FOR LEVEL 1   3
DO YOU REQUIRE LEVEL 2 TOTAL BREAKS   N
DO YOU WANT TO SAVE THIS ON DISK   Y
SUPPLY THE REPORT NAME   REPORT 1
```

We have now defined the whole of the report, so return to the menu.

Now re-access report (H) but this time use sub-option C which will print the tailored report. (* we will come back to this).

SECTION 2 - GETTING DMS READY TO RUN ON YOUR MACHINE

Get to where you are asked for the report file name and enter REPORT 1 (this is the report layout you just created)

Use sorted file SORT 1 (this is the sort file we created earlier).

```
DO YOU WANT TO USE A PREVIOUSLY DEFINED RECORD SELECTION   N
NEW PAGE ON CONTROL BREAK 1   N
DO YOU REQUIRE SUBTOTALS ONLY   N   (** we will refer to this later)
DO YOU WANT TO PRINT THIS REPORT   Y
```

After the report has printed start again from the * and reply Y to the ** question.

Note the difference between the two reports.

SELECTION

We will now define a selection to select all employees in the sales department plus any employee with earnings more than 10000 pounds.

Make sure you are at the main menu and use option E (SELECT).

Press the space bar.

```
DO YOU WANT A PREVIOUSLY DEFINED SELECTION   N
SUPPLY THE FIELD FOR SELECTION 1   D
CONFIRM THE FIELD IS DEPARTMENT   Y
DO YOU WANT TO USE THE WHOLE FIELD OR A POSITION WITHIN IT W
ENTER AN OPERATOR   EQ
DO YOU WANT TO COMPARE AGAINST A CONSTANT OR ANOTHER FIELD   C
DO YOU WISH TO SUPPLY THE CONSTANT AT RUN TIME   N
ENTER A CONSTANT   Sales
DO YOU WANT TO SEE IF THE CONSTANT OCCURS ANYWHERE WITHIN THE
FIELD   Y
CONFIRM
```

The above specifies that we wish to select all the people in the sales dept.

We will now supply a search criteria on salary, we will look for people with a range of salaries. The actual range is to be provided by the operator at run time, and we will provide a promt of 'salary range'.

```
SUPPLY THE FIELD FOR SELECTION 2   S
PLEASE CONFIRM THAT THE FIELD IS SALUTATION   N
PLEASE CONFIRM THAT THE FIELD IS SALARY   Y
ENTER AN OPERATOR   RN   (THIS IS THE RANGE SEARCH)
DO YOU WISH TO ENTER THE CONSTANTS AT RUN TIME   Y
PLEASE SUPPLY A PROMPT (30 CHARACTERS MAX)   salary range
CONFIRM
SUPPLY THE FIELD FOR SELECTION 3   *END

SUPPLY THE CONNECTOR BETWEEN SELECTIONS 1 AND 2   O
```

Press the space bar, and call the file SALARY.

Return to the main menu.

Processing

Select the process option K.

DO YOU WISH TO USE AN EXISTING PROCESS FILE N

Read the instuctions, and press the space bar.

ENTER PROCESSING INSTRUCTION NUMBER 1 SALARY=SALARY*1.1
ENTER PROCESSING INSTRUCTION NUMBER 2 *END
DO YOU WANT TO AMEND THE PROCESSING INSTRUCTIONS N
DO YOU WANT TO SAVE THE PROCESSING INSTRUCTIONS ON DISK Y
SUPPLY A PROCESS FILE NAME SALARY1

Return to the main menu.

****

Note than in defining the selection and process parameters, we haven't done anything other than store them away for future use.

****

As a last example we will use the selection and process parameter files to increase the salaries of all people in sales, or have salaries between 10000 and 16000 pounds by,10%.

Select the process option, and then option B

SUPPLY THE PROCESS FILE SALARY1

Select the print optin as C

DO YOU WISH TO USE A PREVIOUSLY DEFINED SELECTION FILE Y
SUPPLY THE FILE NAME SALARY

You will now be asked for the upper and lower limits for the salary range, remember that this was one of the criteria we specified when we defined this set of selection parameters.
Select 10000 as the lower, and 16000 as the upper limit.

DO YOU WISH TO VIEW RECORDS BEFORE PROCESSING Y

The selected record will be displayed, and, if you choose, processed.

SECTION 2 - GETTING DMS READY TO RUN ON YOUR MACHINE

The final part of the example is to use a specially designed screen layout to update the PEOPLE file.

Get back to the main menu, and select the mask option.

We will now use a mask file called PEOPLE.TRM. This was copied to drive B a few paragraphs ago. This screen will allow us to update or create records on the PEOPLE file.

To use it follow the instructions in section 8. When you get to the part where screen layout is displayed, and you are asked for a key field, type in Black Miranda. Try changing information as shown in section 8, and then try creating a new record with a key of Arthur James.

Don't forget the ESCAPE key for help messages.

This is the end of the formal training, but it may well be a good idea to carry on with some of your own ideas.
You should now have enough of an idea of how DMS works to be able to set up your first job.

SECTION 3 - MASTER FILE CREATION.

3.1 Before you can store information via DMS you need to tell DMS what kind of information you need it to store.

You will need to tell DMS the following information.

The name that you wish DMS to call the collection of information that you are about to enter. This corresponds to the name you would write on the front of a card tray or filing cabinet, and is used by the computer to remember where it has put all your information. Examples are 'Stock', 'People', 'Sales' etc.

You need to decide how you are going to break up the information into 'fields'. e.g. Name, address 1, address 2, county, age, salary etc. etc.
You then tell DMS the name of each bit of information you are going to store, you may have upto 60 fields, and each field may have a description of upto 15 characters.

What kind of information each field can contain. In DMS there are three types:

Date fields can contain dates in the form 27JAN82.
Character fields can contain anything, and be 80 characters long.
Numeric fields can only contain numbers, and can be used with the various arithmetic functions. They can contain upto 14 numbers with 4 decimal places.

The first field on your file definition (see appendix 5 for examples of file definitions) is most important. This is the field that DMS will use to reference each record as it is stored away on the disk, and is the field you will have to fill in in order to retrieve a given record. Examples of key fields would be stock number, personnel number, company name, car registration etc.

The way DMS works is as follows.

You tell DMS about your file in the way described above.
You specify how many records you think you want to store.
DMS uses the number of records and the length of the records to work out the length of the file.
You then tell DMS which disk drive you want your file stored on, and DMS will try and allocate enough space on the disk.

SECTION 3 - MASTER FILE CREATION.

If there is not enough space on the disk, two things can happen:

If there is not enough room for more than 100 records then DMS will not try to create the file.

If there is room for more than 100 records, but not enough for the whole file, then DMS will tell you how many records you can save. You can then create a file with this number of records, or, much better, as you don't want to fill the disk at this point, tell DMS to start again with fewer records.

Before creating a file, make sure that you have the DMS MASTER PROGRAM disk on drive A and a formatted disk in drive B.

User Instructions.

3.2 Access 'CREATE' by selecting option 'B' from the menu.

DMS will respond with the message 'Loading programme, please wait.', followed shortly by a request for the date.

DMS then asks if you wish to use a previous file definition. If this is your first file then answer 'N' here. (If you have already created a DMS file then you can recall the file definition from disc, and use it as a basis for a new file.) Enter information, as prompted, to tell DMS which drive holds the data file (B in most floppy systems).

A file name of up to 8 characters is then required. As several files may be held on one disc, make a note of the file name as this will be used to recall the file for other purposes.
e.g. CARS, Person, Patient.

The file title can be a longer version of the file name (up to thirty characters), and is used to head printouts etc.
e.g. Car Sales Information.

DMS is now asking what information needs to be held on this file.

At this stage we are producing the headings, or field names; on an old manual system this would be the printed, standard line headings on an index card. Later on we will fill these records in with appropriate information.

SECTION 3 - MASTER FILE CREATION.

You can store up to sixty fields and up to one thousand characters of information per record. Typical examples are as follows.

3.3

Personnel Records	Stock files	Job Costings
Name	Stock No.	Job No.
Dept	Name	Client
Address 1	Description	Steel
Address 2	Location	Wood
Address 3	In Stock	Iron
Salary	On Order	Man hours
Commission	Min Stock	Rate
Bonus	Cost price	Overtime rate
Total	Selling price	Total
Co. Car	Price plus VAT	Date required
Renewal Date	Profit	Price Quoted
Mileage	Supplier	Accepted
Joining Date	Address 1	Start date
Qualifications	Address 2	etc., etc..
etc., etc..	Address 3	
	Discount	
	etc., etc..	

3.4 DEFINING THE KEY FIELD At this point it is important to ensure that the most regular means of accessing a record is in the first field, and that the information stored there will be unique.

> For example, a person's name, a job number or a stock number is unlikely to be duplicated, and is therefore a good 'key field', or first field. In our example, in the car file, the registration number is ideal because it is unique.

3.5 DEFINING OTHER FIELDS We can now decide on whether the information in each field should be character (alpha), numeric (for calculations), or date. These may be selected by pressing 'C', 'N', or 'D'. Note that the first field cannot be of type 'N'.

If 'C' or 'N' (character or numeric) are chosen then the maximum field length can be specified. For numerics the maximum is 14 characters, including the sign and the decimal point. For character fields the maximum length is 80 characters. It is advisable to think of the longest possible entry here, and allow for it. Although changes can be made later, it is easier to think in advance now.

You should select 'N' if you think you are ever going to do any arithmetic on this field.

On the numeric option, allow for decimal points, decimal places, and plus or minus signs, and include these in the field length allowed. If a numeric field handles prices, money etc.,then always opt for two decimal places.

A date entry requires no further information than it be genuine date, as this is automatically validated.

SECTION 3 - MASTER FILE CREATION.

As each field heading is typed in and checked, press 'Y'. If the field is not correct then hit 'N', and enter the field again.

Having chosen the first (key) field the other headings can be entered in any order - whatever suits you.

3.6 User hints, read before you create your file

1. Remember that DMS can retrieve information on parts of fields. There is no need to allocate a separate field for each bit of information. The only exception to this rule is when you wish to print out fields, it is not possible to print one field on more than 1 line.
   Therefore a string of qualifications could all be put in one field, but an address should be put in three or more fields.

2. Character fields can hold any information you like, eg 27 High Street.

3. Store things like phone numbers in character fields.

4. You may need to include extra fields in your file definition to hold the results of calculations. For example, in a stock file you may need to calculate gross profit, inventory value etc. These would not be filled in by the operator but by a DMS processing run.

5. If you are going to pass information to a word processor, the remember you will need a 'salutation field'. You may wish the letter to say 'Dear John,' but the envelope to be addressed to Mr. J. Smith.

6. Consider using things like address, phone number for the key field.

7. If you are going to lay out your own screens, and you are going to allocate a border round the screen, remember that any character fields you define as 80 characters will overlap the border. You could restrict the field to 78 to overcome this.

8. If the file must be split into two or more identical parts (for instance because of limited disc space) the first file can be created, and then that file definition recalled, and used to create the second, and subsequent files.

9. If extra fields need to be added to an existing file containing data, then recall the original file definition and amend it, create the new file, and use 'LINK' and 'COPY' to transfer data to the new file.

3.7 After the last field.

Having set up the file to contain the relevant information for your needs, at the next prompt of 'Enter the heading...' type '*END'.

SECTION 3 - MASTER FILE CREATION.

3.8 You will now see a menu showing you various options to do with editing and saving the file definition.

1. S - Display the file definition as it stands.
2. E- Editthe file definition. (See below for more details.)
3. P - Print the file definition.
4. A - Abandon the file definition, and start again.
5. F - Format the file, and save the file definition (See below.)
6. X - Exit to the menu.

Editing the file definition.

Option 'E' from this menu displays a further menu, relating to the editing facilities.

From this menu extra fields can be added (option A), fields can be deleted (option D), the definition for a field can be changed 'in situ' (option R),or the order in which the data is stored can be changed (option M). In addition the file definition can be displayed, or printed.

Field positions, where requested, can be entered in one of three ways. N.B. This applies for the whole of DMS except when entering processing instructions.

Firstly by entering all, or the first few characters of, the field name. DMS will scan the file definition until it finds a field name which matches the characters supplied, and ask for confirmation. If no field matches then the message 'Invalid field name' is displayed, and the name is requested again.

Secondly, by hitting <return> when asked for a field name. DMS will present each field in turn, and request confirmation. If 'N' is entered then 'Invalid field name' is displayed, and the name is requested again.

Finally the field can be specified by number. (This is the number in the second column of the file definition.) No confirmation is requested.

3.9 Formatting the file.

Option 'F' from the menu will format the file, ready to accept data, and save the file definition on disc. DMS needs to know how many records you require. This may be as many as twenty-six thousand, or as few as one hundred, but is limited by the amount of space available on the disc. As you will also need to store sorted and selected subfiles, it is important to estimate how many of these you will require, and allow space accordingly.

SECTION 3 - MASTER FILE CREATION.

3.10 Estimating the amount of disk space required

Find out how much space you have on your disk by using the CP/M function STAT.

Calculate the amount of space DMS will need by the following formula:

Space in characters = number of characters in one record multiplied by the number of records, and add 20 percent.

Don't be tempted to push things to the limit regarding space on file or disks. Allow as much leeway as possible.

Having formatted the file, DMS will allow you to construct further files, or, by pressing 'E' to return to the main menu.

SECTION 4 - KEY ACCESS FOR CREATION/UPDATING/DELETION

4.1 Introduction

As explained in the create section the key field is the first field on the file description.

Within a DMS file each record must have its own unique key, and this key can then be used for rapid access to that individual record within the file.

It is important that the distinction between accessing a record by the key, as distinct from any other field or combinations of fields within the record, should be understood.

A good example is a personnel file where the obvious key is the employee's name, but for a large proportion of the time you will be searching the file by salary, date of birth etc.

So the fastest way of accessing, updating or printing a record is to supply DMS with the contents of the key field (e.g. the persons name) for the record that you want.

There are three ways to access a DMS file by a key field, KEY, MASK and BROWSE. See appendix 5 for more information on these programs.

Basically KEY allows creation, editing and deletion of records by the key field. KEY uses an easy to follow question and answer session to allow you to use these function with the minimum of effort.

KEY will use a standard screen and printer layout.

4.2 User Information

Use option C from the main menu. If asked, supply the date and the name of the file you are working on.

4.3 The first question you will be asked is:

"Do you want transaction logging Y/N"

If you answer Y to this, then all record changes, creations and deletions, that you do during this run, will be noted on the printer. It is a good idea to select Y for all your runs, as this provides a useful record of all the changes done on a file.

DMS will now display the file definition. Check that the record count and the file update date are correct.

Press the space bar.

SECTION 4 - KEY ACCESS FOR CREATION/UPDATING/DELETION

4.4 The next option offers four alternatives:

C: To continue,get the next record.

D: To display the file description ie. the field headings.

R: To restart the programme.

E: To go back to the menu.

Press the C key.

We are now asked to put the information into our first field (key field) and DMS prompts you as to what this should be. There are three possible actions at this point, firstly we could press the escape key to return to the previous menu, secondly supply the key for a record that is on the file and, lastly supply a key for a new record. As soon as you input the key field, DMS will check to see if there is any mention of this record on the file.

Let's assume we are creating a record.

4.5 Record creation

The first message, having input a new key, will be 'Do you want to create a record', reply Y.

DMS will now ask, field by field, for information about this record.

Now we continue through the record, filling in the relevant information for each field.

4.6 Special functions for data entry
There are two special functions that can be used while creating new records.

The first of these is when you are inputting records where one or more fields are the same from record to record. If, instead of inputting data into a field, you press the control key and the D at the same time. DMS will fill in the field with the same information that you supplied to the previous record.

The second function can be used when you are in the middle of creating a record and you have typed some incorrect information into some of the earlier fields. If this happens, you can press the escape key, (this may be control plus the "[" key on some machines), and DMS will allow you to start inputting again at field 2 of the current record.

Date fields can be filled in automatically by pressing "C" when asked to supply information for a date. This inserts the current date that you typed in when starting to use the program.

Where there is no data for a field, you can press the return key. Character fields will be filled with blanks, numeric with zeroes, and dates with a 'null' date.
A null date is the smallest date DMS can use, e.g. less than 01JAN01.

SECTION 4 - KEY ACCESS FOR CREATION/UPDATING/DELETION

4.7 Updating or deleting a record

To amend a record using KEY, where you get the message:

Please supply a record key, or <escape>... etc.

Type in the key of the record you wish to amend. Upper or lower case use must correspond exactly with the upper and lower case used when you entered the record.Keep the number and pattern of any spaces used constant too.

DMS will now display the record. Any record on file can be accessed with this rapid search time using this method. Press the space bar to see what can be done with the record at this point.

The following options are available:

C - Continue, get the next record.

A - Amend a field in the current record.

S - Store the amended record on file.

P - Print the current record.

D - Delete the current record.

(Note that when you have changed a record the S option will show in reverse video)

These options are self-explanatory, but the amend option needs further clarification.

As explained, there are three basic types of field, that is character, numeric and date.

For character and date fields you may replace the information that is in the record with new information of the same kind.With numeric fields you have a number of other options, you can add, divide, multiply, subtract, replace and zeroise.

Having selected the amend option, you will be shown the file definition and asked to enter the field name you wish to amend. You may enter the whole field name, the first few characters or the field number.

Enter the field you wish to change, and you will be shown the update options that are available for the type of field you have selected.

After the update you will be shown the record on the screen. Pressing the space bar gives you the option to amend another field. If you have finished all the amendments then reply *END.

You will then be returned to the above option. On screens with enhance modes, you will notice that the 'S - store the amended record on file' is in enhanced mode. This will remind you to save the record.

If you don't want to update the record then select option C.

In this way you can go through the file amending information record by record. However there are many times when this method of updating your file would be very time consuming.

For a faster method see section 9 - Arithmetic and character processing.

SECTION 5 - SELECTION CRITERIA

5.1 Introduction

There are two methods of getting at records on a DMS file, the first of these, by key, we have discussed under DMS file creation. The second method is searching the whole of a DMS file record by record, searching for some information that may be contained in one or more of the fields.

For example you may have a personnel file where the key field is name, and normally you would select a record by the name of the person you wish to look at.

However, imagine that you want to search the file for all the people who will be 21 in the current month. You could obviously search the file name by name, keying in each name one by one, and check if they are 21, but this would be very time consuming.

Which brings us to the selection function where you are saying to DMS, start at the beginning of the file, look at each record in turn to see if it contains the information you are looking for, and, if it does, then print it, display it, or transfer it to another file.

The prime point to remember is that, having set DMS going, you can go away and leave it to get on with the job in hand.

DMS allows upto eight selection criteria on one pass of the file, each selection criteria may be joined using AND and/or OR.

5.2 Technical details in selection

The selection routine evaluates the selection criteria in the following way:

1. Each selection criteria is allocated a number i.e. 1-8.
2. Each selection pair (i.e. 1&2, 3&4 etc.) is joined with an AND or an OR.
3. Each pair is then evaluated, and given a true/not true indicator.
4. This gives a maximum of four true/not true answers, one answer per pair.
5. These pairs (i.e.(1&2)&(3&4),(5&6)&(7&8)) are then joined with an AND or an OR and evaluated.
6. This gives a final pair of true/not true answers that in turn may be ANDed or ORed, giving it a final true/not true answer.

The record is then selected if the final answer is true.

The use of AND and OR in computers is much the same as in ordinary language, but becomes a bit more difficult where there are multiple questions. For example consider this selection from a mailing list of magazine customers.

SECTION 5 - SELECTION CRITERIA

Select the following: Customers on rate 3 who live in France and speak English, or all French customers who live in the UK and are on rate 3 or rate 5. This would be represented by the following diagramm:

```
1 rate = 3
     AND
2 lives in France
                    AND
3 speaks English
     AND
4 rate = rate

                                   OR

5 nat. French
     AND
6 lives in UK
                    AND
7 Rate = 3
     OR
8 Rate = 5
```

N.B Selection 4 will be true for each selection, it is there to 'balance' the selection so that selection 3 can be evaluated with the result of selections 1 and 2.

DMS will first evaluate the answers to the pairs of questions on the left of the page, giving a true/not true answer. It will then take these answers and apply the final selection on the right.

An answer can be true/not true, and selections work as follows:

true	AND	true	= true
not true	AND	true	= not true
true	AND	not true	= not true
not true	AND	not true	= not true
true	OR	true	= true
not true	OR	true	= true
true	OR	not true	= true
not true	OR	not true	= not true

It's a good idea, when first working out selections, to try them out on a piece of paper.

The individual selections can take a number of forms, e.g. select a number within a certain range, search a character field for a given set of characters etc. Full details of the various selections are given below.

Having decided on a given set of selections, you can ask DMS to save them on a disk for later usage.

SECTION 5 - SELECTION CRITERIA

5.3 How to use selection

Choose the SELECT option. This allows you to set up and store the required selections on disk.

When you want to use the report, screen display, sort, process, label or link options you will be asked if you want to use a previously defined selection criteria.

So, the sequence of operations is to define your various selections BEFORE actually using them on the data on the DMS file.

5.4 Selection Facilities on Multiple Parameters

You can specify upto 8 selections at one time. These selections can be on different fields, the same field, specified parts of fields or involve a search through a field for a given bit of information somewhere in a field.

Comparisons may be made against two fields within the same record (e.g. is STOCK less than minimum stock), or against a constant supplied either at the time the selection is set up, or at the time the selection file is used.

Depending on the type of field you are using, you will have different options available.

5.5 Character information

DMS can match up information that occurs anywhere in the field.

A good example of this is where there are a number of codes, e.g. job codes, to be stored in one field. Because they can be stored in any order in the field you will not know which part of the field to search on for a given code; therefore you ask DMS to search the whole of the field for a given code.

Having asked for the SELECT option on the main menu, and selected a character field, the first message will be:

Do you want to use the whole or the position in the field?

> Answer "W" for whole, this allows either an exact match on this field or a search for a given code anywhere on the field.
>
> Answer "P" when you know the exact position within a field that the information you require to match on has been stored.

SECTION 5 - SELECTION CRITERIA

Whether you selected P or W on the last option you will then have the following comparison available: to find records where information is:

EQ Equal to

NE Not equal to

RN In a range of

If EQ or NE are selected the next option allows you to compare against a constant, which you supply, or against information contained in another field ("C" or "F").

A constant is something that you supply, and will remain the same for the whole time you use a given selection. On the other hand the contents of a field can vary from record to record.

Quite often you will wish a constant to change every time you use the selection. DMS will allow you to input a message that will prompt the operator at the time of running the selection.

The RN option is more complex, but basically requires that you type in the two constants that you want searched between, e.g. all records between A and E, or between 678 and 8967 etc.,etc. You simply enter constants, as prompted, for the lower and upper ends of your search parameters.
The last question you are asked is if you want to see if the constant occurs anywhere in the line.

This option allows you to specify sliding string or window searching.

Imagine you have a file with cars in it, and one of the fields contains accessories. You want a print of all cars that have a tow bar, however some cars have a description such as 'Sunshine roof, radio, tow bar, clock' while another one has 'Leather seats, tow bar, radio'.
To select cars with 'tow bar', you will have to tell DMS to search for tow bar anywhere in the field.

When using EQ or NE you must be aware that, in DMS, blanks are the same as other characters. For example, 'FRED ' (FRED followed by two blanks) is never equal to 'FRED'. If you wish to carry out this type of comparison then either use the partial field operators, or include the blanks in your constants.

5.6 Numeric Fields

All that has been said about character fields applies to numeric fields, with the exception that you can't specify individual parts of a numeric field.

SECTION 5 - SELECTION CRITERIA

More options are available for numeric fields.

EQ Equal to

NE Not equal to

GT Greater than

LT Less than

GE Greater than or equal to

LE Less than or equal to

RN In a range of

Once again you may compare with a constant or another field ("C" or "F").

5.7 Date Searching

You can opt to search either on whole dates or parts of dates, e.g. any information in 81 or in March etc. If you want to find information relating to Mar81 simply ask for two selections on that particular field.

Using the RN (range searching) you can search for information between two particular dates, e.g. cars manufactured between April 79 and March 80.

5.8 Combining Search Criteria

There are many occasions where you will wish to combine more than one search criteria, for example, select all cars where the registration number ends in an M and are estate cars.

You may join the selections together with A for and, or O for or, evaluation takes place in the following order:

1. (1&2),(3&4),(5&6),(7&8).
2. Result of (1&2, 3&4), result of (5&6, 7&8).
3. The result of the two answers above.

Selection can become quite complicated, and can have upto eight selections per search of the file.

5.9 Using null fields for selections

Null fields are created during record creation by pressing the the return key instead of putting in any information.

Null character fields are blank, null numeric fields are zero, and null date fields are set to a low date.

When selecting on null character fields you must use the partial field operator, e.g. if you wish to check if an 80 character field is blank, then just check the first few positions for spaces.

If selecting a null date field, press return when asked to supply the constant. e.g. selecting all dates where they are not equal to a null field is perfectly valid.

SECTION 6 - REPORTING

6.1 Introduction

We have seen that it is possible to obtain a print of a single record that has been selected by key, however it is most often required to print the whole, or selected parts, of a file without having to choose each record by its key.

There are basically two types of printing in DMS. There is the printing that tells you what has happened (e.g. transaction logging in the key update section), and there is the type of printing that, for example, prints out all invoices that have been outstanding for more than 30 days.

This section deals with the latter type, for examples of the former see process, select, key or copy.

There are four criteria that need to be considered when requesting a printout from a DMS file, these are:

1. Which records.
2. Which fields to print in each record.
3. Which order to print the information in.
4. What format to print in.

All the DMS reports allow you to use the selection feature and sorted files. They also allow you to select which fields from a record you want printed.

There are four types of report, two standard, one user definable and the letter writer.

6.2 Standard Reports

6.2.1 Type A

This is the classic computer type printout that produces tabular reports. Fields from each record are printed across the page with headings at the top enclosed in two dotted lines.

You may supply a date and a title. Page breaks and numbers are generated automatically.

You can request totals, and page changes on the contents of a particular field.

Field headings are used from the file definition. If a heading is longer than the contents of the field, then the heading will be truncated.

If the length of a printed line is longer than the width of the paper, DMS will automatically move the heading and the contents to the next line.

This is a quick way of getting neat and compact reports from a DMS file.

6.2.2 Type B

This differs from print 1 in that the information is printed down the page with the field headings to the left of the line.

It is of particular use where someone is to write comments alongside the information that has been printed.

Both Type A and Type B can generate totals of numeric fields.

6.3 User Defined Reports

Where one of the standard report layouts is not suitable for a particular printout, you can define your own layout.

This is a very powerful report generator and allows you to mix fields, constants and numeric totals anywhere on a page of printout.

The first step in creating your own report is to sit down with a bit of paper, and layout how you want the information to be displayed on the page.

You may freely mix information from fields on the DMS file in any order (including the same field more than once) along with text and numbers input by youself.

DMS will divide the page into rows and columns according to the numbers that you input into the configuration section for page width and length. You can tell DMS, which row and column you require each piece of information to be printed on.

You may supply a title, that will appear on the top of each page, and a heading that will be included in two lines of *"s, under the title, at the top of each page.

You may select totals to be printed at upto three control breaks.

A control break is when the contents of a printed field changes, and you require a total of a numeric field for all the previous lines where the information in them was the same.

For control breaks to work, the printout must be sorted into the correct order.

For example, assume you were printing a personnel file that had been sorted into the following order:

1. Location
2. Department
3. Section

The information you are printing is salaries, and you want a total of the salaries for each of the above.

If you make location equal control break 1, department control break 2 and section control break 3, then every time one of these fields changes you will get a total of salaries for that section, department or location.

You will also get a total of salaries for the whole printout.

If you only want to print one record per page, a good hint is to print a constant on the last line of the page; this will force DMS to go to the next page for the next record. The constant can, of course, be a blank if needed.

6.4 Label

There is one final type of print, and that is a user defined label format.

Because people use lots of different types of label stationery, DMS allows you to tell it how you wish to format your own printout.

You may print upto five labels across the page, each label can be unique as in normal mailing runs, or you can print the same label upto 50 times.

If your printer has an expanded print capability you can use this, along with the multiple label option, to create labels for stock containers etc.

User Instructions

6.5 Reports

You will be given the following three options:

Press A to print standard DMS report.

Press B to set up tailored reports.

Press C to print tailored reports.

6.6 Option A

This allows report printing where the layout of the information on the page is worked out by the computer, making it easy to obtain printouts in the simplest manner possible.

There are two types of standard reports available:

Type A - Prints with the field headings across the top of the page, and the information in columns beneath.

Type B - Prints with the headings repeated for every record, placed next to the information.

SECTION 6 - REPORTING

Once again you will be given the option to use previously created or sorted files, which are accessed via their file names.

You may tell DMS how many blank lines are to occur between the printed records (0-10), or have one record printed per page by typing in -1.

Individual fields may be selected for printing, or, you can simply have the whole record printed out. If you reply Y to the 'Select individual fields' message, you will be asked to type in the field headings for those fields which you want printed.

You are then asked whether or not you want the printout to print totals of numeric fields, and finally one more confirmation is needed before printing.

While the report is printing out, you can stop it at any time by pressing the 'S' key. Having pressed this, you are then given the option to continue printing by pressing the space bar, 'R' to restart the print or end by pressing 'E'. These same three options apply when a printout has run successfully and printed out all the records.

6.7 Option B Setting up tailored reports

This option allows you to create layouts according to your own specifications. Having defined a report layout you will then store it on disk to be used in option C, which prints user-defined reports. You may also change existing report definitions using this option.

Firstly you must say whether or not you are going to use an existing report definition. If you are setting up a completely new report definition you will reply 'N' here.

6.8 Then you have the option to set up heading information for the report. This includes options such as report title, page numbering, use of expanded print (only available on certain printers) centralised title and page numbering. Answer Y or N as appropriate.

6.9 You may also put in two lines of sub-headings which will be printed out under the report title. A ruler appears on the screen to assist you in spacing these sub-headings out. You can just hit the return key if you do not require sub headings.

6.10Now you can specify up to 60 report 'fields' - these are the 'chunks' of information that go to make up the report. Some of the information will be already contained in the DMS record, but other parts will be original, perhaps words and sentences that serve to make the report or letter more readable.

Thus these report 'fields' may be filled with actual information taken from DMS records or they may be 'string constants' - i.e. original bits of text that will be stored in the report and printed for each record. It is worth spending a little time beforehand with a piece of squared paper to work out exactly where on the page your information is going.

For each report field, you must type in the field heading to indicate which DMS field the information is to come from, (for a string constant, enter '*').

You are then required to specify where you want this information to be printed on the page. Thus information can be printed in any line down the page, starting at any position across the page, e.g. line 1, start position 1, or line 18, start position 40 etc. DMS shows where the previous field was placed for your guidance; several entries may be made on any one line, of course. Overlaps produce a warning and the entry must be re-made.

For character information you can say how many characters you want printed, and for numeric information you can specify the number of decimal places, whether you want a pounds sterling sign in front, and whether the field is to be totalled. Note that totals will be automatically placed in the same position on the page as their respective numeric report fields.

DMS fits as many records as it can onto each report page, so that if your 'lowest' report field is on line 18, and the page is 66 lines long, you would get 3 records printed on each page.

If this is not desirable, it is simply a matter of saying that you want a string constant to be printed on line 66, thus forcing DMS to print only one record per page. (This string constant can of course be a blank field).

When amending an existing report definition, you can't delete lines. However, you can accomplish the same result by changing the line to a blank constant, and specifying that it should print after the previous field.

Having defined our report fields we now have the option of printing sub-totals.

6.11 Subtotals

To do this, we must ask the program to print sub-totals when there is a difference between a particular line of a DMS record, and the same line in the next record. For example, if we were printing out a 'cars' file and we wanted sub-totals of all our Fords, Renaults etc., we would specify 'MAKE' as a sub-total field and then sort the file by 'MAKE' so that all the Fords would be printed in one group, and then after the last Ford we would get a sub-total and then continue with the next make of car.

As well as these fairly straightforward (level 1) sub-totals, we can have another two levels, so that if we made our level 2 report field 'COLOUR', and then sorted by colour within each make before printing, we could obtain sub-totals for all white Fords, all red Fords, all white Renaults etc.,etc. The important thing is to remember to sort the data file into the correct order before using the sub-total facility.

SECTION 6 - REPORTING

Having defined our complete report, we can change what we've done so far, or carry on and save our definition on disk, giving it a meaningful file name for later use.

Note that when changing a report definition you can only amend existing report fields, and no further report fields can be added.

Having defined your report layout, return to the main menu.

6.12 Option C Printing the tailored reports.

This option allows you to print reports according to layouts that have been set up using option B. You must tell DMS the report definition file name, and if you want to sort and/or select you must supply the sort/select file names.

If you are printing a report with totals at various control breaks, you can request a summary only report. i.e. only the total lines print, not the individual records that make up the totals.

A final confirmation is required before the report begins to print, and whilst printing, you can use the 'S' key to stop the print as in option A.

Notice that in the case of any numeric report fields where the value to be printed is greater than will fit into the field length, a '!' will be printed to indicate that overflow has occured.

6.13 Labels

Sticky labels can be printed with information from DMS files e.g. names and addresses. You may use sorted files and selected files to produce labels: in which case supply the appropriate file names as requested.

Up to 5 labels across may be printed, and a label may be printed up to 50 times over. Expanded print is also available if your printer has this facility. DMS matches the information onto virtually any label stationery by asking such information as how many characters need to be allowed for in each line.

What is the maximum width of a line on a label.

DMS works out automatically what the maximum number of characters across are, having taken into account the number of labels across, and shows this figure for your guidance. It also needs to know what position the first label needs to be started at, and having typed this in (normally 1-5 depending on your label stationery), it will guide you as to start positions for subsequent labels across the page. There is nothing like trial and error for matching up your labels.

SECTION 6 - REPORTING

Having followed through the question and answer routine that matches the information to your labels, DMS then asks what fields you want printed on the labels.

Fields can be taken from anywhere in the record, and the order of occurance may be changed. Lines may be left blank by inserting * instead of a field name. The program then asks you to type in the headings of the fields you want to use.

Up to three fields may be printed on each line of the label. They will be printed one space apart with all trailing blanks removed.

Having told DMS what information you want transferred to labels, you will be offered the option of a test print. If this fits onto your labels, press the space bar to proceed, otherwise start again.

DMS then prints the labels. If for any reason, (e.g. labels not running through smoothly,) you want to stop the print type in 'S' to suspend/abort/restart.

The label program allows you to store a label format for later or repeated use.

6.4 The letter writer

This is the part of DMS that you can use to write standard letters to customers etc. Each letter can consist of text and information from the DMS file, intermingled in any way you wish.

The most common way of using the letter writer is to include names and addresses on what is otherwise a standard letter e.g.

James & Co.
27 High Street,
Warminster,
Wilts DF2 5SD

Dear Mr Hills,

Thank you for your enquiry about horse shoes, we will deal with it as soon as possible.

If you need any further information then please call us.

Yours sincerely,

The underlined information will be supplied from the DMS file for each record as it is read, the rest will stay the same from letter to letter.

SECTION 6 - REPORTING

Creating a letter is very easy, if you have used MASK then you are most of the way there. For those who have used mask and don't want to read this section, the differences between this and mask are as follows:-

1. You can't attach a processing file.
2. You can't protect fields.
3. You can't have fields in highlight.
4. You can have upto 88 lines per letter, the screen scrolls to allow this.
5. A new 'escape' option of T takes you to the top of the letter.
6. You can type over the end of a line, DMS will 'word wrap'. Paragraphs must end with a carriage return in order that DMS can justify the paragraph and remove any trailing blanks from information taken from the DMS file.
7. Putting up arrow followed by N and a carriage return will turn off justify until the next up arrow, N, carriage return.
8. You can't amend fields on the letter as it prints.

For the rest of us, select the D option in REPORT.

Option D - creating a letter

The first question you will be asked will be 'Do you wish to use an existing letter file'. Answer Y to this if you require to modify an existing letter, otherwise reply N.

The screen will go blank with the exception of the top line, the cursor will be placed in position 1 of line 3. The top line is telling you which keys to press to move the cursor around the screen. Note that the keys you need to press are those that you selected in the configure option when you first used DMS. You should find that you can use the keys on your keyboard marked with arrows instead of using the control key and the key indicated.
In addition, pressing return will move you to the start of the next line on the screen.

Try moving the cursor around the screen, type in a few lines of text and generally get to know the keys. You will notice that if you type over the end of a line, DMS will automatically adjust the text so that the line is split between two words. So, do not press carriage return at the end of each line, only at the end of a paragraph.

When you are ready press the escape key.

The HELP options.

When you press the escape key and wait for a few moments, you will see that you have the following options:-

X

When you have finished laying out your letter you will save it for later use with this option.

F

At any time you can request DMS to display the file definition, dont

worry about this overwriting your letter.

I

This is how you get DMS to include a field from a DMS file into your letter. The field will be included at the place the cursor was positioned prior to you pressing the escape key. Note that when the letter is being printed, any spaces will be removed from the field and the rest of the paragraph closed up. Spaces are removed from the back of character fields and the front of numeric fields.
When you press the I, DMS will prompt you to supply a DMS field name or number. Supply a field and you will be returned to the letter, however note the following. The field you selected will be shown on your letter by a line of ————————, and the name of the field will be displayed on line two of the screen.

D

This option will delete a DMS field from the letter. The field deleted will be the one that you had the cursor in prior to pressing escape.

T

Returns you to the start of the letter.

Q

Give up this letter.

L

Used to print the screen layout exactly as it appears on the screen.

Finally the space bar will return you to editing mode.

You can type your letter just as you would on a typewriter, there is only one special code that you need to know. Suppose that in the middle of your letter you include some text that requires a special layout, i.e. you don't want DMS to perform any automatic justification. The way to do this is to enter a line, by itself, with ^N followed by carriage return. You can turn the space compression and justification back on by entering the same code again. Remember you can only do this between two paragraphs.

SECTION 6 - REPORTING

Here is an example of a simple letter containing a name and address shown as —— and some numeric information that must not be justified. N.B C/R means carriage return, this would not be shown on the screen but shows where you would have pressed it.

——————————C/R
——————————C/R
——————————C/R
——————————C/R

Dear —— ——————————,C/R

Thank you for your enquiry regarding ————————————————, the prices are as follows:-C/R

^NC/R

PRODUCT	PRICE
Widgets mk2	————C/R
Widgets mk1	————C/R

^NC/R

Yours faithfully,C/R

A.N.Other.C/R

Remember to use escape and X to save the letter.

Option E - print a letter

If you want a straight print of a letter that doesn't use any fields from a DMS file, then you can do this with the L option at the time you created the letter. When you require to print a letter that has some fields from a DMS file then you must use this option.

Select option E from the REPORT menu and select the letter file that you require.

You will be given the option to use a sort file and a select file, if you wish to use one of these then give the file name you require.

SECTION 6 - REPORTING

There are now three questions that relate to the letter writer:-

Pause between pages
If you are using continuous stationery then reply N to this question.
If you are using a cut sheet feeder then reply N.
If you are using individual sheets reply Y

Start from letter number
Normally reply 1. If you have lost some letters due to a printer problem then give the approximate letter number you wish to start on.

Number of copies
Allows you to get multiple copies of each letter.

Having replied to the above, make sure that your printer is set up and press the space bar to continue.

Using a cut sheet feeder

While not attempting to explain how cut sheet feeders work, you should be aware of the following.

Printer offset
Some cut sheet feeders require that the left hand margin on the printer should be reset.

Page length
Most cut sheet feeders require that the printer and the print program have a longer page length than the paper that is being used. Typically 78 lines for a normal A4 sheet. (N.B. make sure you don't print after the actual end of the sheet!).

You will find a detailed explanation of how to do this in the configuration options

SECTION 7 - SORTING AND PRODUCING INDEXES

7.1 Introduction

Although there are many times when printing a DMS file that the order of the printout is not too important. There are other times when, in either reporting or scanning through a file, the DMS file needs to be in some kind of sequence.

To solve this problem DMS allows you to create as many indexes to a DMS file as you require. You are only limited by disk space.

In order to understand how DMS produces it's sorted indexes you need to consider the following:

1. You do not need to sort the whole of a DMS file if you are only interested in a few records from that file. You can ask DMS to select the records you require prior to carrying out the sort.
2. The smaller the number of characters you sort on, the quicker will be the sort, and the smaller the disk space required to hold the index.
3. There can be as many duplicate fields on the file as you want. In key we used the example of employee name as a fairly unique field for the key, however, using the sort we can generate an index with a far from unique field such as salary.
4. When you have finished with an index, you may erase it as it forms no part of the main DMS data file.

Having generated an index you may keep it as long as you like, but you must remember that any records added to the main file will not be included in the index. When you select an index, DMS will tell you if updates have been made to the main file since you generated an index.

7.2 User instructions

Records stored in DMS may be sorted using any field of information as the basis of the sort. It will thus sort on numeric or character fields of information. These sorted files can then be named and stored on disc for use in other DMS programs e.g. report, screen display, labels etc.

7.3 Sorting selected records

You may use the selection feature to select the records that are to be sorted.

Do you want to use the selection feature Y or N?

If you want to use a previously defined selection then type in the name given to that file created during a SELECT run.

7.4 Performing the sort

Whether using a selected file or the whole data file, the next information you need to type in is the heading of the field on which you want the sort e.g. Price.

You may sort on upto three fields at one time.

SECTION 7 - SORTING AND PRODUCING INDEXES

Character fields have an extra facility in that the sort need not necessarily be done on information in the whole field. You can ask DMS to start the sort anywhere along the field by telling it which position to start the sort on, and how many characters following on from this point should be used as the sort criteria.

The full contents of a date or numeric field will be used for sorting.

DMS will request the drive that is to be used as a work disk during the sort.

This must be a formatted disk, and DMS will allow you to change the program disk in drive A for the duration of the sort.

DMS does not sort all the data on the file, but only sorts tags.

The size of a sorted index can be calculated by multiplying the number of records in the index by two, this gives the index size in bytes.

7.5 Counting records

If you need to know the number of records on a DMS file that obey a certain criteria, then you can also do this in sort.

After supplying the selection file name, you will be given the option to either carry on and specify the sort parameters, or to scan the file and count how many records pass the selection.

This is a much faster way of counting records than using a printout.

7.6 Sort work areas

During sorting, DMS will require room on disk for work files. These work files exist for the time of the sort, and may be on any drive that has enough space.
The amount of space needed for the work files is:

> The number of records selected for the sort, times the length of the sort keys, times two. (This gives the area in bytes/characters)

After the sort has finished, the actual sort index occupies the following space:

> The number of records times two.

The work areas are deleted at the end of the sort.

SECTION 8 - PRODUCING YOUR OWN SCREEN LAYOUTS

8.1 Introduction

This section deals with how you will design and use your own screen layouts to use for data entry.

If your VDU does not possess a cursor that is addressable you will need to refer to appendix 7.

See appendix 5 for a discussion on the various input methods.

There are two stages in using a mask. Firstly there is the creation stage where you draw the screen layout on your VDU, and, secondly, the stage where you input information.

There is no doubt that the best way to learn to use the mask facility is to try it out on one of your own files.

8.2 Creating a mask

Select the MASK option, then select option A.

You will be asked for the date and the name of the file that you wish to create a screen layout for, DMS will then display the file definition. Press the space bar.

If there is already a file that you wish to amend, reply Y to the next question. If you are creating a new one reply N.

The screen will go blank with the exception of the top line, the cursor will be placed in position 1 on line 3.

The top line is telling you which keys to press to move the cursor around the screen. Note that the default options, although shown on the screen as ^H (control plus H), will, unless you changed them in the configure option, be the same as the keys marked with arrows.

Press the key for down a few times, then for right a few times and you will see that the cursor moves around the screen.

Now type in a few ****'s, move the cursor back over them and move them across the screen with the key combination for inserting, control/I on most screens. Move the cursor into the ***'s and try deleting them, when you've got the hang of moving the cursor, place it somewhere in the middle of the screen and press the escape key.

After a few seconds you will see a help menu of 8 options appear on the top of the screen.
Two points here. Firstly, if the menu has overwritten part of the screen you laid out don't worry because as soon as you get back to the screen it will all be restored. Secondly, it took a few seconds to display the help menu, but when you get familiar with the options you will be able to supply the option you want without waiting for the menu.

SECTION 8 - PRODUCING YOUR OWN SCREEN LAYOUTS

8.3 Options in MASK

Looking at the options one by one:

X

When you have finished laying out your mask you will save it with this option.

F

At any time you can request DMS to display the file definition, once again don't worry about DMS overwriting your screen layout.

I

This is how you get DMS to display a field on your mask. The way it works is to ask you for the field name, number (or if you can't remember either of them just press return) that you want displayed.

Note the prompt at the bottom of the screen.

The field will be inserted into your mask at the point you left the cursor prior to pressing escape. You will know that there is a field at this position in two ways. Firstly DMS will draw lots of ———— in the position on the mask that the field will occupy, and, secondly, if you move the cursor into the field the second line on the screen will tell you the name of the field.

You can use work fields by putting ^ followed by the field number e.g. ^1

D

Before pressing escape put the cursor into the field that you wish to delete from the mask. Pressing D will then remove this field.

P

The idea of putting fields on your mask is, of course, so that when you come to use the mask you can amend the data in the field. However there are times when you only wish to allow people to see information but not to change it.
Put the cursor into the field you want to protect and select this option. You will notice when you place the cursor into a field, that the second line on the screen not only shows you the name of the field, but also if it is protected or not.

The P option works on the 'toggle' basis, in other words it will protect an unprotected field, and unprotect a protected field.

R

This allows you to specify that a field should be displayed in reverse or enhanced video.

Q

Give up on this mask.

L

This option allows you to print the screen layout.

Finally the space bar will return you to editing mode.

SECTION 8 - PRODUCING YOUR OWN SCREEN LAYOUTS

8.4 Attaching a processing routine to DMS

When you save the mask on disk you will be given the option to attach a processing file, protect the screen with a password and to inhibit record deletion.

If you require to do some processing and haven't created your process file at this point, reply N to the message about the process file, save the mask, create the process file, re-enter the mask create and call up the file again. Save it, and this time reply Y to the message about attaching a process file.

8.5 Using a mask

Access the mask option and then select option B.

Select the name of the mask file that you wish to use.

Reply Y or N to the transaction logging message.

Note the following three things:

The mask you have selected is displayed on the screen in exactly the way you formatted it.
The top line of the screen shows the cursor control keys.
The cursor is at the front of the key field, and the prompt on the bottom of the screen is asking you to enter a key field.

First a few general notes:

The cursor is moved around the screen by pressing the return key. Each time you press the return key the cursor will move to the next, non protected, field. If the field is the last one on the screen then it will move to the top of the screen again.

Once you are in a field you may edit it in any way you choose, inserting, deleting or overtyping. Note that if you are editing a numeric field you must ensure you leave a space to the right of the number you have entered unless you are against the right limit of the field. For example a field that is 5 long and contains the number 2335, and you wish to change it to 9987. You type 9987 but leave the 5 i.e. the field contains 99875 and will be wrong. The following example will show what I mean:

122.33 27 = 122.33 but 122.3327 = 122.3327

Enter something into the key field, if you don't know a key that's on the file don't worry just create a record and play around editing it.

8.6 Help messages in MASK

Once again pressing the escape key gives a help menu with the following messages:

D

Will delete the displayed record from the disk.

Q

Will quit the current record without changing the record on disk.

W

Writes the current record to the disk.

P

This option applies the process file to the contents of the screen. N.B. The process file used is the one you attached to this mask when you created it.
You can run the process against the record as many times as you like, quite useful for working out interest after 1,2,3 etc. years.

L

List the screen to the printer.

V

This forces DMS to tidy up all the numeric fields on the screen. It is automatic prior to processing or saving or printing, but it is nice to clear these fields to ensure that any editing you have done has been accepted in the format you expected.

Pressing the space bar returns you to edit mode.

SECTION 9 - BROWSING

9.1 Introduction

DMS files are organised to reduce the time taken to access a record by its key to the minimum. In addition, because of this organisation, very active files never require lengthy reorganisations.

However there are times when you may want to access a DMS file by a field other than the key field. For example, consider a file from a bookshop where the records are stored by book number. Often you would require to access this file by author and subject, rather than book number. BROWSE allows you to do this by a function called screen scrolling.

Screen scrolling means looking through a file using an index file. The index file is created in SORT, and can be on any field in the record, character, numeric or date. Also, because you are using an index created by sort, you are allowed to have duplicate information in the index. In our book example there is going to be more than one book per author.

When using an index you can access the DMS file in two ways. Firstly, you can supply a key and DMS will use the index to find the record on the DMS file that either matches this key, or, failing an exact match, the record that has the nearest key. Secondly, you can browse up or down the index one record at a time.

Records that are selected can be updated or printed out.

There is another part of BROWSE that allows you to scan the file without any sorted index. This function can be used where you just want to scan all the records on a file, and just update the odd one that catches your eye.

9.2 User instructions

Select the BROWSE option from the main menu.

The first question you are asked is 'Do you want to use screen scrolling Y/N'. If you reply Y to this you must have produced a sorted index in the sort option. A reply of N will allow you to browse through the file, but in no particular order.

Assuming you selected Y for the previous question.

The next question asks you for the name of the sorted index that you wish to use. DMS will read in the file and ask you to confirm that it is the correct one.

You will now see a help screen telling you what field was used for the sort, and asking you to supply an entry that it can use to search the index.

SECTION 9 - BROWSING

9.3 Supply an entry and DMS will display on the screen, either the record you selected, or the nearest one it can find. You will be shown the various options that are available. They are:

Left and right arrow - move up or down the index.
A - amend the record displayed.
P - print the record.
R - reselect another record.
E - exit the program.

The only option needing further explanation is the amend option. This works in exactly the same way that the amend option in KEY works, with the exception that you can't create or delete records.

The index is only valid at the time you create it, if you have an active file then you may try and do your updates a batch at a time using COPY. Generating indexes is fairly quick, on a floppy based system an index for a file of 1000 record it should take in the region of 5 minutes.

SECTION 10 - NUMERIC AND CHARACTER PROCESSING

10.1 INTRODUCTION

DMS has a powerful batch processing facility whereby a whole series of calculations can be performed on either the whole file or on pre-selected records, eg., you can ask for the selling price of every `P' registered car to be decreased by 15%, and at the same time change the `comments' field to read `special offer'.

10.2 User instructions

Select the process option from the main menu.

You will be given the following two options:

Press `A' to set up the processing instructions.

Press `B' to execute processing instructions. (Naturally, this is only possible having set some up.)

10.3 Option A Setting up the process routines

This option allows you to define sequences of processing instruction to be carried out. Having created a set of instructions, you will then store them for use under option `B' (execute processing instructions). You may also change existing processing instructions using this option.

Firstly, you must say whether or not you are going to use an existing processing-instructions file. If you are setting up a completely new set of instructions, you will reply `N' here, otherwise `Y' which will give you the opportunity to recall, by name, a previously defined set of instructions.

Processing consists of a series of instructions to DMS, telling it to perform certain operations on the records in a file.

You can supply the following operations.

1.	+	addition
2.	-	subtraction
3.	/	divide
4.	*	multiply
5.	=	make equal to

There is a further operator for deleting records, see section F.

These operations are performed on fields from the DMS file, accumulators or constants.

SECTION 10 - NUMERIC AND CHARACTER PROCESSING

In setting up for the first time, you can key in up to 16 separate instructions, each instruction being up to 100 characters in length. Some examples of processing instructions would be:

1. SELLING PRICE=SELLING PRICE*#0.85
   (ie. reduce the selling price by 15%)

2. COMMENT=@Special offer
   (ie. change the comment field to read `Special offer´)

3. TOTAL COST=COST1+COST2+COST3-ALLOWANCE

There are several `language rules´ governing how we can write these instructions so that the computer can understand:

A. There must be no spaces between the operators (=,+,/,*) and their surrounding characters, and there can only be one = sign in each line.

B. Numeric constants (ie. non DMS fields) must be preceded by #. Character or date constants must be preceded by @ and be a valid format/length.

C. The current date (at time of running option B), may be inserted into a date field by saying:

   DATE PURCHASED=@C

D. There are 30 `accumulators´ - these may be included in the instructions by putting ^ followed by the accumulator number (1 - 30).

   The accumulators are split into 3 groups each with distinct functions.

   ACCUMULATORS 1-10

   These are cleared to zero as each record is read in, before processing begins on that record.

   ACCUMULATORS 11-20
   These are also cleared to zero for each record, but after each record is processed any non-zero accumulators will be printed out.

   ACCUMULATORS 21-30

   These are only cleared to zero at the very start of the processing run. At the end of the run, any non-zero accumulator will be printed out.

E. Instructions are evaluated from left to right, ie.

STOCK=^1*#0.5*^2

This means multiply accumulator 1 by 0.5, multiply the result by accumulator 2 and put the final result in the field called STOCK.

After you have keyed in some instructions, you may amend them and, when satisfied, save them on disk by supplying a processing instructions file name.

F. Records may be batch deleted by including a processing line with an up arrow ^ followed by DELETE.

Processing statements up to this will be carried out, those after this statement will be ignored.

Then you have the option to do a printout of the instructions which you have set up, after which you may press E to return to the DMS menu, or press the space bar to restart this option.

10.4 User hints

1. If you are doing a large number of selections on a file, you can use the process option to add a 1 into a field on the file for every time the record is selected.

   So if you do 10 sets of selections, this field would equal 10 for any record to be selected 10 times.

2. The delete option can be very useful when combined with a selection option, eg., delete all invoices prior to January that have been paid.

3. When calculating percentages, increasing a figure by 23% can be done in one instruction of *#1.23.

10.5 Option B Executing the process routines

This option will actually execute the processing instructions that you set up in option A.

First you must supply the processing instruction file name that you allocated when you stored the file in option A.

SECTION 10 - NUMERIC AND CHARACTER PROCESSING

Now you have the choice of 4 different printouts which will occur as processing is being carried out.

Press 'A' to print the complete record contents, both before it is processed and again after it is processed.

Press 'B' to print out complete record contents after processing.

Press 'C' to print out only those fields that have been affected by the processing.

Press 'D' to print any errors that occur, eg., trying to put too large a number in a field.

Now you can supply a selection file name to apply selection criteria to the processing, eg., you may only want to process cars under 4 years old.

Now the processing will begin, and, as in the report printing features, you can press 'S' to stop the processing.

WARNING! If you press 'S' and abort the run, all records processed so far will NOT be changed back to their original state, as they have already been dealt with.
It is always useful to have a backup disc for use in this case.

SECTION 11 - LINKING TO A WORD PROCESSOR OR USER SOFTWARE

11.1 Introduction

This section explains how to use the LINK option to create an input to a mailmerge run using MicroPro's WORDSTAR package or SPELLBINDER.

In addition you can use LINK to produce a sorted, selected sequential file that can be used by another piece of software, or by the COPY option in DMS to update or create a DMS file.

If you are going to use this for passing data to a word processor you should have an idea of how the Mailmerge/Spellbinder packages work.

> Although DMS has a powerful report generator, there will be many times that the power and flexibility of a word processor can be combined with information on a DMS file to produce various types of mailing shots. (The glossary and index were prepared by DMS and Mailmerge)
>
> In particular the use of the processing and selection options in DMS allow a very varied approach to personalised mailing. Examples are many, ranging from such things as 'Your last service was 3 months ago, and you are now due for your next one'.
>
> Used with imagination, DMS can be a great help in obtaining extra business, and gives your customers the feeling that they are known as individuals.

Wordstar and DMS compatible files have the following format. Fields are separated by commas and records by carriage returns, if fields contain commas they must be enclosed in quotes.

11.2 User instructions

Select the LINK option from the main menu.

Make sure you have enough room on the output disk to hold all of the information to be written out. Maximum space requirement will be the total of all the lengths of the fields passed to the output file multiplied by the number of records + 2 thousand characters.

You will be given 3 options:

Press 'A'	to create a standard sequential file for use by WORDSTAR or another software package.
Press 'B'	to create a fill file for Spellbinder.
Press 'E'	to return to the MENU

SECTION 11 - LINKING TO A WORD PROCESSOR OR USER SOFTWARE

11.3 Option A - Linking with the wordprocessor and other software

After looking at the file definition, press the space bar to continue.

You will then be given the option to use a sorted file which has been created previously (ie. if you want the output in order of `surname', for example), and a previously defined record selection if you only want to output certain records. In each case, supply the appropriate file name.

If you have previously saved a set of transfer parameters, you can now read them in. If you haven't defined any reply N.

Now you can specify the individual fields within each record that are going to be transferred to the output.

DMS now asks if you require to select individual fields for output. You can enter up to 60 fields which are to be transferred, in any order, and the same field can be output more than once if necessary.

Enter *END when all the field names required have been keyed in and then reply Y/N to "is this OK" - if you reply `N' you can re-enter the line names again. If you reply `Y' you can get a printout of which fields are going to be transferred.

11.3 Options A and B

For both link options, you must now enter the drive and file name of the output file. This file name will be given the extension of `.MRG'.

Now LINK will read through the DMS data file, writing the appropriate records into the output file, and displaying the key field of each record as it is transferred across.

At the end of the LINK, press `E' to return to the MENU.

SECTION 12 - COPY, UPDATE DMS FILES FROM DISK

12.1 Introduction

COPY is in some ways the opposite to LINK. Link will produce a sequential file that can be used by a word processor or a user written program. COPY, however, will update a DMS file from a sequential file.

The sequential file can come from a previous run of LINK, the output of another system (e.g. DATASTAR), or a user program.

You may want to run COPY for the following reasons:

> To restructure a DMS file that you have previously created, but now want to change without keying in all your information again. Basically you can change the number of records, the length of fields, the number of fields (less or more).
>
> To batch update a DMS file with information from another system, a user program, or from another DMS file.
> Two examples of this are. Firstly, you may wish to use a special program to validate your data entry, and then automatically add this information to an existing DMS file. Secondly, you may wish to update a 'summary' file from one or more DMS files, e.g. you have a job file containing various cost information, each job has an account number and you want to add up all the costs per account number onto another DMS file which has a key of account code.

Before you can run this part of the system you must have a DMS file, with or without records on it, and a sequential file.

Copy produces standard format sequential files with fields separated by commas and records by carriage returns.

12.2 User instructions

Select the COPY option from the main menu.

The first message allows you to insert the disk containing the sequential file that is going to be used as input to the update. Change the disk, or if you do not need to change the disk then just press the space bar.

You now have to tell DMS which drive the input (sequential) file is to come from.

You will be shown the files that are available on the disk you specified. Select one of these files, and DMS will display the file definition. Press the space bar.

The next option allows you to specify an already created set of copy parameters. You will get the option to save the parameters later.

There is now a description of how you are going to get the DMS file, and the sequential file to match. Press the space bar.

SECTION 12 - COPY, UPDATE DMS FILES FROM DISK

You will see a short version of the file definition of the file you are about to update. The field names run from left to right on row one and then left to right on row two etc. etc.

When you supplied the name of the sequential file, DMS scanned the first record to work out how may fields there are on it. We will now tell DMS where to put the field from the sequential file onto the DMS file.
You specify the fields in the sequence they are on the sequential file. This will be the same as the sequence you specified in LINK or your own program.
e.g. the first field on the sequential file is to goto the fourth field on the DMS file, the second field is to goto the second field on the DMS file etc. etc.

As well as saying which fields match with which, you can tell DMS how it is to update the field. Character fields can be used to replace the existing information in the field, or they can be added to the end of the existing information in the field (e.g. the two lots of information are merged).
With numeric fields the options are more complex. With these fields you can add, subtract, multiply, divide or replace the information from the sequential file into the DMS file.

You must supply this information for all the fields on your input sequential file. If you don't wish to use one of the input fields then reply with an '*'.

You must allocate one of the fields to the key field, otherwise DMS will not be able to match the sequential file records with the correct DMS file records.

You should only match fields of the same type, e.g. character with character, numeric with numeric, and date with date. Failure to do this will result in unpredictable updates.

Having specified the matching, you can save these parameters for later use.

12.3 Prior to the update taking place you are given four reporting options:

A. Print complete records before and after update.
B. Print complete records after update.
C. Print only record keys.
D. Print only errors and exceptions.

If you select option D, you will be given the further option of asking DMS to output the messages to the screen.

When the update has finished, select option E to return to the main menu.

You will be given the option to replace the program disk in drive A should you have changed it at the start of the copy.

N.B. If you are doing a LINK followed by a COPY you must remember to log on to the new file to be updated. If you don't, you will end up updating the same file as you 'LINKED' from. Use the reset option on the main menu to change files.

SECTION 13 - DMS FILE BACKUPS

13.1 Introduction

As stated at the front of the manual, it is most important that you keep copies of your files.

On floppy systems this is easy, you either use a disk to disk copy routine or PIP.

If you have a hard disk without a backup system you could be in trouble if you create a DMS file that is larger than the capacity of your floppy disk.

However, with the backup option you can copy a large DMS file from your hard disk to one or more floppies. DMS will keep a careful check on how many floppies are needed and put an indicator on each disk so that when you come to restore a file you can be sure you have used the correct disks.

We do not suggest you try backing up a 3M byte file onto 160K floppies!.

The program is in two parts, backup and restore.

13.2 User instructions

Select the backup option on the main menu.

You are asked if you are going to do a restore or a backup (R/B), to take these one by one.

13.3 Backup

This is the action of copying a DMS file to one or more floppies. In the event of your main file being corrupted by machine failure etc., you can then use the floppies to recover the file.

Select the B option.

Supply the drive and name of the file that is going to be backed up i.e. copied from. Next supply the date which will be entered on the backup disks.

You will then be shown the file definition, press the space bar. Now supply the disk drive that you want the backup to be on. If you are using a hard disk, then this will normally be a floppy drive.

If required change disks. DMS will now output the backup file which will be called by the same name as the master file, but with an extension of BAK.

SECTION 13 - DMS FILE BACKUPS

13.4 Restore

This is the action of recreating a DMS master file from one or more floppies that have previously been created by a backup run.

Select the R option.

Mount the required disks and press the space bar.

Supply the drive and name of the file that is to be used for input.

Enter the drive that you want the restored DMS file to go to.

DMS will now start to reconstruct the file. Firstly it will format the file in the same way that the CREATE option creates a new DMS file.

You will then be asked to insert the floppies that contain the backup. These can be inserted in any order. DMS will tell you if you try to input the same one twice, and will check that you put all the disks in that are needed to restore the file correctly.

You can restore over an existing file if you need to, but be careful.

After all the disks have been used return to the main menu.

APPENDIX 1 - MENU DESCRIPTION.

Detail description of functions by menu option.

Configure

Used to tailor the system to your computer, and will change the following:

Printer width and length.
VDU characteristics.
The number and type of disk drives.

Create

Create a DMS file.
Describe the type and amount of information you wish to store.
Use an existing file as a base for a new file definition.

Key

Create, update and delete records by key.
Change key fields.
Duplicates information from one record to another.
Amend any field in the record.
Standard DMS screen layout.

Sort

Sort the file for reports, links or browsing.
Count how many records obey a certain selection criteria.
The sorted file is saved for future use.

Select

Set up a sequence of selections to be applied to a file during sorting, printing, linking or processing.
Store the selections for future use.

Redefine

Used to change the names of fields, usually to change the headings in a standard report.

Mask

This option consists of two parts.
Firstly, it can be used to set up your own screen layout. This allows you to password protect the screen, define view only fields, attach a process file.
Secondly, it allows you to use the mask to create, update, delete and print a record. This option allows full screen editing of the fields, and repeated application of a process file.
Print screen layout.

APPENDIX 1 - MENU DESCRIPTION.

Report

There are four parts to this program:
- Standard report across the page.
- Standard report down the page.
- User defined reports
- The letter writer.

Both the standard reports are very easy to use. They will allow you to print selected fields from sorted and selected records. You may request totals, line spacing etc.

The user defined report is in two parts, creation and use. The method of creation is more complicated but allows greater formatting and subtotals.

Report formats may be saved for later use.

Labels

Allows you to specify various label formats, including the position of the labels, how many you wish to print, how large the label is and how many spaces there are between labels.

Label formats may be saved for future use.

Each label can be printed upto 50 times.

Browse

Using this option you can browse through the file in any order that you choose. You can update records in the same way as in KEY, plus you may directly access a record by a field other than the key field.
You must have produced a sorted index before using this option.

Process

Process is used to create a file of process instructions for use in updating a whole file or for attaching to a screen mask.

Process has two options. Creating the instructions and then using them.

Process instructions can be saved for later use.

Link

Used to produce files for input into wordprocessing packages, user software or the COPY option in DMS.

Copy

Used to update/create records on a DMS file, the input can come from a LINK run, from a package like DATASTAR or from a user program.

APPENDIX 1 - MENU DESCRIPTION.

Backup

Will backup a DMS file to one or more floppy disks.

Reset

Used to change from one DMS master file to another. It will ask for the date, the disk drive, and the file you wish to use.

The date supplied here can be used in the rest of DMS. Whenever you are asked for the date you may reply with a C, and DMS will automatically insert the date you supplied in this option.

APPENDIX 2 - QUICK REFERENCE GUIDE

Introduction

This section can be used by as a guide to carrying out certain standard type of work on DMS.

For the first time user it can be used to plan their way through a part of DMS that requires a series of steps, for the experienced user it is a useful mind-jogger.

You will still need to read the chapters on the individual parts of DMS before using the system.

Each section is divided into four parts:

1. Subject
2. Prerequisites
3. Action
4. Result

Each section is labeled with a letter, this letter is then refered to in later sections. For example, if a prerequisite for section K is A,B,H then you have to perform the function in those sections prior to being able to use section K.

Subjects covered are:

A. Configuration.
B. File creation.
C. Record creation/edit/deletion - basic method.
D. Record creation/edit/deletion - advanced method.
E. Printing records - basic method.
F. Producing a sorted index to a DMS file.
G. Producing a selection file.
H. Creating a process file.
I. Printing selected, sorted records.
J. Browsing a file using a sorted index.
K. LINKing to the outside world.
L. Reading sequential files into DMS
M. RESTRUCTURE A FILE

APPENDIX 2 - QUICK REFERENCE GUIDE

A.1. Configuration
Used to tailor DMS for your particular screen/printer.

A.2. You must have copied the DMS masters to you own diskettes, or hard disk.
You should be logged onto the disk that is going to be your normal DMS program disk.
You need to know the type of VDU you have, This is not the actual name of the VDU, but the protocol it uses, e.g. ADM3A.
If in doubt, call your hardware supplier. Even better get him to configure DMS for you.

A.3 Boot up your system, get into DMS and select option A.

A.4 Two files will be created on the logged disk, DMSCNFIG.DAT and DMSCNFIG.RND. N.B. DMSCNFIG.DAT may not be present on later versions of DMS.
These files must then be copied to all the disks you are going to use for holding DMS programs.

B.1 File creation
Supplying DMS with the information needed for you to be able to store data on a DMS file. You will need to run this prior to using any of the other DMS options.

B.2 You should have run A above.
If you are on a floppy system you will need to have a formatted disk in drive B. Ensure that you have enough room on the disk for your file, space needed is a function of the number of records times the length of the record + 20%. This is the minimum space needed, and you will be well advised to allow more than this.

B.3 Bring up DMS and use option CREATE

B.4 Three files will be created under the name you supply, the file will then need records adding to it.

C.1 Record creation/edit/deletion - Basic method
This is the basic method of adding data to your file. It requires no thought and works in a simple question and answer mode. It also allows existing information to be changed.

C.2 You should have run B above.

C.3 Select the key option on the main menu, supply the name of file you wish to use.

C.4 Records will have been created, updated, deleted and individualy printed.

D.1 Record creation/edit/deletion/printing - Advanced method
This method requires a bit more thought but gives the advantages of laying out the screen in your own way, only showing data you need and using full cursor control for editing.

D.2 You should have run B above.

D.3 First select the mask option and the A sub-option to layout your screen.
Having laid out your screens you then use them by selecting the mask option and selecting the B sub-option.

D.4 You will have created and saved various different layouts for the screen. Note you can layout as many screens per file as you need.

APPENDIX 2 - QUICK REFERENCE GUIDE

E.1 **Printing records - Basic method.**
Printing out your file in the basic way, no sorting or selection of particular records. You can either print across or down the page.

E.2 You will have needed to create a file and created some records.

E.3 Select the report option from the main menu, and then select the sub option A for standard reports.

E.4 DMS will print all the records on the file in the format you requested. The report will not be in any particular order and may or may not have totals depending on what you specified.

F.1 **Producing a sorted index to a DMS file**
You will often need to look at or print DMS files in a particular order. This part of DMS allows you to produce an index to a DMS file sorted on upto three fields in the record.
You can then use this index in printing, browsing or when producing a sequential output file in LINK.

F.2 You must have created a file and added some records.

F.3 Select the SORT option and reply to the various questions.

F.4 You will have created an index under whatever file name you supplied. This file can then be used to provide a sorted index for reports, browsing and LINK.

G.1 **Producing a selection file**
When printing, processing and linking you will often need to select particular records from a file. To do this you must first set up a file of the selections you wish to use, each lot of selections are given a name.

G.2 You must have set up a file definition prior to defining the selection criteria.

G.3 Use the SELECTION option on the main menu.

G.4 For each set of selection criteria you will have created a named file which can then be used in reports, processing, browsing and LINK.

H.1 **Creating a process file**
Often you will need to carry out some processing on either a whole file, selected records from a file, or to individual records called up by their key field. These process instructions are then given a name and saved on disk.

H.2 You must have set up a file definition prior to setting up a process file.

H.3 Use the PROCESS option to set up the process you wish to carry out.

H.4 For each set of processing instructions you will have created a named file that can then be used in a process run, or to update an individual record called up with a mask.

APPENDIX 2 - QUICK REFERENCE GUIDE

I.1 **Printing selected, sorted records**
Most of the time you will want to print out selected records in a particular order.

I.2 You must have created a file definition, created some records and created a sorted index and/or a selection file.

I.3 Select the print option you require, and when asked supply the name of the sorted index and/or the selection file.

I.4 The report will be printed in the required order with only the records that passed the selection criteria.

J.1 **Browsing a file using a sorted index**
Quite often you will need to access a file by information other than the key field.

J.2 Create a sorted index in the order that you wish to scan the file.

J.3 Access BROWSE, reply Y to screen scrolling, and supply the name of the sorted index.

J.4 You will be given the option to access the file by a field other than the key field, or to browse the file in the order you sorted on.

K.1 **LINKING to the outside world**
To prepare data for either a wordprocessor or a user program. You can use a sorted and/or a selection file to output the information.

K.2 Create a sorted index and/or a selection file if needed.

K.3 Use the LINK option and specify your requirements.

K.4 A sequential file will be created with the information you requested from the DMS file.

L.1 **Reading files into DMS**
DMS allows what are called 'batch updates'. Records may be created or updated using a sequential file as input.

L.2 There has to be a sequential file created either by a user program or the DMS option LINK.
There has to be a DMS file in existance.

L.3 Select the COPY option in DMS.

L.4 The sequential file will be used to update the DMS file, records will be created or updated on the DMS file.

M.1 **RESTRUCTURE A FILE**
You have a DMS file with data on it, and you wish to change the file structure in some way. The reasons for this could be you wish to add or extend a field, or you want to extend the number of records on a file.

M.2 You must have the original file, and the new file definition must have been created.

M.3 Use the LINK option on the original file to produce a sequential file, then use the COPY option to add the sequential file to your new DMS file.

M.4 The new file will contain all the data from the old one.

APPENDIX 3 - USES OF PASSWORD PROTECTION

You can password protect both DMS master files and DMS screen layouts.

A password is an 8 character word that you have to use to be able to access a file or screen that is password protected.

File passwords

When a file or screen is created, it is allocated a password of 'DMS' which to DMS means that effectivly there is no password.

Every time you access a file for the first time in a session DMS looks to see if this file is password protected, this can result in two possible actions:

The file is not password protected (or as in the above it has the default password of DMS), in which case you will be asked if you wish to allocate one.

The file is password protected, in which case DMS will display the first two characters and ask you to supply the other six.
You must supply all six characters, they must be in the correct case and blanks are significant.
To unset the password, type DMS and 5 blanks. To allocate a new password, type it in.

Screen passwords

Users may set up their own screen layout in the part of DMS called MASK.

In order to use the screen create part of MASK you will need to know the file password.

After you have laid out your screen, and before saving it, you will be asked if you wish to supply a password. Exactly the same rules apply to screen passwords as to file passwords.

If you wish to remove or change a password from a screen, access the screen create option in MASK, tell it you wish to amend the mask, and attach the new password.

Interaction between screen passwords and file passwords

If a file is password protected there are only two ways to gain access to it:

Firstly, by supplying the file password, and using any option on the menu.

Secondly, if you don't know the file password, but you do know a screen password you can access the file by that screen, and that screen only.

APPENDIX 3 - USES OF PASSWORD PROTECTION

The best way to explain the effect of this is to use an example.

Suppose there is a personnel file containing names and addresses, phone numbers, salaries etc.

As is normal, you won't want the whole dept. to be able to look at all the information on this file. The file itself is allocated a password that only the senior in the dep. knows.

Two screens are created, the first screen only shows name, address, dept. and telephone number. No password is allocated to this screen. The second screen, however, shows salary information and is given a password known only to the salaries department.

In this way different levels of staff can gain access to different information.

One final word of warning, a programmer can easily read a file, password protected or not.
The best form of security is to lock up the disk when any technical staff are around!

APPENDIX 4 - DIFFERENCES BETWEEN KEY, MASK AND BROWSE

KEY

KEY allows access by the contents of field 1, the key field, the exact key must be supplied.

The file password must be known.

All fields can be updated. Character and date fields replaced, and numeric fields can have all the arithmetic operators used on them.

The key can be edited, therefore if you have a large number of records with different key fields this option provides a quick way of creating them.

Where certain information is the same from record to record (e.g. date of joining) you can duplicate the field from the previous record.

Standard DMS record layout on screen and printer.

All input is via a question and answer session.

MASK

Like KEY, access to a record is by the key field.

Screen layouts are user designed and can include passwords, protected fields and create/delete inhibit.

Full on screen editing of all fields, e.g. characters can be inserted in the middle of fields etc.

You may attach a processing file for on screen calculations.

The screen can be dumped to the printer.

BROWSE

Has the same updating ability as KEY but you can't create or delete records, change the key field or duplicate information from one record to another.

You can apply a selection file to exclude certain records or you can scan the DMS file via a sorted file.

APPENDIX 4 - DIFFERENCES BETWEEN KEY, MASK AND BROWSE

BROWSE really comes into it`s own when used with a sorted file. It allows you to scan the DMS file in any order, it allows duplicate keys and will search the index for a specific value.

For example imagine a book file that is stored by book number as the main key. Using this option attached to a file sorted by, for example, author, you could rapidly answer such questions as what books have we got by Shelly. DMS would position you at the first book, and by using the left and right arrow keys allow you to browse up and down the file.

APPENDIX 5 - SOME EXAMPLE FILE DEFINITIONS

There follows examples of four file definitions :-

DMS FILE NAME EMPAGENT File title = STAFF AGENCY APPLICANTS RECORD

Created 09/SEP/81 Last accessed 25/MAR/82 Records used = 13
Number of fields = 26 Record length = 445 Maximum records = 100

Field name	No.	Type	Length	Field name	No.	Type	Length
APPLICANT NUMBER	1	C	8	SURNAME.....	2	C	30
FIRST NAMES.....	3	C	30	ADD1.....	4	C	20
ADD2.....	5	C	20	ADD3.....	6	C	20
TEL NO.....	7	C	15	TEL NO WORK.....	8	C	15
DATE OF BIRTH...	9	C	10	AGE.....	10	N	6
PRESENT SALARY..	11	N	10	MIN SALARY REQ..	12	N	10
AREAS PREFERRED.	13	C	40	GEN FIG WORK....	14	C	10
COSTING.....	15	C	10	CREDIT CONTROL..	16	C	10
TYPE OF JOB REQ.	17	C	30	COMPUTERISED....	18	C	10
SHORTHAND WPM...	19	N	10	TYPING WPM.....	20	N	10
AUDIO EXP.....	21	C	10	TELEX EXP.....	22	C	10
DUMMY1.....	23	C	20	DUMMY2.....	24	C	30
DUMMY3.....	25	C	20	DUMMY4.....	26	C	30

DMS FILE NAME JOBS File title = Job costing file.....

Created 05/APR/82 Last accessed 05/APR/82 Records used = 0
Number of fields = 20 Record length = 287 Maximum records = 100

Field name	No.	Type	Length	Field name	No.	Type	Length
Job number.....	1	C	12	Description.....	2	C	75
Due date.....	3	D	7	Estimated time..	4	C	8
Final start date	5	D	7	Quoted price....	6	N.2	8
Customer AC.....	7	C	4	Mat 1 cost.....	8	N.2	8
Mat 2 cost.....	9	N.2	8	Total material..	10	N.2	8
Lab 1 cost.....	11	N.2	8	Lab 2 cost.....	12	N.2	8
Total labour....	13	N.2	8	Misc costs.....	14	N.2	6
Total all costs.	15	N.2	9	Budget cost.....	16	N.2	9
Budget var.....	17	N.2	8	A\C charge code.	18	C	4
Gross profit....	19	N.2	6	Comment.....	20	C	75

DMS FILE NAME TAKINGS File title = SWEETIE WEEKLY TAKINGS REPORT.

Created 12/MAR/82 Last accessed 03/APR/82 Records used = 0
Number of fields = 37 Record length = 333 Maximum records = 100

Field name	No.	Type	Length	Field name	No.	Type	Le
SHOP AND WEEK NO	1	C	8	COUPONS.....	2	N.2	
EXPENSES.....	3	N.2	9	CASH BANKED.....	4	N.2	
GROSS TAKINGS...	5	N.2	9	TOBACCO.....	6	N.2	
CONFECTIONERY...	7	N.2	9	NEWS.....	8	N.2	
OTHER.....	9	N.2	9	GROSS TOTAL.....	10	N.2	
TOBACCO NET.....	11	N.2	9	CONFECTION NET..	12	N.2	
NEWS NET.....	13	N.2	9	OTHER NET.....	14	N.2	
NET TOTAL.....	15	N.2	9	TOBACCO %.....	16	N.2	
CONFECTIONERY %.	17	N.2	9	NEWS %.....	18	N.2	
OTHER %.....	19	N.2	9	TOTAL %.....	20	N.2	
TOBACCO BUDGET..	21	N.2	9	CONFECT BUDGET..	22	N.2	
NEWS BUDGET.....	23	N.2	9	OTHER BUDGET....	24	N.2	
TOTAL BUDGET....	25	N.2	9	TOBACCO VARIANCE	26	N.2	
CONFECT VARIANCE	27	N.2	9	NEWS VARIANCE...	28	N.2	
OTHER VARIANCE..	29	N.2	9	TOTAL VARIANCE..	30	N.2	
TOTAL VR CONTROL	31	N.2	9	TOBACCO VAR %...	32	N.2	
CONFECT VAR %...	33	N.2	9	NEWS VAR %.....	34	N.2	
OTHER VAR %.....	35	N.2	9	TOTAL VAR %.....	36	N.2	
TOT VAR % CONT..	37	N.2	9				

DMS FILE NAME CUSTOMER File title = Customer file.....

Created 05/APR/82 Last accessed 05/APR/82 Records used = 0
Number of fields = 20 Record length = 694 Maximum records = 100

Field name	No.	Type	Length	Field name	No.	Type	Le
Customer name...	1	C	45	Address1.....	2	C	
Address2.....	3	C	30	Address3.....	4	C	
Post code.....	5	C	12	Tel no.....	6	C	
Contact name....	7	C	25	Last sold to....	8	D	
Last visited....	9	D	7	Last mailed.....	10	D	
Salesman.....	11	C	25	Products sold...	12	C	
Sales this year.	13	N.2	10	Sales curr. qtr.	14	N.2	
Sales prev. year	15	N.2	10	Parent company..	16	C	
Comment 1.....	17	C	80	Comment 2.....	18	C	
Comment 3.....	19	C	80	Comment 4.....	20	C	

APPENDIX 6 - NON CURSOR ADDRESSABLE SCREENS

Versions 1 and 1.2 of DMS supported non cursor addressable screens, the enhancements to the screen handling in version 2 require full cursor control.

COMPSOFT can still supply the routines that were used in the original version.

If you are in the situation where you are unsure about the above then please consult your dealer.

APPENDIX 7 - DETAIL CONFIGURATION

Introduction

This appendix should only be used if you failed to configure DMS during section 1 of the manual.

1.1 Configuring for particular hardware.

Basic configuration is straight-forward, if the terminal in use is shown on the menu . If the terminal is not shown then the configuration must be done manually - see section 1.3 of this supplement for details.

Select the terminal in use from the menu displayed, by pressing the appropriate key. If the configured terminal is not to be changed then pressing '<' will skip to the next prompt.

No further changes should be required to the standard terminal codes.

Keyboard configuration.

DMS allows the keys used to control cursor movement to be user-defined. These keys can be any keys in the range ^A (control-A) to ^Z, except ^M which corresponds to a carriage-return. In addition the 'delete to the left' function may be defined as a RUBOUT character (ASCII value of 127). To define a key function, depress the appropriate key combination at the prompt. Six functions are currently available:-

Function.	Default value.
Cursor left	^H
Cursor down	^J
Cursor up	^K
Cursor right	^L
Delete to left	RUBOUT
Insert to right	^I

The cursor movement keys correspond to the values returned by the arrows fitted to many terminals. (These and some other special purpose keys fitted to some keyboards return a value in the correct range - it may not be necessary to press the <control> key simultaneously.). Some machines, which are dedicated principally to word-processing, may return different values from those shown - check this.

APPENDIX 7 - DETAIL CONFIGURATION

Printer configuration.

Configuration of the printer controls is restricted to supplying the page width, and length in columns and lines respectively. Page width should be 80 or 250. Page length should be supplied in the range 66 to 88.
Expanded print can also be used at certain places in the system, and eight codes each can be supplied to turn it on and off. This could be used to provide other features, but they could only be used where expanded print is currently available.

The next part of the configuration is needed when you are going to use a cut sheet feeder. There are two things you will need to supply to use a cut sheet feeder:

1. The offset before printing starts.
2. The length of the form being used.

Most of this information will be supplied in your printer and cut sheet feeder manual. Normally you would set an offset of 20 characters in from the left, this allows the print head to stay slightly to the right of the left margin of the sheets as they are fed in by the sheet feeder. Secondly, when using A4 you should tell the printer it has paper that is 78 lines long, DMS that it has paper 66 long and to leave a 12 line margin at the bottom of each page.

The following entries can be made:

1. Supply the codes to tell the printer to set the left margin, up to 8 codes may be supplied.
2. In certain cases the printer needs to be spaced in to the position that you require the left margin prior to sending the above code. Enter a number from 0 to 80.
3. Supply the code sequence to tell the printer to expect a page length of 'n' characters, where 'n' often is set to 78.

Disc drive configuration.

A map of the disc drive configuration is held in the DMS configuration file. The default map is presented in the format:-

```
ABCDEFGHIJKLMNOP
..
```

indicating that drives A and B are present. Reconfigure to the host disc system by entering a space if a drive is absent, or a full stop if it is present. Pressing any other key will result in the entry for that drive being left unchanged. Pressing <return> will leave the current, and all subsequent drives, unchanged, and will present the prompt "Please confirm your selection".

You can now supply the drive number that you would like DMS to default to when looking for data files.

1.3 Custom terminal configuration.

APPENDIX 7 - DETAIL CONFIGURATION

Custom configuration of the screen-handling programmes is considerably more complex. It is recommended that this be entrusted to somebody with previous experience in installing software for particular hardware. A menu of common terminals is provided, and selection of any one of these will provide the codes for the specified terminal. If the terminal is not shown then the control codes will have to be supplied by the user.

Mandatory entries.

The following information must be available to DMS.

Screen height, in lines.
Screens not less than ten lines and not greater than thirty lines are supported. If the screen concerned has more than thirty lines then enter the number of lines to be used. This will result in any surplus lines being left blank at the bottom of the screen.

Screen width, in columns.
Screen width should be a minimum of eighty columns. Widths of up to one hundred and thirty-two columns are available.

APPENDIX 7 - DETAIL CONFIGURATION

Screen clear and home control codes, and delays.
Up to eight codes are available for this, and most other multi-functions. The sequence of codes supplied should clear the screen, leave the cursor in the top left hand corner (home). Some termi also require a delay after a clear screen character is sent, to a time for the screen to clear fully. Specify a value in millisecond

Cursor addressing codes.
These codes must be available, and must be correct to ensure co operation. No provision is currently made for user-written cu positioning subroutines.

Cursor control keys.
These are configurable, and should be in the range ^A (control/ ^Z, except ^M (carriage-return). The 'delete left' may als configured as 'RUBOUT' (ASCII value 127 or 7FH).

Printer dimensions.
Page width, in columns. This value should be 80-132.
Page length, in lines. Values in the range 66-88.

Disc drive configuration.
A 'map' is kept of all logical disc drives attached to the syst

Optional features.

All other features are optional, and are provided to enhance the oper of DMS. If these entries are not made, then DMS will not use them.

Terminal initialisation codes. Up to eight bytes to be sent t terminal at the beginning of the run.

Terminal de-initialisation codes. Up to eight bytes sent t terminal at the end of the run.

Reverse/Enhance video. Eight bytes each to turn on, and tur reversed or enhanced video.

Expanded print. Up to eight bytes each to turn on and off expanded print facility on matrix printers. These codes could be to make other features available, but could only be used where exp print is currently available.

Installation - a detailed walk-through.

Select the configuration option from the menu. A menu will be displaye the screen, showing the standard terminals currently supported. I terminal concerned is not shown then enter '>' (None of the above). In case see the section headed 'Custom Terminal Installation'. If this is 'first-time' installation then enter '<' (No change) to skip over the terminal configuration. Any other valid selection will result in appropriate control codes being provided automatically.

APPENDIX 7 - DETAIL CONFIGURATION

Many terminals emulate other terminals in their operation. The Visual 200, for example, can emulate the ADM-3A, the Hazeltine 1500, or the 520+. This often results in 'special' features being added to the operation of 'standard' terminals. To cater for this the option is given to alter the standard terminal controls after selection, thus giving the ability to add reverse video to an ADM-3A emulation.

Custom Terminal Installation

General.
Read this sub-section thoroughly before installing the mandatory codes. Any errors at this stage will result in a total failure of the programmes concerned. Single byte codes are displayed as a prompt, followed by the current value in square brackets. Pressing <escape> causes the displayed value to be retained as the new value, and the next prompt is displayed. Multiple byte sequences are displayed as a prompt, followed by the number of bytes in the sequence, and the ASCII values of the current codes, all contained within square brackets. The operator is then prompted for a Y/N response to the question "Change the xxxxxxxxxx codes? (Y/N)". 'Y' presents each code in turn, in the same manner as single byte codes; 'N' skips to the next prompt.

Screen Height.

Enter a value in the range 10 to 30. If your screen has more than thirty lines then enter the number of lines that you wish to use. This will result in the bottom-most lines being unused.

Screen Width.

In common with the rest of the system, the smallest supported screen width is eighty characters. Terminals with an optional screen width greater than this (E.g. the DEC VT-100) may use lines up to one hundred and thirty-two characters in length.

Screen Clear.

Up to eight bytes may be entered. Specify firstly the number of bytes to be used. The following bytes must leave the screen blank, and the cursor in the top left hand corner (home).

Some terminals require a delay after sending a clear screen character, to allow the screen to clear fully. Known examples are the Volker-Craig VC404, and the Hazeltine 1410. DMS uses a precision timing loop to generate the delay, each execution of which generates a delay of one millisecond. Specify a total delay in the range 0ms to 255ms. Note that these times are based on a Z-80A processor running at 4MHz. If the clock frequency of the host machine is, for example, 2MHz then the loop will generate a delay of 2ms. Adjust the supplied value accordingly.

APPENDIX 7 - DETAIL CONFIGURATION

Terminal initialisation codes.

Up to eight bytes which are sent to the terminal before programme execution begins. These can be used to turn on reverse video attributes, set a new line length, or anything else that may be needed.

Terminal de-initialisation codes.

Up to eight bytes that are sent to the terminal immediately before returning to the main menu. Once again, these can be used for any required purpose.

Cursor addressing codes.

This is possibly the most complex part of the installation procedure. The variety of different addressing methods implemented by different manufacturers leads to a complex piece of software to address the cursor on a range of terminals. Ensure that the following paragraphs are fully understood, before installing the terminal.

The cursor addressing sequence generally takes the form of a lead-in code sequence, followed by the first co-ordinate, followed by a separator code sequence, followed in turn by the second co-ordinate, and followed finally by a trailing code sequence. Many terminals, however, dispense with the separating and trailing codes. Up to eight codes may be supplied for each of these sequences.

Coordinates can be used in many forms. The standard form is line supplied before column, both supplied in binary, and both supplied with an offset of 32(decimal) (i.e. line 32 is the top line of the screen). Each of these parameters is defined individually.

Line offset.

The decimal number added to all line references before they are sent to the terminal.

Line sequence format.

Coordinates are generally sent in binary (e.g. line 5, with an offset of 32, would be sent as the byte 25H - a binary representation of 37). However, some terminals demand that the coordinates be sent as ASCII characters. In this case our example above would result in the two characters '3' and '7' being sent to the terminal. Set this flag to zero, for binary, and to 255 for ASCII format.

Column offset, and column sequence.

These parameters define the format for column co-ordinate,. in the same way as those above define the format for the line co-ordinate. Line and column parameters may NOT necessarily be required in the same format.

Column before line sequence.

Set this value to zero to send the line address before the column address. If a value of 255 is supplied then the column co-ordinate will precede the line co-ordinate.

APPENDIX 7 - DETAIL CONFIGURATION

Reverse video 'on' sequence.
Up to eight codes to turn on a reversed or enhanced display mode on the terminal.

Reverse video 'off' sequence.
Up to eight codes used to turn reverse/enhance mode off.

This should complete the installation of the terminal related information.

APPENDIX 8 - ERROR CODES

Introduction

The following is a list of the common disk errors. Most of these will be trapped by DMS, however there are occasions where due to machine or operator problems some of the errors may be displayed on the screen.

In most cases returning to CP/M, fixing the problem and returning to DMS will allow you to carry on.

In cases of doubt you should run the DMS program VERIFY. This program is not part of the normal DMS menu, but is on the distribution disk. You should copy this program to your system disk, and type VERIFY to run it.

Some of the more common disk errors are:

CODE	ERROR	POSSIBLE CAUSE AND SOLUTION
52	Bad file number	Program corruption. Copy from your backup disk.
53	File not found	The file requested is not on the disk.
55	File already open	Exit DMS and restart.
58	File already exists	Should be trapped, restart the program.
61	Disk full	Change disk, or delete some files.
63	Bad record	Run verify
64	Bad file name	Restart and use a valid file name
67	Too many files	Too many files are on the disk.

APPENDIX 9 - GLOSSARY

Introduction

These are some of the common terms used in this manual.

This was prepared using DMS for data entry and sorting, followed by Mailmerge for the print formatting.

ASCII
A type of protocol often used on microcomputers.

BACKUP
To copy a disk or file in order to be able to recover data in the event of a machine failure. Should be done as often as possible.

BATCH
Telling DMS to carry out an instruction on the whole of a DMS file.
Typical parts of DMS are processing, using COPY to update a file, and of course reporting.

BROWSE
Searching a file by the contents of a field other than the key field.

BYTE
For use on micros a BYTE can be defined as being the same as a character. Characters are things like aA,19R, in fact anything you can type on the keyboard.

CONFIGURE
To set up DMS for various VDUs and printers.

CONTROL KEY (CNTRL)
When the control key is pressed AT THE SAME TIME as another key, the computer uses the two keys together to give a composite key. In the manual where you see an up arrow (^) followed by a letter, it means press them both together.
For example in MASK, ^I allows you to insert a space in the middle of text.

CURSOR
The movable square that indicates where information is to be typed on the screen

CURSOR CONTROL KEYS
The keys that are used to move the cursor around the screen when using the maskpart of DMS. Often keyboards will have keys with arrows on them, other keyboards will use a key pressed with the control key.DMS can be configured for either.

APPENDIX 9 - GLOSSARY

DATA
Information to be held by the computer e.g names and addresses etc.

DISK DRIVE
Most floppy systems have drives A and B.
Hard disks may be upto drive P.

ESCAPE KEY
Used at various points in DMS to get out of a function or, in the case of mask,to bring up a help message.

FIELDS
A field is a section of a record.
Numeric fields contain numbers for arithmetic use e.g. salary, quantity stocked.
Character fields contain all sorts e.g. telephone extension, address, name.
Date fields contain dates e.g. date of birth, date of joining.

FILE
A collection of similar information e.g. stock file, personnel file.
Usually divided into records.

FILE DEFINITION
The information DMS uses to describe a file, contains things like the number of records on the file, the last used date, the description of the fields etc.

FORMAT
A utility that will prepare a new, or used, disk for new information.

GLOBAL SEARCH
Also called window or string search.
Allows you to search a whole field for a bit of information anywhere in that field.

K
This is computer slang for a thousand, hence 250K bytes is 250 thousand bytes.

KEY FIELD
The first field in a DMS record is defined as the key field.
Used for rapid retreival of information, and must be unique.

LINKING
See LINK option. Is used to pass information from a DMS file to another system, e.g a word processor.
Information may be selected, sorted and processed prior to linking.

LOG ON
The action, usually on a multi user system, of telling the computer you are there.

APPENDIX 9 - GLOSSARY

MASK
To superimpose a mask over the main file definition, giving special screen display facilities.

MEGA
Mega or M is short for one million, hence 10M bytes is ten million bytes.

NULL FIELD
A field with no information. In DMS null fields are as follows: Character - filled with blanks, numeric - 0, dates - also 0 i.e. 01jan01.
Note that when searching for null fields, particularly character fields, you must use partial field operation.

PARAMETERS
A set of instuctions telling DMS to do something. e.g. sort,select,label etc.

PARTIAL FIELD
Not the whole of a field. Usually specified with a start position and the number of characters to be used. Used in sort and select.

PASSWORD
A combination of 8 characters that may be applied to a file and/or a mask to restrict access to all or parts of a file.

PROCESS
Carrying out some arithmetic or manipulative action on a DMS file, may be done to a whole file, selected records from a file, or only to input records.

PROGRAM DISK
.The disks that contain the DMS programs.

PROTOCOL
Sometimes a language, or sometimes a type of electrical signal. It is the method that the individual bits of the computer use to talk to each other.

RANGE SEARCHING
Finds information between two values e.g 123 and 654 or AA and GG.

REBOOT
DON'T DO THIS ON A MULTIUSER SYSTEM UNLESS YOU KNOW WHAT YOU ARE DOING.
The action of loading CP/M, either when you first start in the morning, or after pressing the RESET button on your computer.

RECORD
A collection of information about a particular item, e.g. on a stock file - the stock item, on a personnel file - a person.
Will usually be divided into fields.

APPENDIX 9 - GLOSSARY

RETURN KEY
The key you press to signal to the computer that it is to take note of what you have just typed, if you are repling to a prompt with a single character you may not need to press the return key.

SELECTION
A set of parameters to find all records on a file that meet certain criteria.

SORT
To put records in a certain order, used prior to printing or 'browsing'.

TRANSACTION LOGGING
Printout of all additions, deletions, updates or processing as they happen.

UTILITY
A program, normally supplied with CP/M, that allows you to do such things as: Copy files - PIP. Format disks - FORMAT. Enquire about space on a disk or how long a file is - STAT. Move CP/M to another disk - SYSGEN. etc.

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