

Cardbox[®] for Windows

Cardbox Software Limited

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Chapter 1 –

Outline of operations

In this chapter we give an outline of the main features of Cardbox for Windows, with references to the chapters in which you will find a full description or details of more advanced techniques.

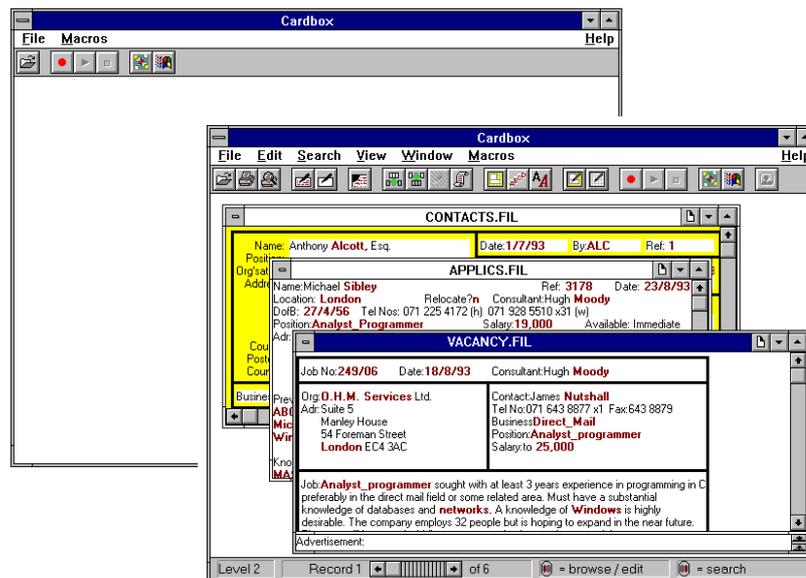
Starting Cardbox

Just as with any application, there are several ways in which you can start Cardbox:

- You can select it from the Start menu (Windows 3.1: Program Manager).
- You can find it in Explorer (Windows 3.1: File Manager) and start it from there.
- If you have a shortcut to Cardbox on your desktop (Windows 95 and above), you can double-click on it to start it.

You can also double-click on a Cardbox database file, which will start Cardbox and open the file for you.

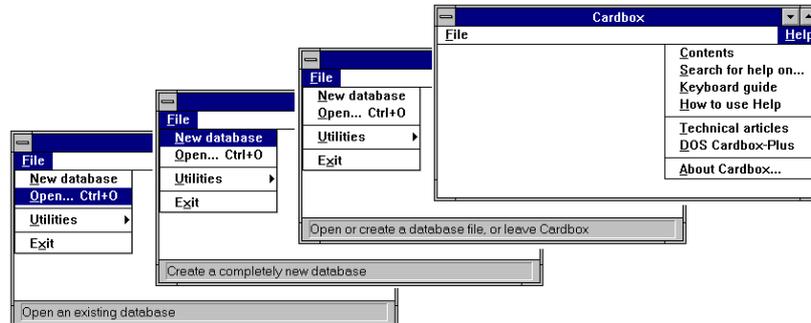
The toolbar at the top of the Cardbox window is described in Chapter 5 and other features in Chapter 3.



The very first time you run Cardbox, it will display an empty window; after that, it will appear with the database windows that you used in the last session, unless you specifically configure Cardbox not to remember the

window contents between sessions: you can do this with the command **File, Utilities, Configure Cardbox**.

Getting help



The Help commands take you to a help system which covers in a structured way various topics on the use of both Cardbox and Windows.

While you are selecting a command in a menu, the *status bar* at the bottom of the Cardbox screen gives you an additional explanation of that command. This is particularly useful if the menu item is greyed out (unavailable), because the status bar will then tell you what is wrong.

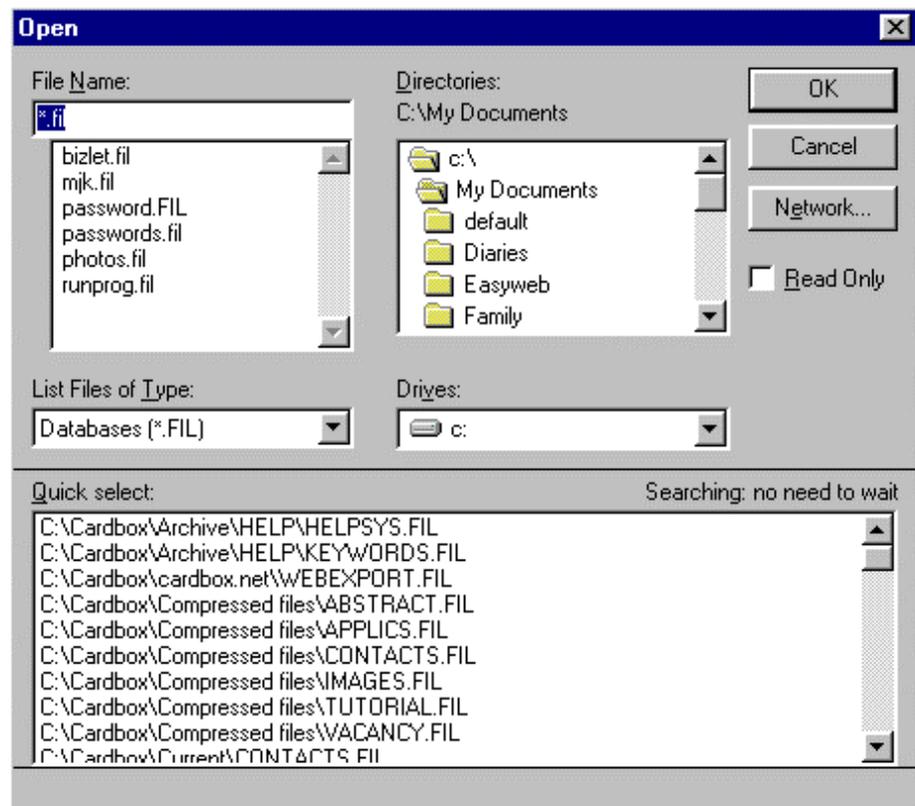


When you point at a Toolbar button, you can see what command it will execute when clicked.

You can press the F1 key at any stage. If you are in a dialog box, it will display help for that dialog box; if you have a menu open, it will display help for the current menu item; otherwise it will display general help.

Finally, you can create a separate Help file for your database, which can then be accessed directly from Cardbox. This is useful if your database is going to be used by people who do not know it well. You need the Microsoft Help Compiler to be able to create a help file. For more information, choose the command **Help, Technical Articles**.

Opening an existing database



To open an existing database, use the command **File, Open**. Cardbox will give you the standard Windows Open dialog box, with two features unique to Cardbox.

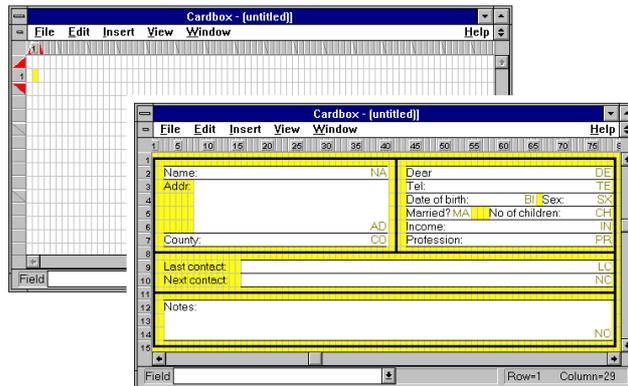
Quick select	This box lists all databases on the current drive, in addition to those listed for the current directory in the File Name box in the top portion.
Database description	A database description, originally entered in the About This Window box, is displayed for the currently selected database.

You can also open a database simply by double-clicking on it in Explorer or File Manager.

You can open as many databases as you like, and each one will be in its own window within the main Cardbox window. Later in this chapter, you will see how to link some database windows for certain operations, merge their data, or pass some parameters between them.

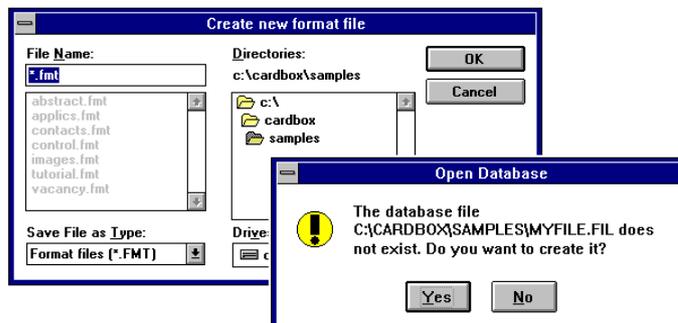
Creating a new database

Creating a new database is described in Chapter 22, and Format design in Chapter 23 and the following 6 chapters.



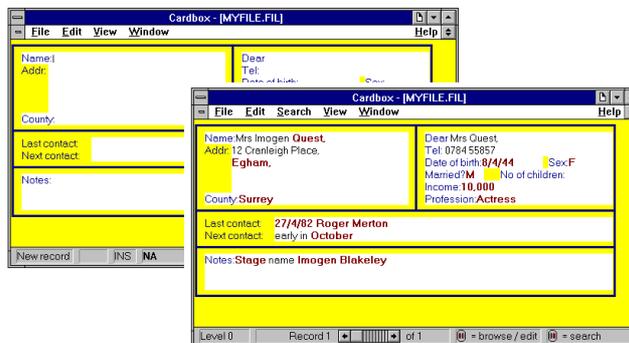
When you ask Cardbox to create a new database, it displays a special window, in which you design the native format of the database.

Other ways of creating a new database are described in Section 22.2.



When ready, you save the format to create the format and database files under a chosen name.

Adding and editing records is described in Chapter 17, and loading from files in Chapter 33.

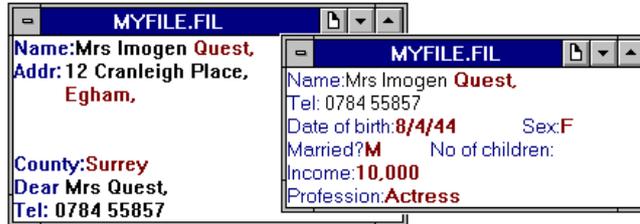


Cardbox displays the first record, ready for data entry. You can at this stage either enter data from the keyboard or load them from an input file.

Formats

The first format that you create for a new database is its *native format*, whose basic purpose is to define the fields into which you want to segregate your data, and you can in addition design any number of *alternative formats*, using perhaps only selected fields, for data entry, display or output.

There is no practical limit on the number of formats that you can prepare for a database, on the size of a format, or on the number or size of fields.



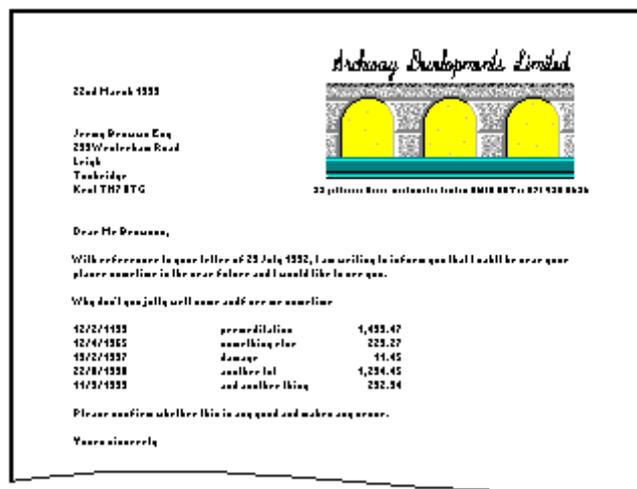
Format design is described in Chapter 23.

MYFILE.FIL					
Mrs Imogen Quest,	Actress	Surrey	F	8/4/44	10,000
Dr J.B. Hamey,	Doctor	Lancashire	M	2/11/43	35,000
Frank Martin, Esq.	Merchant banker	Norfolk	M	9/10/57	30,000
Mrs J. Hedley,	Actuary	Cornwall	F	7/9/47	10,000
Mrs R. Smythe	Manageress	Surrey	F	16/4/40	10,000
Dr Ambrose Barlow,	Physicist	Leicestershire	M	5/8/32	15,000
Mrs Helen Barlow,	Nurse	Leicestershire	F	9/1/39	10,000
Mr Michael Ullathorne,	Chartered surveyor	Kent	M	2/1/52	15,000
Vyvyan Ramsay, Esq.,	Accountant	Staffordshire	M	9/7/47	21,500

See Appearance in Chapter 7

Here are some examples of alternative formats giving various views of the data. A window automatically displays several records at a time (a list view) if the depth of the format allows it. You can assign to each format the styles and colours which are to be used for display and printing.

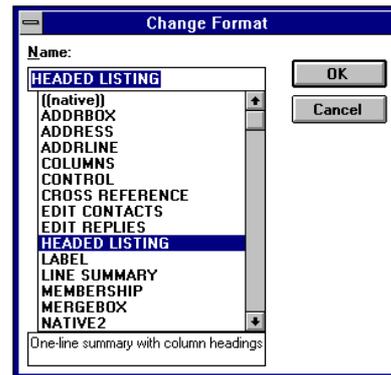
Merge blocks, such as those used for this letter, are described in Chapter 27 and graphics in formats in Chapter 28.



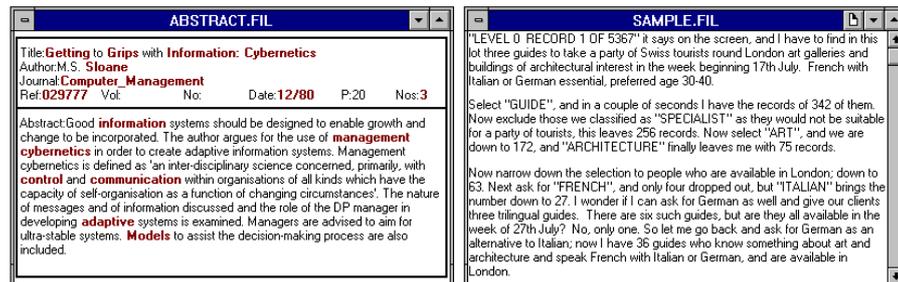
This letter combines data mailmerged with fixed text and a structured listing of some fields, together with a graphic in the format providing the heading.

Each format has a name, and you can attach a short description to each format.

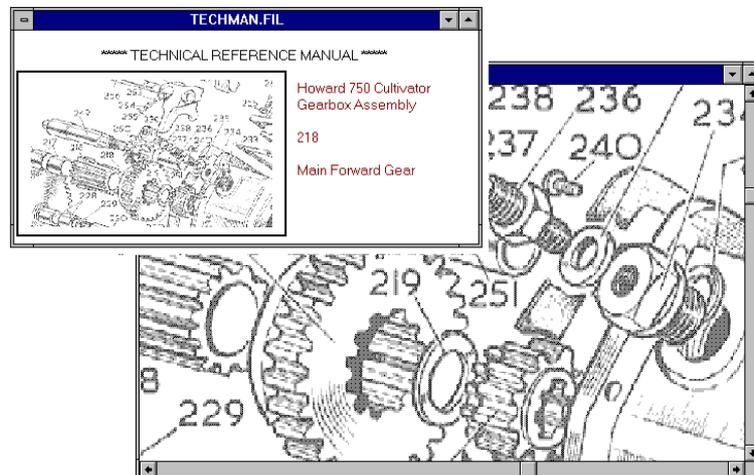
Format names and descriptions are displayed when you want to change the format in which records are displayed.



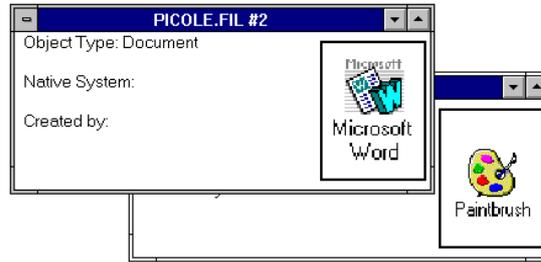
Records



You can split your records into two parts: the *main record* and *extra text*. Structured data, divided into fields are confined to the main record but, like extra text, any field in the record can also contain free-format text, with indexed keywords.



You can store images in your records, and display them either with accompanying text or blown up to show details of special interest.



Using Microsoft's Object Linking and Embedding (OLE), you can store documents, drawings, and other objects as database records, find them using Cardbox's normal indexing and search facilities, and edit them directly, in place, without leaving Cardbox or having to issue any special commands. For full details, see Chapter 40 and **Help, Technical Articles**.

Data entry and editing

The size of a field does not restrict the amount of text that you can enter into it. Each field essentially forms a "window" on the data stored within it, and you can scroll the data within that window.

Data entry and editing is described in Chapter 17.

Selecting and moving text is in Chapter 18. Batch edit in Chapter 19.

You can move selected text within a record and, using the Clipboard, between records or databases.

You can edit individual records one at a time, or you can edit a whole batch of records with a single command.

You can enter and edit records in any format, so for a large and complex record layout, you can have a series of alternative formats, each covering a specific portion of the record.

12/2/91 letter from M J Fielder requesting information about programming personnel 14/2/91 Sent CVs ST/34/ ST/39/ FT/234/0 FG/45/0 GH/564/K 23/2/91 Follow-up call, referred to Robert Smith. Possible interest in Mike Whitmore	and Bob Weston, will ring back next week. 24/2/91 Mike Whitmore fixed up at ICS Ltd. Telephoned Robert Smith: interviews Bob Weston & Gillian Fielding afternoon Tuesday 3/3/91.
and Bob Weston, will ring back next week. 24/2/91 Mike Whitmore fixed up at ICS Ltd. Telephoned Robert Smith: interviews Bob Weston & Gillian Fielding afternoon Tuesday 3/3/91. 6/3/91 Gillian Fielding job offered. Starting date to be arranged. No further requirements at the moment.	6/3/91 Gillian Fielding job offered. Starting date to be arranged. No further requirements at the moment.

Indexing

See Chapter 20, Designing your database, How Cardbox indexes in Chapter 21, and Appearance in Chapter 7.

Cardbox allows you to index anything in any field, but for systematic indexing you have a choice of indexing modes that you can assign to fields. For each field, you can choose full indexing, selective indexing, or no indexing at all.

Abstract: This paper examines the results of some experimental **research** designed to study human **interaction** with **information** systems. A transportation **management** game was considerably modified to provide a simulated information system for laboratory use. The subjects played the game in two sessions and completed a questionnaire.

You can distinguish indexed from unindexed items by colour on the screen and by different typefaces in print. Cardbox updates the index automatically as soon as you save a record.

Validation

See Chapter 36.

You can implement automatic validation of inputs against a wide range of criteria. You can use validation to intercept various input errors, to ensure correct indexing and completion of all mandatory entries in the correct format. Validators also exist to perform spell checking and to convert dates from 2-digit to 4-digit years.

Special field handlers

You can install special field handlers to display data in a special format or to implement different user interfaces.

See Section 29.4.

The screenshot shows a database form window titled "STAFF.FIL". The form contains several fields with specific input types:

- Name:** Robert **Barlow** (The last name is bolded).
- Sex:** Male Female
- Works No.:** 000005309873 (The number is bolded).
- Status:** Trainee Probation Permanent
- Languages:**
 - Portuguese French German
 - Dutch Spanish Italian
- Department:** A list of departments with radio buttons:
 - Management
 - Administration
 - Finance
 - Sales
 - Publicity
 - Customer relations
 - Development
 - Quality control
 - Documentation
 - Production
 - Technical support
 - Despatch
 - Maintenance

Where the field can only contain some terms from a limited range, you can arrange input by means of option buttons or check boxes.

STAFF.FIL				
Name	Sex	Department	Status	Languages
Robert Barlow	M	Publicity	Permanent	German Italian French
Monica Crossley	F	Administration	Trainee	French
Edward Grimes	M	Publicity	Permanent	German Dutch

In a format not using the special field handlers, your entries appear as plain text, and you can make additional entries not catered for in the check boxes or option buttons.

Name: Robert Barlow	Sex: M	Works Number
Department: Publicity	Status: Permanent	
Languages: German Italian French		0 000050 309873

You can also optionally display numbers as bar codes.

Search and retrieval

You can search records on

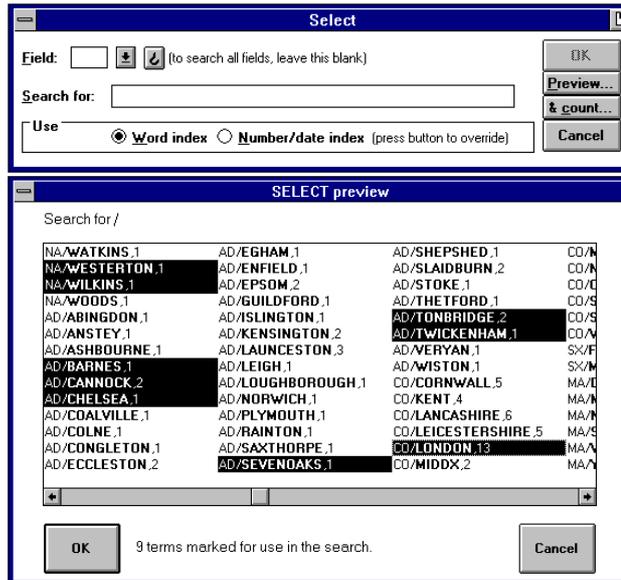
- indexed terms: words, numbers and dates
- unindexed text
- tagged records
- lists of selections kept in earlier searches
- search parameters related to other windows or databases.

You can direct your search for indexed terms or unindexed text to a specific field or extend it to all fields, and you can specify ranges and ambiguous search parameters (wildcards).

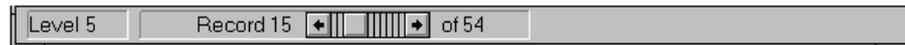
See Chapter 10 for Index Searches and Chapter 11 for other methods.

Search	
<u>S</u> elect...	
<u>S</u> elect <u>a</u> lso...	
<u>E</u> xclude...	
<u>E</u> xclude <u>a</u> lso...	
<u>I</u> nclude...	
<u>U</u> ndo one level	
<u>C</u> lear all selections	
<u>H</u> istory of selections Ctrl+H	
<u>R</u> elational	▶
<u>I</u> ag	▶
<u>K</u> eep	▶
<u>B</u> rowse	▶

Using previews in search commands is described in Section 10.7.



In index searches, Cardbox can preview the terms that it will use in a search, and you can then accept the whole list or pick the particular terms that you want.



You build up searches step by step, building one level of selection on another. The status bar always reports your current level of selection, how many records there are in the selection, and which record you are currently looking at.

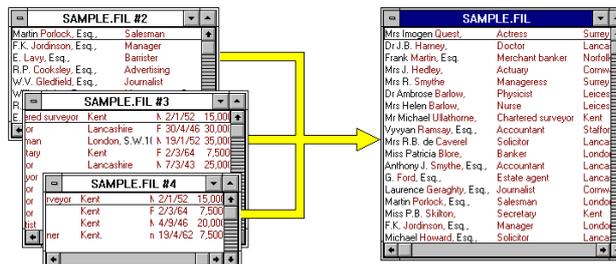
Complex searches

See Chapter 15.

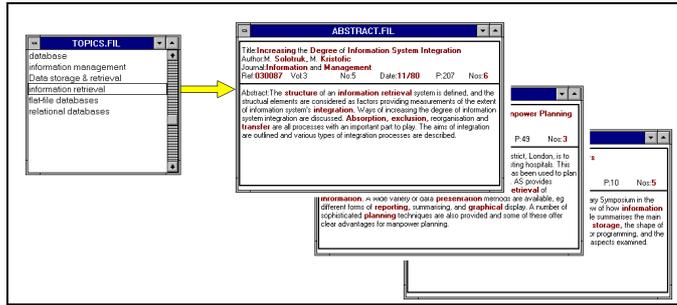
In complex searches, you can build up your selections in stages, keeping the intermediate selections in named lists. You can use the names of kept selections as search parameters in the same way as normal indexed terms.

You can also carry out different searches in separate database windows and merge their results into a complex selection.

See Section 3.5



Relational searches



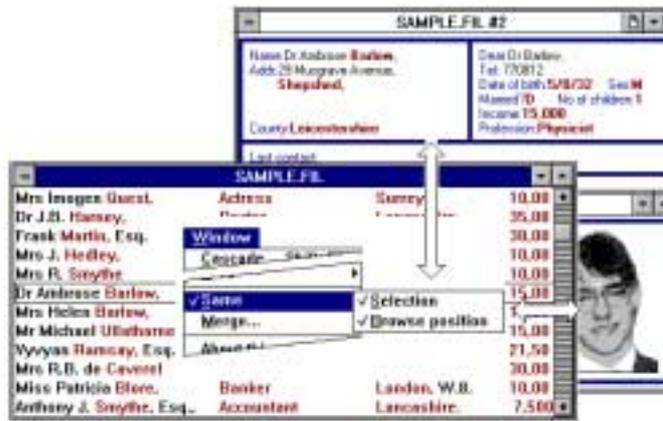
You can set up relational links between two or more databases, so that the contents of one provide the search parameters for the others.

Linking windows

See Section 3.5 and Chapter 15.

You can split large records between several windows and link them for synchronised display.

You can also pass various parameters between windows.



Printing

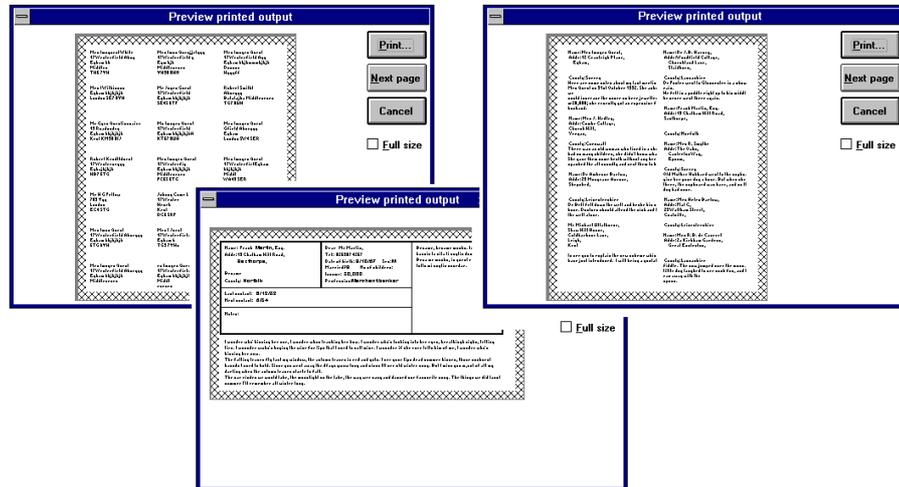
In printing, you can use the normal Windows facilities for selecting and configuring the printer. In addition to the paper sizes that your printer supports, you can use a variety of standard label types supplied with Cardbox and define your own paper types, for labels, multi-column printing, etc.

A4 210 x 297 mm	↓
A4 210 x 297 mm	↑
Avery L7160	
Butterfly 24	
serials	
Envelope #10 4 1/8 x 9 1/2	
Envelope DL 110 x 220mm	
Envelope C5 162 x 229 mm	
Envelope B5 176 x 250 mm	
Envelope Monarch 3 7/8 x 7	↓

See Chapter 14 Routine Printing and Chapter 30 Principles of Printing, Chapter 31 Printer Settings and Chapter 32 Labels.



You can define printer settings individually for each format and store them in the format definition to reproduce the same appearance every time you print using that format.



Preview of printed output will show you how your records will come out on the printed page.

Automating your work

See Chapter 37.

You can create macros to automate the operations that you perform frequently. A special macro toolpad enables you to incorporate messages, datestamping, calculations and loops for repetitive processing of a batch of records. It also gives access to 10 scrapbook fields; effectively, 10 additional clipboards.



To create a macro, you simply ask Cardbox to record the keyboard and mouse inputs that you use in the operation.

To repeat the operation, you just play back the macro.

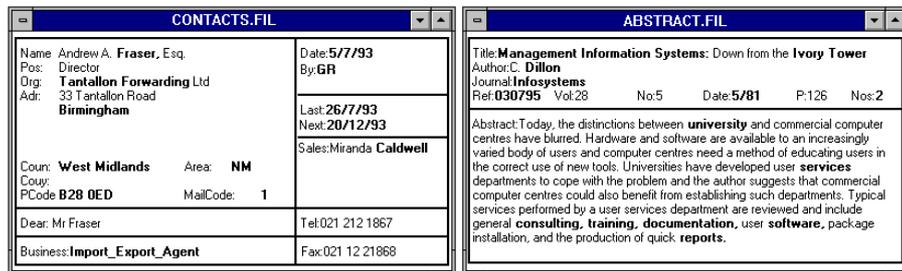
Chapter 2 –

Your Cardbox database

This chapter explains the structure of a Cardbox database in terms of its main elements and provides a guide to other sections of the manual where you will find more detailed descriptions or instructions.

In this part of the manual we deal with databases containing only text. Chapter 34 describes using image databases and Chapter 35 describes building them.

Records

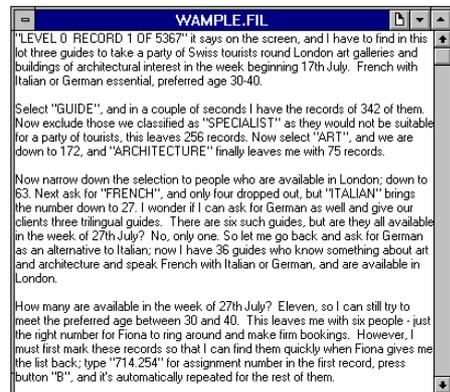


A Cardbox database is essentially a collection of *records*, each containing a certain amount of data. You can split the data into *fields*, with each field designated for a different kind of information for ease of handling and retrieval.

You define the division of records into fields in the *native format* of your database, and you can adopt a structured layout, as in the picture on the left above, or provide large fields for long unformatted text, as on the right above.

You can also append to your records any amount of unstructured text, as shown on the right.

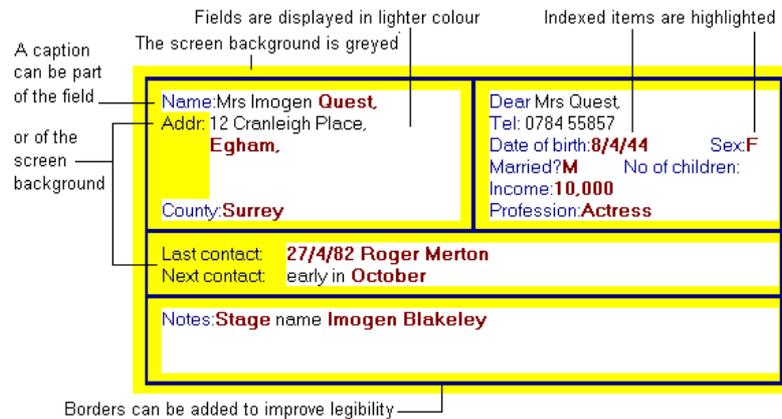
We refer to the appended text as *extra text*.



Indexing

You can *index* any item of data in any field for fast retrieval, and to help you ensure correct indexing of the keywords that you will use for fast retrieval, you can display indexed words in a distinct colour or typeface. Indexing is automatic and takes place as soon as you store a new or amended record.

Formats - native and alternative



You must use a format to display and print records. Apart from defining the position and size of the fields, a format can provide captions identifying their contents, as well as various background features to improve the appearance and legibility of your records.

SAMPLE.FIL					SAMPLE.FIL					
Mrs Imogen Quest,	Actress	Surrey	F	8/4/44	10,000	Mrs Imogen Quest,				
Dr J.B. Harney,	Doctor	Lancashire	M	2/11/43	35,000	12 Cranleigh Place,				
Frank Martin, Esq.	Merchant banker	Norfolk	M	9/10/57	30,000	Egham,				
Mrs J. Hedley,	Actuary	Cornwall	F	7/9/47	10,000	Surrey				
Mrs R. Smythe	Manageress	Surrey	F	16/4/40	10,000					
Dr Ambrose Barlow,	Physicist	Leicestershire	M	5/8/32	15,000					
Mrs Helen Barlow,	Nurse	Leicestershire	F	9/1/39	10,000					
Mr Michael Ullathorne,	Chartered surveyor	Kent	M	2/1/52	15,000					
Vyvyan Ramsay, Esq.,	Accountant	Staffordshire	M	9/7/47	21,500					
Mrs R.B. de Caverel	Solicitor	Lancashire	F	30/4/46	30,000					
Miss Patricia Blore,	Banker	London, W.8.	F	23/5/57	10,000					
Anthony J. Smythe, Esq.,	Accountant	Lancashire,	M	7/12/60	7,500					
G. Ford, Esq.,	Estate agent	Lancashire	M	4/1/52	10,000					
						Dr J.B. Harney,				
						Woodfield Cottage,				
						Churchland Lane,				
						Slaidburn,				
						Lancashire				

For every database you must design at least one format, the *native format* of the database, which basically defines the division of records into fields. In addition, you can prepare any number of *alternative formats*, in which you can, if you wish, use only some of the fields and in a different arrangement from the native format. Here are two examples of such alternative formats, the first one giving a one-line summary of records, and the second, mailing labels.

You can use any format to edit your records, even one that does not contain all the fields in your database: any fields that do not occur in the format you are using are simply left unchanged.

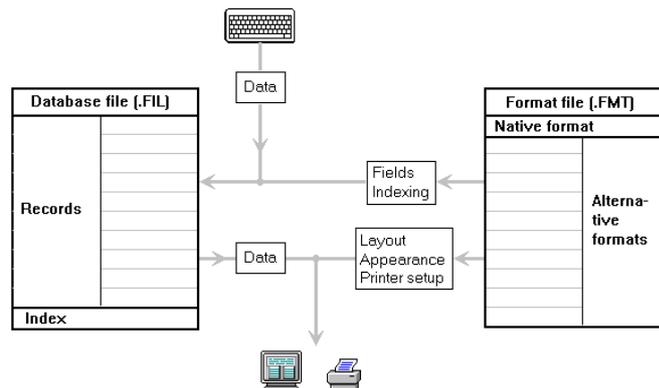
If you want to enter a lot of data into your records, and divide them into a large number of fields, you can make the native format several times larger than the screen. You can scroll the window in order to see the whole record, and Cardbox will scroll it automatically for you while you are editing; but you may find this cumbersome. For details of a way round this problem, using alternative formats instead of the native one, enter the command **Help, Technical Articles**.

The constituent files of a database

Each Cardbox database consists of at least two files: the main database file and the associated format file. The two files share the same name but have different extensions: thus, for example, for a database called MYFILE, there would be

MYFILE.FIL the database file, containing basically the data and the index.

MYFILE.FMT the format file, containing the native format of the database, as well as the optional alternative formats.



When you open a database, Cardbox automatically opens both files and presents each record as a composite picture of the data stored in the database file and of the format that you have chosen from the format file.

Thus, if the format is as shown on the right, an empty record will appear as shown on the left below, with the captions and the border provided in the format, and a completed record will look as on the right below.

Name:
Addr:
Telephone:

Name:	NA
Addr:	
Telephone:	TE

Name:	Roger Wilkinson
Addr:	23 Westbury Road Edgware Middlesex AB16 0GR
Telephone:	0650 456768

The features shown in the top picture are stored in the format file, and the database file will contain only the text which you have entered, (that is, the bottom right picture minus the left one), excluding any empty lines or trailing spaces. Because captions, borders and empty spaces in fields are not stored with every record in the database, they do not take up disk space, and you can be generous with them to enhance the appearance and legibility of your records.

Chapter 3 –

Cardbox under Windows

Cardbox for Windows is designed to run as a normal application under Windows, and its operation involves three basic kinds of windows.

The Cardbox window which is the main Cardbox workspace and which can share the desktop with other application windows.

Database windows in which you enter, edit and display the contents of your databases.

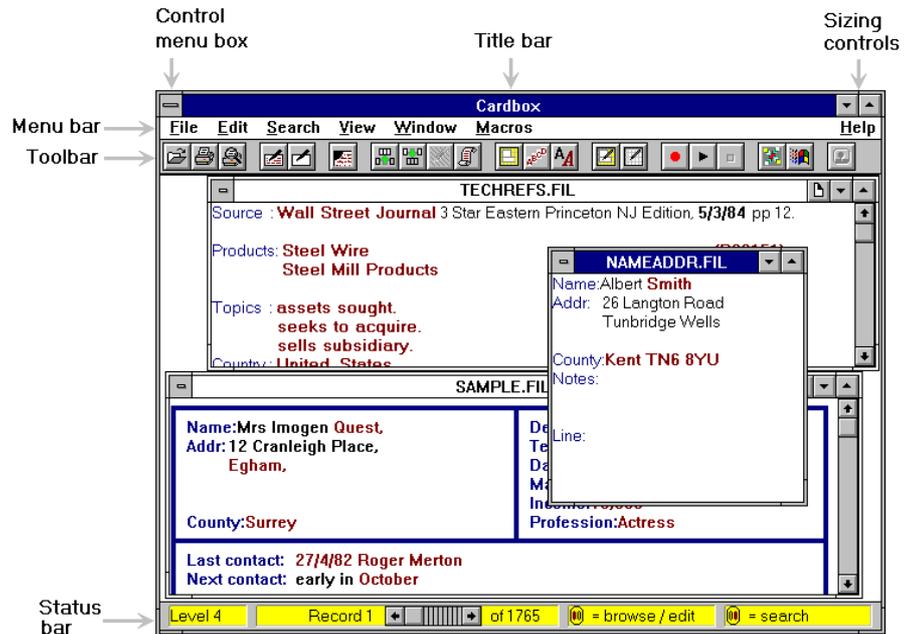
Format design window in which you design the format of your records.

All windows used in Cardbox are of conventional Windows design, and you can control their size and positioning by standard Windows techniques. This manual outlines the main techniques; for full details, please refer to your Windows manual.

3.1 The Cardbox window

The Toolbar is described in Chapter 5.

Some parts of the Cardbox window look different under Windows 95 and above.

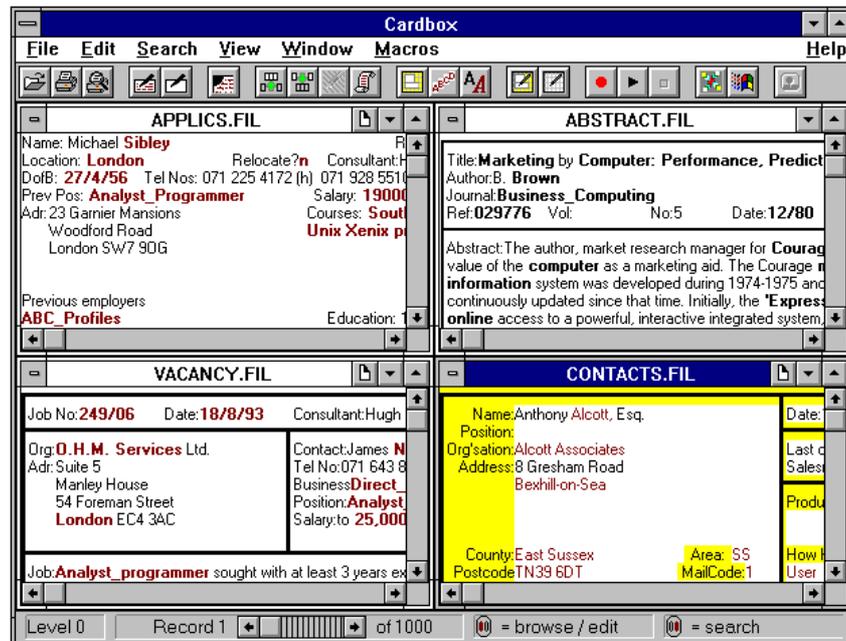


The Cardbox window is the outside window in this picture, and it contains within it the database windows. The menu bar gives you access to all Cardbox commands, with some commands being accessible also from the toolbar, as well as from the status bar at the bottom of the window. However, the main function of the status bar is to give you context-sensitive information about the commands that you are about to execute or the operations that you are carrying out.

You can either maximize the Cardbox window to occupy the whole of the desktop, or let it share it with other applications. In the latter case, if you make the Cardbox window too narrow, you may not be able to see the whole of the status bar, but you will still have the whole of the menu bar accessible.

3.2 The database windows

You can have several database windows open concurrently, displaying different databases or even multiple copies of the same one. You can arrange them within the Cardbox window in an arbitrary way, as shown in the first picture in this chapter, or in the standard Windows cascade or tile arrangement.

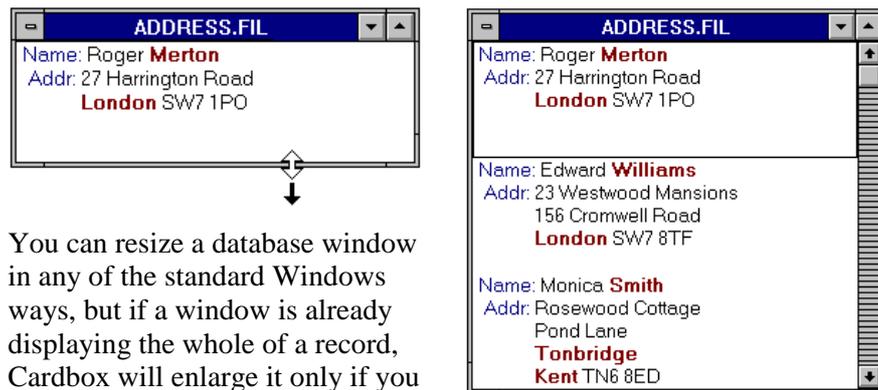


The active database window

Of the concurrently open database windows, only one is active at a time, and it is identified by a highlighted title bar. The status bar reflects the state of the active window, and all commands apply to that window.

To make another window active, do one of the following.

- Click on it.
- Keep pressing CTRL+F6 until the window you want appears with its title bar highlighted.
- Open the Window menu, where the currently active window will be indicated by a check mark. Click on the name of the window that you want to make active.



You can resize a database window in any of the standard Windows ways, but if a window is already displaying the whole of a record, Cardbox will enlarge it only if you make it tall enough to display at least 3 records.

The browse bar



The browse bar, within the status bar of the Cardbox window, enables you to bring different records into view. If there are several images attached to the record, a second browse bar appears, to let you move among them. If the window is displaying multiple records, a vertical browse bar also appears, to its right, which you can use as an alternative.

You use any browse bar in the same way as a scroll bar, but there are some useful keyboard shortcuts:

To go to	Record	Image
Next	RIGHT or DOWN ARROW	ALT+RIGHT ARROW
Previous	LEFT or UP ARROW	ALT+LEFT ARROW

First	CTRL+HOME	ALT+CTRL+HOME
Last	CTRL+END	ALT+CTRL+END
<i>For more information:</i>	Chapter 13	Chapter 34

3.3 Multiple windows on a database

You can have several windows open on the same database, each usually for a different purpose. You will find several examples on the use of multiple database windows in this manual.

Note Once you have opened all the windows that you want, Cardbox will remember them and will re-open them every time you start Cardbox. For further details, see Section 3.6.

There are two ways in which you can open a new window for a database which you are already using. The choice depends on what you want to achieve.

Window, New

You can use this command to create an exact duplicate of the currently active window. The new window will acquire all the attributes of the original; that is, the same format, selections, sequence and browse position. You can also duplicate a window by dragging it while holding down the Control key.



File, Open

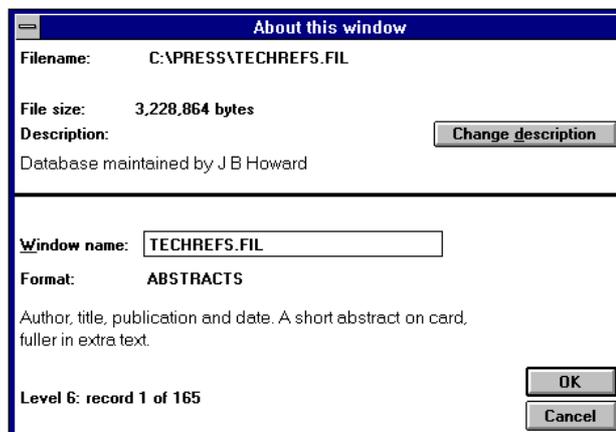
You can also use this command to open another window on the same database. In this case, the new window will not acquire any attributes from an already open window.

Whichever way you use, each duplicate window that you create is identified by a number, #2, #3, etc.

You can close individual windows in the standard Windows way, or you can close all the windows on a database at once by the single command **File, Close**.

3.4 Further information about database windows

You can get further information about a database and its window by using the command **Window, About this window**.



The upper part of the dialog box gives you the full filename of the database and gives you other information about it; the lower part tells you about the current window.

Entering the database description

To enter a database description or change the existing one, click on the Change description button, and Cardbox will open the appropriate text box.

As well as being visible in the About This Window dialog box, the description will appear in the Open dialog box whenever you try to open a file.

Renaming database windows

If you have several duplicate windows open on a database, Cardbox will give them names with the suffix #2, #3, etc., to distinguish them. You may not find these names very informative. In any case, you may find it useful to expand the standard window name to remind of what you are doing in it.

To change the name of a window, type the new name in Window name in the About This Window dialog box.

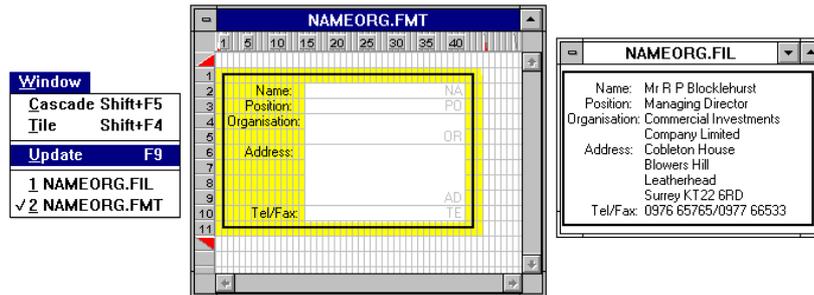
3.5 Working with multiple database windows

There are various operations in Cardbox which either implicitly involve the use of multiple database windows or which you can perform with greater ease by cross-updating windows or by exchanging parameters between them. Most of the relevant commands are provided in the Window menu.

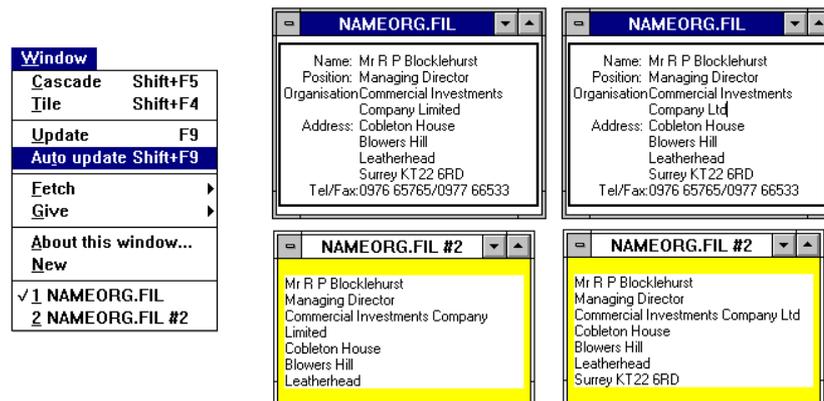
Update and Auto update

If you have several windows open on a database and you change a record in one of them, this record will automatically change in any other window in which it is displayed. The same applies to changes in a format that is used in several windows.

Such automatic cross-update normally occurs when you save a changed format or record, but you can also make it take place earlier, while you are still making the changes.



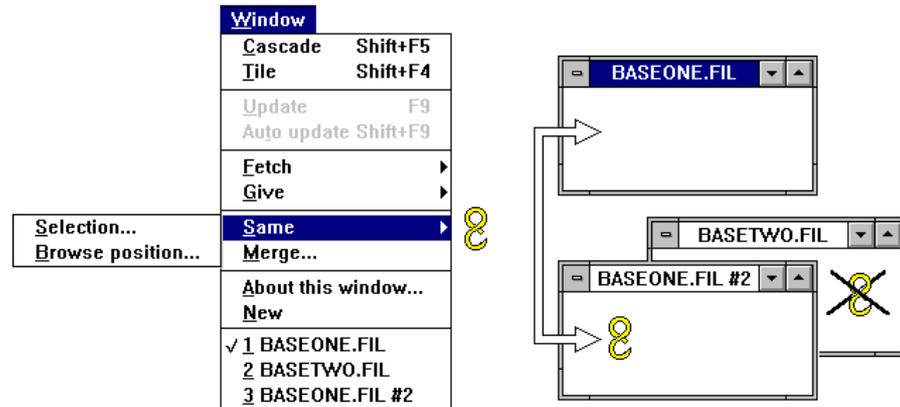
Press F9 to see how the changes are reflected in other records: in this case, while you are editing a format.



If you select **Auto update**, changes will be reflected as you make them: in this case, when editing records to fit mailing labels, you can see how every change in the record affects the appearance of the label.

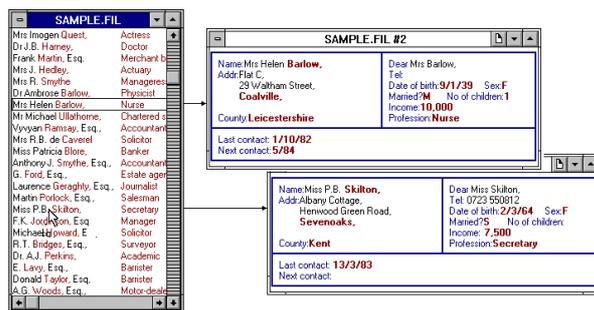
Same Selection, Browse position

It is sometimes useful to tie together two windows so that they display the same database record (usually in two different formats). You can synchronise two or more windows so that they always show the same selection and browse position.

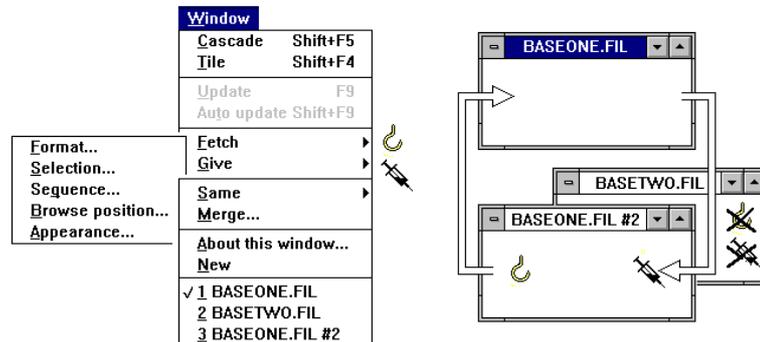


The commands **Window, Same, Selection** and **Window, Same, Browse position** change the cursor to a chain-link, which you use to link other windows to the active one. You can link in this way only the windows belonging to the same database.

You can also use such synchronised windows to scan abbreviated records in one and see each record fully displayed in the other.



Fetch and Give

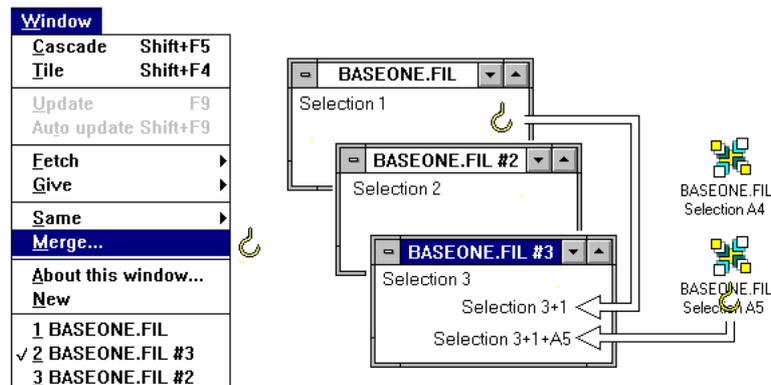


You use these commands to make one window be like another in content or appearance. When you choose one of these commands, a cascading menu lists the attributes which you can transfer between windows, and the mouse cursor changes shape to indicate the operation. Except for Appearance, most transfers can only take place between windows open on the same database, and the mouse cursor will appear crossed out when the mouse is over an inappropriate window.

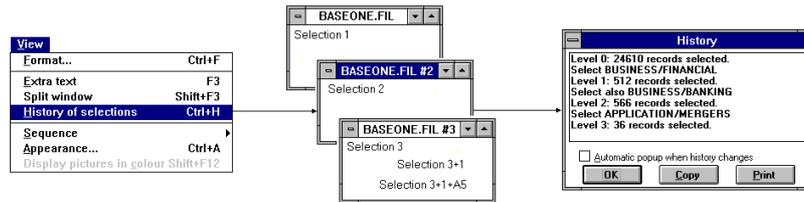
Merge command in complex searches

Complex searches usually involve making a series of separate intermediate selections and then bringing them together in the final selection. The usual method is to keep the intermediate selections in named lists, which you can handle by the standard search commands, such as **Select**, **Include** or **Exclude**, to build up the final selection.

If you prefer, you can make the intermediate selections in separate database windows and bring them together using the **Window, Merge** command.



You can merge selections both from the currently open database windows and from those minimized to icons.



Before merging an intermediate selection, you can readily check in **History** to see what search command you used to build it up.

3.6 Retaining windows between sessions

Cardbox automatically remembers the arrangement and contents of all your windows, and the windows that were open when you closed a session will be restored in full the next time you start Cardbox. This applies to the following window attributes:

Window name, size and location	Record within selection
Format	Record or extra text in view
Appearance	Relational links
Level of selection	"Same" links between windows
History of selection	Tagged records
Sequence in force	Temporary kept selections

You can turn this feature off with the **File, Utilities, Configure Cardbox** command, as shown above, or you can also turn the feature off temporarily by holding down SHIFT while closing Cardbox.

Cardbox normally stores your session information in a file called SESSION.CBX in your Windows directory, but you can have multiple sessions, each with its own collection of databases, windows, and attributes. For full details, open the Cardbox help file and search for "Sessions".

If you close a session, delete or rename a database that it used, and then open the session again, Cardbox will display an error message. You can ignore this, and then open the database again under its new name. In extreme cases, or if a session file seems to be corrupt or out of date, you can close Cardbox, use Explorer or File Manager to delete the session file, and then run Cardbox again.

Chapter 4 –

Basic Windows techniques

You can run Cardbox in the same way as any Windows application, using either the mouse or the keyboard. There are a few cases where Cardbox offers extended features, and we list these here.

You will find a useful summary of the various keyboard shortcuts by using the command **Help, Keyboard guide**.

4.1 Using the mouse

When we tell you to click the mouse, we always mean the left mouse button unless we say otherwise.

If you have a 3-button mouse with an appropriate mouse driver, then whenever we tell you to (left-) click while holding the CTRL key depressed, you can click on the middle mouse button instead.

Mouse cursor shapes

Cardbox uses a few extra mouse cursor shapes apart from the standard Windows ones.



When you are designing a format and inserting a field, the cursor looks like this. Drag the mouse to mark the position and size of the item you are inserting in the format.

The special shapes shown below are displayed crossed out when the cursor is outside a valid position.



The cursor assumes the shape of a chain link when you link database windows for selections and browsing.



The cursor assumes the shape of a hook when you **Fetch** parameters from one window to another or from a window to a dialog box.



This needle-shaped cursor occurs when you **Give** some parameters of one database window to another.

4.2 Using menus

Promoting cascading menus

To avoid cluttering up the menu bar, Cardbox puts some of the more specialised search commands into cascading menus within the Search menu, but if you expect to use them often, you can promote those menus to the main menu bar.



So this is how the menu bar will look with all special menus retained as cascading menus within the Search menu, and with them all promoted to the main menu bar.

Each of the cascading menus has an item called "Promote" that allows you to promote it; and every promoted menu has an item called "Demote" that will turn it back into a cascading menu again.

The Record menu

When you are editing a record, you can save it using **File, Save** or abandon it using **File, Quit**. If you feel strongly that the **File** menu is not the right place for these commands (because they refer to records, not files), you can use **File, Separate Menu** to move them to a new menu called **Record**.

Chapter 5 –

Special features

Apart from the conventional menus, Cardbox gives you direct access to various commands through a toolbar, additional control buttons and various hot spots.

5.1 The Toolbar

If you use a mouse, you can gain instant access to the most frequently used commands by clicking the appropriate button in the toolbar. The command corresponding to each button is conveyed by an icon and is also displayed in words when you point at the button.

Disabled commands

The buttons displayed in the toolbar are confined to those relevant to the current operation, but certain commands may be disabled under some circumstances, in which case the button is dimmed. Here are two examples.



The button shown on the left cancels the last step in searches or editing. This button will be dimmed if you have not made any searches or changes to be undone.



The button which will display images in full size and full colour will similarly be dimmed if there are no images to be displayed.

The Toolbar buttons

The table below describes the action of the various buttons and the command sequences which they generate.

Button	Action	Command sequence
	Open a new database window	File, Open
	Print records	File, Print
	Print preview	File, Print , then Preview in the Print command menu

	Edit or duplicate the current record	Edit, Edit record
	Create a new record	Edit, New record
	Tag/untag record (TAB) A box under the pointer shows the number of tagged records in the database.	Search (if Tag menu not promoted), Tag, Tag record /Untag record
	Select records to be specified	Search, Select
	Exclude records to be specified	Search, Exclude
	Return to the previous level of selections	Search, Undo one level
	Display the history of selections	Search, History of selections
	Change the format	View, Format
	Change the order of records	View, Sequence
	Change font size, colours, etc.	View, Appearance
	Edit or duplicate the current format	Edit, Format, Edit
	Create a new format	Edit, Format, New

	Display image in full size and colour	View, Images
	Save record	File, Save record
	Save format	File, Save
	Save record as new	File, Save as new
	Save format under a new name	File, Save as
	Quit leaving record unchanged	File, Quit without saving
	Quit leaving format unchanged	
	Undo the last change in record or format	Edit, Undo
	Define a field	Insert, Field
	Define a merge block	Insert, Merge block
	Enter background text	Insert, Text
	Draw a line or box	Insert, Line or box
	Paste a graphic from the Clipboard	Insert, Paste graphic
	Zoom out	View, 1 (÷2) View, 2 (÷1½)
	Restore to actual size	View, 3 (Actual size)

	Zoom in	View, 4 (×1½) View, 5 (×2)
	Configure Cardbox	File, Utilities, Configure Cardbox
	Configure Windows	File, Utilities, Configure Windows
	Show errors in validation	Edit, Validation, Show errors
	Show picklist in validation	Edit, Validation, List
	Play a macro	Macros, Play a macro
	Record a macro	Macros, Start recording
	Stop recording	Macros, Stop recording

5.2 Additional buttons

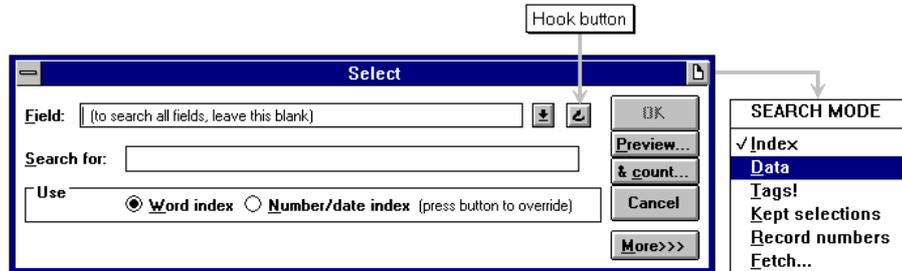
Page flip button



F3 from the keyboard

This button appears in the title bar of a database window if the current format contains extra text. It enables you to flip between the "front" of the record, containing the main fields, and the "back", containing extra text.

This button appears also in the Search command dialog box, shown below, where it enables you to change the search mode.



Hook



This button appears in dialog boxes that ask for fields, such as the one shown above. It provides a quick way to specify a field. When you click on it, Cardbox lets you point out the field in the relevant database window instead of typing its name or picking it from a list.

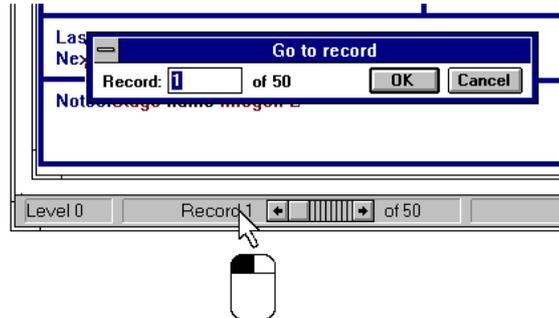


5.3 Mouse shortcuts and unmarked hot spots

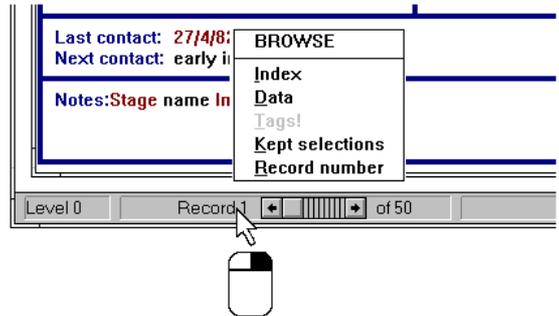
Some mouse clicks provide shortcuts to commands, and the relevant hot spots are not identified in the Cardbox windows. In most cases, you can cancel an unintentionally started command by pressing ESCAPE.

When viewing records

A click on Record nn in the status bar enables you to go to a specific record number.



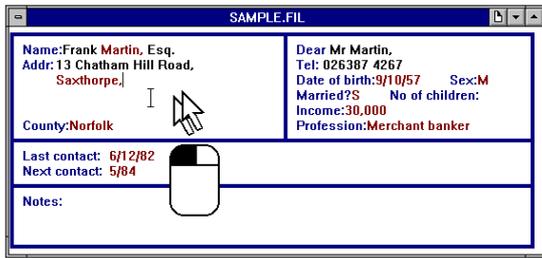
A right click on Record nn in the status bar opens the menu for selective browsing.



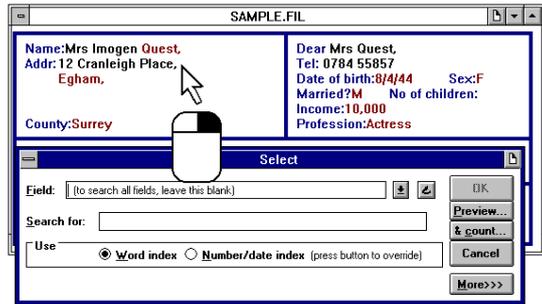
In multi-record display, the current record is identified by a hairline rectangle. A click on another record makes it the current record.



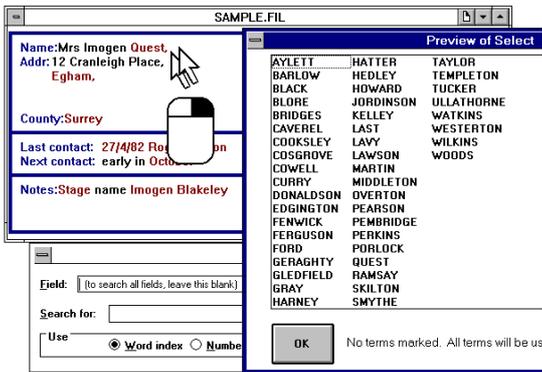
A double click starts the **Edit** command, positioning the insertion point in the field you clicked. If you did not intend to edit the record, select **File, Quit without saving**, or press CTRL+Q.



A single right click on a field will start the **Select** command and set the field in the Search dialog box.

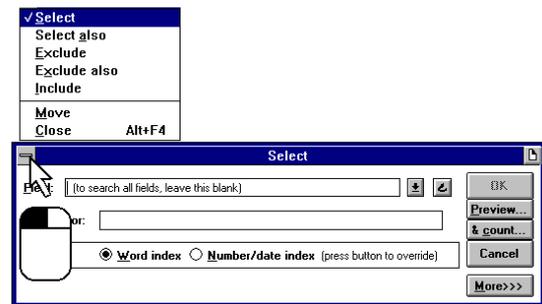


A double right click on a field will take the **Select** command a step further: to the preview of indexed items, from which you can select the search parameters.



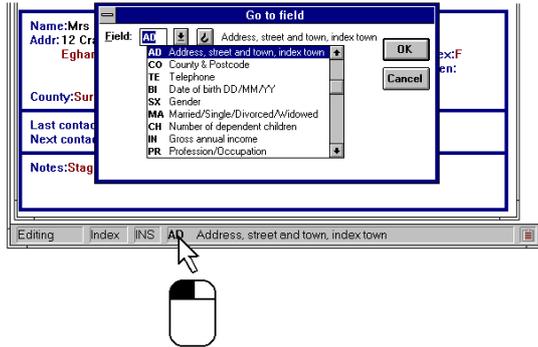
In a search command

The control menu of the Search dialog box also contains a full menu of the search commands, so you can change the command if the **Select** command, chosen automatically in response to a right click, is not the command you want.



When editing a record

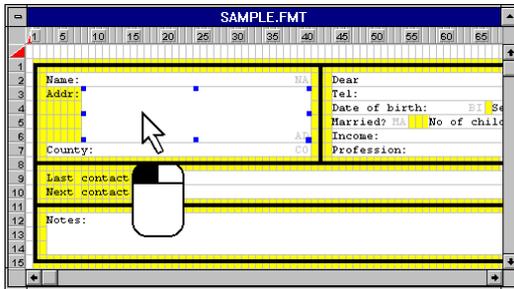
A click on the field name in the status bar opens the Go To Field dialog box, which saves you scrolling a large format to find the next field that you want to edit.



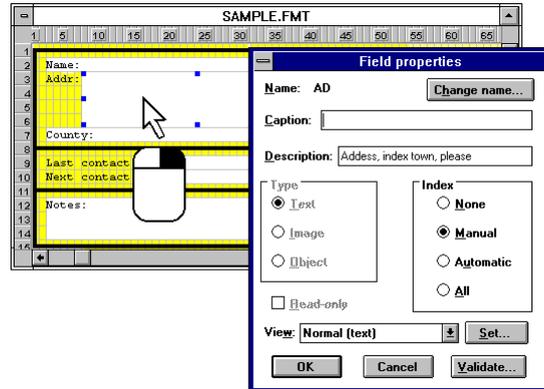
When editing a format

A left click on an item, such as a field in this example, will select the item for resizing or deletion.

Double-clicking will open the item for editing.



A right click on an item will also select the item and will in addition open the appropriate dialog box for setting its properties.



Chapter 6 –

Running an existing database

In this part of the manual we describe routine operations on a database, assuming that the database and its formats have already been set up.

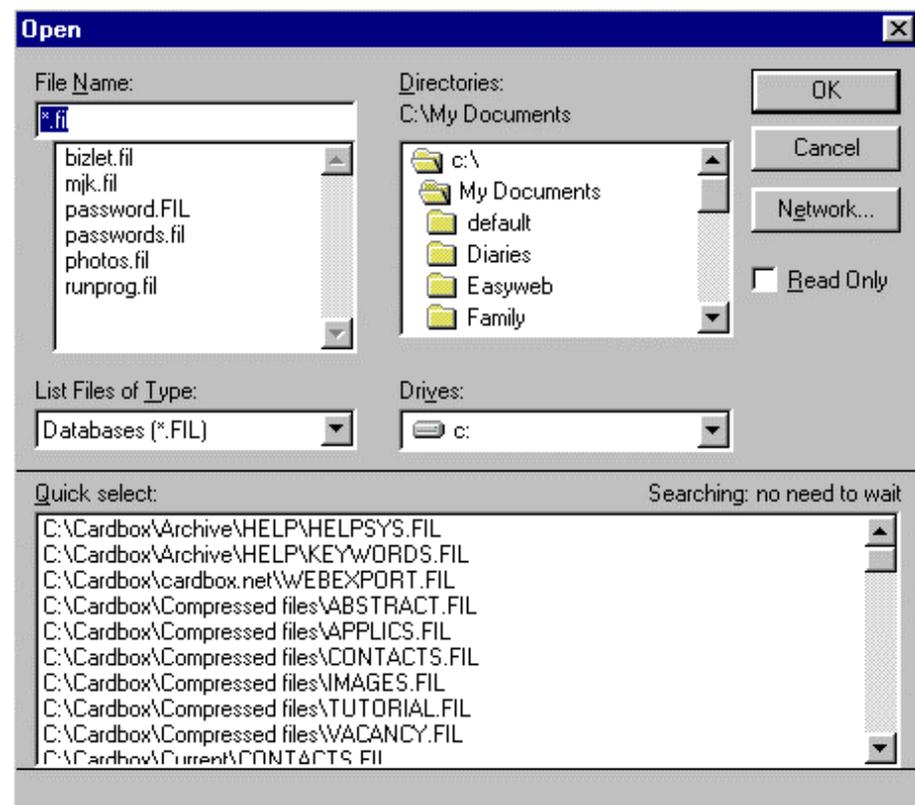
6.1 Opening database windows

Saving sessions is described in Section 3.6.



You very rarely have to open database windows in Cardbox. When you close Cardbox, it remembers all the windows that you had open, and re-opens them for you the next time you run Cardbox.

To open a window on a database which already exists on your computer, either select **Open** in the **File** menu or type CTRL+O without opening the menu. In response, Cardbox will display the dialog box shown below.



The top part of this has the same elements as all standard Windows file-opening dialog boxes. In the bottom part, the Quick Select list box lists all databases on the current drive, and this lets you open files that aren't in the current directory with a single mouse click instead of working your way through both the Directories and File Name list boxes – especially useful if you can't remember the exact name of a file. Because it involves searching the whole of your disk, the Quick Select list box takes a little time to fill, but you don't need to wait: you can still use the rest of the dialog box, and you can click on a Quick Select file as soon as it appears, without waiting for the full list to be compiled.

The bottom bar of the dialog box will display the description of the last file you have highlighted. Section 3.4 describes how to attach descriptions to database files.

You can select several files to be opened at once, but they must all come from the same list box – either File Name or Quick Select.

Cardbox will open a new database window for each file that you select. You can open several windows on the same database: see Section 3.3 for further details.

Opening recently used databases

At the bottom of the File menu, you will see the names of the databases that you have used (but closed) most recently. Selecting one of these menu items will open that database again.

Opening from Explorer (or File Manager)

If you double-click on a database file (filetype .FIL) in a listing in Explorer or File Manager, then Cardbox will open that database for you. Cardbox doesn't even need to be running at the time: it will start itself up if necessary.

6.2 Viewing records

Simple browsing



More about
browsing in
Chapter 13

The message spanning the browse bar in the status bar of the Cardbox window will tell you which record is currently displayed and how many records there are in the current selection. It will also tell you how many records you have tagged and what format you are currently using to view the records. In a newly opened database, the first record will be displayed, and all records will be in the current selection.

Here are some of the mouse clicks or keys you can use to browse through records:

Forward

- click on the right-arrowed button,
- click on the browse bar to the right of the box,
- press the arrow key RIGHT or DOWN.

Backwards

- click on the left-arrowed button,
- click on the browse bar to the left of the box,
- press the arrow key LEFT or UP.

To a specific record number

- click on Record nn in the status bar or press F5. A dialog box will pop up and you can enter the record number..

The View menu

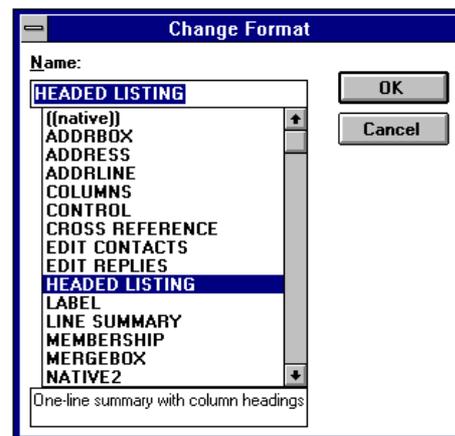
The View menu contains the commands which control the appearance of your records on the screen.

Changing the format

A newly opened window on a database will display records in the native format of the database.

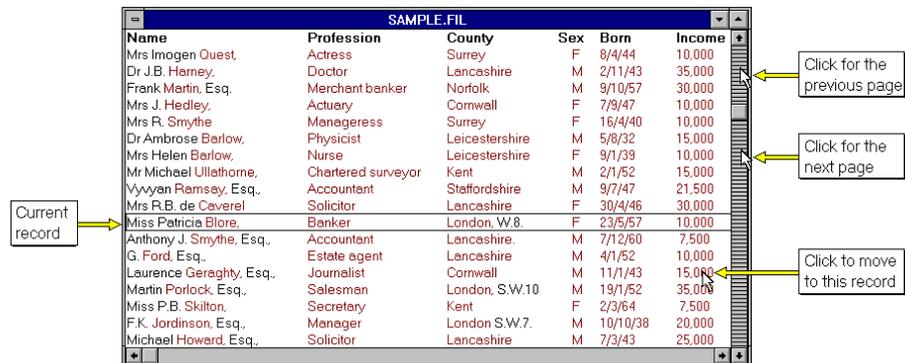
To change the format, choose **View, Change Format** and select the format you want in this dialog box.

Note that apart from being identified by a name, each format can also have an additional description, which is displayed at the bottom of the list for the currently selected format.



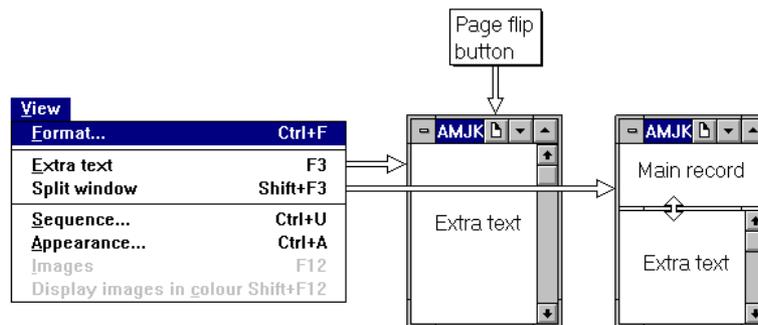
Multi-record display

If the format is small enough compared to the window, then Cardbox will display several records at once.



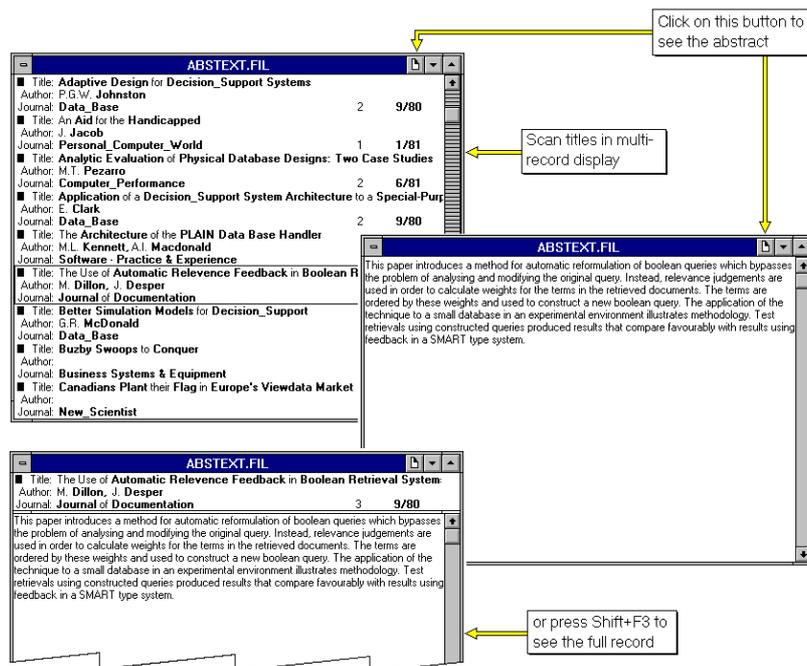
In such a case, the current record is framed by a thin black rectangle, and you can also browse through the records a page at a time (see Chapter 13).

Displaying extra text



If the command **Extra text** is not dimmed in the View menu, it means that extra text is attached to records of the database and that it is included in the current format. In this case,

- the command **Extra Text**, or F3 from the keyboard, will toggle between the display of the main record and extra text alone. A click on the page flip button, arrowed in the middle picture above, will have the same effect.
- the command **Split window**, or SHIFT+F3 from the keyboard, will split the window between the main record and extra text. You can move the bar separating the two portions of the window to change their relative size.



This example shows how you can display extra text with multi-record display.

Highlighting matches

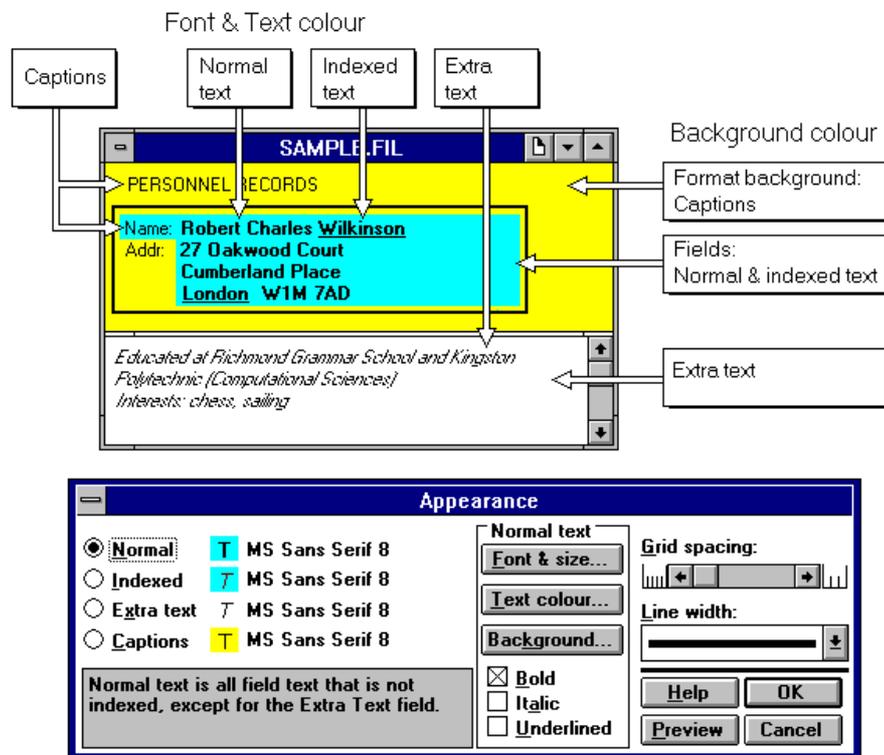
You turn this option on and off with the menu command **View, Highlight matches**. When it is turned on, Cardbox will highlight in each record all occurrences of words matching the last selection command that you made: this enables you to see at a glance what exactly it has found.

Chapter 7 –

Appearance of records

The appearance of your records, in terms of style and colour of text, lines, etc., is determined by the attributes stored with the format, and you can store in each format definition a different set of appearance attributes for screen display and for printing. You can also set specific attributes for individual items (fields, captions, lines, merge blocks) in each format.

This chapter describes how you can change the appearance of your records on the screen, and we deal with the printer-specific appearance attributes in Section 31.4.



This picture illustrates the appearance attributes that you can set for the various parts of a record, and the way that the parts of the record are listed in the Appearance dialog box, which you use to set these attributes.

Merge blocks obey slightly different rules:

Text	The styles assigned to normal and indexed text apply to the text read in from the fields in a record. Fixed text in a merge block is displayed in the style assigned to captions.
Background	The background is the same as that selected for captions.

7.1 Changing the appearance of a window

You can change the appearance of a database window either by setting the required attributes in the Appearance dialog box or by transferring the appearance attributes from another window.

When displaying a record



- To open the Appearance dialog box, Select **View, Appearance** or type CTRL+A.
- To save the changes, select **Edit, Format, Save appearance**. All changes in appearance will be temporary until you save them in this way.

When editing the format

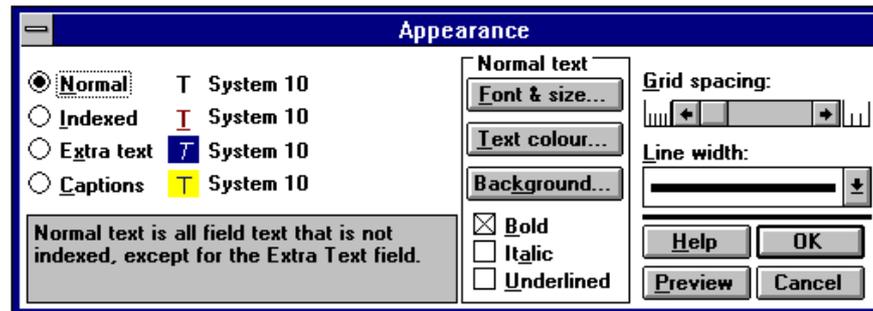
- To open the Appearance dialog box, select **View, Appearance**.
- To see what the record would look like with the changes you are making, choose **Window, Update** or press F9.
- All changes will be temporary until you save the format.

When another window has the required appearance

See Fetch and Give in Section 3.5.

When the required appearance attributes apply in another window, either currently open or minimized, use **Window, Fetch, Appearance** to transfer the appearance to the current window. You can similarly **Give** the current window's appearance to another window. All such transfers are temporary until saved as described above.

7.2 The Appearance dialog box

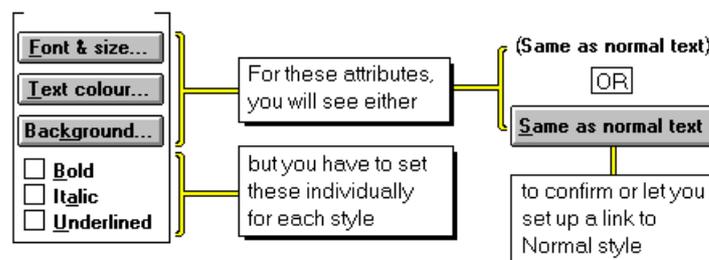


The Appearance dialog box shows the font and size currently selected for each of the four styles, and each style is illustrated by the letter "T" displayed using the specified background, colour, and style (but not size or font). The middle bank of buttons and check boxes enable you to change the styles in the way described below. Of the main control buttons,

- OK** closes the Appearance dialog box and transfers any changes you have made to the displayed record.
- Preview** also transfers the changes to the database window, but for only as long as you keep the Appearance dialog box open. If you close the dialog box by pressing **Cancel**, the database window will revert to its original appearance.

Global and individual changes

You will often want to make identical changes to all styles, especially if you are using merge blocks, where you may not want to distinguish between normal, indexed, and fixed text. To make such global changes easier, Cardbox allows you to link certain attributes of styles to the Normal style.



The three attributes which you can link to the Normal style are shown in the diagram above. The attributes Bold, Italic and Underlined are set individually for each style.

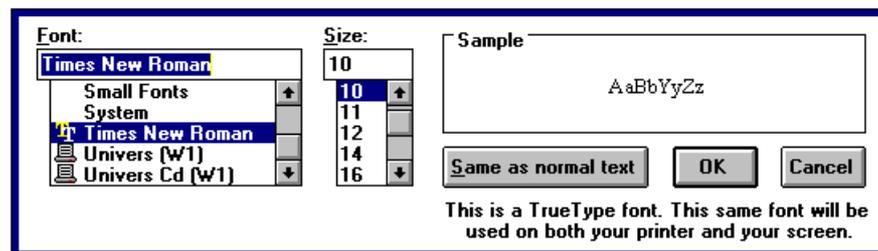
To link an attribute to the Normal style, press the Same as normal text button. The button will change into a plain message telling you that the styles are linked.

To unlink an attribute, make any change to it. The message will change back into a button, which you can press later if you want to link the style again.

What happens to the appearance of individual items

If you have given a different appearance to a specific item in your format, Cardbox will remember the differences when you change the format's appearance, and will not override the individual appearance that you gave to the item.

Selecting the font and size



You select the font and size in this dialog box. The composition of the list of fonts displayed on your screen will depend on the fonts which you have installed. The symbols appearing by a font's name have the following meaning.

	TrueType font	This font is used for both printing and display
	Printer font	This font is used for printing. The closest matching Windows font is used for display.
	Screen font	This font is used for display. The closest matching printer font is used for printing.

Changing colours

- Text colour...** opens a palette of 16 solid colours available for text.
- Background...** opens a larger palette of colours suitable for backgrounds. It also lets you define your own colours by clicking the **More>>>** button, which will take you to a standard Windows Custom Colour Selector dialog box.

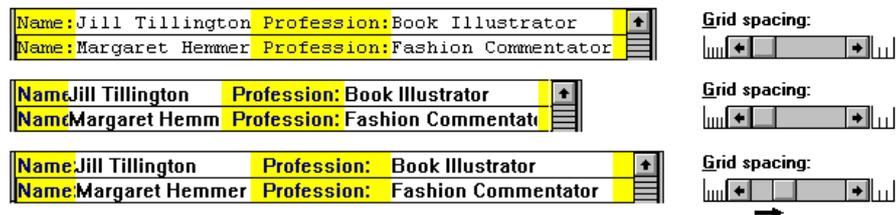
The colour currently in use is indicated by a dot.

To select another colour,

- Using the mouse** Click the colour you want: the response will be immediate.
- From the keyboard** Use **ARROW** keys to move the dark outline to the required colour, then press **ENTER**.

Grid spacing

The grid which Cardbox displays in the format design windows is intended to give you a guide to the space that you should provide in fields for a given amount of text. This guide is accurate for fixed-pitch fonts, but for proportional fonts it is based on the average width of characters and may sometimes be unreliable.



If you have a higher than average proportion of wide characters, then you may find that the space you allocated is inadequate. If just one or two fields are involved, you can redesign the format to make them a little wider (this is the best thing to do if the fields concerned are very short). Otherwise, instead of redesigning the format, you can increase the grid spacing, as shown above.

Note Grid spacing has a significant effect on the shape of graphics in formats and the size of images displayed in your records. We give examples in Section 28.3.

Line width

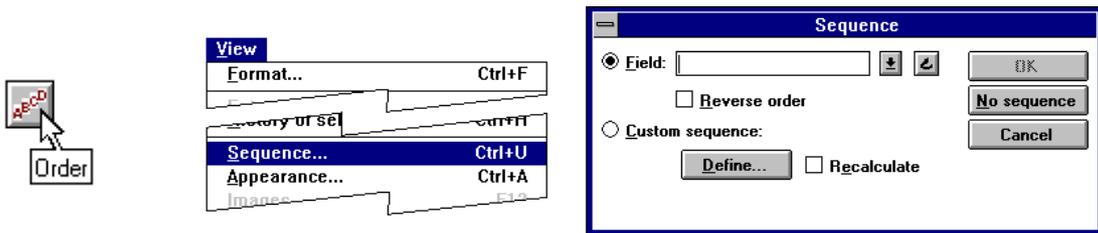
The Line width box gives you a choice of line widths for boxes or single lines in the format. See Section 28.1 for more information about lines and boxes.

Chapter 8 –

Sorting records

Cardbox stores records in the order in which they were originally added to the database, but you can arrange them in a different sequence for display and output.

You can sort records only on indexed terms. The use of condensing characters affects the ranking of alphabetic terms in the way described in Section 21.3.



To sort records, choose **View, Sequence** or press CTRL+U. The Sequence dialog box shown on the right above will give you the following options:

Field sorts records on one field only and it uses only the first indexed item in the field as the sort key. You can have different sequences applicable at different levels of selection (see diagram later in this chapter), but each referred to one field at a time. Those sequences are not permanent and will be forgotten when you leave the database.

Reverse order applies to single-field sorting and means descending alphabetic or numeric order. See further notes below.

Custom sequence sorts records on several fields at once, taking into account all indexed items in the specified fields, with ascending or descending order specifiable for individual fields. The custom sequence is stored on the database file and you can re-apply it even after sorting on a single field, or after leaving Cardbox altogether. The stored sequence can only be changed by defining a new custom sequence.

Define enables you to define a new custom sequence. It takes you to another dialog box, described later in this chapter.

Recalculate applies only if Cardbox reports in the dialog box that records have been added or edited since the custom sequence was last calculated. To put those records in correct sequence, turn this check box on and choose OK.

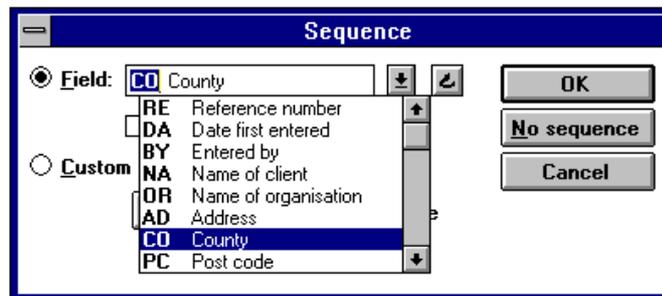
No sequence cancels any sequence currently in force, and you will find your records back in the order in which they were originally added to the database.

Single-field sequence

When sorting records on a single field, Cardbox looks only at the first indexed item in the field and arranges records in the following sequence:

Reverse order option not selected	Reverse order option selected
Records with no indexed entries, in stored order	Records with the first indexed entry alphabetic, in descending order
Records with the first indexed entry numeric, in ascending order	Records with the first indexed entry numeric, in descending order
Records with the first indexed entry alphabetic, in ascending order	Records with no indexed entries, in stored order

If you issue the **View, Sequence** command when a single-field sequence is already in force, then the Sequence dialog box will open with the name of the relevant field displayed.



- If you want to leave the field unchanged, and have not added or edited any records since this sequence was compiled, then choose **Cancel** or press **ESC**.
- If you want to keep the same sequence, but place new or amended records in the correct order, choose **OK** or press **ENTER**.
- To sort records on another field, enter its name in the Field box, choose it in the drop-down list, or click on the hook button and point to the field if it is displayed in the database window. The drop-down list will contain only those fields in which indexing is allowed, and the field on which you sort need not necessarily be in the current format.

To add or remove fields from the Sequence list, use the control buttons in the dialog box as follows:

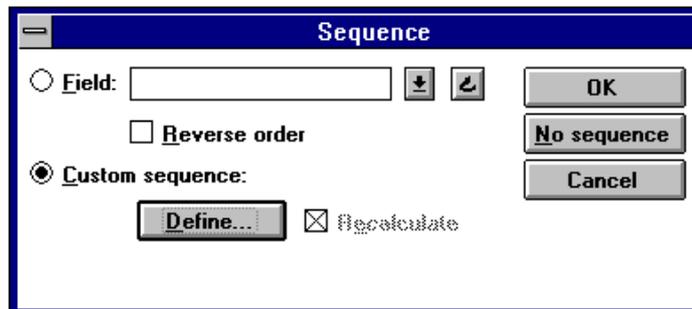
- Clear** to clear all entries in the Sequence list.
- Add** to add the field selected in the Field list to the Sequence list.
- Delete** to delete the selected field in the Sequence list.
- Reverse** to reverse the sequencing order for the field selected in the Sequence list from ascending to descending, and vice versa.

To change the ranking of fields in the custom sequence,

Sequence		Sequence	
+ SA	Salesman:	+ SA	Salesman:
+ CO	County	+ BU	Type of business
+ BU	Type of business	+ CO	County
- TU	Turnover	- TU	Turnover

- select the field whose position you want to change,
- move the cursor to the field's new position,
- when the cursor changes to a double arrow, as shown under field **BU** above, click the left mouse button.

Having defined the required sequence, choose **OK** to return to the Sequence dialog box.



The Recalculate check box will be automatically turned on; choose **OK** to recalculate the new custom sequence and apply it to the records.

Cancel chosen in either dialog box will leave the original custom sequence unchanged.

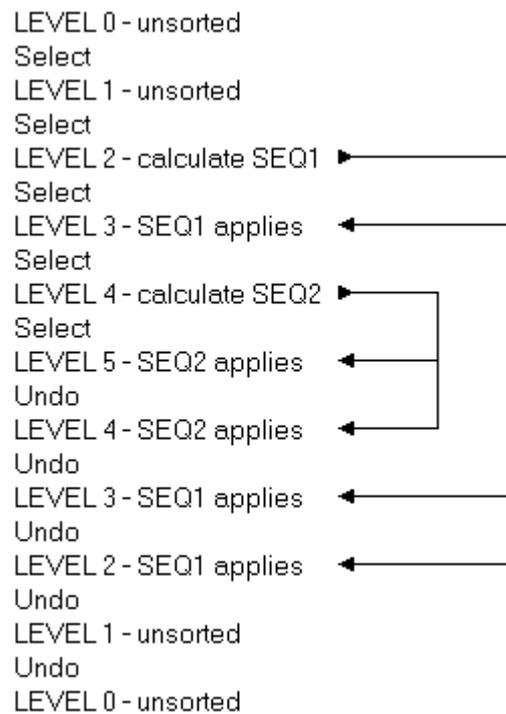
Effects of other operations on sorted records

While a sequence is in force,

- any record that you edit will not change its position until you recalculate the sequence;
- new records added to the database join the end of the existing sequence, and you have to recalculate it to place them in their correct position in the sequence.

If you sort a selection of records,

- the sequence remains in force at all higher levels of selection, until you specify a different sequence;
- as you undo selections, the sequence will cease to apply when you return to below the level at which it was calculated.



Chapter 9 –

Search and Retrieval

Fast retrieval of the data you want is the main purpose of putting them into a database, and Cardbox allows you to retrieve data on a wide variety of criteria, using search specifications consisting of two basic elements:

- Search parameter** which tells Cardbox what you are looking for.
- Search command** which tells Cardbox what to do with the records that match your search specifications.

The main search modes

You can refer your search parameters to:

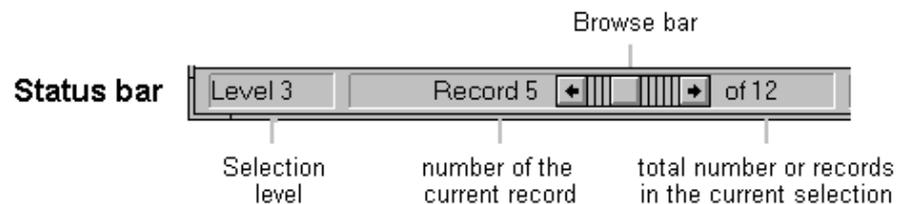
Chapter 10	Indexed terms	This is the fastest way of retrieving data from the database since Cardbox does not have to look at the actual records; the index tells it immediately which records meet your search criteria. You can refer to indexed words, numbers, or dates, and you can confine each search to a specific field.
Section 11.1	Data	This option widens the search to both indexed and unindexed text, occurring either in a specified field or anywhere in the records. Searching on data tends to be slower than index searches, since Cardbox now has to read the records, but it enables you to search for terms unintentionally left unindexed or for the occurrence of non-indexable characters, such as punctuation marks.
Section 11.3	Tagged records	You can fine-tune your selections by hand, by arbitrarily tagging or marking some records and then using the tags as a search parameter in your commands.
Section 11.2	Kept selections	Complex queries often involve a combination of several intermediate searches. You can keep the results of each intermediate search under a suitably chosen name, and use the names of the kept selections as search parameters in subsequent search commands.

Section 11.4	Record numbers	Cardbox tells you at every stage how many records there are in the current selection and it automatically gives each record a notional consecutive number reflecting its position in the current selection. You can refer your search commands to a specific record number or to a range.
Chapter 16	Relational	In this mode you use another database to provide the search parameters for the current database.
Chapter 15	Fetch	This mode lets you build up complex queries by combining selections from different windows.

The basic terminology

Here is a summary of the terms we use when referring to search and retrieval.

Current selection is the collection of records which remains after those which do not meet your selection criteria have been discarded. Only the current selection is displayed in the database window from which you entered the selection command.



Cardbox reports the progress of your selections in the status bar in the following terms.

- Level number** is a measure of the *basic search commands* that you have applied to reach the current selection. Level 0 means that no search commands have been applied and that all records in the database are in the current selection.
- Current record** is the record currently displayed in the database window. If several records are displayed in the window, the current record is surrounded by a thin black border.
- Record number** is the consecutive number of the record in the current selection, with the sequence currently in force.

Empty selection is the term we use for a database window containing no records. An empty selection will occur if you have not yet entered any records into a new database or if your search command has discarded all records. In either case, the status bar will display a message like this:



Search commands

Search commands modify the current selection of records, and they fall into three main categories.

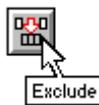
Commands which narrow down the current selection



Select

Boolean AND

looks at records in the current selection, keeps those which match the specification and discards the rest. The Level number increases by 1 with each command.



Exclude

Exclude also

Boolean AND
NOT

looks at records in the current selection, discards those which match the specification and retains the rest. The Level number increases by 1 with each **Exclude** command and is not affected by **Exclude also**.

Commands which expand the current selection

Select also

Boolean OR

looks at records at *the previous level of selections* and adds the matching records to the current selection (effectively extending the most recent **Select** command). There is no change in Level number.

Include

Boolean OR

looks at *all records in the database* and adds the matching records to the current selection. It is useful for combining selections. The Level number increases by 1 with each command.

Commands which undo previous search commands



Undo one level

takes you back to the previous level of selection, undoing all commands which originally took you from that level to the current one.

Clear all selections

cancels all selection commands, taking you to Level 0, with all database records brought back into the selection.

History of selections



History of selections

is an auxiliary command that shows the steps which you have taken to reach the current level of selection.

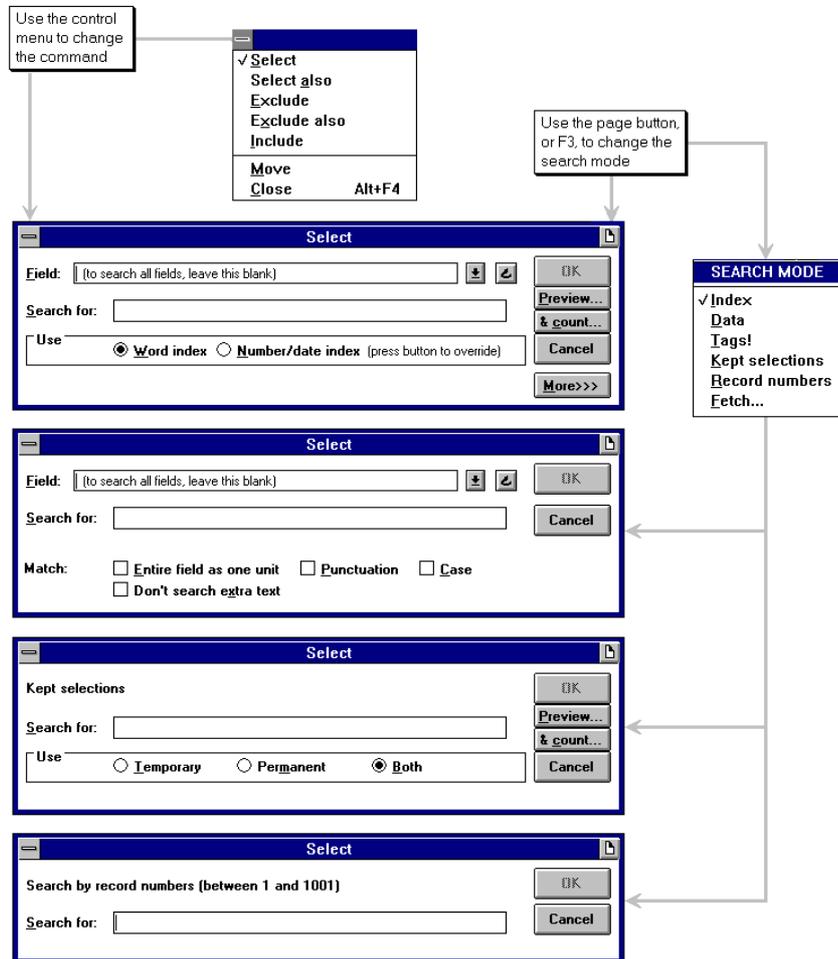
Selective scanning

Browse

enables you to look at the records which meet a specified selection criterion, without actually extracting them from the current selection.

The search parameters dialog boxes

Whenever a search command requires the definition of search parameters, Cardbox displays the dialog box applicable to the chosen mode.



You can at any stage change both the search mode and the current search command.

- To change the search command, open the control menu of the dialog box and choose the new command. In Windows 3.1, you do this by clicking the top right-hand corner of the dialog box; in other versions, you do it by right-clicking on the title bar, or pressing Alt+Space.
- To change the search mode, click on the page flip button or press F3 to open the Search mode menu. As you change the search mode, the dialog box will automatically be replaced by the one applicable to the new mode.

Chapter 10 –

Index searches

In this chapter we describe index searches, which are the most common type of search for fast retrieval.

10.1 The elements of a search specification

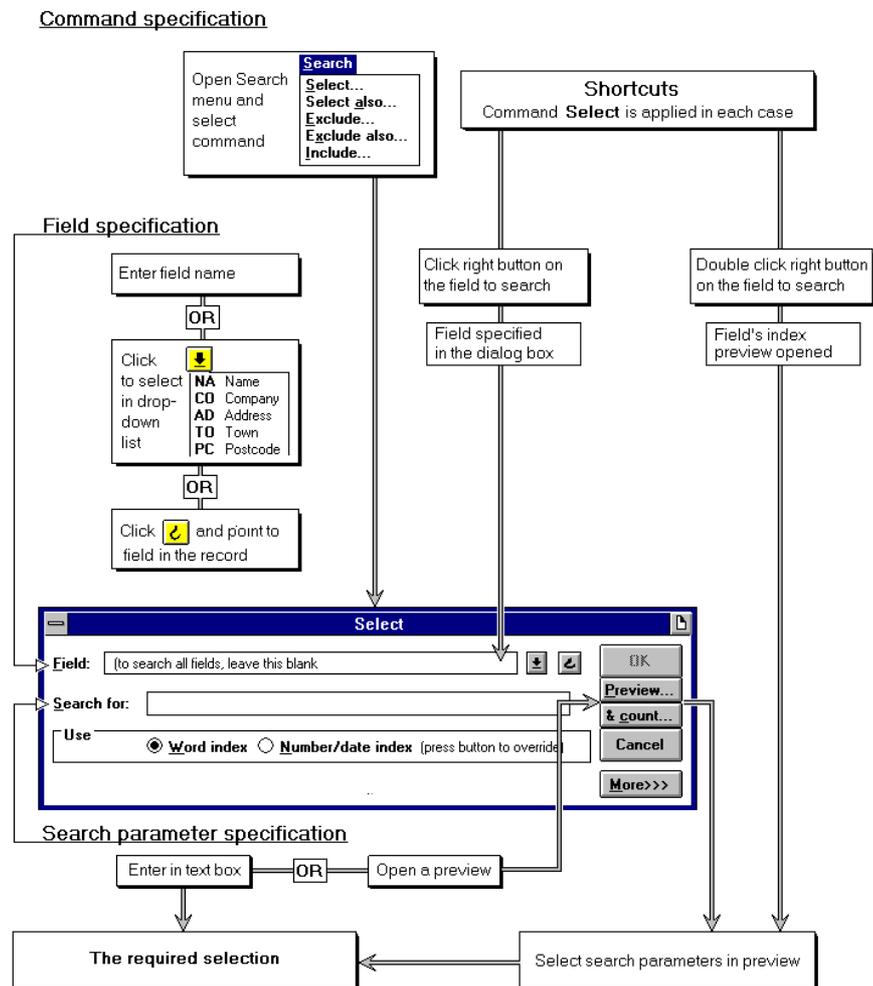
Within the database file, Cardbox maintains a separate index for alphabetical and numerical terms, and you search each of these two indexes separately.

In general, any term beginning with a numeric character, such as a plain number or a date, is indexed as a number, and all other terms as alphabetic strings, so you should have no difficulty in deciding which index to address, and Cardbox will in some cases choose the right index for you. However, if you have used any special indexing methods, then familiarity with Section 21.2, *How Cardbox indexes* could be helpful.

Each indexed term carries the identity of the field to which it belongs, and your search specifications will in general consist of the following elements:

- Search command** which tells Cardbox what to do with the records matching your specification; for example, to keep them and discard the rest.
- Field specification** if you are looking for indexed terms in a particular field, but you can also search all fields at once.
- Index specification** which tells Cardbox whether to look for alphabetic strings or numbers. Both kinds of indexed terms can exist in the same field.
- Search parameter** which defines the term or terms you are looking for. As shown later in this chapter, apart from searching for a specific word or number, you can use alphabetic or numeric ranges, ambiguous search parameters and fuzzy matching.

10.2 An overview of index searches



This diagram shows the various options which you have in formulating an index search. The left-hand portion outlines a step-by-step formulation, and we describe the various steps in detail further in this chapter. The right-hand portion shows the shortcuts which you can take if you want to search a field displayed in the database window. We describe these shortcuts below.

Note The field to which you address a normal step-by-step search need not be displayed in the database window, nor even be present in the currently used format.

Shortcuts

For the commonest search commands, there are some short cuts using the mouse. They involve the following steps:

- point to the field which you want to search,
- use the **right mouse** button as described below.

Single click will initiate the Select command for the field that you click on. All you will have to type is the search parameter. *If the field is defined as being unindexed, you will automatically get a Data search: see Section 11.1.*

Hold down will pop up a menu that lets you choose from the Select, Select Also, Exclude, Exclude Also, and Include commands, as well as Data searches. (Only the commands that are valid in the current context will actually be displayed). *If the field is defined as being unindexed, you will automatically get a Data search: see Section 11.1.*

Double click will initiate the Select command for the field that you click on, and display a preview of the index for the field. Cardbox decides automatically whether to display the Word or the Number/Date index for the field.

You can look at the preview and pick the terms that you want to use as search parameters.

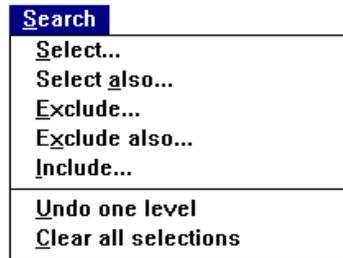
Hint: If you always want the popup menu to appear without having to hold down the right mouse button first, you can configure Cardbox to do this with the **File, Utilities, Configure Cardbox** command. Conversely, if you *never* want the popup menu to appear, you can configure Cardbox to behave that way.

10.3 Choosing the search command

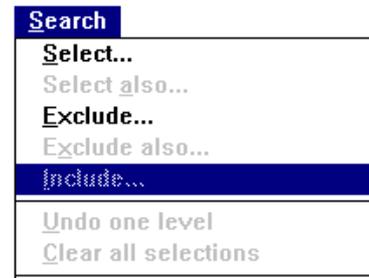


Commands in the top box of the **Search** menu apply directly to index searches.

Toolbar buttons are available for the most frequently used search commands.



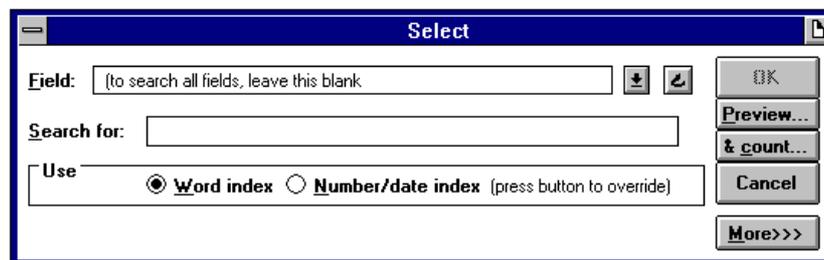
Not all commands are available at Level 0, that is, before you have made any selections. To see why a command is not available, as the **I**nclude command in this example, highlight it in the menu and read the explanation in the status bar.



Add extra records to the current selection (current selection already contains all records)

10.4 The Search dialog box

Once you have selected a search command, Cardbox will ask you to define your search specifications in the dialog box shown below.



- The dialog box shows the search command you have chosen. If you realise that you have chosen the wrong command, you can change it by opening the control menu: in Windows 3.1, click on the icon at the top left-hand corner; in other versions of Windows, right-click on the title bar (or, in any version, press Alt+Space).
- For fuzzy matching or a search for unique terms, click the **M**ore button and refer to further notes in Section 10.6.
- If you want to search for numerical terms, then switch to the **N**umber/date index before entering your search parameters in order to enable Cardbox to make the appropriate validation of your entries.

10.5 Specifying the field to search

If you want to search all fields, then leave the Field box empty. Otherwise, enter the field's name in the dialog box. You have the choice of the following three ways:

Method 1 Type the field name in the text box

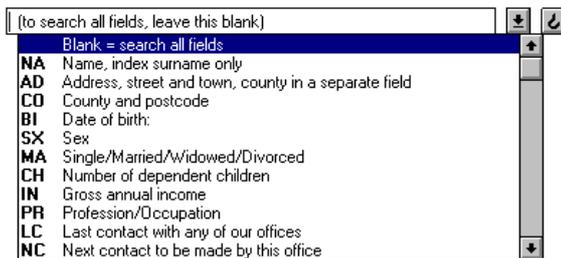
Tip As a shortcut, you can set the correct index option and move the insertion point to the Search for box by typing immediately after the field name

/ for the Word index, or \ for the Number/date index.

Method 2 Use the drop-down list

Click the arrowed button beside the text box and select the field in the list.

To save you a fruitless search, Cardbox omits from the list all fields with index mode None, in which nothing can be indexed.

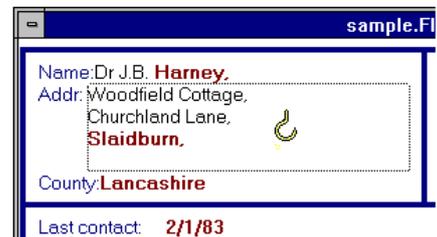


Method 3 Point to the field



The field specification box has a button next to it marked by a hook. Click on it: the dialog box will disappear temporarily and the cursor will turn into a hook.

Move the hook onto the field you want, and click the left mouse button. This will return you to the dialog box, with the field's name entered.



If you have more than one window open on the database you are searching, you can point to the required field in any of those windows. But the hook will be crossed out, by two oblique lines, indicating that the field name will not be transferred, if:

- it is in the right window but outside a field, i.e. either on the format background or on text displayed in a merge block,
- or if it is positioned on a field of another database.

You can cancel the operation and return to the dialog box by clicking while the hook is crossed out: it can be anywhere on the desktop when you do this.

10.6 Search parameters for an index search

There are two ways in which you can specify the search parameters for an index search in the search dialog box.

- Method 1** Type the term you are looking for in the **Search for** text box. This is the best option to use when looking for a particular word, number or date, or for a particular range of alphabetic or numeric terms. You can also enter ambiguous search parameters with wildcard characters. Different rules apply to alphabetic and numeric entries, and these are described in detail in separate sections below.
- Method 2** Select terms in a preview list as search parameters, in the way described in Section 10.8. You can narrow down the preview to terms of immediate interest by entering first in the text box either a suitable range or an ambiguous search parameter.

Confining the search to unique terms

You can confine any index search to terms which occur only once in any given field in the current selection of records. To do so, click the **More** button in the Search dialog box and turn on the **Find unique terms only** check box.



Searching for indexed words

If you are looking for a particular keyword, just type it in full and then click the **OK** button or just press **ENTER**. If you have used underlines or other characters to join words together on the cards, remember in what form your entries are indexed: Section 21.2 will guide you.

Ambiguous search parameters

You can widen your search to a range of matching words by using the same wildcard characters that you use for filenames:

- | | | |
|---------------|---|---|
| question mark | ? | which will match any single character |
| asterisk | * | which will match any sequence of zero or more characters. |

See also
fuzzy
matching
below.

Here are some examples:

You have entries	sub way	sub-way	sub_way	subway
which would be indexed as	SUB WAY	SUB WAY SUBWAY	SUB_WAY	SUBWAY
Matching				
SUB	YES	YES	no	no
SUBWAY	no	YES	no	YES
SUB*	YES	YES	YES	YES
SUB*WAY	no	YES	YES	YES
SUB?WAY	no	no	YES	no
S*Y	no	YES	YES	YES

You can use any number of question marks and asterisks, and also combine them: so, for instance, SM?TH* will match SMYTHSON as well as SMITH.

Note The asterisk in a search specification stands for zero or more characters. If it is entered as the only search specification, it will match any entry in the word index. Since Cardbox keeps no zero-length entries in its index, you can find records in which no alphabetic text has been indexed in the given field by applying the **Exclude** command with "*" as the only Word Index search parameter.

Fuzzy matching

Fuzzy matching enables you to find words which differ by a small number of characters from the search string. You choose the level of difference that is to be tolerated, but you do not have to specify where in the matching words those differences are allowed to occur, as you have to with ambiguous search parameters.

Differences are measured in terms of the number of characters that would need to be inserted, deleted, or changed in order to change one string into another. Here are some examples of strings that have a difference of 2:

Search string	Matching string	Changes allowing strings to match
SMITH	SMYTHE	replace I by Y, add E
JONES	JOHNS	add H, remove E
WATSON	WATERSON	add E, add R
HILLINGS	SHILLING	remove S from the end, add at the beginning

Fuzzy match: 

Find unique terms only

- To specify the number of differences that is to be tolerated, click the **More** button in the Search command dialog box and enter the number in the Fuzzy match box.

Fuzzy matching is useful for finding words that may have been misspelt or names that may genuinely have some small differences in spelling. For example, with Fuzzy match of 1, the string HUTCHISON will also find HUTCHESON and HUTCHINSON.

Selection on alphabetic ranges

A specification in the form SUB*, illustrated earlier, effectively applies to all words beginning with the letters "SUB", and similarly, S* would cover the whole range of words with the initial letter "S". To specify a range of words spanning several initial letters, enter the specification in the form:

- E:K** for all indexed words beginning with "E" to "K";
- :COB** for all words from the beginning of the index to the last word starting with "COB";
- XE:** for all words from the first word starting with "XE" to the last word in the index.
- :** for all indexed words. This works the same as *, but is less convenient, because Cardbox will assume that you want a numeric search, and you will have to change the **Use** option to **Word Index** to override this.

Searching for numbers and dates

If you are looking for a particular key number or date, type it in full and then click the **OK** button or press **ENTER**. The formats for numbers and dates are

described in Section 21.2. Characters which are ignored when indexing, such as currency symbols and commas, are not allowed.

As soon as you start typing a number, Cardbox will change the **Use** option to Number/date index, unless you have overridden it earlier.

Specifying numeric ranges

Numeric ranges are specified as follows:

17:32	matches any number between 17 and 32, inclusive;
14.6:	matches any number greater than or equal to 14.6;
:30000	matches any number less than or equal to 30000.
:	matches all indexed numbers.

Since dates are indexed as numbers (shown in regular typeface in the table below), similar rules apply. Thus:

19/4/1990:11/9/1995	matches any date between 19/4/1990 and 11/9/1995, both dates inclusive;
1990.0419:1995.0911	
21/3/1992:	means on 21/3/1992 or later;
1992.0321:	
:3/8/1983	means on or before 3/8/1983.
:1983.0803	

If you have used UK date format and have put in any dates as simply "month/year", then those dates will be treated in ranges as if they were the 0th day of the month concerned. Whatever the date format you use, a plain year number will be counted as the 0th day of the 0th month of that year. So

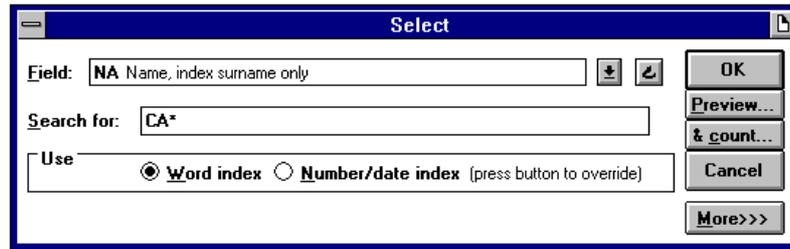
1993:1995 means in 1993 or 1994.

Dates in 1995 will be excluded because all dates in 1995 come after the 0th day of the 0th month

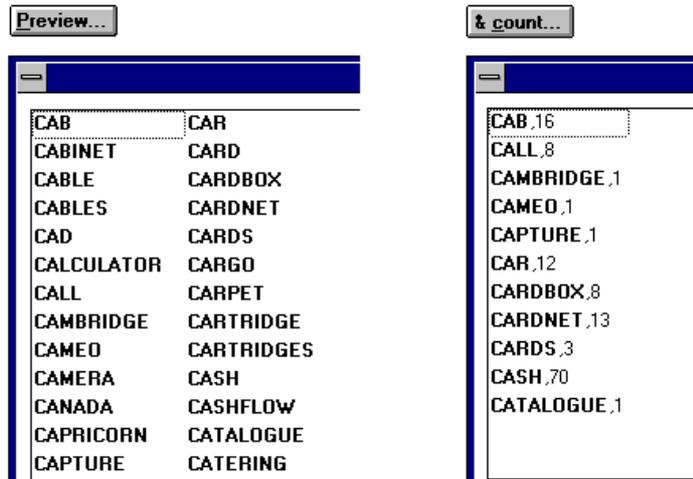
Note: Even if you have set up a validator that automatically converts dates to 4-digit years when you type them into a field (eg. turning 21/3/07 to 21/3/2007), this will not automatically rewrite search specifications for you. When making a search, if you mean 2007, you have to say 2007.

10.7 Previewing selections

You can use previews either to check how Cardbox will respond to the search parameters you have entered, before actually performing the selection, or as a means of defining the search parameters.



To preview a selection, type the specification in the usual way, but do not click OK: instead, click one of the preview buttons just below it in the dialog box. In the example below, we illustrate preview selections of names beginning with CA.



Preview tells you what words matching your specification are indexed in *the entire database*: it does not tell you how many records are indexed under each word, or how many will be found by your search command.

& count is the variant of Preview which looks only at the *records relevant to the current selection command*, and it shows you how many records are indexed under each word in the list. This will often show fewer items, because many of the index terms may not be relevant to records in the current selection; but because Cardbox has to check this, it can be considerably slower than an ordinary Preview.

Note that & count takes into account the search command currently in force.

With the command	& count looks at records
Select, Exclude, Exclude also	in the current selection
Select also	at the last level of selection
Include	in the entire database

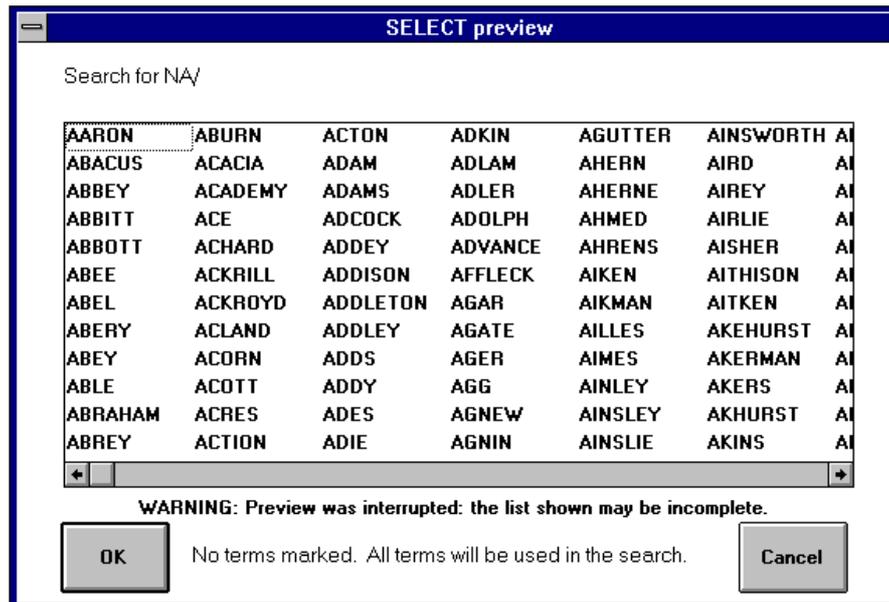
Progress and interruption of previews

With a large index and a wide-ranging specification, a preview may take a little time, so Cardbox will display a progress report.

The shading of the progress bar is static and does not change. Progress is indicated by the field names and indexed words displayed above it.



You can interrupt the preview by clicking Cancel if, for example, the displayed indexed words suggest that you ought to revise your specification, or if you see that the preview has already covered the terms in which you are interested. You will still get a preview, but with a warning that it has not been fully compiled.



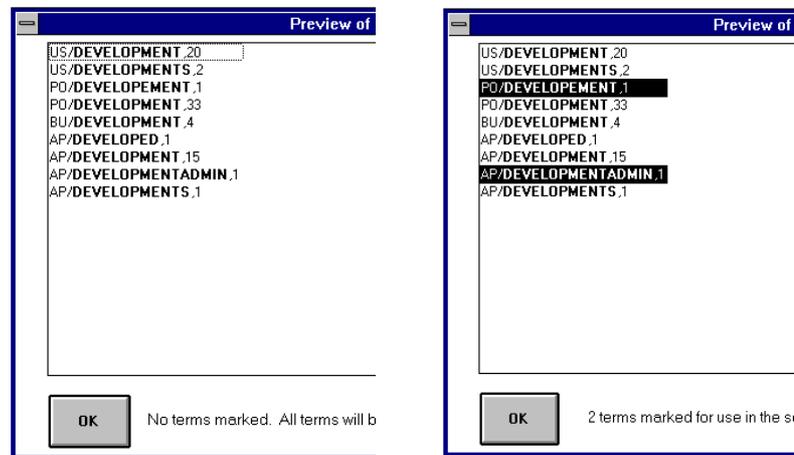
You can use such a partially compiled preview for selecting terms as search parameters, and if you click **OK** or press **ENTER** without marking any terms, then the interruption will be of no consequence: you will still get the full selection matching your search parameters.

But once you have interrupted the preview, you cannot resume it. You can only cancel it (Cancel button or **ESCAPE**) to return to the dialog box, and start again.

All-fields previews

If you enter a search specification without specifying the field to be searched, then the search extends to all fields, and the same applies also to previews.

With each term matching your specification, Cardbox lists also the field in which the term occurs, using the delimiter "/" for the Word index and "\" for the Number/date index.

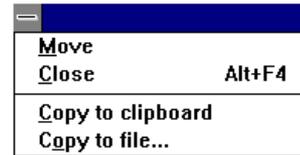


This example shows the & count preview of all fields containing indexed terms beginning with **DEVELOP**, i.e. with the Search for specification entered as **DEVELOP***.

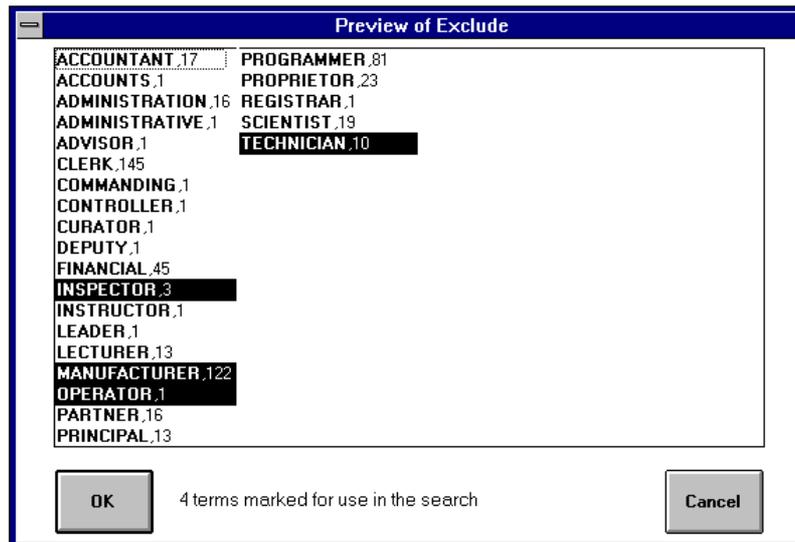
You can use such all-fields previews to search several fields at once, as shown in the example on the right above.

Saving the preview to a file or the Clipboard

You may sometimes want to copy the contents of the preview to a file, for further processing or for use in validation. The system menu of the Preview dialog box contains commands to copy the whole preview to the Clipboard or to a file. To access it, click on the top left-hand corner of the dialog box (Windows 3.1), right-click on the title bar (other versions), or press ALT+SPACE.



10.8 Selecting search parameters in previews



The preview list is an ordinary Windows list box, and you can select items in it in the usual way. The items you select are the terms that Cardbox will use in the search. If you do not select anything, all terms will be used in the search.

You can scroll the preview list if necessary. Terms that you have selected will remain selected even when scrolled off the screen, but there is one hazard. As in any list box, if you click on a term without using the CONTROL key, all other terms will be unselected; *but you won't notice this* if the other selected terms are off the screen. Keep an eye on the count of marked terms, and if it shows that some terms have already been marked, do not simply click the new term (unless you really want to deselect the others), but always hold down the CONTROL key as you click.

Important note The relationship between concurrently selected terms is equivalent to Boolean **OR**. Thus, for example, if you were to select **PRINCIPAL** and **PARTNER** on the list above, you would get the records of all people whose job designation contains

PRINCIPAL OR PARTNER

If you wanted to select only Principal Partners (and have not used the underline to index these words as a phrase; see Section 21.3) then you would have to use two separate selection commands:

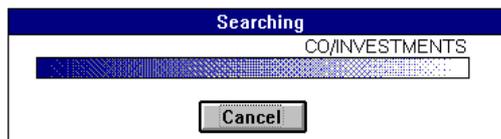
Select PRINCIPAL for PRINCIPAL

Select PARTNER for PRINCIPAL AND PARTNER

occurring in the same job designation.

10.9 Progress of search commands

Apart from the characteristics of your computer, the factor which may noticeably affect the speed of retrieval is the size of the selection matching your specifications. If the selection takes more than a few seconds to perform, Cardbox reports its progress in the box shown below.



The progress bar is static because, as it scans the index, Cardbox cannot tell how many terms are yet to come within your search specification; but a display of the indexed terms above the bar keeps you informed of the progress.

This display may reveal an error in your specifications, for instance, terms which you would not expect to appear in the intended selection, in which case you can cancel the command by clicking the **Cancel** button or pressing **ESCAPE**.

Chapter 11 –

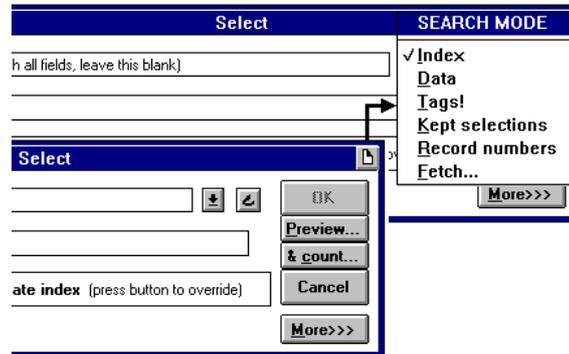
Other search modes

Index searches give you the fastest means of retrieving records from a large database, but the formal selection criteria involved in those searches may not necessarily lead to the very final selection that you want. You may want to refine the selection further by reference to some unindexed data, or even without any reference to the contents of the records, and equally, you may want to combine in the final selection sets of records extracted from the database on different criteria. These are some of the circumstances in which you can usefully apply other search modes

Here is a summary of those modes.

Data	In this mode you search the actual data in the records, regardless of whether indexed or not.
Tags	Tagging means placing a mark on individual records to distinguish them from the other records in the selection. You can apply all search commands to tagged records alone.
Kept selections	You can at any stage keep the composition of your current selection in a named list, and manipulate those lists by the normal search commands.
Record numbers	You can refer your search commands to a block of records in the current selection and sequence.
Fetch	This mode works like Kept selections, but instead of keeping the selection in a named list, you leave it in a non-active database window or even in a window minimized to an icon. This particular search mode is described in Chapter 15.

You can access some of the additional search modes, such as Data, Tag and Keep, from submenus of the main Search menu. You can access other search modes by starting a normal index search and then changing the mode in the command's dialog box, as shown below.



11.1 Searching record data

When you search record data, Cardbox reads through the text of each record, and this process is much slower than an index search. Consequently,

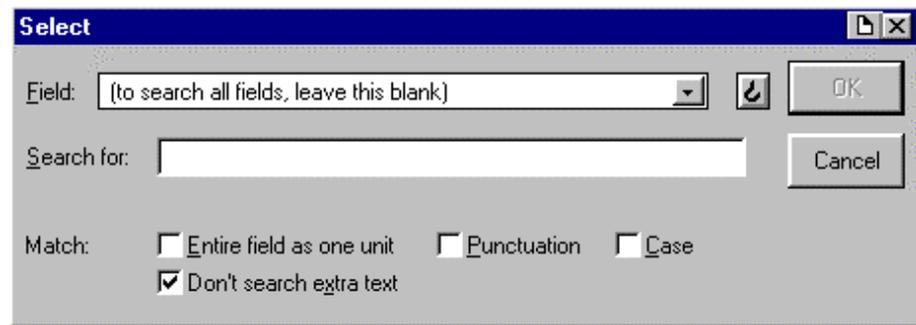
- data search is not available with the **Include** command, which would entail reading through the entire database!
- take care with the **Select also** command; it will make Cardbox read records at the last level of selection, and you may still find yourself reading all records in the database if you choose the data search with **Select also** at Level 1;
- try to narrow the selection down as far as possible using index searches,
- but try a data search even on a small selection if the alternative is a very elaborate index selection.

Starting a data search

In a data search, Cardbox looks only at the fields included in the current format, so make sure that you have the right format before starting.

To start a data search,

- open the Data menu. This may be in the main menu bar, or a submenu of the Search menu (depending on how you have set it up).
- select the command you want.



Short cut: If you are searching a field that is defined as being unindexed, then you can also right-click on the field and get the dialog box at once, with the field name already filled in. Or you can hold down the right mouse button and get a pop-up menu of the available data search commands.

Specifying the field to search

If you want to search all fields in the current format, then leave the Field box empty. If extra text is in the format, and you want it to be excluded from an all-fields search, then turn the Don't search extra text check box on.

To search one designated field, enter its name in the Field text box in one of the three ways described below. To search extra text, use a double asterisk "*" for the field name.

Method 1 Type the field name in the text box.

Method 2 Use the drop-down list.

The drop-down list will contain only the fields present in the current format.

Method 3 Point to the field.

As described in Section 10.5 for index searches, move the hook to the required field, and click the left mouse button. If you find it convenient to click on another window open on the database, make sure that you click on a field which is also present in the window you in which you are running the data search.

Specifying the search parameters

The matching of your search parameter with the data is influenced by the choice of the **Match** options, with the default settings being suitable for straightforward contextual matching.

- Entire field as one unit** With this option turned off, the matching string can occur anywhere in the field. With the option on, the entire field is treated as one unit, but you can introduce various refinements into whole-field searches using wildcard characters in the way described below
- Punctuation** With this option off, Cardbox ignores all punctuation marks in the text as well as in your search string, looking only at the alphabetic characters and numeric digits, and the underline "_". With the option turned on, all punctuation is taken into account: the hyphen is treated as a normal character, but the asterisk and the question mark are treated as wildcard characters in the way described below.
- Case** Unless this option is turned on, Cardbox ignores the case in matching.

Your search parameter can consist of a string of alphabetic or numeric characters, with spaces and wildcard characters, which have the following meaning:

character	stands for
space	one or more spaces
question mark ?	any single character
asterisk *	any string of characters, from none to any number in length

Wildcard characters interact with the Entire field as one unit option in the way shown below.

Search string matches

	<input type="checkbox"/> Entire field as one unit	<input checked="" type="checkbox"/> Entire field as one unit
THE	field containing the word THE anywhere	field consisting of the word THE only
THE*	field containing any word beginning with THE	field beginning with the string THE
*THE	field containing any word ending in THE	field ending with the string THE
THE	field containing the string THE anywhere	
B*G	field containing any word starting with B and ending with G	field starting with B and ending with G
2*7	field containing any term starting with 2 and ending with 7	field consisting of a number or date starting with 2 and ending with 7
?*	field containing any text at all, but not empty fields	

Progress and interruption of data searches

Cardbox reports the progress of a data search, with a progress bar showing the proportion of records read. If you find the progress unacceptably slow, just cancel the search.

11.2 Keeping selections

You can keep selections as named lists of records for future reference. You can make them permanent or temporary.

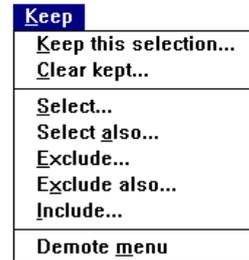
- Permanent selections are recorded on the database file. They remain available until you specifically remove them. On a network, they are available to all users of the database.
- Temporary selections are forgotten when you close the last window in the database. They are not available to other users of the network.

Kept selections of either kind are available in all windows opened on the database.

The Keep command menu

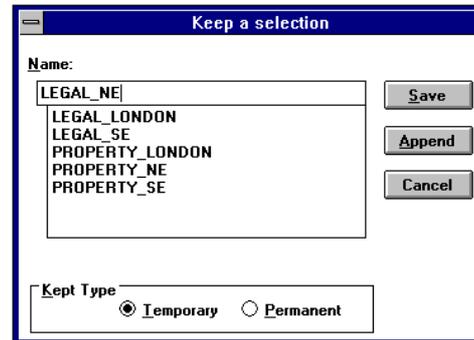
The commands which you use to handle kept selections are available in the Keep command menu. This menu appears in the first instance as a cascading menu in the Search menu, but you can promote it to the main menu bar if you expect to use the Keep command frequently.

This picture shows the Keep menu in its promoted form.



Storing kept selections

To store the current selection of records, select **Keep this selection** in the Keep command menu, and set the Temporary or Permanent option in this dialog box. Cardbox will list the names of any existing kept selections of the specified type.



To keep the current selection of records under a new name:

Enter the name in the text box and choose **Save** or press ENTER. The name can be up to 64 characters long and it can contain spaces, which Cardbox replaces by underlines. You can assign the same name to selections of different type.

To replace an existing kept selection by the current selection of records:

Select the name of the relevant selection, and choose **Save** or press ENTER.

To add the current selection of records to a kept selection:

Select the name of the relevant selection and choose **Append**.

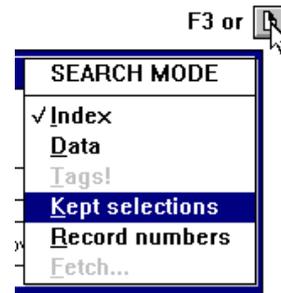
Note The **Keep** command stores only internal record addresses on the named lists, not the actual record contents. This means that:

- if you edit some records in a kept selection, those records may no longer meet the criteria of the original selection you kept, but they will stay in the selection,
 - if you delete all records in a kept selection, you will be left with just the name of an empty selection. Unless you intend to re-use that name, you should delete it in the way explained in *Clearing kept selections* later in this chapter.
-

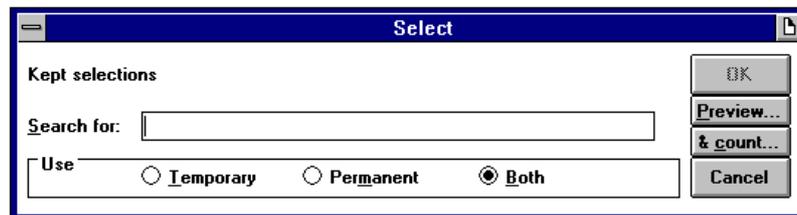
Searching kept selections

You can apply the basic search commands to kept selections, using the name of the selection as the search criterion. Search commands selected in the **Keep** menu automatically apply to kept selections only.

Alternatively, you can select the command in the **Search** menu and then select **Kept selections** in the search mode menu in the dialog box.



Either way, you will reach the Kept Selections dialog box shown below.



If you want to confine the search command to selections of a particular type, then select the appropriate option button in the Use box.

You can apply the search to one or more kept selections, and you can specify their names in one of two ways:

- 1 Type the name of the required kept selection in the Search for text box.

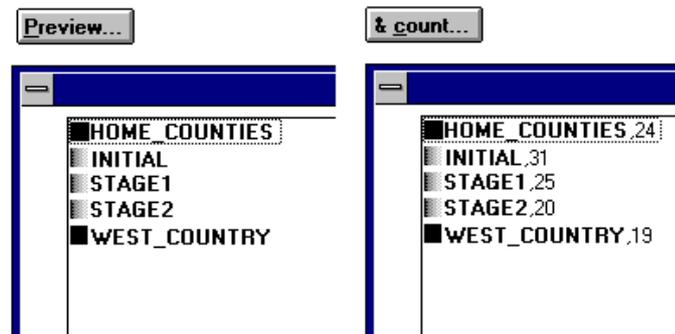
In doing so, you can use the range delimiter ":" and the standard wildcard characters to specify, for example,

D:G for kept selections whose names start with D to G, both inclusive.

R* for names starting with R.

S*G for names starting with S and ending with G.

- 2 Click one of the Preview buttons and select one or more names in the preview list in exactly the same way as for a normal index search. See Section 10.8 for details.



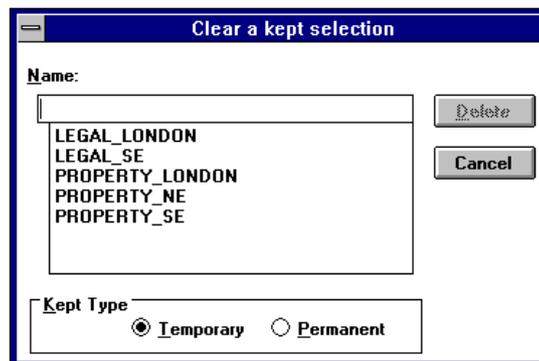
In such previews, Cardbox identifies permanent kept selections by a solid square before the name and the temporary selections by a shaded square. Note that:

- Preview** lists the names of all kept selections, regardless of whether they are relevant to the current search command,
- & count** confines the preview list to the kept selections to which the current search command will actually apply, and it shows the number of records that will be affected.

Clearing kept selections

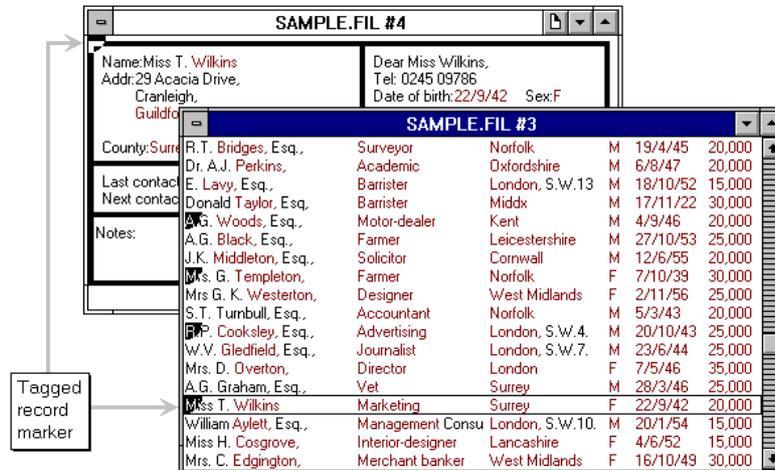
Temporary kept selections are automatically cleared when you close the last window on the database, but you must take specific action to clear any unwanted permanent kept selections. In each case, you delete only the name of the kept selection, the relevant records remain unaffected.

To clear a kept selection, select **Clear kept** in the **Keep** menu and then the name of the relevant selection in this dialog box.



11.3 Tagging

In addition to using selection commands relating to indexed words or numbers, you can fine-tune your selection by tagging records.



Tagged records are identified by a special marker in the corner, and you can handle tagged records as a separate set in all search commands.

The quickest ways to tag or untag a record are:

Keyboard: press the TAB key to tag or untag the current record.

Mouse: hold down the CTRL key and click on the record (which need not be the current one) using the left mouse button. With a three-button mouse, you can simply click with the middle button without pressing CTRL.

Toolbar: the Tag button acts as a toggle on the current record.

The status bar shows you how many records have been tagged. It refers to the number of tagged records in the entire database, not just the current selection.

The commands which you use to handle tagged records are available in the **Tag** command menu. This menu appears in the first instance as a cascading menu in the **Search** menu, but you can promote it to the main menu bar if you expect to use tagging frequently.

The first command in the menu always reverses the tagged state of the current record, so it will read:

Untag record, if the current record is tagged, and

Tag record, if it is untagged.

You can also tag or untag several records in bulk with the following commands from the **Tag** menu:

Tag rest of selection	tags all records from the current record to the end of the selection, unless interrupted earlier.
Untag rest	removes tags from the current record to the end of the selection, unless interrupted earlier.
Clear all tags	removes tags from all records in the database, regardless of whether they are in the current selection.

Tag
Untag record
Tag rest of selection
Untag rest
Clear all tags
Select
Select also
Exclude
Exclude also
Include
Demote menu
Records tagged: 50

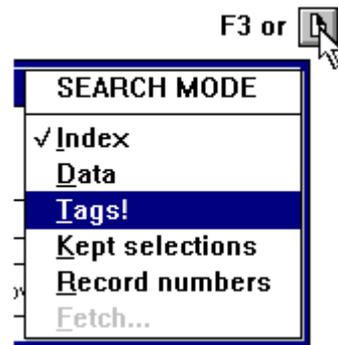
Tagging is completely independent of any other selection criteria.

- Once a record has been tagged it stays tagged until you explicitly untag it or until you leave the database.
- A record tagged in one window will be marked as tagged also in all other windows open on the same database.

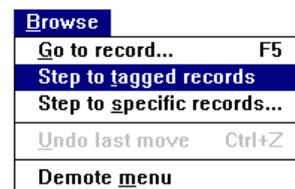
Handling tagged records

The tagged records essentially form an unnamed temporary selection, to which you can apply the full range of search commands, but you must select the search command in the **Tag** menu.

Alternatively, you can select the command in the **Search** menu and then select **Tags!** in the search mode menu in the dialog box. The exclamation mark is there to remind you that the response to the command will be immediate, without any further dialog box.



You can also ask Cardbox to display only the tagged records as you browse through your current selection. See Chapter 13 for further details of step browsing.



A mouse shortcut

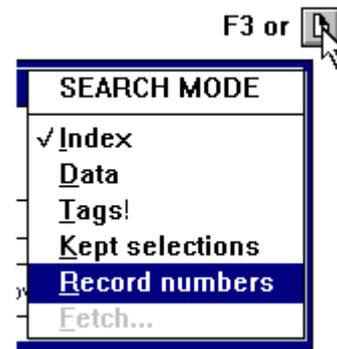
If you hold down the CTRL key and double-click on a record using the left mouse button, Cardbox will tag the record (if it was not already tagged) and then select all tagged records. This is especially useful as a method of quickly selecting a single record, if there was nothing tagged beforehand.

11.4 Selection by record numbers

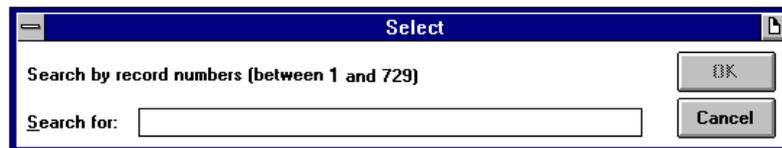
By a record number, we simply mean the position of a record in the current selection: if there are 100 records in the current selection, their record numbers are 1 to 100. The only search commands that you can use for record numbers are **Select** and **Exclude**.

Select the command in the **Search** menu in the normal way, then open the Search Mode menu in the Search dialog box and select **Record numbers**.

Should this option be dimmed as unavailable, it would mean that you have chosen a search command (such as Include) that is not applicable to record numbers.



You can meaningfully search only for record numbers within the total number of records in the current selection, and the Record numbers dialog box shown below reminds you how many records there are. Record numbers outside this range will be ignored.



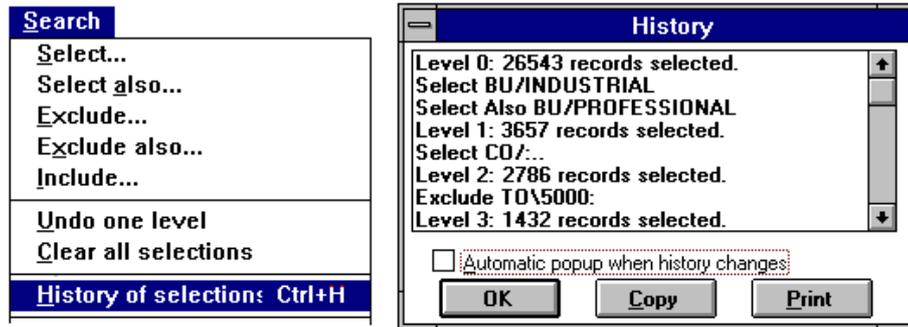
Enter the required record number, or a range using the colon ":" as a separator, e.g.

- 23** for record number 23
- 56:89** for records numbered 56 to 89, both inclusive
- :125** the first 125 records in the current selection
- 561:** from record number 561 to the last record in the current selection.

Chapter 12 –

History of selections

Cardbox keeps a record of all the search commands that you have executed to reach the current level of selections, and you can have these commands displayed in the History of selections.

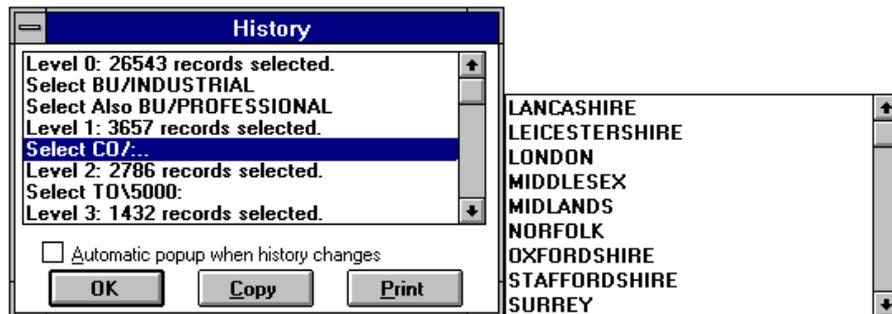


To open the History display for the first time in a Cardbox session, select **Search, History of selections**, and the history of selections in the currently active database will be displayed as shown on the right above.

The History display shows each search command that you have used, and the size of the selection at each level.

For index searches, the slash "/" indicates a search of the Word index, and the backslash "\" a search of the Number/date index. This delimiter follows the name of the field that was searched; no field name is shown if the search covered all fields.

Lines ending in an ellipsis represent searches in which you picked terms from a Preview listing, and you can get a list of the terms used as search parameters by clicking on such a line or selecting it with the keyboard.



In this example, you searched field CO for alphabetic terms, and you used as search parameters the terms listed on the right, chosen from the preview list.

Controlling the History display

The command **History of selections** in the Search menu displays the History window in a corner of the desktop, overlaying other windows. You can move this window to another position, if it obscures something of interest, and change its size.

Once you have executed this command, History will be available for every database window.

The main control which you can exercise over the display of History is in the check box Automatic popup when history changes.

With automatic popup not turned on:

- To close** the History window, press ESCAPE.
- To hide** the History window beneath the Cardbox window, choose OK, or click anywhere outside it.
- To redisplay** a partially hidden History window, click on it. If no part of the window is visible, then use **Search, History of selections** again.

With automatic popup turned on:

- To close** the History window, press ESCAPE. The window will reappear automatically when you change windows or make a selection.
Alternatively, double-click on the system menu or press ALT+F4. The window will not then reappear automatically.
- To hide** the History window beneath the Cardbox window, press ENTER, or click on the OK button or on the Cardbox window anywhere outside a database window
- To redisplay** a hidden History window, make a search or switch to another database window.

Copying and printing History



copies the contents of the History window to the Clipboard, listing all terms used in Preview selections.



directs the same output to the printer.

Chapter 13 –

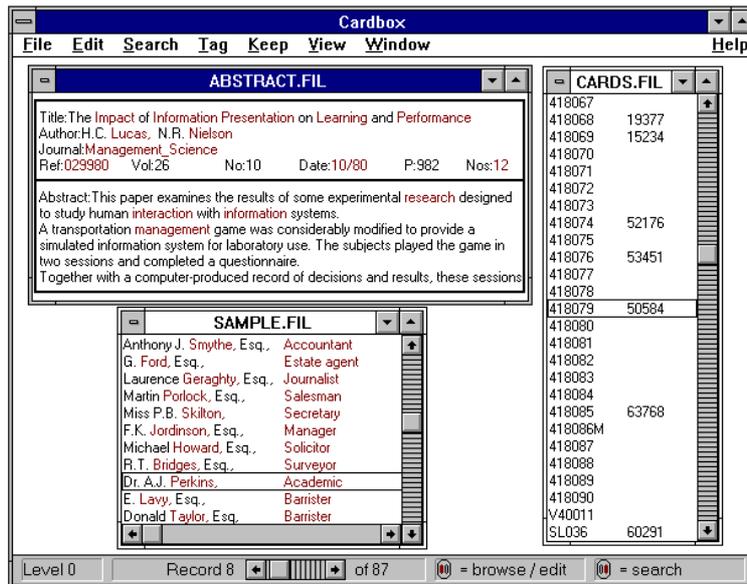
Browsing

There are two ways in which you can browse through the records in a selection:

Simple browsing which is like browsing through the pages of a book: first, last, previous, next, a particular record number.

Step browsing which means looking only at the records containing something specific and skipping over the rest. That "something specific" can be defined in the same terms as a search criterion, but in browsing as opposed to searching, you do not discard the records that do not meet the criterion, you merely skip over them.

The browse bar



The browse bar is displayed in the Cardbox window's status bar, and it tells you the size of the current selection and the browse position of the currently displayed record.



This information pertains to the currently active window, and it automatically changes when you make another window active.

A database window displaying several records has another, vertical, browse bar along its side, and the current record is framed by a thin black rectangle.

13.1 Simple browsing

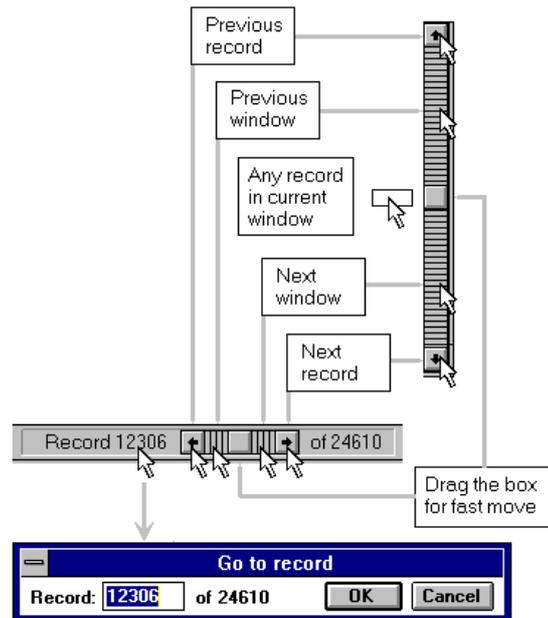
This diagram shows the mouse clicks that you can use to browse through your records.

The main browse bar is always displayed in the status bar, and the auxiliary vertical browse bar appears if the window displays several records – in which case, you can also move to any visible record just by clicking on it.

"Previous window" and "Next window" refer to window-fulls of records, not to different database windows.

A click on the Record number in the status bar opens the Go To Record dialog box, which enables you to go straight to a particular record number.

You can also drag the slider in the browse bar to make a fast move to a different region of your selection.



Using the keyboard, to go to	Press
Previous record	LEFT or UP ARROW
Next record	RIGHT or DOWN ARROW
First record in selection	CTRL+HOME
Last record in selection	CTRL+END
First record in multi-record window	PAGE UP
Last record in multi-record window	PAGE DOWN
Previous window of records	CTRL+PAGE UP
Next window of records	CTRL+PAGE DOWN
Arbitrary record number	F5

13.2 Step browsing

In step browsing, you look only at the records which meet some specified criteria and you skip over the rest. You formulate your specifications in terms similar to those used in searches.

You are only browsing through the current selection, so Cardbox will reject your command if no records in the current selection match your specifications.

The browse modes

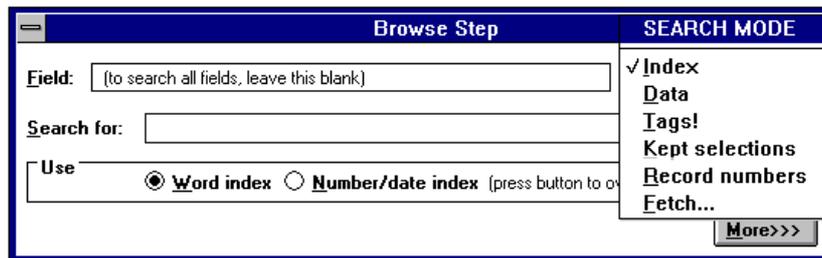
There are four modes which you can choose for step browsing.

Browse mode	will confine browsing to records which
Index	contain specified indexed terms
Data	contain specified strings of data, indexed or unindexed
Tags	have been tagged
Kept selections	belong to the specified kept selections



To select the browse mode, either

- right-click on the Record number in the status bar (above right) and select the mode in the menu that pops up, or
- use the Browse menu (above left, promotable from the Search menu). Step to specific records in the Browse menu will initially assume Index browsing, but you can switch to another mode in the Browse Step dialog box shown below.



Undo last move or CTRL+Z in the Browse menu is a single-step move back to the record you were looking at when you issued a command that changed or redisplayed the selection. For example, if you add a record, Cardbox will take you to that record (at the end of the selection); but you can get back to where you were when you started adding the record, by using the **Browse, Undo last move** command.

Browse specifications

For each browse mode, Cardbox will display exactly the same dialog box as for searches in the corresponding mode, and you enter your specifications in the same way.

Browsing through matching records



In selective browsing, the status bar shows which mode you have chosen for your browse steps, and the browse bar is replaced by the **Cancel** button as shown above.

To browse through the matching records, you can use the same mouse clicks and keystrokes as in simple browsing, but with the exception of

CTRL+HOME for the first matching record, and

CTRL+END for the last matching record,

you can only move by one matching record at a time, not a screenful of records.

While step browsing is in force,

- you can edit any single record that you come to, but the record will be retained in the current browse steps even if you change it so that it no longer meets the relevant specifications,
- you can tag or untag records when browsing on tags, but the browse steps will continue to reflect the original tags,
- you can change the sequence in force,
- you can change the format in force,
- you cannot edit records as a batch or delete any,
- you cannot perform any searches,
- you cannot print or output any records.

Cancelling step browsing

To cancel step browsing, click the **Cancel** button in the browse bar or press ESCAPE.

13.3 Browsing in linked windows

- Same** With two or more windows linked for the same selection and browse position, any browse specifications applied to one window extend to all linked windows.
- Relational** You can carry out selective browsing in the control window, but any selective browsing set up in a search window will be cancelled as the selection changes with a change in the search parameters in the control window.

See Chapter 15 for Advanced Search Techniques and Chapter 16 for Relational Searches.

Chapter 14 –

Routine printing

In this chapter we deal with routine printing, that is, printing using formats for which appropriate printer settings have already been defined.

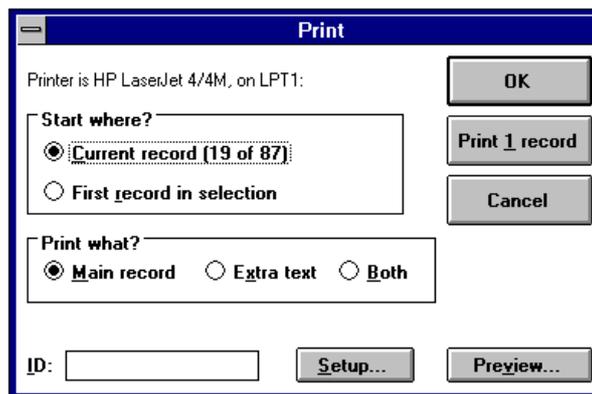


Cardbox prints records in the current selection, in the sequence currently in force, and in the current format. The fonts used for printing can be different from those used for display; you can set, and store in the format definition, the screen appearance and the printer-specific appearance independently.

The commands applicable to printing are available in the File menu, with the applicable buttons available also in the Toolbar. We deal in this chapter with Print and Print Preview. The Printer Settings command is described in Chapter 31.



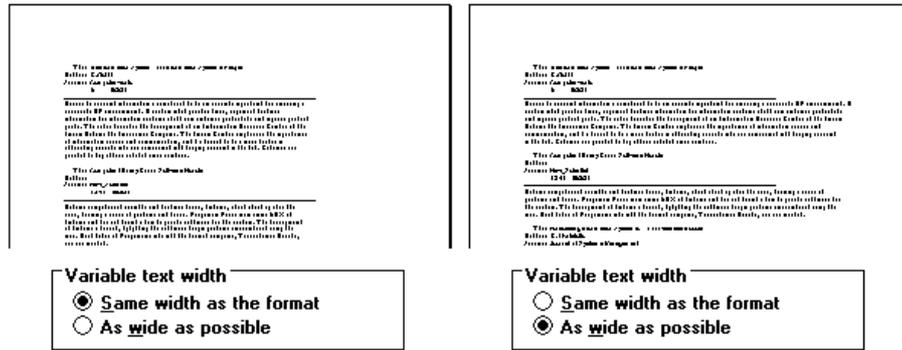
14.1 The Print command menu



Cardbox displays this menu in response to the Print command in the File menu or the Print option in a print preview.

None of the options that you set in this menu are stored in the format definition, so you may have to set them individually for each print job.

If there is no extra text in the current format, the Print what? box will be dimmed, otherwise, the initially set option will reflect the way in which records are displayed on the screen:



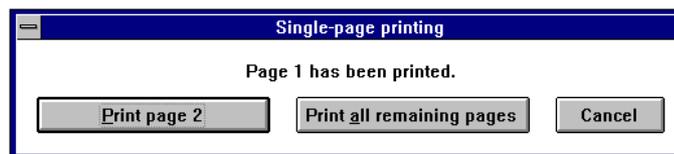
Setup opens the Printer Settings dialog box (just like the **File, Printer settings** menu command). Variable text width is part of the Printer Settings dialog box, which is fully described in Chapter 31.

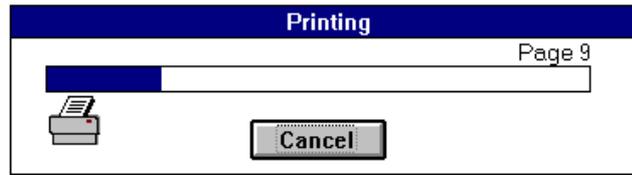
ID is a text box in which you can enter any text that is to appear in the printout in the position designated for it in the current format. If you are not sure whether the current format can make use of the print ID, try putting some text into the ID box and then press Preview and see whether the text appears, probably in a heading or footing.

14.2 Controlling output

Printing starts with the record specified in the Start where? box, and you have the following options.

To print	Use
Continuously	Click the OK button or press ENTER.
A single record	Click on the Print 1 record button or press ALT+1. Cardbox will print one record regardless of how many there are on the page, and exit the Print command.
In single pages	Hold down the Shift key as you click on the OK button or press SHIFT+ENTER. Having printed a page, choose your next option in the dialog box shown below.



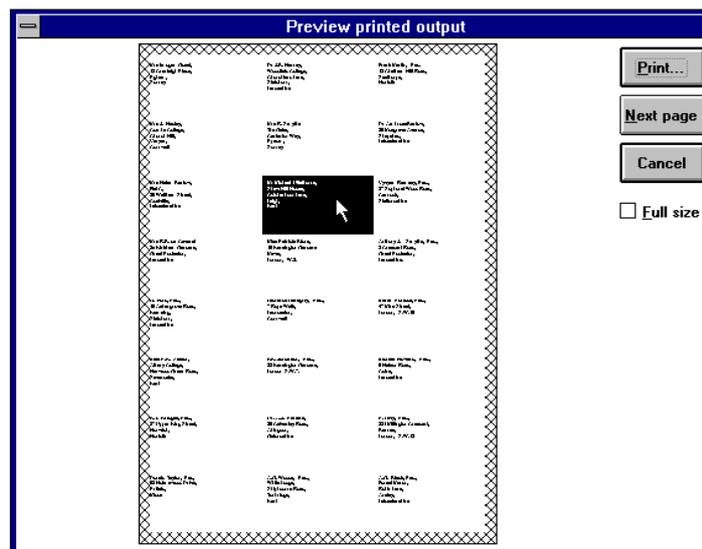


As it prints, Cardbox reports its progress in the box shown above. Progress is reported in terms of pages, but the length of the bar shows the proportion of the number of records which Cardbox has processed. With some printers, you may see the bar grow longer and then shorter several times for each page: this depends on the characteristics of the Windows printer driver and the amount of available memory, and is nothing to worry about.

The printer icon is displayed when Cardbox has completed a page and is waiting for Windows to finish processing it. If this icon should remain displayed for long periods, it is not Cardbox's fault: you may find it worth investigating why Windows is slow in processing the job.

14.3 Print preview

You can have a preview of the printed output displayed by choosing Preview either in the File menu or in the Print command dialog box.



This example shows a preview of a sheet of labels. In this case, you can run the cursor over the sheet to highlight the printable area of each label and see how the text fits into it.

The hatched borders represent laser margins, which are not available for printing.

Full size scales the display up to the size at which it will be printed.

Print takes you back to the Print command menu.

14.4 If things go wrong

Misaligned text in previews

In theory, the screen display in Print Preview should be identical to the printed output. In practice, it is usually very similar but not quite identical. This is because Windows uses different fonts on the screen and on the printer, and even when they are the same (if you use TrueType fonts), a sensible font size (such as 12 points) on the printer may correspond to an impossible size (such as 9.63 points) on the screen.

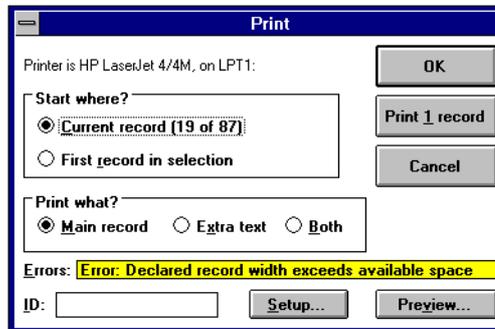
Missing characters when printing

With some combinations of format, font size, printer, and field size, you may find that odd characters disappear from the printout although they were visible on the screen. This happens when a character goes past the edge of a field: on the screen, Cardbox will display as much of the character as it can, but on paper, the Windows printer driver will omit the whole of the character because not all of it will fit. This problem is especially common with fields that are one character wide.

You can cure this problem in either of the following ways

- Edit the format to widen the field.
- Widen the grid spacing in the printer settings, but remember that this will widen the entire record.

Error messages



If the Print command dialog box opens with an error message, then you can neither print nor preview records. Section 31.5 explains how such errors can arise and how to deal with them.

Chapter 15 –

Advanced Search and Browse techniques

In this chapter we deal with the use of multiple database windows for running complex searches and for browsing through the resultant selections.

With multiple windows open on the same database, you can

transfer from one window to another the current selection, sequence and browse position, as well as the appearance attributes;

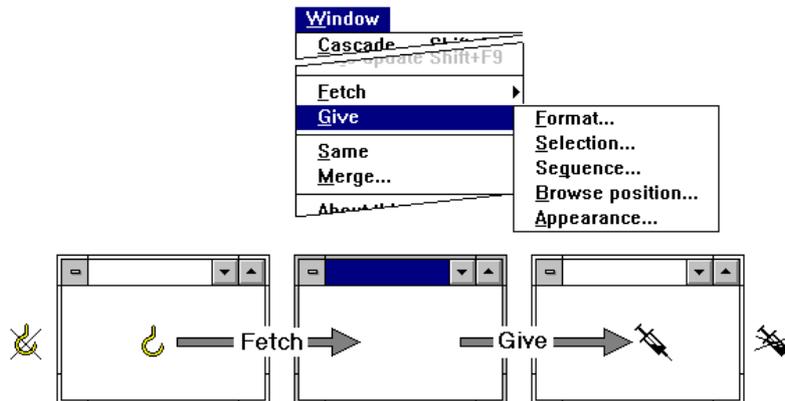
synchronise the windows so that they show (usually in different formats) the same record, in the same selection, and in the same sequence;

combine several selections built up independently in several windows open on the database to build up a complex selection.

With windows open on different databases,

relationally link the windows so that the text of a field in one database provides the search parameters for another. This is covered in Chapter 16.

15.1 Transferring parameters: Fetch and Give



These commands enable you to pass parameters between windows, which can be minimized to icons. Each of them opens a sub-menu listing the parameters that can be transferred.

Window, Fetch With this command, the active window is the target of the transfer, and the window indicated by the hook is the source.

Window, Give With this command, the active window is the source of the transfer, and the window indicated by the needle is the target.

Either of those special cursor shapes will appear crossed out when they are not on a window that can be used for a transfer.

Appearance is the only attribute that can be transferred between windows belonging to different databases. The change in the target window's appearance will be temporary, and the window will revert to its original appearance if you close it and then re-open it, unless you save the transferred appearance using **Edit, Format, Save appearance**.

Selection and **Sequence** are related. You can transfer the sequence without affecting the existing selection in the target window, but transferring the selection automatically transfers the sequence as well.

Browse position means the identity of the current record. It can only be transferred if the current record in the source window can be found in the target window's current selection. If not, you will see an error message.

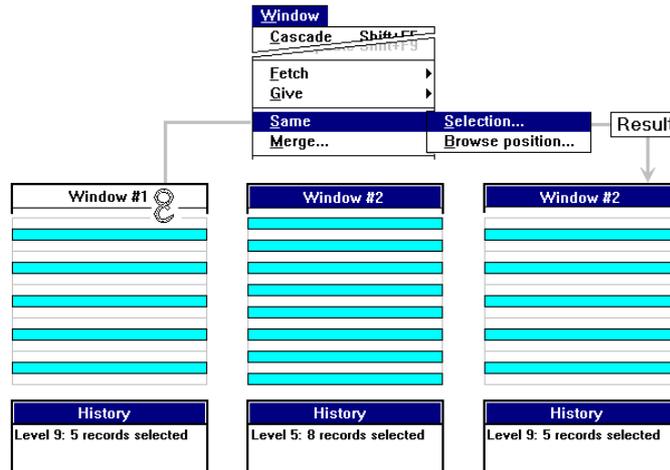
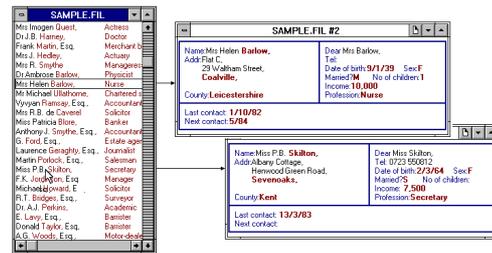


15.2 Linking windows: Same Selection and Browse position

Like the equivalent Fetch and Give commands, **Window, Same, Selection** enables you to give one window the same selection as another, but in addition, it establishes a permanent link between the two windows, so that any selection or sequencing command that you make in one window is automatically reflected in the other window. This command can be useful if you want to view two different records in the same selection at the same time – possibly in order to compare them.

Window, Same, Browse position makes the link still closer. Now the windows display not just the same selection of records, but the same record.

The linked windows need not have the same format. Indeed, one of the most useful applications of linked windows is to use a window showing a summary of records as a pilot window in browsing or searching, with another linked window displaying the current record in full.



To establish a link between two windows, enter the appropriate **Window, Same** command. The cursor will now change shape to a chain link; position it over the window which you want to link and click the mouse button.

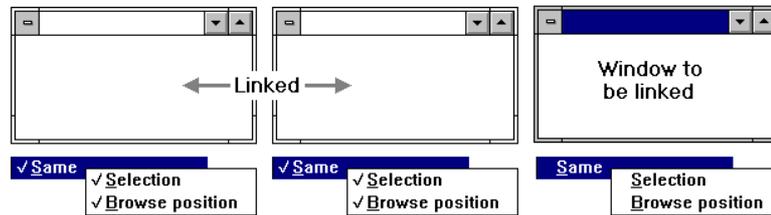
The windows must already be linked with **Window, Same, Selection** before you can link them with **Window, Same, Browse position**.

Unlinking windows

To unlink a window, make it the active window and choose **Window, Same, Selection**. By unlinking the window for the same selection, you automatically unlink it also for the same browse position.

Extending the Same link to other windows

Never attempt to extend a link by starting from one of the already linked windows, or you will find yourself unlinking that window instead.



If you are not sure which windows are already linked, open the Window menu for each of them in turn and see whether there is a check mark against the Same command. If there is, highlight the command and look for check marks in the cascading menu. Then close the Window menu by pressing ESCAPE or by clicking anywhere outside the menu.

To extend an existing link between two or more windows to another window, make the new (not yet linked) window the active window and link it to one of the others (that are already linked to each other) in the usual way.

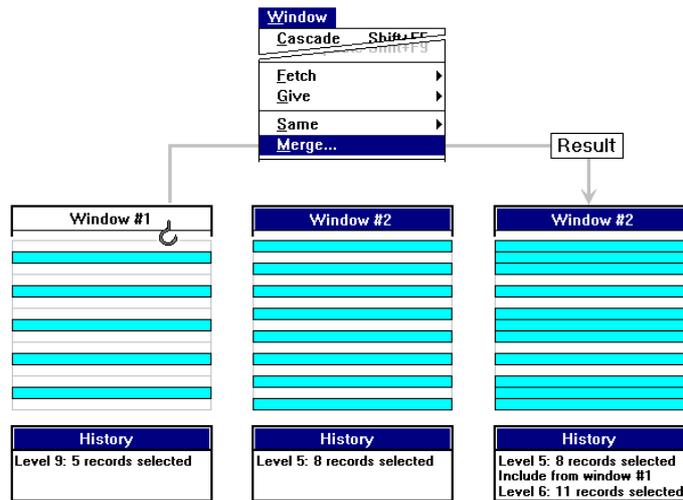
15.3 Using multiple windows in complex selections

The commands described so far in this chapter enable you to transfer selections between database windows, but the transfer is destructive, that is, the existing selection is fully overwritten by the selection brought across from another window.

We now come to the commands which enable you to combine the selections built up in separate windows into a complex selection in one particular window.

- All windows between which you transfer selections must belong to the same database.
- All windows must be currently open, though they can be minimized to icons.
- Any differences in the format or sequence between the windows is immaterial; the window in which you build up a complex selection always retains the format and sequence currently in force.

Merging selections



The command **Window, Merge** will turn the cursor into a hook, in the same way as the **Window, Fetch** commands described in Section 15.1. When you click on a window, Cardbox will merge the records it contains into the active window (the window that was active when you entered the **Window, Merge** command).

This step will be recorded in History in the form:

Include from *window-name-and-number*

but no further information on the selection brought in will be available in the History display for the target window. To see how that selection was built up, you must refer to the History of selections in the source window.

The Fetch search mode

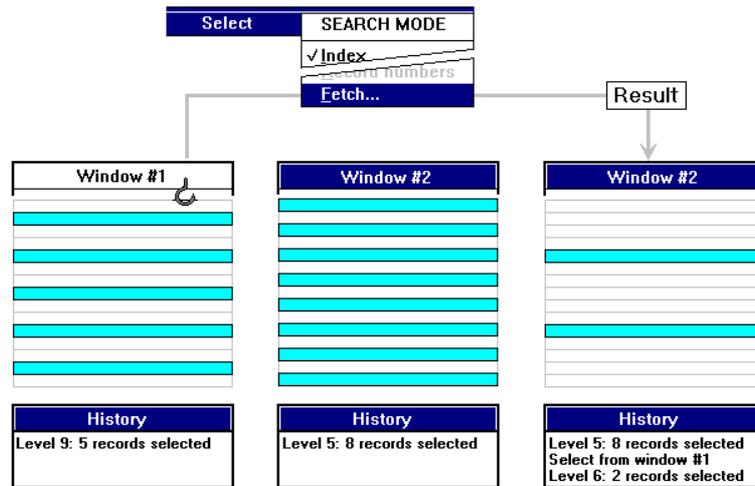
In the Fetch search mode, the search commands work in the same way as in other modes, but the search criterion in this mode is the *presence* of records in another window, rather than the contents of the records. So,

- Select** will retain only the records that occur in both windows.
- Select Also** will expand the current selection by adding those records that were present in the active window at the last level of selection and that are also present in the current selection in the other window.
- Exclude** will discard the records that occur in both windows.
- Exclude Also** will have the same effect as Exclude, but without a change in the level of selection.

Include will bring into the current selection the selection from the other window. The effect will be the same as with **Window, Merge**.

To start a search in the Fetch mode,

- choose the search command in the Search menu in the normal way,
- in the search dialog box, click on the page flip button or press F3 to open the Search Mode list, and choose Fetch,
- the cursor will change shape to a hook; position it over the window whose selection you want to use, and click.

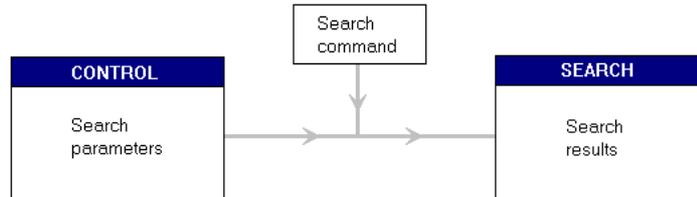


This is an illustration of this operation for the Select command.

Chapter 16 –

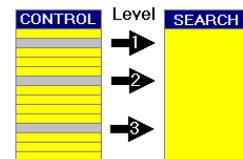
Relational searches

In relational searches, you use one database window to provide search parameters for other database windows. We call the windows in which you are conducting a relational search the *search windows*, and the window from which you obtain the search parameters the *control window*.

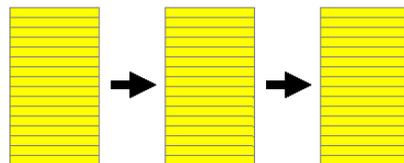


In the simplest case of two relationally linked windows, you specify the search command which is to be applied to the search window and designate one field in the control window as the source of search parameters. The designated field can contain text of any kind and length, and you specify which terms are to be used as *search text*; that is, the actual source of search parameters. Then, as you change the search text in the control window, by browsing, selecting or editing records, you automatically get the corresponding selection in the search window.

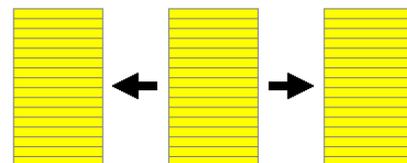
You can designate different fields in the control database as the source of search text at different levels of selections.



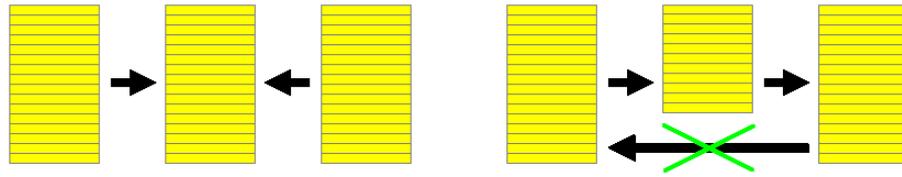
16.1 Hierarchy of relational links



You can create multiple relational links.



A window can act as a control window to several other windows.



You can also control searches in a window from several other windows.

But you must not create circular links.

16.2 Setting up relational links

The basic element in relational links of any complexity is the relational link between two database windows, with one window designated in each basic link as the search window and the other one as the control window.

- You can set up a relational link between two database windows at any level of selection, and the link will remain in force until you return to a lower level of selection in the search window.
- The search and the control windows must both be open.
- If both windows belong to the same database, they must not be already related by the Same link for selection or browsing (see Chapter 15).

Tip Relational searching of two windows belonging to the same database is a convenient way of finding duplicate records.

- Relational searches are carried out in index mode. This means that the field which you intend to search need not necessarily be displayed or even be present in the current format of the search window.
- You can use both indexed and unindexed terms as the search text, but the field containing this text must be present in the control window.

Before setting up the link, make sure that the search window is the active window.

Use the Relational menu to specify the search command that you want to use. This menu is normally available as a cascading menu in the Search menu, but you can promote it to the main menu bar if you expect to use it frequently - see Section 4.2.

Each search command in the Relational menu takes you to the Relational Search dialog box. Note that you can change the search command using the control menu of that dialog box.

16.3 The Relational Search dialog box

You have to complete the Relational Search dialog box for each pair of windows that you are linking for a relational search. The top part of the dialog box refers to the search window, and the bottom part to the control window.

The search window

The window which is active when you start a relational search is automatically chosen as the search window.

Leave the **Field** text box empty if you want to search all fields; otherwise, specify the field in the same way as for a normal index search (Section 10.5). If you choose to use the drop-down list, the list will be confined to fields in which indexing is allowable, because relational searches are index searches.

The control window

If there are only two windows open, Cardbox will automatically identify the non-active window as the control window. With more windows open, open the list box and select the control window in the list.

The field to get search text from

You can get the search text from only one specified field in the control window, so you cannot leave the **Field** text box blank.

The field that you specify as the source of search text must be present in the current format. You can ensure this either by using the hook technique or by selecting the field in the drop-down list, which will in this case be confined to fields actually displayed in the current format of the control window.

Use as search text

The text of the designated field in the control window may contain any mix of words and numbers, indexed and unindexed, and you can ask Cardbox to ignore in the search text either alphabetic or numeric terms by turning off the relevant check boxes.

Command characters

See further notes in Section 10.6.

Wildcards "*" and "?" or the range delimiter ":" will not perhaps normally occur in your databases, but you can use them in special search strings, particularly in dynamic relational searches (described in Section 16.6). If you do intend to use these command characters, remember to tell Cardbox not to discard them.

Multiple terms

Your specifications in Use as search text above may leave several terms qualifying as the search text, and you must next tell Cardbox how you want them to be used in the search commands.

1st term only means that the search command is to be applied only once, using the first term as the search parameter. In this case, you have further options:

Exact means that the first term is to be used in exactly the same way as in a normal, manually entered, search command.

Use as start of range will match the records which contain either the matching term or terms higher in alphabetic order. Numeric order will automatically apply if the search term is a number or a date.

Use as end of range will match terms lower in alphabetic or numeric order, up to and including an exact match.

1st OR 2nd OR 3rd OR.. applies if you want to retrieve records containing *any one of the terms* in the search text.

1st AND 2nd AND 3rd AND... applies if you want to retrieve only those records which contain *all terms* occurring in the search text. Note that if you

confine the search to a particular field, the matching words can occur in any order, and if you are searching all fields, then the matching words can occur in any combination of fields.

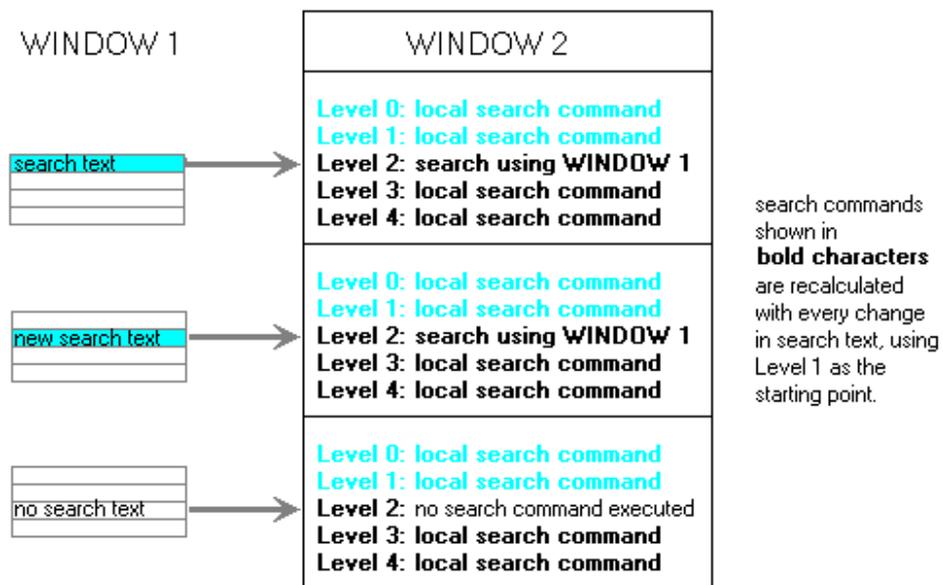
16.4 Executing relational search commands

When you first set up a relational link between two windows, Cardbox automatically executes the specified search command, using the search text in the current record of the control window. You can subsequently apply further local, i.e. non-relational, search commands in the search window without affecting the link in any way, but

- **you must not undo selections to below the level at which the relational link was established, or the link will be cancelled.**

Cardbox will automatically execute the relational search again with every change in the search text, whether it arises from a move to another record in the control window or from editing the search text in the current record.

With every change in the search text, Cardbox undoes all search commands down to and including the level at which the current relational link was set up, and re-executes them again.



Cardbox relaxes the rules normal rules for manual searches, in order to preserve the structure of your search strategy as follows:

No valid search parameter

- In a normal search, Cardbox will refuse to execute a search command without a valid search parameter.
- In a relational search, a command with no search parameter will be recorded in History, with an increase in the level of selection, but with no change in the selection itself.

Empty selection

- In a normal search, if there are no records left in the selection, then Cardbox will not accept any search commands which would narrow down the selection further, such as Select or Exclude.
- In a relational search, such commands are recorded in History, with a change in the level of selections, but no interruption in the process.

16.5 Relational searches in History of selections

Here are some examples of how relational searches are recorded in the History of selections and how the search strategy is consistently preserved under all conditions.

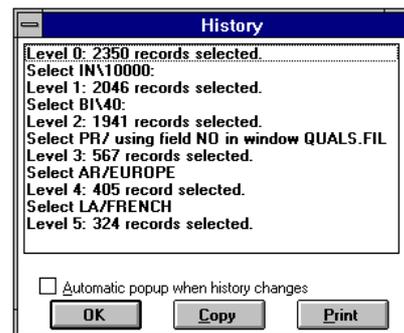
A relational Select is applied at Level 2.

The search involves the Word index (delimiter /) of field PR in the search window.

The search text is obtained from field NO in window QUALS.FIL.

This search reduces the selection from 1941 records at Level 2 to 567 at Level 3.

The relational search command is followed by two further Select commands, applied by hand.



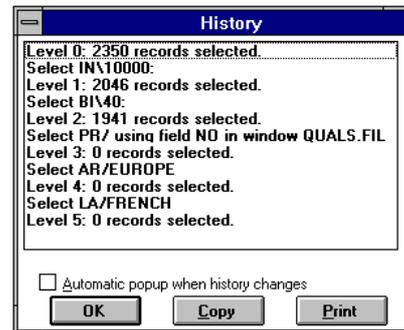
This is how History would show a relational search to which no search text was applicable, either because the relevant field in the control window was empty or because no term met your specifications in the Use as search text options.

The relational search is in this case merely recorded, with no change in the size of the selection.



This example illustrates a case where no records were found to match the relational search parameters, resulting in an empty selection.

The subsequent local Select commands are still listed, even though you would not have been able to apply them by hand with empty selections in the search window. They would originally have been entered under different circumstances; that is, when there were some records left in the selections, as in the top example above.



16.6 Dynamic relational searches

As noted earlier in this chapter, Cardbox automatically executes the relational search, together with all the local searches that followed it at a higher level of selection, every time it detects a change in the source text. It will detect such a change

- if you move to another record in the control window, or
- if you edit the search text and save the record.

In each individual relational search the search text comes from one designated field in the control window. However, you can

- set up a series of relational searches, each related to a different source field in the control window, and
- make Cardbox update the entire series of searches every time you make a change in the control record that you are editing or in a new record that you are creating, without the need to save the record in either case.

This is the basis of a dynamic relational search.

Updating search results

The commands which you can use to update the search results, without saving the control record that you are editing, are listed in the Window menu.

F9 will update the search results when you press that key,

Shift+F9 will update them with every change in the search text. This means an update with every character that you type or delete, which may or may not be what you want, depending on the circumstances.

Window	
<u>C</u> ascade	Shift+F5
<u>T</u> ile	Shift+F4
<u>U</u> ppdate	F9
<u>A</u> uto update	Shift+F9
<u>F</u> etch	▶
<u>G</u> ive	▶
<u>A</u> bout this window...	
<u>N</u> ew	
√ <u>1</u>	CONTROL.FIL
<u>2</u>	SEARCH.FIL

16.7 Editing in the search window

You can edit records in the search window at any time, but bear in mind the following points.

- If changed records cease to meet the current search criteria, they will not be removed until you refresh the selection.
- If you change the search text in the control window while editing a record in a search window, the selection in the window will remain unchanged until
 - you quit editing

AND

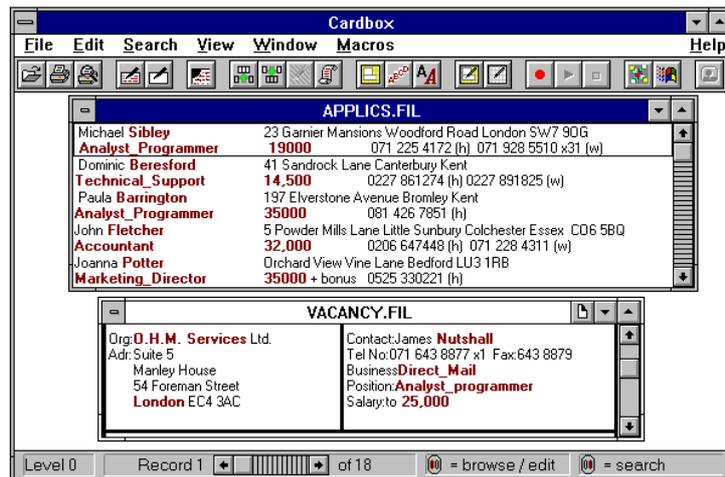
- refresh the selection either by F9 or by another change in the search text.

16.8 Examples

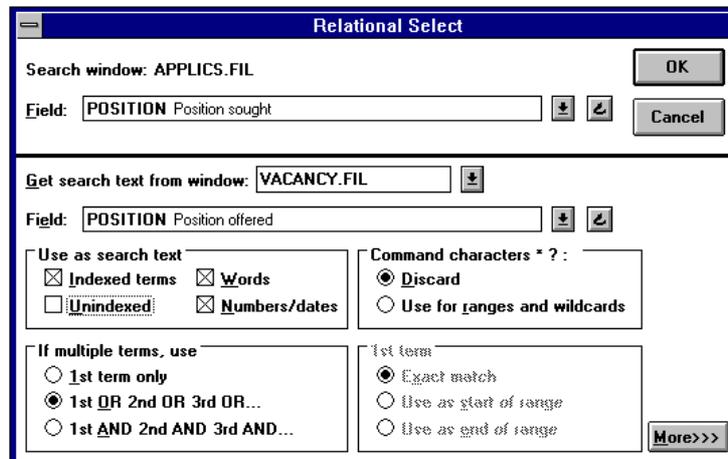
Here are some examples to illustrate in detail the setting up of various relational links.

Matching records - a two-level search

In this example, we match job seekers on file APPLICS to the available vacancies on file VACANCY, matching the position and salary.



This is the starting point for the definition of the relational links: the window we are going to search, APPLICS.FIL, is the active window.



These are the options we specify for the position. To cater for a variety of possible descriptions for the same position, we allow alternative multiple terms by choosing the option 1st OR 2nd OR 3rd OR.

As soon as we choose OK, Cardbox will perform the search on the APPLICS window using the position described in the current record in the VACANCY window.

Note It may happen that the position specified in the current record in the VACANCY window does not match any records in the APPLICS window, in which case we would not be able to define the link for salaries, because the Relational Select command ceases to be available with no records in the current selection. In such a case, we would have to:

- switch temporarily to the VACANCY window and browse records until a selection appears in the APPLICS window,
- switch back to the APPLICS window and define the link for salaries.

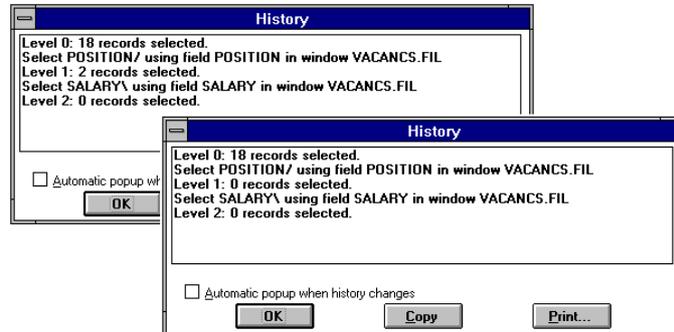
This is the way in which we define the link for salaries. We expect only one figure to be quoted for the offered salary, so we choose the option 1st term only, which enables us to use this term as the end of the range that the employer is prepared to pay. In this way, we will leave out the applicants who are seeking the offered position but expect a higher salary.

As soon as we choose OK, Cardbox will give us the applicants matching the current vacancy record on the position and salary. Next, we can switch to the VACANCY window, browse through it and see which applicants match each vacancy.

If we get no matching applicants' records for a vacancy, we can use the History command to see on which parameter we have failed to get a match. To do so,

- switch to the APPLICS window and choose **Search, History of selections**.

WARNING Do not use Undo in the APPLICS database to see which applicants match the vacancy on position only, or you will cancel the relational link on salaries. If you want to see the intermediate stage of selection, use Window, New to create a duplicate APPLICS window.

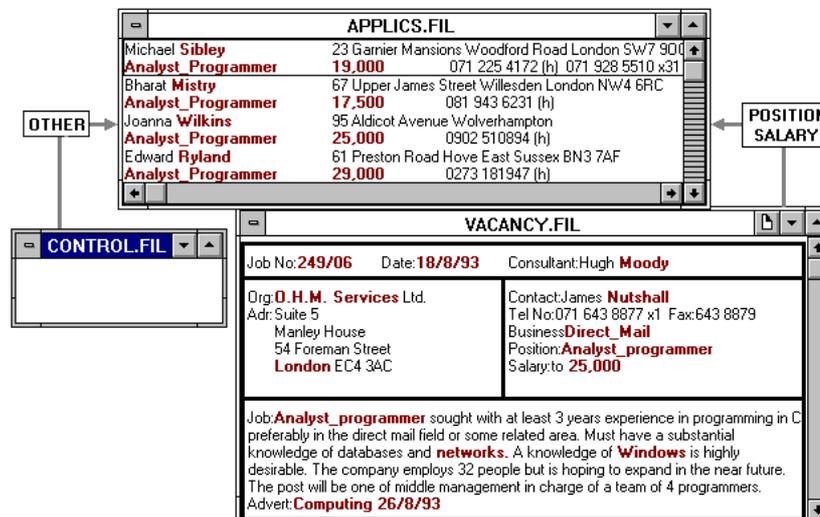


The top example of History display shows that two applicants were matched on position, but obviously expected higher salaries than offered.

The lower example shows that no applicants were matched on the offered position. The second selection, on salary, has been carried out for consistency of the relational search, although we would not be able to apply the Search command to an empty selection in a manual search.

Refining selections by hand

The relational links just described will match applicants to jobs by only position and salary, but there are usually further factors to be considered, such as job specifications, geographical availability, etc.



In the database of vacancies, job specifications are described in the lowest field of the record, in free format with indexed keywords. The keywords to be taken into account may occur in any order and they may have to be related to various fields in the applicants' records, which may make it difficult to take them into account in a formal relational link. In a case like this, it may be useful to bring in a third window for manual refining of selections.

The control window need contain only a single-field database, as shown in the diagram above, and the applicants' database can be relationally linked to it as shown below.

The screenshot shows a dialog box titled "Relational Select". It has two main sections. The top section is for the "Search window" (APPLICS.FIL) and its "Field" (to search all fields, leave this blank). The bottom section is for the "Get search text from window" (CONTROL.FIL) and its "Field" (NONAME1). Below the "Field" input, there are two columns of options. The left column is "Use as search text" with checkboxes for "Indexed terms", "Unindexed", "Words", and "Numbers/dates". The right column is "Command characters * ? :" with radio buttons for "Discard", "Use for ranges and wildcards", "Exact match", "Use as start of range", and "Use as end of range". At the bottom left, there are radio buttons for "If multiple terms, use": "1st term only", "1st OR 2nd OR 3rd OR...", and "1st AND 2nd AND 3rd AND...". A "More>>>" button is at the bottom right. "OK" and "Cancel" buttons are at the top right.

We establish this link after linking APPLICS to VACANCY on position and salary range as in the previous example. In this link, we search all fields in the applicants database, specifying the search parameters in the CONTROL window in the following terms:

- unindexed words and numbers (Use as search text)
- possibly defined as ranges or ambiguous words with wildcard characters (Use for ranges and wildcards),
- all terms are to be matched (1st AND 2nd AND 3rd AND...).

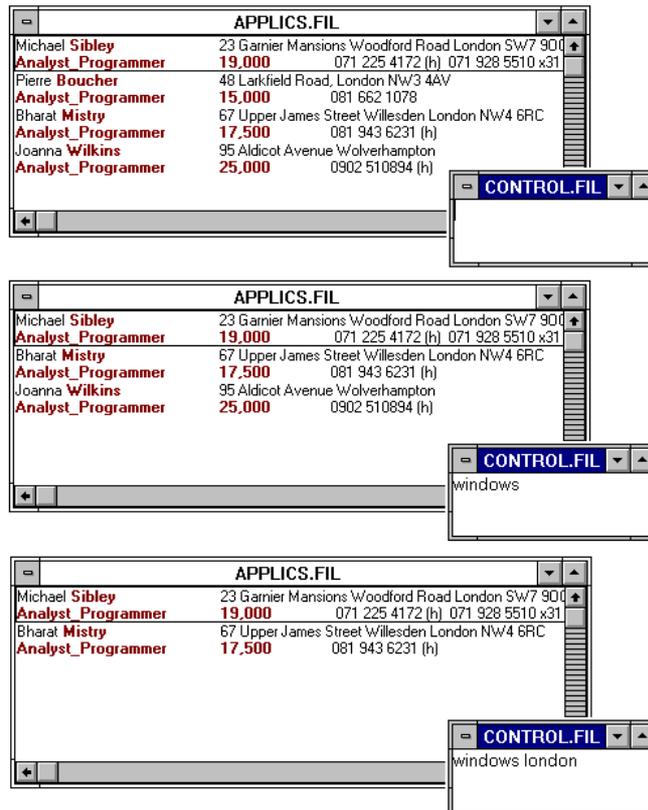
If the current record in the CONTROL window is empty, which is what we assume in this example, completion of this link will have no effect on the selection in the APPLICS window.

Having completed the link, we can scan the various vacancies; see which applicants match each vacancy on position and salary range, and when we find the need to refine the selection on other parameters, we switch to the CONTROL window and edit it to enter the relevant further parameters.

In this operation, we have the choice of two modes for updating the applicants' window:

- Update** on request, by pressing F9 on completion of the search parameters in the CONTROL window
- Auto update** switched on by pressing SHIFT+F9, which will update the applicants' window with every single change in the CONTROL window. In this mode, the applicants' records may disappear until the word you are typing forms a matched keyword.

We show below what the applicants' window may look like as you search for people with Windows experience and available in London.



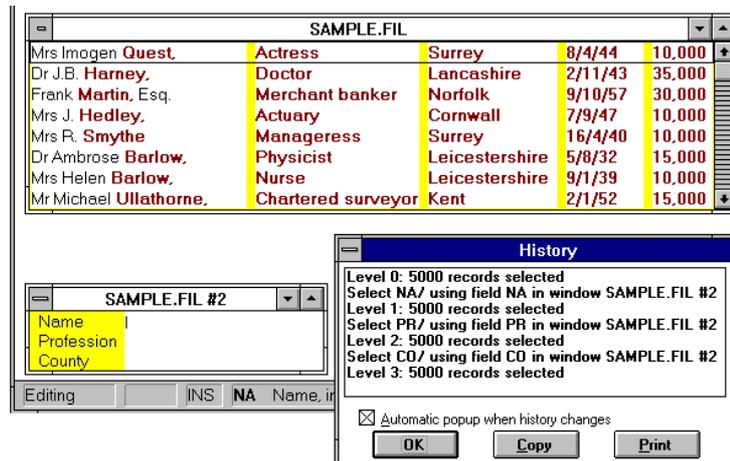
Query by example: a 3-level dynamic relational search

In this example we use two windows open on the same database. One window, the control window, will be used to enter queries; the other window, the search window, will display the results of those queries. We use a one-line format in the search window, and a format confined to the fields we actually want to search in the control window. We start a new record in the control window, but do not enter any text till after the relational links have been set up.

We set up relational links at 3 levels, using at each level the same field in both windows: Profession (PR) at level 1, County (CO) at level 2, and Name (NA) at level 3. Note that the order of fields in which we have linked the two windows does not impose any restrictions on the order in which we enter search text into the fields.

At each level, we choose the 1st OR 2nd OR 3rd... option for multiple terms.

We arrange automatic update (SHIFT+F9) and automatic pop up of History whenever we click on the search window, and this is what the screen might look like at the start of the search.



While the control record is empty, no records are rejected in the search window by any of the relational search commands. As we fill in the control record, the search develops.

SAMPLE.FIL #2	
Name	
Profession	doctor surgeon physician
County	

Level 0: 5000 records selected
 Select NA/ using field NA in window SAMPLE.FIL #2
 Level 1: 5000 records selected
 Select PR/ using field PR in window SAMPLE.FIL #2
 Level 2: 1650 records selected
 Select CO/ using field CO in window SAMPLE.FIL #2
 Level 3: 1650 records selected

We first search the Profession field (linked at Level 2).

SAMPLE.FIL #2	
Name	
Profession	doctor surgeon physician
County	suffolk essex

Level 0: 5000 records selected
 Select NA/ using field NA in window SAMPLE.FIL #2
 Level 1: 5000 records selected
 Select PR/ using field PR in window SAMPLE.FIL #2
 Level 2: 1650 records selected
 Select CO/ using field CO in window SAMPLE.FIL #2
 Level 3: 420 records selected

Next, the County field (linked at Level 3).

SAMPLE.FIL #2	
Name	wring+ ring+
Profession	doctor surgeon physician
County	suffolk essex

Level 0: 5000 records selected
 Select NA/ using field NA in window SAMPLE.FIL #2
 Level 1: 340 records selected
 Select PR/ using field PR in window SAMPLE.FIL #2
 Level 2: 43 records selected
 Select CO/ using field CO in window SAMPLE.FIL #2
 Level 3: 6 records selected

And finally the Name field, which was linked at Level 1.

With 6 records left, we should see the record we want in the search window.

Note that, in Boolean terms, the search which we have performed is:

Name: starting with WRI **OR** starting with RI

AND Profession: DOCTOR **OR** SURGEON **OR** PHYSICIAN

AND County: ESSEX **OR** SUFFOLK

Chapter 17 –

Adding and Editing Records

In this chapter we describe how you can:

- Add** new records to the database from the keyboard. You can also add records by loading them from a file: see Chapter 33 for details.
- Edit** existing records in the database.
- Duplicate** and edit existing records to create new ones.
- Delete** records.

Two related batch operations are described in the Chapter 19:

- Batch Edit** lets you edit one record and then make the same changes automatically to all remaining records in the current selection.
- Batch Delete** deletes all remaining records in the current selection.

Before you start...

Before you start any of these operations, think what you want to achieve and check whether the records on which you intend to work are in a proper state. Bear in mind the following points:

Merge blocks are described in Chapter 27

- Format** You can add, edit, or duplicate records when they are displayed in any format that does not contain a variable-height merge block.
- Fields** You can edit or enter text only in the fields displayed in the current format. Any fields that the current format does not contain will be unaffected by editing and will be correctly copied if you duplicate records.

The size of a field does not restrict its capacity for text. Cardbox will scroll the text within the available space, but you may find it difficult to see what you are doing if you make the field very small.

But the depth of the field can be of importance. If the text of the field consists of a number of paragraphs, and you display it in a single-line field, all text will be concatenated into a single line, and you will not be able to see where one paragraph ends and the next one begins. So, do not attempt to edit multi-line text in a single-line field; you can easily produce unexpected results.

Current record Make sure that the record you want to edit or duplicate is displayed in the active database window and, if in multi-record display, that it is the current record, identified by a thin black frame.

17.1 Selecting commands

When adding or editing records, you can either select the relevant commands from the Edit menus or use the key combinations shown. You can also start editing a record just by double-clicking it on the screen.



Task	Command	At the end
Add a new record	Edit, New Record CTRL+N	File, Save Record CTRL+S
Add a number of records from a file	File, Transfer, Read <i>see Chapter23.</i>	
Edit an existing record	Edit, Edit Record CTRL+E or double-click on the record	File, Save Record CTRL+S <i>To leave the record unchanged and save your amendments as a new record: File, Save as new</i>
Duplicate an existing record (<i>ie. add a new record but start its contents with the contents of the existing record</i>)	Edit, Duplicate Record CTRL+D	File, Save Record CTRL+S

Note The **Save**, **Save as new**, and **Quit** commands are normally part of the File menu. Some people don't like them there, because it is a *record* and not a *file* that you are manipulating. If you are one of these people, then use the command **File, Separate menu**. Cardbox will then create a separate menu, called **Record**, which will contain the **Save**, **Save as new**, and **Quit** commands.



The status bar tells you which task you are performing and gives you further information, to which we refer under separate headings below.

Notes

- Each new record you add is stored after all those that were already in the database. Cardbox always displays the record you have just added, but you can hit CTRL+Z to return to the record you were viewing before.
- The new record is added to the selection *even if it does not fulfil the current selection criteria*. (Otherwise, if you added a record that didn't belong in the current selection, you would have had the alarming experience of having the record disappear as soon as you saved it).
- If a sequence is in force, the new record will be added to the end of the selection even if that is not its proper place in the sequence: to move the record into the right place, you will need to re-sort the selection again.
- When you have several almost identical records to add to the database, you can save typing by adding only the first record as a new one, and then duplicating it repeatedly, making whatever changes are necessary for each additional record.

17.2 The Editing mode

Whichever task you choose, Cardbox will enter the *Editing mode* and display the record for data entry or editing. With the **New record** command, the displayed record will be empty.

As it enters the Editing mode, Cardbox changes the shape of the mouse cursor from the usual arrow to an I-beam, and marks the insertion point for text by a blinking vertical bar.

Sequence of fields is described in Section 29.1

When you start the Edit command by double-clicking the left mouse button, Cardbox will automatically position the insertion point in the place you clicked. Otherwise, the usual initial position of the insertion point is at the first field.

Moving the Insertion Point



The simplest way to move the insertion point is by moving the I-beam pointer to the required position and clicking the left mouse button. If the record is not fully displayed in the window, you may have to scroll the record first to bring into view the portion you want to edit.



The key combinations which you can use to move the insertion point between or within fields are shown in the tables below. The order in which

Cardbox takes you from field to field for data entry or editing is governed by the *field sequence*, which is described in Section 29.1.

Moving between fields

The field in which the insertion point is currently positioned is indicated in the status bar at the bottom of the Cardbox window.

	To move the insertion point	Type
The sequence of fields is determined in format definition: see Section 29.1	To the next field in the sequence	TAB
	To the previous field in the sequence	SHIFT+TAB
	Between extra text and the main record	F3
	To a designated field	F5
	In response to F5, Cardbox opens a dialog box: see Section 19.2.	

Moving within fields

	To move the insertion point	Type
Multi-line fields, not fully displayed	Up one line	UP ARROW
	Down one line	DOWN ARROW
	One character to the left	LEFT ARROW
	One character to the right	RIGHT ARROW
	One word to the left	CTRL+LEFT ARROW
	One word to the right	CTRL+RIGHT ARROW
	To the beginning of the line	HOME
	To the end of the line	END
	To the beginning of the text stored in the field	CTRL+HOME
	To the end of the text stored in the field	CTRL+END
	To the beginning of the text displayed in the field	CTRL+PAGE UP
	To the end of the text displayed in the field	CTRL+PAGE DOWN
	To the beginning of the previous paragraph	CTRL+UP ARROW
	To the end of the next paragraph	CTRL+DOWN ARROW

Note If you are in a multi-line field, and the text is not displayed in full, you can also use PAGE DOWN to scroll the text up, or PAGE UP to scroll it down again.

Entering text from the keyboard

Each character you type is displayed at the current position of the insertion point, and the insertion point moves to the right of the new character.

Insert versus Overwrite

If you are typing into existing text, you can choose between:

- the INSERT mode, in which the text following the original position of the insertion bar is displaced to the right by the new character, and
- the OVERWRITE mode, in which the new character overwrites the character that existed just to the right of the insertion point.

INSERT is the default mode, and you can change to OVERWRITE and back again by pressing the INS key. The status bar tells you which mode is currently in force.

Correcting typing errors

	To	Use
To delete a larger portion of text, select it in the way described in Section 18.2 and press DEL. To restore deleted text, use Undo.	Delete character before the insertion point	BACKSPACE
	Delete character after the insertion point	DEL
	Delete word before the insertion point	CTRL+BACKSPACE
	Delete word after the insertion point	CTRL+DEL
	Undo the latest change in the field	CTRL+Z or Edit, Undo
	Undo all changes in the field	CTRL+SHIFT+Z or Edit, Undo All

Word-wrapping and scrolling

When you edit records, Cardbox works effectively as a word processor, treating each field as a *virtual document window*. Consequently, you are not restricted in the amount of text that you can enter in a field. When the text reaches the right edge of the field, then

- in a single-line field, the entire text is scrolled to the left.
- in a multi-line field, text is word-wrapped to the next line. If this occurs in the last line displayed in the field, then the existing text is scrolled up to provide additional lines.

When you type into a field which is not fully displayed in the database window, Cardbox will automatically scroll the record within the window to keep the insertion point constantly in view.

Dividing text into paragraphs

You can divide text into paragraphs only in a field that has at least 2 lines of space in the current format. To do so, just press ENTER to move the insertion point to the next line. Cardbox will not accept the ENTER key in a single-line field.

Inserting text from the Clipboard

Use the command **Edit, Paste** or press CTRL+V.

Inserting text from a text file

Use the command **Edit, Insert Object**. Cardbox will open a dialog box to ask you the name of the file you want to insert from. You can only insert from pure text files, not from document files created by applications such as Microsoft Word.

Indexing text

As you enter text, you will have to ensure that all keywords you intend to use for retrieval or sorting are properly indexed. With a suitably defined *indexing mode* for each field, Cardbox can do much of the necessary indexing for you and still leave you freedom for adjustments.

You set the indexing mode in format definition: see Section 21.1.

With indexing mode:	Cardbox will	and you can
All	index everything you	do nothing to change this
Automatic	type	change indexing in the way
Manual	not index anything	explained below
None	you type	do nothing to change this

In fields with Automatic or Manual indexing, you can change the indexing of individual words in the following way:

Mouse: Click with the right mouse button.

Keyboard: Press and release the CTRL key.

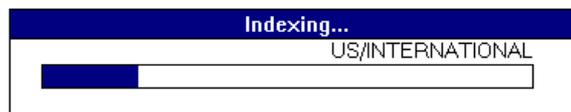
Both methods change the indexing of

- the word currently containing the insertion point, or
- a block of text selected in the way described in Section 18.2.

Note If either of the indexing validators, i.e. Index terms or Unindex terms, is active in the field you are editing, indexing may be automatically changed when you save the record. See Chapter 36 for further details.

Updating the index

Cardbox updates the index as soon as you save a changed or newly added record, so that the record is immediately available for retrieval or sorting. If you have made many changes and the index is very large, this operation may become slow enough for Cardbox to display a progress report in the form shown below.



Undoing and abandoning changes



To undo the last change you made,

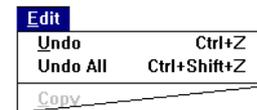
- choose **Edit, Undo**, or press CTRL+Z.

To undo all unsaved changes in the field,

- choose **Edit, Undo All**, or press CTRL+SHIFT+Z.

To abandon all unsaved changes in the record,

- choose **File, Quit without saving**, or press CTRL+Q.



17.3 Deleting records

To delete the current record,

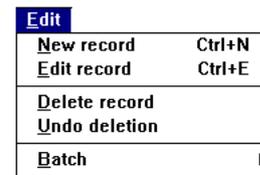
- choose **Edit, Delete record**.

To delete a batch of records, use the Batch Delete command described in Chapter 19.

To restore the last record you deleted,

- choose **Edit, Undo deletion**.

You will not be able to restore the deleted record after quitting the database or the current Cardbox session.



Chapter 18 –

Text Blocks and Clipboard operations

You can select a block of text in your record, and then delete it, move it to another position in the record, or copy it to the Clipboard. You can select and copy text to the Clipboard even when not editing the record, and you can copy the entire contents of a record to the Clipboard without selecting any text.

18.1 Copying records to the Clipboard

You can copy to the Clipboard the whole of the record which you are currently viewing or editing.

To copy the record,

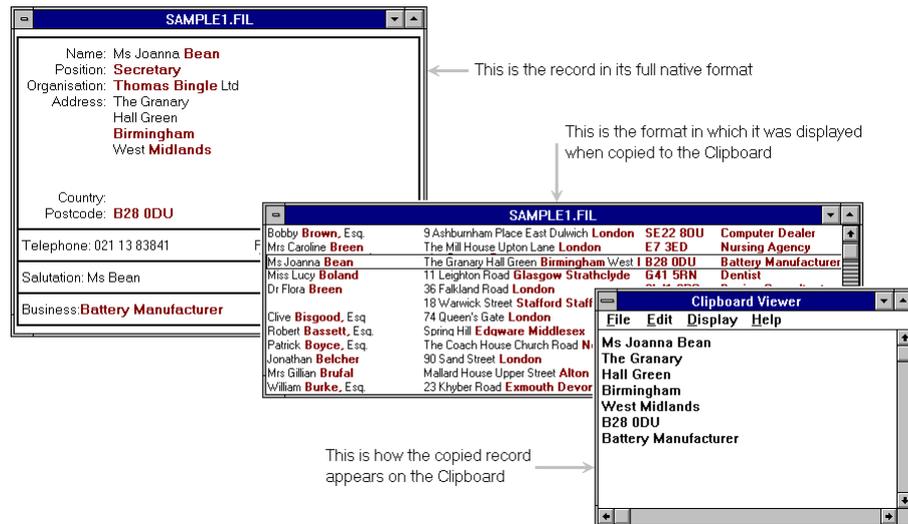
press CTRL+SHIFT+C

or select **Copy record** in the **Edit** menu



For sequence of fields, see Section 29.1

- Text is copied only from the fields present in the current format.
- Fields are output in their standard sequence, followed by merge blocks.
- The whole of the text of each field is copied, regardless of how much is actually displayed.
- Multi-line text is output in separate lines, even if the current format is displaying it in one line in a single-line field.
- If an image field is present, the image is copied to the Clipboard as a bitmap.



Refer to Section 18.2 if the block you want to select is not displayed in full.

18.2 Selecting text

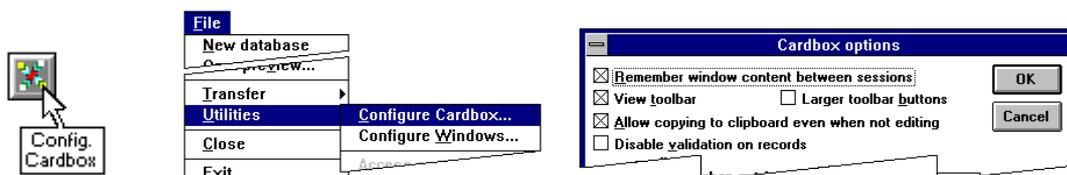
In general terms, you can select and copy any text which varies from record to record, but not any text which is fixed in the format. Thus, you can select text displayed in:

- fields, excluding captions,
- merge blocks, including fixed text within them,
- and extra text.

You can select text from only one format item at a time, i.e. one field or one merge block, but you can select a larger block of text than is actually displayed in the database window.

Selected text is displayed white on dark blue, and we use a similar scheme to indicate selected text throughout this chapter.

Selecting and copying text when not editing



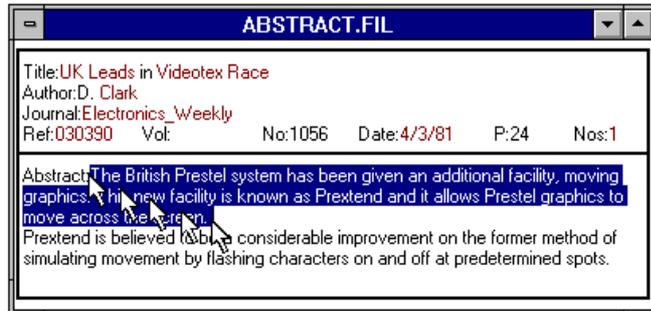
To be able to select text when not editing records, you must set a special option in the Cardbox configuration. This option is

Allow copying to clipboard even when not editing

and to set it, select **File, Utilities, Configure Cardbox**, and turn on the relevant check box as indicated above.

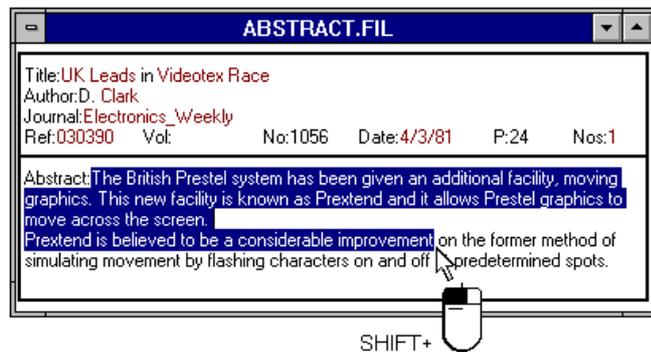
When not editing the record, you can only select text by using the mouse.

To select a block of text, position the cursor at the start of the block, drag it to where you want the block to end, then release the mouse button.



To change the end position of the selected block, hold down SHIFT and drag the cursor to the new position.

Alternatively, just point to the new end position and click holding down SHIFT.



To copy the selected text to the Clipboard,

- press CTRL+C

OR

- Select **Copy** in the **Edit** menu.

Edit	
N ew record	Ctrl+N
E dit record	Ctrl+E
D elete record	
<u>U</u> ndo deletion	
B atch	
▶	
C opy	Ctrl+C
C opy record	Ctrl+Shift+C
F ormat	
▶	

To cancel the selection

Click on the record anywhere outside the selected block.

Selecting text when editing the record

When editing a record, you can perform various operations on the selected text, and we deal with those operations under separate headings further in this chapter. In this section, we describe the techniques which you can use to select the text.

- In the Edit mode, you can select text using the keyboard as well as the mouse,
- In Batch Edit, you can select text using the keyboard only.

Using the keyboard

To move the insertion point, use the keys listed in Section 17.2.

To select a block of text

- Locate the insertion point at the start of the block,
- hold down SHIFT and move the insertion point to where you want the block to end,
- release the SHIFT key.

To reposition the end of the selected block

- Hold down SHIFT and move the insertion point to the new position.

To cancel the selection

- Move the insertion point without holding down SHIFT.

Using the mouse

To select	Use
A word	double click
A line	CTRL+click
An arbitrary block	Use the method described in Chapter 18. Note that the mouse cursor will now have the shape of an I-beam.
To cancel the selection	Click anywhere outside the selected block.

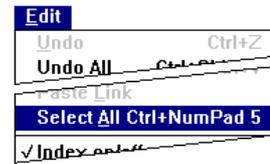
Using either keyboard or mouse

To select all text in the field

- Press CTRL+5 on the numeric keypad

OR

- select **Edit**, **Select All**.



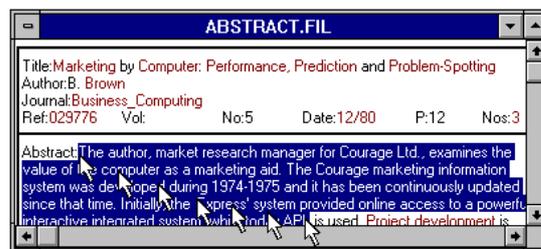
Selecting partially displayed text

The method which you can use to select a block of text which is only partially displayed depends on whether you are editing or just viewing the record, and, in the latter case, also on whether the field is too small to show the whole of the text or the window is too small to show the whole of the field.

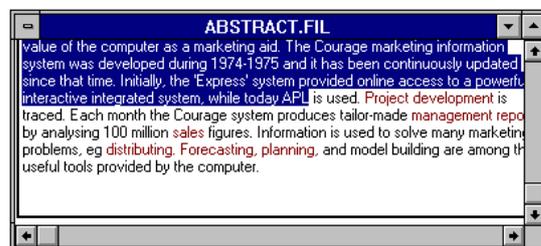
When viewing

- If the field is too small to display the whole of the text, you cannot select any of the text that is not actually displayed.
- If the window is too small to display the whole of the field, then

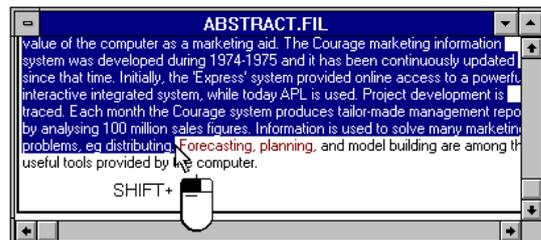
Select as much of the text as you can see.



Scroll the record to bring the intended end of text into view.



Hold down SHIFT and click on the point where you want the block to end.



When editing

- Either use the method shown above, or
- attempt to move the insertion point towards the intended end of the block. Text will be automatically scrolled regardless of whether it is the field or the window that is too small.
- If you want to select the whole of the text in the field, then press CTRL+5 on the numeric keypad or choose **Edit, Select All**.

18.3 Editing with selected text blocks

To replace the selected text, just start typing the new text.

To delete the selected text, press DEL.

To copy the selected text to the Clipboard,

- type CTRL+C, or
- select **Copy** in the Edit menu, or
- drag the text to the Clipboard icon in the status bar holding down the CONTROL key.

To move the selected text to the Clipboard, deleting it from the record at the same time,

- type CTRL+X, or
- select **Cut** in the Edit menu, or
- drag the text to the Clipboard icon in the status bar.

You can by-pass the Clipboard when moving and copying text within the record you are editing; see Section 18.5 below.

Edit	
Undo	Ctrl+Z
Undo All	Ctrl+Shift+Z
Copy	Ctrl+C
Copy record	Ctrl+Shift+C
Cut	Ctrl+X
Paste	Ctrl+V
Select All	Ctrl+NumPad 5
√ Index on/off	

Dragging text to the Clipboard icon is described further in Section 18.5

18.4 Pasting text into a record

To paste the text stored in the Clipboard into the record you are editing, locate the insertion point where you want the text to be pasted into the record, then

- type CTRL+V, or
- select **Paste** in the Edit menu, or
- drag the text from the Clipboard icon in the status bar in the way described below.

Formatting and indexing of the pasted text is described in Section 18.6.

18.5 Moving and copying text by drag-and-drop

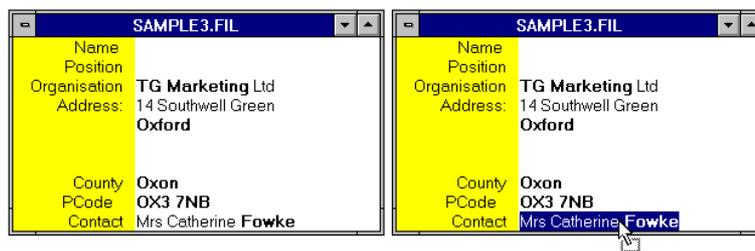
In this technique, you select the text and drag the cursor to show where the text or a copy of it is to be dropped, which can be either

- a field in the window that you are editing, or
- the Clipboard icon in the status bar.



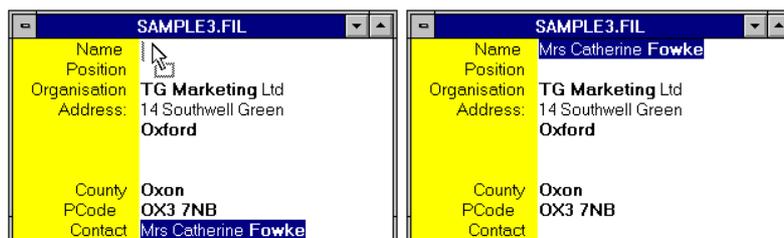
Conversely, you can drag the text from the Clipboard icon and drop it into a field in the window that you are editing.

Moving and copying text within the same window

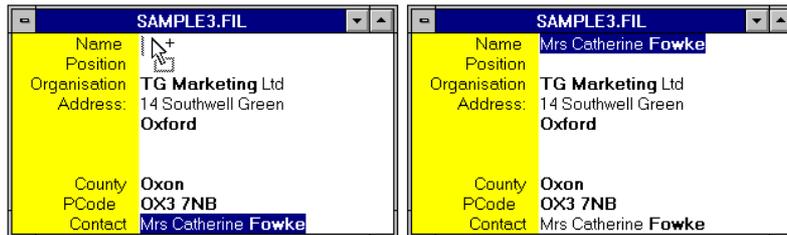


To move or copy a block of text,

- select the text,
- bring the cursor to it and depress the left mouse button; the cursor will change shape to that shown on the left;
- drag the cursor to the target location. The insertion point will move with the cursor to show you where the text would be inserted if you were to release the mouse button.



To **move** the block, just release the mouse button in the target position.



To **copy** the selected text, hold down the CONTROL key as you release the mouse button. A plus sign attached to the cursor will confirm that text will be copied, leaving the original behind.



Note The cursor takes this shape when positioned in a part of the window in which text cannot be dropped; in this example, on the format background outside the fields. If you release the mouse button with the cursor in this shape, you will cancel the move or copy, and will have to go back and pick the text up again.

Moving and copying text using the Clipboard icon

Use the clipboard icon to move or copy text in the following circumstances.

- Between different database windows.
- Between different records of the same database.
- If the source and target fields of the record you are editing are too far apart to be displayed in the window at the same time.

The picture below shows how the cursor changes as you drag it from the selected block of text to the Clipboard icon across the Cardbox window.

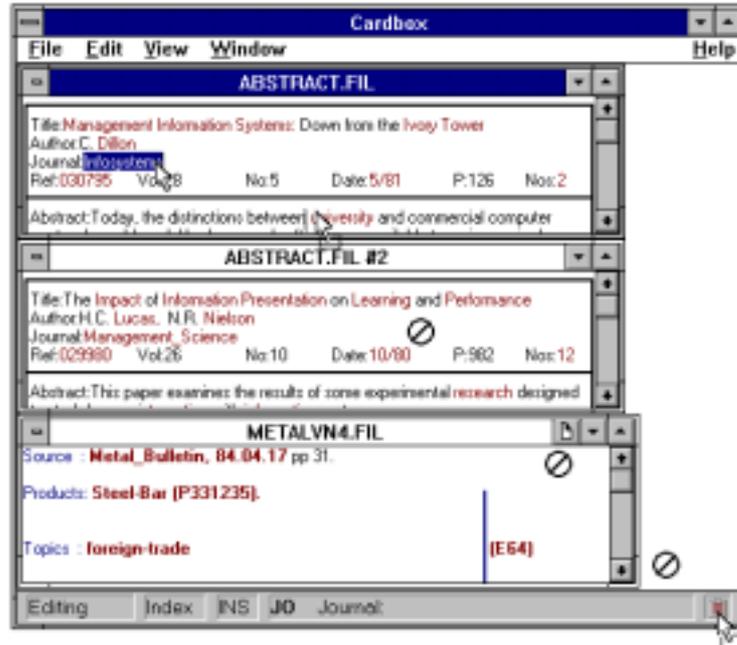
Pick up the text.

The insertion point follows the arrow as long as it is still in the same window.

But you cannot drop the text in other database windows...

or outside a database window...

until you reach the Clipboard icon.



If you want to copy, rather than move, the selected text to the Clipboard, then remember to depress the CTRL key before releasing the mouse button at the Clipboard icon.

To paste text from the Clipboard icon into the window you are editing, perform the operation illustrated above in reverse direction.

See also
Editing in
Chapter 17

If the record is large and the window small, and you don't know exactly where the target field is, then

- move or copy the text first to the Clipboard icon,
- use the Go to field command to reach the target field wherever it is hidden,
- drag the text from the Clipboard icon to the field.

18.6 Display and indexing of transferred text

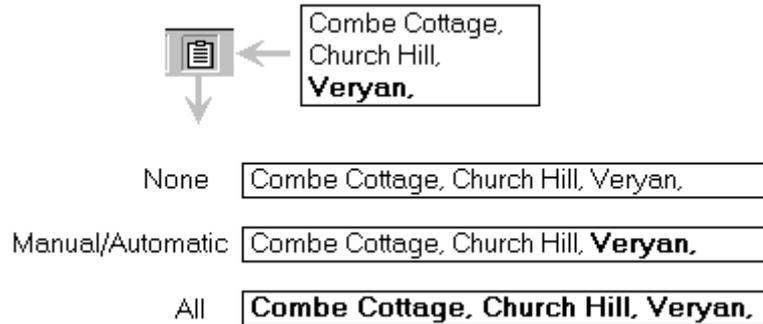
The text which you paste or move within the record is always fully loaded, regardless of the size of the target field, but only as much of it will be displayed as fits in the field in the current format.

Text is displayed word-wrapped to fit the width of the field.

Text formatted into paragraphs is joined into one continuous line when loaded into a single-line field.

Text copied from a Cardbox record to the Clipboard contains all indexing information, and so does also any text selected and moved as a block. The original indexing is reproduced exactly if the text is pasted into a field with indexing mode Manual or Automatic; the entire text is indexed with indexing mode All, and nothing at all with None, regardless of how the text was indexed when it was put into the Clipboard.

These rules are illustrated in the picture below.



Chapter 19 –

Batch operations

Batch operations enable you to edit or delete a batch of records with a single command. A batch operation starts with the current record and carries on till the end of the current selection, unless you interrupt its progress.

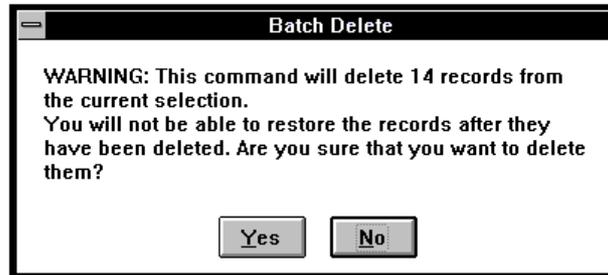
Before entering the batch command, make sure that you are on the first record on which you want to start the operation and that further records in the selection are those on which you want to perform it. You will be able to skip individual records in Batch Edit, but not in Batch Delete.

To edit or delete a batch of records, select **Batch** in the Edit menu, and then the **Edit** or **Delete** command in the cascading menu.

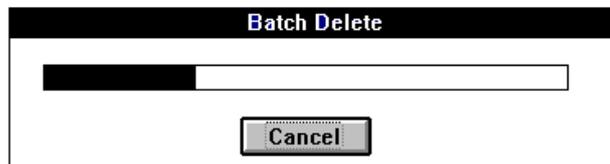
Edit	
New record	Ctrl+N
Edit record	Ctrl+E
Delete record	
Undo deletion	
Batch	
Copy	Ctrl+C
Copy record	Ctrl+Shift+C
Format	
Edit	
Delete	
Validate	
Select Invalid	

19.1 Deleting a batch of records

Before starting batch deletion, Cardbox asks you to confirm the command.



While batch deletion is under way, Cardbox will not update the display of records, but a progress bar will show you how far it has got, and give you an opportunity to cancel the operation. If you cancel, records that have already been deleted will stay deleted and you cannot retrieve them.



Undoing deletions

The **Undo deletion** command in the Edit menu will restore only the last record deleted in the batch.

19.2 Editing a batch of records

The **Batch edit** command allows you to process automatically a number of records that you want to edit in the same way.

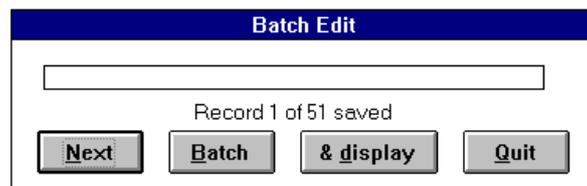


While batch edit is in force, the "Batch" message in the status bar reminds you that your editing inputs are being recorded, to be played back for the following records in the batch.

Note Because of the need to reproduce your inputs in a meaningful way for all records in the batch, the use of the mouse in batch editing is restricted, as described in *Preparing for batch edit* later in this chapter.

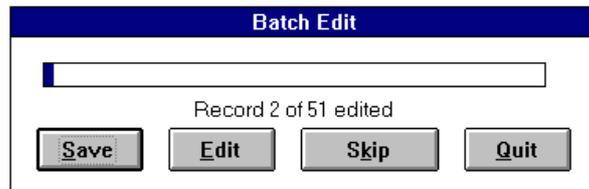
1. To start, edit the first record. Save it in the usual way, by pressing CTRL+S or by using the **File, Save** command. This will start batch editing.

2. This box is displayed after you have saved a record.



- Next** will edit the next record in the same way as the previous one, but will show it to you before saving it, together with the dialog box shown in Step 3.
- Batch** will edit the remaining records in the current selection, unless you interrupt the process by using Stop in the progress report (shown in Step 4). Individual records will not be displayed as they are edited.
- & display** will perform the same operation, but displaying each record in turn. Such constant re-display makes batch editing slower.
- Quit** will stop batch editing at the current record.

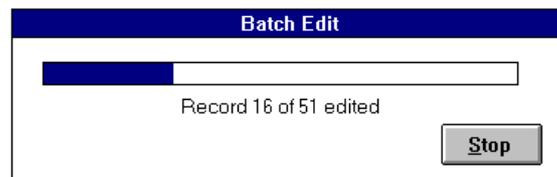
3. This dialog box appears in response to Next in Step 2, or Stop in the progress report shown below.



Together with this dialog box, Cardbox displays the next record, already edited but not yet saved. If you find that this dialog box is hiding something important, you can drag it elsewhere.

- Save** will save the record as it is displayed and take you back to Step 2.
- Edit** will enable you to edit the record further. Any editing you perform will be added to what was already recorded. You will have to save the edited record, using CTRL+S or **File, Save**, and this will return you to the dialog box in Step 2.
- Skip** will leave the current record in its original state, thus effectively leaving it out of batch edit, and will display the next record, with the same dialog box.
- Quit** will stop batch editing and cancel the Edit command.

4. This progress report is displayed while Cardbox is performing a batch edit in response to the options Batch or Batch & display. The bar shows the proportion of processed records.



- Stop** will interrupt the process at the current record, with the record edited but not yet saved, and Cardbox will return you to the dialog box shown in Step 3.

Preparing for Batch edit

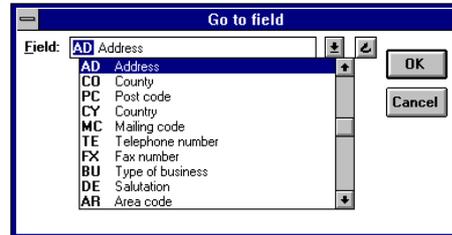
In Batch edit, Cardbox memorises the inputs you make as you edit the first record and repeats them on subsequent records, and it is up to you to ensure that these inputs will produce the desired results when Cardbox comes to apply them to further records in the current selection. The most important thing to watch is the positioning of the insertion point. You have to ensure that Cardbox will get to the right field in every record, and to the right

position in the field, before it adds, deletes, or modifies in some other way the existing text.

Getting to the right field

There are three ways in which you can move the insertion point to a particular field.

- Press F5 and select the field in this dialog box.
- Press TAB to get to the next field in sequence, or SHIFT+TAB to move in the opposite direction.
- Position the I-beam in the field and click the left mouse button.



The sequence of fields is determined in format definition, see Section 29.1.

In Batch Edit, a mouse click on the field will always move you to the **start** of the field. This is different from the normal (non-batch) Edit command, which lets you use the mouse to position the insertion point anywhere in a field.

Getting to the right position in the field

With the mouse disabled for positioning the insertion point within a field during Batch edit, you can only use keys, but you must ensure that the keys you use in editing the first record will achieve the desired result in the other records too.

Security:
The customer to provide a personal guarantee, with a second charge on his property.

Security:
The advance is to be guaranteed jointly and severally by Mr F G Smith and Mr J T Brown, with a second charge on Mr Smith's property.

Consider the two records show above, to which we want to append the note "Approved by RPB 14/4/92." at the end of the existing text; that is, the results we want to get are as shown below.

Security:
The customer to provide a personal guarantee, with a second charge on his property. Approved by RPB 14/4/92.

Security:
The advance is to be guaranteed jointly and severally by Mr F G Smith and Mr J T Brown, with a second charge on Mr Smith's property. Approved by RPB 14/4/92.

A full list of positioning keys is in Section 17.2.

The way to edit the first record in this example is as follows:

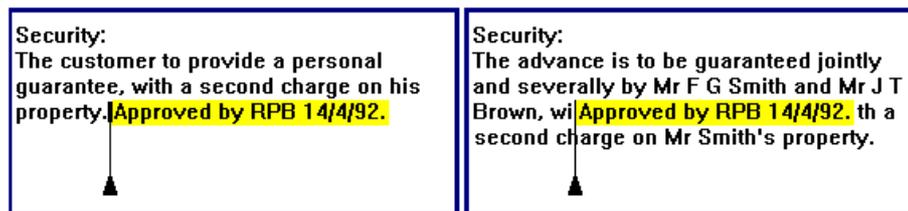
- 1 Position the insertion point at the beginning of the field, using one of the methods given in the last section.
- 2 Type CTRL+END to position the insertion point at the end of the existing text in the field.
- 3 Type a space, followed by the note.

You might be tempted to use the ARROW keys to position the insertion point, instead of having to remember that CTRL+END moves to the end of the field. **This will cause trouble** in a batch edit. Suppose that you used:

DOWN ARROW 3 times to move down by 3 lines, followed by

RIGHT ARROW 9 times to move right by 9 characters.

In the first record, this would still get you to the end of the field, because the field happens to be 3 lines and 9 characters long. But not all fields will be exactly the same length. Look at what would happen in the second record: when Cardbox repeated your keystrokes, it would get the insertion point to the position indicated by an arrow in the picture below, and shading shows you at a glance that the note would be inserted in the middle of the field and not at the end.



The important fact about CTRL+END is that it *always* moves to the end of the field, whereas the arrows only *happen* to move to the end of the field if they run out of field text to move past.

In general, try to imagine, as you edit the first record, what effect your keystrokes would have on a record that looked different. Use Next rather than Batch until you are sure that your records are being edited in the right way.

Indexing in batch operations

The normal way to index or unindex text is to use the CTRL key or the right mouse button. Batch editing does not allow you to use the mouse, and you need to take care when using the CTRL key.

The CTRL key *toggles* the current state of indexing: it indexes unindexed text and unindexes indexed text. This is fine if you are sure that all the records in

your selection have the same indexing pattern as the first one you edit; otherwise, you need to use a different command.

The **Edit, Index on** command (keyboard shortcut CTRL+SHIFT+I) indexes a word or a selected block of text if it wasn't indexed, *and does nothing otherwise*. It thus provides a foolproof way of indexing text without accidentally unindexing it if it happened to be indexed already.

To *unindex* text reliably, use CTRL+SHIFT+I to index it and then CTRL to unindex it again.

19.3 Batch editing with validation

If validation is in force during a batch edit and a record fails to pass the validation test, Cardbox will stop batch edit with a message such as shown below.

Validation is described in Chapter 36.

If you choose then

Edit record	any editing you perform to make the record pass the validation criteria will not be remembered in the processing of further records. On saving the record, Cardbox will take you to Step 2 in the previous section, where you will have to choose Batch to continue batch editing.
Ignore	this error will be ignored, for this record only. Batch editing will continue with normal validation. Not all validators will allow you to ignore the errors they report.
Cancel	Cardbox will take you to Step 3 in the previous section, allowing you to skip the current record or cancel the entire batch operation.

Chapter 20 –

Designing your database

When designing your own database, you should think of:

- what information is to be stored
- how it is to be presented, on the screen and in printed output
- on what criteria it is to be retrieved
- how it is to be sorted or sequenced

In detail, you will have to decide:

- how the card should be divided into fields
- how the information in each field should be structured and indexed

Bear in mind first of all that the size of the card, the number of fields into which you divide it, or the attachment of extra text, do not in themselves have any effect on the size of the database file on the disk. Each record takes up only as much disk space as is needed to hold the text that it contains.

In addition to the space required to store your entries, some space in the database file will also be taken up by the index. This additional space requirement depends on how heavily you index your entries, but it is not significant enough for you to worry about when you decide which items to index. So, think of indexing mainly in relation to the way in which you will want to retrieve and sort your records.

20.1 Designing records

The most important decision that you have to make when designing records is into how many fields to divide the data, and in doing so you must bear in mind how you want to retrieve the information, and how you want to output it.

You can move data between fields, if you should find that your initial division of information into fields was not quite right, but it is generally easier to combine data from a number of fields into one, rather than split the data stored in one field over several. Therefore, when uncertain about how you are going to retrieve records, allow more fields rather than fewer but, equally, do not create multiple fields where one will clearly do, and here is an example of such a case.

Available in languages:
 French German Italian Portuguese Spanish Other

Languages: **French German Spanish**

Languages: **French German Italian Swedish**

Languages: **French Italian Portuguese Spanish**

Languages: **German Russian**

Suppose that you are transferring to Cardbox a catalogue of publications which are available in several languages. In the original manual system, the languages are indicated by a checkmark against the applicable language, as shown in the top part of the picture.

There is no need in this case to reproduce the structure of the manual system in Cardbox by allocating one field to each of the listed languages, with entries in each field being either "Y" or "N". This will work, but will unnecessarily clutter up the format and make retrieval rather clumsy. Instead, create a single field "Languages", and enter and index the applicable languages for each publication, as shown in the lower part above.

Available in languages _____
 French German Italian Portuguese Spanish

Special field handlers are described in Section 29.4.

If you want to simplify data entry, you can display this single field as an array of check boxes, one for each language. To enter a language, you just turn its check box on by clicking on it. In another format, not using check boxes, you could still display the languages as normal entries and you would be able to add any other language for which a check box has not been provided in this special entry format.

On the whole, there is a need to split a record into fields to ensure a reliable retrieval of data, and this example shows why.

Mr Robert London Sealclean Packaging Ltd 113 Oakwood Road Westerham Kent TN12 6TH	<table border="1"> <tbody> <tr> <td>Name:</td> <td>Mr Robert London</td> </tr> <tr> <td>Company:</td> <td>Sealclean Packaging Ltd</td> </tr> <tr> <td>Address:</td> <td>113 Oakwood Road Westerham Kent TN12 6TH</td> </tr> </tbody> </table>	Name:	Mr Robert London	Company:	Sealclean Packaging Ltd	Address:	113 Oakwood Road Westerham Kent TN12 6TH
Name:	Mr Robert London						
Company:	Sealclean Packaging Ltd						
Address:	113 Oakwood Road Westerham Kent TN12 6TH						
Mr James Brown London Leasing Co Ltd 345 Western Avenue Isleworth Middlesex TW23 4ER	<table border="1"> <tbody> <tr> <td>Name:</td> <td>Mr James Brown</td> </tr> <tr> <td>Company:</td> <td>London Leasing Co Ltd</td> </tr> <tr> <td>Address:</td> <td>345 Western Avenue Isleworth Middlesex TW23 4ER</td> </tr> </tbody> </table>	Name:	Mr James Brown	Company:	London Leasing Co Ltd	Address:	345 Western Avenue Isleworth Middlesex TW23 4ER
Name:	Mr James Brown						
Company:	London Leasing Co Ltd						
Address:	345 Western Avenue Isleworth Middlesex TW23 4ER						
Mr E G Smith Osprey Chemicals Ltd 24 Bromley Road London SE24 7TR	<table border="1"> <tbody> <tr> <td>Name:</td> <td>Mr E G Smith</td> </tr> <tr> <td>Company:</td> <td>Osprey Chemicals Ltd</td> </tr> <tr> <td>Address:</td> <td>24 Bromley Road London SE24 7TR</td> </tr> </tbody> </table>	Name:	Mr E G Smith	Company:	Osprey Chemicals Ltd	Address:	24 Bromley Road London SE24 7TR
Name:	Mr E G Smith						
Company:	Osprey Chemicals Ltd						
Address:	24 Bromley Road London SE24 7TR						

Both columns in the picture above show the same records, but in the left column the whole of the record is stored in one field, whereas in the one on the right, the name of the person, the company name, and the address, are in separate fields.

Assuming that the records represent a mailing list, you would in both cases be able to output exactly the same address labels or standard letters, but with single-field records you could have some difficulty in compiling a *selective* mailing list. Thus, for example, if you wanted to confine your mailing to London, the 3-field format would enable you to extract only the records in which the word "London" occurs in the address field, but the single-field format would give you the records in which "London" occurs anywhere: in the name of the person or company, as well as in the address.

20.2 Labelling fields

When you divide a record into a number of fields, each for a different kind of information, try to label each field so that you can easily see what it is that the field contains, or is intended to contain - if you are about to fill a new record in which all fields are still empty.

There are three ways in which you can label fields:

Captions such as we used in the last example. Captions appear only when you display records.

Field names which you assign to fields when you first insert them in the native format. Each field must have a distinct name, at least two characters long, and you use this name to identify the field in various operations, such as searching, sorting or transfer of data. Field names do not appear in normal display of records, but Cardbox will list them for you in any operation that requires the input of a field name.

Field descriptions are optional, and you should use them whenever a field's name does not clearly identify its contents.

Captions

You can either make the caption a part of the field or enter it as fixed text in the format background. To make a distinction between these two positions, we show the format background grey in the picture below.



Captions within fields

Captions in format background

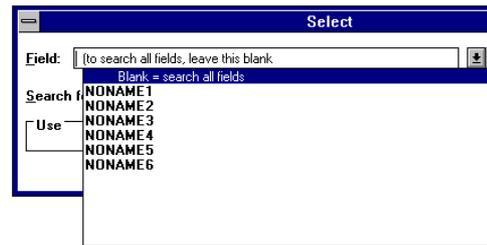
A caption within a field is easier to handle when you are designing a format, because as you reposition the field, the caption will move with it. But internal captions, always positioned at the start of the first line of the field, lead to a rather chaotic display of data. This is particularly pronounced in multi-line fields, such as the address field in the left picture above.

Captions provided as part of the format background let you align the fields, which makes the record easier to read on the screen and in print.

Field names

Every field must have a distinct name, and when you insert a new field in the native format of a database, Cardbox will automatically give it a name consisting of the word NONAME and a number. You can change this name to any name of your choice.

Do not leave the automatically inserted names without any further description of fields, because this is what you would see when you come to specify a field to search. You cannot tell which field contains the information you are looking for.

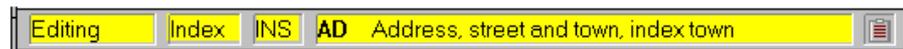
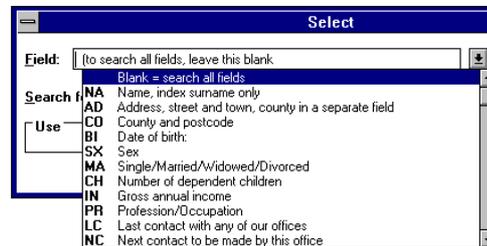


Field descriptions

A well chosen field name will convey what the field contains, e.g. NA for Name or AD for address, and field descriptions enable you to identify the field's contents even more clearly and also provide some instructions how the field should be completed and indexed.

This example illustrates the shortest allowable field names supplemented by descriptions.

You enter field descriptions in the native format, and you can add or change field descriptions at any time.



In addition to appearing in the various lists of fields, field names are also displayed in the status bar when you edit a field.

So, make a habit of providing meaningful field descriptions in your format design; you will find them particularly helpful in navigating through large and complex formats.

20.3 Advanced techniques for complex formats

There is no practical limit on the number of fields into which you can divide your records, nor is there a practical limit on the size of the format, but the size of the Cardbox window is limited, and the larger you make the format, the more you will have to scroll it to see all parts of the record.

In a large and complex record, it is often the case that only a few fields are relevant to the operation in hand, and you can simplify both data entry and output or inspection by using alternative formats confined to the fields of immediate interest.

The native format must, of course, still contain all fields, but you can reduce it to the role of a statement of what fields there are, rather than make it a "working" format.

PRODUCTS.FIL			
Manufacture Section [MANUFACTURE]	Version: 1.23 Mnf. Date: 22/1/92	Release: 12/345 Assembled: GHJ	Batch No.: VBM/18 Serial No.: B123456
Sales Section [SALES]	Date sold: 15/2/92 Invoice No.: 23409	Purchaser: General Despatch address:	Order No. P675/1U Carrier: GTN
User Section [USER]	Registration Date: Business: Art Contact: Mrs Anne	User Name: Pendle Application: Position: Owner	Address: 23 Higham Other products: Telephone: 0707 321
Support Section [SUPPORT]	Last request: Software/Hardware: Previous requests:	About: Status: Remarks:	Handled by: Responsibility: Further notes in:
Updates/Upgrades [UPDATE]	1st applicable: Response:	Terms: Handled by:	Advised: Current status:

Here is an example of such a format, with fields divided into logical sections. There is a caption in each field, but hardly any room to display the contents. Instead, the notes in the left margin tell you which alternative format you can use for fuller display or editing of fields in each section. Here are some examples of such alternative formats.

VN:1.23	Ref:12/345	SN:B123455	Manuf: 22/1/92	Batch: VBM/18
VN:1.23	Ref:12/345	SN:B123456	Manuf: 22/1/92	Batch: VBM/18
VN:1.23	Ref:12/345	SN:B123457	Manuf: 22/1/92	Batch: VBM/18
VN:1.23	Ref:12/345	SN:B123458	Manuf: 22/1/92	Batch: VBM/18
VN:1.23	Ref:12/345	SN:B123459	Manuf: 22/1/92	Batch: VBM/18
VN:1.23	Ref:12/345	SN:B123460	Manuf: 22/1/92	Batch: VBM/18

Just a one-line format is sufficient to record the manufacturing stage, and multi-record display allows convenient processing and display of batches of records.

Version: 1.23	Purchaser: General Computer Associates
Release: 12/345	Shipment 27 Oxford Street
Serial number: B123456	address London W1X 7ED
Sold: 15/2/92	
Invoice: 23409	

Sales are recorded in this format, with the relevant fields made larger.

Serial number: B123462	Registered: 3/2/92	User Brandon Antiques
Contact: Mr Robert Middlewich		Addr 22 Thetford Road
Position: Owner		Black Covert
Tel: 0482 234543		nr Thetford
Business: (use only existing index terms)		Norfolk
Antique Dealers		NC22 4ED
Application: (enter only if anything of interest)		
Inventory of local stately homes.		

And the same applies to user records.

1.23	B123462	Brandon Antiques	Reg: 3/2/92
Last call	Handled by:	Status:	
Support request:			
Remarks:			

This part of the record may need any amount of space, so the format is given the whole of the Cardbox window.

Chapter 21 –

Indexing

Cardbox allows you to retrieve records from the database selected on a combination of criteria. The fastest retrieval is when you select on indexed items; but you can also select on unindexed text, and even fine-tune your selections by hand without making Cardbox refer to the contents of records.

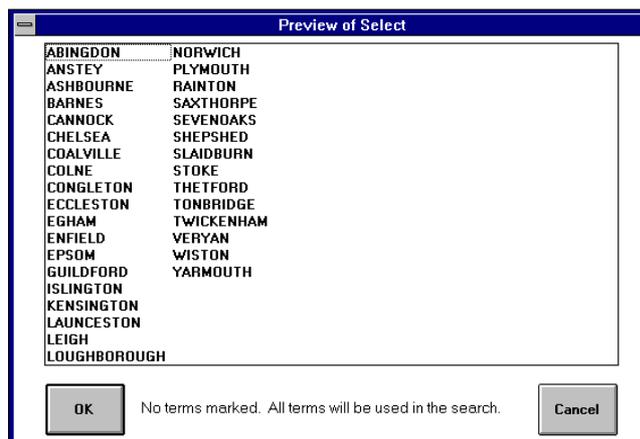
Indexing for fast retrieval is the main feature of Cardbox. You can index any word, number or date in any combination and in any field in your record. You decide how fully the information in each field is to be indexed when you design the native format of your database. Chapter 20 outlines the main points you should bear in mind when designing the native format and choosing the indexing modes.

Name: Mrs Imogen Quest Addr: 12 Cranleigh Place, Egham County: Surrey	Dear Mrs Quest Tel: 0784 55857 Date of birth: 8/4/44 Sex: F Married? M No of children: Income: 10,000 Profession: Actress
Last contact: 27/4/82 Roger Merton Next contact: early in October	
Notes: Stage name Imogen Blakeley	

You can easily arrange for indexed words to be immediately recognisable in the records: you can display them in a different colour, at a different intensity, or with different attributes such as italics or underlining. In the picture above, we have used bold type for indexed text and regular for unindexed.

Names:	Professions:	Incomes:
BARLOW	ACADEMIC	7500
BLACK	ACCOUNTANT	8500
BRIDGES	ACTRESS	9500
BROWN	ACTUARY	10000
BYLETT	AGENT	12000
CAVEREL	ARCHITECT	12500
COOKSLEY	BANKER	13000
COSGROVE	BARRISTER	14000
CURRY	CHARTERED	15000
DONALDSON	DESIGNER	16000
EDGINGTON	DIRECTOR	17000
FENWICK	DOCTOR	17500

Cardbox keeps a separate index for each field and it notes the records in which each indexed item occurs.



When you come to select records, Cardbox can list for you the words indexed in the given field, and let you select the search parameters from the list. This gives very fast retrieval of the records you want, but to take full advantage of this fast retrieval, you should understand how Cardbox indexes your entries. So we explain in this chapter how Cardbox indexes words, numbers and dates, and how you can control this process.

Indexing affects also the way in which you are able to *sort records* into sequence, and we explain the options that you have in the final part of this chapter.

21.1 Indexing modes

Having decided how to divide your record into fields and which items are to be indexed, you can ensure consistent indexing by defining for each field the appropriate indexing mode.

Manual	Indexing of text entered from the keyboard is left to you. Nothing you enter will initially be indexed, but you can change a word from unindexed to indexed (and back again) by pressing the CTRL key or by clicking the right mouse button when the cursor is on the word or immediately next to it.
Automatic	This is the opposite of Manual: that is, words entered from the keyboard start by being indexed, but you can unindex them selectively.
All	Everything in the field will be indexed, and you cannot change this.
None	Nothing in the field can be indexed.

21.2 How Cardbox indexes

Cardbox maintains separate indexes for numbers and for ordinary words (dates count as numbers). This is because the order in which the index is kept has to be different:

Numeric order: 1 2 3 14 23

Alphabetical order: 1 14 2 23 3

(just like CAR, CARRIAGE, CAT, CATAPULT, CAW)

Cardbox updates the index as soon as you store a record. It first looks through the record, identifying the terms to be indexed. *Term* in this context means a string of characters which is either in a field of its own or is separated from other strings by spaces. An indexed term can be up to 64 characters long: if it is longer, then Cardbox ignores characters after the 64th for indexing purposes.

Next, Cardbox looks at each term in turn to see whether it should be indexed as a word, as a number, or as a date. This is determined by the first character in the term, ignoring any parentheses and currency symbols. The term is indexed as a number if it begins with:

a numeric digit	0 to 9
a plus sign	+
a minus sign	-
a decimal point	.

Any other character at the beginning of the term makes Cardbox treat it as an alphabetic string, that is, as an ordinary word. So, if you want to index a term starting with a numeric digit as an ordinary word (perhaps because it contains letters as well as numeric digits), you will have to modify it to persuade Cardbox not to treat it as a number: see *Turning numbers into words* later in this chapter.

Numbers and dates

Cardbox recognises positive or negative numbers, with or without a decimal point. Within numbers it ignores commas ", " and other non-numeric characters other than the date delimiters / and -. The full stop (period) "." is interpreted as a decimal point if it occurs once, and as a date delimiter (see below) if twice.

The following are all valid numbers:

144 1.23 -3.6 .0013 100,000 -.1

A string of characters like 123ABC456 would be indexed as 123456, because it starts with a numeric digit. If you want the letters to be taken into account, you must force Cardbox to interpret the term as a word rather than a number: again, see *Turning numbers into words* later in this chapter.

Dates can be entered in the following formats:

Delimiter	Format	21st March 191956 is:
/	DD/MM/YYYY (UK)	21/3/1956 or 21/03/1956
-	MM-DD-YYYY (American)	3-21-1956 or 03-21-1956
.	YYYY.MM.DD (European)	1956.3.21 or 1956.03.21
<i>All these dates are indexed as the number 1956.0321</i>		

Cardbox decides which date format you are using by looking at the delimiters, so you must use the correct delimiter with each format. Mixing of different delimiters in the same date will inevitably lead to errors.

If you know that you will only ever be using dates in one century, then you can use two-digit years rather than four-digit years. This, strictly speaking, means that you are using dates in the 1st century, and certainly not the 20th or 21st. So be careful not to mix two-digit and four-digit years in the same field!

Unless you turn validation on, Cardbox will not mind you using the 32nd of February, or referring to the 15th month of the year. This freedom is useful if you have some other format that divides numbers into 2-digit groups: for example, hour.minute.second.

Cardbox does not see any resemblance between "56" and "1956": so don't mix two-digit years in the same field with four-digit ones. You can use a range selection command to catch dates that were entered in the wrong format, or a validator to prevent such entries or reformat them automatically.

Abbreviated dates

You may not always need to record full dates, in terms of day, month and year: for instance, you need only the day and month as a reminder when to send someone a birthday card. You can use abbreviated dates, day-and-month only or month-and-year only, but please observe the conventions summarised in the table below.

Format	months and year		day and month	
UK	MM/YYYY	6/2010	DD/MM	17/6
American	MM-YYYY	6-2010	<i>Not available in this format</i>	
European	YYYY.MM	2010.06	MM.DD	6.17

All dates in these examples will be indexed as the values listed for the European format. In the European format, a single "." delimiter makes your entry look like an ordinary number with a decimal point, so you must always enter both decimal places for an abbreviated date: e.g. 2010.06 for June 2010 or 12.05 for the 5th of December.

Indexing ordinary words

Once it has decided that an item is not a number or a date, Cardbox looks at it and indexes it as shown in the first table below. The second table illustrates the way in which the words "north" and "west" would be indexed and output to printer or disk with various characters between them.

a to z	are indexed as the corresponding capital letters.
A to Z	are indexed.
Accented letters	are indexed with the accents removed.
0 to 9	are indexed as ordinary characters.
_ (underline)	is indexed. It ranks as a space and is replaced in some outputs by a space.
- (hyphen)	Each part of a hyphenated word is indexed separately, and in addition the whole word is indexed as one item, without hyphens.
others	are ignored.

Entered:	Indexed:	Output:
north west	NORTH WEST	north west
north & west	NORTH WEST	north & west
north/west	NORTHWEST	north/west
north-west	NORTH WEST NORTHWEST	north-west
north_west	NORTH_WEST	north west

Thus, to summarise:

- Words separated by a space are indexed independently, as separate words.
- Hyphenated words are also indexed separately but in addition the composite word, such as NORTHWEST from "north-west", is also indexed. Any of the index entries can be used when selecting records; when sorting, only the composite word is taken into account.
- Where an underline is used, the underline is itself indexed as part of the composite word, as in NORTH_WEST. In sorting, the underline ranks as a space, coming before all letters and digits; and when a record is printed or written to a file, it is replaced by a space, although you can optionally have it output as an underline.
- Where the words are separated by a non-indexable character, that character is ignored and only the composite word is indexed.
- Cardbox maintains the index in alphabetical order, a, b, c, etc. It removes accents from accented letters: for example, â becomes a.

Whether, and how, you join words together depends very much on the way in which you intend to retrieve, output and sort your records. There are further notes on this topic later in this chapter.

Turning numbers into words

As described above, Cardbox decides automatically whether a term is a number (or date) or a word, by looking at the first character. Most of the time, this works well, but sometimes this automatic recognition can be a nuisance. You may have some items (serial numbers, for instance) which start with a numeric digit but contain alphabetic text which must not be discarded in indexing.

In this case, you can stop the item being indexed as a number by preceding it with any character which Cardbox will not recognise as starting a number. A character like the apostrophe ' is a good choice, because it looks unobtrusive when printed.

Example

You have a serial number like 2XE87RC, which starts with a numeric digit but contains alphabetic text which must also be indexed.

If you enter this serial number It will be indexed as:
as:

2XE87RC	number 287 (<i>non-numeric characters are discarded</i>)
'2XE87RC	alphabetic string 2XE87RC

Using the hyphen

A hyphenated entry like

funded by **London-Investment-Trust** in conjunction with South East Securities

will have index entries:

LONDON INVESTMENT TRUST *and* LONDONINVESTMENTTRUST,

and the last, composite, index entry enables you to retrieve this record with a single selection command:

Select LONDONINVESTMENTTRUST.

Using the underline

funded by **London_Investment_Trust** in conjunction with South East Securities

The names are now indexed only in their composite form, with the underline itself being indexed too. So, to be precise in your search command, you have to include the underline, but you need only one command to retrieve this particular string of names:

Select LONDON_INVESTMENT_TRUST

Wildcards in search commands are described in Section 10.6.

However, you do not always have to enter such a long name in full in your search commands. You can often use wildcard characters such as "*" (which stands for any number of characters, including none), with some significant fragments of the text. For example:

LON*INV*TRUST

may well match only *London Investment Trust* in your records.

Effect on sorting

Records are normally stored in the sequence in which they were originally added to the database, but you can sort them into a different sequence both for display and output. You can arrange records in:

Custom sequence, based on several fields and using all indexed items in the chosen fields as sort keys;

Single-field sequence, based on a single chosen field and using only the first indexed item in the field as the sort key.

Further details of the relevant commands are given in Chapter 8; here we consider only the effects of condensing characters on the sequence you would obtain using the **Sequence** command related to a single field.

Assume that the field begins with the indexed names listed in the table below, and that records are stored in the sequence shown in the first column. The sequence which you will obtain will depend on the character separating the words as follows:

- **Space** Since the command takes into account only the first indexed item in the field, all names beginning with "Data " will come first in their original database order, followed by longer, single-word names in alphabetical order, as shown in the second column in the table.
- **Hyphen** With hyphenated words, Cardbox uses the composite form in sorting, and records would be sorted in the sequence shown in the third column.
- **Underline** The underline ranks as a space in the composite word, and records would be sorted in the sequence shown in the fourth column. Note that this sequence corresponds to custom sequence with words separated by spaces.

Original sequence	On-line sequence if words separated by:		
	a space	a hyphen	an underline
Data Security Devices	Data Security Devices	Data	Data
Database	Data Securities	Data-Acquisition	Data_Acquisition
Data Securities	Data Dynamics	Database	Data_Devices
Data Dynamics	Data Preparation	Data-Devices	Data_Dynamics
Data Preparation	Data Acquisition	Data-Dynamics	Data_Encoding
Data Acquisition	Data Encoding	Data-Encoding	Data_Express
Dataflex	Data Express	Data-Express	Data_Logic
Data Encoding	Data Logic	Dataflex	Data_Preparation
Datamation	Data Processing	Data-Logic	Data_Processing
Datasolve	Data Systems	Datamation	Data_Securities
Data Express	Data Security Systems	Data-Preparation	Data_Security
Data Logic	Data Security Encoding	Data-Processing	Data_Security_Devices
Data Processing	Data Devices	Data-Securities	Data_Security_Encoding
Data Systems	Data	Data-Security	Data_Security_Systems
Data Security Systems	Data Security	Data-Security-Devices	Data_Systems
Data Security Encoding	Database	Data-Security-Encoding	Database
Data Devices	Dataflex	Data-Security-Systems	Dataflex
Datastream	Datamation	Datasolve	Datamation
Data	Datasolve	Datastream	Datasolve
Data Security	Datastream	Data-Systems	Datastream

21.4 Custom collating sequences

This chapter has described the standard way in which Cardbox performs indexing. For specialised applications, you can change the indexing strategy by defining a *collating sequence*. You can

- Cause additional characters (including numeric digits) to be treated as letters of the alphabet.
- Control where in the alphabet those characters should appear.
- Treat upper-case and lower-case characters as being distinct for indexing.
- Treat letter combinations as a single, separate letter for indexing (such as the traditional Spanish sequence that puts "llamar" after "lograr" but before "mirar").
- Treat a single letter as a pair of letters (eg. German "bißchen" as being identical to "bisschen").

Custom collating sequence are a complex technical subject, and they are very rarely needed. You can find full details in the online help: search for "Collating sequences".

Chapter 22 –

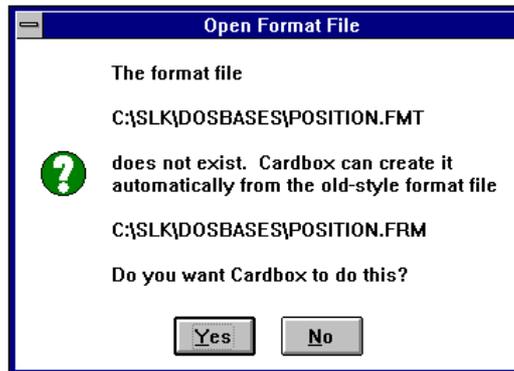
Creating database files

The structure of database files is described in Chapter 2.

Image databases are described further in Chapter 34.

Each Cardbox database consists of at least two files: the database file and the format file. They both share the same filename but are of different filetype: .FIL belongs to the database file, and .FMT to the format file. A database containing images has an additional image file of type .FIM. Cardbox always handles all files together.

- For a *new database*, you first create the format file, and Cardbox will create for you the corresponding database file.
- When you open an *existing database* file, Cardbox will automatically open the corresponding format file as well.
- If the database that you are opening was created in *Cardbox-Plus for DOS*, and you have not used it in Cardbox for Windows before, its format information will be stored in a format file of type .FRM, and Cardbox will offer to create a corresponding Windows-type format file (.FMT):



For full details of compatibility between Cardbox for Windows and Cardbox-Plus databases, open the on-line help and search for "DOS/VMS version".

22.1 Copying, moving and deleting database files

Both the database file and the format file must be in the same directory, and you must not separate them when copying or moving databases. When deleting an unwanted database, delete both files.

Saving session details is described in Section 3.6

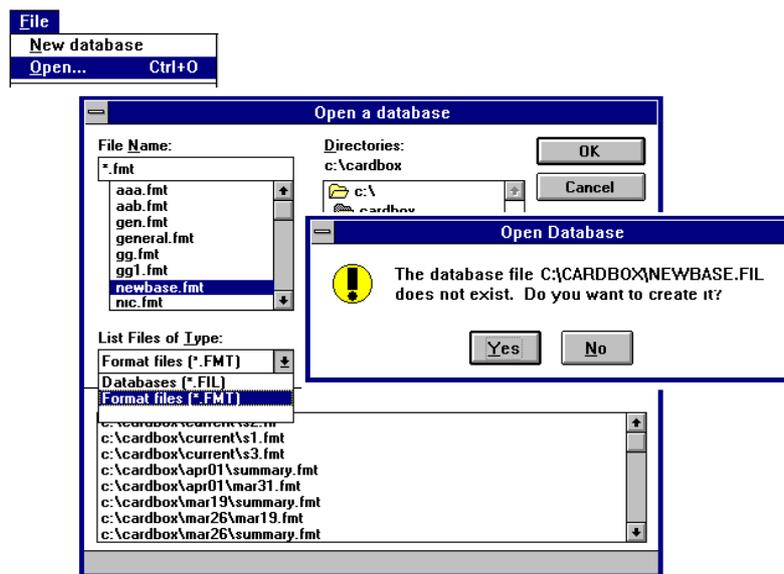
You must obviously not move or delete any of the databases that Cardbox is currently using; this will lead to errors sooner or later. Remember also that if you move or delete any of the databases that were open when you closed the last Cardbox session, then when you run Cardbox again, it will attempt to open the same databases, in the same directories, and will report an error if it cannot find them there.

22.2 Creating the files for a new database

Of the two files required for a new database, you first create the format file, and then the database file. You can create a new format file either by designing its native format or by utilising the format file of an existing database. The latter method is suitable when, for instance, you want to create a smaller database from some selected records of a large one, and we describe this method first.

Utilising an existing format file

To create a new database with exactly the same formats as an existing one, start by copying the existing format file to a new name (for instance, copy `OLDBASE.FMT` to `NEWBASE.FMT`), using either the File Manager or the DOS Copy command. Then follow the steps illustrated in the picture below.



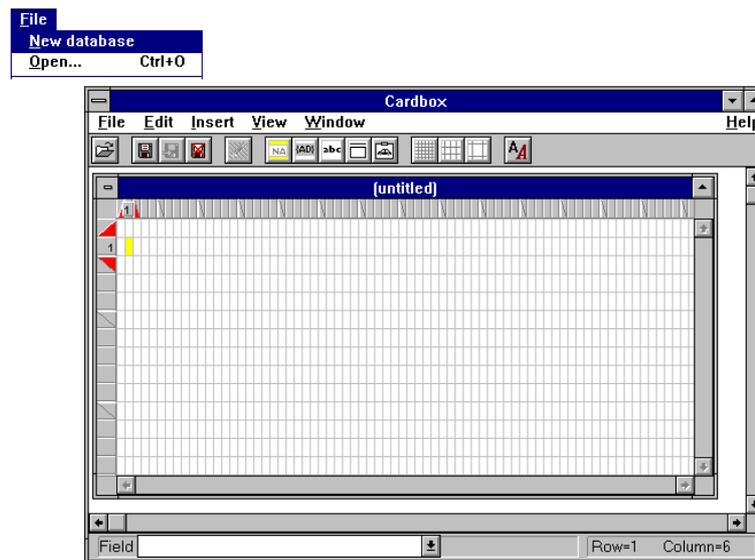
- Select the command **File, Open** as if to open an existing database. The new database does not yet exist and so will not be listed in the dialog box.

- Open List Files of Type in the dialog box and select Format Files (.FMT). The list boxes will now show the format files: select the newly copied format file and click OK or press ENTER.
- The box shown in the insert above will next appear; just confirm that you want to create the new .FIL file for your database.
- Cardbox will create the new database file and display the first record, ready for data entry. You can now type the data in, but if you want to load data from files (Chapter 33), then select at this stage **File, Quit without saving** to exit the Edit mode.

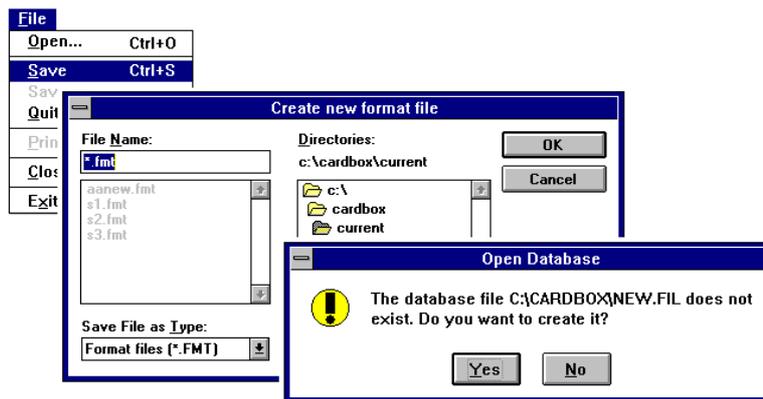
Creating a completely new database

The steps involved in creating files for a new database are shown in detail below.

Format design is described in Chapter 23.



- Select the command **File, New database**. Cardbox will display an empty Format Design Window, as shown above, in which you can design the native format of the new database.



Once you have designed the native format,

- select the command **File, Save**. Cardbox will display the Create New Format File dialog box, to enable you to enter the name under which you want to save the file. Any already existing format files will be shown dimmed; to help you avoid duplicating names. *Cardbox will never let you overwrite an existing format file as this would render the corresponding database unusable.*
- Finally, confirm in the Open Database dialog box that you want to create the database file as well.
- Cardbox will create the new database file and display the first record, ready for data entry. You can now type the data in, but if you want to load data from files, then select at this stage **File, Quit without saving** to exit the Edit mode.
- The format file will at this stage contain only the native format that you designed. You can add additional, alternative formats at any time.

Adding a description to a new database

You will naturally have given your new database a name that identifies its purpose or contents, but with the name restricted to 8 characters, there is not much scope for a clear identification. So make it a habit to add also a description to each database that you create. The description can be viewed and set in the About This Window dialog box shown in Section 3.4, and it is also shown whenever you are looking for a file to open.

When you create a new database by utilising a copy of the format file of an existing one, the new database acquires the description of the original one, so change it in the About This Window dialog box to avoid possible confusion.

A new database created with a newly designed native format will have no description to start with.

Changing the appearance of a new database

Appearance attributes (font, size, colour, etc.) are stored in the definition of individual formats, and a new database utilising a copy of the format file of an existing one will consequently acquire all the appearance attributes of the original.

Appearance is described in Chapter 7.

A newly designed native format will initially have the default appearance attributes. If you want to change them, you can do so

- while still designing the format,
- when displaying a record of the newly created database.

You can use the formal procedure for changing the appearance in either case, but if you already have a database with an appearance you like, you can transfer that appearance to the new database, using the commands **Window, Give** or **Window, Fetch** described in Chapter 3.

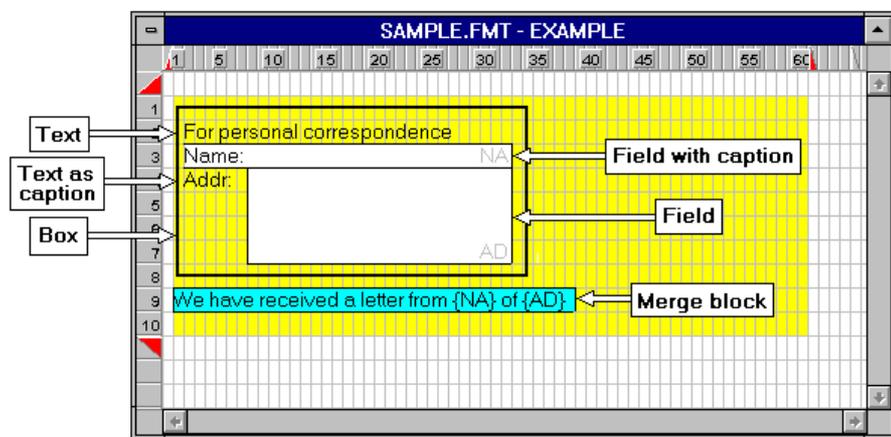
Chapter 23 –

Format design

Chapter 2 told you how formats let you split each Cardbox record into discrete items of information and define the way in which they are to be laid out on the screen and on the printed page.

In this part of the manual, we first define the basic elements of a format, show how they fit together in records of various kinds, and then explain in detail the definition of each element.

23.1 Main elements of a format



The main elements of a format are shown above. They are shown in the way that they appear in the **Format Design Window** when you edit the format.

In addition to the fields that you lay out in the format design window, you can also attach to your records *extra text*, for which you do not have to reserve any space in the format. You merely declare extra text as a property of the format in the way described in Chapter 26.

In the Format Design Window, Cardbox uses different coloured backgrounds to distinguish fields and merge blocks from the background. When you are displaying records, fields and merge blocks normally have the same colour as everything else, but you can choose to give them different background and foreground colours for greater contrast. For further details, see Appearance in Chapter 7.

Fields

See Chapter 25 for further information.

Name: <input type="text"/> NA	Name: Dr J.B. Harney , Woodfield Cottage, Churchland Lane, Slaidburn , Lancashire	Name: Dr J.B. Harney , Woodfield Cottage, Churchland Lane, Slaidburn , Lancashire
AD		

Fields are the areas in which data are entered and displayed. Each field has a name and can also have a caption. In this example we have given the fields 2-letter names (NA and AD) so that it is easier to type their names when searching. When looking at a record, these field names are not visible, but any captions that you may have designed are.

Merge blocks

See Chapter 27 for further information.

We have received a letter from {NA} of {AD}
We have received a letter from Dr J.B. Harney of Woodfield Cottage, Churchland Lane, Slaidburn, Lancashire.

Merge blocks are for data display only. They enable you to mailmerge the contents of fields with some standard text, and you can also use them to achieve other special formatting effects. Unlike fields, which display only as much text as their fixed size will allow, merge blocks can be allowed to expand to display the text in full.

Text

See Section 28.2 for further information.

For personal correspondence Name: <input type="text"/> NA	For personal correspondence Name: Dr J.B. Harney , Addr: Woodfield Cottage, Churchland Lane, Slaidburn , Lancashire	For personal correspondence Name: Dr J.B. Harney , Addr: Woodfield Cottage, Churchland Lane, Slaidburn , Lancashire
Addr: <input type="text"/> AD		

Text forms a part of the format background. In this example, we have entered "For personal correspondence" as a heading and "Addr:" as an external caption of the address field.

Lines and Boxes

See Section 28.1 for further information.

For personal correspondence	
Name:	NA
Addr:	
	AD

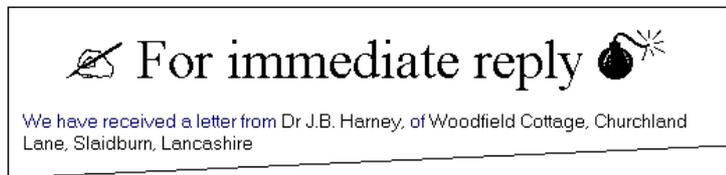
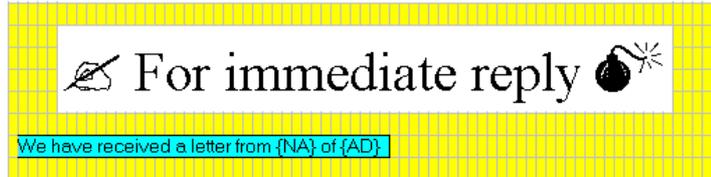
For personal correspondence	
Name:	Dr J.B. Harney ,
Addr:	Woodfield Cottage, Churchland Lane, Slaidburn , Lancashire

For personal correspondence	
Name:	Dr J.B. Harney ,
Addr:	Woodfield Cottage, Churchland Lane, Slaidburn , Lancashire

Lines or boxes can improve the clarity of presentation of your records.

Graphics

See Section 28.3 for further details.



You can paste graphics into the format from the Clipboard and use them either distinct features in the format or as background to fields.

Example

This would be a graphic

These could be standard fields in the format

This would be a merge block

This standard part could be either a merge block or fixed text in the format

This could also be a graphic



Hetman Industrial Limited

24 Knightsbridge London SW1E 6TG England Telephone 071 925 0637

Our Ref: HNI/FHT 22 April 1993

Miss Alison Benton
23 Chartwell Lane
Westerham
Kent SO8 6YH

Dear Miss Benton,

Following your interview with Gerald Smith, I have pleasure in confirming your appointment as Solicitor in our Patent Department with effect from 1 June 1993 at a starting salary of £36,000 p. a.

Our normal office hours are 9am to 5.30pm, 5 days a week with the exception of statutory holidays.

Please do not hesitate to contact me if you would like any further clarification of these terms, otherwise, I would be grateful if you would confirm your acceptance of this offer by signing the enclosed copy of this letter and returning it to me.

Yours sincerely,

Joy Reamlow
Personnel Director

This example shows how you can combine the various elements of a format to produce a letter complete with a heading of your own design.

Image fields

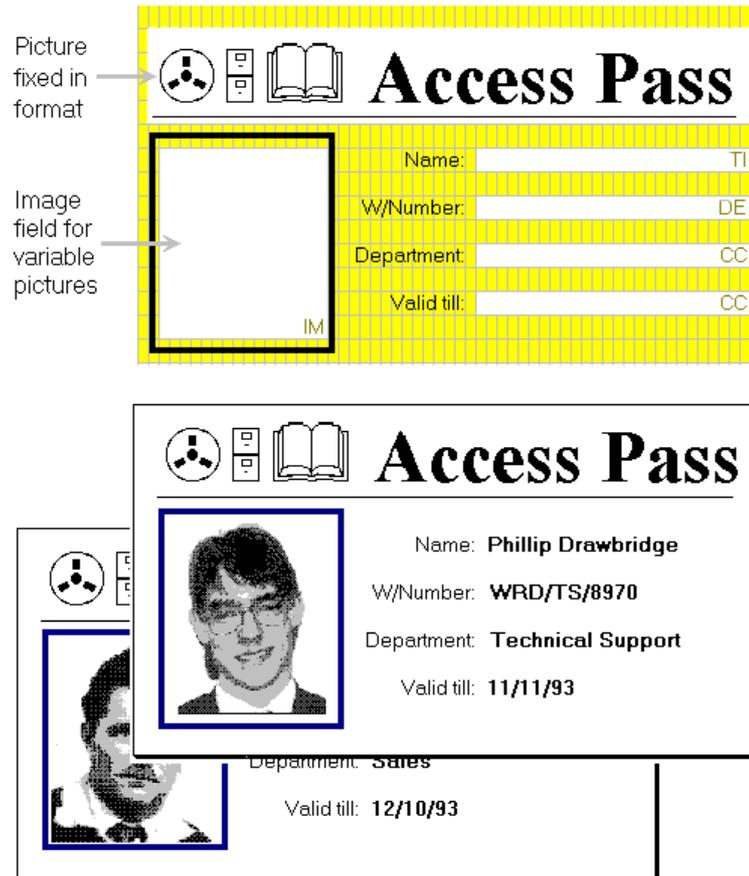


Image fields are described in Chapter 35.

Any pictures, graphs, documents, etc. stored with your records as images are displayed in a special field, called the *image field*.

Note the distinction between a picture pasted into the format as a graphic and a picture displayed in the image field. The former remains the same for all records, the latter varies from record to record.

Pushbuttons

See Section 28.5 for further details.

For quick access to special operations, you can design pushbuttons to be part of your fields. A pushbutton can perform a variety of actions when pressed: it can run a macro (see Chapter 37), it can run an external program, or it can send a message to an external program.

Headings and footings

You can include within a format definition also

See Section 28.4 for further details.

- page headings and footings, which can be line up with fields for a tabular output and which can consist either of plain text or of merge blocks incorporating some data from records, as well as date and time and page numbers.
- record continuation headings and footings which are of similar make-up but appear only if a record is printed over more than one page.

23.2 The native and alternative formats

You can define several record formats for a database, and they are all stored in the format file of the database. The first format that you create is *the native format* of the database; you can subsequently add other formats for special purposes, and those additional formats are called *alternative formats*.

The native format defines the basic structure of your records in terms of the fields into which you want to segregate the data.

- The native format is the first format that you create for a new database.
- It must contain all fields that you intend to use, and there are also some field attributes that you can define only in the native format.
- The size of fields in the native format is immaterial. You can use any format for the entry or display of data, and you can make the fields of appropriate size in the alternative formats designed for those purposes.
- If you intend to attach extra text to your database records, you must declare extra text in the definition of the native format.

Alternative formats give you additional flexibility in the presentation and output of records, and you will generally design each alternative format for a specific purpose.

- Each alternative format must have a distinct name.
- In an alternative format, you can use only the fields that have been defined in the native format, but you do not have to use them all, and you can give them a different position, shape and size. You can also change, add or omit field captions.
- You can insert fields into merge blocks to mailmerge their contents with some standard text, or to compile mailing labels.

You can assign to each format, native or alternative, the following attributes:

Appearance attributes	defining the font and size, text and background colours, etc., which should be used for screen display (Chapter 7).
Printer settings	defining how records printed in the given format should be laid out on the page (Chapter 30).
Description	conveying the purpose of the format, its properties, or the required printer settings (Section 23.3)

23.3 Creating and editing formats

The Format Design Window, and the things that you can do within it, are described in Chapter 24.

To create the native format

Use **File, New** to create a new database.

Use the Format Design Window to define the layout of the new format.

Use **File, Save** to save the newly designed native format.

Cardbox will ask you for a filename for the new format file. It will then create a new format file containing your new native format; create a new database to go with it; and present you with an empty record so that you can start entering data.

To create an alternative format from scratch

Use **Edit, Format, New** to create a new format.

Use the Format Design Window to define the layout of the new format.

Use **File, Save** to save the newly designed format. Cardbox will ask you what name you want to give to this new format.

Cardbox will display your existing data in the new format.

To create an alternative format by modifying an existing one

Use **View, Change Format** to display the format that you want to use as a basis for the new format.

Use **Edit, Format, Duplicate** to create a copy of the current format.

Use the Format Design Window to define the layout of the new format.

Use **File, Save** to save the newly designed format. Cardbox will ask you what name you want to give to this new format.

Cardbox will display your existing data in the new format.

To modify an existing format (native or alternative)

Use **View, Change Format** to display the format that you want to edit.

Use **Edit, Format, Edit** to start editing this format.

Use the Format Design Window to alter the format.

Use **File, Save** to save the changes you have made.

Cardbox will display your existing data in the changed format.

Command menus in format design



Most menus applicable in format design have the same names as in operations on database records, but they naturally contain different sets of commands.



File	
Open...	
Save	Ctrl+S
Save as...	
Quit without saving	
Print this format...	
Close	Ctrl+F4
Exit	Alt+F4

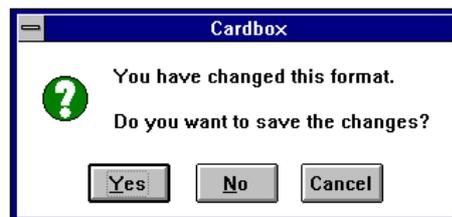
Open still lets you open a new database window in the normal way.

Save saves the format being edited under the existing name, and **Save as** under a new name.

Quit without saving discards the changes made in the format.

Print this format prints an image of the format with a full list of fields and format properties.

Close closes the Format Editing window, leaving the database window open, and **Exit** closes Cardbox. If you issue either of those commands when there are unsaved changes in the format, Cardbox will give you a chance to save the changes.





Edit	
U <u>ndo</u>	Ctrl+Z
D <u>elete</u>	Del
S <u>elect All</u>	Ctrl+NumPad 5
E <u>dit item</u>	Enter
I <u>tem properties...</u>	Alt+Enter
F <u>ormat properties...</u>	
P <u>rinter settings...</u>	

Undo cancels the last change you made in the format.

Delete deletes the currently selected item

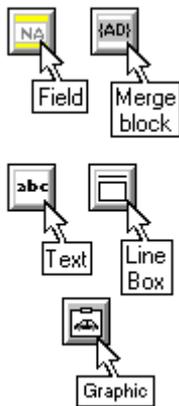
Select All selects all items in the format. Use this command if you want to move the entire format to a new position in the Format design window.

Edit item applies to the currently selected item and lets you edit the text associated with the item, including captions in fields.

Item properties also applies to the currently selected item and opens the appropriate Properties dialog box for the item. We describe these dialog boxes individually for each type of format items.

Format properties lets you enter the format's description as well as the various properties which we discuss in this chapter.

Printer settings are described in Chapter 30.

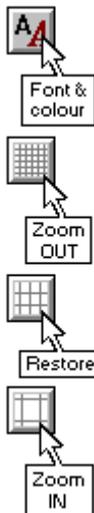


Insert	
F <u>ield...</u>	Ctrl+F
M <u>erge block</u>	Ctrl+M
T <u>ext</u>	Ctrl+T
L <u>ine or box</u>	Ctrl+L
P <u>aste Graphic</u>	Ctrl+G

As described in Section 23.1, this menu lets you choose the item to insert in the format. When designing an alternative format, you will find **Field** dimmed once you have inserted in the format all fields defined in the native format.

Insert	
F <u>ield...</u>	Ctrl+F
P <u>age number</u>	
R <u>ecord number</u>	
N <u>umber of records</u>	
D <u>ate or time...</u>	
I <u>D</u>	

When you edit a merge block, the Insert menu gives you a selection of the parameters that you can insert in the block. A detailed description of merge blocks is in Chapter 27.



View	
Appearance...	Ctrl+A
Sequence of fields...	
Zoom:	
1.	÷2
2.	÷1½
√ 3.	Actual size
4.	×1½
5.	×2
Printable area	

Window	
Cascade	Shift+F5
Tile	Shift+F4
Update	F9
1	CONTACT.FIL
√ 2	CONTACT.FMT

Appearance This command lets you change fonts, colours, etc., in the way described in Chapter 7.

Sequence of fields is explained in Section 29.1.

Zoom enables you to view the format in reduced or enlarged size; it is applicable mainly to large formats and is described in Section 29.3.

Printable area shows you how a record printed in the current format will fit on the printed page with the current printer settings. See Section 31.5.

Apart from the standard Windows commands and a list of the currently open windows, this menu provides the **Update** command which enables you to monitor the effects of changes in the format in the way described in Section 23.3.

Dialog boxes in format design

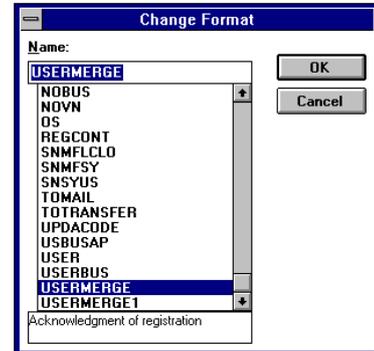
We describe the various dialog boxes that you may encounter in format design in the order in which they may appear.

Change Format

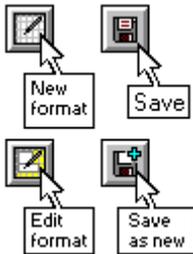
To edit an existing format or to create a new format based on an existing one, you must display records in the format which you want to edit or duplicate.

To change the format,

- Open the **View** menu and choose **Change Format**.
- Select the required format in the View Format dialog box shown here.



Save As



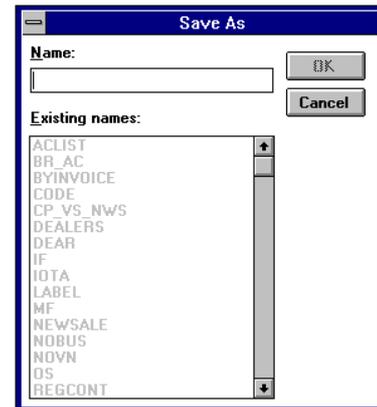
This dialog box appears in response to the commands:

Save when you edit a new format, and

Save as ... when you want to create a duplicate of the format you are editing.

It lists the existing format names and provides a text box in which you can enter the new format's name.

You can also save the new format under an existing name, but in this case Cardbox will ask you for confirmation that the existing format can be overwritten.



Save/Update Format

Cardbox checks the format before saving it or applying it to the database window, and it would report the following conditions in the Save/Update dialog box:

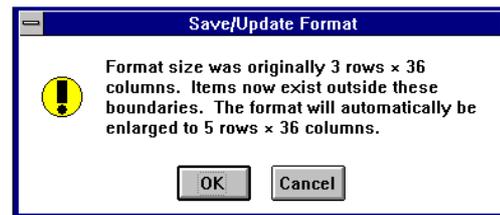
- **Overlap**

Fields must not overlap anything, and you will have to clear the overlap before saving the format. Further details are in Chapter 25.



- **Items outside boundaries**

This is only a warning, in case you left some items in a temporary position. If this is not the case, you can let Cardbox enlarge the format automatically. Further details are in Chapter 24.



Progress update

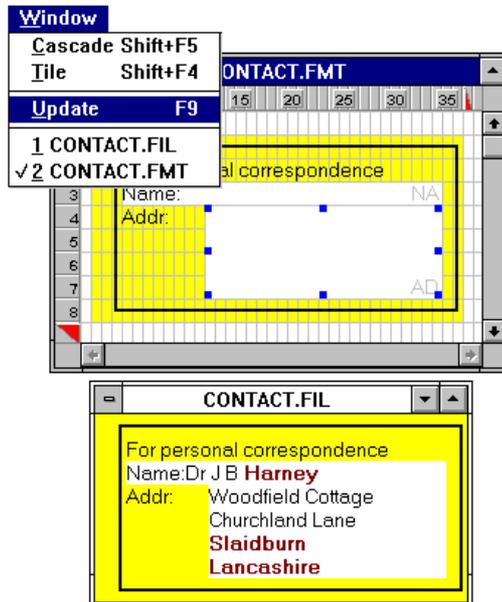
If you are doing a complex format design, you may well want to see what a record would look like if displayed using the format you are designing. You could always do this by saving the format, having a look at the result, and editing it again; but there is a quicker alternative.

When you issue the command to edit a format, Cardbox usually opens the Format design window on top of the corresponding database window. If you have enough room to display both windows, then you will be able to see the effects of changes in the format on the appearance of your records, without having to save the modified format.

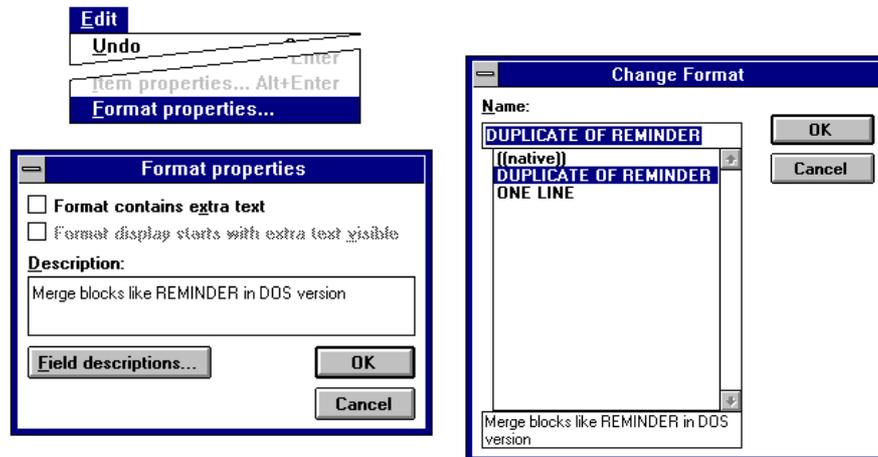
- To update the database window, select **Window**, **Update**, or just press F9.

These updates do not take you out of the Format design window, so you can carry on editing the format after each update.

If the database window is obscured by the Format design window, Cardbox will still update it, but to bring it into view, you will either have to toggle through the windows using CTRL+F6 or select each window in turn in the list in the **Window** menu.



Format description



Apart from using the name of the format to indicate its purpose, you can also add a short description as part of the format's properties, in the way shown on the left above.

The format's description will be displayed in the Change Format dialog box, in which you select formats, and also in the About This Window box.

23.4 Deleting alternative formats



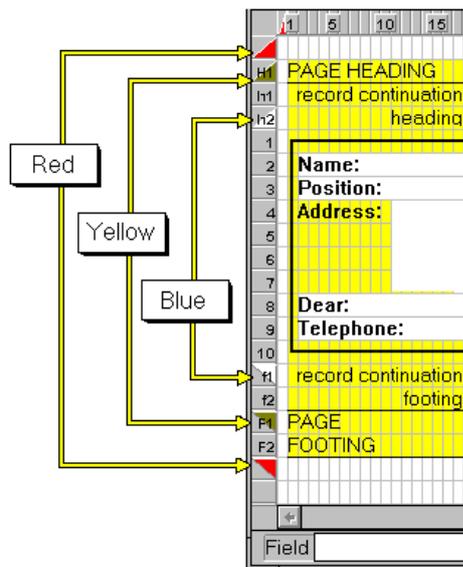
To delete an alternative format that you no longer want,

- choose that format in **View, Change Format**. You can double-check that you have chosen the right format by looking at the format name in the status line.
- Choose **Edit, Format, Delete**.

Cardbox will not let you delete the native format.

To restore the last format deleted in the current session,

- Choose **Edit, Format, Undo deletion**.



The red boundary slides delimit the size of the format.

You can optionally split each of the vertical boundary slides into three, to provide space for:

- a page heading and footing, in the space between the red and yellow slides
- a record continuation heading and footing, in the space between the yellow and blue slides.

The way in which you can split the slides is described later in this chapter.

Format size and boundaries

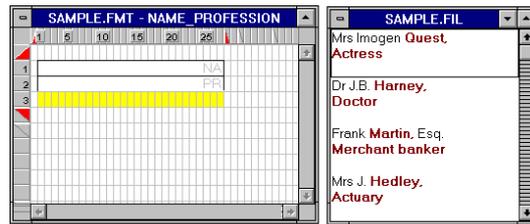
There is no practical limit on the size of the format that you can design - its width and depth can extend over several windows.

Appearance control is described in Chapter 7.

The size of the format is measured in rows and columns along the scales laid out between the boundary slides. Each row represents one row of type in the currently selected font, and one column represents the width of one character. In a variable-pitch (proportionally-spaced) font, the characters are, of course, different widths ("i" is the narrowest, "M" the widest): by default, Cardbox uses a column width somewhat wider than an average character, but you can adjust this using the Grid Spacing control that is part of the Appearance attributes of the format.

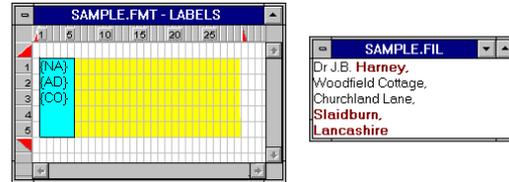
The area of the format within the red slides determines the size of records as they will appear in display and print.

In this example, the lower vertical slide leaves an empty line below the two fields, so records will appear with a blank line between them.

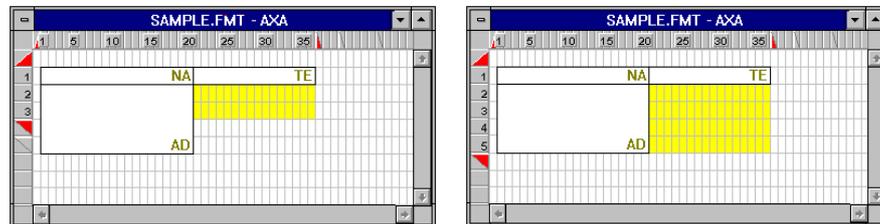


Merge blocks are described in Chapter 27

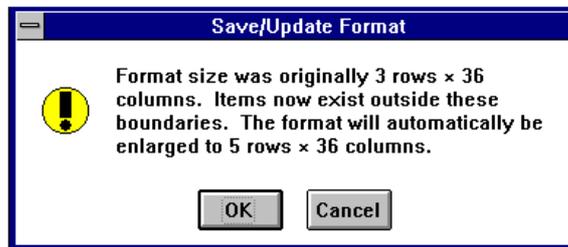
In this example, the right horizontal slide determines how far the merge block for a label can expand horizontally, and this will be the width of the label.



Automatic format enlargement



You can position items outside the boundaries when you design a format, but Cardbox will refuse to save such a format unless you let it enlarge the format to include those items. It will do so by moving the appropriate boundary slide for you.



Enlarging the format by moving the boundary slides

A new format starts with the initial size of 1 row by 1 column. If you want to define the format size yourself, rather than let Cardbox adjust it when you save the format, you can do so by moving the boundary slides.

Note You may need to scroll the window to see the slide you want.

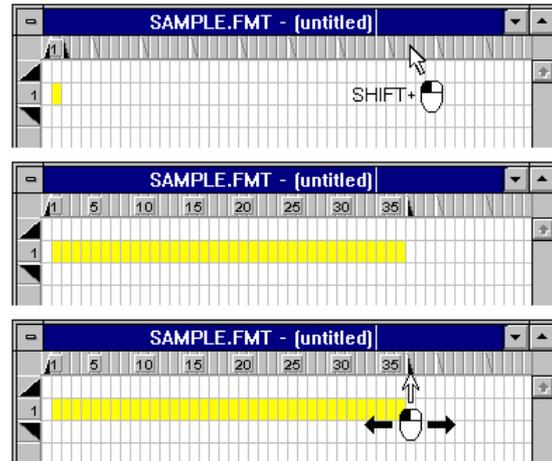
Extending the format within the Format Design window

To move the outer slide to a new position outside the current format boundary:

- point to the required position along the scale bar, hold down SHIFT and click. The slide will move to the new position.

To adjust its position either way:

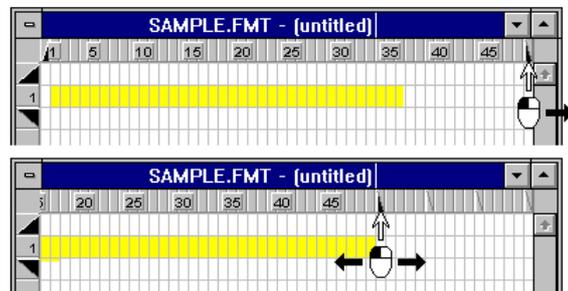
- point to the slide to make the cursor change to a sharp-pointed arrow, and drag the slide to its new position.



Extending the format beyond the Format Design window

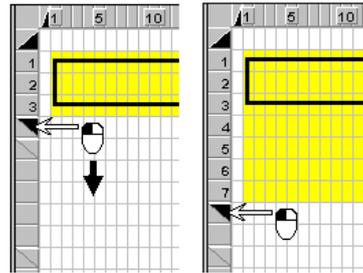
To extend the format boundary outwards:

- drag the slide to the edge of the window; the format and the scale will scroll inwards, giving you room for a further extension of the boundary.



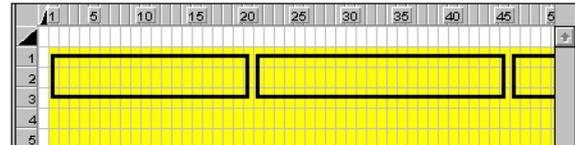
You can use the same technique to extend the format below the existing boundary or below the lower edge of the Format design window.

In this case, drag the slides along the vertical scale, again using the left mouse button.



Extending the format inwards of the existing items

Cardbox never leaves the inner slides far away from the top left-hand corner of the Format Design window; all that it leaves is one empty row and column.



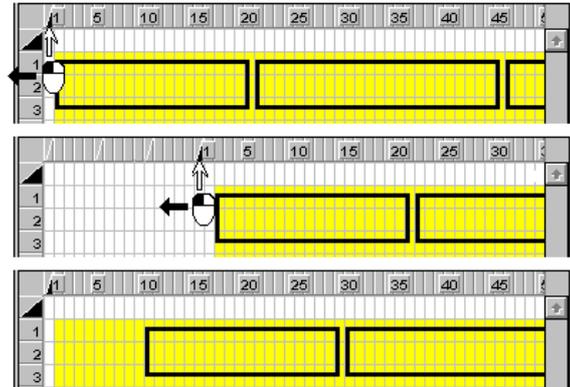
Consequently, you must create the necessary space if you want to insert larger items above or to the left of those already existing close to the boundary.

The easiest way to create this extra space is to move the inner slides away from the existing format items. To do so,

- drag the left slide towards the edge of the window.

Cardbox will scroll the format and the scale to the right, inserting a column to the left of the format and giving you room to move the slide further to the left.

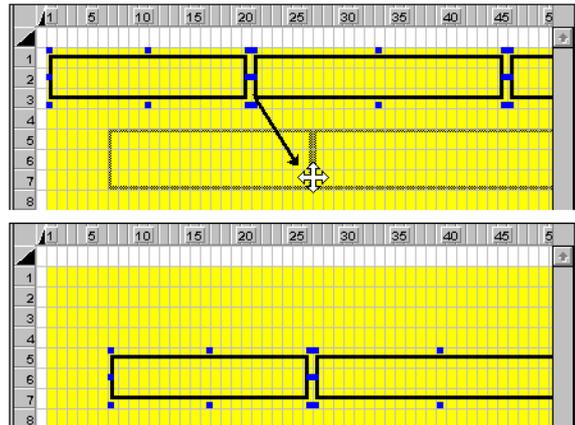
- Move it as far as you need to, and release the mouse button.



You can use the same technique to add empty rows above the existing format. In this case, drag the top slide on the vertical scale towards the top of the Format Design window.

Alternatively, you can move the existing format items away from the corner, as a block.

Here is an illustration of how you can do this.



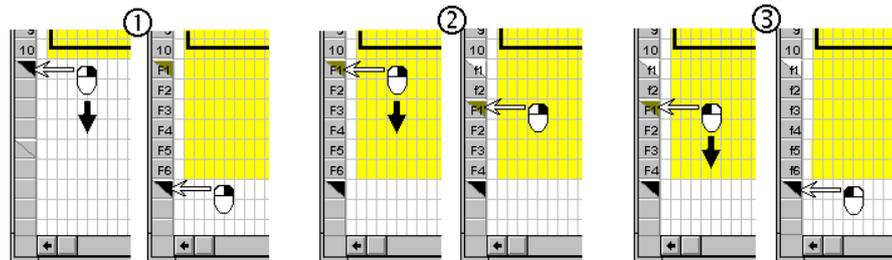
Creating space for headings and footings

There are two kinds of headings and footings:

- **Page headings** appear at the top of every printed page. You can also get them to appear at the top of the window when you are displaying records. **Page footings** appear at the bottom of every printed page.
- **Record continuation headings** apply only to large records that are split across page boundaries, and appear at the top of the *second and subsequent* printed page of such records. **Record continuation footings** similarly appear at the bottom of each printed page of a split record *except the last*.

To create a heading or footing, you have to reserve space for it and then put some items into that space, in the way described in Section 28.4.

To make space for headings and footings, you split the red slide at the top or bottom of the record. Here, for example, is how to split the slide at the bottom to define the space for footings.

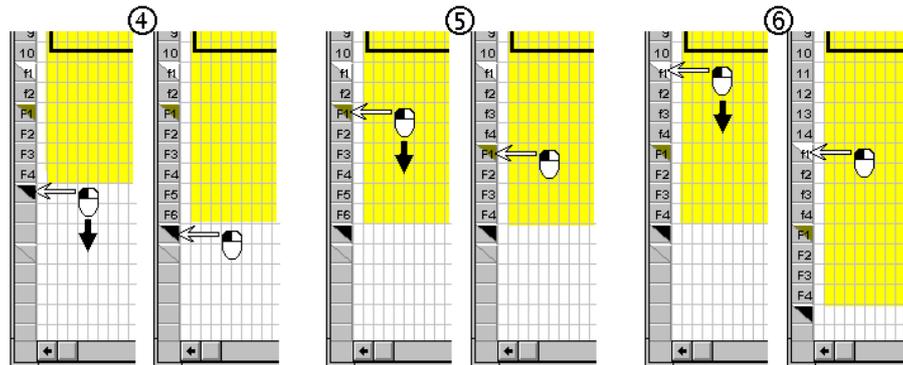


1. To create space for a page footing, bring the cursor to the lower slide and drag it down, using the **right** mouse button. A yellow slide will be left behind: this marks the top line of the footing. The rows of the page footing are numbered F1, F2, etc.

2. If you want a record continuation footing, drag the yellow slide next, again using the *right* mouse button. This will leave a blue slide behind, which will mark the first line of the record continuation footing. The lines will be numbered f1, f2, etc.
3. If you only want a record continuation footing and not a page footing, now drag the yellow slide until it disappears under the red one (use the *left* mouse button).

You can change the positions of the three coloured slides by dragging them (using the *left* mouse button as in normal dragging).

4. By dragging the red slide, you change the depth of the page footing.
5. By dragging the yellow slide, you transfer rows between the page footing and the record continuation footing, keeping their combined depth unchanged.



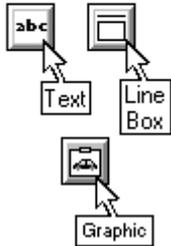
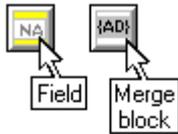
6. By dragging the blue slide, you increase the depth of the format, leaving the combined depth of the footings unchanged.

You can create page headings and record continuation headings in just the same way as footings, but using the slide at the top of the format rather than at the bottom.

Summary

- You must first create the space for a page heading or footing before you can create the space for a record continuation heading and footing.
- The left mouse button moves slides, the right button splits them.
 - Red splits into red and yellow,
 - Yellow splits into yellow and blue.

24.1 Defining format items



Format items fall into the main types described in Section 23.1, and the basic steps in their definition are the same for all of them. We describe those common steps in this section, and specific properties of each type are described under separate headings later in this manual.

Inserting format items

To insert an item in the format, select the appropriate command in the **Insert** menu. Lines and boxes share the same command because a line is basically a one-dimensional box

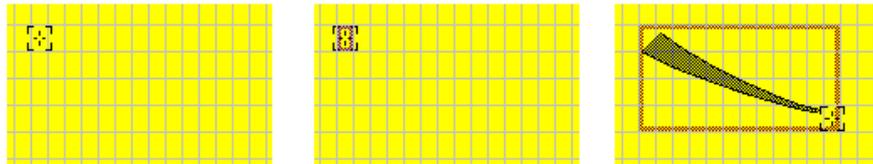
Insert	
Field...	Ctrl+F
Merge block	Ctrl+M
Text	Ctrl+T
Line or box	Ctrl+L
Paste Graphic	Ctrl+G

Fields can be inserted only in the main format area. Other items can be inserted into any part of the format, including the spaces allocated to headings and footings.

You can insert a graphic only from the Clipboard, and the **Paste graphic** command will be dimmed if the Clipboard is empty.

Marking out the position and size

Once you have selected an item to insert, the cursor will change to a small bright box (as shown below), and the status bar will remind you which item you are about to insert. The status bar also shows the current cursor position.

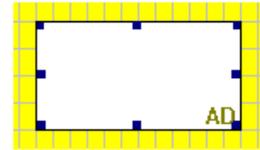


Position the cursor where you want the item to be inserted and depress the left mouse button (a small dark rectangle will appear under the cursor). Drag the cursor until the rectangle reaches the shape and size you want, then release the button.

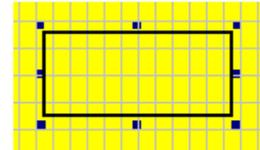
Note: Inserting a text item is a little different: you just click the mouse, and then type the text. For more information, see Section 28.2

What you see next depends on the item you are inserting into the format.

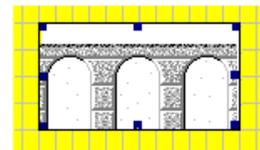
Field When inserting a field into an alternative format, you will next see the field as shown in this example. When creating a new field in the native format, Cardbox will first ask you for its name and some other details. See Chapter 25.



Line or box On releasing the button, you will see a box, as illustrated. To draw a line, drag the cursor along the same row or column. You can build up a box from individual lines; but you will have to move or delete each line individually.



Graphic or pushbutton A graphic stored as a bitmap on the Clipboard will appear in the rectangle you have drawn. To avoid distortion, make sure that the rectangle has fairly close proportions to the graphic.



See Section 28.3 for an explanation of the term *Foreground picture* and of the way in which you can change it into a background picture for fields.

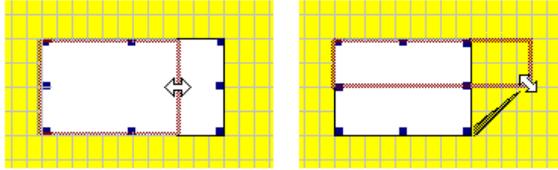
Selecting items

To perform any editing operation on an item, you have to select it. To do so, just click on the item on the screen.

- **Left click** will display the item with sizing handles, as shown for a field, box and picture in the last section above. The use of sizing handles is described below.
- **Right click** will additionally open a dialog box for setting the item's properties, which give you extra control over the item's appearance and behaviour.

As an alternative, you can select a field by clicking on its name in a drop-down list. You can also select whole groups of items, to move them or delete them, in the way described in Section 29.2.

Resizing items

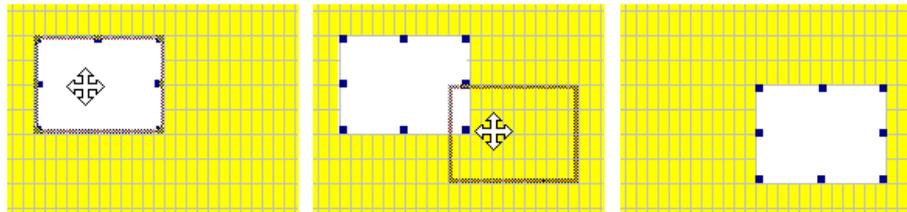


To resize an item, select it so that it has sizing handles. Move the cursor onto one of them, and it will change shape to a double-headed arrow. Drag the arrow to change the outline of the item as required, then release the mouse button.

You can move a mid-side sizing handle only at right angles to the side, but you can move a corner handle in any direction to change the shape of the item as you require.

For text items, the squares are not sizing handles (text items size themselves according to the text they contain) but act as anchor points in alignment. See Section 28.2 for further details.

Moving items



To move an item, point to it and depress the left mouse button. The cursor will change shape to a four-headed arrow; drag the arrow with the outline of the item to the required position, then release the button.

When moving a box, you must point to one of its edges.

Deleting items

To delete an item, select it and press Del or select **Edit, Delete**. This applies to any item, including text.

Edit	
U <u>ndo</u>	Ctrl+Z
D <u>elete</u>	Del
S <u>elect A</u> ll	Ctrl+NumPad 5
E <u>dit</u> item	Enter
I <u>tem</u> properties...	Alt+Enter
F <u>ormat</u> properties...	
P <u>rinter</u> settings...	

Undoing changes

To undo the latest move, resizing or deletion of an item, press CTRL+Z or select **Edit, Undo**.



Chapter 25 –

Fields in formats

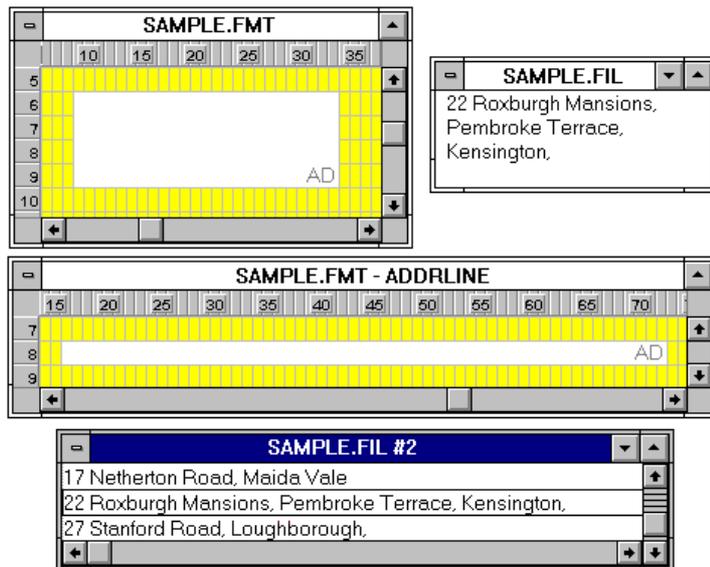
Fields are the areas in which you enter and display data. In this chapter we deal only with fields containing textual data.

You can divide records into any number of fields, and there is no practical limit on the size of any field. The number and size of fields has no bearing on the disk space required to store your database, which depends only on the amount of text that the database contains.

The properties which you define for each field are described below, and the procedures for defining fields and setting their properties are explained in later sections of this chapter.

Position and size

- Each field in a format occupies a separate rectangular area, not overlapping any other field or format item.
- The size of the field does not restrict the amount of data that you can enter in it, only the amount that can be displayed without scrolling .
- The shape and size of any given field can be different in different formats.

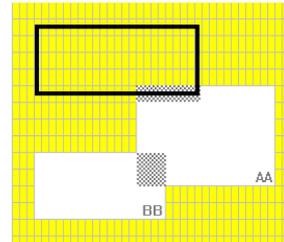


Multi-line fields

If you want to enter text in separate lines, as in the address field in this example, then make the field as deep as necessary. In a single-line field, you can enter only one line of text, with horizontal scrolling if necessary, so when you display multi-line text in a single-line field, all lines of text are put together into one long line.

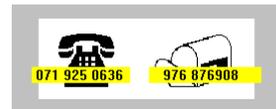
Overlap

Each field must occupy an area of its own, without overlapping any other item. An overlap is indicated in the Format Design window by a pattern of dots, usually red. This picture illustrates an overlap between fields AA and BB, and between field AA and the box.



Cardbox does not object to overlapping fields while you are designing a format, but will refuse to save the format until you clear the overlap.

Overlap is allowed between items other than fields, and you can also put a field on top of a background graphic - see Section 28.3.



Name and description

- Each field must have a name, which must be at least 2 and 64 characters. This name is used to identify the field in searches and sorting.
- The name is specified in the native format and it applies in all formats.
- Each field can have a short description as well as a name. The description is optional; you define it in the native format and is intended to help you identify the field in drop-down lists.

NONAME1	Name of contact
POSITION_IN_COMPANY	
CO	Name of organisation
AD	
C1	

- As you insert a new field into the native format, Cardbox tentatively assigns to it a name consisting of the word NONAME plus a number, and you can, if you like, let the field keep that name and give it a description to tell you what the field contains.

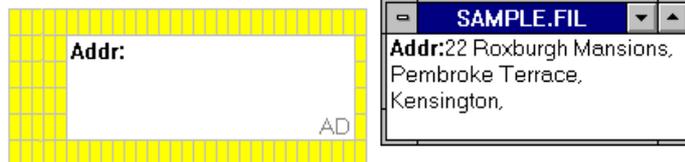
- The field name does not appear when you are browsing through records, but it is displayed in the status bar when you edit a record.



It is generally a good idea to give a field a short name and then a longer, more informative description. This saves typing if you ever want to type a field name for a search (though Cardbox never *makes* you do this) and lets you see more information in the drop-down lists of fields that Cardbox presents. You can, if you want, give the field a longer name and not bother with a description.

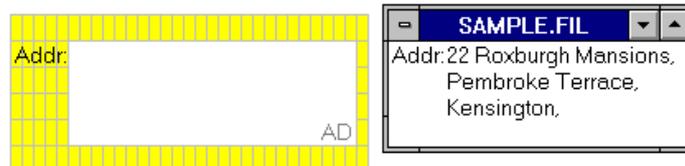
Captions

- A short caption can be inserted at the beginning of the field to identify its contents during data entry and display.
- You can use different captions for the same field in different formats.



See
Appearance
in Chapter 7

The caption occupies the same space as the text of the field, but you can use a different colour or typeface, in order to distinguish it from the text.



In multi-line fields, it is better not to give the field a caption, because it will push the first line of text to the right. To keep a neat left alignment of text in a multi-line field, put a text item into the format, next to the field.

Indexing mode

- The indexing mode helps you control the way in which text in the field is indexed.
- You specify each field's indexing mode in the native format, and it applies to the field in all formats.

You have a choice of four modes.

None	Nothing in the field can be indexed.
Manual	Indexing of text entered from the keyboard is in this mode left to you. Nothing you enter will initially be indexed, but you can change a word from unindexed to indexed (and back again) by pressing the CONTROL key or by clicking the right mouse button when the cursor is on the word or immediately by it.
Automatic	This works just like Manual, except that words entered from the keyboard start by being indexed.
All	Everything in the field will be indexed, and you cannot change this.

25.1 Creating fields in the native format

Insert	
Field...	Ctrl+F
Merge block	Ctrl+M
Text	Ctrl+T
Line or box	Ctrl+L
Paste Graphic	Ctrl+G

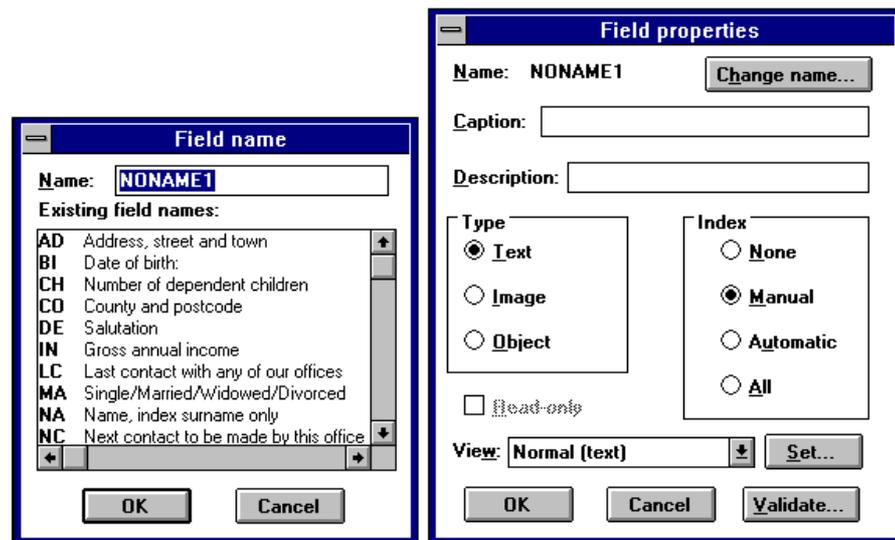
Field	
	Add a new field
<input checked="" type="checkbox"/>	NA Name, index surname only
<input checked="" type="checkbox"/>	AD Address, street and town
<input checked="" type="checkbox"/>	CD County and postcode
<input checked="" type="checkbox"/>	DE Salutation
<input checked="" type="checkbox"/>	TE Telephone/Fax
<input checked="" type="checkbox"/>	BI Date of birth:



To create a new field in the native format,

- choose **Field** in the Insert menu, or press CTRL+F
- alternatively, open the Field drop-down box in the status bar and select Add a new field.

In response, Cardbox will change the cursor to a small bright box, with which you define the position and shape of the field in the way described in Section 24.1.

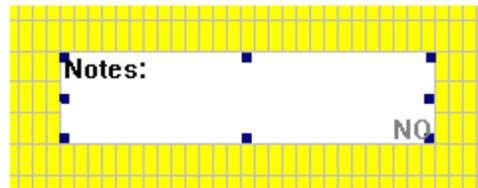


Once you have marked out the field in the format, Cardbox will display these two dialog boxes, in which you can change the field's name to a name of your choice, add a description of the field and set its indexing mode in the way described earlier in this chapter.

If you want the description of the field to be the same as its caption, then enter the caption only and leave the description box blank.

The View box and the associated Set button apply to the special user interfaces such as radio buttons and check boxes, which we describe in Chapter 29. Validation is described in Chapter 36. In version 2.0 of Cardbox, the Field Properties box also has an Appearance button to let you specify a separate appearance for an individual field, overriding the appearance of the format as a whole.

Having set the field's properties, choose OK, and the field will appear in the format with sizing bars, which enable you to adjust its shape and size, if required.



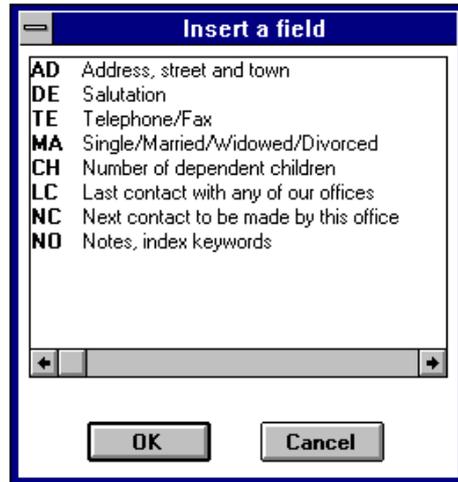
25.2 Inserting fields in alternative formats

Insert	
Field...	Ctrl+F
Merge block	Ctrl+M
Text	Ctrl+T
Line or box	Ctrl+L
Paste Graphic	Ctrl+G

To insert a field in the alternative format,



- choose **Field** in the Insert menu, or press CTRL+F. In response, Cardbox will list the fields which exist in the native format but are not yet present in the current alternative format.
- Alternatively, open the Field drop-down list, which will show all fields in the native format, with check marks indicating the fields which are also present in the current alternative format.

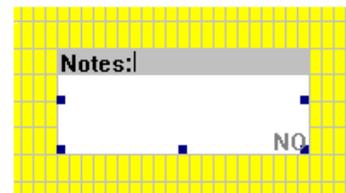


Field	
<input checked="" type="checkbox"/>	NA Name, index surname only
<input type="checkbox"/>	AD Address, street and town, county in a sepa
<input checked="" type="checkbox"/>	CD County and postcode
<input type="checkbox"/>	DE Salutation
<input type="checkbox"/>	TE Telephone/Fax
<input checked="" type="checkbox"/>	BI Date of birth:
<input checked="" type="checkbox"/>	SX Sex

Select the field you want to insert and mark out its position and size in the way described in Section 24.1.

The field will be inserted in the format with its name, description and indexing mode as defined in the native format, but it will have no caption until you give it one.

If you want to enter a caption right away, then press ENTER; the first line of the field will change colour and display the insertion point. Having entered the caption, press ENTER again or just click anywhere in the format.



Setting field properties

The Field properties dialog box was shown earlier in this chapter for the native format, and this is what it looks like for an alternative format. You can open this dialog box in the way described in the next section.

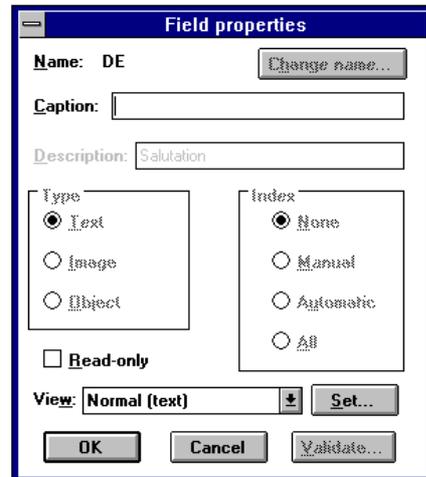
The dimmed options are those which you can set only in the native format, but you can set the following:

Caption which can be different from that in the native format or omitted altogether.

Read-only restriction can be imposed only in an alternative format.

Appearance (*Cardbox version 2.0*) to give the field an appearance different from the format as a whole.

View options for special user interfaces can be set independently for each format, so you can use radio buttons or check boxes in some formats and plain text in others.



25.3 Changing field properties

The properties which you can define for a field in an alternative format can be changed quite freely, but a change of certain properties definable in the native format requires some care.

Field name You can change a field's name in the native format, and it will be automatically changed also in all alternative formats and merge blocks. But it will not be changed in any macros that refer to the field, and you will have to make any necessary changes yourself.

Caption Field captions can be changed freely, independently in each format.

Field description You can change the field descriptions either for individual fields by opening the Field properties dialog box for the field when editing the native format, or review the descriptions of several fields in one operation, in the way described below.

Type You should not attempt to change the type specification once you have data in the database. You can specify only one field as the image field in a database.

Index A change of the indexing mode of a field does not affect the existing text, it will only affect the indexing of the text that you enter in the field afterwards. If you want to change the indexing of the existing text to correspond to the new indexing mode, then refer to the section *Alter field index etc.* below.

Access to field properties

- To open the Field Properties dialog box for a field, right click on it.
- To access the caption for editing directly, double click on the field.

Alternatively, click on the field to select it, then

- press ENTER or choose **Edit, Edit item** to edit the caption, or
- press ALT+ENTER or choose **Edit, Item properties** to open the Field properties dialog box for the field.

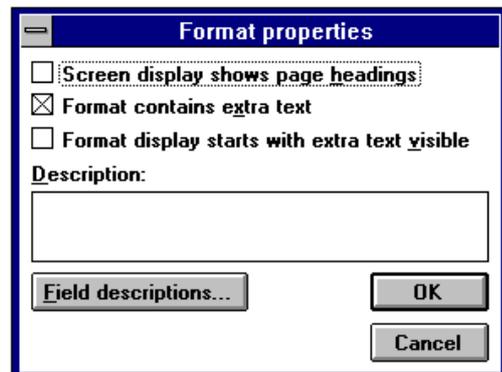
Edit	
U <u>ndo</u>	Ctrl+Z
D <u>elete</u>	Del
S <u>elect All</u>	Ctrl+NumPad 5
E <u>dit item</u>	Enter
I <u>tem properties...</u>	Alt+Enter
F <u>ormat properties...</u>	
P <u>rinter settings...</u>	

Reviewing field descriptions

The Field properties dialog box enables you to change the description of the currently selected field. If you would find it easier to review the descriptions of fields when you can see several of them at once, then proceed as follows.

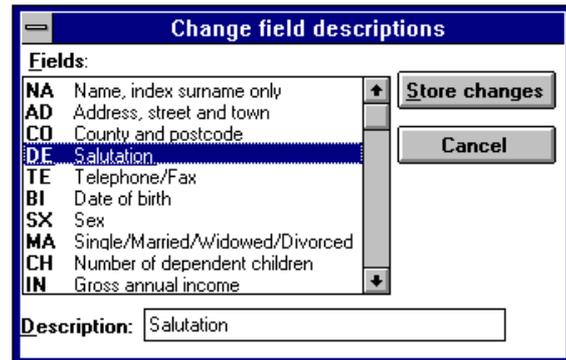
When editing the native format, choose **Format properties** in the Edit menu; this command will open the dialog box shown on the right.

Next, choose **Field descriptions** to open the Change Field Descriptions dialog box shown below.



To change the description of a field, select it in the list and edit its description in the text box below the list. To transfer the changed description to the list, press ENTER or just select any other field in the list.

Finally, choose Store changes.



After altering the index mode

Here are some notes on what happens when you change the indexing mode of a field.

Changing indexing to Manual or Automatic

Nothing happens to existing text. You can control the indexing of text that you enter in the future, or alter the indexing of existing text.

Changing indexing to All

All text that you enter in future will be indexed. Some records that are already in the database may contain unindexed text in this field (because that text may have been entered when the indexing mode was not All). There are two ways in which you can resolve this situation:

- When you edit a record, go to this field, and press CTRL, or click with the right mouse button, or use the command **Edit, Index on**. Any of these actions will make sure that the whole of this field is indexed.
- Alternatively, use the command **File, Utilities, Adjust indexing** in the way described below.

Changing indexing to None

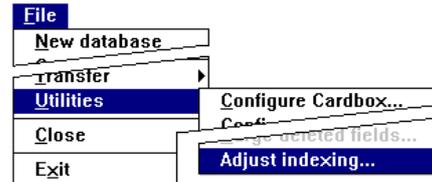
None of the text that you enter in future will be indexed. Some records that are already in the database may contain indexed text in this field (because that text may have been entered when the indexing mode was not None). There are two ways in which you can resolve this situation:

- When you edit a record, go to this field, and press CTRL, or click with the right mouse button, or use the command **Edit, Index off**. Any of these actions will make sure that the whole of this field is unindexed.
- Alternatively, use the command **File, Utilities, Adjust indexing** in the way described below.

Adjusting indexing of existing text

To adjust the indexing of the existing text in fields whose indexing mode you changed to All or None,

choose **File, Utilities, Adjust indexing.**



This command will scan the whole database and make sure that all text is indexed in fields whose indexing mode is All and all is unindexed in fields whose indexing mode is None. It is much faster than editing or batch-editing the whole database.

25.4 Deleting fields

WARNING Deletion of a field in the native format may lead to an unrecoverable loss of data stored in that field.

To delete a field in a format, select it and press the DEL key or choose **Delete** in the **Edit** menu. The command erases the field in the Format Design window.

Wider effects of the deletion depend on whether you have deleted the field in an alternative format or the native format.

Field deleted in an alternative format

Effect on stored data

Deletion of a field in an alternative format does not have any effect on the stored data.

Effect on searches

Since you can perform index searches on all fields, regardless of which fields are in the format, deletion of a field has no effect on index searches.

Reinstatement of the field

To reinstate a deleted field, insert it again in the normal way.

- If you have not saved the format since deleting the field, the field will be reinstated with its original caption.
- If you have saved the format since deleting the field, the original caption will not be restored.

Field deleted in the native format

When you delete a field in the native format,

- it is deleted also in all alternative formats,
- all references to the field are erased in merge blocks.

Effect on stored data

Deletion of a field does not have an immediate effect on the data stored in it. Whenever you edit a record and save it, data will be lost from the deleted field *in that record*.

Effect on searches

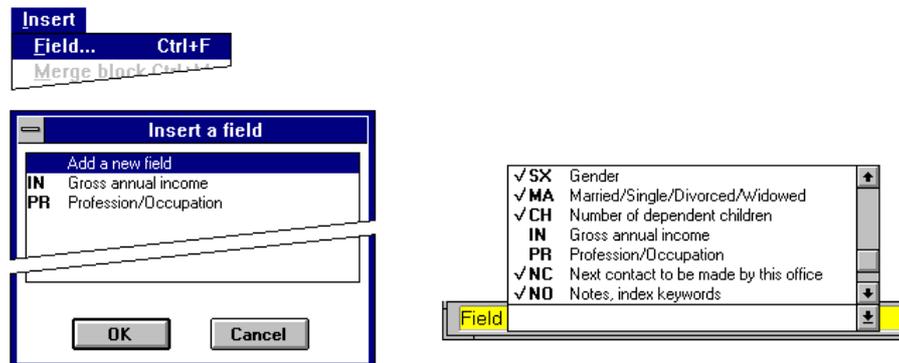
You cannot perform any searches on deleted fields.

Effect on new fields

Until you explicitly purge deleted fields in the way described in the next section, you cannot assign their names to a new field.

Reinstatement of deleted fields

Until purged, deleted fields are listed in the Insert a Field dialog box (native format only) and they are displayed without a checkmark in the list of fields at the foot of the Format Design window. You can select the field to reinstate in either list, and the contents of the field will also be restored except for the records which you edited when the field was deleted.



- If you have not saved the format since deleting the field, then it will be reinstated with its original caption and description.
- If you have saved the native format since deleting the field, it will be reinstated only with its original description, and the caption will be lost.

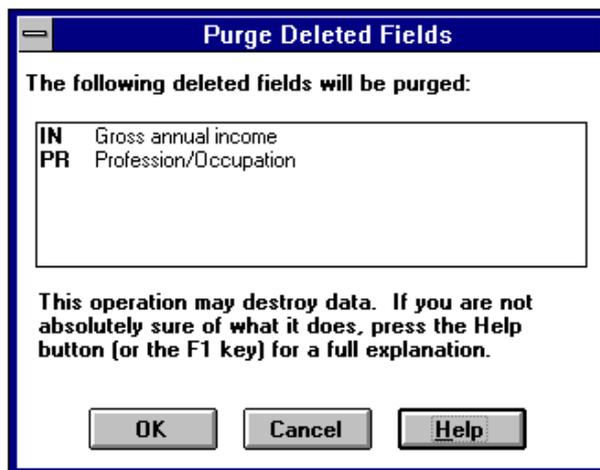
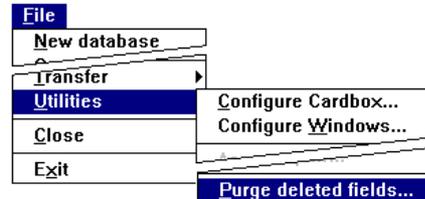
Purging deleted fields

If you are quite certain that you will not want to recover the data from the fields you have deleted, then you should purge them in order to:

- free the disk space occupied by the unwanted data, and
- avoid the spurious reappearance of the data in new fields that you may create in future.

The command to purge deleted fields is in the File, Utilities menu.

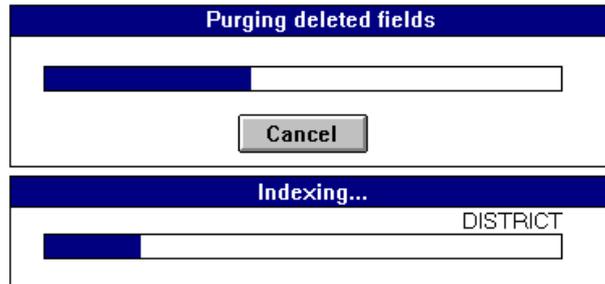
It reports the fields that will be purged in the dialog box shown below.



The command will purge all deleted fields, in the entire database regardless of the level of selections at which you enter it, as long as you let it proceed to its normal conclusion.

There are two stages involved in the purging of deleted fields, with the progress of each stage reported in the boxes shown below.

1. Erasure of data in the database file.
2. Removal of the relevant terms from the index.



Interrupting the purging of fields

The Cancel button in the first box above will interrupt the erasure of data, and Cardbox will then automatically remove from the index any terms have already been erased from the database file, without giving you any means to interrupt this stage. Completion of this stage is essential to preserve integrity of indexing.

Chapter 26 –

Extra text

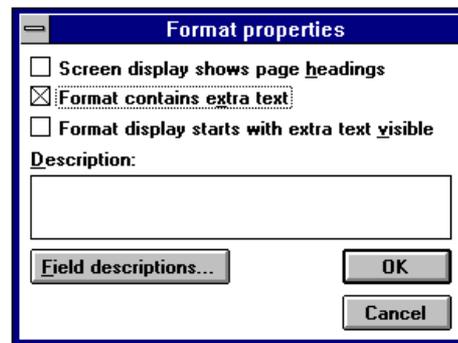
Extra text is like a continuation sheet attached to a record, but unlike a real sheet of paper, it has no definite length or width. You can make the extra text as long as you like, and it is automatically word-wrapped within the width of the window in which you enter or display it, and within the margins of the printed page.

Declaring extra text

If you want to attach extra text to records in your database, you have to declare it as a property of the native format. You can then make a similar declaration for every alternative format in which you want to display or edit extra text.

To declare extra text as a property of a format, edit the format, select **Edit, Format properties** and turn on the Format contains extra text check box.

If you want the format to start in "Split window" mode (see next page), turn on the Format display starts with extra text visible check box as well.



Properties of extra text

Extra text is essentially an additional field to the standard fields defined in the format. In terms of the properties of standard fields, the properties of extra text are:

Position and size

You do not have to define the position or size of extra text. It can be edited, displayed, and printed either on its own or with the associated record. In the latter case, extra text comes below the main record.

On the screen, extra text is formatted to fit the width of the window. When printing, you have the choice of making it as wide as the record or as wide as the margins of the printed page.

Name=**	In drop-down lists of fields and in merge blocks, extra text is identified by a double asterisk.
Caption	None
Description	None
Indexing mode =None	You cannot index anything, but you can still search extra text for specified words or phrases.

Extra text in record display

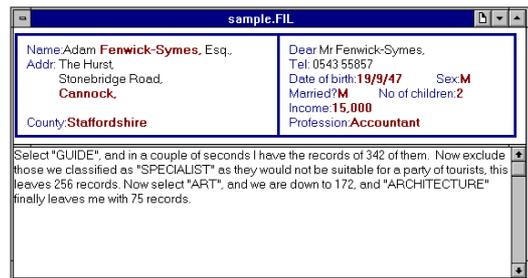
You can display extra text with or without the associated main record, or leave it out of the display. The controlling keys are F3 and SHIFT+F3, or you can set your choice in the View menu.

View	
Change Format...	Ctrl+F
Extra text	F3
Split window	Shift+F3
Sequence...	



With the extra text not selected for display, you may get several records displayed in the database window.

View	
Change Format...	Ctrl+F
Extra text	F3
<input checked="" type="checkbox"/> Split window	Shift+F3
Sequence...	



With the Split window option selected, the main record shares the database window with extra text.

View	
Change Format...	Ctrl+F
<input checked="" type="checkbox"/> Extra text	F3
Split window	Shift+F3
Sequence...	



When selected for display on its own, extra text is shown for one record at a time.

Notes on split window display

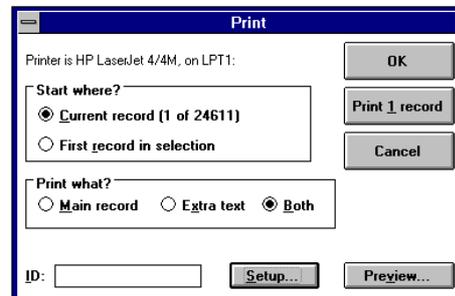
- You can arrange for a format to appear initially in this mode by selecting the appropriate check box in the Format Properties dialog box shown earlier in this chapter.
- You can adjust the division between the main record and the extra text by dragging the sizing bar that separates them.
- You can scroll the two portions of the window independently.

Extra text in editing

When extra text is displayed in the database window, you can edit it in the same way as any other field: with split window display, this includes dragging and dropping between extra text and fields in the main record, as described in Section 18.5.

Extra text in printing

You can print extra text with or without the main record, or leave it out. You specify your choice by setting the **Print what?** option in the Print command dialog box.

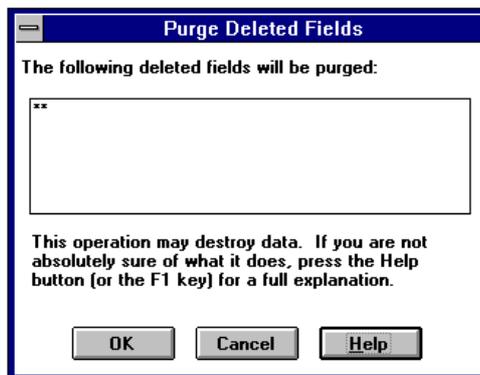
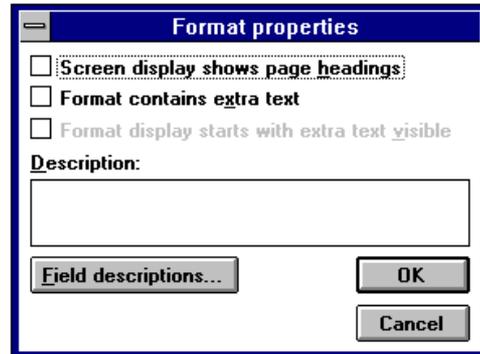


Purging extra text

You can delete extra text in individual records by editing them in the normal way, but if you want to remove extra text from the entire database, then proceed in the following way.

Edit the native format, select **Edit, Format properties** and turn the **Format contains extra text** check box off. Then save the format.

Having effectively deleted the "extra text field", you can purge the data which it contained in the same way as for a normal field on the main card (Section 25.4).



Chapter 27 –

Merge blocks in formats

Merge blocks in formats enable you to mail-merge data to produce form letters, mailing labels, as well as other documents in which you want the layout to suit the data in a particular record rather than to conform to a fixed format.

{CO} {AD} {PC}	Name: Robert Smith Position: General Manager Company: Soil Mechanics Consultants Address: 22 Merton Road London Postcode: SW23 7ED Telephone: 081 889 8976	CONTRACT RENEWALS Contract Type: Computer Maintenance Contract No: DHB/7896 Renewal Date: 1/4/93 Duration: 12 months Renewal charge: 1,678.55 Previous charge: 1,623.45 Letter sent: Payment received:
---	--	---

For the attention of {NA}, {PO}

Dear Sirs,

Re: {CT} contract, No {CN}

I write to invite your renewal of the above contract for a further {DU} from {RD} at a fee of £{RC}. I am sorry that a small increase from the £{OC} you paid last year has been necessary to cover higher labour costs.

Soil Mechanics Consultants
22 Merton Road
London
SW23 7ED

For the attention of Robert Smith, General Manager

Dear Sirs,

Re: Computer Maintenance contract, No DHB/7896

I write to invite your renewal of the above contract for a further 12 months from 1/4/93 at a fee of £1,678.55. I am sorry that a small increase from the £1,623.45 you paid last year has been necessary to cover higher labour costs.

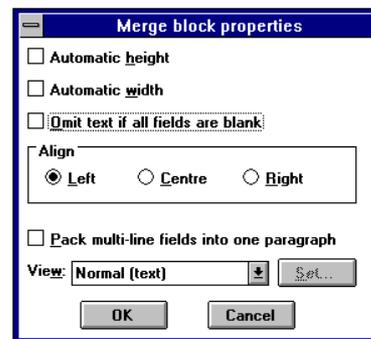
The top of this illustration shows a record; the middle shows a format containing merge blocks; and the bottom shows the resulting letter. The merge blocks consist of some text and field names enclosed in curly brackets. These are *field references* that tell Cardbox where to insert the contents of the field.

In headings and footings, merge blocks can also display:

- page numbers
- the size of the current selection
- print job identification.
- record numbers
- date and time of printing

27.1 The properties of a merge block

A merge block can have certain properties which are not applicable to normal fields, and you set them in this dialog box. As shown below, the properties which you choose will affect the appearance of the mailmerged text, and you should bear this in mind when deciding where to position the block, what size to make it, and how to lay out the text and field references within it.

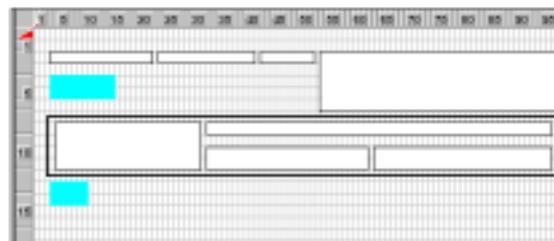


Automatic height

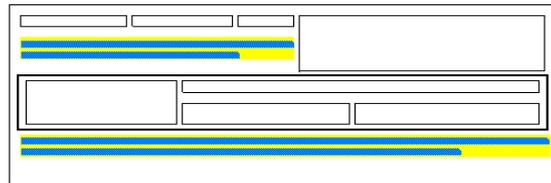
Automatic width

These properties allow the block to expand from its initial size to whatever size is necessary to show the whole of the mailmerged text for each record. Here is an example.

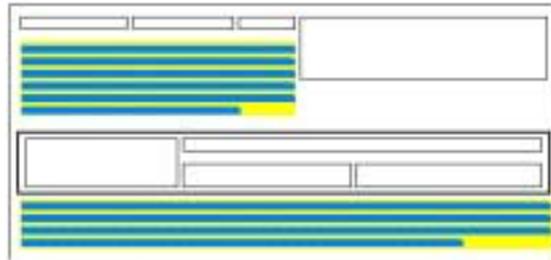
The two merge blocks, represented in this format by dark grey rectangles, need only be large enough to let you see what fixed text and field references they contain.



Automatic width lets the merge block expand horizontally as far as the nearest item to the right of it or, if the space to the right of the block is clear, to the boundary of the format.



Automatic height lets the block grow to as many lines as the mailmerged text requires, pushing down the format items beneath it. Conversely, if there is nothing to be displayed in the block, automatic height will reduce it to zero lines.



Automatic-height merge blocks are not allowed in the native format.

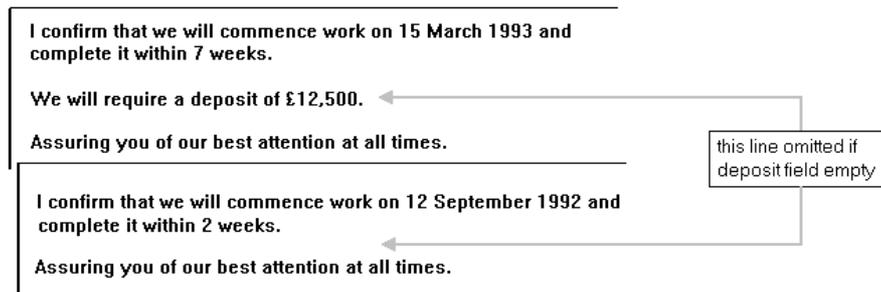
With automatic-height merge blocks in the format, the record size may thus vary from one record to another, depending on how much text the records contain in the merged fields.

However, headings and footings always retain the number of lines allocated to them in the format, and automatic-height merge blocks are not allowed within them. So, if you want to include a multi-line field in a heading or footing, to show the address for instance, you must either reserve enough lines in the heading or footing, or pack the field into one paragraph in the way shown later in this chapter.

Omit text if all fields are blank

With this option selected, no fixed text is output if there are no data in the fields to which the block refers.

I confirm that we will commence work on {SD} and complete it within {DU} weeks.	<input checked="" type="checkbox"/> Automatic height
	<input type="checkbox"/> Omit text if all fields are blank
We will require a deposit of £{DP}.	<input checked="" type="checkbox"/> Automatic height
	<input checked="" type="checkbox"/> Omit text if all fields are blank
Assuring you of our best attention at all times.	<input type="checkbox"/> Automatic height
	<input type="checkbox"/> Omit text if all fields are blank

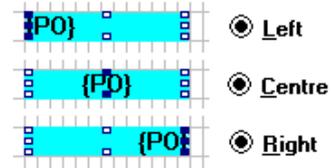


Here is an example of how you can use this option for a conditional paragraph in a letter, in this case, the middle paragraph referring to the required deposit. If there is no entry in the deposit field, the entire paragraph is omitted, as in the second letter.

If you want the merge block to leave absolutely no trace in the output, you should also select Automatic height – otherwise it will come out as a blank space.

Alignment

Alignment is set by option buttons in the Merge Block Properties dialog box. As a reminder, Cardbox will darken the relevant sizing bars when you select the block. The chosen alignment will apply to everything in the merge block, both fixed text and field references.



If you select automatic width for the merge block, then the effective margins for alignment are the margins of the expanded block.

Pack multi-line fields into one paragraph



With this option selected, Cardbox will concatenate the lines of a multi-line field into a long single-line paragraph.

With the option not selected, the multi-line field will be truncated to fit the number of lines in a merge block with no automatic height adjustment.

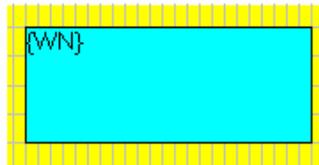
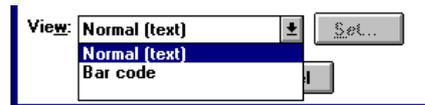
In headings and footings, where no automatic height adjustment is allowed, you must thus remember to pack multi-line fields into one paragraph if the heading or footing is only one line deep.

Appearance (Cardbox version 2.0 and above)

Press this button to give the merge block its own appearance, overriding the appearance given to the format as a whole.

View options

You can optionally output a merge block (usually a pure number) in the form of a bar code. See Section 29.4 for further details.



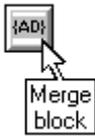
27.2 Defining a merge block

Here are the main points that you should bear in mind when defining merge blocks.

- You can define any number of merge blocks in a format, but they must not overlap with any other item in the format. Expansion of a merge block with automatic height or width will never cause an overlap.
- Formats containing automatic-height merge blocks cannot be used for editing records. This means that the native format cannot contain automatic-height merge blocks.
- You can insert a field into a format only once, but you can insert the *contents* of a field as many times as you like, by putting references to it into merge blocks. You can even refer to the same field more than once in the same merge block, if you want.
- Merge blocks can contain references only to ordinary text fields, and not to any special fields such as object fields or image fields.

To insert a new merge block in the format you are editing, first mark out its position and size. Having done so, you can enter its contents and specify its properties.

Defining the position and size



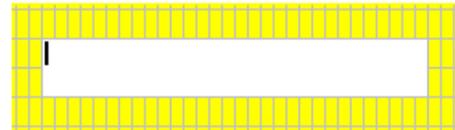
A detailed description of positioning and sizing format items is in Section 24.1.

To define the position and size of a new merge block, type Ctrl+M or select **Merge block** in the **Insert** menu in format definition.

The cursor will change shape to a small bright box, and you drag it to define the area of the block in the standard way.

The new merge block first appears as a white rectangle, ready for the entry of text or field references.

Insert	
Field...	Ctrl+F
Merge block	Ctrl+M
Text	Ctrl+T
Line or box	Ctrl+L
Paste Graphic	Ctrl+G



Entering text and data references

Apart from alignment, which determines the initial position of the insertion point within the merge block and the direction in which the entered text expands, none of the merge block properties have any effect on the way in which you enter text or the various data references.

To enter text into an empty merge block,

- double click on it, or
- click to select it, then press ENTER or choose **Edit item** in the **Edit** menu.

To edit the existing contents of a merge block,

- double click on the block; the insertion point will appear in the cursor position;

or,

- select the block and press ENTER, or choose **Edit item** in the **Edit** menu.

In the latter case, the whole text of the merge block will be automatically selected, so you can easily overwrite it. If you intend to make only minor changes, then make sure that you de-select the text by moving the insertion point **before typing anything**. To move the insertion point, click on its required position or use the keys listed in the following table.

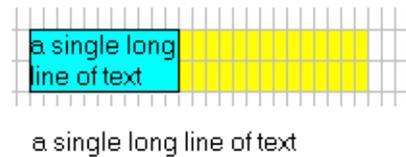
To move the insertion point	Type
To a new line	CTRL+ENTER
Up one line	UP ARROW
Down one line	DOWN ARROW
One character to the left	LEFT ARROW
One character to the right	RIGHT ARROW
One word to the left	CTRL+LEFT ARROW
One word to the right	CTRL+RIGHT ARROW
To the beginning of the line	HOME
To the end of the line	END
To the beginning of text in the block	CTRL+HOME
To the end of text in the block	CTRL+END

When you have finished entering or editing text, click elsewhere in the format or press ENTER. You can cancel the changes you have just made by pressing ESCAPE instead of ENTER.

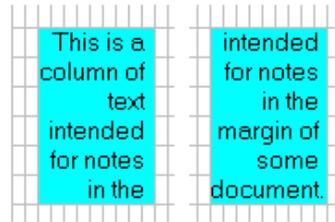
Entering the fixed text

You can enter and edit the fixed text in a merge block in the same way as text in a normal field, except that if you want the merge block to contain several paragraphs, you will have to use CTRL+ENTER to start a new paragraph instead of ENTER (because ENTER will terminate the editing of the merge block).

Automatic width will not widen the merge block while you are designing the format, so text will be word-wrapped if necessary. When you are displaying or printing records, Cardbox will make the merge block as wide as possible.



Automatic height will similarly not enlarge the block while you are designing the format: text will be scrolled if necessary. When you are displaying or printing, the merge block will grow or shrink to fit its contents.



This is a column of text intended for notes in the margin of some document.

Entering data references

Data references tell Cardbox where to insert data into the merge block. When you are editing the merge block, they appear as specifications enclosed in curly brackets.

You can either enter data references by hand, or choose them from the Insert menu, which will appear in this form when opened while you are editing a merge block.



Field references

A field reference appears as a field name enclosed in curly brackets, e.g. {NA}.



If you choose **Insert, Field**, Cardbox will display a dialog box to let you select the field to insert.

On display and output, each field reference is replaced by the full text of the field, as long as the merge block is large enough or is allowed to expand with automatic height or width. The format of the output text also depends on the setting of the Pack multi-line fields option, described earlier in this chapter.



Page numbers

Page numbers appear in headings and footings. In *page* headings and footings, they are page numbers within the whole print run; in *record continuation* headings and footings, they are page numbers within the

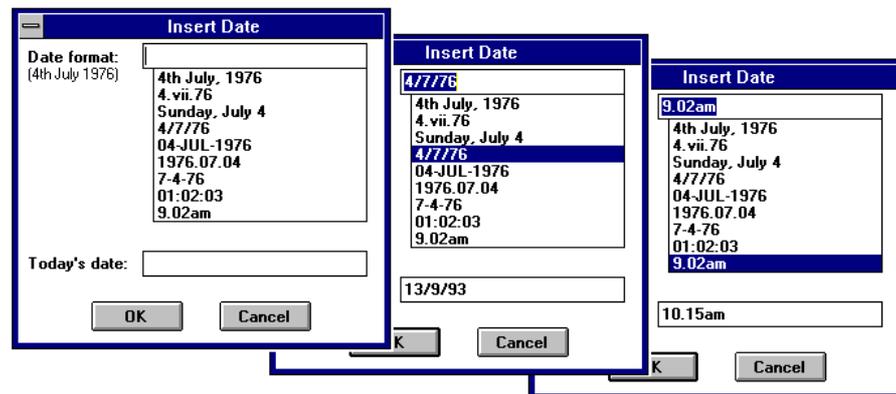
current record. A page number appears as `{*Page}` when you are designing a format. You can insert it by using the command **Insert, Page number**.

Record number and number of records

The number of records appears as `{*Records}` when you are designing the format, and you can insert it using **Insert, Number of records**. On display or output, it is replaced by the number of records in the current selection.

The record number appears as `{*Record}`, and you can insert it using **Insert, Record number**. On display or output, it is replaced by the record's position in the current selection: the first record is 1, the second is 2, etc.

Date or time



Cardbox can insert the date and time in any format you like. You tell it the format by showing it how a reference date and time would appear in that format.

The reference date is **4th July 1976**, which was a **Sunday**

If you want to use a 24-hour clock, the reference time is **01:02:03**

If you want to use a 12-hour clock, the reference time is **9.02am**

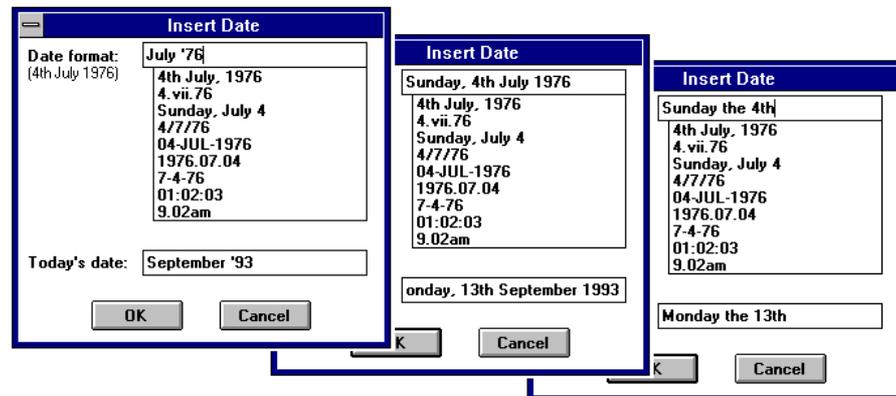
The Insert Date dialog box offers you a choice of formats for the date, or you can enter your own. At the bottom of the dialog box, you will see the current date in that format, as a confirmation (to be precise, what you see is the date and time when you started the current Cardbox session).

```
{*Date 4/7/76} {*Date 9.02am}|
```

13/9/93 10.15am

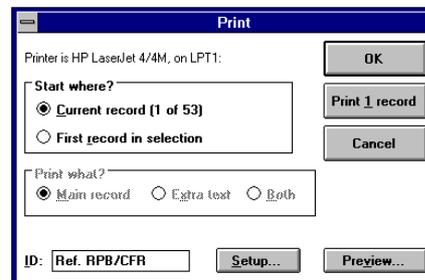
While you are designing the format, the merge block will show the reference date or time that you have entered. When you are displaying records, the

merge block will show the date and time when you started the current Cardbox session. When you are printing, the merge block will show the date and time of the start of the print run.



Print run identification

If you plan to make several different selections and print each of them using the same format, you may want to add an identification to the output so that you can tell which printout is which. The print run identification does this. It appears as `{*ID}` when you are designing the format, and you can insert it using **Insert, ID**. On display, it is blank. On printing, it contains whatever you may have entered as ID in the Print dialog box.



Defining merge block properties

A newly created merge block is left-aligned by default. To change this, or to give it additional properties, use the Merge Block Properties dialog box, as described earlier in this chapter.

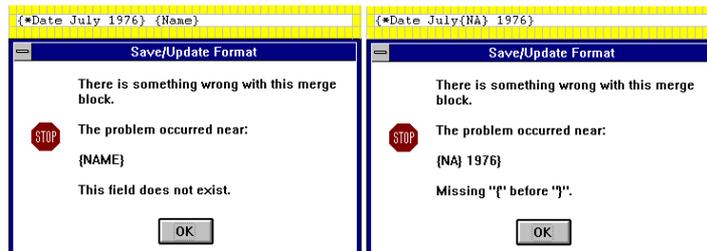
To open the Merge Block Properties dialog box,

- make sure you are not currently editing the text of the merge block (if you are, click elsewhere or press ENTER);
- right-click on the block, or

- click on the block to select it, unless already selected, then either press ALT+ENTER or select **Item properties** in the **Edit** menu,

27.3 Errors in merge blocks

Cardbox checks data references in the merge block as soon as you quit editing it, and here are two examples of the error reports that it may display.

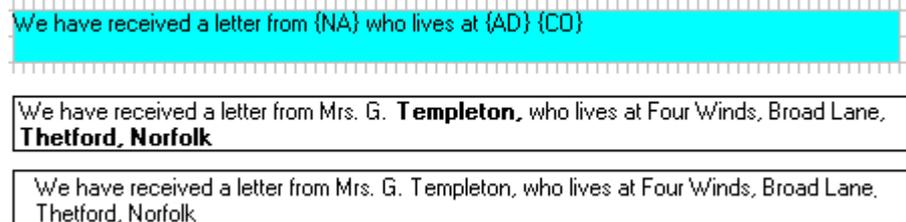


You will not be allowed to save the format, or even to edit any other item, until you have corrected all detectable errors in the merge block.

27.4 The appearance of merged text

See
Appearance
control in
Chapter 7.

Fixed text in merge blocks appears in the style chosen for captions, and contents of fields appear in the same styles as in normal display of records.



So, you can highlight indexed terms in merge blocks as well as in ordinary fields. but it would more usual not to make such a distinction in a letter or document, and to output text in a uniform style, as in the lower example above.

You can give a merge block its own unique appearance by pressing the Appearance button in its Properties dialog box. This affects the merge block as a whole, but there are also some special codes that you can use *within* merge blocks:

- {+B} and {-B} will start and cancel **bold printing**, respectively
- {+I} and {-I} will start and cancel *italics*, and
- {+U} and {-U} will start and cancel underlining.

Here is an example.

```
We {+U}have{-U} received a {+B}letter{-B} from {NA} who lives at {AD} {+I}{CD}{-I}
```

```
We have received a letter from Mrs. G. Templeton, who lives at Four Winds, Broad Lane,  
Thetford, Norfolk
```

You can apply these display attributes in any combination, and any attribute that you do not explicitly cancel will apply to the end of the merge block but not beyond it.

Chapter 28 –

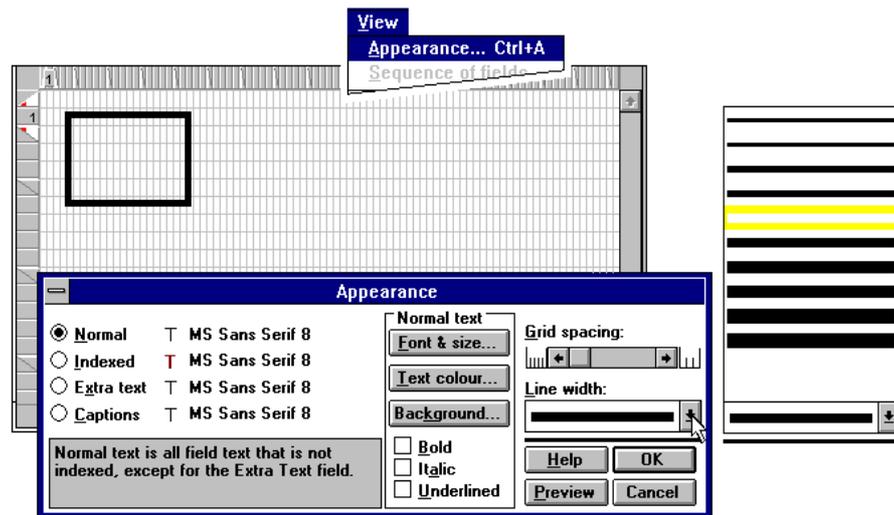
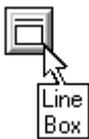
The format background

You can build up the format background from lines and boxes, fixed text and graphics.

- The format background is optional, and each format can have a different background.
- Lines, boxes, or fixed text must not overlap any fields, but you can use graphics as a background to fields.
- There are no restriction on the overlap between the various items of the screen background.

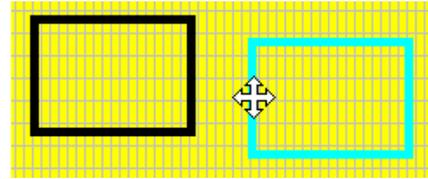
28.1 Lines and boxes

To enter a line or box in the format you are editing, press CTRL+L or select **Line or box** in the **Insert** menu, then mark out the line or box using the method described in Section 24.1.



To change the width of lines, type CTRL+A or use **View, Appearance** to open the Appearance dialog box, and choose another width as shown above. The change will apply to all lines and boxes in the format. With Cardbox version 2.0, you can also adjust the width and colour of individual lines: right-click on the line, then press the Appearance button in the resulting dialog box.

Boxes are hollow inside, so if you want to move a box, you must bring the cursor to one of its sides.



Lines and boxes normally work within each record separately. You can also make them run continuously from one record to the next, to give the appearance of a ruled form. To do this, use the menu command **Edit, Format Properties** and press the button marked "Overlapping boxes". Then press the F1 key and Cardbox Help will give you full instructions.

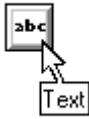
28.2 Fixed text

- You can enter only one line of text at a time.
- The appearance of text is controlled by the "Captions" entry in the appearance of the format as a whole, but in Cardbox version 2.0 you can override this by using the Text Properties dialog box.
- You can anchor the start, middle, or end of a string of text in a chosen column to fix it in relation to other items of the format.
- You can use this anchoring to obtain any desired alignment of a block of text, such as the external field captions in the example below.

		heading centre aligned	
leading caption right aligned	AA	BB	trailing caption left aligned

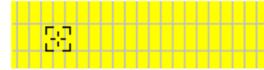
Tip A text item can only be one line long. If you want several lines, you can create several text items; or you can create a merge block that is all text without any field references. See Chapter 27 for more information about merge blocks.

Entering text

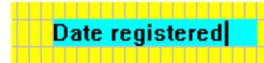
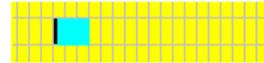


To enter fixed text in the format you are editing, press CTRL+T or select **Text** in the **Insert** menu.

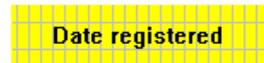
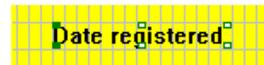
The cursor will take the shape shown here.



Click where you want the text to start. A flashing insertion point will appear on a coloured background. Enter the text in the normal way, then



- if you want to leave the text selected, so that you can move it or change its alignment, press ENTER.
- if you want to leave it as it is, click on any other part of the format.



Note that the pairs of squares that appear in selected text are not the normal sizing handles that appear in other selected format items. They act as anchor points in alignment, in the way described below.

Having entered a line of text, you can select it and move it like any other format item.

Aligning text

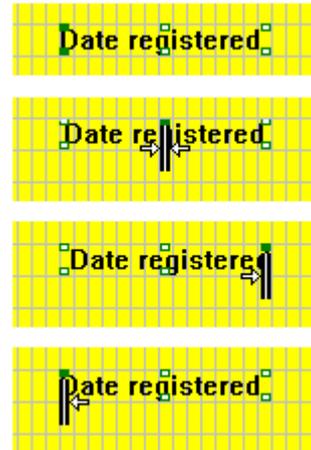
By default, newly entered text is left-aligned, but you can change the alignment either with the Text Properties dialog box or by reassigning the anchor points.

Anchor points

When you select a line of text, Cardbox will display in solid colour one of the three vertical pairs of squares, depending on which alignment is currently in force. This pair forms an anchor point which will remain fixed in the given column of the format until you move the text.

The anchor points will be automatically moved to another position as you change the alignment using the Text Properties dialog box shown above, but you can alternatively change the alignment by changing the anchor points.

To do so, bring the arrow-shaped cursor to either square of the required pair, and the cursor will change shape to that shown, respectively, for the centre, right, and left pair. To make the chosen pair the anchor point for the text, just click to transfer the solid colour to it.



Editing text

When you have selected a text item, the Edit menu looks like this. Note that you can also execute most commands by using the listed keyboard shortcuts, without opening the menu.

Editing is described in detail below, and you can use **Undo** to undo the last operation.

Edit	
Undo	Ctrl+Z
Delete	Del
Select All	Ctrl+NumPad 5
Edit item	Enter
Item properties...	Alt+Enter
Format properties...	
Printer settings...	

To edit a line of text, double click on it; it will appear on a dark background, and you will now be able to use the standard text editing commands described in Section 17.2.

Alternatively, select the text, then choose **Edit item** or just press ENTER.

The text will be highlighted. Don't start typing right away, or you will overwrite the existing text. Click where you want to start editing the text, or use the arrow keys to get there.

To delete a word, double click on it to highlight it first, then press Del. To select an arbitrary portion of text for deletion, use the techniques described in Section 18.2.

As you make changes in the text, its original alignment is preserved. The text item will expand or contract as necessary, but the anchor point will not move.

Deleting text

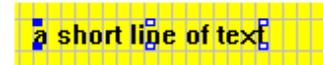
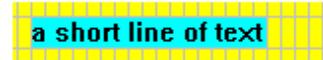
To delete a text item, select it, then press DEL or choose **Edit, Delete**.

28.3 Graphics in formats

You can paste a graphical item (such as a bitmap) from the Clipboard to form part of the format. This is not the same thing as pasting it into a record: a graphical item pasted into a format appears the same for every record, but one pasted into a record appears as part of that record only. To avoid confusion, we refer to the latter as an *image*. For more details on images see Chapter 34 and Chapter 35 for more on image fields.

A graphic pasted into the format has the following main properties:

- position and size, which you mark out in the same way as for a field or a box,
- display mode, in which you specify whether the graphic is to be displayed as a foreground feature of the format or form a background to other format items, such as fields or merge blocks.



Inserting a graphic

You can insert a graphic into any format and you can make multiple insertions of the same graphic or insert several different graphics. However, a format cannot consist of graphics alone, it must contain also at least either one field or one merge block, (though you can leave the merge block empty, without any text or field references).



To insert a graphic into the format you are editing,

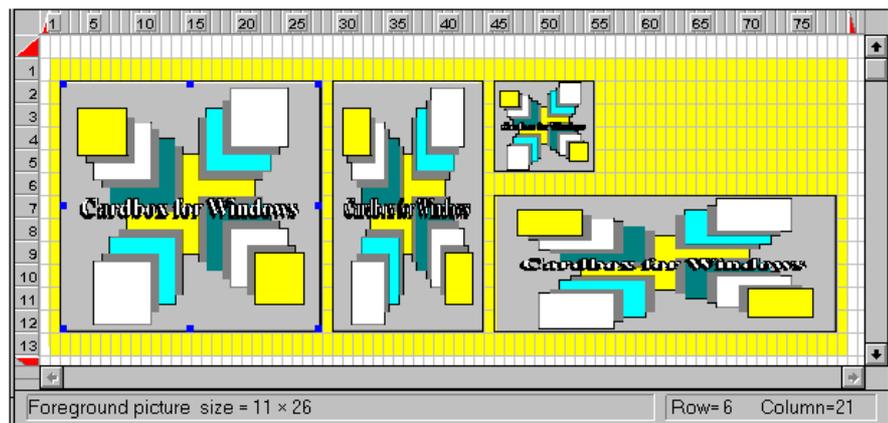
- choose **Insert, Paste graphic** or press CTRL+G, then mark out the position and shape of the graphic in the way described in the next section.

Insert	
Field...	Ctrl+F
Merge block	Ctrl+M
Text	Ctrl+T
Line or box	Ctrl+L
Paste Graphic	Ctrl+G

The command **Paste graphic** will be dimmed if there is no graphic on the Clipboard, and a message in the status bar will confirm this. You can use the standard Windows Clipboard Viewer to check what the Clipboard actually contains.

Position and size

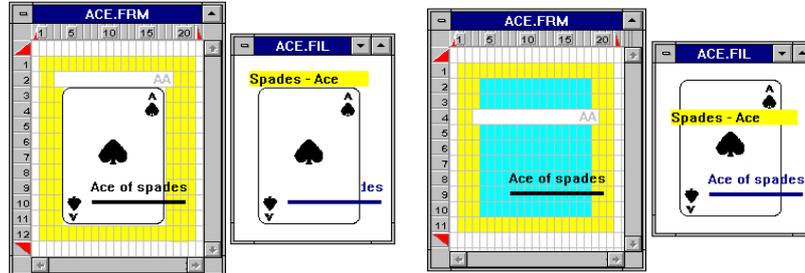
Mark out a rectangular area for the graphic in the same way as for a field or a frame; refer to Section 24.1, if necessary. The graphic will appear as soon as you release the mouse button.



By default, Cardbox will always fill the whole of the rectangle, stretching or squashing the graphic to fit its shape. But you can change the item properties of the graphic to preserve its shape whatever happens, or to preserve both its shape and its size.

Display mode

You have a choice of two display modes for graphics: **Foreground** and **Background**. You can set the display mode using the Item Properties dialog box.



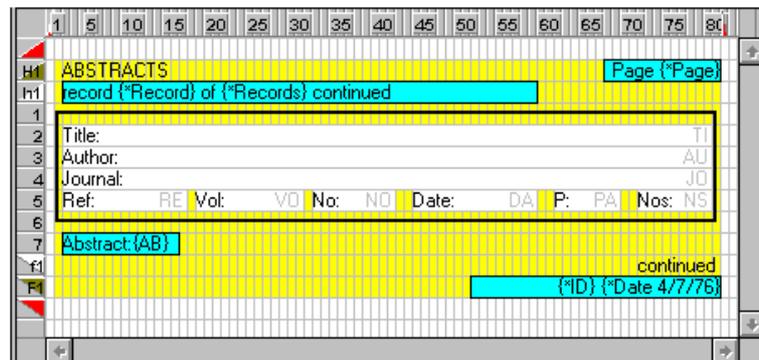
A **foreground** graphic

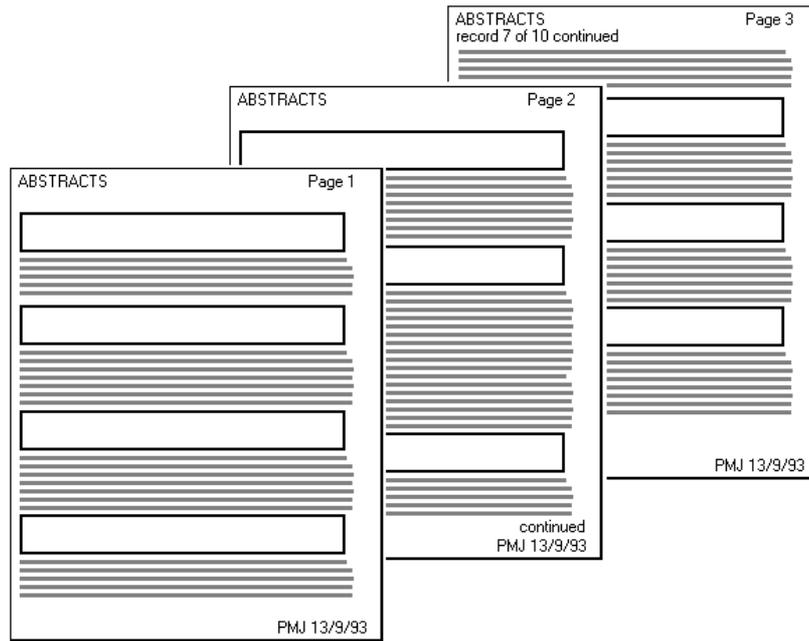
- is displayed in full in the format,
- cannot be overlapped by fields in the format,
- can overlap other format items, but may appear either on top of or underneath them when you come to display records: you have no control over this.

A **background** graphic

- appears as a dark block in the format,
- can be overlapped by any format item, including fields,
- and will always appear in the background in record display.

28.4 Headings and footings





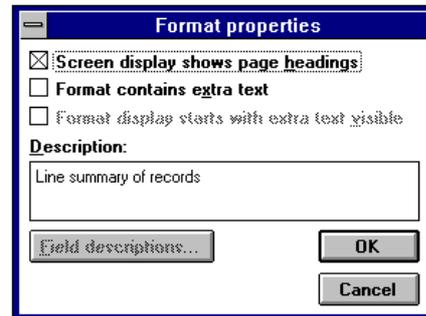
Heading and footings are defined as part of the format, with rows reserved for them in the way described in Chapter 24.

Heading/footing	in lines labelled	is printed on
Page heading	H	every page
Record continuation heading	h	page starting with a record that is continued from the previous page
Record continuation footing	f	page ending with a record that is continued on the next page
Page footing	F	every page

Headings and footings are always printed according to the rules in the table above.

You can also arrange for the page headings to appear in screen display. To do so,

- edit the format and choose **Edit, Format properties** to open this dialog box;
- turn on the check box allowing screen display of headings;
- save the format.



Here is an example of a heading for a summary of records with the corresponding screen display. To ensure correcting alignment with the columns of text, each heading should be entered as a separate string of text.

SAMPLE.FMT - HEADED LISTING						
Name	Profession	County	Sex	Born	Income	
1	NA	PR	CO	X	BI	IN

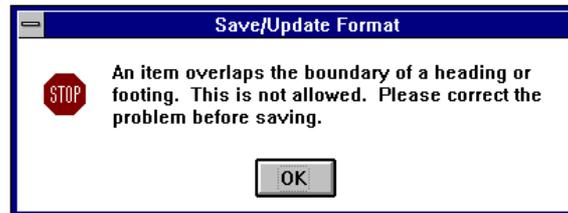
SAMPLE.FIL						
Name	Profession	County	Sex	Born	Income	
Mrs Imogen Quest,	Actress	Surrey	F	8/4/44	10,000	
Dr J.B. Harney,	Doctor	Lancashire	M	2/11/43	35,000	
Frank Martin, Esq.	Merchant banker	Norfolk	M	9/10/57	30,000	
Mrs J. Hedley,	Actuary	Cornwall	F	7/9/47	10,000	
Mrs R. Smythe	Manageress	Surrey	F	16/4/40	10,000	
Dr Ambrose Barlow,	Physicist	Leicestershire	M	5/8/32	15,000	
Mrs Helen Barlow,	Nurse	Leicestershire	F	9/1/39	10,000	
Mr Michael Ullathorne,	Chartered surveyor	Kent	M	2/1/52	15,000	
Vyvyan Ramsay, Esq.,	Accountant	Staffordshire	M	9/7/47	21,500	
Mrs R.B. de Caverel	Solicitor	Lancashire	F	30/4/46	30,000	
Miss Patricia Blore,	Banker	London, W.8.	F	23/5/57	10,000	
Anthony J. Smythe, Esq.,	Accountant	Lancashire.	M	7/12/60	7,500	
G. Ford, Esq.,	Estate agent	Lancashire	M	4/1/52	10,000	
Laurence Geraghty, Esq.,	Journalist	Cornwall	M	11/1/43	15,000	
Martin Porlock, Esq.,	Salesman	London, S.W.10	M	19/1/52	35,000	
Miss P.B. Skilton,	Secretary	Kent	F	2/3/64	7,500	
F.K. Jordinson, Esq.,	Manager	London S.W.7.	M	10/10/38	20,000	
Michael Howard, Esq.,	Solicitor	Lancashire	M	7/3/43	25,000	
R.T. Bridges, Esq.,	Surveyor	Norfolk	M	19/4/45	20,000	
Dr. A.J. Perkins,	Academic	Oxfordshire	M	6/8/47	20,000	

A heading or footing can consist of the following format items, in any combination:

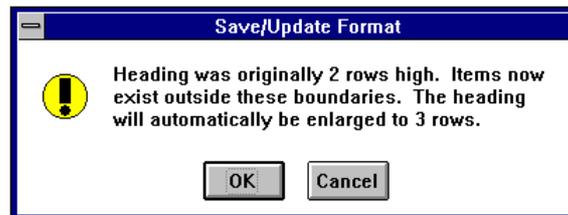
- merge blocks, of fixed height only,
- text,
- lines and boxes,
- graphics.

You cannot put a field into a heading or footing. If you want to see the contents of a field in a heading or footing, you must create a merge block and put a field reference into it.

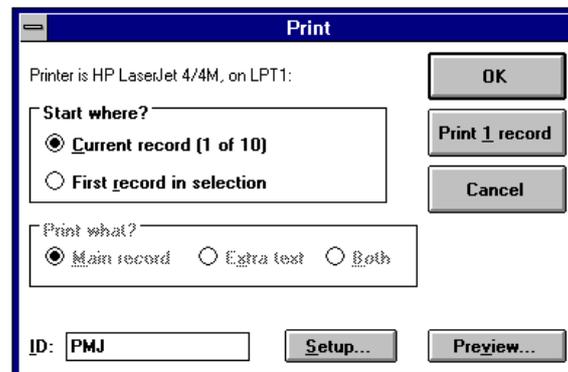
No item can overlap the boundaries of a heading or footing.



But if an item in a heading or footing extends beyond the format boundary, then Cardbox will offer to enlarge the space reserved for it.



If you have put a print job identification into a merge block in a heading or footing, remember to fill in the ID entry in the Print command's dialog box every time you print. If you do not, Cardbox will remember the ID from one Print command to the next, so you will not be able to use it to distinguish between printouts.



28.5 Pushbuttons in formats

You can insert a pushbutton into a format and associate a command with it, which will be executed when the pushbutton is pressed.

You set up a pushbutton in just the same way as a graphic item (see Section 28.3), except that you use the Insert Pushbutton command instead of the Insert Graphic command. You then have the following options for the action that the pushbutton should perform:

- It can play a macro that you have previously designed. For more information about macros, see Chapter 37.
- It can run a program, which can interact with Cardbox to perform a specific action. For more about getting programs to talk to Cardbox, open the Cardbox help file and search for "OLE Automation".
- It can pass a DDE (Dynamic Data Exchange) command to a program that is already listening for it. This is a specialised feature and not generally useful.

For more information about how to set up a pushbutton, search for "Pushbuttons" in the Cardbox help file; or press F1 while you are editing the properties of a pushbutton.

Chapter 29 –

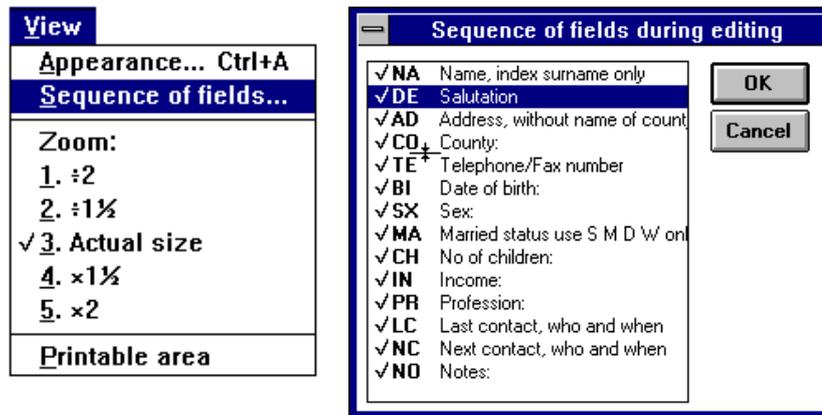
Advanced format design

In this chapter we describe some advanced aspects of format design. We describe:

- sequencing of fields
- selecting, moving and deleting multiple items in the format,
- handling of large formats, that is, formats larger than the format design window,
- installation of special field handlers for input by means of option buttons and check boxes and output of numbers as bar codes.

29.1 Sequence of fields

When you enter data into a new record, you will often find it convenient to go through the fields using only the TAB key to go from one field to the next, rather than the mouse. In response to the TAB key, Cardbox normally takes you through the fields in the order in which they were created in the native format, and it displays the fields in the same order in the various drop-down list boxes. If the sequence in which you originally created the fields is not the one in which you want to use them, you can change it in the following way.



- Edit the native format. You cannot change the sequence when editing any other format.
- Select the **Sequence of fields** command in the **View** menu.



- In the dialog box, select (click on) the field which you want to move to another position in the sequence (**DE** Salutation in the example shown).
- Move the mouse to the field's new position (between County and Telephone in this example); make sure that the cursor has changed shape to that shown here, and click. The selected field will be transferred to that position.
- Having made all the required changes in the sequence of fields, save the native format.

29.2 Selecting and handling multiple items

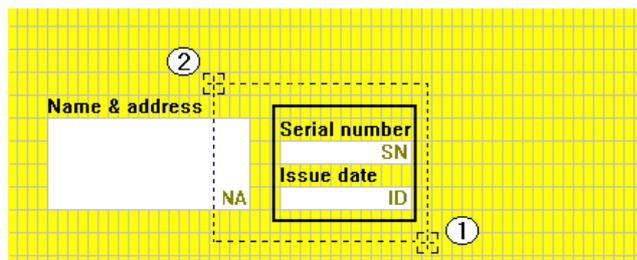
When you click on an item to select it, any other item which was selected at the time is automatically deselected.

- To avoid cancelling an existing selection as you select another item, hold down the CTRL key when you click on it.
- To select all items in the entire format, choose **Select all** in the **Edit** menu or press CTRL+5 on the numeric keypad..
- To deselect a single item from a selected group, hold down the CTRL key as you click on it.
- To cancel all current selections, click on any empty part of the format.

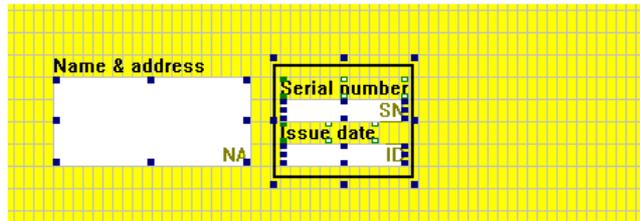


A message in the status bar will tell you how many items you have selected. Each of the selected items will display sizing bars, but merely to let you see which items have been selected; you cannot edit or resize any of the items in a multiple selection. You can only delete them or move them in the way described below.

You can also select in one operation a group of adjacent items, using the technique described below.



To select a group of items, position the cursor in an empty cell of the format; press the mouse button, and drag the cursor to a position which will make the dotted rectangle either envelop or intersect the items that you want to select.



When you release the button, sizing handles will appear in the selected items. In this example, we have left the caption "Name & address" outside the dotted envelope, and it has not, consequently, been selected.

You can at this stage add or remove items from the selection by clicking on them while holding down the CTRL key.

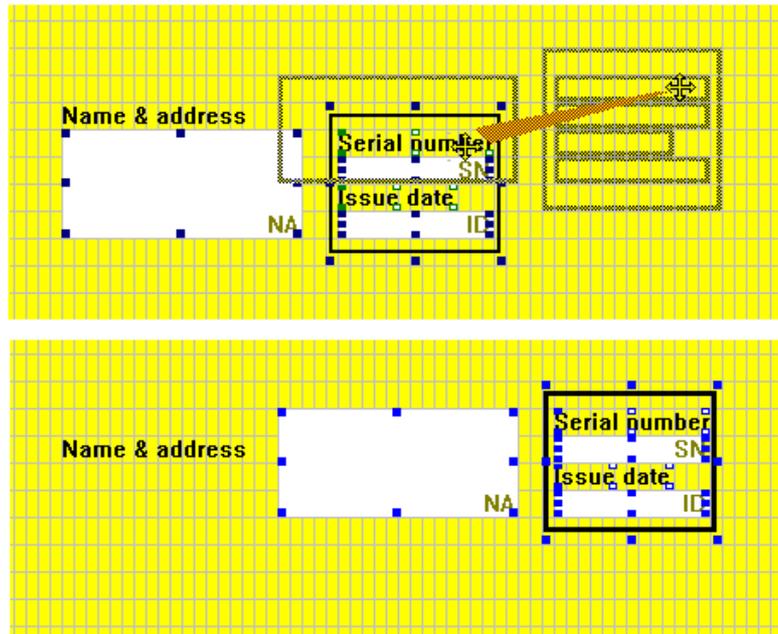
In using this method, bear in mind the following points.

- You can draw a dotted line instead of a rectangle if all items you want to select share the same row or column.
- You can start the rectangle at any corner, but the starting point must be clear of any item. If you depress the mouse button when pointing to an item, the cursor will change to a four-headed arrow as if you wanted to move that item alone.

Moving and deleting groups of format items

Once you have selected a group of items, the same rules apply to moving and deleting as for a single item, that is:

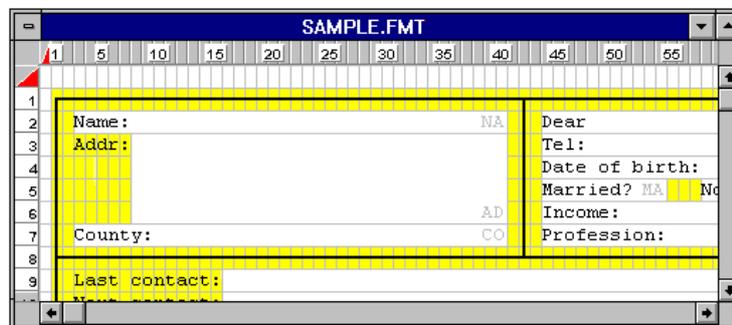
- you can delete the block of items by pressing DEL,
- if you point to any of the selected items and depress the left mouse button, the cursor will change shape to a four-headed arrow, enabling you to drag all the selected items to a new position.



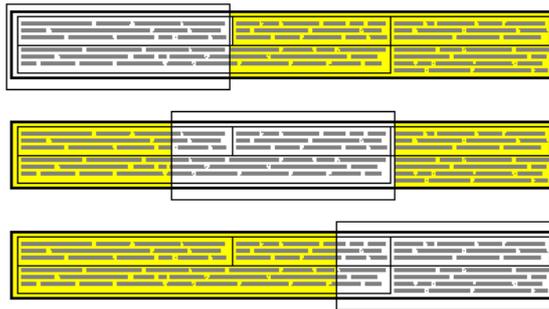
- The moved items will remain selected, so you can adjust their position, if necessary.

29.3 Handling large formats

There is no practical limit on the size of a format that you can design, but the size of the screen imposes an obvious limit on how much of a large format you can display at once.



If the format is larger than the window, Cardbox will display scrolling bars.



Scrolling brings a different portion of the format into view at a time, giving some overlap between successive views, but never going far beyond the boundaries of the format.

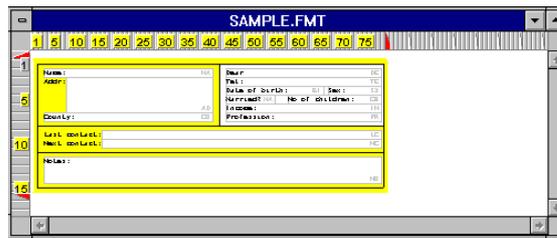
Safe scrolling

Scrolling also happens automatically when you drag or resize an item to beyond the visible part of the format. Unlike many other programs, Cardbox does not continue scrolling forever once you have moved the mouse past the edge of the window, it just scrolls as far as necessary to show you the place in the format where you have put the mouse.

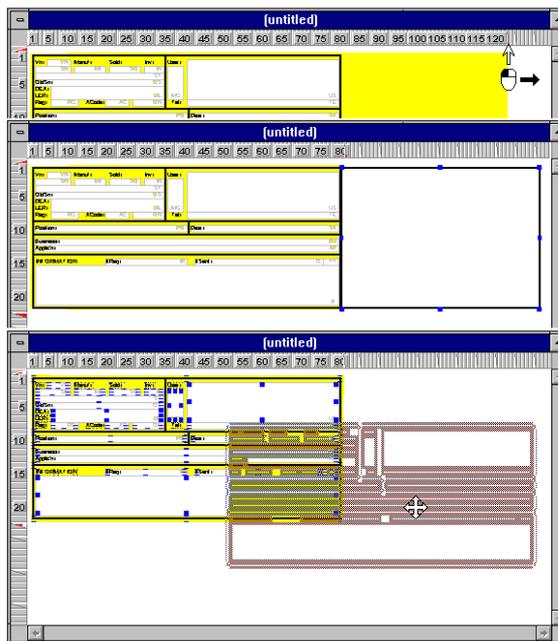
This "safe scrolling" means that you are unlikely to scroll too far by mistake, and gives you an exact relationship between the distance you move the mouse and where you end up as a result. For example, if you want to drag something three inches to the right of the window, drag the mouse three inches to the right.

Zooming

While you are designing the format, you may want to make it larger, to make items easier to align accurately, or you may want to make it smaller, so that you can see the whole of it at once. You can do these things by switching to larger or smaller fonts, but you will have to change the font back to its original size before you save the format. It is usually easier to zoom the format instead. Here, for instance, is the format we showed you above, with the zoom set to $\div 2$:



The **View** menu gives you four pre-set zoom ratios in the format editing mode, between reduction to half-size and magnification to twice the actual size. Zooming is purely temporary, so there is no need to return to the actual size before saving the format.



While zoomed in, you can perform all the normal format editing operations. You can extend the format boundary by moving the slides; insert items outside the format boundary; or make room for new items to the left and above the existing format by moving it away from the origin of the Format Design window.

29.4 Special field handlers

As well as handling text, images, and objects, Cardbox can present your data in other forms, such as option buttons (also called radio buttons) and check boxes. These are not a new type of field, but provide alternative views onto your text fields. You can have your data appear as text in some formats (such

as summary reports) and as option buttons or check boxes in others (such as forms for data entry).

Here is an example of option buttons and check boxes. Instead of entering words like Probation or Permanent, you select the appropriate option button. The same applies to check boxes: in this example, the check boxes for French, German and Italian have been turned on, so the corresponding languages will be entered in the record and will appear as plain text in a format not using the special field handlers.

Name	Sex	Department	Status	Languages
Robert Barlow	M	Publicity	Permanent	German Italian French
Monica Crossley	F	Administration	Trainee	French
Edward Grimes	M	Publicity	Permanent	German Dutch

You can install field handlers in any format, but there is some advantage in installing them in the native format. In formats without field handlers, which display their actual contents as text, the text may be the same as the names of the active buttons, or they may be codes: in this example, M for Male and F for Female.

STAFF.FIL			
Robert Barlow Permanent	M	Publicity German Italian French	
Monica Crossley Trainee	F	Administration French	
Edward Grimes Permanent	M	Publicity German Dutch	

Here is an example of bar codes. The merge block on the right has been defined to display the "Works number" field from the native format, but has had the bar code handler installed so that the number appears as a bar code instead of ordinary text.

Installing field handlers

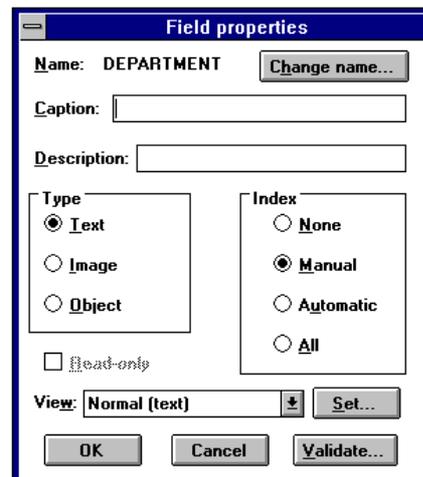
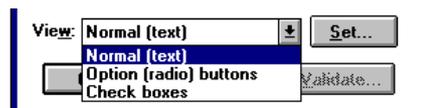
To install either an option button or a check box handler in the field you are defining, define the field's position and size in the normal way. The size of the field on the screen must be adequate for the number of option buttons or check boxes that it is to contain, as well as for the layout which you intend to adopt. We discuss the layout in a later section below.

Define the field's name in the normal way.

In the Field Properties dialog box, set the Index mode to Automatic or All.

Pull down the View list and select Option buttons or Check boxes.

Choose Set, which will take you to the Set dialog box, described under separate headings for the option buttons and check boxes below.



The option buttons handler

The option buttons handler replaces the normal field text display with option buttons. Option buttons allow you to choose one particular option from a fixed number of options. Cardbox's option buttons are slightly different from the option buttons you find in Windows dialog boxes: dialog boxes always start by choosing one button automatically, by default, but Cardbox does not.

You define the options and the layout in the Set dialog boxes shown below. The pictures show the dialog boxes defining the layout of fields Department and Sex, shown in the native format at the start of this section

Code list

Enter the code for each option that you want to have in the field: one option button will be created for each code you enter. Do not use punctuation, just separate the codes with spaces. For multi-word codes, join the words with an underline.



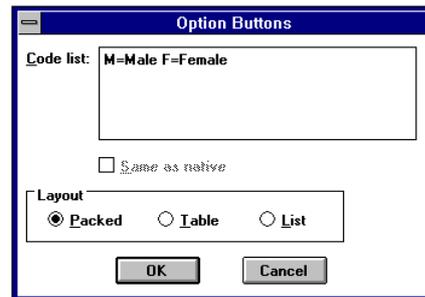
The code you enter will be displayed next to an option button. When you edit a record and click on that option button, the code will be entered as text into the field.

You may want the option button label to be different from the field text. For instance, you may want to keep the field text short; or the field text may be in English while the option button label is in French.

To make the option button label different from the field text, define the code in the form:

fieldtext=buttonlabel, eg.

M=Male



Same as native

This option appears only if you are editing an alternative format and you have defined a field handler in the native format. If you set it, the code list will always be the same as the one defined in the native format: you do not have to type it all over again, and it will change whenever the native format's list changes.

Layout

This controls how Cardbox lays out the option buttons in the space you have drawn for the field. An illustration and explanation appear in the description of check boxes, below.

Operation

When you click on an option button, Cardbox puts the code associated with the button into the field, erasing the previous contents of the field. so, for example,

clicking on the "Quality control" button will put `Quality_control` into the field

clicking on the "Female" button will put `F` into the field.

Do remember to set the indexing mode to Automatic or All to have those field entries indexed.

The check box handler

The check box handler replaces the normal field display with check boxes. The Set dialog box in which you define the codes and the layout is identical to that for option buttons.

Code list

Same as native

These options work exactly as they do for option buttons.

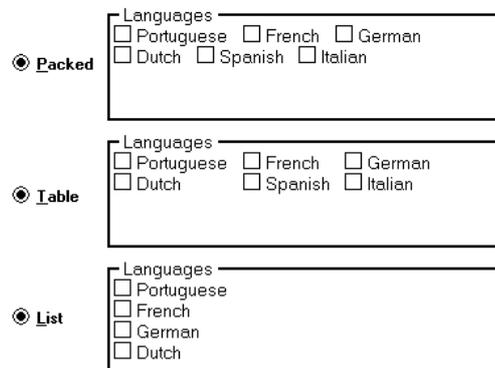
Layout

Here is an illustration of the options you have (exactly the same options apply when laying out option buttons).

Packed packs the check boxes as closely as possible without any particular alignment, like words in a document.

Table aligns them into columns.

List puts one check box per line. In this example, the field is not deep enough to display all check boxes.



Operation

When you set a check box, Cardbox adds its associated code to the end of the field. When you clear a check box, Cardbox removes the code from the field. In both cases, the rest of the field is left unchanged (unlike option buttons, which erase the field before inserting a code). As in the case of

option button fields, you should set the indexing mode of check box fields to Automatic or Auto.

Note If a field contains codes that are not in the check box handler's code list, they will be left untouched when you edit the record. This lets you define abbreviated formats, in which the field handler lists only some of the possible codes, and is useful for saving space if some settings are quite common while others are very rare or should only be set by people using a more comprehensive format.

Editing the text of a field

If you edit a field using a format that does not use a special field handler, you will be able to put any text you like into the field. Here is what will happen if you subsequently look at the data with a field handler:

- If you have entered a word that does not match a code used in the handler, that word will be ignored. For option buttons, this means that no buttons will be set but that clicking a button will erase the field and replace it with the button's code. For check boxes, it means that the word will be invisible but unaffected by editing. So, in the example used in this chapter, you can add another language to those catered for in the check boxes.
- If you have entered a word that matches a code in the handler, the corresponding check box or option button will be set. If you enter words that match several codes, several check boxes or option buttons will be set. For option buttons, this is not a good idea – someone will end up being both male and female, or both permanent and a trainee – but the situation can be corrected as soon as you click on one of the option buttons.

If you often edit fields in their textual form that are also presented as option buttons, you may find it useful to install a validator to make sure that the text you are inserting makes sense.

29.5 Bar code handlers

To display a bar code,

- Design a merge block to display the exact text that you want to have barcoded.
- Install a handler for it. Open the merge block's Properties dialog box, use the View list to choose the bar code format you want. Bar code formats include 13-digit bar codes (UPC / EAN-13) and their 8-, 10- and 12-digit variants, as well as Code 39. You can read more about these formats by pressing F1 and looking at the on-line help.
- If you want to control the appearance of the bar code more closely (for example, its size and whether text should be included), press the Set button and a dialog box will appear. For more details and advice, press F1 while viewing that dialog box.

This example shows a bar code in its standard size, with and without numbers.



29.6 Timestamping and automatic numbering

Timestamping

You can make Cardbox timestamp or datestamp your records – either when you first create a record, or every time you edit it.

You do this by setting up an appropriate "Default entry" validator. For full details of validators, see Chapter 36. For specific details of timestamping, enter the command **Help, Technical Articles** and look at the article on "Time-stamping your records".

Automatic numbering

You can make Cardbox number your records automatically, and Cardbox will then assign a unique number to each record when you save it. If you duplicate a record, Cardbox will erase the field with the automatic number, so that saving it will give it a new number.

You can set or change the next number to be assigned to a record, and you can manually override the numbering mechanism to give specific numbers, or even duplicate numbers, to some records.

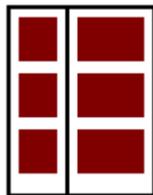
You do all this by setting up an appropriate "Automatic numbering" validator. For full details, of validators, see Chapter 36. The on-line help also contains useful information: open the Help file, and use the Search button to search for "numbering".

29.7 Creating ruled forms

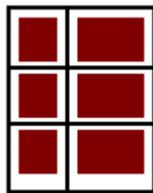
Normally, Cardbox just prints one record after another, which doesn't make it easy to design features (such as vertical rulings) that continue across records. There are two ways to get round this:

- You can use the Line Properties dialog box to make a specific vertical line stretch from the very top to the very bottom of the record.
- You can use the Overlapping Boxes dialog box to join successive records together. The idea is that you design a format in which each record is enclosed in a box, and then use Overlapping Boxes to tell Cardbox to overlap those boxes. If you have a heading in your format, you can use the same technique to include it in the overall scheme of ruling.

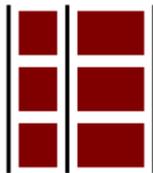
Here are some examples of the effects you can achieve:



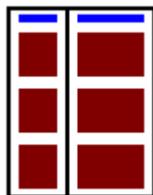
The records share a common outside ruling, but have no rules between them.



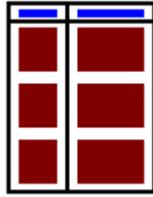
The same outside ruling, but horizontal rules also separate the records.



Vertical rulings only: you can use the Line Properties dialog box to achieve this effect.



A heading inside the overall ruling.



The heading is inside the overall ruling, but a line separates it from the records themselves.

For full details of the achievable effects and the things that you need to do to obtain them, open the Cardbox on-line help and search for "Ruled Forms".

Chapter 30 –

Principles of printing

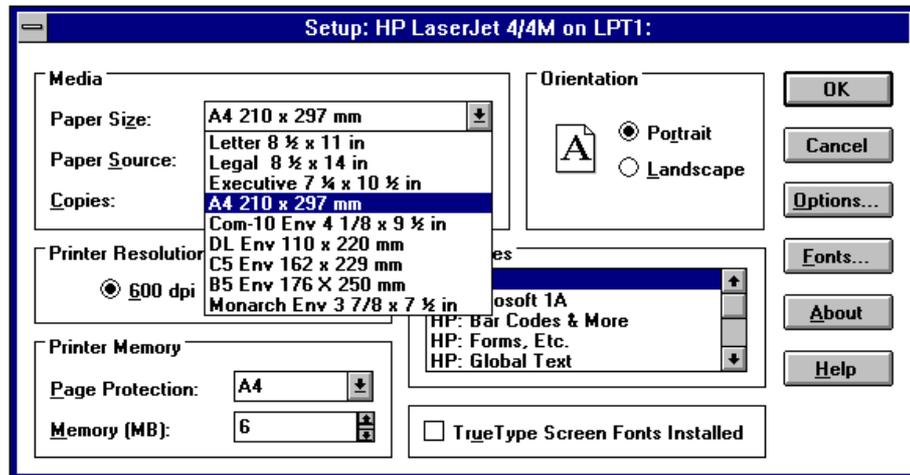
By default, Cardbox will print records exactly as they appear on the screen. You can, however, add special printer settings to the format definition, which can make the printed copy different in the following main respects:

- Font and size** A different typeface can be selected for printing, and special printer attributes, such as emboldening, italics, or underlining can be assigned to different elements of text.
- Background** On the screen, records often look better with a tinted background, but in print, a white background is best.
- Page layout** Even when only one record appears in the database window, several records per page may be selected for printing, possibly arranged in multiple columns or labels.

You only have to define printer settings once (you can, of course, change them later if you want to), and once they have been defined, printing becomes a routine task.

Chapter 14 described how to print records once printer settings have been defined. This part of the manual explains the possible printer settings and how to define them. We begin with an explanation of the basic terminology.

30.1 Paper sizes

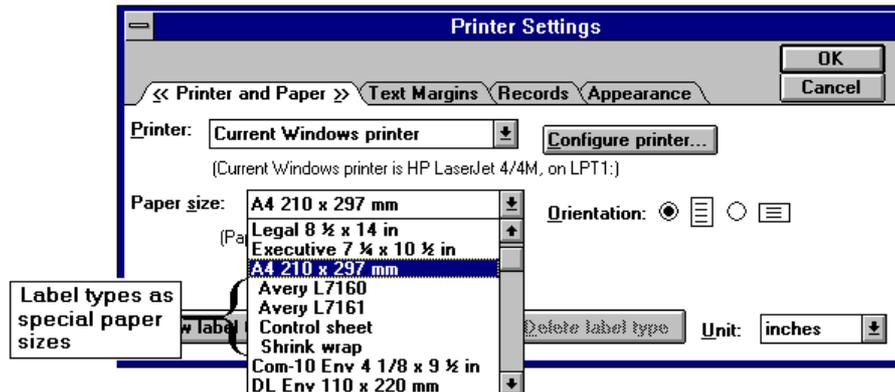


Cardbox handles all paper sizes that are available on your printer. The illustration shows the paper sizes listed in the standard Windows printer

setup for our HP LaserJet 4. The list may of course be different for your printer, but the standard A4 size should be there.

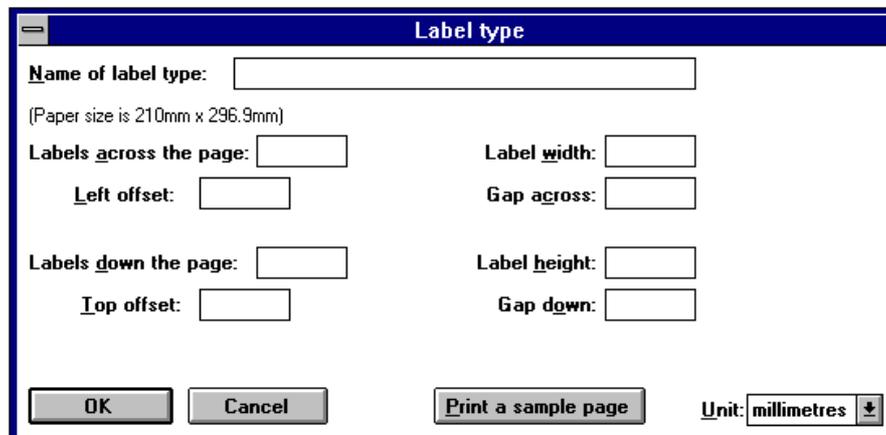
30.2 Label types

In Cardbox, a mailing label is simply another kind of paper, and you choose the label type in the same way that you would choose any other paper size. A label type defines the size of the sheet of labels (usually A4), the size of each label, and the arrangement of the labels on the sheet. Label types are listed in Cardbox's Paper Size list, grouped under the sheet size. Here is an example:

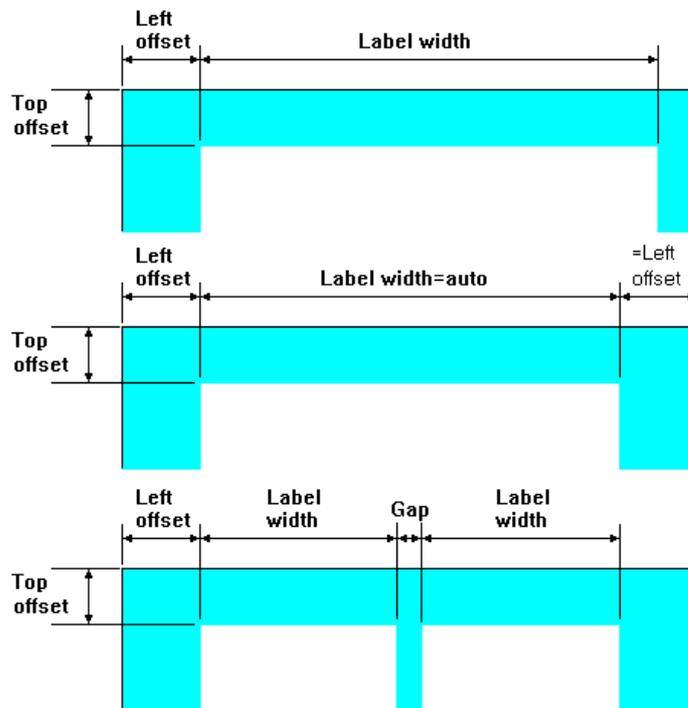


Cardbox comes with a number of label types built in, including the complete Avery range.

The contents of a label type



This dialog box shows what a label type contains. The diagrams below show how the various parameters relate to the physical layout of the label.



Each of the two offsets defines the clearance which should be left between the edges of the paper and the printable area.

Label width defines the width of the printable area. You can either define the width explicitly or leave it at the default value auto, in which case Cardbox will compute it on the assumption that the left offset applies also on the right. The same applies in the vertical direction, to the top offset and label height.

Sometimes a sheet of mailing labels has a gap between one label and the next, and you can specify this as well (of course, this only applies if there is more than one label across or down the page). As usual, if you leave either the label width or the gap at auto, Cardbox will assume a symmetrical layout of the labels.

30.3 Printing in columns

To print in more than one column, simply define a special dummy "label type". For instance, to print in three columns, use the following definition:

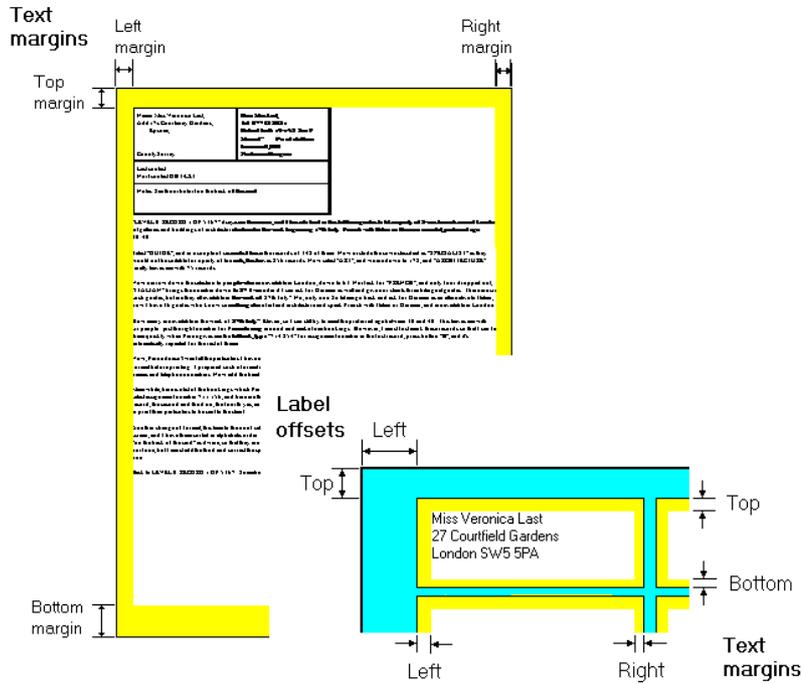
Labels across the page=3

Labels down the page=1

Leave everything else at auto.

Cardbox will then print as if the paper consisted of three tall and narrow labels side by side, which is just the effect you want.

30.4 Text margins



Text margins are the margins that are to be left clear between the edge of the paper and the printed text. For label types, the margins are measured from the edge of each label, not of the sheet. The pictures above illustrate the difference.

Laser margins

All current laser printers and some other printers cannot print right up to the edge of the paper. For consistency, Cardbox always measures margins from the edge of the paper, but if your printer settings end up asking for text to be printed outside the area that your printer can actually print, Cardbox will make the margins wider where necessary. In doing so, it will shift records away from the edge of the paper and word-wrap variable width text, such as extra text, between the narrower margins.

In print previews, Cardbox uses cross-hatching to indicate the area not available for printing..



<< Text Margins >>

(Paper size is 8.27in x 11.69in)

Top margin:

Bottom margin:

Left margin:

Right margin:

Unit:

This printer cannot print as close to the edge of the paper as your margin settings require. The margins will be adjusted when printing.

The minimum margin required is typically about ¼", or 7mm. If you leave any of the margins below the minimum value, then a message in the dialog box will tell you that laser margins will be applied. The resulting repositioning of text may be of no significance when you print records on a whole page, but it may have an unexpected effect with labels.



This example shows how an automatic application of laser margins would affect the positioning of the printed text of a row of labels (the space that will be used for printing is shown unshaded). Cardbox keeps all the label widths the same, and it also tries to avoid reducing the width of printed text by shifting the leftmost label bodily to the right. If you do not like this result, specify margins wide enough to avoid the unprintable area.

30.5 Units of measurement

You can express the measurements of margins, label sizes, etc. in any of these units:

- inches
- millimetres
- character width or line height

Unit:

inches

millimetres

chars/lines

<< Text Margins >>

(Paper size is 8.27in x 11.69in)

Top margin: =0.97in

Bottom margin: =0.79in

Left margin: =0.76in

Right margin:

=1.2in

=0.79in

=0.94in

Unit:

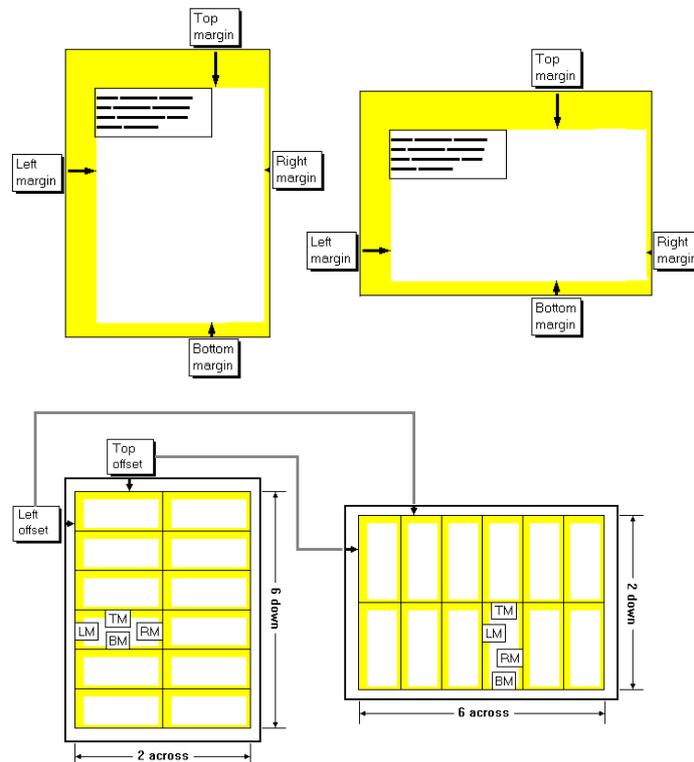
You can use any mix of units in your specifications. If you enter a number on its own, Cardbox will assume the currently selected unit; otherwise, you

can enter a number followed by the initial letter of the measurement you want: inches, millimetres, etc. The sizes of the "characters" and "lines" units depend on the currently selected font and size, as shown in the inset above.

30.6 Page orientation

Most printers can print in either portrait or landscape orientation: if yours cannot, ignore this section.

Text margins retain their value and sense regardless of changes in orientation. So, for instance, if you have specified the top margin in portrait orientation and then switched to landscape, the margin at the top of the page would still have the same value.



In contrast, the counts and measurements contained in a label type relate to the paper and are turned round with the paper as you go from portrait to landscape: "top offset" really means "offset from the narrow end of the sheet", "labels down" means "labels along the length of the sheet", and so on. Within individual labels, however, each text margin is still measured in the direction implied in its name, regardless of the orientation in which it was originally specified: the top margin is always the margin above the printed text.

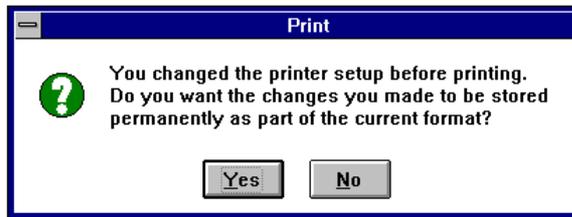
This description may sound complicated, but its result is simple: you don't need two different label types, one for portrait and one for landscape, and the names of the text margins always mean what you expect them to mean.

Chapter 31 –

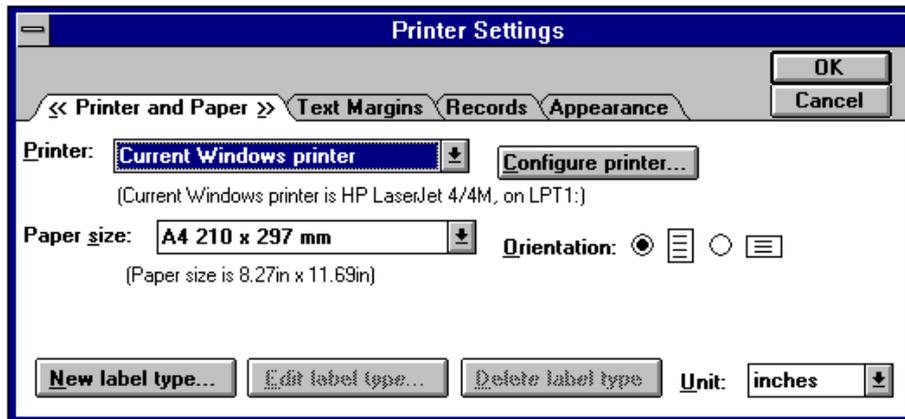
Printer settings

All printer settings are accessible from the dialog box shown below. You can access it and store your settings as part of the current format definition in the following ways:

When	select	To store changes
displaying records	File Printer settings	stored automatically unless you cancel the dialog box
in the Print command	Setup in the Print command's dialog box	answer Yes in the box shown below as you exit the Print command



The Printer Settings dialog box



To keep the screen uncluttered, the Printer Settings dialog box is divided into four pages. To turn to a page, click on the appropriate tab – Printer and Paper, Text Margins, Records, or Appearance. From the keyboard, press

ALT+> to go to the next page or ALT+< to go to the previous one (do not press the SHIFT key).

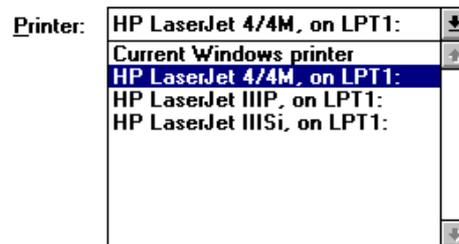
31.1 Printer and Paper

This page of the Printer Settings dialog box enables you to:

- specify the printer and its configuration
- select the paper size and page orientation
- select, design or edit a label type.

Naming the printer

Cardbox starts by using the printer that you have defined as the default printer within Windows. You can override this choice by selecting another printer from the list in the Printer box.

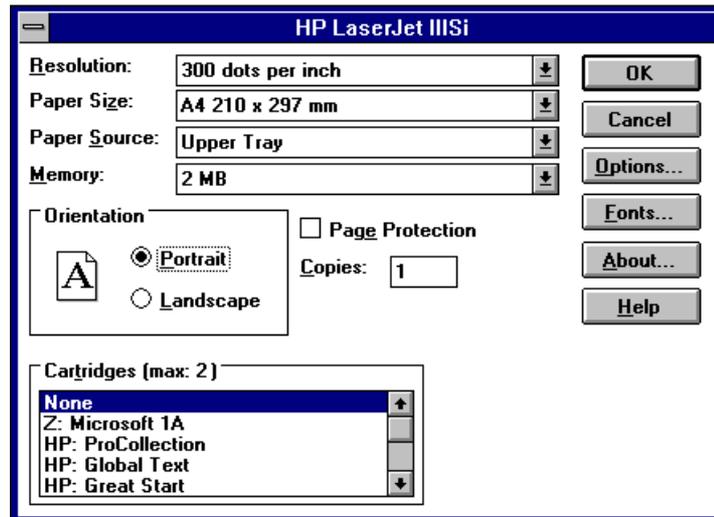


Printer configuration

Note Most of the printer configuration details are set when you install your printer, and you should have no need to change most of them, unless

- you want to use a special paper feed,
- or you want to print more than one copy of each page.

The Configure printer button will open the standard Windows Print Setup dialog box for the specified printer.



This dialog box is very different for different printers (the example shown is for the HP LaserJet III Si), but some features are common to most laser printers.

Paper source

If your printer can take paper more than one source (upper tray, lower tray, manual feed), then you can select a choice here. Usually there is no need to do anything because the default choice is enough.

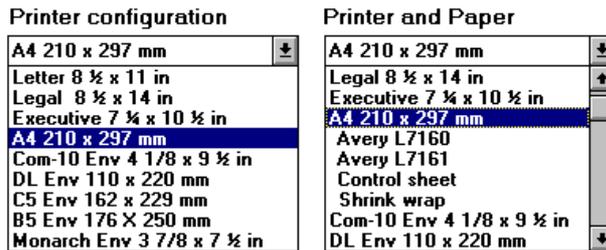
Copies

This option defines how many times each page of paper is to be printed. Not all printers can print multiple copies of each page, so this option may not be present.

This option duplicates whole pages, not individual records. If, for example, you are printing mailing labels and want several labels for each record, do not use the Copies option here, but go to the Records page of Cardbox's Printer Settings dialog box (Section 31.3).

If the printer you have chosen is the "Current Windows printer", then the changes that you make will usually apply to all future print jobs; if you have chosen a printer directly by name, then any changes to print settings will apply only to printing in the currently selected Cardbox format.

Paper size and label types

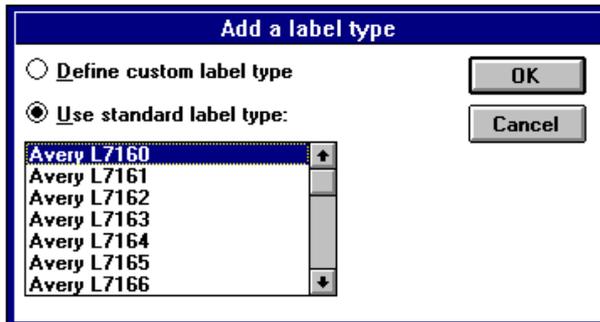


Cardbox's "Printer and Paper" list looks very much like the list of paper sizes in the printer's own configuration dialog box, but as well as listing paper sizes, it lists any available sizes of mailing labels: to choose a mailing label size, select it from the list.

Adding a label type to the Paper Size list

When you first run Cardbox, you will not see any label types in its Paper Size list. This is because there are so many types of labels commercially available that listing them all would clutter the list and make it unusable. You have to add a label type to the list before you can use it. You only have to add the label type once: after that, it will always appear whenever you open the Paper Size list.

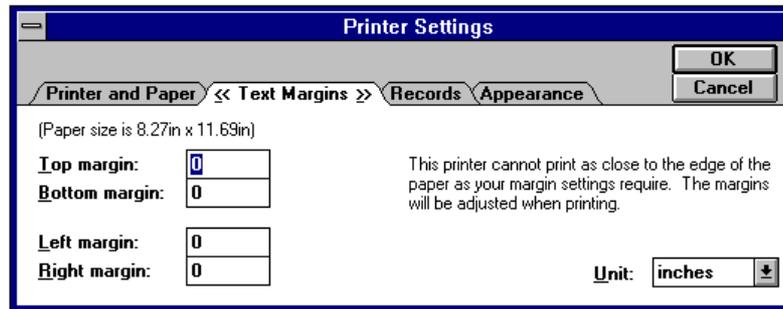
To add a new label type, look at the size of the label sheet as a whole, and select the corresponding paper size from Cardbox's "Printer and Paper" list. Then press the New label type button in the Printer Settings dialog box. You will see the Add a Label Type dialog box.



The dialog box lists all the pre-defined label types that Cardbox knows about. To use one of these types, select the Use standard label type option and pick the label type from the list.

If your label type is not listed, you will need to define it, using the Define custom label type option. For full details of this, see Chapter 32.

31.2 Text Margins

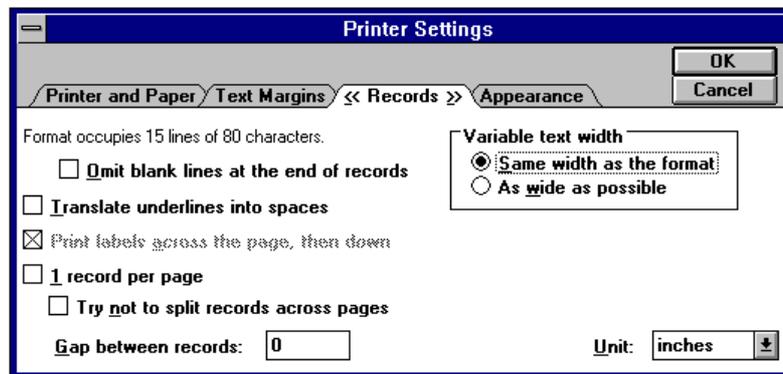


Use this page of the Printer Settings dialog box to set the margins of your printed text. As explained in Section 30.4,

- if you are printing on ordinary paper, the margins are measured inwards from the edge of the paper,
- if you are printing on mailing labels, the margins are measured inwards from the edge of each label.

The message about laser margins appears if you are using a laser printer that cannot print right up to the edge of the paper (most laser printers cannot) and will continue to be displayed as long as any margin remains below the limit defined for the printer, which is usually about 7mm or ¼in. The adjustment which Cardbox will perform to clear the laser margins may have a significant effect on labels; please refer to Section 30.4 for further details.

31.3 Records



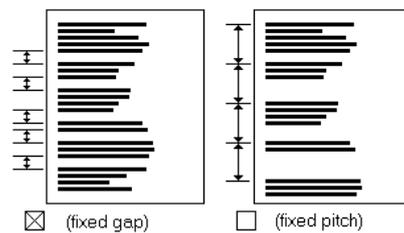
This page of the Printer Settings dialog box enables you to control the handling of records on the page.



The indicated size of the format will be accurate for a format consisting of fixed-size items, such as fields shown on the left above. For a merge block with automatic height and width, Cardbox can detect how far you have allowed the block to expand horizontally, and will give you an accurate indication of the width of the format. But it will only report the number of lines that the merge block occupies in the format, and you will have to take into account the possibility of the block expanding into more lines in print.

Omit blank lines at the end of records

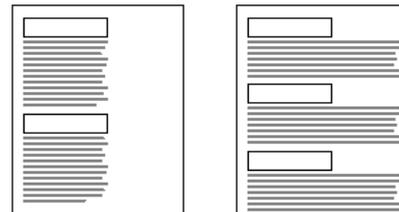
With this option selected, records will come out at variable length with a fixed gap between them, otherwise, they will be printed at fixed pitch.



Variable text width

This option applies under the following circumstances.

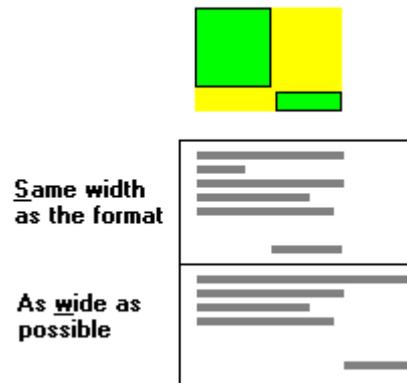
- If you are printing extra text as part of your record, i.e. if you have selected either Extra text or Both in the Print command dialog box.



- If there are automatic-width merge blocks in the format.

This example shows a format for a mailing label. There are two automatic-width merge blocks, the top one left-aligned for the main part of the address, and the lower one right-aligned for the postcode.

These diagrams show how text is aligned with the boundaries of the format with the first option, and with the text margins of the label with the second option.



Print labels across the page, then down

This option applies to mailing labels only.

1 record per page (1 record per label)

Some further options will depend on the setting of this option.

<input checked="" type="checkbox"/> 1 record per page <input type="checkbox"/> Truncate record at end of page Copies of each record: <input type="text" value="1"/>	<input type="checkbox"/> 1 record per page <input type="checkbox"/> Try not to split records across pages Gap between records: <input type="text" value="0"/>
--	--

Truncate records at end of page (end of label) (1 record per page/label)

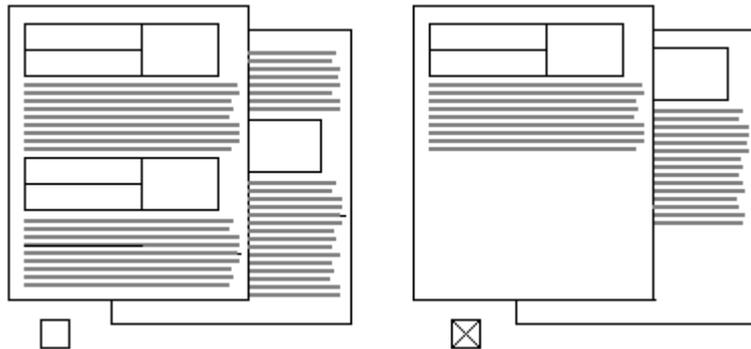
Do not set this option for mailing labels or you may lose the most essential part of a long address. With the option not set, any overflow will be printed on the next label.



Copies of each record (1 record per page/label)

This tells Cardbox how many times it should print each record before going on to the next one. If you want to repeat whole pages rather than individual records, then do not set this option, but set the number of copies in the printer configuration - see Section 31.1.

Try not to split records across pages/labels

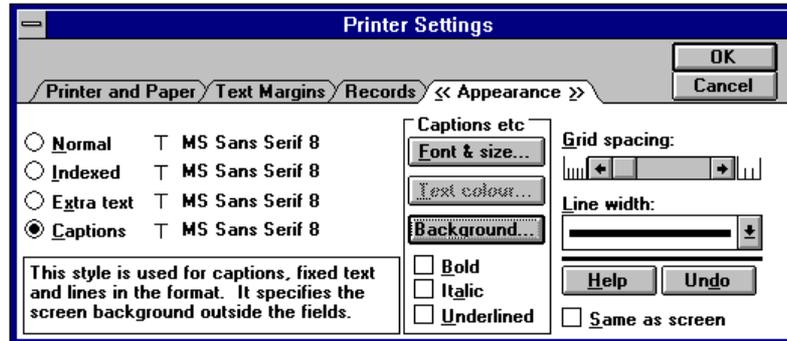


This option applies to records containing a large amount of continuous text, such as extra text. Normally, Cardbox will print as much of a record as it can on one page, and then continue it on the next. If this option is set, Cardbox will start a new page at once if it can thereby avoid having to split a record.

Gap between records

Check, and change if necessary, the unit of measurement before specifying how much of a gap there should be between one record and the next.

31.4 Printer-specific appearance



Any settings that you define in this page of the Printer Settings dialog box will apply only to printing: they will not affect the appearance of records on the screen.

This page has basically the same elements as the corresponding dialog box for screen appearance (Chapter 7). The Same as screen check box enables you to cancel all printer-specific appearance attributes and revert to those used for screen display.

Depending on the printer, there may also be differences in the following buttons:

Text colour This button will be disabled if your printer can only print in black. All colours other than white will in this case be printed black, and if you want to make a distinction between indexed and unindexed text, you can use emboldening, italics, or underlining, or choose different typefaces.

Background Shading of various grades replaces background colours on a black and white printer. If your printer cannot print backgrounds, then this button will be disabled too.

31.5 Errors and troubleshooting

At some intermediate stages in the definition of printer settings, you may get the error message:

Error: Declared record width exceeds available space

and the most common causes of this error are:

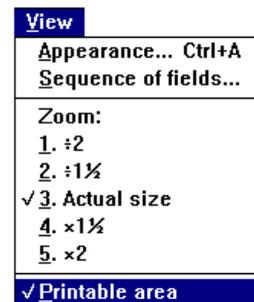
- wrong paper size or label type,
- wrong page orientation,
- font size too large

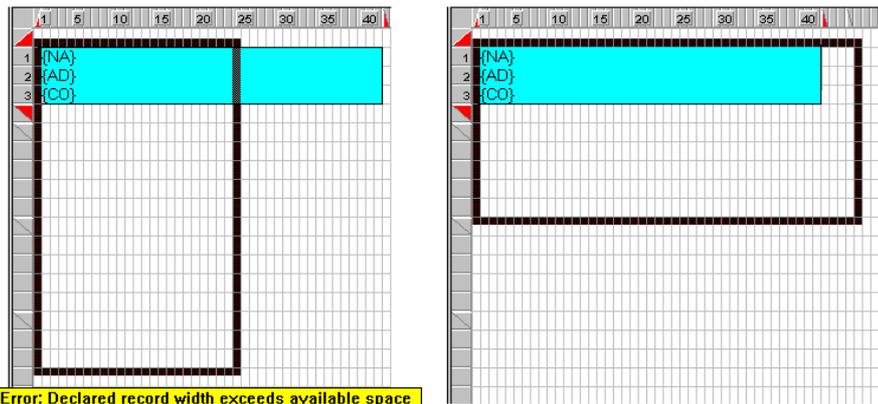
When this error message is displayed, you can neither print records nor preview the printed output, but you can get a quick indication of what the problem may be by comparing the format you are using with the printable area corresponding to the current printer settings.

To compare the format with the printable area,

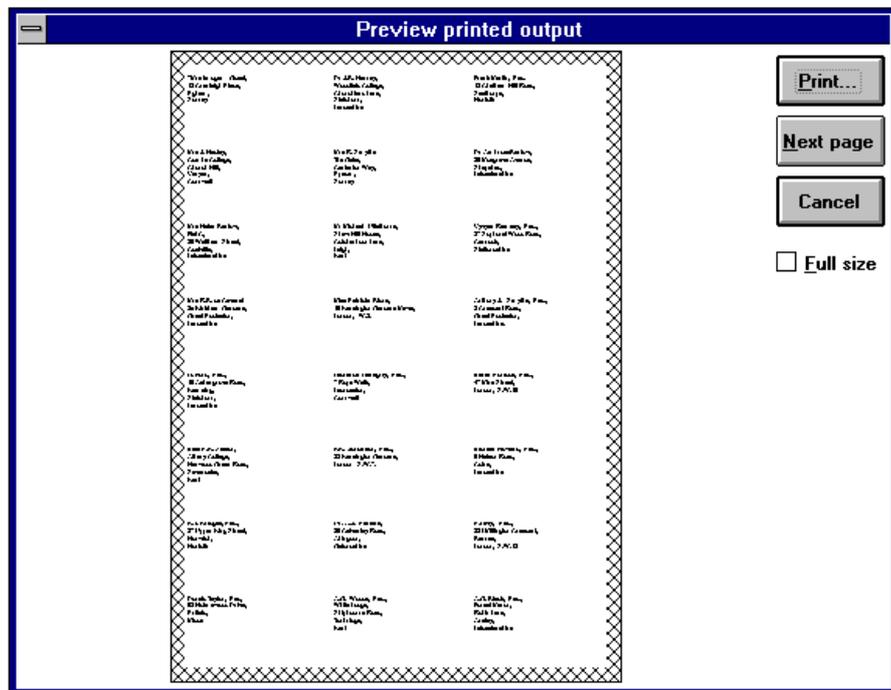
- edit the format,
- choose **View, Printable area**.

The results are illustrated in the examples below.

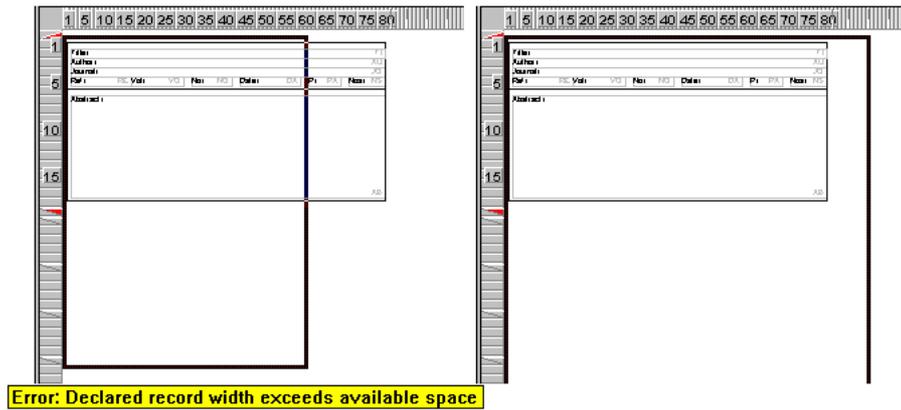




Here is an example of the printable area superimposed over a format for labels. Clearly, page orientation is at fault in this case, and by changing it, you will make the label fit within the printable area.

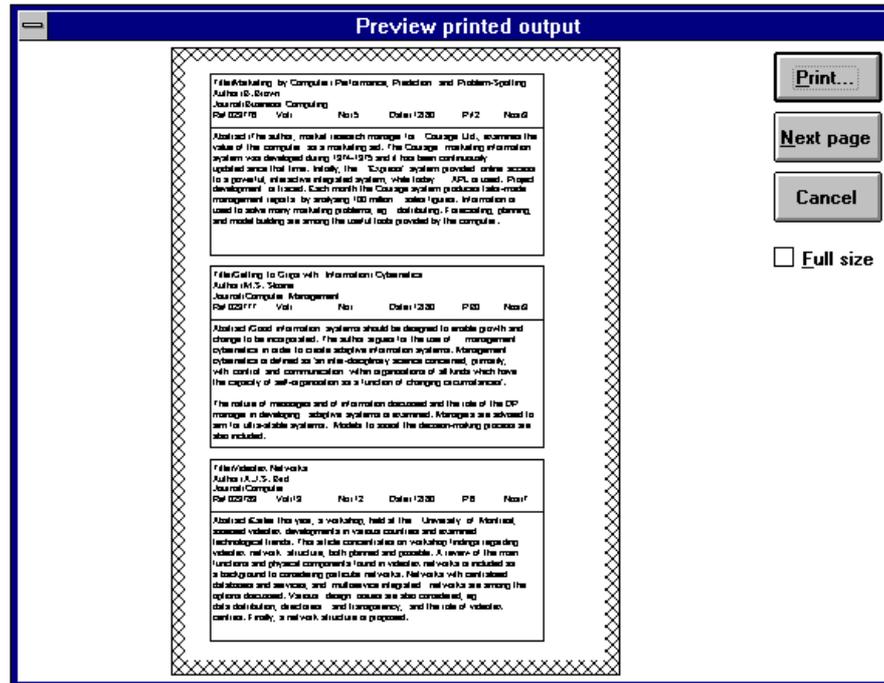


You can further confirm by print preview that this is all that needs to be done to printer settings.



In this example, a change in page orientation will make the record fit within the printable area, and this is all that you need to do if you really want to print one record per page in landscape orientation. But if you want to print several records per page in portrait orientation, as shown in the preview below, then you should choose a smaller font in printer settings.

By choosing a smaller font for printing, you enlarge the printable area superimposed on the format. The size of records on the screen is not affected because the format is always displayed in the fonts specified in the screen appearance attributes.



Chapter 32 –

Designing Labels

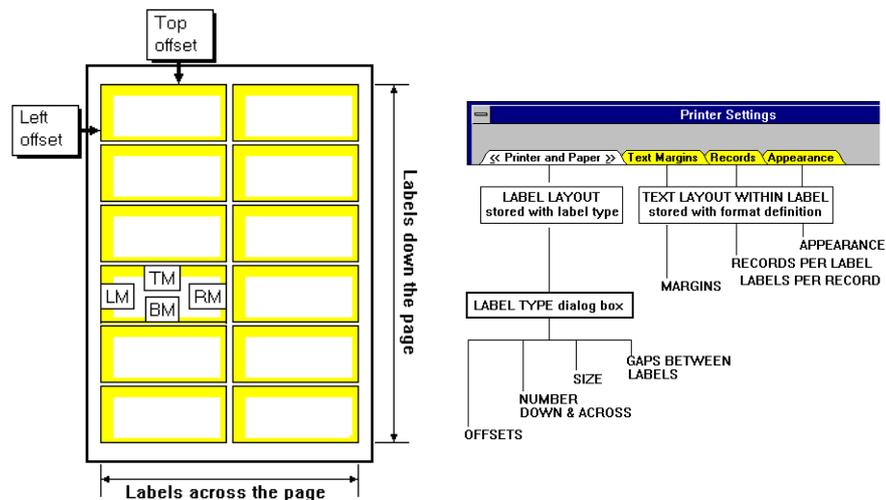
Cardbox comes with a set of standard label types already defined for you, but you can also design your own label types, either to match a special sheet of mailing labels or simply to arrange multi-column printing of your records

Each label type must be based on a paper size available on your printer, or on an already existing label type. You store each label type under a distinct name, and the names of the label types that you have created will be added to the drop-down list of paper sizes in the Printer and Paper page of the Printer Settings dialog box.

Once you have designed a label type, you will be able to use it in any of your formats.

32.1 Outline of label design

In designing a label type, you tell Cardbox into how many labels to divide the page, what margins to leave along the edges of the paper and what gaps between the labels.

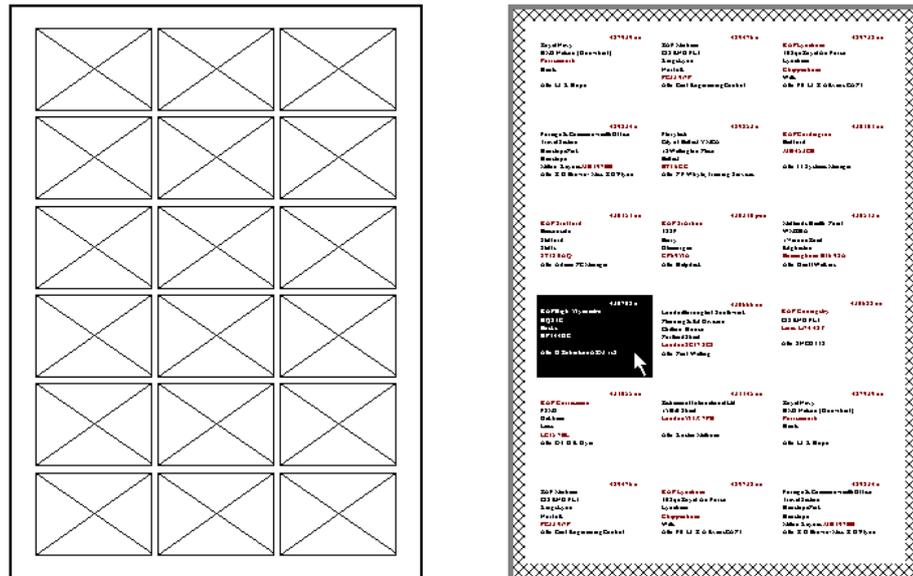


The main facilities for designing a label type are available in the Label Type dialog box, accessible from the Printer Settings dialog box. Once you have divided a page of paper into labels, each label becomes a virtual page, and all the remaining Printer Settings options apply to the layout of text within the label. These further options are specific to the current format, so you can

have several formats sharing the same label type but with different text margins, fonts, etc.

32.2 Design aids

There are two utilities to which we make frequent reference in this chapter, and which you can usefully employ in designing your labels.



When designing a label type for a particular sheet of labels, you can at any stage print a sample page by choosing **Print a sample page** in the Label Type dialog box. Such a sample page, illustrated on the left above, shows exactly where each label would be positioned, and you can lay it on top of a label sheet to check correct sizing and spacing.

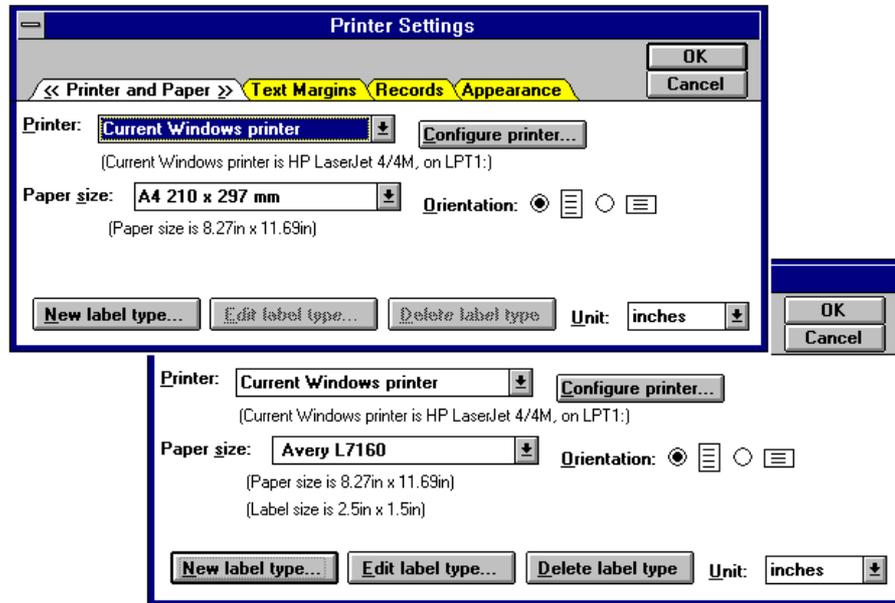
Having achieved the desired layout, you can use **Print Preview** (**File, Print Preview**, or press **Preview** in the Print command dialog box) to check the positioning of text within the labels. By moving the mouse cursor to a label, as shown on the right above, you can display the whole label in reverse colour and thus check what margins there are to compensate for possible misalignment in printing, and how much spare room there is for unusually long records.

Note Preview is available only if the size and shape of the labels is compatible with the size and shape of the format and with the font and size that you have specified for printing. If labels are too small or of the wrong

shape to accommodate records in the current format, then Cardbox will inform you of this is an error message, and preview will not be available.

We deal with the various errors that might arise in label design later in this chapter.

32.3 Creating and editing a label type

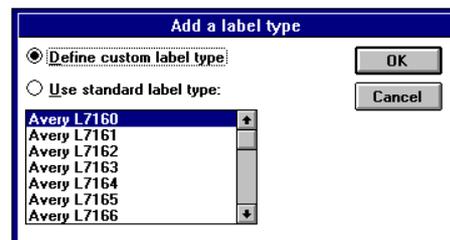


Functions for the design and editing of labels are accessible from the Printer and Paper page of the Printer Settings dialog box.

To create a new label type from scratch:

Select the standard paper size that corresponds to the size of the whole sheet of labels, set the appropriate orientation, name the printer, then choose New label type.

In the Add a Label Type dialog box, just click OK or press ENTER to define a custom label type.



To create a new label type starting from an existing label type

Select the label type on which you want to base the new label type, then choose Edit label type. Remember to change the name of the label type before you close the Label Type dialog box.

To edit an existing label type

Select the label type you want to edit, then choose Edit label type.

Sharing a label type across the network

Label types are stored in the initialisation file CBOX.INI, which is private to each user. To make a label type available to multiple users, you will have to copy it to the CBOX.INI file for each of them. For more details, see "Sharing mailing label definitions across a network" in the on-line help (**Help, Technical articles**).

32.4 Designing a label type

The screenshot shows the 'Label type' dialog box with the following settings:

- Name of label type: (empty)
- (Paper size is 8.27in x 11.69in)
- Labels across the page: 1
- Label width: auto = 8.27in
- Left offset: 0
- Gap across: 0
- Labels down the page: 1
- Label height: auto = 11.69in
- Top offset: 0
- Gap down: 0
- Buttons: OK, Cancel, Print a sample page
- Unit: inches

The name of a label type

You must store every label type with a distinct name.

If you enter an existing name when defining a new label type, you will get the message shown opposite when you try to close the Label Type dialog box. If you choose to replace an existing name, you will lose the original custom label stored under that name.

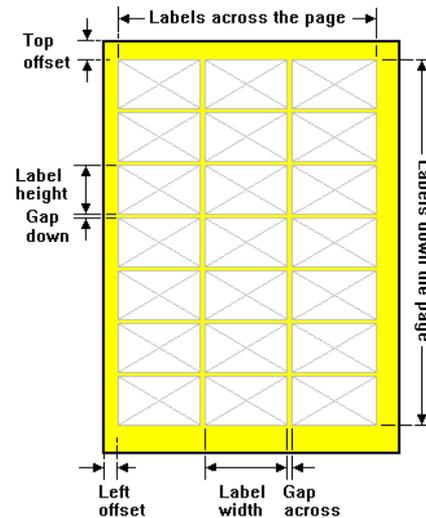
However, Cardbox will not let you re-use the name of a standard label type.



The measurements

This picture shows how the measurements entered in the Label type dialog box apply to a sheet of labels. As described below, you can leave some dimensions undefined, to be derived automatically from the others.

The measurements apply as shown also in landscape orientation. However, **you must set the applicable orientation before dimensioning** the label type. As shown in Section 30.6, a change in the orientation of a dimensioned label type produces a bodily rotation of the layout, and the labels may be of wrong shape for the given format.



Defining the layout

You can enter the measurements of a label type in any order and in any combination of units to suit the material for which the label type is intended.

Aim to reproduce in your design the actual layout of the labels so that if you were to place a sample page over the label sheet, the edges of all labels would coincide.

Cardbox recomputes the layout with each measurement that you enter and, as long as you leave at least one measurement in each direction at "auto", it will assume that the layout of the label sheet is symmetrical. That is, it will apply the given left offset also at the right edge of the sheet, and the top offset also at the bottom.

In these examples, we use bold type for the measurements defined in the Label Type dialog box, and plain type for the derived or default measurements.

Example 1 - Laser printer labels

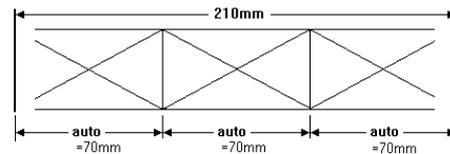
We use the term *laser printer labels* for the label sheets which have a symmetrical layout and a margin of at least 7mm along all edges. In this example, we show the steps involved in defining the horizontal layout to match the Hewlett Packard labels, 92296N, 3 labels across and 7 down on an A4 sheet (210 x 297mm)..

Labels across the page: 3

Left offset: 0

Label width: auto=70mm

Gap across: auto=0

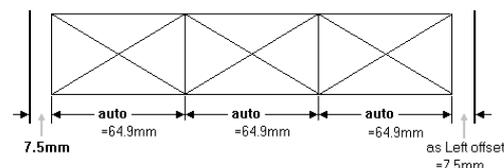


Labels across the page: 3

Left offset: 7.5mm

Label width: auto=64.9mm

Gap across: auto=0

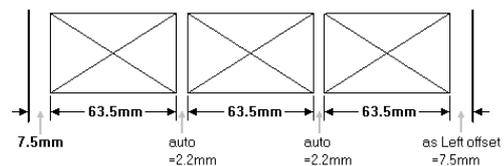


Labels across the page: 3

Left offset: 7.5mm

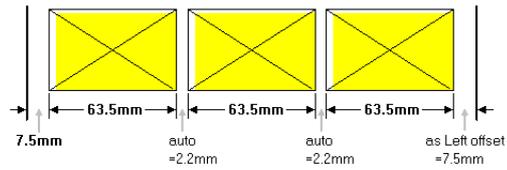
Label width: 63.5mm

Gap across: auto=2.2mm



This gives labels of the right width and in the right positions. We have assumed in the illustrations that the vertical layout has already been defined; all that you need to specify for these labels is 7 labels down and a top offset of 15mm.

Introducing next some text margins, you can reduce the printable area of each label to the shaded portion in this picture, in order to keep the text clear of the left and top edges of labels.



Example 2 - Photocopier labels

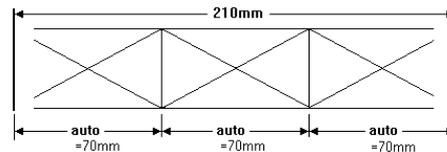
We use the term *photocopier labels* for the sheets on which the labels are symmetrically arranged, but stretch right to the edges of the sheet. Again, we take as an example an A4 sheet with 3 labels across, each label 70mm wide.

Labels across the page: 3

Left offset: 0

Label width: auto

Gap across: auto=0



By specifying 3 labels across while leaving the other parameters at their default values, you automatically ensure a correct division of the sheet into three 70mm labels. However, if you print a sample page on a laser printer, you will see that the outside labels would not be fully printed because the laser printer cannot print right up to the edge of the paper.

The simplest way of getting round this problem is to specify left and right text margins of at least 7mm whenever you use this label type: see Section 31.2. In fact, because of the way that Cardbox shifts labels to compensate for laser margins, left and right margins of 4mm will normally be enough: try it and see.

Alternatively, you could lie to Cardbox about the label layout, inventing an arrangement of smaller labels that fit within the real labels and the laser margins. If you want to do this, you can check that you are getting it right by printing a sample page and ensuring that none of the labels that you have defined actually cross the edge of a real mailing label.

Example 3 - Multi-column printing

In this example we prepare a label type for printing records in 2 columns on an A4 sheet, with a margin of 1" to the left of the first column.

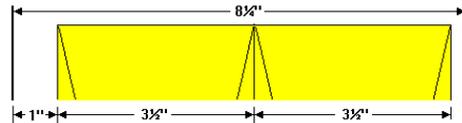
Humpty Dumpty	Old woman
Edited by Peter Pan	Edited by Cinderella
1989	1992
Humpty-Dumpty sat on a wall, Humpty-Dumpty had a great fall. All the King's horses and all the King's men couldn't put Humpty together again	There was an old woman who lived in a shoe. She had so many children she didn't know what to do. She gave them some broth without any bread. She spanked them all soundly and put them to bed

Labels across the page: 2

Left offset: 1"

Label width: 3.5"

Gap across: auto=0



These settings give the columns in the required positions but, as shown by the shading, there is no clearance left between the end of text in the first column and the start of text in the second.

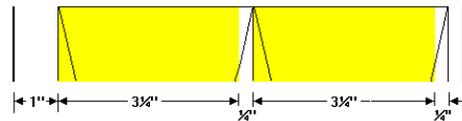
One way of ensuring the required clearance is to specify a right text margin in the format – of $\frac{1}{4}$ ", say – leaving the definition of the label type unchanged. This has the effect of reducing the printable width in each column to $3\frac{1}{4}$ ".

Labels across the page: 2

Left offset: 1"

Label width: 3.5"

Gap across: auto=0



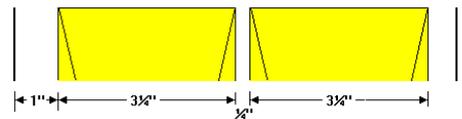
Another way of achieving the same effect is to reduce the label width to $3\frac{1}{4}$ " and introduce a gap of $\frac{1}{4}$ ", without any text margins.

Labels across the page: 2

Left offset: 1"

Label width: 3.25"

Gap across: 0.25"



Gaps or text margins?

In deciding which method to choose for positioning text on labels, whether text margins or gaps, bear in mind the following points.

- Text margins are stored in the definition of the current format, and you have to define them individually for each format.
- Gaps are a property of the label type. Once you have defined gaps to give the required clearance between the text and the edges of labels, these gaps will apply to every format referred to the given label type.
- Having defined the gaps in the label type definition, as in the examples above, you can still use text margins to increase the clearance between the text and the edges of labels in individual formats.

32.5 Deleting a label type

If your list of paper sizes becomes cluttered with label types that you are never using, you can remove some of the label types. To remove an unwanted label type, first select it and then press **Delete label type**. A custom label type of your own design will be fully deleted, but a standard label type will only be removed from the normal list of paper sizes, and you can put it back in that list later.

If you happen to delete a label type stored with a format, then you will get this message the next time you use that format for printing:



Clear the message, but do not go ahead with printing, because Cardbox will have replaced the deleted label type by plain paper of the appropriate size, and your printout is unlikely to be satisfactory. Before printing, you must either redefine the deleted label type, or reload it from the list of standard label types - if this is where it originally came from.

32.6 Errors in label design

Cardbox will report an error if either the layout of the page or label type you have defined does not fit the paper or if the record format does not fit within the printable area of the page or label.

Error: Label layout exceeds page height**Error: Label layout exceeds page width**

Either of these error messages means that there are too many labels of the specified size, with possibly also an excessive gap between them, to fit into the height or width of the page. Apart from checking these parameters, look also for the following possible causes:

- Wrong paper size or orientation
- Excessive offsets
- Wrong units of measurement.

Error: Declared record width exceeds available space

The space to which this message refers is the printable area within the label, which is the size of the label as defined in the label type less any horizontal text margins.

You can investigate this error in the way described in Section 31.5.

Error: Record width is too small for any text**Error: Record height is too small for any text**

The first of these messages reflects an extreme case of the cause of the previously discussed message, and it means that there is no room to print even one character. The second message means that there is no room for even one line. In either case, investigate as suggested above.

Error: Available space is too narrow for extra text

Either you are trying to print in columns which are too narrow, or the record is narrow, and you have set the Variable text width in the Records dialog box to Same width as the format. The width of the format matters even if you are printing extra text alone, unless you set the variable text width at As wide as possible.

Chapter 33 –

Transfer of data

You can transfer files between different Cardbox databases using a variety of formats, and Cardbox also supports formats suitable for exchanging data with other programs.

We first describe the various formats that you can use in file transfer, and further sections in this chapter describe the relevant procedures in detail.

33.1 File formats

Cardbox gives you a choice of three standard formats for the exchange of data: Internal, External and Comma-delimited, and it can also write text files in any format that you design.

Internal - this is a very specialised format. It defines everything about a field, including which words in the field are to be indexed. It can be read and written by specially designed programs.

External - this format is easier for other programs to read and write; and it can be handled by most word processors. Files in this format contain field identification but no indexing information.

Comma-delimited - this format can be read and written by most database programs, and word processors such as Microsoft Word can use them when merging data into documents.

For a full definition of each of these formats, use **Help, Technical Articles** to open the Technical Articles section of the Cardbox help file and look at "File input and output formats" under "Data Transfer".

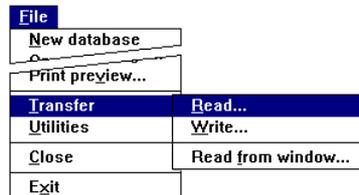
33.2 Loading data from files

The following general points apply to loading records from files in all formats.

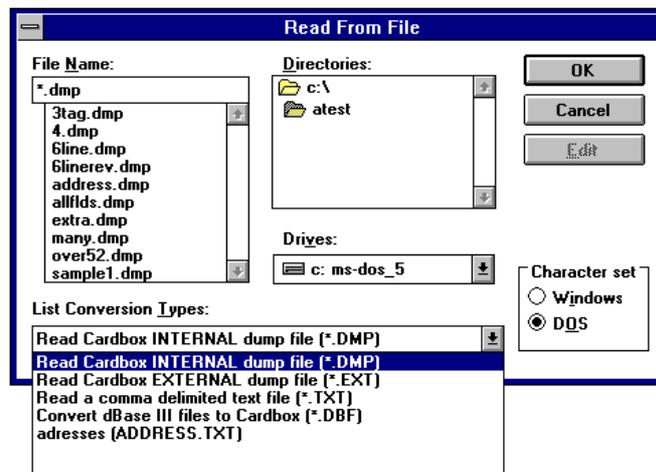
- Data are loaded to create new records in the currently active database window.
- The format currently in force is immaterial; data are loaded into all matching fields regardless of whether they are present in the current format. But matching of data to fields depends on the type of the input file; see under separate headings below.

- The size of the field into which data are loaded is immaterial; the relevant data are always loaded in full, though they will not be displayed in full if the field is too small.
- Records are not validated as they are loaded. If you are using validators, you should use the command **Edit, Batch, Validate** or **Edit, Batch, Select invalid records** after loading data, to ensure that the new records are valid.

To load a file in any standard format, choose **File, Transfer, Read**, which will open the Read from File dialog box described below.



The Read from File dialog box



The Read from File dialog box opens with the Internal format as default, together with a list of all files of the corresponding type, .DMP, in the current directory. You can then open the List Conversion Types box to select another standard format or to choose a customised type for comma-delimited input.

For every standard format that you select, Cardbox lists the corresponding files which already exist in the current directory.

Cardbox is ready to load the file in response to **OK** once you have specified

- the input file of type .DMP (Internal format) or .EXT (External format), or
- a customised type for a comma-delimited file (.TXT).

The reason why the filename alone is not enough to enable Cardbox to load a comma-delimited file is that it must be told into which fields the various items are to be loaded. Files in Internal or External format contain field designations, but comma-delimited files do not, and you must either first link the items in the file to fields in the target database or have the links defined in a customised type.

As it loads a file, Cardbox reports its progress by displaying the number of records it has read. On completion, it tells you how many records it has loaded.

Reading internal format files

As explained in Section 33.1, files in Internal format contain a field designation for each item, as well as full indexing and display information. This makes Cardbox's task very easy:

Fields are matched by their identifying codes. Items in the input file with no matching field identifying codes in the native format are ignored.

Indexing is reproduced exactly if a field's indexing mode is Manual or Automatic. With indexing mode All, everything loaded into the field will be indexed, and nothing will be indexed with indexing mode None.

Reading external format files

Files in External format contain field names but no indexing information:

Fields are matched by their names. Items in the dump file with no matching field names are ignored.

Indexing depends only on the indexing mode of the target field. With the Automatic or All indexing mode, everything is indexed; with the Manual or None indexing mode, nothing is indexed.

Reading comma-delimited files

Comma-delimited do not contain field names, and they do not contain indexing information. Because Cardbox has to know where to put the data it reads, you have to tell it what information should go into what field.

There is no need for you to give a destination for every item in the input file: items for which you specify no destination are ignored.

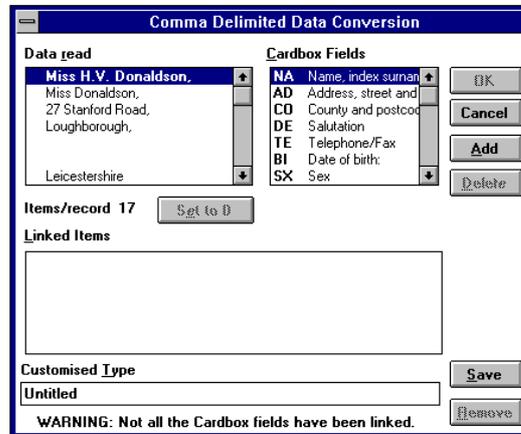
There is no need for you to fill every Cardbox field: if you do not specify any items to be put into a Cardbox field, the field will be left blank.

You can direct several items into the same Cardbox field: Cardbox will put them all into the same field, but on separate lines.

When loading a text file into a Cardbox database, you must specify:

- how many items make up a record.
- which Cardbox field each item should go into.

In the Read From File dialog box, select or selected or entered the text file you want to read, and then choose Edit. Cardbox will display the dialog box shown below.



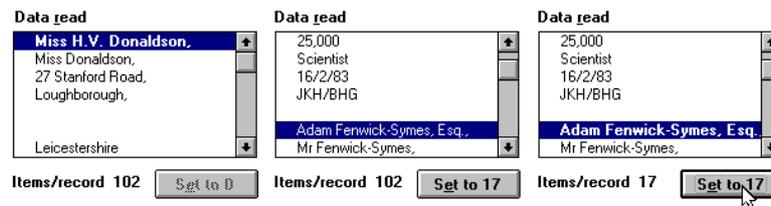
The Items Read box shows you the first few items in the input file, and the Cardbox Fields box the fields into which you can load the items. The Linked Items box will eventually show the links which you have defined.

The number of items per record

Cardbox must know how many items in the text file there are per record in order to:

- save each record after processing the right number of items, and
- apply the links defined for the initial batch of items to further items in the file.

When reading a comma-delimited file, you have to set the number of items per record in the following way.



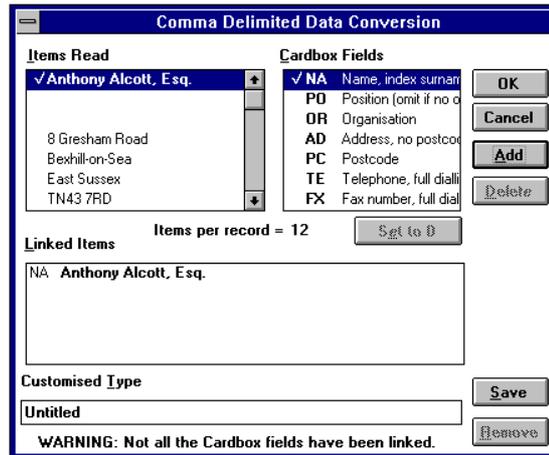
- Find the first item of the second record and click on it to highlight it.
- The Set to button will show how many items there are before this item. Click on the button to set this number as the number of items per record.

Note The number displayed in the Set to button will change as you select other items to link them to Cardbox fields. Ignore those changes and do not

click on the button again unless you really intend to change the number of items per record.

Some perverse programs write all the items in a record in one line but then omit completely any items that happen to be blank. This leads to a variable number of items per record, which would confuse Cardbox and get the fields completely out of step. If the program that wrote your comma-delimited file is like this, turn on Cardbox's "One Line per Record" option, and Cardbox will treat the end of a line as an end-of-record marker.

Linking items in the text file to Cardbox fields



To link an item to a Cardbox field,

- select the item and double click on the field into which you want to load it, or
- select the field and double click on the item which you want to load into it, or
- select the item and the corresponding field and click on the Add button.

Whichever way you link an item to a field, it will be shown with the applicable field name in the Linked Items box, and both will be checkmarked in their respective lists.

Comma Delimited Data Conversion

Items Read

- ✓ Ms Andrea A. Atkinson
- ✓ Director
- ✓ AAA Publicity Ltd
- 42 Pierrefondes Avenue
- London
- NW10 7TT

Cardbox Fields

- ✓ NA Name, index surname
- ✓ PO Position (omit if no d
- ✓ OR Organisation
- AD Address, no postcod
- PC Postcode
- TE Telephone, full diall
- FX Fax number, full dial

Items per record = 12

Linked Items

NA Anthony Alcott, Esq.

PO

OR

Customised Type

Untitled

WARNING: Not all the Cardbox fields have been linked.

If there is a blank item in the text file (as after the name in the first picture above), and you are not sure to which field it should be linked, then look down the "Items Read" list at a later record where the item is not blank (for example, "AAA Publicity" in the example shown), and select it from there.

Comma Delimited Data Conversion

Items Read

- ✓ Anthony Alcott, Esq.
- ✓
- ✓
- ✓ 8 Gresham Road
- ✓ Bexhill-on-Sea
- ✓ East Sussex
- TN43 7RD

Cardbox Fields

- ✓ NA Name, index surname
- ✓ PO Position (omit if no d
- ✓ OR Organisation
- ✓ AD Address, no postcod
- PC Postcode
- TE Telephone, full diall
- FX Fax number, full dial

Items per record = 12

Linked Items

PO

OR

AD 8 Gresham Road

AD Bexhill-on-Sea

AD East Sussex

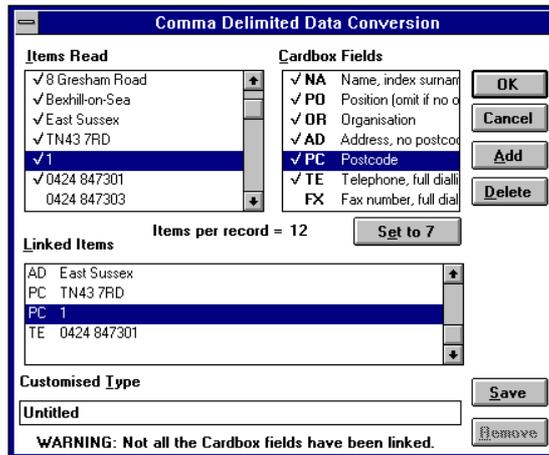
Customised Type

Untitled

WARNING: Not all the Cardbox fields have been linked.

To load several items into a field, select the field and then double click on each item, or select each in turn and choose **Add** for each. The order in which you link the items is immaterial; they will always be listed and loaded in the order in which they occur in the text file.

Changing and deleting links



To **change a link**, just redefine it. Each item can be linked to only one field, so the old link will be automatically overwritten.

To **delete a link**, select it in the Linked Items box and choose Delete.

Storing links as a customised type

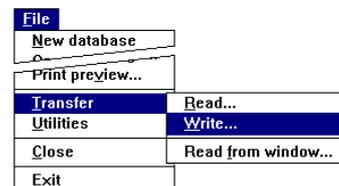
The process of defining links is quite tedious, so you can give a name to a set of links and store it as a customised transfer type. To do this, enter the name in the Customised Links box and choose Save. The new customised type will be available for selection as a conversion type when you next come to load data from files.

33.3 Writing data to files

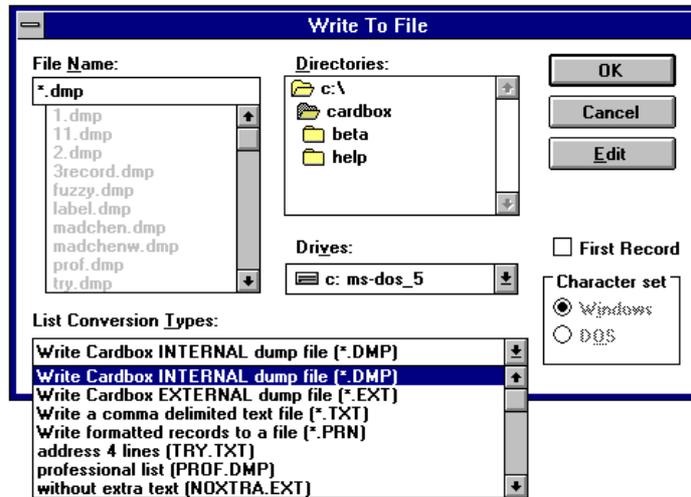
The following general points apply to output in all formats.

- Output starts with the current record, unless you specifically ask for it to start with the first record of the selection.
- Output continues to the end of the selection, unless you cancel the operation before the end is reached.
- Data are available for output from all fields, in full, regardless of which fields the current format contains or how fully data are displayed, but you can choose to confine the output to specific fields.

To write a file in any standard format, choose **File, Transfer, Write**, which will open the Write to File dialog box.



The Write to File dialog box



The Write to File dialog box opens with the Internal format as default, together with a list of all files of the corresponding type, .DMP, in the current directory. You can then open the List Conversion Types box to select another standard format or to choose a customised type.

For every standard format that you select, Cardbox lists the corresponding files which already exist in the current directory. You can select an existing file for output, but Cardbox will ask you for confirmation that the file is to be overwritten.

The First Record check box, if turned on, will start output from the first record in the current selection; otherwise, output will start with the current record.

To write all fields

Choose OK once you have named the output file.

To write selected fields

- Name the output file, then choose Edit and specify the fields in the way explained below,

OR

- Select the applicable customised type, then choose OK.

If you have a customised type, each one specifies

- the format of the output file,
- its name, which you can change if you do not want to overwrite the original output file,

- the fields which are to be written.

The name of the output file is shown in the title of each customised type, and its format is implied in the file type, eg .DMP for Internal, .EXT for External, etc.

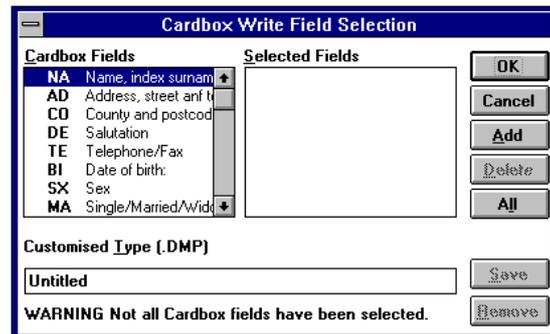
To see which fields are output with a given customised type, select that type and choose **Edit** to open the Field Selection dialog box described below.

Selecting the fields to be written

In response to **Edit** in the Write to File dialog box, Cardbox opens the Field Selection dialog box, in which you can specify the fields from which you want to write data.

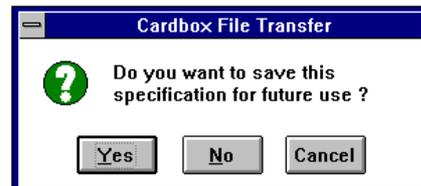
The Field Selection dialog box displays all fields in the native format of the database.

For a standard conversion type, the Selected Fields box will be initially empty.



- To transfer data from all Cardbox fields, choose **All**
- To transfer data from selected Cardbox fields, double-click on each field in the Cardbox Fields box or select it and choose **Add**. The fields you selected will be displayed in the Selected Fields box.
- To remove a field from those selected for transfer, select the field in the Selected Fields box and choose **Delete**.

Having selected the fields for transfer, you can choose **OK** to start the operation, but Cardbox will first give you a chance to save the specification for future use.

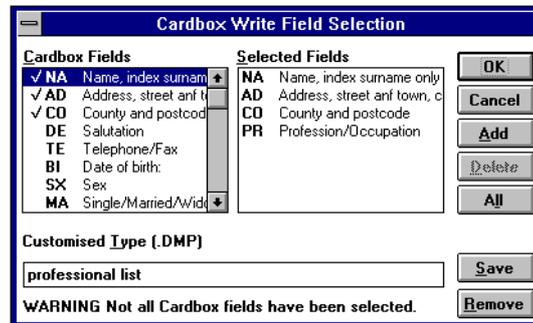


Saving field selection as a customised type

To save the specified selection of fields as a customised type, give it a name in the Customised Type box, and choose Save.

At the end of this operation, the dialog box might look like this.

This is also what the dialog box will look like the next time you open it having chosen this customised type.



To remove a customised type that you no longer want, select it in the Write to File dialog box, then choose Remove in the Field Selection box.

Field sequence

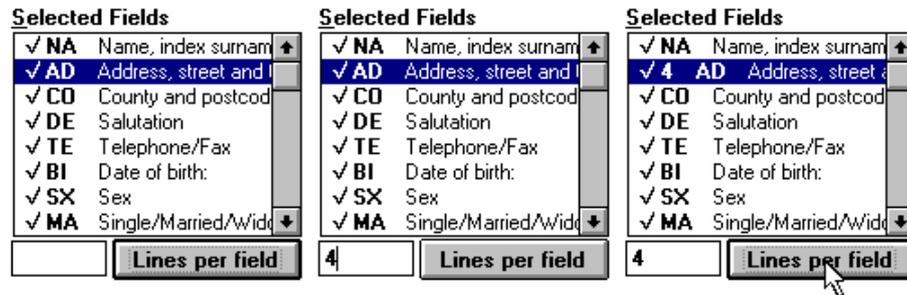
Fields are output in the sequence in which they appear in the Selected Fields list, which is the order in which you have added them to the list. You can, if you wish, change that sequence in the same way as you change the sequence of fields in the native format; see Section 29.1.

The sequence of fields is usually of no consequence, except when you want to process the dump file in some way before loading it into another database and some special sequence would make such processing easier.

Multi-line fields in comma-delimited files

Since the number of items in a comma-delimited file must be the same for each record, Cardbox outputs fields even if they are empty. A problem arises with multi-line fields, because their length might vary from one record to the next; so by default, Cardbox joins all the lines of a multi-line field into a single item. This will lose you any information about where each line ends, but if you want to preserve the division of the field into separate lines, you must tell Cardbox in how many lines the field is to be output.

You can specify the number of lines for a field at any stage in defining the links.



To set the number of lines per field,

- select the field in the Selected Fields box,
- enter the number of lines in the box beside the Lines per field button,
- click on the button.

The set number of lines will be displayed beside the field's name in the Selected Fields box, and it will not be affected by any further linking of fields, unless you actually change it.

Here is how Cardbox would output the four address fields shown below with various settings of Lines per Field.

74 Wilton Crescent,	27 Stanford Road, Loughborough,	The Hurst, Stonebridge Road, Cannock,	Nutshell Cottage, Pondmill Lane, Leigh, nr Tonbridge,
---------------------	------------------------------------	---	--

```

4 AD      "74 Wilton Crescent,","","",""
            "27 Stanford Road,","Loughborough,","",""
            "The Hurst,","Stonebridge Road,","Cannock,",""
            "Nutshell Cottage,","Pondmill Lane,","Leigh,","nr Tonbridge,"

AD       "74 Wilton Crescent,"
            "27 Stanford Road, Loughborough,"
            "The Hurst, Stonebridge Road, Cannock,"
            "Nutshell Cottage, Pondmill Lane, Leigh, nr Tonbridge,"

2 AD     "74 Wilton Crescent,",""
            "27 Stanford Road,","Loughborough,"
            "The Hurst,","Stonebridge Road,"
            "Nutshell Cottage,","Pondmill Lane,"
    
```

With a non-zero number specified for lines per field, that number of items is output for each field. As shown for 4 lines for the address field above, if a

multi-line field has fewer lines than you have specified, Cardbox outputs extra blank items to keep the number of items constant.

With no number of lines per field specified, all lines of the field are concatenated, as shown for AD above. This is the default condition.

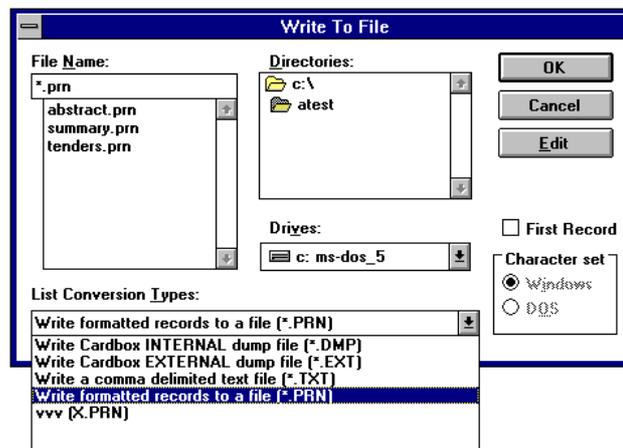
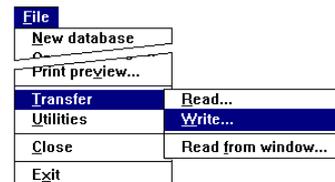
Try to avoid setting Lines per Field to a value which is too small for all multi-line entries in your records, because lines above the specified number will not be output at all. This is shown in the 2 AD example above.

33.4 Writing formatted records to a file

You can write formatted records to a file in the same way as to a printer, which gives you complete control over the format of the data transferred. There are some limitations: output is confined to text only, and graphics, pictures, object, or lines and boxes, are omitted. Records are output in the current format (unless you use a customised type in which a different format has been specified; see further details below).

As with the other conversion types,

- Output starts with the current record, unless you specifically ask for it to start with the first record of the selection.
- Output continues to the end of the selection, unless you cancel the operation before the end is reached.
- To write records in the current format, select **File, Transfer, Write**, which will open the Write to File dialog box shown below.



- Turn on the First Record check box if you want to write all records in the current selection; otherwise, output will start with the current record.
- If you have previously defined a suitable customised type for the intended output, then select it in the List Conversion Types box, and choose OK to write the records.

OTHERWISE

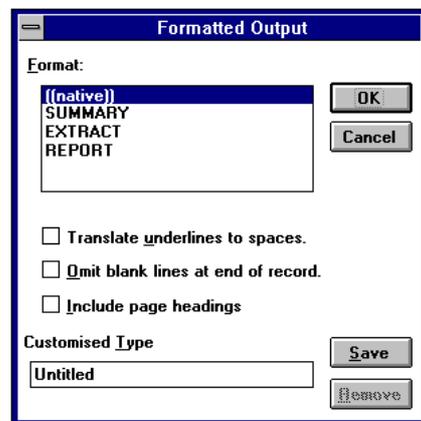
- select Write formatted records to a file, and either enter the name of the output file or select it in the File Names list.
- If you want to set any of the options shown in the Formatted Output dialog box shown below, and perhaps also save them as a customised type, then choose Edit.
- If not, then choose OK to start writing.

Setting options

This dialog box enables you to use a different format from the one in which records are currently displayed, and to set the following options:

Translate underlines to spaces

Underlines are often used to index multiple words as a single phrase. By choosing this option, they will be replaced by spaces in the output file.



Omit blank lines at end of record

This option applies to formats whose lowest part consists of a multi-line field, as in the example shown later in this chapter. With this option not selected, Cardbox will output as many lines as the format contains; with the option selected, blank lines at the end of each record will be omitted.

Include page headings

If you set this option, page headings will be printed at the start of the file. Page footings and record continuation headings and footings will always be omitted.

Handling options as customised types

If you save the options you have defined as a customised type, you will have saved also the format in which records are to be written and the name of the output file.

To save a customised type

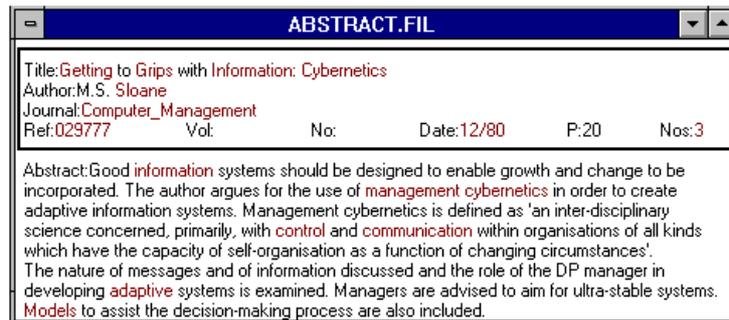
- Having chosen the format and defined all relevant options, enter a name in the Customised Type box and choose Save.

To edit a customised type

- To change the parameters stored in a customised type, select it in the List Conversion Types box of the Read from Window dialog box and choose Edit.
 - If the output file named in the customised type still exists, Cardbox will ask you whether you want it to be overwritten. You can at this stage enter another filename, if you wish.
 - If the format to which the customised type refers no longer exists, Cardbox will display a warning and will refer to the native format by default.
- Having finally reached the Formatted Output dialog box, you can change the format or options, and then choose Save. You can next choose Cancel if you do not want to write the records right away.

To delete a customised type

- Follow the same steps as for editing above, but choose Remove instead of Save in the Formatted Output dialog box.

Format of the output records

```
Title: Getting to Grips with Information: Cybernetics
Author: M.S. Sloane
Journal: Computer Management
Ref: 029777      Vol:      No:      Date: 12/80      P: 20      Nos: 3
```

```
Abstract: Good information systems should be designed to enable growth and change to be incorporated. The author argues for the use of management cybernetics in order to create adaptive information systems. Management cybernetics is defined as 'an inter-disciplinary science concerned, primarily, with control and communication within organisations of all kinds which have the capacity of self-organisation as a function of changing circumstances'. The nature of messages and of information discussed and the role of the DP manager in developing adaptive systems is examined. Managers are advised to aim for ultra-stable systems. Models to assist the decision-making process are also included.
```

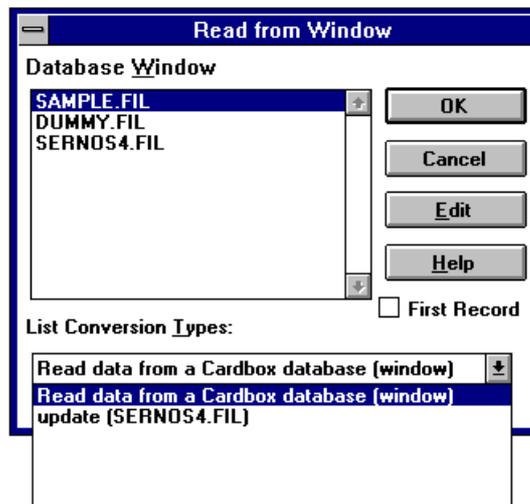
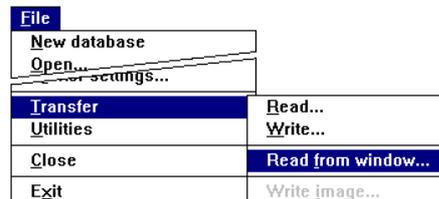
Text of records is output formatted in the same way as it would appear on the screen with a fixed-pitch font, but with all graphics omitted.

33.5 Transferring data between database windows

This is the best way of transferring information between Cardbox databases. The following general conditions apply to such transfers.

- Transfer takes place to the currently active window from another database window designated as the source window.
- Data are transferred between explicitly linked fields or, by default, between fields having the same name in both databases. You link fields in the Cardbox Field Transfer dialog box and you can store those links as customised conversion types.
- The format in which either database is displayed is immaterial, and the fields involved in the transfer of data need not necessarily be included in the format.
- By default, transfer begins with the current record in the source database, but you can optionally start it from the first record in the current selection.

To read data from another database window, select **File, Transfer, Read from window**, which will open the dialog box shown below.



- Turn on the First Record check box if you want to transfer all records from the source window, regardless of which record is the current one.
- If you have previously defined a customised type linking the fields you want to transfer, then open the List Conversion Types box and select it.

- Choose OK only if
 - you are using a customised type, and the source database specified in that type is currently open

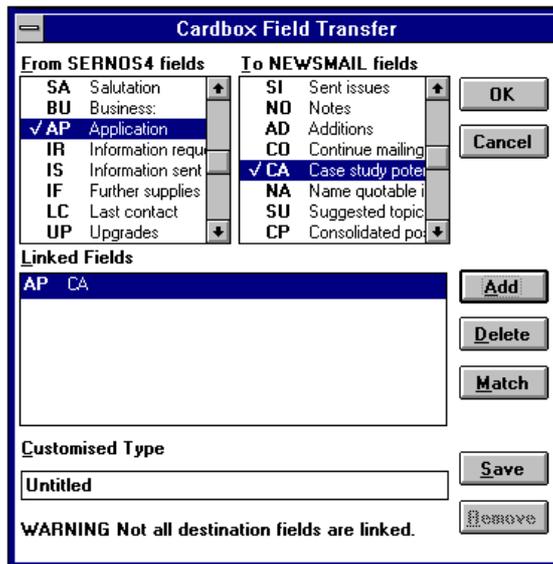
OR

- you are sure that you want to transfer data between all fields with identical names in both databases, and no other fields.

Otherwise,

- Choose Edit to define the required links between fields in the two databases in the way explained below.

Linking fields for transfer



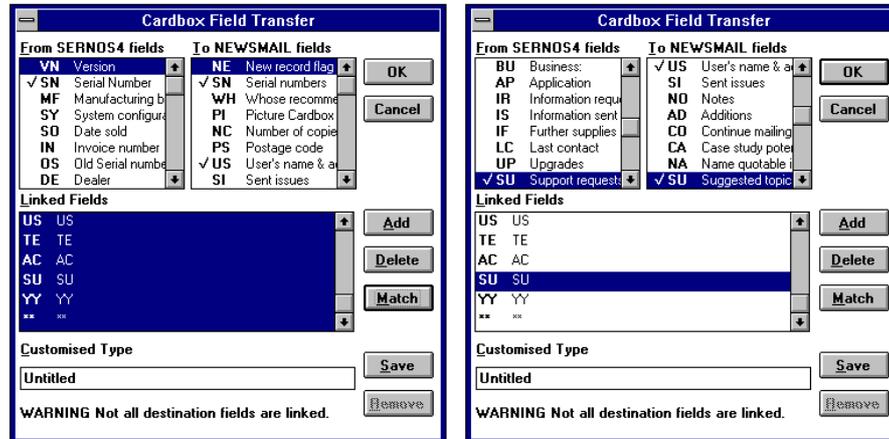
In this dialog box, you define from which field in the source database the data are to be read and into which field in the target database they are to be loaded. Once you have specified some links between fields, no transfer will take place between any unlinked fields, even if they have identical names in both databases.

To link two fields for transfer of data

- select one field and double-click the other
- or select the fields in their respective boxes and choose Add.

The names of the selected fields will be displayed in the Linked Fields box, as illustrated above.

You can link several source fields to the same target field, if appropriate, but you cannot link a source field to more than one target field.



If several fields have the same name in both databases, you can link them all with a single command; Match.

To check whether correct fields have been linked, select the relevant pair in the Linked Fields box to highlight the relevant fields in their respective lists.

To unlink fields

- select the fields in the Linked Fields box, and choose Delete.

Having linked all relevant fields, choose OK to start the transfer of data. If you have not stored the links you have defined as a customised conversion type, Cardbox will give you an opportunity to do so before performing the transfer of data. Saving field links as customised types is described below.

Indexing of transferred data depends on the indexing mode of the target field. The source's original indexing is reproduced exactly with Manual or Automatic indexing. If the target field's indexing mode is All, everything loaded into the field will be indexed; if it is None, nothing will be indexed.

Handling links as customised types

If you save the links you have defined as a customised type, you will be able to perform the same transfer on another occasion without having to redefine the links between fields.

To save a customised type

- Having defined all field links, enter a name in the Customised Type box and choose Save.

To edit a customised type

- To change the fields links defined in a customised type, select it in the List Conversion Types box of the Read from Window dialog box and choose Edit.
- This will take you to the Cardbox Field Transfer dialog box, where you can change the links between fields, and then choose Save. Having thus saved the modified links, you can next choose Cancel if you do not want to perform the transfer right away.

To delete a customised type

- If the source window named in the customised type is open, select the type as for editing above, but choose Remove instead of Save in the Cardbox Field Transfer dialog box.
- If the database named in the customised link is no longer available, then proceed as follows:
 - make some other window active and use **Window, About this Window** to change its name to the name of the missing database,
 - make the target database active again, select **File, Transfer, Read from Window**, select the customised type you want to delete, then choose Edit. You may get this message, which you should simply acknowledge by choosing OK.
- This will take you to the Cardbox Field Transfer dialog box, where you should choose Remove followed by Cancel.
- Finally, restore the name of the window you renamed for this operation.

**33.6 Direct program access to Cardbox databases**

You can use a program written in a language such as Visual Basic to access the Cardbox database directly. This means that

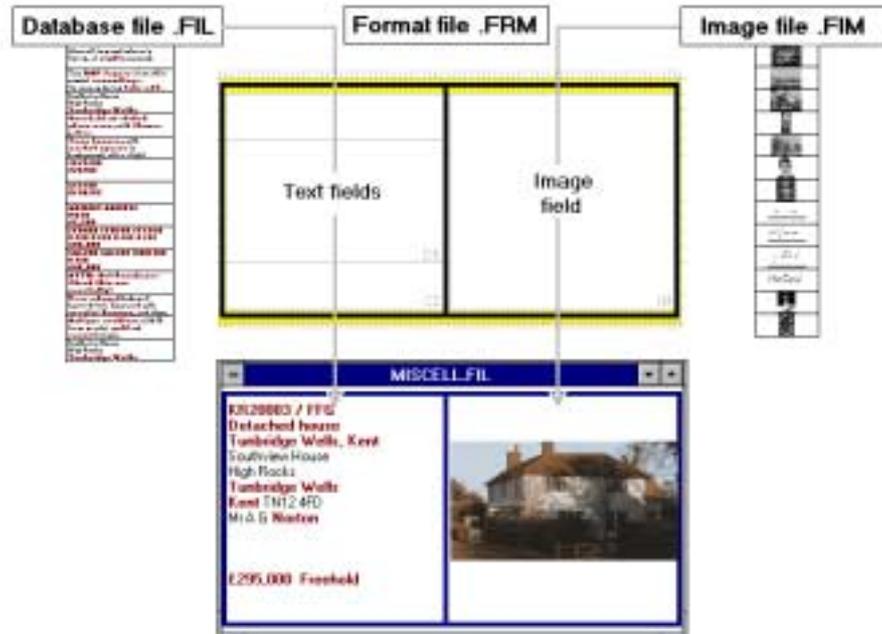
- You can transfer records directly into Cardbox from Visual Basic, without having to write them to an intermediate file first.
- If you have a file in a format which Cardbox cannot read directly, you can write a Visual Basic program to read that file and write records into Cardbox.
- You can transfer records directly into your program from Cardbox, without having to use an intermediate file.

For details of direct program access to Cardbox databases, enter the command **Help, Technical Articles**, and under "Data Transfer", click on "Direct access to Cardbox databases".

Chapter 34 –

Using image databases

An *image database* is a Cardbox database that contains images as well as text.



An image database has the same basic structure as a plain text database, but with the following additional elements:

- an image file, type .FIM, in which images are stored, and
- an image field in which the images are displayed.

Unlike ordinary text, images do not form an integral part of records, but are merely attached to them. You can attach an image from the image file to any number of records, and a record can have several images attached to it. In the latter case, you can display the images one by one.

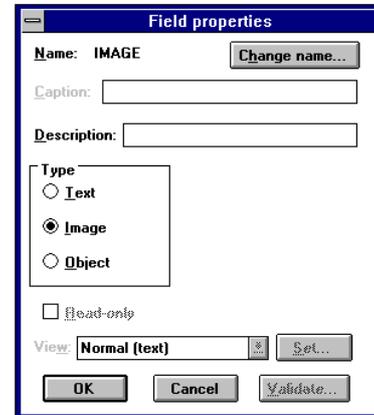
In this chapter we describe the handling of images which already exist in the database. The process of scanning images and loading them into the image file is described in Chapter 35, *Building image databases*.

34.1 The image field and image size

The image field will have been created in the native format of the database, but you can vary its position and size in the alternative formats that you may design for your own purposes. In a format in which you want to display only the text of records, you can omit the image field altogether.

When designing alternative formats for a database in which there are no meaningful field names or descriptions, you can identify the image field by type in the Field Properties dialog box shown in this picture.

In any database, there can be only one field of type Image.



The size and shape of the image field will determine the size in which images will be displayed, but will not affect their shape.



Images are always displayed in full, but scaled down to the size which will fit inside the image field. This means that the width of the field will limit the size of a wide image, and the height of the field will limit the size of a tall image.

Regardless of the shape and size of the image field, images are always available for display unscaled, in the size in which they are stored in the image file, and the way in which you can display them full-size is described in further sections of this chapter.

34.2 Displaying images



Whenever Cardbox displays a record to which an image is attached, it displays in the status bar a toolbar for image control. If there are several images attached to the record, the toolbar contains an image browse bar; if there is no image field in the current format, the image part of the status bar is omitted entirely.

Full-screen image button

F12 from the keyboard

leads to a full-screen display of the image in the way illustrated below.

Full colour button (VGA only)

SHIFT+F12 from the keyboard

switches from your chosen default colours to full-colour display and back again. See further notes on colours below.

Image browse bar

From the keyboard, use the normal record browsing keys, but hold down the ALT key.

is displayed only if there is more than one image attached to the record. Use it for browsing images in the same way as the normal browse bar for records.

Colours in 16-colour VGA display

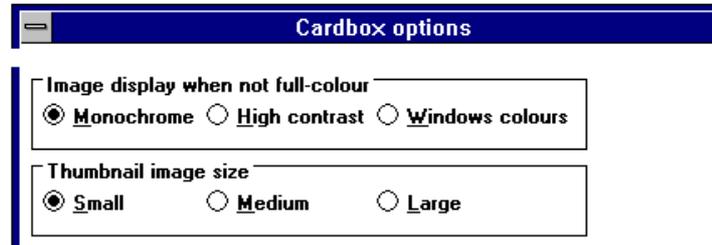
If you are using any other display mode (256-colour, 16-bit, 24-bit etc), you can ignore this section.

In standard VGA display mode, your screen can only display 16 colours at a time, and Windows uses a standard palette of primary colours. This gives the desktop its normal appearance, but it gives poor results when displaying most kinds of images.

To get the best possible image display quality, Cardbox calculates an optimised colour palette for each image. When you display the image in full colour, Cardbox uses this palette instead of the Windows one. Because of the way the VGA display works, this palette also changes the colours of standard Windows features and of other applications.

The normal Windows colours come back when you switch to another application; but if you find these colour changes tiresome, you can tell

Cardbox to use Windows colours all the time, and switch to full-colour display with SHIFT+F12 only when you want to look at an image in detail.



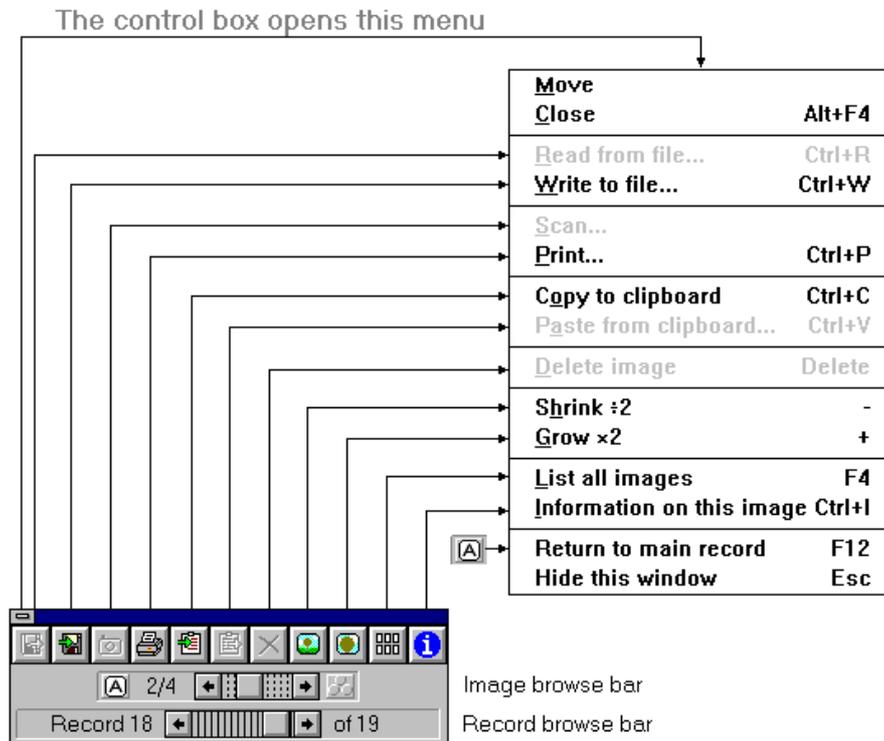
You can set the default display colours in the Cardbox Options dialog box shown above, which you can access using **File, Utilities, Configure Cardbox**. "High-contrast" means high-contrast monochrome.

When printing images, Cardbox ignores the default display colours and prints at the best possible quality, in colour if possible.

Full-screen image display

When you select full-screen image display, Cardbox displays the image in its full size and colour, together with an image control window, which you can hide if you wish. Suitable scroll bars are added if the image is too large for the screen.

34.3 The image control window



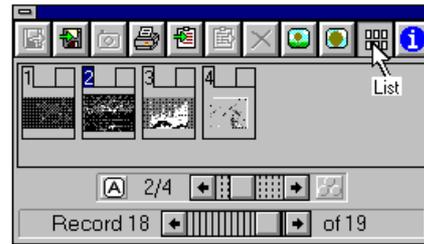
The image control window contains the record and image browse bars in the same form in which they appear in the status bar, together with a row of buttons giving you direct access to the various image handling commands. These commands are also available in the menu which you can open from the control-menu box of the window, and the menu lists also the key combinations that you can use for the commands.

On a VGA display, Cardbox will be using the best possible colour palette for the image, which may make the toolbar look rather dark or featureless. You may find it easier to press ALT+SPACE and use the menu.

The commands that deal with loading, deleting, or rearranging images only work if you have the image-building version of Cardbox and are currently editing a record. Otherwise, the relevant buttons and menu items are dimmed.

To hide the image control window, press ESCAPE. To see it again, press ESCAPE again.

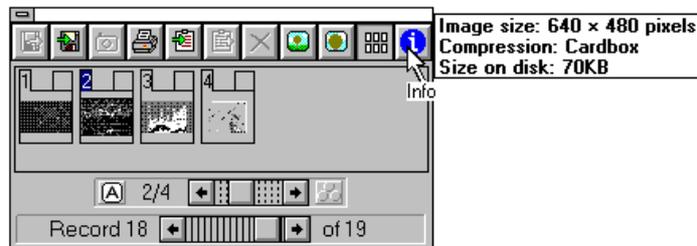
List all images, or F4 from the keyboard, acts as a toggle controlling the display of images as icons within the image control window. We refer to these icons also as *thumbnail images*, and you can choose their size in the Cardbox Options dialog box shown earlier in this chapter.



You can click on any icon to bring the corresponding image into full-screen display, and you also use them to select images for printing, in the way explained below.

With the exception of the Print command, which allows you to print several images at once, all commands apply only to the currently displayed image.

The current image is also indicated in the icons by a highlighted number box, and you can bring any of the listed images into full display by clicking on its number.



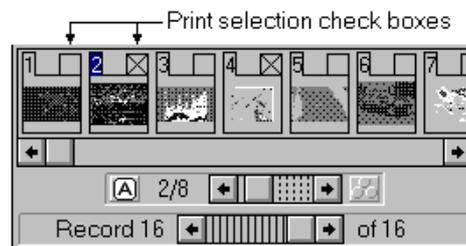
The Info button will give you information about how the current image was scanned and its size.

34.4 Output of images

You can print images, copy them to the Clipboard or write them to a file. In each case, the whole of the image is output.

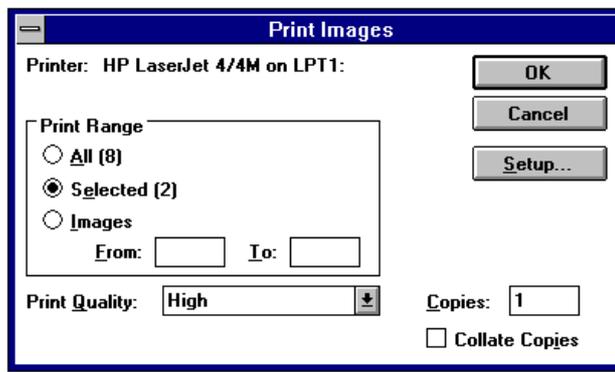
Printing images

The Print Images dialog box shown below allows you to print all images or a range of images. To print an arbitrary selection, you should select the images in the Image Control window by turning on their check boxes.



The Print command in the Image Control window differs from the Print command in the File menu in the following respects.

File, Print	Print command in Image control window
<ul style="list-style-type: none"> ■ Prints the image with the text displayed in the current format. ■ Prints the image in the size in which it is displayed. ■ Prints only the currently displayed image, regardless of how many are attached to the record. 	<ul style="list-style-type: none"> ■ Prints the image alone on the page. ■ Prints the image full-size. ■ With multiple images attached to the record, enables you to choose which images to print.



The Print Range in the Print Images dialog box shows how many records are attached to the record and whether any have been selected for printing.

All is the option that you should choose to print all images. This will be the only available option if there is only one image attached to the record.

Selected will be automatically chosen if you have selected some images for printing.

Images enables you to set a contiguous range of images to be printed.

Print quality

Print quality selection has been made available in this dialog box, even though it is also available in the standard Windows Print settings dialog box, because this is the setting that you may want to vary most often.

By default, Cardbox chooses the highest print quality available on your printer, but some types of images, such as documents or signatures, will come out quite well at a lower print quality and may be printed a lot faster. So experiment to see which is the lowest acceptable quality for your images and printer.

Copying to the Clipboard

- While you are displaying the record text, the quickest way to copy an image to the Clipboard is to use the command **Edit, Copy record**. This copies both the text of the record and the current image. If the package you are pasting into expects text, it will get the text of the record together with some codes for image field. If your package expects an image, it will get the image. Some packages (such as Word) can accept both: in this case, use their **Edit, Paste Special** command to choose what you want to paste.
- While you are editing a record, you can also drag the image field onto the clipboard icon at the bottom of the Cardbox window, or you can position the insertion point in the image field and press CTRL+C or choose **Edit, Copy**.
- While you are viewing a full-screen image display, you can use the Copy button in the image control window.

Images are copied to the Clipboard in their full size. Cardbox copies images in two formats, Bitmap and Device Independent Bitmap. Some software packages understand only one format; others (such as Word) understand both formats, and let you choose which one to use when pasting. Try both to see if there is a difference.

Palettes and VGA display

Cardbox copies images in the Bitmap format using the same colours you were using for display, and copies the palette as well. The VGA versions of some programs (including Paintbrush) ignore palettes, so if you want them to understand the image you copy in Bitmap format, you will have to switch Cardbox to Windows-colour display (monochrome or colour) before doing the copy.

Writing an image to a file

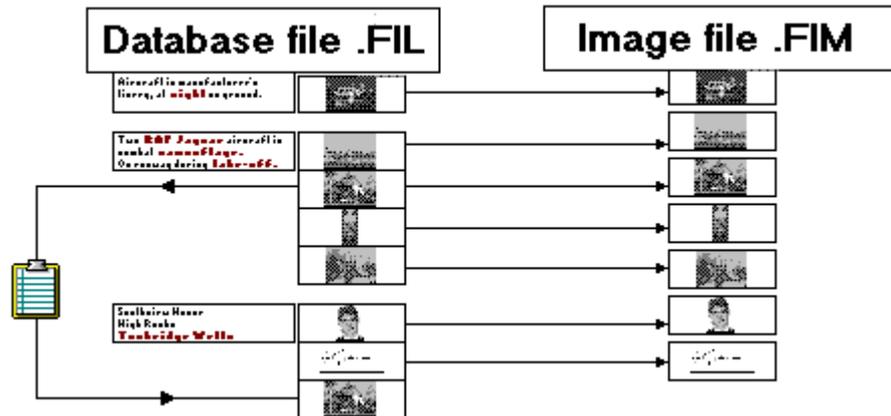
The **Write to file** command opens a dialog box in which you select or specify the output file and its location, as well as the type in which the file is to be written. The default file type is .BMP for Windows bitmap file.

Chapter 35 –

Building image databases

All you have to do to create an image database or to convert an existing text-only database into an image one is to create the image field in the native format.

Images are stored in a separate image file, but Cardbox will automatically create this file when it first saves a format file with the image field in it.



You load images into the database by inserting them into the image field of the record that you are adding or editing.

- You can *read* an image from a file, in which case Cardbox will add the image to the image file, or
- you can *paste* an image from the Clipboard, in which case Cardbox will check whether this image is already stored on the image file. If it is, then Cardbox will store its address in the record without duplicating the image itself in the image file.

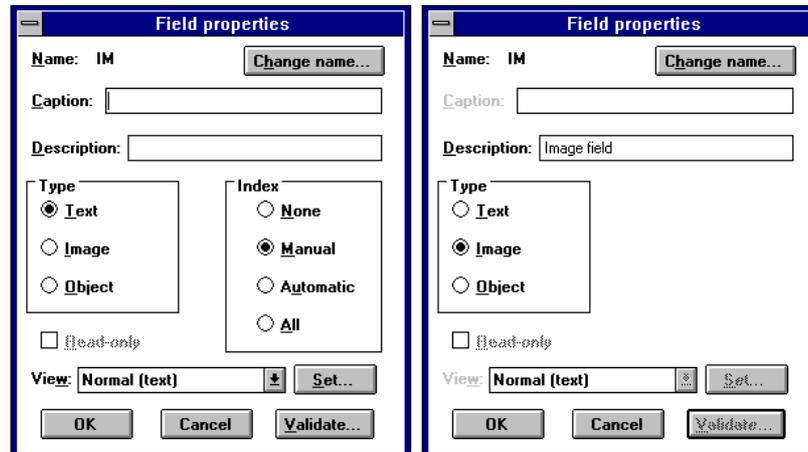
Each record can have any number of images attached to it.

35.1 Creating the image field

You can create the image field only in the native format; having done so, you can insert the image field in any other alternative format in which you also want to display images.

Define the position and size of the image field in the native format in exactly the same way as of any other field. The size and shape of the image field

does not affect the size or shape of the stored image but only, as shown in the previous chapter, the size in which the image is displayed.



Having named the field, you will reach the Field Properties dialog box, where you should choose Image as the type of the field. You can also add a description, and this completes the creation of the image field.

- You can have only one image field in any format, so if you already have an image field, the Image option will be unavailable.
- Once you have assigned the image type to a field, you cannot change it to any other type.
- Do not delete the image field in the native format. This is where Cardbox stores the locations of the images stored in the image file, and you will lose access to the images.

35.2 Loading images

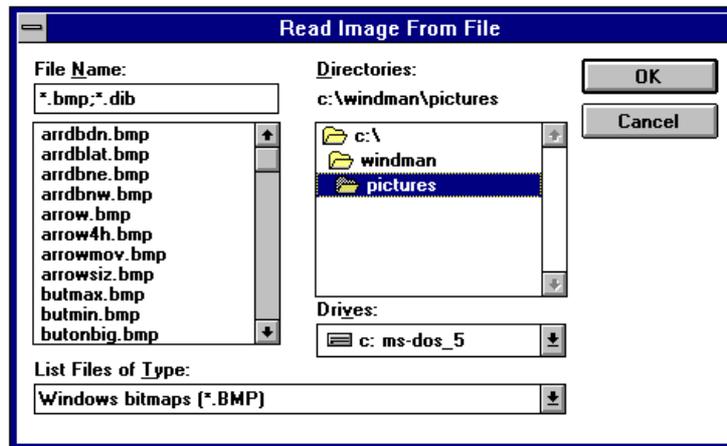
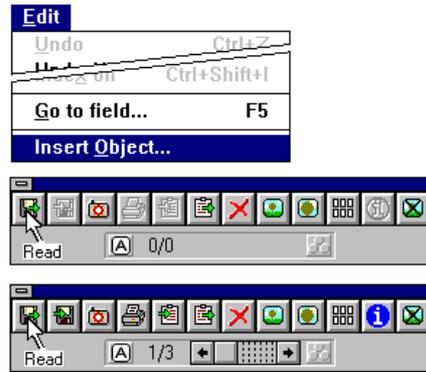
You can load an image only when you are editing a new or existing record. You should have the image control window open (hit F12 to open it), or have the insertion point in the image field (the word Image in the status bar will tell you when you have reached that field).

You can load an image by reading it from a file or by pasting it from the Clipboard, or directly from a TWAIN-compatible device.

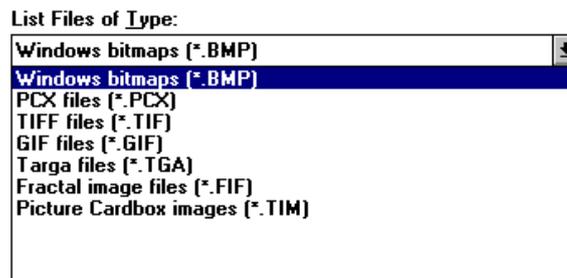
Reading images from files

There are two ways in which you can read an image from a file.

- If you have the insertion point in the image field, choose **Edit, Insert Object**.
- If you have the image control window open, press the Read button.



You specify the file to read in this dialog box.



The standard default file type is Windows bitmaps (.BMP), but this list gives you further choice of file types.

Once you have chosen the file and pressed OK, Cardbox will display the Image Storage dialog box so that you can specify how the image is to be compressed and stored.

Pasting images

- While you are editing a record, position the insertion point in the image field and press CTRL+V or choose **Edit, Paste**.
- While you are viewing a full-screen image display, you can use the Paste button in the image control window.

What happens next depends on where the image came from:

- If the image you are pasting was copied from the same Cardbox database, it will be added to the record, but the actual image data will not be duplicated (so that the .FIM file won't grow).
- If the image you are pasting was copied from a different Cardbox database, it will be added to the record. The image data will be added to this database's .FIM file.
- If the image you are pasting did not come from Cardbox, you will see the Image Storage dialog box just as you would if you had read the image from a file.

Scanning images directly

If you have an image input device (such as a scanner) that supports the TWAIN standard, then you can input an image directly into Cardbox without going through a file.

- While you are editing a record and viewing the full-screen image display, press the Scan button.

What happens next depends on the scanning device. Some devices simply scan at once; others give you a whole set of pre-scan, adjustment, and setup options.

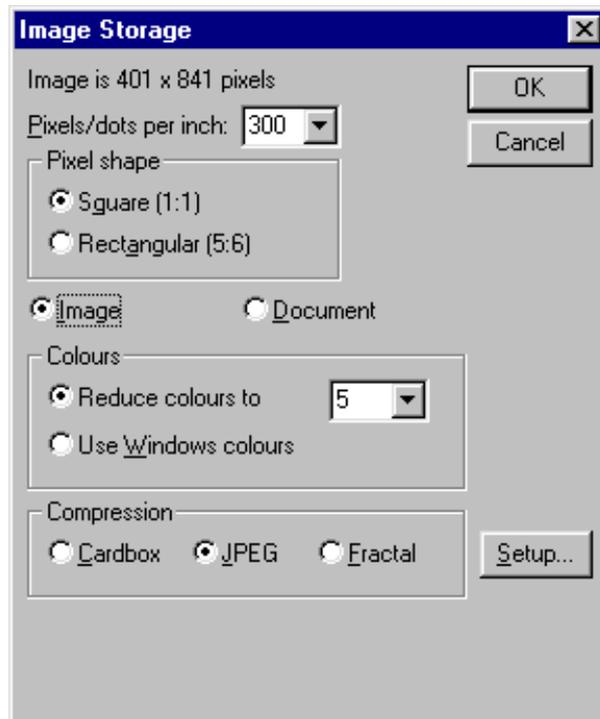
- Once the image has been scanned (or input), and the input device's device driver has passed the image through TWAIN back to Cardbox, you will see the Image Storage dialog box appear.

A successful TWAIN scan involves an interaction between Cardbox, the Accusoft image format library, the TWAIN program files, and the image input device's device driver software. In our experience, this all usually works, but it is possible that an incompatibility somewhere along the line will prevent Cardbox from successfully receiving an image. In that case your only choice is to scan the image to a file or the Clipboard, and import it into Cardbox from there.

Note: If you receive a message saying "An error occurred opening the scanner for input", this may go away if you request the scan a second time.

The Image Storage dialog box

This dialog box gives Cardbox the information it needs to decide how to compress and store the image that you are loading.



Pixels/dots per inch

You can often ignore this option. Cardbox needs to know what size the image is, so that it knows how big to print it. Cardbox knows the image's size in pixels, but it cannot translate that into a physical size unless it also knows its resolution in dots per inch (dpi): an image 600 pixels wide might have come from a 6-inch original at 100dpi, or a 2-inch original at 300dpi. Some file formats supply this information and some don't. If the input file didn't give a resolution, and you don't specify one, Cardbox will assume 75dpi, which is a reasonable guess. If this makes the image too big for the paper, Cardbox will scale the image down so that it fits. Some TWAIN devices report bizarre resolutions (for example, some Hewlett-Packard scanners report resolutions using the wrong units, making them 39 times too small): Cardbox does its best to guess what such devices really meant.

Pixel shape

Some screen display modes (such as 320x200) use pixels that are taller than they are wide. Without special adjustment, images that were created for

those modes would look squashed when displayed or printed in Windows. If this seems to be happening, try the **Rectangular** setting, which tells Cardbox to make the adjustment. Some file formats supply pixel shape information and some don't; in some cases, too, Cardbox will guess the pixel shape, but you may have to override it if the guess is wrong.

Image / Document

Cardbox has two compression strategies. "Image" is best for anything photographic, and "Document" is good for text and drawings. Some of the remaining options are common to both Image and Document.

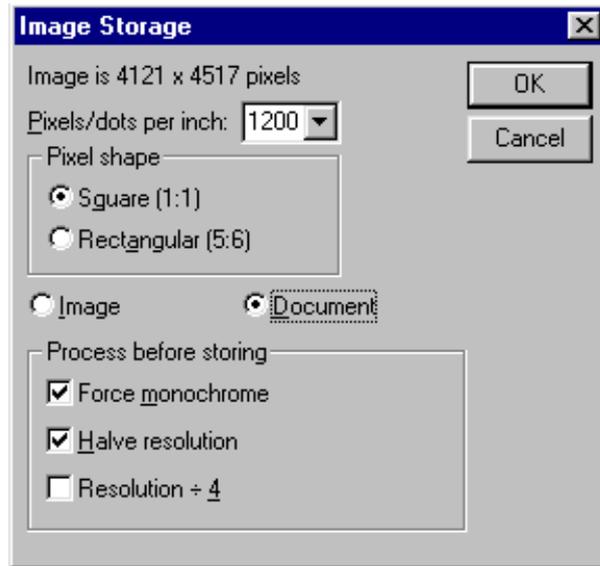
Colours (Image)

The default setting is Reduce colours to 16 (unless you had fewer than 16 colours in the input image, in which case the number is smaller). If you are using Cardbox compression, reducing the number of colours reduces the space taken by the compressed image. You may also switch to Use Windows colours if you want your images tied to the fixed 16-colour palette provided by Windows: we don't normally recommend this.

Compression (Image)

To save disk space, Cardbox compresses images when storing them and decompresses them automatically as it displays them. It provides three compression methods: Cardbox, JPEG, and Fractal. Each method has its strengths and weaknesses.

- **Cardbox** compression is fast, and preserves detail well. You can increase the degree of compression by reducing the number of colours used.
- **JPEG** (Joint Photographic Experts Group) compression is slower, but it compresses photographic images to a smaller size. You can adjust the degree of compression, but smaller size means less good image quality.
- **Fractal** compression is slowest of all in compression, but faster than **JPEG** when displaying compressed images. It can also give dramatically smaller file sizes than the other methods. You can adjust both the degree and the speed of compression, but smaller size and higher speed mean less good image quality. Fractal compression uses proprietary technology from Iterated Systems (<http://www.iteratedsystems.com>) and so may not be available in future versions of Cardbox.
- For a detailed comparison of these compression methods, enter the command **Help, Technical Articles** and look for "A Comparison of Image Compression Methods" under the "Data transfer" heading.



Force monochrome (Document)

If your scanner scans in colour, but you only want to store the document in monochrome, turn this option on.

Halve resolution (Document)

Resolution ÷4 (Document)

In many cases, you will obtain the best results by scanning a document in black and white (no grey scale) at a relatively high resolution (number of dots per inch), and then telling Cardbox to reduce the resolution before it stores the image. The reason that this works so well is that Cardbox can then introduce grey-scale values to maintain legibility. For example, you might scan at 200 dots per inch and use the "halve" option, or at 300 dots per inch and use the "÷4" option.

Experimenting with compression

No one compression method is perfect for all images and all purposes. To start with, stick to 16-colour Cardbox compression, but if you want better (perhaps much better) compression, try experimenting with changing settings or using other methods.

Cardbox doesn't actually put images into the FIM file until you save the record, so the following strategy works quite well:

- Create a new record and start editing it.
- Load an image and view it in full-screen mode.

- Load the image again using different settings. Repeat for all the settings you want to try.
- Look through all the versions that you have loaded. Consider the image quality and the compressed image size (press the Information button in the image control window to see this).
- When you have found the version you like, delete all the others, then save the record. Only the version you haven't deleted will be stored on the disk.

35.3 Deleting images

To delete an image,

- While you are editing a record, make sure you are viewing the right image, position the insertion point in the image field and press the DELETE key.
- While you are viewing a full-screen image display, you can use the Delete button in the image control window.



A deleted image will be replaced by a big red **X**. To undo a deletion, press the DEL key or the Delete button again.

- If an image is attached to several records, deletion of the image in one record has no effect on the other records.
- To free the space occupied by images which are no longer attached to any records, use the command **File, Utilities, Free Deleted Images**.

Chapter 36 –

Validation

Normally, Cardbox lets you put anything you like into any field. It does not restrict the length or type of the data you enter, but you can add validators to your fields to restrict and control what can be put into them.

When you are designing your fields, you can attach validators to them. Validators watch what you type, and Cardbox warns you if any of them has signalled an error. You can then correct the error before saving the record. If you prefer, you can switch record validation off while you enter records and then apply validation as a batch operation.

Some validators actively alter what you have entered, by indexing, unindexing, or reformatting it. You can use this feature to implement stoplists, to provide selective automatic indexing, or to enforce a particular format for dates.

Here are the validators that Cardbox provides.

Validator	Enforces the conditions
Default entry	This validator overwrites the field with text that you specify, <i>either</i> if the field has been left empty <i>or</i> whether or not it is empty (you make the choice when you install the validator). You can also use this validator to timestamp your records.
Index terms	This validator changes the indexing of terms in a field. It indexes terms on the given list or in the specified range; optionally, it unindexes terms not in the list or range.
Unindex terms	This validator changes the indexing of terms in a field. It unindexes terms on the given list or in the specified range; optionally, it indexes terms not in the list or range.
Unique term	<i>Either</i> each indexed term must not already exist in the index <i>or</i> it must already exist (you make the choice when you install the validator).
Length of terms	Each term entered in the field must be of a certain length, or its length must be within a specified range.

Length of field	<i>Either</i> the field as a whole must not exceed a specified number of characters <i>or</i> it must not overflow the visible space given to it in the format (you make the choice when you install the validator).
Number of terms	The field must contain a given number of terms, or the number of terms must fall within a range. You can specify separate limits for indexed and unindexed terms, and for words, numbers, and dates.
Validate text	Text, indexed or unindexed, must match the specified range or list.
Validate number	Numbers, indexed or unindexed, must match the specified range or list.
Validate date	Dates, indexed or unindexed, must match the specified range or list, and must conform to a specified format.
Reformat a date	This validator changes all dates into a format that you specify.
Change case	This validator changes text to upper-case, lower-case or a combination.
Spell check	This validator performs an automatic spelling check on the field.
Automatic numbering	This validator puts a serial number into the field. You can control the format of the number and the starting value. See Section 36.5 for full details.

36.1 Principles of operation

You set up the validators, field by field, in the native format of the database. You can assign any number of validators to a field and in any combination that will achieve the desired result.

Validators are active whenever you add or edit records. They are not active when you load records from a file: in this case you will have to validate the new records as a batch after you have loaded them.

You can, if you like, turn automatic validation off, by entering the **File, Utilities, Configure Cardbox** command and turning on the **Disable validation on records** check box. This disables validation without affecting the installed validators, and you may do so to avoid being interrupted as you enter or edit a large number of records. You can then enable validation again, and validate the new or altered records as a batch.

Field validation

You choose and assemble validators in the order required to achieve the desired effect. We give a couple of introductory examples before getting on to details.

Example: Mandatory date

There is a field in the record whose entry must meet the following conditions:

- only one item: an indexed date,
- the date must be within a specified range,
- the year must be in 4 digits.

As the field is to contain only one term, the simplest way of ensuring that it is indexed is to set the indexing mode to All.

You can ensure that the entry will meet the other conditions by installing the following validators:

Number of terms Allow only one term, an indexed date.

Validate date Specify the range within which the date must fall.

Reformat date Specify a 4-digit year.

You can further ensure that these conditions are not overridden by the operator. Each of the first two validators above has a check box labelled Mustn't ignore, which you can turn on to prevent any record being saved with an invalid entry in the field.

Example: Verification of new records

All newly added records must be verified by an authorised person before they can be used for the normal purposes of the database. Verification is recorded in one special field, which is to contain one of the following entries, with the indexed terms shown in bold type:

entry **unchecked** in a newly added record. The word "unchecked" is to be indexed so that unverified entries can be easily found.

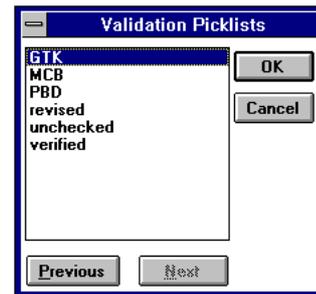
verified by GTK for a record verified by an authorised person.

to be **revised** by for a record referred for revision.

MCB

The following validators will ensure the required conditions.

- Default entry** Enter "entry unchecked" if the field is left empty.
- Index items** Index "unchecked" or any other word on the picklist shown here.
- Validate text** Ensure that only the words on the picklist are indexed.



Normal use

Validators are active throughout editing, which includes the creation of new records, but the final validation takes place only when you come to save the record.

Validation errors

Whenever you move from one field to the next as you edit a record, Cardbox will validate the field you are leaving. If it finds something wrong, then

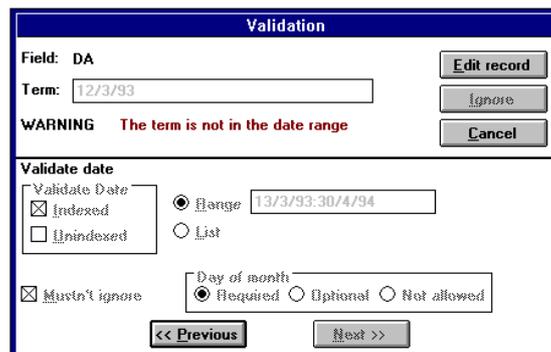
- it will highlight the exclamation mark button in the toolbar,
- and will replace the word "Editing" or "New record" in the status bar by the word "Invalid".



These error indications will continue as long as there are validation errors in *any field*, not just the one you are currently editing.

To see what errors are being reported,

- press the Show errors button, or
- use the command **Edit, Validation, Show errors**.



Cardbox will display details of the validator which the field has failed to pass. With multiple validators specified for the field, it will be the first failed

validator, but you can also see any previous validators, successfully passed, and any further validators against which the record has not yet been checked.

Edit record will take you back to editing the field for which the error was reported.

Ignore if available, will ignore the validator, but only for just this particular record. This option will not be available for any validator with the Mustn't ignore check box turned on.

Cancel has the same effect as the **Quit without saving** command, whether you are editing a record or adding a new one.

When you save the record, Cardbox will validate every field that you have changed, whether or not you have already viewed any errors. Some validators will perform their function silently; for example, a default entry will be made automatically, and so will indexing or unindexing. Other validators will produce error messages such as those shown above.

Pick lists



When you come to edit a field whose entries are to be indexed or validated against a list, Cardbox will activate the Picklist button in the Toolbar. You can click this button to open the list of valid entries and select your entries directly from there. You can also use the menu command **Edit, Validation, List**.



Manual validation

You can ask Cardbox to validate a field even before you leave it. To do this, simply press F2.

You can also ask Cardbox to spell-check a field (Shift+F2) or spell-check a single word or phrase (Ctrl+F2). You do not have to have a spell-checking validator installed in order to do this.

Batch validation

You can ask Cardbox to validate a whole batch of records at once. This is useful

- if you have added or changed some validators in your format definition
- if you have loaded some records from another file

- if you have entered or edited some records with automatic validation turned off.

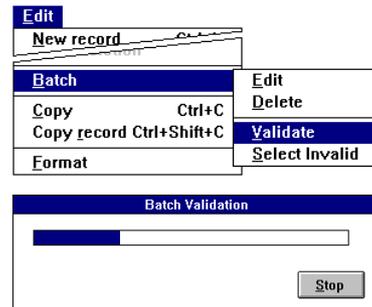
Edit, Batch, Select Invalid will select the records which have failed to pass validation. You can then deal with them one by one.

Edit, Batch, Validate looks through the records in the current selection and validates them, reporting its progress by means of a progress bar.

Stop in the Batch Validation box will stop the operation.

If Batch Validation finds anything wrong, it reports the error and allows you to correct it as described above.

- Edit record** lets you edit the record; Batch Validation is resumed when you save the record
- Ignore** (if available) will ignore the validator reporting the error.
- Cancel** will cancel Batch Validation.

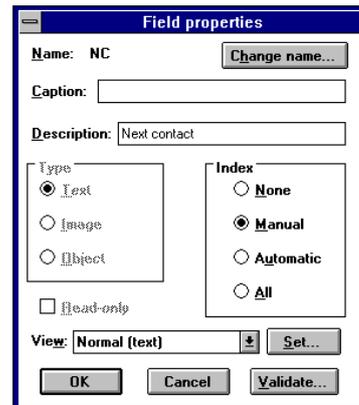


36.2 Setting up

We first describe the process of setting up validation in general terms, and deal with the options applicable to each validator under separate headings later.

- When defining field properties in the native format of the database, choose **Validate**.

Cardbox will open the Field Validation dialog box, shown below, where you can choose the validators that you want to apply to the field and define their specifications.



Installing validators

To install a validator for a field,

- Select it in the Available Validators list.

Cardbox will display the validation criteria that you can specify.

Having found the validator you want to install,

- Press Add to add the validator to the Field Validators list.
- Define the options for the validator.

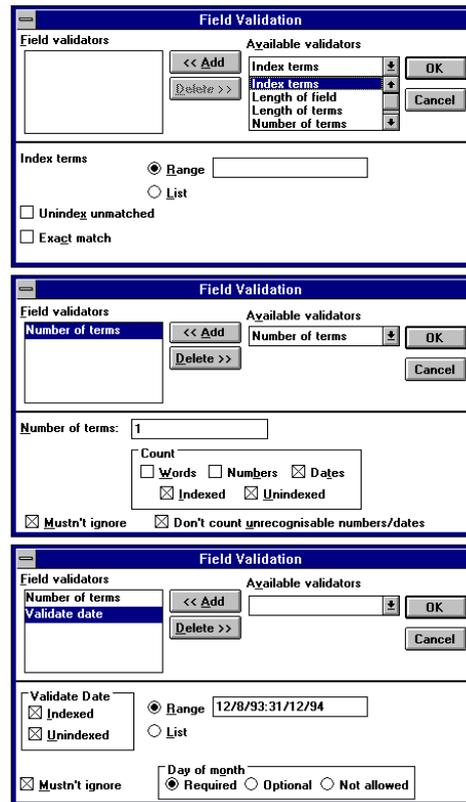
You can specify a number of validators for a field to achieve the desired effect. In this example, we have specified:

- one date only in the field,
- the date is to be within the specified range.

Removing validators

To remove a validator from the list of active validators,

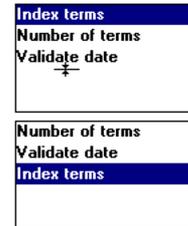
- select it in the Field Validators list and choose Delete.



Reordering validators

Cardbox will apply the validators specified for a field in the order in which they appear in the Field Validators list. If necessary, you can change the order in the following way.

- select the validator or a group of validators that you want to move,
- move the cursor to the position where the selected items are to be moved,
- make sure that the cursor has changed shape to that shown in the picture,
- click the left mouse button.



36.3 Common options

Each validator offers you a range of options by means of which you can define the validation criteria. We describe the options for individual validators under separate headings below, but first here are some options which are common to several validators.

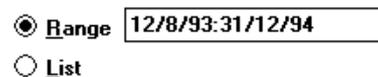
Enforcing validation

You can enforce the validation of a field by turning on the **Mustn't ignore** check box in the applicable validator. The user will not then be able to ignore (override) the validator if it reports an error.



Ranges and Lists

You can verify entries against a range of values or against a list of terms: these options apply to words, numbers, and dates. The Range and List options are mutually exclusive, but if you want to combine ranges with lists (for example, to allow entries within a certain range plus one or two special entries), then choose List and enter a range as one of the items in the list.



A **range** is defined in the same format as in search parameters; using the colon ":" as the delimiter.

A **list** can be

- typed at the keyboard,
- pasted from the Clipboard,
- pasted from or linked to a list stored on a file,
- linked to the indexed terms in a specified field in a specified database.

Range
 List

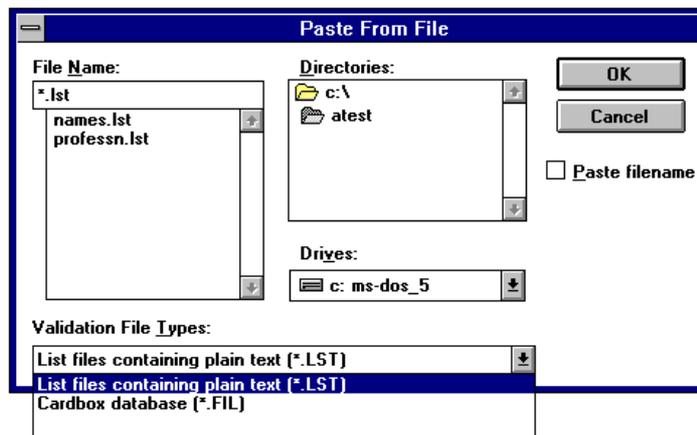
AYLETT	↑	Paste
BARLOW	↓	
BLACK	↓	

Paste from ...



The list will be available for inspection and use as a pick list in response to the command **Edit, Validation, List** (or F4), but this only applies if the list is actually typed or pasted into the List box. If you have linked the list to an external file or to a database, then the pick list will not work and an error message will appear if you try to use it.

Paste from... will open the Paste from File dialog box shown below.



Validation File Type gives you a choice between list files and Cardbox databases.

List files

The default file type for list files is .LST, and files of this type will be listed in the File Name box, where you can select the file you want. If you happen to have the validation terms stored on a file of a different file type, you can type the filename in full in the File Name text box.

- If you leave **Paste filename** turned OFF, Cardbox will paste the entire contents of the file. The validator will use these pasted terms as if you had typed them in

yourself. If you change the file, you will have to edit the validator and paste the new contents of the file into it.

- If you turn **Paste filename** ON, Cardbox will paste a *reference* to the file. Each time that Cardbox is started or the database is opened, the validator will load the contents of the file. If you change the file, the validator will use the new contents the next time you run Cardbox. The file's contents will not be available as a pick list. In the validator's Range or List box, the pasted reference will appear as the filename preceded by the "@" sign.

Cardbox databases

This option lets you set up a validator that uses the index of a Cardbox field as the list of terms for validating new entries: for example, you can have a database that contains a list of valid keywords. The **Paste filename** option is ignored, and Cardbox always pastes a *reference* to the database.

The reference takes the form of an "@" sign, followed by the filename of a database, followed by a space, followed by the name of the field whose index is to be used as a list of valid terms. By default, Cardbox pastes the name of the current field; so if you want to validate using the index of a different field, you should edit the field name in the pasted reference.

The validator can refer to the same database that you are editing, or to another database; in the latter case, you should make sure that the database is open whenever you try to validate a record.

36.4 Specific options

In describing specific options for the available validators, we omit in the illustrations the top portion of the Field Validation dialog box, because this is identical for all validators.

Default entry

This validator will enter the specified default text into the field when you save the record. Its action depends on the setting of the Override check box, as follows:

- | | |
|-------------------------|---|
| Override not set | The default text will be entered only if the field is empty. |
| Override set | The default text will not be entered in empty fields, but will override the existing entry in the field if you have changed it in any way in the current editing operation. |

You can specify the text that Cardbox should enter into the field, or you can press the button marked "Today's date" to specify a datestamp or timestamp. For specific details of timestamping, enter the command **Help, Technical Articles** and look at the article on "Timestamping your records".

Index terms/Unindex terms

The image shows two overlapping dialog boxes. The top-left dialog is titled 'Unindex terms' and contains a radio button for 'Range' (selected) and a text input field. Below it are two checkboxes: 'Index unmatched' and 'Exact match'. The bottom-right dialog is titled 'Index terms' and contains a radio button for 'Range' (selected) and a text input field. Below it are two checkboxes: 'Unindex unmatched' and 'Exact match'.

These two validators enable you to control indexing in the field, and you can refer them either to a specified range of terms (which can be alphabetic or numeric) or to a list of terms.

With validator the list is used as

Unindex terms a stop-list, ensuring that the specified terms are not indexed.

Index terms a go-list, ensuring that the specified terms are indexed.

The choice of the validator depends on which list you will find easier to compile: a stop-list or a go-list. You can achieve similar results using either kind of list, with a suitable choice of the indexing mode for the field and of the option for treating unmatched terms.

These two validators apply only to fields in which you can control indexing; that is, fields with the indexing mode Manual or Automatic.

Manual Nothing is indexed to start with.

- **Index terms** will index all matched terms (terms on the list or within the range), leaving the rest unindexed.
- **Unindex terms** has no effect unless you turn on the Index unmatched check box turned off, in which case all unmatched terms will be indexed.

Automatic Everything is indexed to start with.

- **Index terms** has no effect unless you turn on the Unindex unmatched check box, in which case all unmatched terms will be unindexed.
- **Unindex terms** will unindex the matching terms.

Exact match

Turn this option on if you want to confine the action of the validator to words matching exactly the words on the list. Exact match means

- identical case of individual letters, e.g. "Brown" will not match "brown", and
- identical incidence of non-indexable characters, such as commas or apostrophes.

Length of field

This validator enables you to restrict the overall length of entries in the field, either in terms of the number of characters, regardless of their width, or in relation to the available space in the field.

Length of terms

The screenshot shows a configuration window titled "Length of terms". It features a "Characters:" text input field. Below it is a "Validate" section with three checked checkboxes: "Indexed", "Unindexed", and "Mustn't ignore".

This validator enables you to restrict the length of individual terms, either to a single length (eg. 2) or a range of lengths (eg. 1:8, meaning "from 1 to 8").

Number of terms

The screenshot shows a configuration window titled "Number of terms". It features a "Number of terms:" text input field. Below it is a "Count" section with three checked checkboxes: "Words", "Indexed", and "Unindexed". There are also unchecked checkboxes for "Numbers", "Dates", "Mustn't ignore", and "Don't count unrecognisable numbers/dates".

In this validator, you can specify the number of terms as a particular number or a range, defining in the Count check boxes which terms are to be included in the count.

You can specify any combination of words, numbers, and dates in the Count check boxes, and the validator will check their aggregate number; similarly, you can count indexed terms, unindexed terms, or both. You can make this quite sophisticated: for example, to allow exactly one date and no more than 3 words, install two Number of Terms validators: one to count dates (and require exactly 1), and the other to count words (and require from 0 to 3 of them).

Unique term

This validator applies to indexed terms only, and Cardbox checks them against the existing index for the field.

Using this validator, you can prevent duplication of some key identification terms, such as a person's National Insurance number. Conversely, you can insist that a term should already exist in the database – this gives you a quick and simple method of self-validation for a database, to prevent, for example, unauthorised creation of new keywords, such as the names of departments in your firm.

Validate text

You can validate text against one or more lists, assigned to the validator in the way described in Section 36.1 above, or simply restrict the allowable terms to a specified alphabetic range.

The meaning of the Exact match option is the same as for the Index Terms and Unindex Terms validators.

Validate number

You can validate numbers against a range or against one or more lists assigned to the validator in the way described in Section 36.3 above.

A term is treated as a number if it starts with a numeric digit or a currency sign.

Reject unrecognisable numbers

This option determines how numeric terms are validated if they contain a non-numeric character after the first numeric digit.

- With the option not set, all non-numeric characters are stripped, and the residual number is validated. For example, 1A34/23 is validated as 13423.
- With the option set, such mixed terms are treated as invalid.

Validate date

The image shows a configuration window for a date validator. It has a title bar 'Validate Date'. Inside, there are several sections:

- A group box containing three checked checkboxes: 'Indexed', 'Unindexed', and 'Mustn't ignore'.
- Two radio button options: 'Range' (which is selected) and 'List'.
- A text input field next to the 'Range' radio button.
- A group box for 'Day of month' with three radio button options: 'Required' (selected), 'Optional', and 'Not allowed'.

As with numbers, you can validate dates against a range or against one or more lists assigned to the validator in the way described in Section 36.3 above.

Reformat a date

This validator never reports any errors. Instead, it ensures that all dates are consistently in the same format. You can set it up to make any or all of the following adjustments:

Date format

You can force all dates to have the same format (day/month/year, month-day-year, or year.month.day).

Year format

You can force 2-digit years or 4-digit years. If you choose 4-digit years, then you can also tell Cardbox what century you want it to use if you type a 2-digit year into a field: for instance, you can tell it to use the century 1980-2079, so that "81" becomes 1981 but "78" becomes 2078. You can always enter a date in any other century by typing it in full.

Month/day format

You can force day and month numbers to have leading zeros or no leading zeros.

Change case

This validator never reports any errors. Instead, it reformats a field so that the capitalisation is the way you want it.

Upper case

All text in the field is upper case – HERE IS AN EXAMPLE.

Lower case

All text in the field is lower case – here is an example.

Word capitalisation

Every word in the field starts with a capital letter – Here Is An Example.

Sentence capitalisation

The first word in each sentence is given a capital letter – Here is an example.

NOTE: The "Sentence capitalisation" variant does not automatically force the rest of a sentence to lower case. This is to avoid destroying the capitalisation of any proper names that may appear in the sentence. If you really want to force the rest of a sentence to lower case, use two "Change case" validators, one to force everything to lower case and one to do sentence capitalisation.

Spell check

This validator activates an automatic spelling check for the field. For full details and instructions, open the Cardbox help and use the Search button to search for "Spell check".

You can spell-check any field, whether it has a spell check validator or not, by pressing Shift+F2. This also allows you to spell-check the Extra Text field, which cannot have validators attached to it.

36.5 Automatic numbering

You can make Cardbox assign a unique number to each record that you enter.

1. Choose a field

Choose the field that you want to use for numbering, or create a new one. Make it indexed (Auto or All).

2. Add a validator

While editing the native format, right-click on the field to bring up its "Properties" dialog box, and press the button marked Validate. Open the list of available validators, choose the "Automatic Numbering" one, press the button marked "Add<<<" to add it to the list of validators in use, then press OK to save the changes.

3. Set the starting number

Once you have saved your altered native format, you will probably want to tell Cardbox the next number that should be used. If you do not do this, numbering will start from 1 (if the database is empty) or from the last indexed number.

Use the command **File, Utilities, Adjust Numbering**.

When the dialog box opens, check that the correct field is displayed, and then enter the number you want in the "Next Number:" box. The number doesn't have to be purely numeric. Here are some examples:

Next number

8

0008

XG1448

Subsequent numbers

9, 10, 11, 12,...

0009, 0010, 0011, 0012,...

XG1449, XG1450,
XG1451,...

NOTE: If you cannot use this command, here are some possible reasons:

- You are not authorised (your user profile needs to authorise you to do batch editing).
- You have not defined the automatic numbering validator for a field.
- Your profile does not give you read/write access to a field with an automatic numbering validator.

Numbering in action

The Automatic Numbering validator is a little different from other validators, in that it does nothing while you are actually adding or editing a record - only when you save it.

Whenever you add a record (by New Record, Duplicate Record, or Edit Record followed by Save As), Cardbox looks at the numbering field. If it is blank, Cardbox fills it in with the next available number.

You can override the numbering simply by entering your own number in the field before saving it.

Numbering existing records

Automatic numbering also happens when you edit a record and save it with a blank numbering field. Thus you can number a batch of records with inconsistent numbers (perhaps records that you read in from an external file) simply by batch-editing them and erasing the contents of the relevant field: Cardbox will then number each record for you automatically.

Multiple automatically numbered fields

You can apply an Automatic Numbering validator to more than one field. We find it hard to imagine why you should want to do this, but it can be done and will work correctly. When you do File, Utilities, Adjust Numbering, make sure that you select the correct field before setting "Next Number".

Chapter 37 –

Macros

A macro is a sequence of Cardbox commands and keystrokes that can be activated by a single key or menu selection. Macros enable you to automate the operations that you perform frequently. You record in a macro script the keyboard or mouse inputs that you use to perform an operation, and then you play the macro back whenever you want to repeat the operation.

As well as the usual Cardbox operations, your macros can use some additional, advanced Cardbox features, available in the Macro Toolpad:



- *Calculations*, including date arithmetic.
- *The current date and time* in any format you choose.
- *Field transfer*: this allows the contents of a field to be transferred into a search command or a calculation.
- *Scrapbook fields* can be used to store intermediate results of calculations, or field contents for later use in commands.
- *Clipboard viewer* is useful for keeping track of what's in the Clipboard and when.
- *Looping* allows calculations or other operations to be repeated for every record in a selection.
- *Pauses and messages* allow flexible interaction between macros and the user.
- *Macros* can be called from within other macros for more modular operation.

Before we go into further detail, here are a couple of examples:

1. Delete text from the insertion point to the end of field

Action	Recorded as
<i>Select text to end of field, delete selected text.</i>	*Text Hilight-End Delete

2. Increase all incomes in the current selection by 10% (field IN)

Action	Recorded as
<i>Go to 1st record</i>	*FirstRecord
<i>Repeat for every record from here to EndLoop</i>	*StartLoop
<i>Enter the Edit Record command</i>	*EditRecord
<i>Load current income into Calculator</i>	*Calculator.Field "IN"
<i>Increase by 10% (multiply by 1.1)</i>	.Expression "*"1.1"
<i>Copy to the Clipboard</i>	.Copy
<i>Clear the expression in the calculator</i>	.Clear
<i>Move to the income field</i>	*Text Moveto-IN
<i>Select entry, paste result of calculation</i>	*Text Home Hilight-End Paste
<i>Save the record</i>	*SaveRecord
<i>If not the last record, move to next record and return to StartLoop</i>	*EndLoop

The right-hand column shows how Cardbox stores the actions you perform. This internal language is fairly readable, and you don't have to worry about its syntax, because the macro statements are generated automatically as you are recording.

37.1 Creating macros

You create a macro by recording your actions in Cardbox.



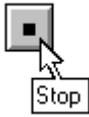
To start recording a macro,

- choose **Macros, Start Recording**

The Macro Toolpad will appear on top of the Cardbox window. You can drag it to any position you like, but you cannot close it. It is there to remind you that your actions are being recorded and it also gives you access to the various utilities which we describe in later sections.

Carry on with your work in Cardbox until you reach the point where you want to store the macro you are recording, or just want to see how far you have got.





To stop recording a macro,

- choose **Macros, Stop Recording**, and the Store Macro Script dialog box will appear. In this dialog box,

Save saves the macro you have just recorded (the button is disabled until you have given the macro a name).

Existing macros:	
simple loop	Ctrl+Shift+S
byloop	Ctrl+Shift+B
chtotat	Ctrl+Shift+T
age	Ctrl+Shift+A
Rep Address	Ctrl+Shift+R

View... displays the script of the macro as far as it has been recorded. Having viewed the script, you will return to this dialog box.

Continue closes the dialog box and lets you continue recording the macro.

Cancel discards the macro you have recorded (it does not undo any of the actions you performed while recording).

Name The name of the macro can be up to 15 characters long. If you try to save the new macro under the name of an already existing macro, Cardbox will warn you and ask for confirmation.

Description Use the description to remind yourself what operation the macro performs and under what conditions it can be used. You will be able to see the description both when viewing the macro script and when choosing the macro to play.

Menu Set this option if you want the macro to be accessible directly from the Cardbox menu (as part of the Macros menu). If you precede a letter in the macro name with an ampersand, that letter will be underlined in the menu: for example, "S&ummary" will appear as Summary in the menu and will be accessible with ALT+M,U.

Shortcut Key You can assign to each macro a key combination, such as CTRL+SHIFT+U, which will make Cardbox play it immediately. You cannot assign any key combinations that are used as shortcuts for built-in Cardbox commands, and Cardbox will ask for confirmation if you try to use a key combination that you have already assigned to another macro.

37.2 Playing a macro



You can play a macro in one of three ways:

- by selecting it from the **Macros** menu
- by pressing the applicable shortcut key
- by choosing **Macros, Play a macro** and specifying the macro to play in the Play Macro Script dialog box shown below.

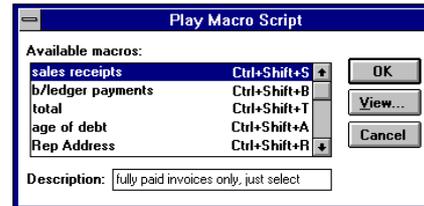


In this dialog box, select the macro and check its description to see whether it is the appropriate macro for what you want to achieve.

OK plays the macro immediately.

View... displays the script of the macro in the way shown below.

Cancel cancels the command to play a macro.



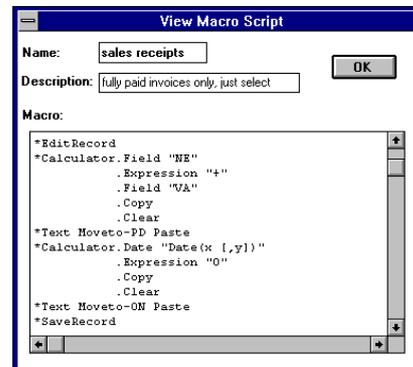
Interrupting the playback

To interrupt the macro being played, press ESCAPE or click the mouse button anywhere.

Viewing a macro

If you press the **View...** button, the View Macro Script dialog box will display the text of the macro.

You can only view the macro script, not edit it; to edit a macro, use the Macro Manager, described in the next section.

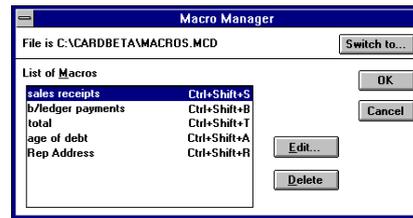


37.3 The Macro Manager

The Macro Manager enables you to edit and delete macros, and to switch between one macro file and another.

To open the Macro Manager, choose **Macros, Manager**

All the macros you record are stored in a single macro file: Cardbox chooses the name of this file automatically. The File box shows the current macro file.



If you are an advanced user, you may want to have several different macro files for different purposes.

Switch to... lets you close the current macro file and open another one instead.

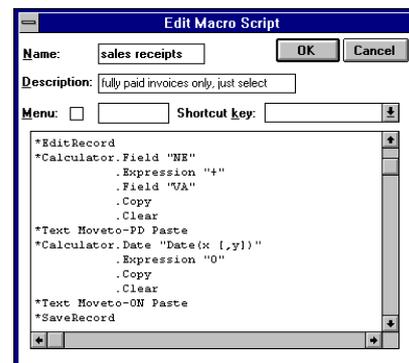
OK closes the Macro Manager dialog box and saves any changes you have made.

Cancel closes the Macro Manager dialog box and undoes any changes you have made.

Edit edits the macro that you have currently selected in the List of Macros. It displays the script in a special dialog box, as shown below, where you can use the standard Windows text editing techniques to edit the script. To save the edited script, choose **OK**. Cardbox will check the script for syntax and logic, and highlight any error it finds. You will have to correct the error, or choose **Cancel** to abandon the changes you have made. Note, however, that Cardbox cannot detect some errors, such as references to non-existent fields, until you come to play the macro.

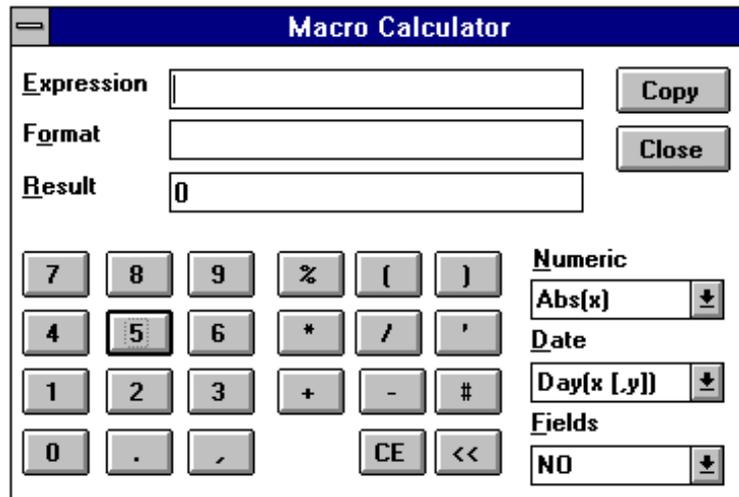
The first character of each line identifies its contents:

- * (asterisk) A function or command.
- . (period) Options or sub-commands within a function or command. The indentation is optional.
- ' (apostrophe) A comment.



Delete deletes the selected macro script. The deletion will not be permanent until you close the Macro Manager by pressing OK. Until then, you can press Undo to restore the deleted script, or Cancel to undo all changes.

37.4 Calculations



The Macro Calculator enables you to perform arithmetical operations on numbers and dates. You can use it at any time, whether or not you are recording a macro. When *not* recording, you may find a pocket calculator more convenient; *when recording*, you should always use the Macro Calculator. Here's why:

Suppose that you want a macro to increase the contents of the Income field ("IN", say) by 10%. In the first record, the field contains 20000:

Pocket calculator: Look at the screen: the income is 20000. Multiply it by 1.1, giving 22000. Go to the field, erase it, type 22000. The field now says 22000. Cardbox has recorded "22000" into the macro.

Macro Calculator: Open the Calculator. Enter the expression $1.1*IN$. Cardbox sees that $IN=20000$, does the calculation and puts 22000 into the Result box. Press the Copy button. Go to the field, erase it, select **Edit, Paste**. The field now says 22000. Cardbox has recorded all your actions with the Calculator into the macro.

So far, the pocket calculator seems simpler. But now look what happens when you play back the macro in another record, where the IN field contains 25000.

Pocket calculator: Cardbox erases the field and types "22000" into it. The field now says 22000, which is wrong.

Macro Calculator: Cardbox evaluates the expression $1.1*IN$ using $IN=25000$, then pastes the result (27500) into the field. The field now says 27500, which is right.

Here is a summary of the main features of the Calculator. Further details are given under separate headings later in this chapter.

Expression	This is the box in which you define the operation to be performed and the variables involved. In general, you can type the expression that you want to use together with the variables, either from the keyboard or from the calculator's keypad. You can also choose an expression from the Numeric list for numbers or from the Date list for date arithmetic. You can load the variables from fields in the records, from scrapbook fields, or from the Clipboard.
Format	The results of calculations are normally expressed in a default format: integers, or two decimal places, or the UK date format, but you can specify another format of your choice.
Result	This box displays the results of the calculations or various messages.
Copy	copies the result to the Clipboard.
Close	closes the calculator.
CE	clears the expression. Except for some very specialised uses, you should clear the expression before or after each calculation. This is especially important when recording a macro for repetitive processing of a batch of records (looping).

To open the calculator when not recording a macro,

- choose **Macros, Calculator**

You can then:

- experiment with the calculator, entering numbers or dates either from the calculator's keypad or from the keyboard,
- set up a calculation that depends on fields in a record, and watch its results change as you move from record to record,
- copy the results of your calculations to the Clipboard and then paste them into the record you are editing.

WARNING Do not use the Macro Calculator with Batch edit. Batch edit works at the keystroke level, and sees the results of calculations rather than the calculations themselves (just as if you had used a pocket calculator). If you used Batch edit with a calculation, it would put the result of the first

calculation into every subsequent record, which is almost certainly not what you want. If you want to update a batch records with the results of identical calculations performed on each record's own data, then use the Loop function described in Section 37.8.

Most often, you will want to put calculation requests into a macro, so we will use macro scripts to illustrate all examples of calculations.

To open the calculator when recording a macro,

- choose **Calc** in the Macro Toolpad.

The Macro Toolpad remains open throughout the recording session.



Referring to fields in calculations

NA	**	Scrap4	Clip
NA	LP	Scrap4	Scrap4
DE	NP	Scrap5	Scrap5
PO	DI	Scrap6	Scrap6
ORGANISATI	RE	Scrap7	Scrap7
ADDRESS	TRANSFERR	Scrap8	Scrap8
CO	CH	Scrap9	Scrap9
PC	**	Clip	Clip

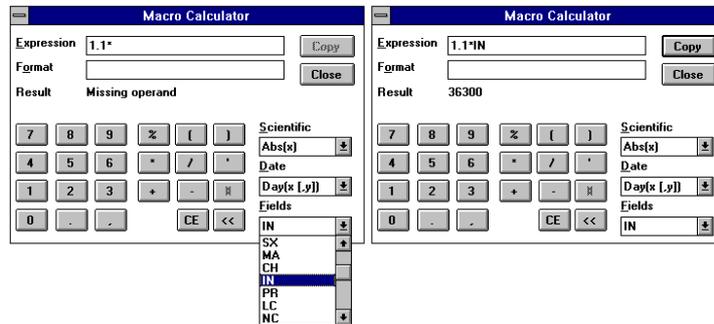
You can use in a calculation the values read from:

- any field in the record, regardless of whether it is visible in the current format,
- extra text,
- any of the 10 scrapbook fields (see Section 37.7 below),
- the Clipboard.

The value of a field is taken to be the value of the first item (word, number or date) in that field. Empty fields and fields beginning with a word are assumed to have value 0.

■ **Example - increase the income in the current record by 10%.**

We assume that the name of the income field is IN.



Open the calculator. Enter "1.1" from the *Calculator.Expression "1.1*" keyboard or the keypad.*

.Field "IN" Open the Fields list and select IN.

.Copy Copy the result to the Clipboard.

.Clear Clear the expression.

Having copied the result to the Clipboard, you can close the calculator. This applies even if the calculation you have defined is in a macro loop.

Calculations using numbers

You can use the usual arithmetic operators +, -, * (multiplication) and / (division). Priorities are assigned to these operators in the same way as in most programming languages (so that in $13+2*4$ the multiplication is done before the addition), but you can use parentheses () to alter the order of calculation if necessary.

One additional operator, % (percentage sign), performs the remainder function:

$a\%b$ is the remainder after dividing a by b , eg. $87\%7 = 3$

The following special functions are also provided in the Numeric list:

Int(x) gives the integer of x , eg. $\text{Int}(3.33)=3$

Abs(x) gives the absolute value of x , eg. $\text{Abs}(-6)=6$, $\text{Abs}(1.4)=1.4$

Max(x,y) gives x or y , whichever is the greater.

Min(x,y) gives x or y , whichever is the lesser.

Sqrt(x) gives the square root of x .

Calculations using dates

There are two ways of getting a date into a calculation. One is to refer to a field which contains a date, and the other is to put the date into the calculation explicitly.

In the latter case, you must put the date in apostrophes, so that Cardbox recognises it as a date. Thus:

'13/3/2003' means the 13th of March 2003, but

13/3/2003 would mean 13 divided by 3 divided by 2003.

The normal arithmetic operators +, -, *, /, and % work only on numbers, not on dates. For dates, the following special functions are provided in the Date list:

Date(n)	gives the date n days from now - eg. Date(0) is today, Date(-1) is yesterday, and Date(7) is this time next week.
Date(n,d)	does the same, but starting from the date d rather than from today.
MDate(n)	gives the date n months from now - e.g. MDate(0) is today, MDate(-1) is this time last month, and MDate(1) is this time next month.
MDate(n,d)	does the same, but starting from the date d rather than from today.
YDate(n)	gives the date n years from now - e.g. YDate(0) is today, YDate(-10) is this time ten years ago, and YDate(1) is this time next year.
YDate(n,d)	does the same, but starting from the date d rather than from today.
Day(d2,d1)	gives the number of days from d1 to d2. If d2 is earlier than d1, the result is negative - e.g. Day('11/2/1993','11/11/1992') is 92, Day('12/2/1993','4/3/1993') is -20.
Day(d2)	works the same way, but counts from today rather than from d1.
Month(d2,d1)	gives the number of months and fractions of months from d1 to d2. If d2 is earlier than d1, the result is negative - eg. Month('1/2/1993','1/11/1992') is 3, Month('12/2/1993','4/3/1993') is -0.65.

Month(d2)	works the same way, but counts from today rather than from d1.
Year(d2,d1)	gives the number of years and fractions of years from d1 to d2. If d2 is earlier than d1, the result is negative.
Year(d2)	works the same way, but counts from today rather than from d1.

Note The fractions of years and months given by the Year and Month functions are approximate, since there is no universally acceptable definition of how such a quantity can be calculated. The YDate(n) and MDate(n) functions work on integer values of n only, and ignore any fractional part.

Here are a few examples assuming field BI for the date of birth, NC for the date of next contact, and IN for annual income.

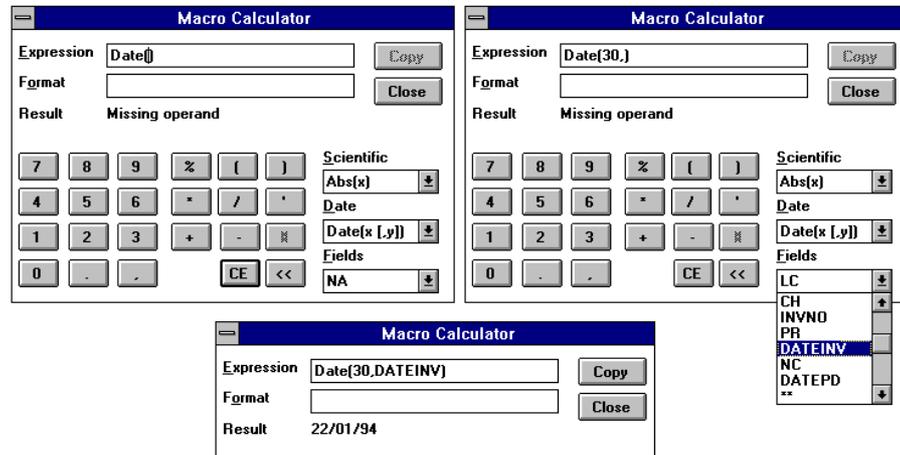
YDate(50,BI)	the person's 50th birthday.
Day(NC)	how many days until we next contact him.
IN*Year(NC)	how much he will have earned between now and then.

Hint When designing an elaborate formula, it is worth starting with a simpler one. For example, you want to order a special birthday present which will take some time to come. She was born on 23 May 1957, today is 5 April 1994, how many days till her birthday?

Expression	Result	
-Year(BI)	36.55	her age today in years and fractions of a year
int(-Year(BI))	36	her age in years only
1+int(-Year(BI))	37	her age next birthday
ydate(1+int(-Year(BI)),BI)	23/5/94	the date of her next birthday
day(ydate(1+int(-Year(BI)),BI))	48	the number of days to her next birthday

■ Example - payment date of invoice

Your invoices are due for settlement within 30 days of issue date (field DATEINV). When is the current invoice, dated 23/12/93, due for payment?



***Calculator.Date "Date(x [,y])"** *Select this expression in the Date list.*

Expression "30," *Enter "30,".*

Field "DATEINV" *Select this field in the Fields list.*

.Copy *Copy the result to the Clipboard.*

.Clear *Clear the expression.*

Alternatively, if you know the syntax of the expression you want, you can type it directly without having to pick anything from a list:

***Calculator.Expression** *Enter the whole expression.*

"Date(30,DATEINV)"

.Copy *Copy the result to the Clipboard.*

.Clear *Clear the expression.*

■ Example - overdue invoices

Which invoices over 30 days old are still unpaid? (Invoice date is in field DATEINV, date of payment in field DATEPD)

*Exclude.Field "DATEPD" *Search this field to exclude the paid invoices.*

.Text ":"

.OK

*Calculator.Date "Date(x [,y])" *Calculate the date 30 days before today.*
.Expression "-30"

.Copy

.Clear

***Select.Field "DATEINV"** *Choose Search, Select, field DATEINV.*

.Text ":" Paste *In Search for box, type ":", press CTRL+V to paste the result of the calculation.*

.OK

Format of results

The results of calculations are normally expressed as integers or with two decimal places. You can override this format by your own specification in the Format box. The format specification looks like a number, but with hashes "#" instead of numeric digits. It specifies that the result of the calculation will be formatted with a given number of digits after the decimal point, and with *at least* a given number of digits before it. If the number is too large to fit in the space you specify, then more digits are used. For example, ##.#### formats the result with two digits before the decimal point and four digits after it, and here is how various numbers would appear in this format:

3	3.0000
98.76543	98.7654
123.45	123.4500

Dates normally inherit their format from the dates that were used in the calculation; if no dates were used, then the format is assumed to be the UK format (dd/mm/yy) with a 2-digit year. You will almost certainly want to override this with a format specification. Here are some examples:

##/##/#### 2-digit day and month, 4-digit year.

#-#-#### to express the date in the American format: month, then day, then year.

- If a date is not in the 20th century, the year is output as 4 digits irrespective of the date format it has inherited or you have specified. On input to calculations, all dates with 2-digit years are assumed to be in the 20th century.

Errors in calculations.

There are two sorts of possible error: syntax errors and execution errors.

Syntax errors happen when a meaningless formula has been entered: 1 1 instead of 1+1, or DAY(DA instead of DAY(DA). Cardbox points out the error and does not attempt to perform the calculation: you must correct it first.

Execution errors happen when a formula is valid in itself but invalid in the context in which it is used: for example, a field reference will be valid only if the field exists, which may depend on which database you are in when you make the reference; the formula "IN/NC" will not be valid if field NC is zero; and the formula "3*DD" will not be valid if field DD contains a date rather than a number.

When an execution error occurs in a calculation, Cardbox does not halt and report it, but it notes that the result of the calculation is invalid: when the time comes to type it out, "_" (a single underline) is typed instead of a number. The reason it does not halt is that the calculation may be part of a long loop that is running unattended, perhaps even overnight or as a batch job; aborting this operation early would cause problems, but the underline lets you find invalid results later.

37.5 Date and time

You can use macros to enter into Cardbox records the current date and the current time in either the 12-hour or the 24-hr clock.

You enter the date and time in terms of the reference date and time.

The reference date is **4th July 1976**, which was a **Sunday**

The reference time in 24-hr clock is **01:02:03**

The reference time in 12-hr clock is **9.02am**

The day, month, year, and day of the week can be in any order and in various formats, and any of them can be omitted. Here are some examples of specifications, together with what Cardbox would type if the appropriate macro were played on Tuesday, the 14th of December 2021:

Date specification	What Cardbox types
4/7/76	14/12/21
4/7/1976	14/12/2021
7-4-1976	12-14-2021
04JUL76	14DEC21
Sunday, July 4th, 1976	Tuesday, December 14th, 2021
4-Jul-76	14-Dec-21
SUN	TUE
The 4th day of July '76	The 14th day of December '21

- If you specify a single digit for the day or month, it will be expanded into two digits if necessary.
- If you specify 2 digits with a leading zero, the leading zero will be put in only when it is needed.
- If you want the day or month to be exactly 2 characters long, but with a leading space instead of leading zeros, then specify "44" instead of "4" for the day or "77" instead of "7" for the month.

Entry will be output as

4	" 9" "10" "11"
04	"09" "10" "11"
44	" 9" "10" "11"

Most of the dates given in these examples are not very sensible index entries in a Cardbox database, because Cardbox will not recognise them properly for indexing, but the flexibility is useful for dates in letters or documents. For indexing, stick to the basic formats "4/7/1976", "7-4-1976", "1976.07.04".

To make a macro enter the current date and time into Cardbox, choose **Dates** in the Macro Toolpad to open this dialog box. You will be presented with a drop-down list of date formats. Choose one of those, or type your own in the text box.

When you are satisfied that you have the right format, press the Copy button to copy the date to the Clipboard, from where you can paste it into the

record. Cardbox will record the date format you have chosen in the macro script.

37.6 Field transfer

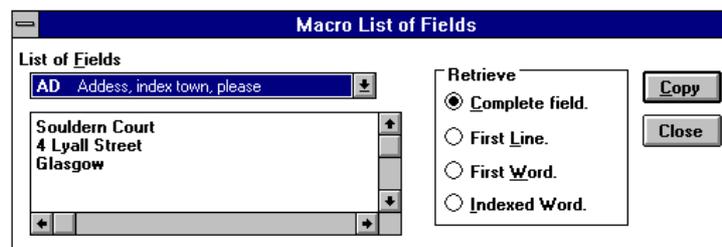
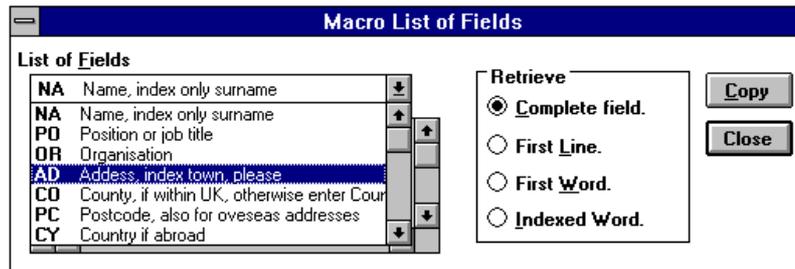
In macros, just as in normal record editing, you can use the Clipboard to copy and move text. However, you may sometimes want more control over what is copied, and this is what the Macro List of Fields window gives you.

Here is an example of a field transfer, into a search command. The macro listed below will select all records with the same town name as the current record.

*Field.Item "AD"	<i>Read the address field.</i>
.Indexed	<i>Indexed item only: town name in this case</i>
.Copy	<i>Copy to the Clipboard.</i>
*Select.Field "AD"	<i>Enter Search, Select, field "AD".</i>
.Text Paste	<i>Paste town name.</i>
.OK	<i>Execute the search command.</i>

To copy the contents of a field,

- choose **Fields** in the Macro Toolpad,
- select the field in the Macro List of Fields shown below.



The whole of the selected field is available for copying to the Clipboard, but you can alternatively choose:

- First Line** to transfer the first line of the field (this is the whole of the field up to the first new-line marker, and may be occupying more than one physical line on the screen).
- First Word** to transfer the first word of the field.
- Indexed Word** to transfer the first indexed word in the field, removing any non-indexable punctuation. This is the option which you should use to transfer a term from the field into a search command.

Having made your choice of the field and of the retrieval option, choose Copy to copy the text to the Clipboard.

- Each Copy operation erases the previous contents of the Clipboard. To combine the text of several fields, you should copy the first field, paste it into a Scrapbook field, copy the second field, paste it into the same Scrapbook field, and so on.
- You do not have to keep the Macro List of Fields open between successive retrievals of text from various fields. If you want to keep your screen uncluttered, you can close the Macro List of Fields once you have copied the required text to the Clipboard, and re-open it later within the same macro.

Fields and other data

AD Address, index town, please	↓	AD Address, index town, please	↓
PI Enter in mailmerge form	↑	Scrap5	↑
**		Scrap6	
Scrap0		Scrap7	
Scrap1		Scrap8	
Scrap2		Scrap9	
Scrap3		Clip	
Scrap4	↓	FormatName	↓

As well as the fields in the database, the Macro List of Fields window gives you access to:

- All Scrapbook fields.
- The Clipboard.
- The name of the current format. This is useful for macros in which you change the format (for printing, for example) and then return to the original format.

37.7 Scrapbook fields

Cardbox has ten temporary scrapbook fields, numbered Scrap0 to Scrap9. The scrapbook fields behave like ordinary fields, but they exist independently of any record or database, and so are unaffected by any of the normal scanning and selection operations.

The scrapbook fields effectively offer you 10 virtual clipboards with the following properties:

- Each scrapbook field is one line long. There is no indexing.
- You can enter text into a scrapbook field by pasting it from the Clipboard or by typing it at the keyboard.
- Scrapbook fields are not automatically cleared when you start recording or playing a macro, so you can use them to store information from one macro to another.

You can access the scrapbook even when not recording a macro. To do so

- choose **Macros, Scrapbook**

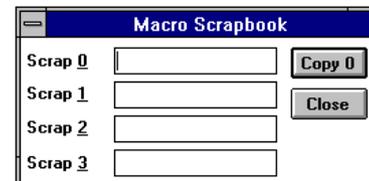


While recording a macro,

- choose Scrap in the Macro Toolpad.



In either case, Cardbox will initially open the Macro Scrapbook box just large enough to show the first four scrapbook fields, but you can enlarge it to show all ten fields. Similarly, you can widen the Scrapbook to make the fields themselves wider.



- Within macros, the scrapbook fields are listed after the database fields both in the Macro List of Fields dialog box and in the Calculator, and you can retrieve text from them without opening the Macro Scrapbook box. The only time that you need to open this box is when you are pasting text into the scrapbook fields.
- Outside macros, you have to use the Macro Scrapbook box both to enter or paste text and to copy it to the Clipboard.

- To copy a scrapbook field to the Clipboard, move to it in the Macro Scrapbook box. Its number will be displayed in the Copy button. Click the button.

Here is an example to illustrate the use of a scrapbook field as a temporary register for a search parameter.

You are looking at a record in the CONTACTS database and you want to find other contacts handled by the same salesman in the same town as the current one. The town's name is the only indexed item in field AD, and the salesman's surname is the only indexed item in field REP.

Suppose that the current record is record number 10 in the unsorted database, belonging to Arthur E Unwin who is in **London** and whose salesman is **Henry Nixon**.

These are the search commands that will give you Nixon's contacts in London, as they would appear in the History display.	Level 0: 1000 records selected. Select AD/LONDON Level 1: 202 records selected. Select REP/NIXON Level 2: 34 records selected.
---	--

However, after the first search command, Cardbox will display the first of the London records, which belongs to a different salesman, Bob Holden. So, to get the selection you want, you must remember that it is Nixon that you must search for next. When you record a macro, you must similarly make the macro remember the original salesman's name, by using a scrapbook field.

In the macro which we show below, we use a scrapbook field to store the salesman's name before we start the search on the current town's name, and then we retrieve the salesman's name from the scrapbook to apply it in the second search command.

*Field.Item "REP"	<i>Select field "REP" in the Macro List of Fields.</i>
.Indexed	<i>Retrieve the salesman's name.</i>
.Copy	<i>Copy to the Clipboard.</i>
*Scrap.0 Paste	<i>Go to Scrapbook field 0, paste the salesman's name.</i>
*Field.Item "AD"	<i>Select field "AD" in the Macro List of Fields.</i>
.Copy	<i>The Indexed option will still be on, copy the town to the Clipboard.</i>
*Select.Field "AD"	<i>Choose Search, Select for field AD.</i>

.Text Paste	<i>Paste the town's name.</i>
.OK	<i>Execute the search command.</i>
*Field.Item "Scrap0"	<i>Read Scrapbook field 0. See also the note below.</i>
.Copy	<i>Copy the salesman's name to the Clipboard.</i>
*Select.Field "REP"	<i>Choose Search, Select for field REP.</i>
.Text Paste	<i>Paste the salesman's name.</i>
.OK	<i>Execute the search command.</i>

Note In this example, we retrieved the salesman's name from the Macro List of Fields. We could alternatively have retrieved it from the Macro Scrapbook window, in which case, the statement *Field.Item "Scrap0" would have been replaced by *Scrap.Goto 0.

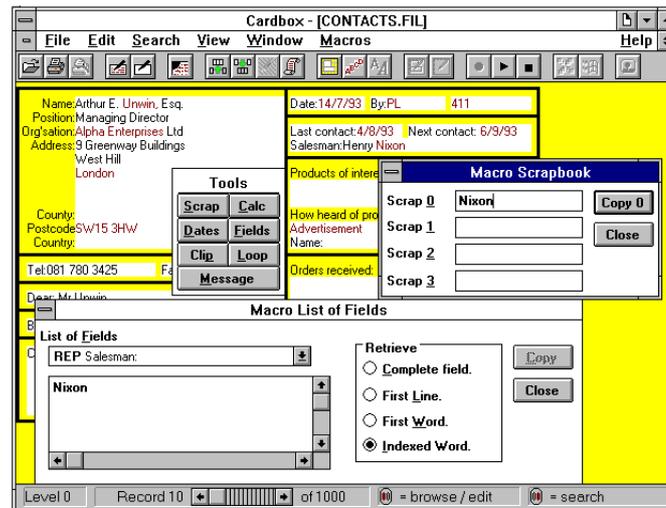
Here is the way in which you record this macro.



- choose **Macros, Start recording**

In the Macros Toolpad,

- choose Fields to open the Macro List of Fields,
- choose Scrap to open the Macro Scrapbook.
- Arrange the Macro List of Fields and the Scrapbook so that you have easy access to both.



This picture shows what the Cardbox window should look like after the following operations; the corresponding portion of the macro script is shown in the box on the right.

- Select field REP in the Macro List of Fields.
- Retrieve the indexed word.
- Copy it to the Clipboard.
- Click on Scrap 0 in the Scrapbook, press CTRL+V to paste the salesman's name.

```
*Field.Item "REP"
    .Indexed
    .Copy
*Scrap.0 Paste
```

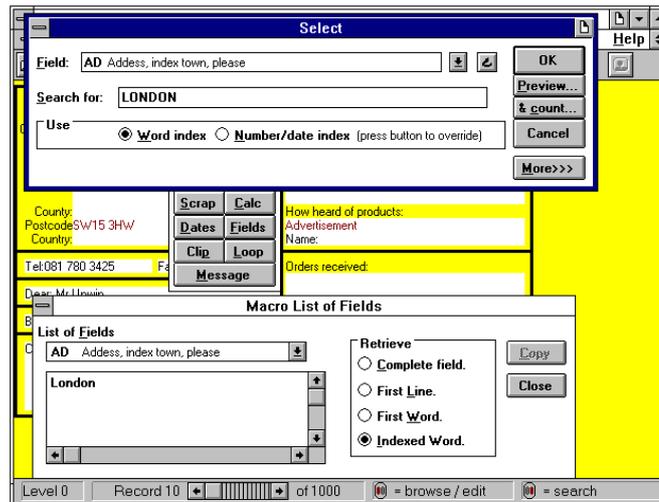
You can now close the Scrapbook window, as it will no longer be needed (this operation will not be recorded in the macro). Next,

- Select field AD in the Macro List of Fields. The Retrieve option will still be Indexed Word, so only the town's name will be retrieved.
- Copy it to the Clipboard.
- Right click on the Address field in the record.
- Press CTRL+V to paste the town's name

```
*Field.Item "AD"

    .Copy
*Select.Field "AD"
    .Text Paste
```

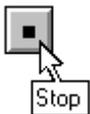
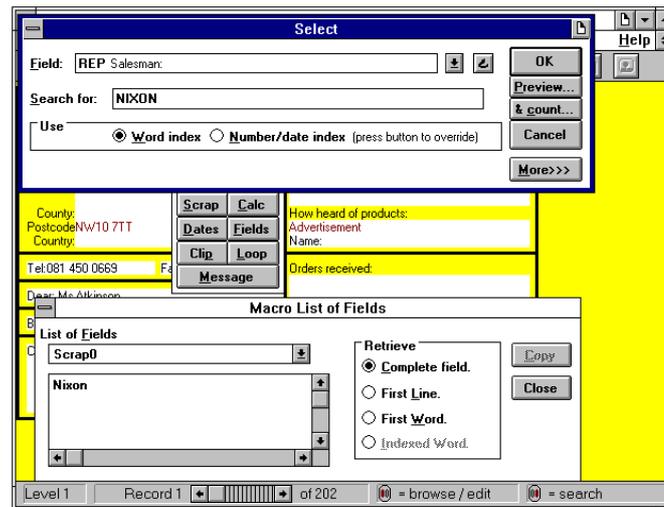
The screen will now look as shown in the picture below.



- Click OK or press ENTER to execute the search command.
- Select Scrap0 in the Macro List of Fields
- Copy it to the Clipboard.
- Right click on the Salesman field in the record.
- Press CTRL+V to paste the salesman's name

```
.OK
*Field.Item "Scrap0"
.Copy
*Select.Field "REP"
.Text Paste
```

The screen will now look as shown below.



- Click OK or press ENTER to execute the search command.
- Choose **Macros, Stop recording** and save the macro.

.OK

37.8 Looping

Looping within macros means repeating a part of the macro for every record to the end of the current selection. A loop is defined within the macro by the StartLoop and EndLoop functions.

StartLoop means:

- The loop starts here.
- If there are no records in the current selection, there is nothing to be done in this loop, so skip straight to EndLoop.

EndLoop means:

- The loop ends here.
- If there are more records in the selection, then move on to the next record and resume playing the macro from StartLoop.
- If there are no records left to be processed, ignore EndLoop and carry on playing the rest of the macro.

We discuss messages in Section 37.10.

For example, the macro listed here would total the income field (IN) in all records in the current selection in the following stages.

1. Before the loop: copy value zero to the Clipboard and move to the first record.
2. Within the loop: add the income in the current record to the value on the Clipboard.
3. After the loop: display the total in a status message.

```
*Calculator.Expression "0"
    .Copy
    .Clear
*Home
*StartLoop
*Calculator.Field "Clip"
    .Expression "+"
    .Field "IN"
    .Copy
    .Clear
*EndLoop
*Message.Text "total = " Paste
    .Status
    .OK
```

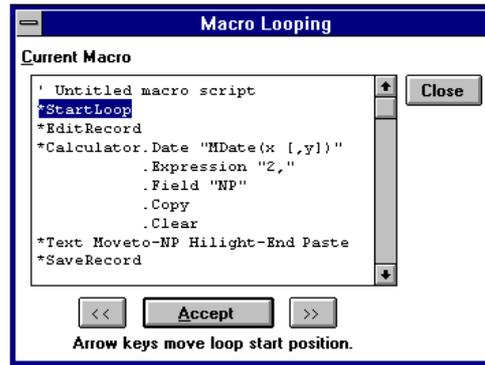
Looping versus Batch edit

Looping within macros and Batch Edit can both be used to edit a batch of records. The difference is that Batch Edit repeats literally what you type, keystroke by keystroke, while a macro can execute any command. So if the data being entered depend on an action that may vary from one record to the next (such as a calculation) then you cannot use Batch Edit, and you have to use a macro containing a loop.

Defining loops

- StartLoop and EndLoop can only be used within macros; they are not otherwise accessible.
- You cannot start and close a loop while you are editing a record.
- Loops can be nested, so that you can have one StartLoop ... EndLoop pair inside another.

To insert the loop commands into the macro you are recording, record the macro as far as the end of the commands or keystrokes that you want to repeat (that is, where you want the EndLoop command to be inserted in the script) and choose Loop in the Macro Toolpad.



Cardbox will insert a highlighted StartLoop command just before the first command in the viewing (ie. non-editing) mode. In this example, this is the only place where the StartLoop command could go, so Cardbox does not give you any option to move the StartLoop command elsewhere. So, you can only choose Accept to enter the EndLoop command at the end of the script.

Note While you are recording a macro, the commands within the loop are not applied automatically to all records in the current selection; this happens only on playback. But the first record will already have been changed in recording, so allow for this either by starting the playback from the second record or by first cancelling the changes you made in the first record while recording the macro.

Here is a more advanced example, of a macro in which Cardbox will offer you a wider choice of possible positions for the StartLoop command, so that you have to decide which position is the correct one for the logic of the macro. In this macro, we first select all records for the salesman (Field REP) in the current record, and then edit each record to delay the date of the next contact by 2 months.

1	2	3
*StartLoop	*Field.Item "REP"	*Field.Item "REP"
*Field.Item "REP"	.Indexed	.Indexed
.Indexed	.Copy	.Copy
.Copy	*StartLoop	*Select.Field "REP"
*Select.Field "REP"	*Select.Field "REP"	.Text Paste
.Text Paste	.Text Paste	.OK
.OK	.OK	*StartLoop
*EditRecord	*EditRecord	*EditRecord
*Calculator.Date	*Calculator.Date	*Calculator.Date
"MDate(x[,y])"	"MDate(x[,y])"	"MDate(x[,y])"
*Calculator.Expression "2,"	*Calculator.Expression "2,"	*Calculator.Expression "2,"
.Field "NP"	.Field "NP"	.Field "NP"
.Copy	.Copy	.Copy
.Clear	.Clear	.Clear
*Text Moveto-NP	*Text Moveto-NP	*Text Moveto-NP
*Text Hilight-End Paste	*Text Hilight-End Paste	*Text Hilight-End Paste
*SaveRecord	*SaveRecord	*SaveRecord
*EndLoop	*EndLoop	*EndLoop

1 Cardbox will first insert the StartLoop command at the start of the macro script. If you were to leave it in this position, you would be selecting records for the same salesman over and over again. Since the Select command makes the first record in the selection the current record, you would be editing the same record over and over again, each time delaying the date by 2 months. So you could end up with a date several years ahead by the time you got round to aborting the macro.

2 This column shows the position to which Cardbox will move the StartLoop command if you click once on the right-arrow button. If you were to leave it there, you would edit the first record correctly, but the next time round through the loop, the macro would paste the calculated date as the search parameter for the salesman's name, and Cardbox would reject it as an invalid parameter and abort the macro.

3 This is the correct position for the StartLoop command. The loop starts with the Edit record command and ends with Save record command.

Nested loops

To illustrate nested loops, we extend the above macro to process the records of several selected salesmen. We use two nested loops, as follows:

- Outer loop**
- Read the salesman's name in the current record.
 - Select records by that name.
 - Tag the selected records.
 - Hand over control to the inner loop.

- Inner loop**
- Delay next contact in all records by 2 months.
 - Undo the selection
 - Exclude the tagged records.

On completion of the outer loop

- Clear all tags and selections.

Here is the text of this macro. In recording it, you would insert a loop twice, first the inner loop and then the outer loop.

For the inner loop,

- record the macro as far as the **SaveRecord** command,
- bring the **StartLoop** command down to just before the **EditRecord** command.

For the outer loop,

- record the macro as far as the **ExcludeTagged** command,
- accept **StartLoop** in the position chosen by Cardbox.

```

*ClearTagged
*FirstRecord
  *StartLoop
  *Field.Item "REP"
    .Indexed
    .Copy
  *Select.Field "REP"
    .Text Paste
    .OK
  *TagRest
    *StartLoop
    *EditRecord
    *Calculator.Date "MDate(x[,y])"
      .Expression "2,"
      .Field "NP"
      .Copy
      .Clear
    *Text MoveTo-NP Hilight-End Paste
    *SaveRecord
    *EndLoop
  *ClearOneLevel
  *ExcludeTagged
  *EndLoop
*ClearAllLevels
*ClearTagged

```

Having thus defined the **EndLoop** position for the outer loop, you can next record whatever commands are needed to bring the database to the state in which you want to leave it. In this example, we clear all tags and selections.

37.9 Using macros within macros

When defining a complex macro, it is often more convenient to build it up from a series of smaller macros, each defined and tested individually. Having defined those smaller macros, you merely need to arrange for the larger macro to play them at the appropriate stages.

The macro that you play within another macro

- can also be called by other macros,
- can be written and revised independently of the calling macros.
- If loops are used, each `StartLoop` function must be in the same macro as the corresponding `EndLoop` function.

Here is an example.

In the macro described in the previous section we used two nested loops:

Outer loop to select the records belonging to each salesman in the current selection.

Inner loop: to edit the selected records delaying the next contact by 2 months.

In the example shown below, we put the inner loop into a separate macro, called "2-month delay", which we play from within a macro script controlling the outer loop.

```

*MacroName:delay some
Reps
  *StartLoop
  *Field.Item "REP"
    .Indexed
    .Copy
  *Select.Field "REP"
    .Text Paste
    .OK
  *TagRest
  *Play "2-month delay"
  *ClearOneLevel
  *ExcludeTagged
  *EndLoop
*ClearAllLevels
*ClearTagged
*EndMacroScript

```

```

*MacroName:2-month delay
*StartLoop
*EditRecord
*Calculator.Date "MDate(x[,y])"
  .Expression "2,"
  .Field "NP"
  .Copy
  .Clear
*Text Moveto-NP Hilight-End Paste
*SaveRecord
*EndLoop

```

Recording the playback action

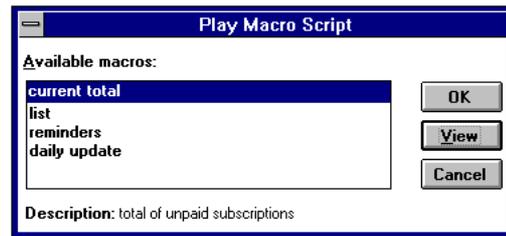
If you want to play another macro from within the one that you are currently preparing, continue recording until you reach the point where the other macro is to be played.

At that point,

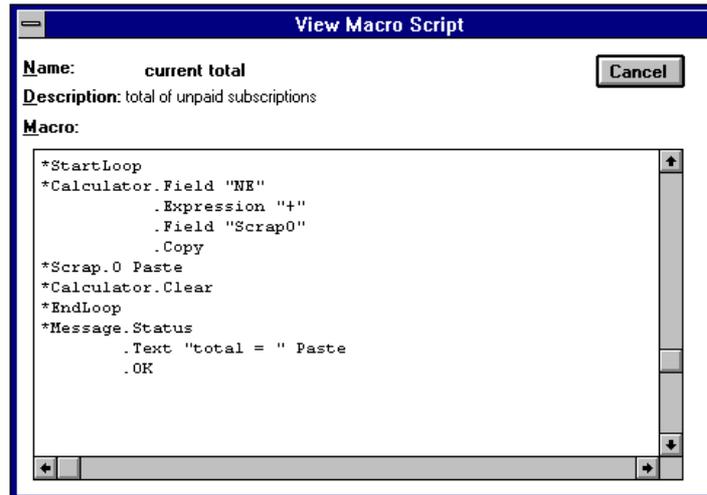
- choose **Macros, Play a macro**



- Select the macro to play in the Play Macro Script dialog box .
- Choose OK if the macro you selected is the right one, and wait for it to complete its processing.



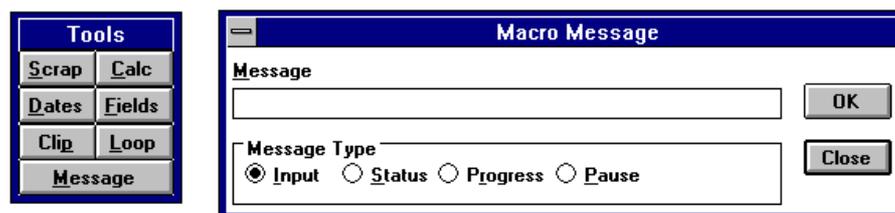
- Choose View if you want to have a look at that macro first. It will be displayed as shown below.



- Go on recording the current macro and finally save it in the normal way.

37.10 Messages and Pauses

You can insert in your macros various type of messages, to be displayed on playback, as well as pauses during which the playback is suspended to enable you to perform some operations in Cardbox that you have not recorded in the macro.



To insert a message or a pause in the macro,

- choose Message in the Macro Toolpad.

In the Macro Message dialog box,

- select the message type,
- enter the text of the message,
- choose OK or press ENTER.

Cardbox may ask you for further input, depending on the type of the message that you have specified, and we describe the various types under separate headings.

Input

The Input message enables you to build some flexibility into your macros by leaving it to the user to enter some variable on playback: for instance:

- the field to search or total,
- the keyword to use in a search command,
- the text to insert in a record,

or, in general, any parameter that is necessary for the execution of the macro but whose value you want to leave under user control. You should ensure that the text of the message tells the user what input is required

■ Example - Input of a search parameter

Here is an example of a very simple macro, which will ask for the name of the county to be selected.

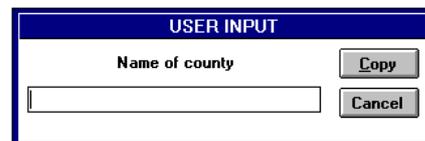
```
*Message.Text "Name of
county"
```

```
.OK
```

```
*Select.Field "CO"
```

```
.Text Paste
```

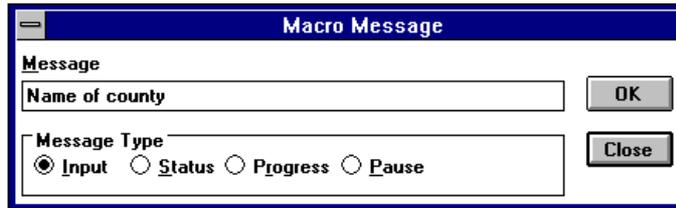
```
.OK
```



Having entered the name of the county, choose Copy or press ENTER.

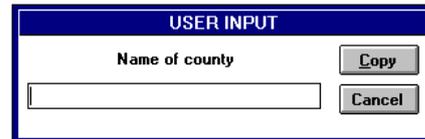
When recording the macro,

- choose Message in the Macros Toolbar,
- enter the text of the prompt in the Macro Message dialog box,
- click OK or press ENTER,



The User Input dialog box will next be displayed. You can close the Macro Message dialog box at any stage from now on.

- Enter the county to be selected in the recording session.
- Choose Copy to copy the name to the Clipboard, from where you can next paste it into the search command.
- Finally, name and save the macro in the normal way.



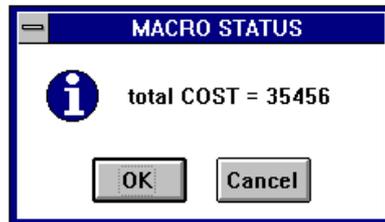
■ Example - Field totalling

Here is a macro of greater practical interest: for totalling a field in the current selection of records.

The macro asks for the name of the field in the User Input dialog box, displaying the prompt

Field to total

The macro finally displays the result in a status message giving the name of the field and the total. We discuss status messages later in this chapter.

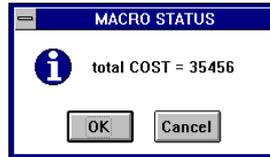


```
*Message.Text "Field to total"
    .OK
*Scrap.0 Paste
*Home
*StartLoop
*Scrap.Goto 0
    .Copy
*Calculator.Expression Paste "+"
    .Field "Scrap1"
    .Copy
*Scrap.1 Paste
*Calculator.Clear
*EndLoop
*Scrap.Goto 0
    .Copy
*Message.Status
    .Text "total " Paste " = "
*Scrap.Goto 1
    .Copy
*Message.Text End Paste
    .OK
```

Status

You can use status messages in macros for a wide range of purposes, and here are some examples.

The macro on the right lets the user examine the state of the database and decide whether to continue the playback or cancel it.



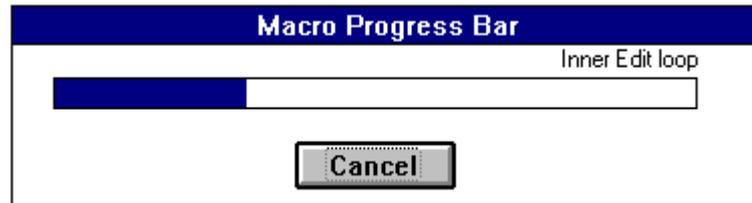
This status message gives the same options, displaying the last search command executed by the macro.

This status message shows the field chosen for totalling and the total.

This status message displays the search parameters used in the search.

Setting a status message involves the same procedure as for the messages described earlier, and you can make up the message from text entered at the keyboard and variables pasted in. See the concluding statements in the macros quoted above.

Progress



Use the Progress option in the Macro Message dialog box to display the progress of the macro through a loop. The progress bar grows in proportion to the records processed, and the message entered in the Macro Message dialog box is displayed above it.

This is the way in which a progress message is recorded in the macro script.

```
*Message.Progress
.Text "Inner Edit loop"
.OK
```

Pauses

You can make a macro pause during playback and let the user perform some operations before continuing further playback.

For example, you can give the user a chance to refine a selection before going on with further processing of the macro.



To insert a pause in the macro you are recording,

- choose **Message** in the Macro Toolpad,
- select **Pause** in the Macro Message dialog box,
- enter the text which is to be displayed during the pause,
- choose **OK** or press **ENTER**,
- when the pause box appears, choose **Continue** and carry on recording the macro.

During a pause, most Cardbox commands and functions can be performed.

Continue will resume the playback,

Halt will stop further playback of the macro.

37.11 Errors and error messages

Errors while recording macros

If you make a typing mistake while recording a macro, you can correct it in the normal way. Both the entry and the correction will be recorded as part of the macro and played back when the macro is played.

- If the error was of a kind that Cardbox did not object to, then the macro will play back normally, with nothing to make you aware that there is a corrected error in the macro. An example of this would be typing the wrong text into a field, backspacing, and typing the corrected text.
- If you were alerted to the error by a beep from Cardbox, then you will hear that beep on playback too. It may be quite annoying to hear a series of beeps in a fast performing loop, and the only remedy is to re-record the macro – or to correct it by editing, if you feel confident about doing so. An example of this would be in a **Search, Select** command: if you are typing a number and enter an invalid character, Cardbox will beep as it displays a warning.
- If you should reach a stage at which Cardbox refuses to accept the commands that you intended to record, then you have no option but to abandon the macro. An example might be a **Search, Select** command when there are no records in the current selection. Check whether you started recording under the right conditions

(you may have meant to start at Level 0, but started instead with some selections already performed) or whether the macro is ill-conceived.

Calculator errors

When recording, the Calculator checks your entries as you make them and it will not let you copy the result to the Clipboard while an error is being flagged. The error messages displayed by the Calculator are self-explanatory, but you will find further notes in Help, if you need them.

Calculator errors can occur on playback even if no errors were reported when recording: for example, a field that contained a valid number when recording may not contain a number when the macro is being played back. Cardbox does not report errors detected on playback, but instead makes the result of the calculation a single underline character, which can be copied and pasted into fields just like a normal result. Cardbox does this because the macro may be part of a long loop that is running unattended, and it is better to continue processing instead of interrupting it: afterwards, you can search the resulting field for an underline in the same way as for any other indexed character.

Errors on playback

By definition, a macro is played back some time after it is recorded, and the conditions on playback may not be the same. The level of selection, the contents of fields, and the editing mode may be different, and so a macro that worked when it was being recorded may not work on playback.

If an error occurs on playback, Cardbox stops playing the macro and displays an error message. It also displays the macro script, highlighting the line which caused the error. If it is not clear to you why an error should have occurred, press f1 or the Help button to see an explanation and some possible causes.

Here are some of the commonest error messages:

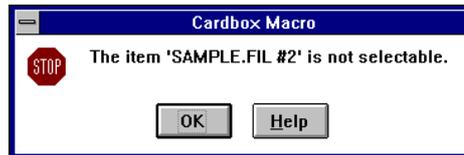


In this example, the Search, Select command was played by the macro when there were no records left in the current selection.



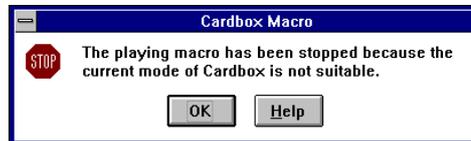
```
*Field.Item "IN"
  .Copy
*Select.Field "IN"
  .Text Paste
  .OK
```

In this example, the macro pasted an invalid search parameter into the Select command dialog box, and the OK button remained disabled.



```
*Field.Item "CO"
  .Indexed
  .Copy
*SwitchTo "SAMPLE.FIL #2"
*Select.Field "CO"
  .Text Paste
  .OK
```

In this example, window SAMPLE.FIL #2 was not open.



```
*Field.Copy
*SwitchTo "SAMPLE.FIL"
*Text Paste
*SaveRecord
```

In this example, SAMPLE.FIL was not in the Edit mode.

Chapter 38 –

Security

Protecting against accidental data loss

- You should back up your files frequently, to avoid data loss if anything goes wrong.
- If something does go wrong, and you have not kept a backup, Cardbox provides a function to salvage any readable data from a damaged database.

Preventing unauthorised access

- You can password-protect your databases and give different levels of authorisation to different classes of users.
- You can encrypt your databases, so that anyone without the correct encryption key cannot read your data, even with a low-level file viewing utility.

38.1 Preventing data loss: what to back up

BACK UP YOUR DATA OFTEN

You should take frequent backup copies of your files, so that if anything goes wrong, you can restore your data from the backup. Things going wrong can include hardware failure (dirt or a head crash on your hard disk, or your computer crashing), software failure (Windows, or Cardbox, or another application crashing), and operator error (erasing your database file by mistake).

We cannot tell you *how* to back up your files, because that depends on your system – you may be backing up onto tape, or onto floppy disks, or onto a network; you may be using Explorer, File Manager, Windows Backup, the DOS BACKUP command, or some other utility – but we can tell you *what* files to back up.

The Cardbox environment is maintained in three files, all of which are quite small:

CBOX.INI contains miscellaneous information, such as the Configure Cardbox settings, details of mailing label formats, and details of field and merge block handlers. If you lose it, you will need to reinstall Cardbox.

SESSION.CBX contains details of the state of Cardbox last time you closed it. If you lose it, Cardbox will start with no files open, and you will have

to open your databases yourself. If you have set up different sessions for different purposes, then these will be stored in separate .CBX files.

MACROS.MCD contains the macros that you have recorded. If you lose it, you will have to record those macros again.

In addition, if you have defined a custom dictionary for spell-checking, this will be in SPELL.CBX.

By default, most of these files are stored in your Windows directory. You can check where they are on your system by entering the command **Help, About** into Cardbox and then pressing the "More" button. The list that you will then see will include the above-named files and their current locations.

Each database is maintained in up to three files. If the database is called MYBASE, these files are as follows:

MYBASE.FMT is the format file. It contains all the format and field definitions for your data, and your database is useless without it. It is not very large.

MYBASE.FIL is the data file. It contains all your records, so it can grow quite large.

MYBASE.FIM is the image and object file, and only exists if you have an image field or an object field. It contains all the images and OLE objects attached to your records, and can therefore become very large indeed quite quickly.

Some of these files will change less often than others: for instance, the .FIM file will only change if you add images to the database. You could, in theory, back up only the files that have changed since the last backup, but we do not recommend this: it is far less complicated and therefore safer to back up everything every time.

BACK UP YOUR DATA OFTEN

38.2 Recovering from data loss

It is always best to keep backups and to restore files from a backup copy if something goes wrong. Nevertheless, there are times when, through carelessness or catastrophe, this is impossible. Here is some advice on recovering from this situation.

.FMT file: If the .FMT file is destroyed, access to your database is impossible. If it is corrupted, but you can still view data in the native format, then you should be able to transfer data to a new database, for which you would recreate the same native format.

For further details on how to do this, look up **Help, Technical Articles** and see the article "Recovering from a corrupted format file" under the "Security" heading.

.FIL file: If the .FIL file is destroyed, access to your database is impossible. If it is corrupted, there is a chance that only one or two records will be affected; it is even possible that only the index has been damaged. Use the command **File, Utilities, Repair** to rebuild the database and its index. This command will report how many records it has found and how many seem to have been lost. For full details, see the Help information on this command.

.FIM file: If the .FIM file is destroyed, you will lose the images and OLE objects that were attached to your database. If it is corrupted, you will lose *some* of them.

38.3 Preventing unauthorised access

You can control access to your database by setting up *user profiles*. Each user profile is controlled by a password, and defines access as follows:

- What fields can be viewed
- What fields can be edited
- What classes of commands can be used
- What formats can be used (formats are divided into two classes: general and restricted)

You can also have a *default* user profile, without a password, to give some access to users without passwords.

A technical article gives full details of how user profiles work: to read it, use the command **Help, Technical Articles**, and look under the heading "Security".

Setting up user profiles

When it is created, a Cardbox database does not contain user profiles, and anyone who opens the database is allowed full access to it. To set up user profiles, use the command **File, Utilities, Manage user profiles**.

When you set up user profiles for a database, Cardbox will ask you for your *access code*, which is a unique code associated with your copy of Cardbox. We only give access codes to registered users of Cardbox: you can request an access code when you return your registration card, or ask us for one afterwards.

Editing user profiles

To add, edit, or delete user profiles and their passwords, use the same command: **File, Utilities, Manage user profiles**.

Before you can edit user profiles for a database, Cardbox will ask you for its *master password*. You set up the master password the first time you set up user profiles, and you can change it subsequently if necessary. If you forget or lose your master password, we can help; but you will have to prove that you are the owner of the data, you may have to send us your data files, and we will make a charge for this service. **Do not forget your master password.**

Opening a database

When you open a database that has user profiles, Cardbox will ask you for the name of the profile you want to use, and for its password. There is one exception: if the database has a default profile without a password, Cardbox can be made to choose that profile automatically. [It is possible to disable this exception when setting up user profiles].

Re-opening a database

When you restart Cardbox, it re-opens all the databases that were open before. It will normally ask for any necessary passwords, but you can make it remember the passwords that were used in the previous session. [It is possible to disable this feature when setting up user profiles].

Changing to another profile

You may want to switch to another user profile after opening a database. To do this, use the command **File, Utilities, User profile**.

38.4 Encrypting your data

A database that is protected by user profiles still contains readable data: it is just that Cardbox will refuse access without the proper password. It is just possible that a determined person with technical knowledge might use a low-level file reading utility (such as the Norton Utilities) to read the bytes of data in the database file and look for readable text. This is actually quite difficult, because Cardbox uses quite a sophisticated storage allocation scheme, but it is certainly possible in theory, and if you think that your data are sufficiently worth stealing for someone to spend (we would guess) several days deducing details of the format in which Cardbox stores them, you should consider encrypting your database.

Encryption is not an operation to be undertaken lightly. Once a file has been encrypted, no-one can retrieve any of the data in it without knowing the

correct encryption key (we certainly cannot: it is possible that Government intelligence organisations might, but we can't guarantee it).

Only the main data file (the .FIL file) is encrypted: the .FMT file is not, and neither is the .FIM file (for images and objects), if it exists.

**HOW TO LOSE ALL YOUR DATA IN
TWO EASY STEPS**

- 1. Encrypt your database.**
- 2. Forget the key.**

Encrypting a database

Before you try encrypting a database for the first time, you should read our technical article on the subject: enter the command **Help, Technical Articles**. Among other things, this details the level of security you are likely to achieve and guides your choice of encryption keys.

Whenever you encrypt a database, back it up first, in case your computer crashes half-way through the encryption process.

To encrypt a database, use the command **File, Utilities, Encryption**. For full details, look at Help after entering the command (or press F1 while the command is selected in the menu).

Decrypting a database or changing encryption keys

Back up your database first. Use the command **File, Utilities, Encryption**.

Opening an encrypted database

Open the database in the normal way. Cardbox will ask you for an encryption key.

Re-opening an encrypted database

When you restart Cardbox, it re-opens all the databases that were open before. It will normally ask you for any necessary encryption keys, but you can make it remember the keys that were used in the previous session: this is your choice, made when you enter an encryption key for the first time.

Chapter 39 –

Networking

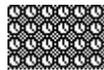
The networking version of Cardbox allows several people to use the same database at the same time.

Installing Cardbox

If you do not already have a Cardbox icon on your system, please contact your system supervisor. Information on what needs to be done to set up an additional user to run Cardbox is in the Cardbox help file CBOX.HLP: open the help file, press the Search button, and search for "Networking".

Displaying records

You will sometimes notice that parts of a record display are replaced by a pattern of clock faces:



This indicates that another user has been editing records and is currently writing them to the database. The normal record display should reappear after a few seconds.

Editing records

You can edit records while other people are editing records in the same database, but you cannot edit the same record as someone else: Cardbox will warn you, and refuse to edit.

When someone else edits and saves a record that you are viewing, your record display will change automatically.

Editing formats

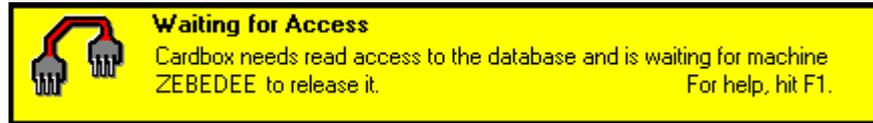
You can edit formats while other people are editing formats in the same database, but you cannot edit a format while someone else is editing it: Cardbox will warn you, and refuse to edit.

When someone else edits and saves a format that you are viewing, your record display will *not* change automatically: you will have to reload the format to see the new version.

Exclusive operations

A few rarely used operations, such as Repair, are *exclusive*, and Cardbox will not allow anyone else to access the database while you are performing them.

Warning messages



If you see a message like this, wait: another user's Cardbox is writing to the database, and the situation will resolve itself in a few seconds. If the message persists for a long time, there may be something wrong: press F1 to see what your options are.

Laptops and docking stations

If you have a laptop that is sometimes connected to a network (whether directly through a network connection or by plugging in to a docking station), you have two choices:

- Use Cardbox only when you are connected to the network. In this case, any Cardbox icons and files that you may have on your laptop will not work when the laptop is away from the network.
- Install a single-user version of Cardbox on your laptop. In this case, you can use Cardbox even when you are away from the network. You can also configure your single-user copy of Cardbox so that it will behave as a networking copy when connected to the network. For details, open the Cardbox help file and search for "Docking Stations".

Other sources of information

The principal source of information on Cardbox networking is the Cardbox help file, CBOX.HLP. If you are not running Cardbox, you can still open this directly, from Explorer or File Manager. Press the Search button in Windows Help and search for "Networking". You will find general articles on networking, installing Cardbox, adding new users to Cardbox, and troubleshooting.

The Cardbox web site at <http://www.cardbox.co.uk> also has some useful articles on networking, which are constantly updated. Go to "Technical Support", then "Problems and Advice", and you will see a list of articles.

Chapter 40 –

Object Linking and Embedding

Object Linking and Embedding (OLE) is a Microsoft technology that allows objects such as word processing documents or spreadsheets to be embedded into other documents. Cardbox for Windows implements OLE as a *container*, enabling you to link or embed into your records objects from other applications acting as OLE *servers*. These objects can be almost any type of information, documents, bitmap images, graphics, etc. For each object type, there is a server: for example, a Microsoft Word object, the server is Microsoft Word, and for an Excel spreadsheet, it is Excel. (One of the original aims of OLE was that several server applications should be able to handle the same object type, but in practice this rarely happens).

Object Linking involves a special Cardbox field, the object field. In that field, Cardbox stores a pointer to the server application file containing the object: for example, it could point to an Excel spreadsheet file. The object can either be displayed in the Cardbox record or be represented by the server application's icon.

Object Embedding also involves a Cardbox object field, but this time the object is not stored in a separate document file but in a special Cardbox *image and object file*, having the same name as the database, but the file type FIM. The object is usually displayed in the Cardbox record, but the object server may decide to display an icon instead.

Although OLE offers many advantages, such as the ability to edit an embedded object directly from within Cardbox, experience has shown it to be relatively fragile. For example, it is possible for an upgrade to a server application such as Microsoft Word to invalidate all the links so that you have to re-create them.

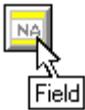
Lightweight linking is Cardbox's own replacement for the linking part of OLE. It is simple and robust, and does not require any special object fields. Unlike OLE, it does not display an icon, just the name of a file; and to edit or display the file, you have to run a Cardbox macro – but in most cases we think that it is a better choice than full OLE. Section 40.6 describes lightweight linking.

Here are the main points that you should bear in mind when choosing between OLE linking and embedding.

Object	Linking	Embedding
Location	an independent file on disk. For the link to work, the file must remain in the original location.	the object is stored in the Cardbox .FIM file.
Sharing	can be shared by several Cardbox databases and records, as well as by other applications.	can be shared by several records within the Cardbox database, but is not accessible outside it.
Effect on size of database	a small effect, because OLE normally stores an icon as part of the link.	appreciable growth in size. In some cases (such as graphic items), inefficient OLE servers can double the size of a file when storing it in the Cardbox database.

40.1 The object field

In order to use Cardbox as an OLE container, you have to define a Cardbox field as an object field. Within a particular record, each object field can only contain one object.



To create an object field,

- edit the format in the normal way, insert the field, and define its position and size,
- enter the name of the field in the Field Name dialog box,
- select Object in the Field Properties dialog box.

The shape and size of the object field will naturally depend on what you intend to display in it. You don't need much room to display an icon, but in-place editing of embedded objects will usually require a larger object field. Having defined the object field in the native format, you can insert it into any alternative format, and enlarge the field as much as is necessary for the task that you intend to perform in that format.

40.2 Inserting objects

The initial steps are the same for linking and embedding.

To insert an object into the current record

- edit the record and move to an empty object field,
- choose **Edit, Insert Object**.

Alternatively,

- double click the empty object field.

You will next see OLE's Insert Object dialog box. This lists the types of objects that are available for insertion.

Inserting a new embedded object: in-place editing

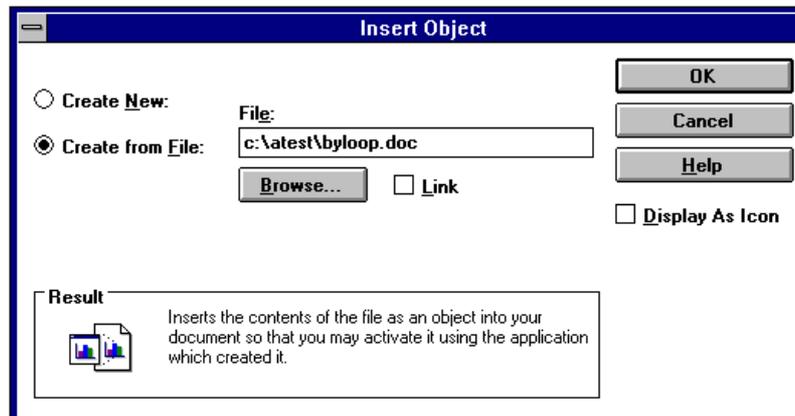
Microsoft Word supports in-place editing of embedded documents, so when you insert a new Word object, you will find yourself editing it within the Cardbox window: the Cardbox window will have acquired a set of Word menus and toolbars.

Inserting a new embedded object: separate editing

Some objects will not work inside another application. If you insert an object of that type, it will open a separate window for itself, and you can use this to edit it. While the separate object window is open, Cardbox's object field will be cross-hatched, to warn you that the true content is elsewhere. Such cross-hatching is an OLE standard.

Inserting an existing object

- Choose Create from File in the Insert Object dialog box.



- Enter the filename and directory, if necessary.
- Turn on the Link check box, if you want the file to be only linked and not embedded.
- Choose OK or press ENTER. You will return to Cardbox, with the object field displaying the object's icon and filename.
- Save the record.

40.3 Pasting objects from the Clipboard

To paste an object from the Clipboard, either as a linked or as an embedded object,

- edit the record,
- move to the object field. Just click once on the field, taking care not to double click. A dotted outline will confirm that you are in the object field.
- Choose **Edit, Paste**. You will see the Paste Object dialog box, which gives you a choice between linking and embedding the pasted object.

40.4 Editing objects

To edit an object, double-click on it. If Cardbox can edit the object within the object field (that is, the object is embedded and supports in-place editing), then it will. Otherwise the object field will be shaded and a separate window will open for you to edit the object.

For embedded objects, changes are not saved until you save the record.

40.5 Deleting objects

To delete an object in the object field,

- edit the record,
- move to the object field (make sure it is surrounded by a dotted outline),
- press the DEL key.
- save the record.

40.6 Lightweight linking

Lightweight linking is much simpler than OLE. Here are the main points:

- You place the filename of an object into a Cardbox field of your choice.
- When you want to edit or view the object, you run a Cardbox macro to open the object using the application that originally created it.

- You can make this process simpler by creating a pushbutton that activates your chosen macro.

Exactly the same process can be used to store email addresses or Web page addresses in a Cardbox database.

For a full description of how to implement lightweight linking, see the following articles on the Cardbox web site:

Using macros to link to external objects

Run macros fast: menus, keystrokes, and pushbuttons.

You can find these by going to the Cardbox home page at <http://www.cardbox.co.uk> and following the links to "Technical Support" and then "Problems and advice".

Operating limits

CAPACITY

Database windows: 20

Database size: no limit (other than disk space)

Records per database: 16 million

Record size: no limit

Record layout: 1,000 rows by 1,000 columns

Fields per record: 4,000

Indexed fields per record: all fields may be indexed

Indexed terms per field: no limit

Field size: no limit

Extra text per record (non-indexable): no limit

Attached images per record: no limit

SYSTEM REQUIREMENTS

Operating system: Microsoft Windows version 3.1 or later.

CPU: any (386 or above).

Video adapter: any supported by Windows.

Network: any supported by Windows.

Disk space:

Minimum installation (no OLE support, no sample databases): 3MB

Typical installation: 5-6MB*

Full installation (includes utility programs): 5-8MB**

(Exact value depends on whether *OLE and **OLE and Visual Basic are already installed)

RAM: 4MB minimum, 8MB recommended for images and OLE.

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