

The Electronic Card Index

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WARNING

Serious loss of data can occur when using any software product which incorporates disk handling routines. Hardware failure, power fluctuations, faulty media or removal of media before the program has updated them can all precipitate such a problem.

It is not always possible to recover from such an occurrence. Therefore:

1. KEEP REGULAR BACK-UP COPIES OF YOUR DATA FILES AND WRITE-PROTECT THEM
2. KEEP YOUR MASTER DISK SECURE AND ONLY USE THE WORKING COPY OF YOUR PROGRAM
3. DO NOT LOAD BACK-UP FILES OR THE MASTER DISK UNTIL YOU ARE SURE THE COMPUTER IS FUNCTIONING CORRECTLY
4. COPY YOUR BACK-UP AND USE THIS COPY FOR RECOVERY PURPOSES

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INTRODUCTION

Welcome to Cardbox, the electronic card-indexing system which is as easy to use as a conventional card index yet hundreds of times more powerful. Cardbox displays individual records on the screen in the form of 'cards' to your own design. Information is entered and retrieved in this format. Sometimes you will want to see only selected parts of records or you may want them rearranged so Cardbox gives you the ability to define any number of alternative card layouts which may act as 'windows' on your main card design. This latter facility is particularly useful for printing or passing information out of your Cardbox files into other programs.

You can ask Cardbox to find those records which satisfy a succession of requests, each of which is typed in plain English. For example, you may wish to select all the records which mention Cardbox and Brainstorm but not Optimiser. As each request is presented, Cardbox acts like a sieve, sifting through the records according to your stated needs, refining the number of records selected until you end up with just the cards you need. Up to ninety-nine separate requests can be combined in this way to form a single search.

Cardbox is an immensely powerful method of handling large amounts of information in a natural and friendly way. Thousands of users have already found it to be a vital ingredient in their mix of computer applications.

Manual Layout

This manual has been specially designed to enable you to become familiar with Cardbox as quickly as possible. It comprises both tutorial and reference material organised to make learning as rapid as possible. All the chapters may be used for quick reference after you have learned to use Cardbox. In addition, five of the chapters begin with a tutorial section which takes you through a worked example. If you are new to computers or to this type of application then you will find it very worthwhile to work through the tutorial sections before designing and creating your own Cardbox system.

The chapters containing tutorial material are

- Cardbox Fundamentals
- Data Retrieval
- Data Entry
- File Handling and Printing
- Card and Print Design

Limits to Cardbox

Maximum number of records in a Cardbox file	65,500
Maximum number of characters per record	1,404
Maximum number of fields per record	26
Maximum number of indexed words per field	no limit
Maximum number of indexed words per record	no limit
Restriction on position of indexed words	no restriction
Maximum number of characters in indexed word	32 plus hyphens
Maximum file size	16MB (8 MB CP/
M-80)	

GETTING STARTED

Immediately on receipt of Cardbox we recommend that you copy your master Cardbox disk then put the original somewhere safe in case you ever damage your working disk.

Since machines and operating systems vary it is impossible to give an exact description of the procedure to follow but these are the likely steps you will need to perform:

- Write protect the supplied disk
- Format a fresh disk
- Copy your operating system on the fresh disk
- Copy all the files from the Cardbox disk to the new disk
- Do NOT write protect your new disk. Cardbox will write to it when in use.

If you are unsure about any of the above steps, refer to the documentation supplied with your machine.

Do not use a disk copy command to make your working Cardbox disk, the supplied disk does not contain an operating system.

Installing Cardbox

If you own a PCDOS or MSDOS computer (IBM PC or Apricot for example) then Cardbox will run without needing to be installed. You may skip the remainder of this chapter.

If you own a CP/M-80 system then you will need to install Cardbox for your machine. Two programs are provided for this purpose: TERMDEF and TERMGEN. Which one you use depends on the .DEF files provided on your Cardbox disk:

Type **DIR *.DEF** followed by **RETURN** to get a listing of these files

If your screen type is listed then you will use TERMDEF alone. If it isn't then you will need to use TERMGEN followed by TERMDEF. TERMGEN is described following this description of TERMDEF.

TERMDEF

To use TERMDEF, simply TERMDEF then RETURN and you will be asked to supply the definition file name. Enter the name of the .DEF file (there's no need to enter the .DEF part). You will then be asked for the baud rate of the terminal. Enter 0 unless you know the transmission speed between your computer and its screen.

You may be asked other questions. If in doubt about the answers, simply answer 'N' to each of them. You cannot harm Cardbox or your machine if you give an incorrect answer.

When TERMDEF has finished it will display the following message:

```
FILE 'TERMINAL.DEF' WRITTEN
```

If you want to break out of TERMDEF simply press 'CTRL' and 'C' together. If a message appears containing the words 'OUTPUT ERROR' this means your disk is full, its directory is full or you have put a write-protect label on it. If any other error messages appear it will either mean that you have made a typing error or the files have not copied properly from your master disk.

TERMGEN

TERMGEN is used to generate a '.DEF' file which TERMDEF can use. If you are sure that none of the listed '.DEF' files satisfy your requirements then you will need to find out some details of how your computer screen is handled. The information should be in your computer handbook under headings such as 'Cursor addressing' or 'Screen control'.

If you make a mess of things or just don't know where to start, refer to your computer supplier for the answers to the following questions.

On many screens you will be able to get away with answering only questions C, E, G, H, J and K. The most common answer to G and J is '1'. The most common answer to H and K is either '0' or '32'.

- A: What control characters are used to initialise the screen?
- B: How many milliseconds delay before sending anything else?
- C: What control characters are needed to clear the screen?
- D: How many milliseconds delay before sending anything else?
- E: Which screen coordinate is sent first? Row or column.
- F: What characters precede the first coordinate?
- G: How is the coordinate sent? 1 byte, 2 ASCII or 3 ASCII
- H: What offset needs to be added to this coordinate?
- I: What characters precede the second coordinate?
- J: How is the coordinate sent? 1 byte, 2 ASCII or 3 ASCII
- K: What offset need to be added to this coordinate?
- L: What characters follow the second coordinate?
- M: How many milliseconds delay before sending anything else?
- N: What characters needed to clear to end of line?
- O: How is highlighting controlled (if at all)?
- P: What characters needed to set highlighting on
- Q: What characters needed to set highlighting off

Once you have found the answers to these questions you can load TERMGGEN (Type TERMGGEN and hit RETURN) and key them in to the program. Make sure that the file name you choose is not one supplied with Cardbox. Entries are made by hitting the prompt character followed by the appropriate value. Press 'Z' to see the answers you have put in so far.

Control characters can be put in as either hexadecimal, as letters or as a mixture of both. Letters are prefixed with an apostrophe to differentiate them from hexadecimal values. Up to eight control characters may be defined per sequence. For example ESC= would be entered as '1B' =.

The questions are answered as follows:

A, C, F, I, L, N, P and Q:	Up to eight control characters
B, D, H, K and M:	Decimal value
E:	0: column first. 1: row first
G and J:	1, 2 or 3
O:	0: no highlighting possible 1: P and Q set highlighting but do not occupy screen positions 2: P and Q set highlighting but do occupy screen positions 3: P and Q not used. Top bit set sets character highlighting on 4: P and Q not used. Top bit set sets character highlighting off

Highlighting on can be achieved with bright, normal or reverse video control sequences. Highlighting can be switched off using normal or dim controls.

Press 'X' to complete a TERMGGEN session. A '.DEF' file will be created according to the name you supplied earlier. Now run TERMDEF to create the TERMINAL.DEF file necessary to run Cardbox.

If your Cardbox screens look peculiar then it is probably because you have made a mistake in TERMGGEN. You may edit your '.DEF' file by loading TERMGGEN and giving the name of your existing '.DEF' file.

Starting Cardbox

Nothing could be simpler. With your working disk in the current disk drive, type CARDBOX and hit RETURN to get the Main Menu.

CARDBOX FUNDAMENTALS

Cardbox allows you to create and amend a file of records each of which is held in a format of your own design. Cardbox hold the design in a separate file with a suffix '.FMT' and the records themselves in a file with the suffix '.FIL'. The records are held as compactly as possible and there is no 'padding out' to make records the same length. Each record occupies only the space it needs to. Both files bear the same prefix. For example, we have supplied you with files called CUSTOMER.FIL and CUSTOMER.FMT. Other '.FMT' files will allow you to print, write or simply examine records in alternative ways.

Cardbox has been designed to be as easy to use as possible. Maximum use is made of plain English, mnemonics and extensive use of screen prompts to guide you.

In the main part of Cardbox, two-letter mnemonics are used to call up a command. As soon as the second letter is typed the rest of the command word is displayed. Many commands will then be executed simply by hitting RETURN. Others may contain further options which are accessed by their initial letters. Examples of two-letter commands are PR (print), SE (select) and HI (history). Examples of single letter options are F (file name), M (mode) and D (draw). Whenever options are required by Cardbox, you can keep changing them until you are happy with your choice. At this point press ESCAPE then Q, E or G - more mnemonics which stand for Quit (ie abandon the whole command), Edit (change the options selected) or Go (execute the command).

Messages at the top of the screen let you know what Cardbox is doing:

WAIT	Cardbox will not receive anything you type
READY	Cardbox is waiting for you to type something
LINK	Cardbox is changing between programs
INDEX	Cardbox is indexing or unindexing a record
PRINT	Cardbox is sending text to your printer

If at any time the screen becomes corrupt you may press ^O (CTRL and 'O') to redisplay it. Screen printing takes place when you press ^P, providing your printer is connected as your operating system's standard list device.

Main Menu Options

The main menu is displayed as soon as you load Cardbox. (Type 'CARDBOX' when at the A> prompt.)

```
CARDBOX                                     READY
PRIMARY FUNCTIONS:                          SECONDARY FUNCTIONS
==> Database                                ==> Use
      Format definition                       Analyse
      Operating system utilities            Create
                                           Repair

PRIMARY-FUNCTION = ,[DATABASE]
SECONDARY-FUNCTION = [USE]

FILE =*
CHANGE-DISKS = [NO]

Hit E to change options or Q to leave Cardbox:
      (options marked "*" are invalid)
```

This menu gives access to all the major functions of Cardbox. It allows you to tell Cardbox what you want to do and to specify the files to be used. The top half of the screen shows you what functions are available while the bottom half shows the functions and options you have selected.

Press 'P' and watch the effect on the top half of the screen. 'P' stands for the primary function and it moves the arrow in the top left hand quarter of the screen down a line to the Format Definition function. Notice that the secondary functions available in the top right hand quarter of the screen have now changed to show those available within Format Definition. Press 'S' to move the arrow pointing to the secondary options down a line. When you have

finished experimenting, press 'P' repeatedly until the arrows are pointing to Database and Use again. The arrows are always at Database and Use when you first enter Cardbox.

Press 'F' and Cardbox asks for the name of the file you wish to use.

Type **CUSTOMER** then press **RETURN**

You are now ready to use the CUSTOMER.FIL file supplied with Cardbox. Now press ESC followed by 'G' (for Go) to tell Cardbox you are ready to use the CUSTOMER.FIL file. If you want to finish this session of Cardbox press 'Q' (for Quit) in place of G'.

Cardbox will now display the first card in the CUSTOMER.FIL file according to the design contained in the CUSTOMER.FMT file.

Quitting Cardbox safely

Before terminating any Cardbox session it is very important to ensure you are back at this Main Menu screen. Cardbox writes to disk frequently while you are using it and it is possible to corrupt your files if you simply remove the disk without returning to the Main Menu. If you are in Database Use then simply type QU followed by RETURN to get back to this menu.

DATA RETRIEVAL

Card selection can be done by selecting or rejecting records according to their contents. The fastest way to achieve this is to search for indexed words. It is possible to access unindexed words but this is much slower. Searches can take place on a single field or according to the contents of the entire record.

If this is the first time you have entered the CUSTOMER.FIL file, you will be at the first record. The display at the top of the screen will look like this:

```
CARDBOX (U)   File = A:CUSTOMER.FIL   READY
Level 0 -- RECORD 1 OF 51
```

COMPANY Witherington Smythe and Associates		DATE 12.04.82 PGE 1
ADDRESS Hellwell House 176 Barton St	NME Mr Charles Witherington SAL Charles POS Senior Partner	
TOWN Preston COUNTY Lancs PSTCDE PR2 4HB TELEPHONE 0772 618573	LOB Accountants	
		MGR JRH CAT 2
HARDWARE IBM PC 256K Epson MX-100 SOFTWARE Multiplan WordStar Cardbox OTHER Training Disks Paper		OPS PCDOS
Pilot Site. Possible other 10 if all goes well.		

```
Enter command:
  MASK: SElect, INclude, EXclude; HIStory, BAck, CLear; LIstindex;
  Add, DUPLICATE, EDit, DElete; REAd, WRite; FOFormat, PRint; SAve, OUit
  LIST: ^R=1st ^C=last ^A=back ^F=fwd  ENTRY: ^X=erase ^H=backspace
```

Level 0 means that no selections have yet taken place. Each time you make a selection the level number increases by one. You may find that some of the words in the record are highlit in some way. These are the indexed ones in the current record. Indexing is explained in detail later on.

Looking at the foot of the screen you will see the range of Database Use commands available to you. On the very last line you will see a list of options each of which is prefixed by the ^ symbol. This is a conventional way of indicating that the CTRL key needs to be pressed in conjunction with a letter to perform the function.

Try pressing ^ F. You will see that you have moved to the next record in the CUSTOMER.FIL file. ^ A will take you back to the

previous record. Each time you press one of these combinations you will move forwards or backwards a single record. **^R** takes you directly to the first record and **^C** straight to the last one. You do not need to wait for the display to change before using these movement keys. The display will update itself when you finally release the keys.

Let's see what happens when we use the selection commands:
.SE

SELECT:

Let's see what happens when we use the selection commands:

SELECT: Type **SE**
 (the rest of the word SELECT is supplied by
 Cardbox)
 Now press / followed by **Cardbox**

Now press **RETURN** and watch the display at the top left of the screen. You will see that you have reduced the selection to 46 records and you are now at level 1. This means that 46 of the records contained the indexed word 'CARDBOX'. Incidentally, such searches convert all letters to upper case before trying to match them.

Now type **SE T0/London** Press **RETURN**

The selection at the top of the screen has been reduced to 26 records. These are the ones which contain the word Cardbox anywhere in the record and the word London in the T0 (for town) field.

EXCLUDE: Now type **EX S0/Brainstorm** Press **RETURN**

The selection has reduced still further to 18 records. We have thrown out all the records from the previous selection which contain the word Brainstorm in the S0 (software product) field.

Now we'll increase the selection.

INCLUDE: Type **IN SO/TNG** Press **RETURN**

The selection has risen to 29 records. We have brought in eleven records from outside of the previous selection which contain the letters TNG in the SO field.

And that's almost all there is to record selection. The only command left is **MA SK** which enables you to select records regardless of whether they're indexed or not. Be warned, on large files this is a very slow method of retrieval.

MASK: Type **MA SE/+HIGH+** Press **RETURN**

The selection is now just four records. Use 'F' and 'A' to switch between them, you will see that three are in a High Street and the other in a High Road. The plus on either side enabled Cardbox to disregard the building number and the word following High.

HISTORY: Now type **HI** and press **RETURN**

You will see a list of the selections you have made so far. You can make up to 99 consecutive selections and the last 18 will always be displayed using this **HI**story command. (Press **ESCAPE** when you have finished looking at the **HI**story display).

BACK: If you want to 'undo' a single selection, type **BA** followed by **RETURN**.

CLEAR: If you want to undo them all, press **CL** followed by **RETURN**.

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DATA RETRIEVAL - REFERENCE SECTION

Scanning commands

^R	moves to the first record in the file
^C	moves to the last record in the file
^F	move to the next record
^A	move to the previous record

Selection commands

The select commands all follow the same pattern:

Command [field mnemonic] / selection argument

The field mnemonic is optional. Here are some examples of Cardbox selection commands:

SE TO/LONDON	Selects all records with London indexed in the town field
EX SO/BRAINSTORM	Exclude all the records from the current selection with BrainStorm indexed in the Software field
IN SO/TNG	Ensure that all records with TNG indexed in the software field are included in the current selection
MA SE A1/+ROAD	Select all the records with the word Road at the end of field A1, regardless of whether it is indexed
MA EX TE/01+	Exclude all records containing a London telephone number, regardless of indexing
SE /LONDON	Select all records that contain the indexed word London anywhere in the record

From the above you can see that records may be retrieved according to their contents, whether indexed or not. Spelling uncertainties may be overcome through the use of the 'wildcard' characters '?' and '+'. The detailed rules are as follows:

- | | |
|----|---|
| SE | Out of the records already selected choose those which match the search argument |
| EX | Out of the records already selected reject those which match the search argument |
| IN | Keep the records already selected and add those which match the search argument to them |
| MA | This can prefix SE or EX to allow the search to operate regardless of indexing. Unlike the earlier commands which operate only on indexed words, MA will search on phrases containing spaces. Be warned that MA commands are much slower than those which access indexed words directly |
| ? | This may be used to substitute a single character in the search argument and may be used in any of the selection commands. |
| + | This is used to substitute any number of letters (including none). You will find yourself using this whenever searching for a sequence of characters in the middle of a word or, in the case of MA, in the middle of a field. |

Other commands which are used in conjunction with card selection and scanning work are Hlstory, BAcK, CLear and LIstindex:

- | | |
|-----------|---|
| Hlstory | This displays the last eighteen selections you made |
| BAcK | This 'undoes' the last selection made |
| CLear | This 'undoes' all the selections made and returns you to level 0 with all cards selected |
| LIstindex | This allows you to see if a word is indexed. The format is similar to the selection commands except that you do not need to press RETURN in |

order to see the display. For example LI /London will show all the fields which contain the word London whereas LI TO/London will simply confirm whether the TO field contains an entry for London. You will probably find it more interesting to do something like LI /BR+ to see all the indexed words starting with BR. Remember not to hit RETURN until you have studied the display. Up to 36 words will be displayed.

DATA ENTRY

New records are added to the file with the ADD and DUPLICATE commands. ADD presents you with a blank 'card' to fill in and DUPLICATE makes a copy of the current card so that you can amend it and then save the amended version as a new record. Existing cards may be edited and deleted using the ED and DE commands.

Make sure you are still in Database Use on the CUSTOMER.FIL file.

Now type **AD** and hit **RETURN**

A blank 'card' will be displayed:

```
CARDBOX (U)      File = A:CUSTOMER.FIL  READY
NEW RECORD:
```

COMPANY	DAT	PAGE
ADDRESS	NAME SAL POS	
TOWN COUNTY POSTCODE TELEPHONE	JOB	
HARDWARE SOFTWARE OTHER	MGR	CAT
OPS		

```
Enter command: ADD                                INDEX
CURSOR:  ^S=left  ^D=right  ^E=up  ^X=down  ^A=left word  ^F=right word
          ^R=start field  ^C=end field  ^B=previous field  RETURN=next field
EDIT:    ^V=insert space  ^G=delete character  ^I=index on/off  ESC=exit
```

Why not put in your own details? As you complete each field, hit RETURN to get to the next field. The following edit commands will help you if you make mistakes:

Backspace	^ S ^ H	Cursor right	^ D ^ L
Word left	^ A	Word right	^ F
Start of field	^ R	End of field	^ C
Previous field	^ B	Next field	RETURN
Cursor up	^ E ^ K	Cursor down	^ X ^ J
Delete	^ G	Insert space	^ V
Entry complete	ESCAPE		
Index on/off	^ I TAB		

Some fields will allow you to switch indexed words on and off. Experiment with **^ I** or your **TAB** key while you are typing words. If highlighting works on your screen, you will quickly notice what happens. If not, look in the bottom right hand corner of the screen. The word **INDEX** will appear whenever you are in an indexed word.

When you have finished entering your details:

Press **ESCAPE** followed by **S** (for Store)

Watch the top of the screen to see the index being created for your record.

Card duplication and editing works in the same way except that you use commands **DU** and **ED** to get into the cards in the first place.

Press **DE** to delete a card. If you are at level 0, the card just disappears. If you are at any other level, a 'tombstone' is left saying ***** DELETED RECORD ***** until you return to level 0, usually with the **CLear** command.

DATA ENTRY - REFERENCE SECTION

Editing keys

The following keys are used to edit your entries whether in ADd, DUPLICATE or EDit commands:

Backspace	<code>^S ^H</code>	Cursor right	<code>^D ^L</code>
Word left	<code>^A</code>	Word right	<code>^F</code>
Start of field	<code>^R</code>	End of field	<code>^C</code>
Previous field	<code>^B</code>	Next field	<code>RETURN</code>
Cursor up	<code>^E ^K</code>	Cursor down	<code>^X ^J</code>
Delete	<code>^G</code>	Insert space	<code>^V</code>
Entry complete	<code>ESCAPE</code>		
Index on/off	<code>^I TAB</code>		

ADd, EDit and DUPLICATE

Type the appropriate command (AD, ED or DU) and then type your field entries in upper and lower case, using the above editing commands where appropriate.

When your entries are complete, press ESCAPE followed by 'S' to store the new or amended record. 'E' to make amendments to your entries or 'Q' to abandon the record. In the case of the EDit command, this latter option will leave the original record unchanged.

Delete

Deletes and unindexes the record currently on display. If the selection is at any level other than zero, a 'tombstone' marker is left to show where the missing record used to be. Once the selection is returned to level zero these 'tombstones' disappear.

How Cardbox Indexes

Indexed words are separated by spaces. Each word to be indexed cannot exceed 64 characters, including hyphens. To create an index entry, Cardbox performs the following steps:

a - z	replaced with capital letters
A - Z	kept
0 - 9	kept
hyphen	kept

All other characters are ignored. Each element of a hyphenated word is indexed and the first 32 characters of the whole is indexed as well. Other words are indexed up to and including the 32nd character.

Examples:

Cardbox	CARDBOX
Alpha/beta	ALPHABETA
pruning	PRUNING
Hard-to-index	HARD TO INDEX HARDTOINDEX
words	WORDS
&	ignored

The SAve command

When adding, amending and deleting records. Cardbox periodically updates your disk. If there were a power failure, or someone were to accidentally remove your disk, you will lose all the data entered since the last disk update. You may find too that the index has lost data. SAve allows you to force an update of the disk whenever you wish. The QUIT command automatically updates the disk before returning you to the Main Menu.

FILE HANDLING and PRINTING

Cardbox can output its records in a variety of ways to satisfy a wide range of requirements. It can print to three types of paper - fanfold tractor-fed stationery, continuous roll or single sheets. It can write to disk in five different formats - print, ASCII text, ASCII with indexing, 'WordStar' and Cardbox Internal format for reading into Cardbox files. Stationery and file layouts are defined using alternative '.FMT' files.

We have supplied you with an alternative card layout.

Type **F0** and then **RETURN**

Now press **F** and enter **MAILLIST**

Press **RETURN**

Press **ESCAPE** and **G**

There will be a pause while Cardbox updates your present file and calls in the new card layout. When it appears on the screen you may be less than impressed since it lacks the boxes on the CUSTOMER.FMT card layout. This format has been designed for printing labels and for this, it is fine.

Select a few records from your file (**EX T0/LONDON** followed by **EX/B+** should cut it down).

Switch your printer on

Type **PR** then **RETURN**

Press **ESCAPE** and **G**

The 'labels' will be printed. If you have selected too many records, press **ESCAPE** and wait for the printer to stop. Some computer keyboards require the **ESCAPE** key to be held down, others remember that it has been pressed. Then press **'Q'** to abandon the printing.

This is just one example of how the **PRint** command can be used. If you didn't have a printer handy, you could have chosen the 'T' (for **TO DISK**) option within the **PRint** command, defined a file to receive your labels using the 'O' (for **Output file name**) option and 'printed' the records to disk. You would then need to exit **Cardbox** using the **QUIT** command followed by **ESCAPE** and 'Q' at the **Main Menu**. Once back at your operating system you could look at the dumped file using the **TYPE** command followed by your file name.

The **WRite** command works in a similar way.

Get back into **Cardbox** and into your **MAILLIST.FMT** alternative format file.

Type **CL** followed by **RETURN** to clear the current selection

Select some records (it's up to you how many).

Type **WR** followed by **RETURN**

Now press **M** (for **Mode**) a few times and watch the output mode change from **[INTERNAL]** to **[EXT, NO FLAG]** to **[EXT, FLAG]** to **[WS]** and then back again to **[INTERNAL]**

With **MODE** set to **[INTERNAL]** press **0** and type **DUMP** followed by **RETURN**

Press **ESCAPE** and **G** to write the file to disk

When the **WRite** is complete, type **F0** then **RETURN**

Press **F** followed by **CUSTOMER** then **RETURN** to get the original card back on the screen

Type **RE** followed by **RETURN**

Press **F** and then **DUMP** followed by **RETURN**

Press **ESCAPE** and then **G**

The name and address part of the CUSTOMER.FIL file you just put into DUMP is now being read on to the end of the existing file. Watch the indexing taking place at the top of the screen. Cardbox reads an internal file as if it were coming from the keyboard.

When the read is complete enter CL then RETURN to clear the current selection. Press ^ C to get to the last record and notice that only the name and address fields have been completed. Use ^ A to step back a few records and see that the same applies to all the newly added records.

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FILE HANDLING AND PRINTING - REFERENCE SECTION

FOrmat

Allows you to display and print records in an alternative format to that used for addition and amendment. Normally used in conjunction with the PPrint and WWrite commands. While using an alternative format, you may not use the AD, DU, ED, DE or RE commands.

Press 'F' to specify the file name. Cardbox assumes a file type of FMT, there is no need to specify the suffix. ESC followed by 'G' or 'Q' to perform or cancel the command.

PPrint

Prints the current selection in the format displayed on the screen.

PPrint options are as follows:

- T (for 'To') specify disk or printer
- O specify output file if printing to disk
- D select the drawing character for the card outline
- M select the printing mode:
 - Page, continuous - fanfold stationery
 - Page, single - single sheet
 - Unformatted - use this if printing to disk or if using a continuous roll of stationery
- S select the first record to be printed - either the start of the file or the current record

Press ESC followed by 'Q' or 'G' to quit or execute the option. Press ESC to interrupt this command.

WWrite

Dump the currently selected records to a file in one of the following formats:

Internal - this format is understood by the REad command. See the File Formats chapter

External - ASCII text:

With flags - indexed words are identified

No flags - all words look the same

WS - WordStar format. Ideal for linking to many other programs

Press ESC when the options have been chosen then 'Q' or 'G' to quit or execute the command. Use the ESC key to interrupt this command.

REad

Loads records into your file from a Cardbox Internal format file (created using the WRite command or from an external user-written program). Use the 'F' key to specify the file to be read followed by ESC the 'G' or 'Q' to go or quit respectively. Press the ESC key to interrupt this command.

CARD & PRINT DESIGN

One of the nice things about Cardbox is that you can design your card to suit your needs precisely. Titles, captions, boxes, multiple-line fields and lots more besides are among the possibilities offered by the powerful design facilities.

Both card and print layouts are designed using the Format Definition option on the main menu. Before designing a card we shall look at the format definition of the example CUSTOMER file you have been practising with.

At the main menu press P to select Format Definition on the Primary menu. The Secondary menu shows two options Edit and Create. Make sure the Edit option is selected.

Press F for file

Now enter CUSTOMER. Press RETURN

Press ESCAPE followed by G

The following screen will now appear:

```
CARDBOX (F)  File =  CUSTOMER.FMT          SELECT FUNCTION          READY
```

COMPANY	AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	DAT	IIIIIII	PAGE	JJJJJJJJJJ
ADDRESS	BBBBBBBBBBBBBBBBBBBBBBBBBBBBBB CCCCCCCCCCCCCCCCCCCCCCCCCCCC DDDDDDDDDDDDDDDDDDDDDDDDDDDD	NME	KKKKKKKKKKKKKKKKKKKKKKKK	SAL	LLLLLLLLLLLLLLLLLLLLLLLL
TOWN	EEEEEEEEEEEEEEEEEEEEEEEEEEEE	POS	MMMMMMMMMMMMMMMMMMMMMMMM	LOB	NNNNNNNNNNNNNNNNNNNNNN
COUNTY	FFFFFFFFFFFFFFFFFFFFFFFFFFFF	MGR	OOOOOOOOOOOO	CAT	PPPPPPPP
PSTCDE	GGGGGGGGGGGGGGGGGGGGGGGGGG				
TELPHNE	HHHHHHHHHHHHHHHHHHHHHHHHHH				
HARDWRE	OOOOOOOOOOOOOOOOOOOOOOOOOO				
SOFTWARE	RRRRRRRRRRRRRRRRRRRRRRRRRR	OP'S	SSSSSSSSSSSSSSSSSSSSSSSS		
OTHER	TTTTTTTTTTTTTTTTTTTTTTTTTTTT				
	UUUUUUUUUUUUUUUUUUUUUUUUUUUU				
	UUUUUUUUUUUUUUUUUUUUUUUUUUUU				

E=edit screen F=edit/create field D=delete field P=set print formats
EXIT: X=save file Q=abandon edit
Enter function code:

Every field except the one at the bottom of the card contains a caption. Captions are optional although they obviously make the card easier to understand.

Each field is filled with a string of identifying letters A, B, C... etc. The length of the string shows the maximum data space available in each field and the alphabetic sequence of letters used pa indicates the order in which data will be added when using the ADD, EDIT or DUPLICATE commands in USE mode.

For practice we shall design a card to display three fields from the CUSTOMER file: COMPANY identified by the letter A; NAME identified by the letter K; and the notes field identified by the letter U. The way in which we design this card is similar to the way in which you will create your own new file formats.

HINT: If you have a printer attached and switched on you can obtain a printout of the screen at any time by pressing ^ P.

Press Q to abandon edit mode with the CUSTOMER.FMT definition intact and return to the main menu.

Card Design

At the main menu select 'Format Definition' from PRIMARY FUNCTIONS and 'Create' from SECONDARY FUNCTIONS.

Press F for file

Type TEST and press RETURN

Press ESCAPE followed by G

You are now presented with a blank area on the screen which is the working space on which the card layout will be designed.

To draw the outline of a card:

Press **E** to enter edit screen mode

The cursor may be moved around the screen using **^S ^D ^E ^F**. On some computers you may also use the arrow keys to control the cursor. Practice moving the cursor, and return it to the top left hand corner.

Press **^Z** to enter **DRAW** mode

When you are in draw mode the word **DRAW** will appear on the bottom right of the screen after the **ROW COLUMN** indicator. **^Z** toggles **DRAW** on and off.

Now that you are in **DRAW** mode, any character you press will be reproduced when you move the cursor.

Press **+** and move the cursor across the screen

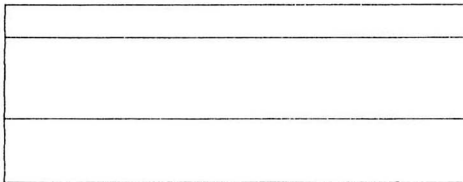
To delete the line of **+** signs:

Press **SPACE** and move the cursor back

The outline of the card can be drawn using any character, however you can also invoke automatic graphics by pressing **^W**. For those screens without full graphics capability pressing **^W** will produce a combination of hyphens, vertical lines and plus signs when the cursor is moved.

Press **^W** and move the cursor to draw a card shaped like this:

CARDBOX(F) File = TEST.FMT EDIT SCREEN READY



CURSOR: ^S=left ^D=right ^E=up ^X=down
EDIT: ^V=ins col ^G=del col ^N=ins row ^Y=del row
^W=graphics ^Z=draw ON/OFF ^P=print ESC=exit

ROW=10 COL=02 DRAW

HINTS: To move the cursor without drawing lines, switch DRAW mode off. To delete unwanted lines draw over them with spaces.

When you are reasonably satisfied with the shape of your card; switch DRAW mode off and move the cursor to the middle of the card.

Press ^G to delete a column

Note that the card shrinks from the right hand side.

Press ^V to insert a column

Note that the card expands to the right.

These two commands together with ^N to insert rows and ^Y to delete rows can be used to manipulate the shape of the card.

Now that you have drawn your card press ESCAPE to leave the screen edit mode.

Field Definition

We are now going to define the fields using the field edit command.

Press F (for 'field')

The first field we shall enter is the NAME field which was identified by the letter K.

Press K

You are now asked to enter the NAME, or mnemonic, for the field. This is the two letter identifier used in the search commands SELECT, INCLUDE and EXCLUDE.

Type **NA** and press **RETURN**

Move the cursor to the start of the first field.

Press **S** to signify **START** of field

Move the cursor to the end of the field.

Press **E** to signify **END** of field

The area should now be filled with a row of Ks. You will notice that Cardbox has kept the first and last character in the field blank for its own purposes.

Press **C** for caption

Type **Name :** and press **RETURN**

The caption 'Name:' is now embedded in the field.

When designing a new card the last action you need to take is to define the **INDEX** mode of the field.

Note that the index mode shown on the third line at the bottom of the screen reads **INDEX = [NONE]**

Press **I** to change to **INDEX = [MAN]**

Press **I** to change to **INDEX = [AUTO]**

Press **I** to change to **INDEX = [ALL]**

Press **I** to change back to **INDEX = [NONE]**

The indexing options relate to the way in which data may be indexed when using the **ADD**, **EDIT** or **DUPLICATE** commands in **USE** mode.

- [ALL] means that every word entered into the field will be indexed
- [NONE] means that no word entered into the field will be indexed and is generally used for fields which carry information which will not be used in searching
- [MAN] or manual, means that words entered into a field will only be indexed if ^ I or TAB is pressed when the word is added. An example may be a 'name' field in which only the surname is used for searching
- [AUTO] or automatic, means that all words entered will automatically be indexed unless ^ I or TAB is pressed. This facility is useful when entering text with keywords but allowing the exclusion of words like 'and', 'the', 'of' etc. from the index.

HINT: It is tempting to use the [ALL] mode 'just in case'. However the index does take up valuable disk space and the temptation to use this option indiscriminately should be avoided.

Press **I** until INDEX = [ALL]

Press **ESCAPE**

Now repeat the procedure for the remaining two fields on your card. You may define field end before start if you wish. Work to the following parameters:

Letter: **A** NAME: **C0** Caption: **Company:** INDEX: [AUTO]

Letter: **U** NAME: **N0** Caption: **Notes:** INDEX: [MAN]

Print Layout

Press **P** to display the print parameters. The parameters displayed

have default values which should serve most purposes for straight card print out. For label printing, adjustment of page size and margins will be necessary. To alter a parameter press its initial letter and then type in a new value. When you have finished setting parameters, you will be warned if your layout exceeds the page size. Press ESCAPE.

The print layout parameters are as follows:

- 'P' Page size: the number of lines per page of paper.
- 'N' Next page: use your printer's built-in form feed or just count lines.
- 'T' Top margin: the number of lines to be left blank at the start of each page.
- 'L' Left margin: the number of columns to the left blank at the start of each line.
- 'E' Entries per page: the number of Cardbox records to be printed on each page.
- 'B' Blank lines between entries: the number of blank lines to leave between successive records on a page.

Saving a Format File

(Did you remember to press ESCAPE when you finished designing your print layout?)

Press X

First the letters will disappear from the screen, followed by the card outline and you will be returned to the main menu.

The file TEST.FMT is now stored.

Press F

Type CUSTOMER. Press RETURN

Press ESCAPE followed by G

You are now back in the Customer file.

Enter **F0**. Press **RETURN**
Press **F**

Type **TEST**. Press **RETURN**

Press **ESCAPE** followed by **G**.

You will now see the current card displayed through the **TEST** format window.

Type **QU**. Press **RETURN**.

Creating a New Database

Select 'Database' from the **PRIMARY FUNCTIONS** and 'Create' from the **SECONDARY FUNCTIONS**.

Press **F**

Type **TEST**. Press **RETURN**.

Press **ESCAPE** followed by **G**

You will now be presented with a blank screen area and the usual prompts at the bottom of the screen.

Type **AD** and press **RETURN**

You can now add data to build up your file. Remember, your entries are made in alphabetical sequence of the single-letter field identifiers.

After quitting from this session you will be able to enter the new file, **TEST.FIL**, from 'Database Use'.

CARD AND PRINT DESIGN - REFERENCE SECTION

From the Main Menu select Format Create or Format Edit. This part of Cardbox will create or amend a card design which is held in a file with the suffix FMT. Using this facility you may design a card layout, the size and details of individual fields and the page layout required when printing. Each Cardbox file needs a FMT file to define its main format, additional FMT files may be used as alternatives when viewing or outputting records. It almost goes without saying that a FMT file must define at least one field in order to be usable. If you amend a card design for an existing file then fields whose contents do not fit the new design will be truncated the next time they are updated.

Edit the screen format (option 'E')

This option allows you to change the lines and characters which form the record design. Whatever is included here will appear on every record. Field captions are a special case and you may prefer to define them at the time of describing the field itself (see below)

The edit keys used are as follows:

^H or ^S	Cursor left	^L or ^D	Cursor right
^J or ^X	Cursor down	^K or ^E	Cursor up
^G	Delete column	^V	Insert column
^Y	Delete row	^N	Insert row
ESC	Finish editing the screen		

In addition to the above you may use **^Z** to enter and leave 'line drawing' mode. Any character pressed while in this mode will be repeated whenever a cursor movement key is pressed. To change the selected character, simply press another. To make screen drawing easier, you may press **^W** while in draw mode and a set of line drawing characters will automatically trail the cursor as it moves around the screen

Field definition (option 'F')

The text is organised into fields, each of which must be rectangular and contain the following attributes:

- Identifier: A single letter from A to Z which Cardbox uses internally to identify the field. The fields are entered and modified in the sequence of these field identifiers
- Name: A two letter name which serves as a reminder to the user when selecting records
- Caption: Up to sixteen characters to be embedded in the field. They appear to be part of the field but are not stored with it when updating Cardbox records
- Index: One of four indexing attributes:
- | | |
|------|---|
| NONE | No words are indexed and may not be switched on |
| MAN | No words are indexed but may be switched on |
| AUTO | All words are indexed but may be switched off |
| ALL | All words are indexed and may not be switched off |
- Start of field: First character position in the field. If you are using a field caption, the first character of the caption will appear here
- End of field: Last character position in the field

Note that Cardbox uses the first and last columns in a field for its own purposes. If using a caption, its first character will appear in the first column of the field

Enter the field identifier immediately following the 'F' command then change the values using N (Name), C (Caption), I (Index mode), S (Start of field) or E (End of field) respectively

When you complete a field, press ESC to return to the main options within the Format part of Cardbox

Delete a field (Option 'D')

Simply enter 'D' followed by the field identifying letter to remove all details. If you delete a field by accident there is no way of getting the details back unless you have a backup copy of the FMT file

Define print format (Option 'F')

This option defines the layout of the printed page. To alter a value, press the initial letter of the entry to change followed by its new value:

Page size:	The number of lines per page
Next page:	Whether to count lines or form feed to next page
Top margin:	Number of blank lines before first line
Left margin:	Number of blank columns at the start of a line
Entries/page:	Number of cards to appear on each page
Blank lines:	Number of blank lines between cards on a page

A warning message appears if the total number of lines exceeds the page size. Press ESC to complete the print format definition.

Saving the FMT file

Press X (for exit) to exit and save the new FMT file. If you accidentally press S (for save), this will work too. If you wish to abandon the work you have just done and leave any existing file unchanged, press Q.

Database analyse

If you are curious about the effectiveness of your file design, Cardbox provides the Database Analyse option from the main menu. This routine examines the contents of your file and provides a variety of different reports, depending on your interest. Its main use is probably to check the maximum size of entries in the various fields of your record after an initial period of use. You may then modify the card format to match the field sizes actually needed. The 'FMT' file is not needed when analysing a file. The options available in Database Analyse are as follows:

Read from: FILE = Enter the filename

Write to: DISK = YES sends the analysis to disk in text format

Note: if choosing disk output, you need to define the output file using the OUTPUT option

SCREEN = YES displays the analysis on the screen

PRINTER = YES sends the analysis to the printer

Analyse: INDEX = NO does not create an index report

= WORDS ONLY lists all the index words

= CROSS-REFERENCE lists each index word together with a list of slots containing that word. The pointers themselves aren't massively useful since they do not correspond to record numbers, they are provided more to give you an idea of how much a word has been used.

TEXT = NO does not create a report on the record contents

- = SUMMARY gives a report showing, for each field, the maximum size entry in the file. This is the option to use when redesigning your card layout
- = LIST lists the contents of every card with its slot number

Select the options you need by pressing their initial letters (F, D, S, P, I, T). Once all your options are selected, press ESC then 'G' to proceed or 'Q' to abandon the job. To stop and restart the display, press ^S. To abandon the output, press ESC. You will then be asked to press 'Q' to abandon the run or 'G' to continue it.

Every printout will start with the following information:

```

Last slot used nnn
nnn blocks in use by Cardbox.
nnn bytes used
nnn bytes per block (average) nn% full
nnn index entries (max depth n). nnn data records

```

This shows how many slots have been allocated, how many 256 byte blocks have been used and how many bytes of data are actually being used by Cardbox. From these figures the data storage efficiency is calculated and expressed as a percentage. Normally, these statistics won't interest you but if your file is subject to many deletions you may notice the storage efficiency factor dropping. In this case, you may find it beneficial to dump the file in INTERNAL format and then re-create the file using Database Create followed by a REad of the dumped file.

Index entries are listed in key field sequence within alphabetical sequence. The format is: field identifying letter followed by a colon followed by the indexed word. The index cross reference report is exactly as the foregoing with the addition of record 'slot numbers' to the right of each entry:

```

M: ACCOUNTANT      7  46
N: ACCOUNTANTS    4  41
R: ACCOUNTS       12
Q: ACOUSTIC       8  9  10  13  26
O: ACT            6
Q: ACT            13
O: ACW           5  14  15  ETC.....

```

Here is an example of a text summary report:

```

Maximum field sizes:  [a]: 34  [b]: 33  [c]: 23  [d]: 19
                    [e]: 17  [f]: 18  [g]: 8   [h]: 22  [i]: 8   [j]: 1
                    [k]: 24  [l]: 15  [m]: 25  [n]: 22  [o]: 3   [p]: 3
                    [q]: 68  [r]: 35  [s]: 20  [t]: 42  [u]: 150

```

You can see how useful this can be when redesigning your card layout.

Here is part of the first record in a full text report.

```

DATA:
RECORD 4: [a]: Witherington Smythe and Associates [b]: Helliwell
          House [c]: 176 Barton Street .....

```

These reports always give the first record as number four. Records one to three are reserved by Cardbox for its own use.

FILE SECURITY

Inevitably something will go wrong. You may remove a disk while in the middle of using Cardbox, the power may fail or you may encounter a physical corruption of the disk. Whatever the problem you will clearly want to recover as much of your file as possible without the need to re-enter the data by hand.

Copying and Erasing Files

By far and away the safest approach is to make regular safety copies of your data files. This can be done using your operating system copying facilities or by using the file utilities built into Cardbox itself. This is largely a matter of personal preference. If you want to copy your entire disk rather than a single file then your operating system will provide the best method. Remember that the back-up copy of your file is out of date as soon as you add, amend or delete records in your working file.

File Copy and Erase functions are provided from the Cardbox main menu. Select 'Operating System Utilities' and you will see the choices appear in the secondary menu. The commands follow the same pattern as previous main menu options. If you are using the copy utility, enter the letter 'F' followed by the name of the file to be copied, then enter 'O' followed by the name of the file to be created. You may prefix file names with drive letter followed by a colon. Cardbox will check that the file you are creating does not already exist.

The 'Erase file' option will not allow you to delete a FMT file or a FIL file. These will need to be erased using your operating system utilities. Cardbox aims to prevent you making expensive mistakes!

Repair

If by some mischance you should find yourself without a recent copy of your file then you may be able to get out of trouble with the Repair facilities within Cardbox. Repair looks at a damaged file and has a stab at putting it right. Clearly if you have lost data, it is

impossible for Cardbox to know what the data was. Cardbox will, however, be able to guess at the validity of the separate parts of the file. It is only a guess although it is often a good one. For example, it will sometimes tell you that the data in the file appears okay. It would not be practical for Cardbox to examine every character in your file - a corruption could change one letter into another and Cardbox would be none the wiser - so if you are still having problems after doing a simple Repair it may be necessary to repair the entire file. Cardbox will salvage all the records it possibly can and the resulting 'dump' file is then used to re-create your file using the REAd command while in 'Database Create'.

To use the Repair facilities, select 'Database Repair' from the main menu, enter the name of the file to be repaired then press ESCAPE and 'G'. On some rare occasions the file may be so seriously damaged that it will not be possible to enter Database Repair. In such circumstances the only solution is to use your most recent back up copy of the file. Normally, Cardbox will look at the file and present a brief report on its condition:

FLAGS : Three numbers are displayed here followed by an assessment of your file status:

- | | | |
|----------------|---|--|
| FILE OK | : | The file appears undamaged |
| FILE BUSY | : | The last session ended abnormally but the file appears undamaged |
| STATUS DAMAGED | : | Cardbox has forgotten where you were in your selections otherwise the file appears undamaged |
| SOME DATA LOST | : | Your most recent additions have been lost otherwise the file appears undamaged |
| DATA LOST | : | |
| - REBUILD FILE | : | The information on the file has been corrupted. Use the DUMP |

option within Repair to write the undamaged records to disk in Internal format. Use the Database Create/REad option to rebuild the file

STATUS: This is the part of your file which keeps track of your selections to date. The following messages may appear:

- Now at level ... : As long as the level number looks reasonable this means the status is probably undamaged
- Serious error ... : The status is damaged and the data is probably corrupted too
- Damaged : The status is damaged but it can be repaired
- Missing : The status is missing but it can be repaired

DATA : The messages relating to the records in the file are as follows:

- Probably readable : The data will probably be intact
- Serious error ... : The data will be unreadable and you will need to go to your most recent back-up copy of your file
- Probably unreadable : The index is corrupt. You may be able to rescue some or all of the data using the DUMP option followed by the Database Create/REad options

All the above messages are intended as a guide. They are Repair's best guess at the status of your file. You may know better. If

'Database Use' reports errors on a file then it knows better than Repair because it is more closely involved with the detailed information within your file.

The options available to you within Repair are as follows:

- FLAGS ONLY This simply clears the warning flags associated with the file. You would probably use this if the FILE BUSY message appeared
- FLAGS AND STATUS This will reset the status back to level 0 : All records selected. You would use this if the data appeared to be okay DUMP DATA Salvages as many records as possible and writes them to an internal format file. This can be read later using the Database Create/REad option
- DUMP DATA & ERASE This works just like 'DUMP DATA' but erases your corrupt file when the dump is complete. This saves returning to your operating system to erase the FIL file. If there is any chance you will need this file again, you should not use this option.

When you have chosen your Repair option, press ESCAPE and G to carry out the chosen task. If dumping a file you will need to give the dump file name first using option 'O'.

A repair of the flags or status will take up to half a minute but a dump will vary according to the size of the file. As the file is dumped, each record is examined and a status display presented as follows:

```
nn slots scanned, nn written, nn empty, nn invalid
```

where.

Slots scanned	= The number of card slots examined
Slots written	= The number of slots containing valid data and which have been written to the dump file
Slots empty	= The number of slots which do not contain a record
Slots invalid	= The number of slots containing corrupted information

Only counts which are not zero will appear in the display. You will nearly always get a number of empty slots. This is because they are allocated to the file before there is any data to be put in them.

Press ESCAPE if you wish to interrupt or abandon a file dump.
Press 'Q' to quit or 'G' to continue with the file dump.

Rebuilding your file

The dumped file will be used to create a fresh copy of the original Cardbox file you were using. The best way to do this is to copy the original FMT file on to the disk to receive the new file. If you have room, this could be the disk containing the dumped file. Make sure the original file is not on the disk. (If you are using a hard disk, this may be unavoidable. In this case rename the file so that it's not picked up in error.) From the main menu choose 'Database Create' then, when you are at the command level, use REad to load the dumped file.

Changing disks

If you need to hold the dumped file on one disk and the new file on another, then you will need to use the Change disks option in the main menu. Put the dumped file into drive B. Load Cardbox from drive A and choose the Change disks= YES option. Follow the

normal operating procedure for Cardbox and when prompted, exchange your Cardbox program disk for the one containing the FMT file.

Error Messages

Most messages in Cardbox are self explanatory. Now and again one will appear which is less so:

CANNOT WRITE OUTPUT FILE	disk or directory full
FILE IS BUSY OR NEEDS REPAIR	the file is damaged or, in a multiuser system, someone else is using it.
INTERNAL ERROR CODE = nn	the file is corrupted and must be repaired. Commonly caused by not using QUIT to finish a Cardbox session.
LOAD ERROR	The program itself is damaged. Make a new copy from your master disk.
NOT ENOUGH MEMORY	must have at least 48K.
RESTORE FORMAT FILE FIRST	cannot update file when in alternative format.
TOO MANY CRITERIA	specified already - can't perform more than 99 selections.

FILE FORMATS

The WRite and PRint commands may be used to create disk files in a variety of different formats. This enables Cardbox to be linked to a wide range of other programs, both standard packages and those of your own design. This chapter describes these options in detail and introduces you to some powerful applications which may be built around Cardbox.

WRite command formats

Internal: This format is used by Cardbox to load new data into its files from disk. The internal file comprises a number of records followed by an end of file marker. Each record comprises a number of fields followed by an end of record marker. Empty fields are not written otherwise each field comprises an identifier, the field contents and a terminator:

- Field identifier (binary 0 to 26)
- Field contents (ASCII with bit 8 set in indexed words)
- Field terminator (binary 0)
- Record terminator (binary 0)
- File terminator (binary 0)

The field identifier corresponds to the field identifying letter (A to Z). Indexed words are shown by having bit 8 set in one or more characters of the word including its preceding space. Cardbox itself sets bit 8 of all the characters in an indexed word.

External: This format can be used by programs apart from Cardbox. It gives the field identifying letter (A to Z) followed by a colon, the field contents, then

CR/LF. Empty fields are not written. A blank line follows each record and another blank line terminates the file. The file will then be terminated with one or more ^ Z characters.

The WRite command can highlight indexed words by setting the top bit of each character on (MODE=EXT, FLAG). To avoid this use MODE=EXT, NO FLAG:

- Field identifier (ASCII A to Z)
- Colon (:)
- ASCII text (bit 8 set in indexed words)
- End of field - CR/LF
- End of record - CR/LF
- End of file - CR/LF followed by at least one ^ Z

WS: This is the industry standard 'comma-delimited' format which is used by many programs such as word processors, sorts and databases. Each field is enclosed in double quotes and separated from its neighbour by a comma. Records are terminated with CR/LF and the file is terminated by an additional CR/LF. Empty fields are output as two double quotes with nothing in between:

- Double quotes (")
- Field contents (No indexing, no characters if field empty)
- Double quotes (")
- Comma (,) except for last field in a record
- End of record - CR/LF
- End of file - CR/LF

Print format

An alternative way to create a usable disk file is to use the PPrint to

disk facility. Simply lay out the fields to be output in the top left hand corner of the screen, one above the other, make sure that the print format doesn't include margins and blank lines then PPrint to disk. Records will appear on disk as the field contents followed by CR/LF. Make sure that you use the UNFORMATTED option within the PPrint command:

ASCII text CR/LF (no indexing)
ASCII text CR/LF etc.....

Application notes

One of the most common applications which incorporates Cardbox is that of sending mail shots. The recipient's details can be embedded into a standard letter to personalise it. For example the name and address can be printed at the top of the letter, the person's christian name could appear after the word 'Dear' and detailed information relating to the person can be inserted into the text of the letter:

*Rev J Parsons
The Vicarage
Stony Lane
St Paul's
London*

18th May 1991

Dear *John*.

You have been selected from all the Cardbox users in *St Paul's* as the recipient of a very special offer. For this month only, Caxton will offer you a special 10% discount on any of its other products. We enclose descriptive leaflets to help you decide which best meets your needs.

If you, *John*, decide that you would like to buy all our other products then we will be delighted to increase your discount to 20%.

We look forward to hearing from you later this month.

Yours sincerely,

Bob Huckle
Caxton Software

PS Please remember to enclose a cheque with your order

The italicised entries are the data taken from the Cardbox file. As a general principle, it is better to restrict each field to a single line when using Cardbox in this way. In particular the name and address entries are much easier to manipulate. The example used in this manual are typical of this preferred approach. Of course, narrative fields can occupy as many lines as you like because they are unlikely to be embedded in this way.

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