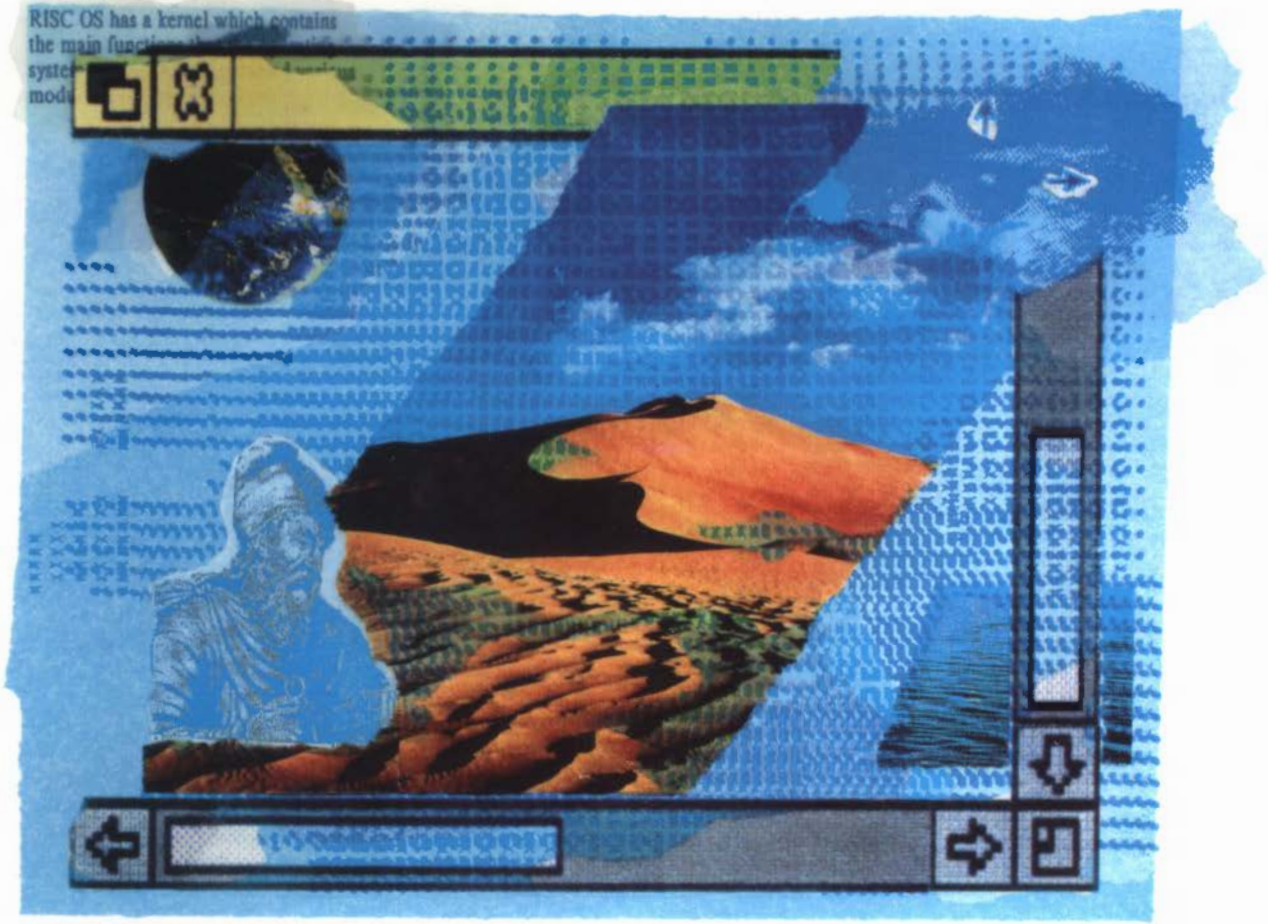
RISC OS 3
User Guide



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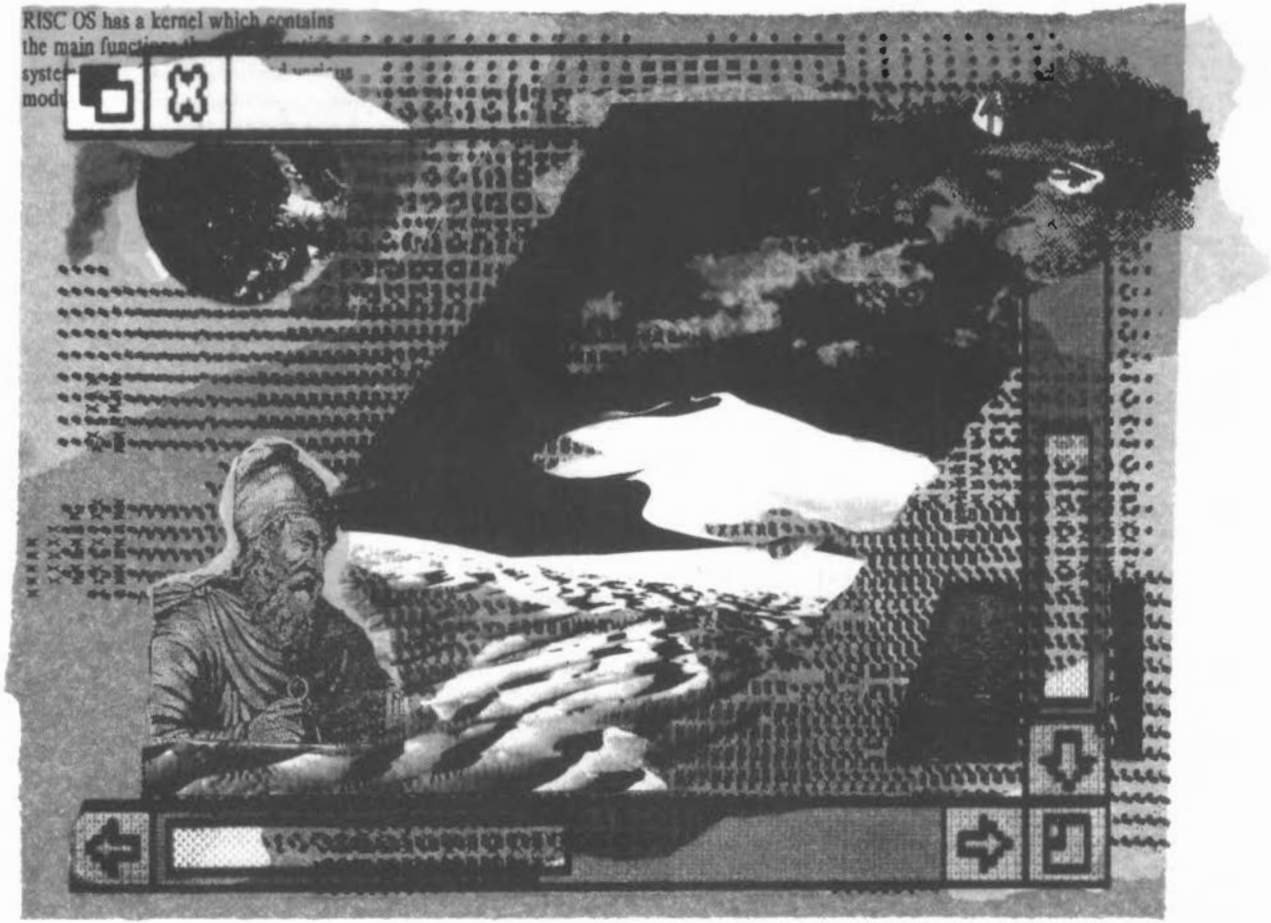

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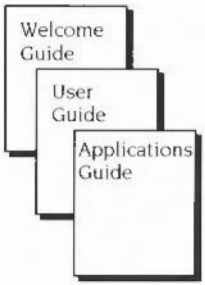
About this guide



This guide, in conjunction with the *Welcome Guide*, describes the RISC OS 3 operating system. The applications that come with the operating system are described in the *Applications Guide*.

If you are new to your computer, you should first read the *Welcome Guide*. This tells you how to set the computer up and start using the RISC OS desktop, how to use the mouse to manipulate windows and files, and how to open menus and choose commands from them.

If you are upgrading your computer from RISC OS 2.00 (or 2.01), you should read the rest of this chapter and then turn to Appendix A, which lists the major changes in the desktop and operating system.

Throughout this guide the term 'RISC OS' refers to the current version (3) of the operating system. The previous version is referred to as 'RISC OS 2.00'. 'RISC OS 2.00' should be taken to include RISC OS 2.01.

What's in this guide

If you have read the *Welcome Guide*, you should already have a working knowledge of the desktop. This guide builds on that knowledge.

Part 1: *The desktop* tells you more about the basic task of manipulating files and directories. It also describes how to print files and use storage devices such as disc drives.

Part 2: *Desktop configuration* tells you how to change the way the desktop behaves and how to automate your start-up procedure using boot files.

Part 3: *Outside the desktop* tells you about the Command Line Interface. This provides you with an additional way of communicating with the computer, one which programmers and experienced users will find especially useful.

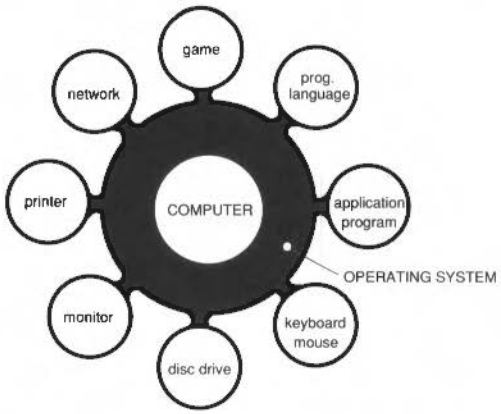
Finally, the *Appendices* contain reference material on subjects such as power-on reset variations, hard disc formatting and error messages.

At the end of the guide you will find a *Reader's Comment Form*, which you can return to us with comments or suggestions about this guide.

What is an operating system?

If you look in a computing textbook, it will probably describe an operating system in terms such as "*controls the operation, coordinating the use of input and output sources, the processing of data etc*".

In practical terms, the operating system of a computer is the software interface between the computer's hardware on the one hand, and the programs it runs plus the other pieces of equipment it uses on the other. It could be represented graphically like this:



The operating system is, as it were, the glue between the computer and its programs and peripheral equipment. It allows you to load an application program from a disc, for example, and then determines how the program is run. It takes input to the program from the mouse and keyboard, and arranges to display the results on the monitor. When you have finished your session, it enables you to save your work back to the disc in a file.

How RISC OS operates

The RISC OS operating system consists of three layers:

The innermost layer, or the *core*, contains the programs that actually make the computer work and which we don't need to understand here.

The next layer is the *command line interface*. This is a traditional text-based interface which programmers use to write programs and scripts. Part 3 of this manual, *Outside the desktop*, gives an overview of all the commands used with the command line, together with an introduction to using them. If you plan to use the command line commands in more depth (for programming) you should buy the RISC OS *Programmer's Reference Manual*.

The outermost layer is the *desktop*. This is the layer that this manual is mostly about. The desktop shows us files, directories and applications represented as icons. Applications display information in windows and, unlike some operating systems, you can have many different applications and windows on the screen at the same time. You should already have a good idea of how the desktop operates from reading the *Welcome Guide*.

Running programs on your computer

Sophisticated as it is, RISC OS just provides an infrastructure of facilities for your computer, making it easier for you to do things with it. Once you have grasped the basic principles of the RISC OS desktop, you will want to start using it seriously to run programs. You can keep coming back to this guide to learn more about the operating system and how to tailor it to suit your way of working.

Applications and games

Application programs, or applications, are designed to help you with your work or leisure activities. The best-known application is the word processor. Other applications include desktop publishing, drawing and painting. These and other software and hardware products are published both by Acorn and by many independent companies. Details of these may be obtained from your Acorn supplier.

A number of applications and games are supplied with RISC OS, including a text editor, draw and paint programs, a music editor and two different calculators. These are described in the *Applications Guide*.

Programming languages

The BBC BASIC programming language is provided with RISC OS and if you plan to write BASIC programs on your Acorn computer you will find the BBC BASIC *Reference Manual* invaluable.

Other programming languages available from Acorn include

- Acorn Desktop C
- Acorn Desktop Assembler

and for teaching purposes

- Fortran 77 (Release 2)
- ISO-Pascal (Release 2).

Programmers and other users who want to find out about their machine at a greater level of detail than is covered in this guide will also be interested in the RISC OS *Programmer's Reference Manual*, which covers the RISC OS operating system and the desktop environment in more depth.

The Applications suite discs

Your computer is supplied with a number of floppy discs containing applications. This is in addition to the applications permanently held inside the computer in ROM (Read Only Memory).

Applications that control a system operation, such as configuration or printing, are described in this guide, while other applications are described in the *Applications Guide*.

The following applications are described in this guide:

Configure	FontPrint	HForm
Fonts	Scrap	
Printers	System	

The following applications are described in the *Applications Guide*:

Alarm	Draw	Patience	65_Host
AlarmConv	Edit	PrintEdit	65_Tube
Calc	Madness	Puzzle	TIToFont
ChangeFSI	Maestro	SciCalc	TinyDirs
Chars	Magnifier	SetIcons	TVTest
Clock	Paint	Squash	Usage

Important tips

Using your computer safely

Before using your computer, you should read the *Guidelines for safe operation* printed near the front of the *Welcome Guide*.

Unexpected behaviour

If your computer starts behaving unexpectedly, or doesn't do anything at all, see the Chapter entitled *If things go wrong* in the *Welcome Guide*, which has solutions to most common problems.

Why has the screen gone blank?

If your screen goes blank while you are not using it, you can restore it by moving the mouse or pressing any key on the keyboard. This facility is designed to save wear on the screen, and is described in the section entitled *Screen* on page 97.

Getting out of a mess (resetting the computer)

You may run a program which causes your computer to 'hang up' – where pressing a key or moving the mouse has no effect. You can normally cure this by resetting the computer. To reset the computer, hold down the Ctrl key while pressing the Reset button. The position of the Reset button is shown in the *Welcome Guide*.

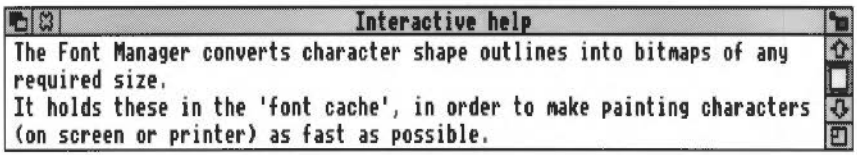
When you reset the computer, any unsaved data will be lost.

Getting help

The !Help application

The !Help application provides on-screen information as you use your computer. The desktop itself and most of the applications can give you help in this way. For information on how to use !Help, refer to the *Applications Guide*.

This is what the Interactive Help message looks like when you position the pointer over part of the Font window in the !Configure application.



The Help option

On the main Filer/Application submenu there is a Help option. Click on **Help** to display useful information about an application. For more information, see page 22.

Help on *Commands

If you want to find out about a particular *command, press the F12 function key to go into command line mode and then type *Help, followed by the command you want help on, and then press Return. To return to the desktop, press Return again. For more information, see the section entitled *The command line help system* on page 131. The following example shows help for the keyword Help.

```
*Help Help

==> Help on keyword Help
*Help <subjects> attempts to give useful information on the selected topics.
Special keywords include:
Commands        List all the available utility commands
FileCommands    List all the filing system-specific commands
Modules         List the module titles
Syntax          Explain the syntax message format
*
```

Conventions

The following conventions are used in this guide:

- Menu names and options are shown in bold type; for example:

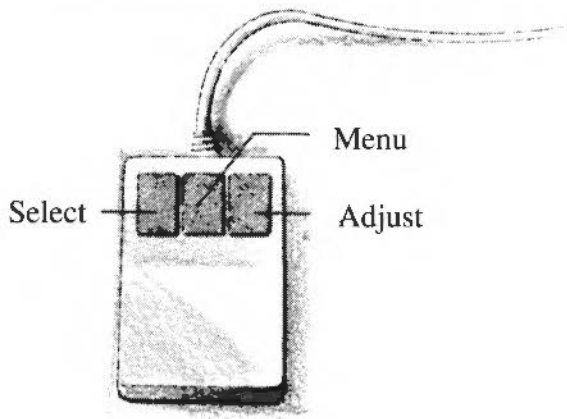
  Use the **Actual size** option in the **View** menu.

- Sometimes you will need to press one key while holding down another. This is shown like this:

  Ctrl-F9 (means hold down the Control key and press the function key F9.)

The mouse

The mouse has three buttons. From left to right their names are Select, Menu and Adjust. The functions they perform depend on the application you are using. For some general principles refer to the *Welcome Guide*.



The Applications discs

The applications supplied with your computer come permanently stored in memory or on disc.

At the top of the chapter or section referring to these applications you may see one of the following icons.

Applications on App 1 are denoted by this icon.

Applications on App 2 are denoted by this icon.

Applications in ROM (the Apps directory) are denoted by this icon.

If you've bought a computer with a hard disc, you'll find these applications already installed on your hard disc. The App 1 and App 2 symbols refer to subdirectories on the hard disc.

If you've bought a computer with a floppy disc only, you'll receive a single floppy disc that contains the applications. The App 1 and App 2 symbols refer to subdirectories on the floppy disc.

If you've bought an upgrade kit, you'll receive two floppy discs containing applications. The App 1 and App 2 symbols refer to these individual floppy discs.

Ordering information

The following additional manuals can be purchased from your supplier:

BBC BASIC *Reference manual* – A reference manual for BBC BASIC V and VI. These are the BASIC languages supplied with every computer.

RISC OS *Programmer's Reference Manual* – A complete reference manual for the RISC OS operating system. Essential reading for all serious RISC OS programmers.

Technical Reference Manuals for most Acorn computers are also available.

The following Acorn products can be purchased from your supplier:

Software products

PC Emulator	Acorn Desktop Publisher
1st Word Plus	Acorn Desktop C
Acorn Desktop Assembler	

Hardware products

I/O Expansion card	MIDI Expansion card
SCSI Expansion card	Memory Expansion card

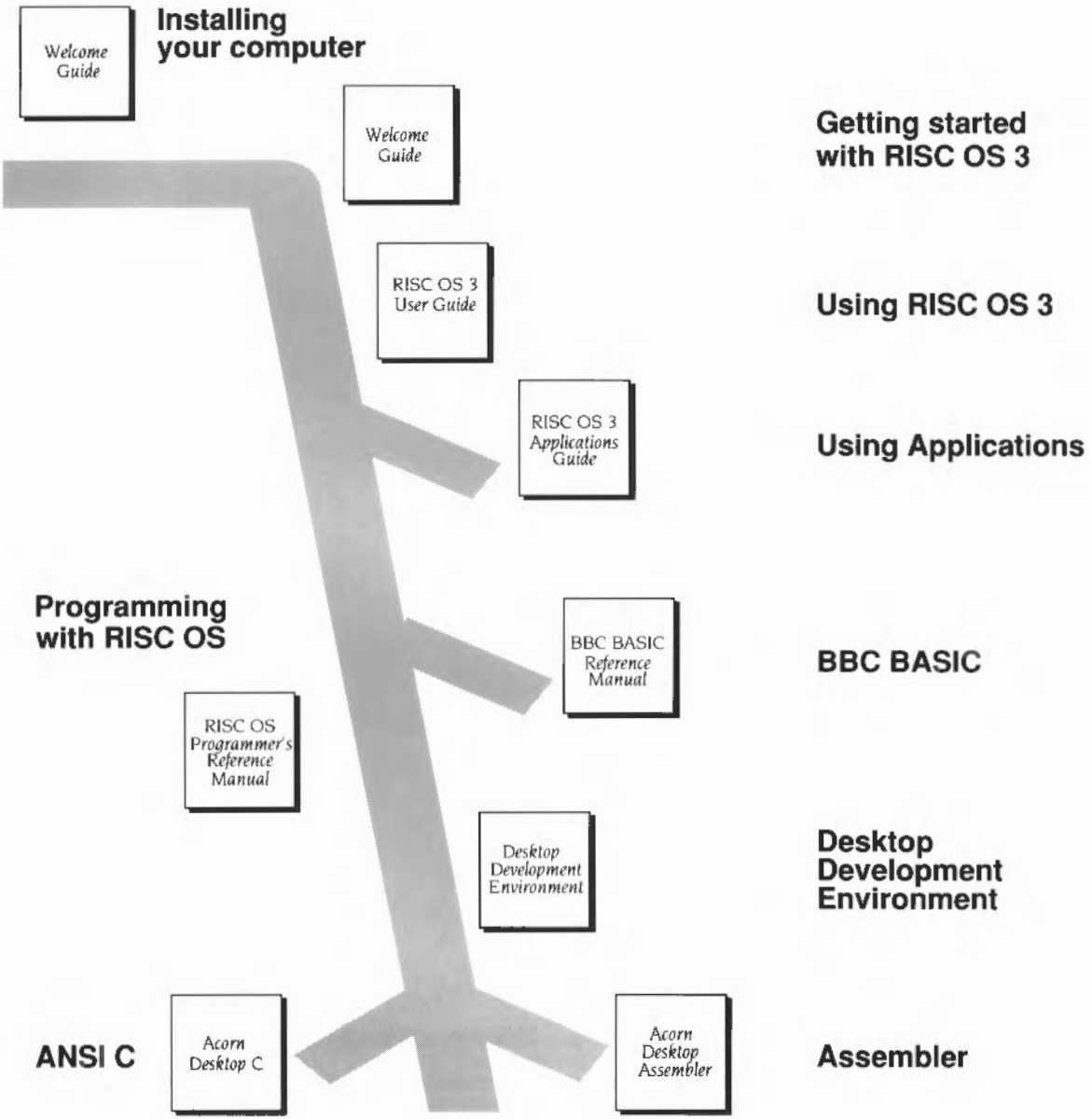
Network Products

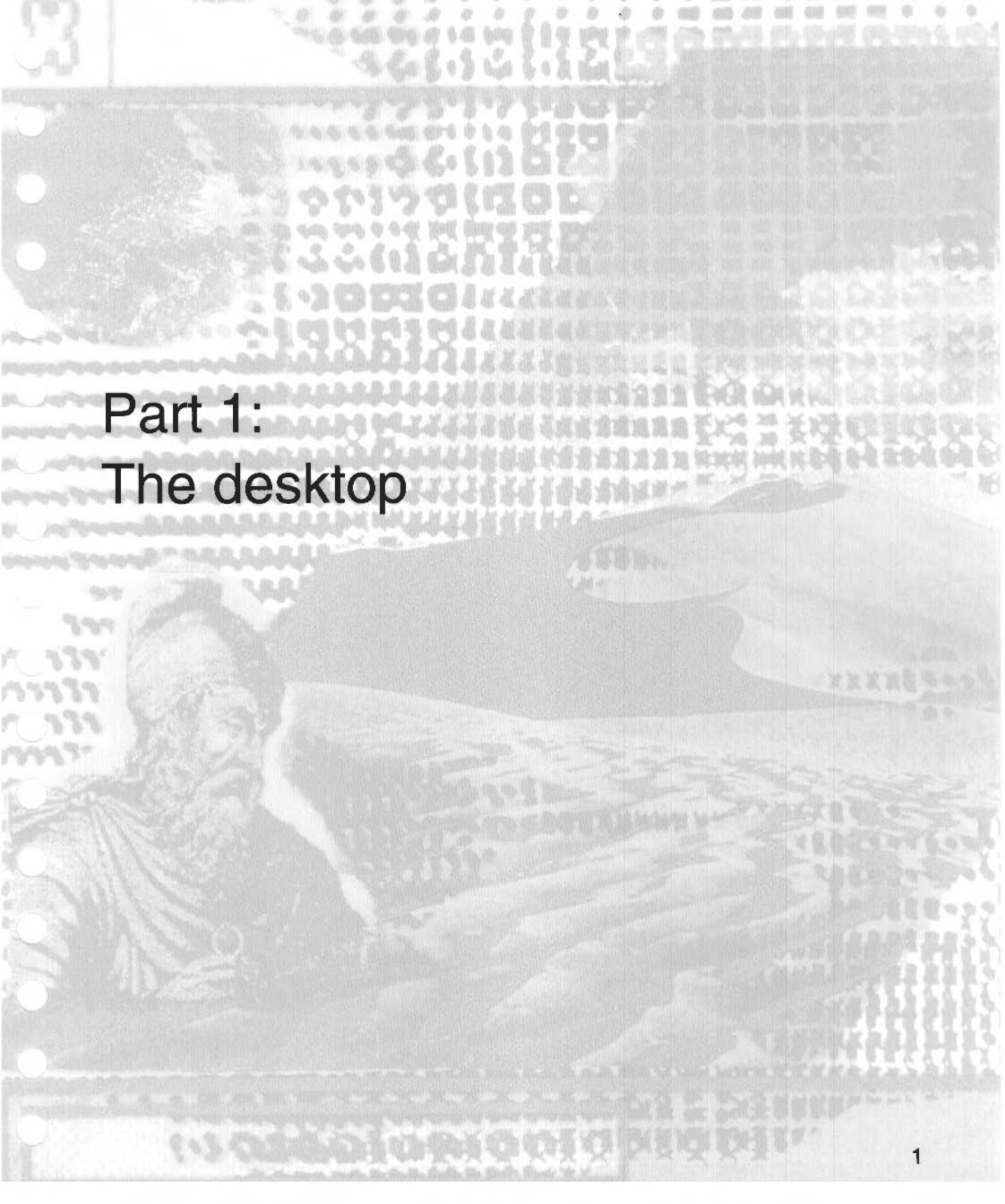
Econet module	Broadcast loader
Ethernet Expansion card	Level 4 File Server
TCP/IP Protocol Suite	

Ask your Acorn supplier for an up-to-date list of all Acorn products and details of the many third party software and hardware products also available.

Documentation roadmap

This roadmap will help you decide which tools and manuals you will need, as you learn about RISC OS.





Part 1: The desktop

1 The desktop Filer

The chapter *Files and directories* in the *Welcome Guide* provides an introduction to the concept of the filing system, and to the basic filing tasks of loading, saving, copying, moving and deleting files, and creating new directories.

This chapter expands on the *Welcome Guide*, covering in more detail how the filing system works, and how you can use the file-handling features which RISC OS provides to make the best use of your computer, whatever you are using it for.

You use the filing system whenever you use the computer, it allows you to display and manipulate your files, directories and applications. There are several types of filing system, but generally they all work in the same way and you need not be aware of the differences between them.

If you want to find out which filing system you are using, look at the name in the title bar of the window. This name always starts with the filing system name, for example, ADFS. Filing systems are usually associated with physical storage devices. Here is a list of the main types of filing systems:

- Floppy discs and hard discs usually use ADFS (the Advanced Disc Filing System).

- Network file servers use Net (NetFS, the Network Filing System).

- Applications in the Apps directory (stored in the computer's ROM) use Resources (ResourceFS, the Resource Filing System).

- Applications stored on RAM disc use RAMFS (the RAM Filing System).

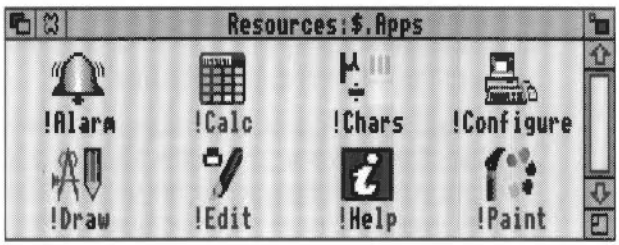
There are others which you may come across, such as SCSIFS (for computers fitted with SCSI interfaces), CDFS (for computers that use CD-ROM drives) and NFS, a high-speed networked filing system (for computers running the TCP/IP Protocol Suite).

The icons for the storage device(s) connected to your computer appear on the lefthand side of the icon bar. You can have only one RAM disc and one Resource filing system (the Apps directory), but you may be connected to more than one floppy drive, hard disc or network file server. These will be identified by different names or numbers.

Fortunately most users need to know very little about these different filing systems, as most of their functions are controlled from the desktop by one 'super' filing system, called the Filer, which is described later in this chapter. Features specific to individual storage devices and filing systems are covered in the next chapter.

Directory displays

The contents of filing systems are shown on the screen in directory displays. Clicking on the icon for a particular information storage device (such as a disc drive icon) opens a directory display. This is the directory display that you see when you click on the Apps icon:



Moving around the filing system

You can use the following techniques to find your way around the filing system:

To open a subdirectory display

Double-click Select on the subdirectory's icon (a folder). The subdirectory display will then appear on the screen in a new window.

If you double click on the icon for a directory that is already open somewhere on the screen, its directory display is moved in front of the other windows on the screen, rather than a new window being opened.

Advanced users may wish to know that pressing Ctrl while double clicking on a directory opens the directory without running the !Boot files of applications within that directory. This speeds up the opening of large directories, and saves memory.

To open a subdirectory display and close its parent

If a directory contains a subdirectory, then it is the 'parent' of that subdirectory. To open a subdirectory, and simultaneously close its parent, double-click Adjust on the subdirectory's icon.

To open the parent directory

To open the parent of a subdirectory, hold down Shift and click Adjust on the Close icon. You can also choose **Open parent** from the Filer menu (see page 17).

To open the parent of your user directory on an Econet file server, you will have to use **Open $** on the icon bar menu for the file server (see page 44).

To close a directory display

Click Select on the Close icon of the window.

To close a subdirectory display and open its parent

Click Adjust on the Close icon of the window.

To load any file into Edit

Any file, not just text files, can be viewed in Edit. Just hold down Shift and double-click on the file icon.

Pathnames

The full pathname of a file or directory appears in the title bar at the top of the file window or directory display:

The pathname of a file or directory is a complete description of where the file or directory is located in the filing system structure of a particular storage device.

Usually on the RISC OS desktop you can refer to a file or directory by selecting it, or by giving its name (in an icon, for example)

Occasionally, however, you need to specify all or part of the sequence of directories that leads to it. The route down the directory tree is called a *path*, so the whole sequence, including the filename at the end, is called a *pathname*. At its most general, a pathname has the following form:

filing-system`::`*disc-name*`.`*directory-names*`.`*filename*

For example:

```
adfs::Work.$.letters.replies.ToBill
```

So in this example:

- `adfs` is the filing system name (the Advanced Disc Filing System). Note that it is followed by a colon. If the filing system name is omitted from a pathname, the current filing system is used (see below). On a network the syntax is slightly different; the filing system name is followed by the network number or name.
- `Work` is the name of the disc. It may be a hard disc or a floppy disc. The disc may be in the floppy disc drive or not; the filing system will ask you to put the disc in the drive if it needs it. It is preceded by a second colon; if you omit the whole disc name, the current disc is used.
- $ is the name given to the 'root' directory. This is usually the directory you first open when you click on a storage device icon – the structure of directories and files on a particular storage device grows out of that first directory.

  The exceptions to this are network file servers, where the directory display you first open will normally be your user directory, which is one or more directories removed from the root.

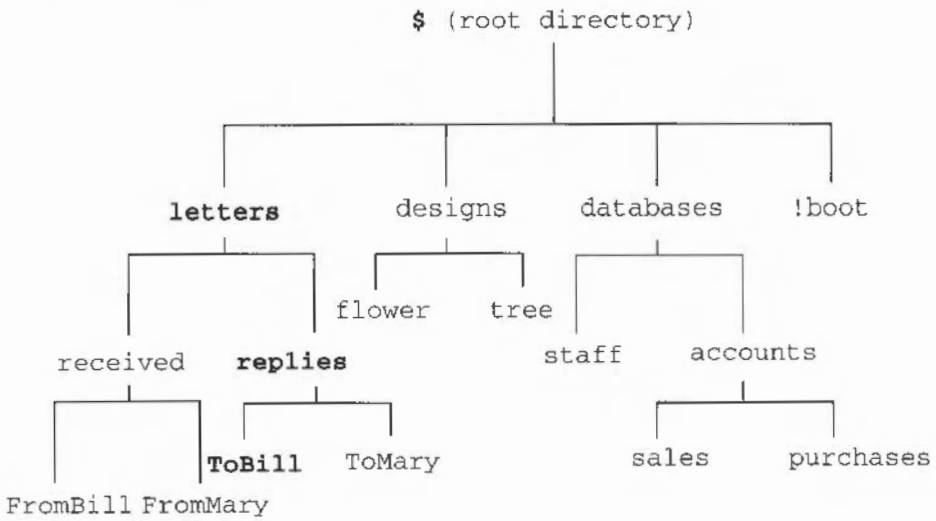
  If this, and the filing system name and disc name are omitted, the path is taken relative to the current directory.
- `letters` is the name of a directory contained within the root directory.
- `replies` is the name of a directory contained within the `letters` directory.
- `ToBill` is the name of a file within the `replies` directory.

  Each of the directory names in the path from the root onwards is separated from the next element of the path by a full stop.

Current filing system concept

The concepts of current filing system, current disc and current directory are more applicable to *Command Line Mode* than to the desktop; however, they do still apply when using the desktop. See the chapter entitled *Accessing the command line* on page 127 for information about the command line interface.

A graphical way of representing the filing system structure containing the file `ToBill` would be:



Application directories

A special sort of directory is used to contain application programs and the resources they use; logically enough, these are called application directories. They contain not only the application program itself, but other files needed to run it. Application directories have a name starting with an exclamation mark.

In general, you won't need to know about the internals of application directories. One point that you may notice, however, is that directory displays for discs and directories that contain applications take longer to appear on the screen than other directory displays. This is because the icons that are used to represent applications and the files they work on are loaded from special files in the application directories. Once the icons have been loaded, the computer does not need to load them again, but the more icons you load, the less workspace will be left for you to use. To check on how the computer is using its memory, see the chapter entitled *Fine tuning the configuration* on page 103.

To run an application

If you double-click on an icon other than a directory icon, the effect is to load and/or execute the associated file: a text file, for example, will be loaded into Edit, and an application will run. See the chapter *Loading and saving files* in the *Welcome Guide* for more details.

Clicking or double-clicking on the name next to an icon in a directory display has the same effect as clicking or double-clicking on the icon itself.

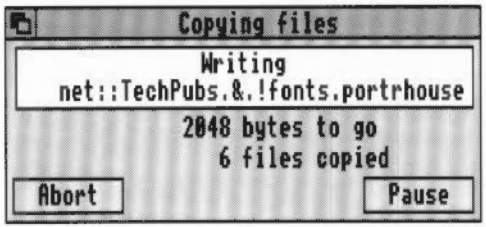
Opening an application directory

Unlike normal directories, double clicking on an Application directory will execute the application program. If you want to **open** an application directory, rather than execute it, hold down Shift and double-click on its icon.

Unless stated otherwise, references to directories in the rest of this chapter also apply to applications.

The Filer

As mentioned in the introduction to this chapter, the Filer provides the desktop interface between you and the filing system. It not only lets you carry out the basic filing operations mentioned in the *Welcome Guide*, plus many more, but also allows you to do so between **different** filing systems. You can open directory displays for several filing systems on your desktop, then, for example, copy files between your floppy disc drive and an Econet network (if you are connected to one), then delete a file on your RAM 'disc', and move files from your RAM disc to your floppy disc. All these actions are controlled by the Filer.



Filer operations normally run 'in the background', so that you can carry out other desktop activities while copying, searching, deleting, and so on, proceed. However, if your computer is running short of memory (if you have several applications running, for instance), the Filer may not be able to continue in the background and will have to suspend other activities while it completes its tasks. You can tell that this has happened by the fact that the normal message boxes that appear if you have the **Verbose** option set are replaced by larger, simpler, windows. You must then wait until the Filer has finished before doing anything else. For information on the **Verbose** option, see page 15.

Operations on directories

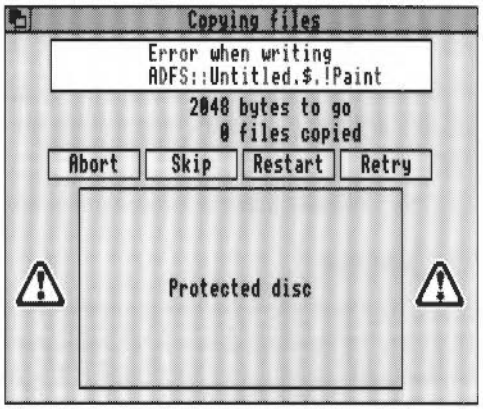
Some operations, such as copying and deleting, when applied to a directory, will normally also be applied to all objects within a directory. If any of those objects are themselves directories, the operation will apply to their contents as well (and so on). Moving an application, for example, will move all of it: its directory and all its contents.

Multiple desktop operations

Although you can run several Filer operations simultaneously, you should not run more than one operation on the same source or destination file or directory at the same time. For example, do not copy files into a directory while at the same time deleting existing files from the same directory. Doing so may result in data loss.

Correcting Filer problems

If a problem arises during a file operation, you will see an error box displayed with the following options:



- **Abort** lets you cancel the file operation completely.
- **Skip** skips the current file operation and starts afresh on the next file.
- **Restart** starts the file operation again from the beginning.
- **Retry** tries to start the file operation again from the place at which the error occurred.

This picture shows an error box and message combined. In this case an error occurred because you tried to write to a protected disc.

Once the problem that caused the error has been cleared, you will find that Retry will normally continue with the file operation. In this case the problem is most probably that the floppy disc has its write protect tab in the protect position.

Selecting files and directories

Before you can carry out a filing system operation, you must indicate which object or objects you wish to apply it to. There are several ways of doing this:

- To choose a single object, click Select on it.
- To choose a group of objects, click Select or Adjust on the first one, and Adjust on each of the others in turn. If the objects are conveniently placed, you can also choose them by using the mouse and pointer to drag a box round them. To do this, move the pointer to one corner of the group of objects (not over an icon) and drag to the opposite corner; then release the mouse button. You can use Adjust to deselect icons too.
- To select all objects in a directory display choose **Select all** from the Filer menu.

The selected objects are shown highlighted. After the operation, the objects are deselected.

To deselect an object by hand, click Adjust on it. The entire group of selected objects in a directory display may be deselected by choosing **Clear selection** from the Filer menu, or by clicking when the pointer is clear of any objects.

If there are no objects selected when you click Menu in a directory display, and the mouse pointer is over an object, that object will be selected before the menu appears.

See the *Welcome Guide* for basic details about selecting, copying and moving.

The icon bar

If you find that the icon bar gets covered by windows you can move the icon bar to the front by holding down Shift and pressing F12. If you want to send the icon bar to the back again press Shift and F12 again.

Facilities offered by the Filer

You can select, copy and move files between directory displays just by dragging file icons from one window to another, as described in the *Welcome Guide*. Other Filer facilities are accessed from the Filer menu.

Click **Menu** anywhere over a Filer directory display to show the Filer menu. The illustration opposite shows the options available from the main Filer menu. See the chapter entitled *Menus* in the *Welcome Guide* for information on how to choose from menus.

If an operation is shown in grey on the menu, it is not available at that point, and you will not be able to choose it.

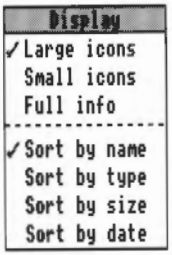
The table below shows which main menu options to choose to carry out different tasks with the Filer. The main menu options are then described in turn:

Task	Choose
Change the access on a file or directory	File*
Change the default options on Filer actions	Options
Copy	File*†
Create a new directory	New directory
Delete a file or directory	File*
Deselect all icons which have been selected	Clear selection
Display files & directories in different ways	Display
Ensure confirmation of file actions	Options
Find a file or directory	File*
Get information on a file or directory	File*
Learn the size of a file or directory	File* or Display
Open the parent directory	Open parent
Rename a file or directory	File*
Select all icons in a directory display	Select all
Set a file type	File*
Change the time stamp on a file	File*

*Only available if you first select (or click on Menu over) the file or directory you want to apply it to (see **File** below). **File** will change to **Dir.** if you select a directory, **App.** if you select an application, or **Selection** if you select more than one file.

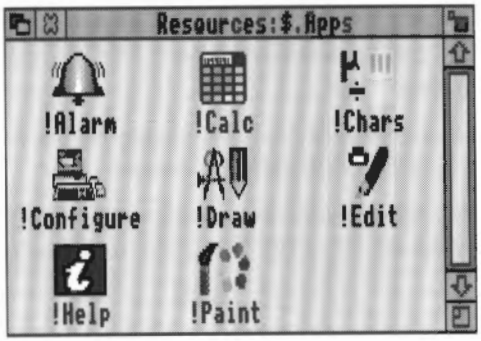
† Files and directories can also be **copied** merely by dragging their icons from one directory display to another. Additionally they can be **moved** by holding down Shift while dragging their icons from one directory display to another.

Display

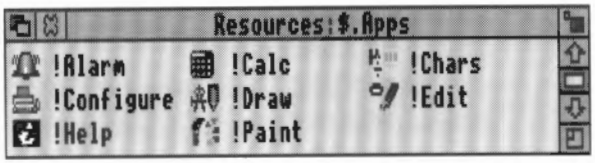


You can change the way file and directory information is shown in directory displays using the **Display** menu. The objects in the directory can be displayed as:

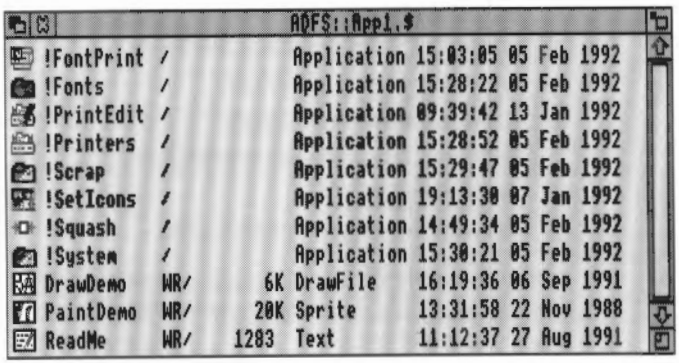
- **Large icons**:



- **Small icons**:



- **Full info**:



Full info consists of a small icon, followed by a number of attributes. The letters following the file or directory name indicate owner access when they occur before the /, and public access after the /. For how to interpret the access information, refer to *Access* on page 20. File sizes are shown in bytes and kilobytes – for more

information on displaying the sizes of files and directories, see **Count** and **Info** on page 22. For files which have a load and execute address, rather than a type and a date/time entry, the load address precedes the execute address in the display.

You can also change the **order** in which the objects are shown in the directory display. The options are:

- **Sort by name**: ascending alphabetical order. This is the default option.
- **Sort by type**: undated files first, then dated files in numerical order of file type, then applications, and finally directories.
- **Sort by size**: files in descending order of size first, then applications and finally directories.
- **Sort by date**: most recent first.

When you change the format for a directory display, the same format will be applied to any directory displays you open afterwards.

When copying files to a Full info directory display you will see blank icons appear with the code word 'DEADDEAD' displayed on the line. When the file copying is completed, these words and the blank icon are replaced by the copied file.

To set the computer's time and date, use the !Alarm application. See the *Applications Guide* for more information about !Alarm.

File (or Dir. or App. or Selection)

File is the main menu tree in the Filer, enabling you to carry out many different operations on files and directories. Because of its size, it is described at the end of this chapter, starting on page 17.

Select all

Choose **Select all** to select all the files and directories in a directory display, so that you can copy or move them into another directory display (by dragging) if you want to, or perform one of the operations listed in the **Selection** menu.

Use the **Adjust** mouse button to deselect individual objects. See also *Selecting files and directories* on page 10.

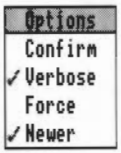
Clear selection

Choose **Clear selection** to deselect all the icons already selected in a directory display.

See also **Select all** above, and *Selecting files and directories* on page 10.

Options

You can set four options to provide finer control over most of the filing system operations invoked from the **File** menu described above. These are set using the **Options** menu. When an option is on, its menu entry is ticked.



Like **Display**, the options apply to all directory displays, rather than just the one from which they were set.

The table below shows which option to choose to carry out a particular task. The options are then described in turn:

Task	Choose
Override file locks	Force
Be advised about the progress of an action	Verbose
Request confirmation before carrying out an action	Confirm
Make sure you don't overwrite a newer file version	Newer

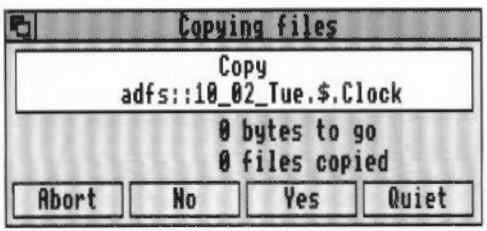
Confirm

The Confirm option causes the operation to ask you whether you really want to apply the operation before applying it to each object. This helps safeguard against the accidental deletion of files, for example.

The Confirm option is off by default, but to switch it on, choose **Confirm**. When the Confirm option is set, the menu item will be ticked.

When you have chosen **Confirm**, a window will appear asking whether you want to apply the operation in question to each object in turn. In reply, you can click one of the following:

- **Abort** to abandon the entire operation.
- **No** to skip the present object and go to the next one.
- **Yes** to carry out the operation on the present object and go to the next one.
- **Quiet** to continue with the operation without asking for further confirmation (in cases where the operation affects more than one object).



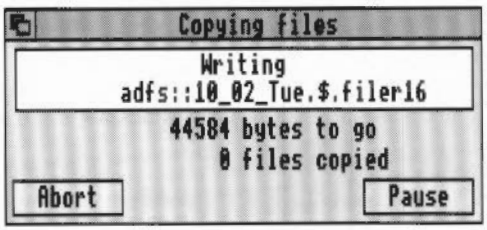
Verbose

The Verbose option tells you about the progress of an operation. By default, it is switched on.

The information about the operation will be displayed in a dialogue box. Click on:

- **Abort** to abandon the entire operation.
- **Pause** to interrupt it temporarily. The box will change to **Continue**. Click on **Continue** to proceed with the operation, or on **Abort** to stop.

Verbose often tells you useful information about Filer actions, so it is worthwhile leaving switched on.



Force

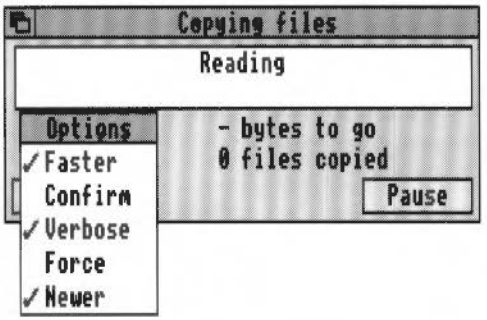
The Force option, when switched on, enables you to delete files and directories even if they are locked. This is particularly useful if you want to delete a directory containing a lot of files, some of which may be locked. However, this option should be used with great care, as it overrides all file protection (see page 20). It is off by default.

Newer

The Newer option applies only to copying, and is designed to ensure that you don't overwrite a file by an older version of the same file. If you set out to copy a file to a directory where there is already a file of that name, the file will only be copied if it is newer than the file in the destination directory. The option is off by default.

Going faster

If you have chosen the Verbose option, you can click Menu on any of the standard Filer dialogue boxes, such as those you get with copying, finding, deleting and moving. You will then be able to choose the **Faster** option.



This option makes file operations faster, at the expense of the appearance of the desktop. Normally during file operations, keeping the look of the desktop up-to-date takes priority over speed. If you choose the Faster option, speed takes priority and files and windows are not updated.

The Faster option only lasts for the current filing option; as soon as it is finished the desktop is updated to show any changes that have taken place.

New directory

To create a new directory:

1. Open a directory display for the directory in which you want the new directory to reside.
2. Go to the **New directory** writable icon. If necessary, delete the name already in the box; a quick way of doing this is to press Ctrl-U. Type in the name you want for the new directory and click on the name or press Return. See page 18 for information on valid names.

Users of earlier Acorn operating systems should note that new directories are **not** locked by default when you create them.

Open parent

If a directory contains a subdirectory, then it is the 'parent' of that subdirectory. Opening the parent therefore takes you up one 'level' in the filing system tree.

To open the parent of a directory, choose **Open parent**.

Another way is to hold down Shift and click Adjust on the Close icon of the directory display.

This option is not available from the root directory, nor is it, less obviously, from the user directory of a file server. In the latter case, you should use **Open $** from the icon bar menu of the file server icon.

File (or Dir. or App. or Selection)

File is the main menu tree in the Filer, enabling you to carry out many different operations on files and directories.

The table below shows the submenus to choose to carry out specific tasks:

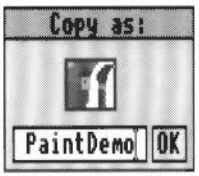
Task	Choose
Change the access on a file or directory	Access
Copy a file or directory	Copy
Copy a file or directory and change the name	Copy
Delete a file or directory	Delete
Find a file or directory	Find
Get information on a file or directory	Info
Find out how large is a file or directory	Count
Change the name of a file or directory	Rename
Set a file type	Set type
Change the time stamp on a file	Stamp

The **File** menu item applies to specific files and directories, and so is only available if you first select the file or directory you want to apply it to. The name of the file or directory will then be incorporated in the menu item – if you select a file called 'Tornado', for example, the menu item will change to **File 'Tornado'.**

You can also put the name of the file or directory in the menu if you move the pointer over an icon and press Menu.

The description will also change, from **File** to **App.** or **Dir.**, if the object selected is an application or directory respectively. If more than one object is selected, the description will change to **Selection**, although not all the submenu options are available when a number of files have been selected.

Copy



The *Welcome Guide* explains the easiest and simplest way of copying – by dragging icons from one directory display to another (from the source directory to the destination directory). The **Copy** option additionally allows you to change the name of the file or directory as you make the copy, so that you can either copy it under a different name to the destination directory, or back into the source directory, so that you can have two copies of the same file, with different names.

To copy a file or directory under a different name:

1. Select the file or directory, and display the **File/Copy** menu option. The **Copy as** box is displayed.
2. Type in the new name of the file or directory. See below for information on valid file names.
3. Click on **OK** for a copy of the file or directory to be made in the source directory, under the new name you have just supplied. To move the copy into a different directory, drag the icon (above the file name) into the destination directory. A copy of the file or directory will appear there, under its new name.

Moving multiple files between floppy discs

The normal way to move multiple files from one floppy disc to another is to select all of the files involved and then drag the file's icon while holding down the Shift key.

However on a computer with only a single floppy disc drive, moving multiple files between two floppy discs results in you having to swap floppy discs continually. We recommend that you first Copy the files, and then go back and delete the original files. This will substantially reduce the number of disc swaps you have to make.

See *Copying between floppy discs using a single drive* on page 46, for another quicker way of moving files.

Rename

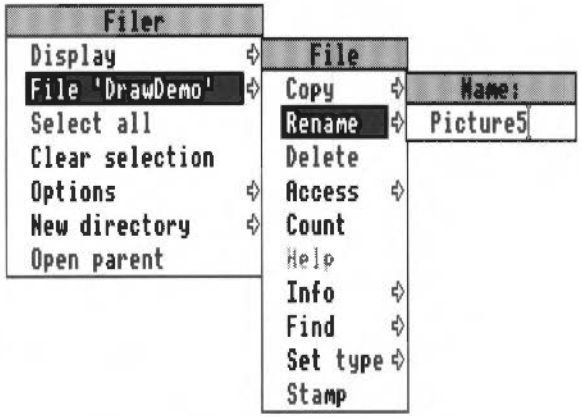
To rename a file or directory:

1. Select the file or directory, and from the **File** menu go to the **Rename** menu option and display the **Name** box.
2. Use the Delete key to erase the existing name and then type in the new name of the file or directory.

   A filename must contain at least one, and at most ten, printing characters. The name must not contain a space or any of the following characters:

   $ & % @ \ ^ : . # * " |

Upper- and lower-case letters are normally treated as equivalents in filenames. Thus, although a file may be stored under the name Fruit, you can refer to it as (for example) Fruit, fruit, FRUIT, FruiT, and so on.



3 Click on the new name, or press Return. The new name will appear in the directory display.

Take care if you are using the NFS Filer (in the TCP/IP Protocol Suite). This filer **is** case-sensitive since it displays files stored on other types of computer.

Delete

To delete a file or directory:

Select the file or directory, and from the **File** menu, then choose the **Delete** menu option. The file or directory will be deleted from the directory.

Warning: Make sure you really want to delete the file. After deletion the file cannot be recovered.

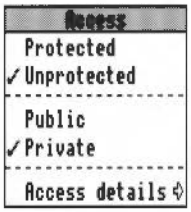
You may not be able to delete a file or directory if it has been locked. To unlock a file you should choose the **Unprotected** option from the **Access** submenu.

You can override all file locks permanently by choosing **Force** from the **Options** menu. This should be used with caution! Always remember to turn the Force option off after you have finished using it.

You can delete more than one file or directory at a time.

You can select more than one object in a directory display for deletion at the same time by using **Select all**, clicking on several objects with Adjust, or highlighting a block of them. See page 10 for more information.

Access



Access to files means **who** is permitted to do **what** to them. The **who** is either you or anyone else; the **what** is read, write to or delete the files. This is of particular interest when your computer is connected to a network.

You can control access to files in two ways: one relatively simple way, and a second way that requires a slightly greater understanding of how access is set. The simple way is as follows:

1 Select the file.

2 Go to the **File/Access** submenu. If you have selected only one object, there will be a tick alongside either **Protected** or **Unprotected**, and one alongside either **Private** or **Public**. If you have selected more than one object, none of the options will be ticked. The meaning of these options is as follows:

- **Protected**: the file cannot be deleted or altered (by anyone). This is a good way of preventing damage to files you have finished working on. However the Force option (see page 15), overrides any protection you may have set (unless the file is stored on a network server with different ownership).
- **Unprotected:** it can be deleted or altered by anyone.
- **Public**: it can be read by other users on a network (this is irrelevant if you are not using a network, but it is convenient for when you copy objects to a network, since this property will be preserved).
- **Private**: it can be read by no-one but yourself.

By default, objects are **Unprotected**, but **Private** – this means that you can read and alter them, but no one else can.

3 Choose which of these access parameters you want to set for the selected file.

If you change the access details of a directory, it affects the access details of all the files contained in the directory.

Access details

The simple form of access just described is likely to be all that most people need, most of the time. However, you can also set access in a more detailed way that corresponds more closely with the way the computer understands it. To do this, move to the **Access details** option and display its dialogue box

Each of these five options relates directly to one of the five access flags which form part of the properties of a file or directory. The last two come into play only when the object is stored on a network. When each flag is set:

- **Locked** means that the file cannot be deleted. By default, this flag is clear (ie not set). You can still delete a locked file if you set your file Options to Force. See page 15 for more information.

- **Owner read** means that the file's owner can read the file (for example, by loading it into an editor). By default, this flag is set.
- **Owner write** means that the file's owner can write to the file (ie, can change it and save it in the same place with the same name). By default, this flag is also set.
- **Public read** means that other network users can load your files or run an application in your network space. By default, this flag is clear.
- **Public write** means that other network users can write to the file. By default, this flag is also clear.

Click on the appropriate diamonds for the object(s) you have selected; click on **Yes** to set a flag, and on **No** to clear it. A diamond will appear when you do this; if you change your mind, you can remove it by clicking on it with Adjust. To apply the change to the contents of directories you have selected (and their contents, if any, and so on), click in the **Recurse** box so that a star appears. When you are ready, click on **OK**.

The two ways of setting access relate to each other as follows:

- If a file is **Protected**, its lock flag is set and its owner write flag is clear.
- If a file is **Public**, its public read flag is set.
- The owner read and public write flags can only be set using the **Access details** dialogue box.

If you select a directory, the access details are not set. If you then set any access details they will affect all of the files within that directory.

If you use a Level 4 file server, you should make sure that you do not set directories to Locked. This is because the Locked option may make directories invisible to other users on the network.

Count

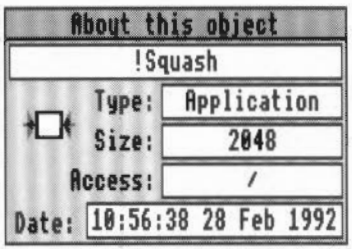
Choosing **Count** will display the number of files selected and their total size in bytes.

Help

Choosing **Help** will display a help file for the selected application. This option is greyed out if the application does not have a help file, or if the selection is a file or directory.

Info

Choose **Info** to display the file type, size, access details and date last modified – information similar to that shown when you choose **Full Info** from the **Display** menu.



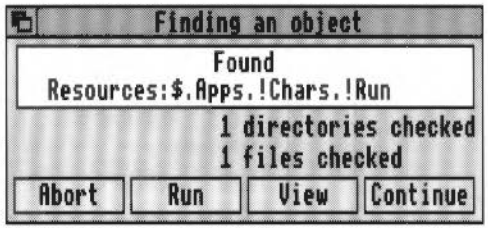
Find

You may believe that you have saved a file or directory somewhere in a directory structure, but are unable to remember where. **Find** enables you to do so.

To find an object:

1. Select the directory or directories you want to search.
2. Display the **Directory/** (or **Selection/** if you have selected more than one) **Find** writable icon.
3. Type in the name of the file you want to find. Click on the name, or press Return.

As the search proceeds, a box is displayed showing its progress through the directory structure you have specified.



If the object found is a **file**, the box gives you the following options:

- **Abort** the search.
- **Run** the file: if the file is a program, it will be run; if it is a document, it will be loaded into an appropriate editor (if one can be found).
- **View** the directory containing the file.
- **Continue** to search for another object with the same name.

If the object found is a **directory**, you will see the following options:

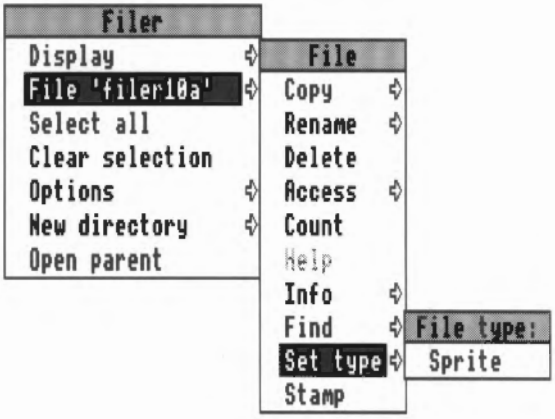
- **Abort** the search.
- **Open** the directory.
- **Continue** to search for another object with the same name.

Set type

Every file has a type, which determines what will happen when you double-click on its icon. Thus files of the type Text will be loaded into Edit, files of the type Obey are interpreted as lists of commands to be carried out, and so on.

To change a file's type:

1. Select the file whose type you want to change.
2. Display the **Set type** name box.
3. Type the name of the file type you want, in normal text or as a hexadecimal number. For a list of file types, refer to the appendix entitled RISC OS *file types* on page 231.



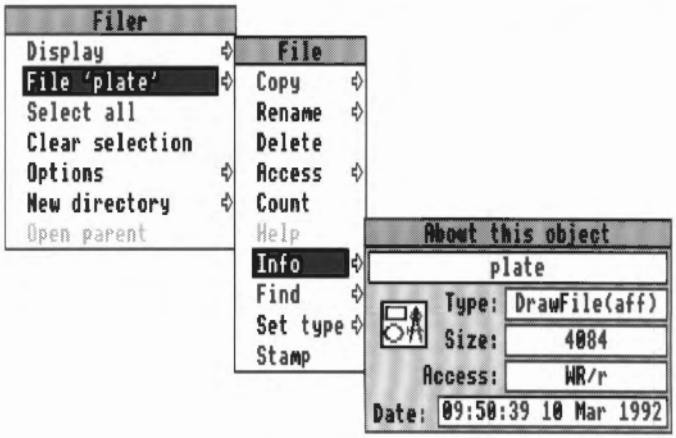
Stamp

Files record when they were last altered, and directories when they were first created. This information is shown when you display **Full Info**, or when you select a specific file or directory and ask for **Info** about it (see page 22). The time and date used is that provided by the computer's real-time clock, which can be set using the Alarm application described in the *Applications Guide*.

Stamp enables you to update the date and time stamping on files and directories to the current date and time. To do this:

1 Select the object(s) you wish to stamp.

2 Choose **Stamp** from the **File** (**Directory** or **Application**) subdirectory. The date stamp will be updated. You can check this using the **Info** menu option.



Using the desktop background

So far this chapter has shown you how to use the Filer to manipulate your files, directories and applications. This section shows you how you can add another layer to the Filer by using **Pinboard**. You might have found out about Pinboard already, if you accidentally dragged an icon onto the screen background.

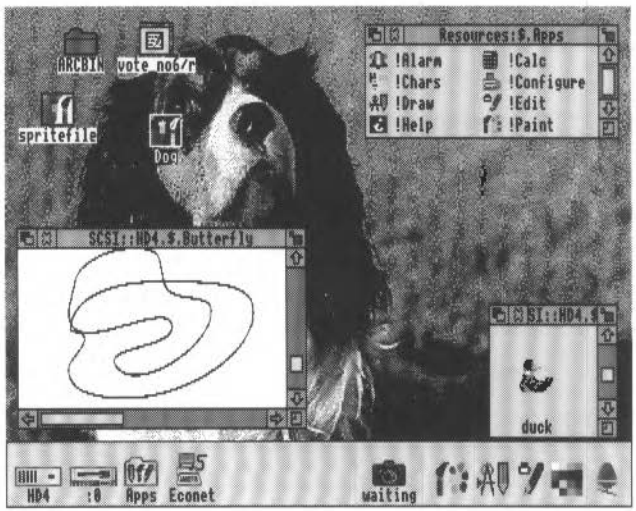
Pinboard

Without using Pinboard, the computer screen just shows the icon bar, one or two directory windows and maybe an application such as Edit. These windows sit on the screen background, which is normally a grey tint.

With Pinboard, the screen background is transformed into just that, a pinboard on which you can pin icons. You can

- pin files, directories and applications on the background
- double click on these pinned items to activate them just as you would do if they were in a directory display
- move files around on the background
- display a sprite picture as the backdrop
- shrink running windows into icons.

(A sprite is a picture that has been saved in the format used by the Paint application. See the chapter *Paint* in the RISC OS 3 *Applications Guide* for more details.)



Using Pinboard

This section shows you how to use icons on the background. The techniques used are much the same as those used in normal file manipulations.

Putting an icon on the background

To put an icon on the background, simply drag it from a directory and drop it anywhere on the background. Icons can be moved around the background in a similar way.

Double clicking

Double clicking on any of the icons has the standard effect. Files are loaded into their respective applications and displayed. Directories are opened and displayed. Applications are started. Application icons can also be started by dragging them to the icon bar.

Copying

Icons dragged from the background to a directory display are copied to the new directory. However files cannot be moved from the background (using shift-drag) to an alternative directory.

Iconising running applications

Pinboard allows you to iconise a running application's windows, that is to say, shrink a currently open window into an icon. For instance, you may have a file that you are editing that you want to set aside for a while; you can choose to iconise this Edit window. Iconised application windows are distinguished by having an icon enclosed by scroll bars.

By iconising application windows, you can keep many windows active on your desktop at the same time, without the problem of filling up your screen with unwanted windows.

How to iconise a running window

Any window that has a Close icon can be iconised by holding down the shift key and clicking on the Close icon.

Iconised windows can be redisplayed simply by double-clicking on them.

Displaying the Pinboard menu options

Like most RISC OS applications, Pinboard is controlled from a menu. To display the menu options, press Menu anywhere on the background. To see the options available for a particular icon on the background, click on the icon and press Menu; or press Menu over the icon when there is no other selection.

Use the following table to decide which menu option you need to carry out a particular task:

Task	Option
Tidy all icons into rows	Tidy
Do not allow icons to overlap	Grid lock
Remove a selected icon from the pinboard	Remove icon
Remove several selected icons	Remove selection
Select all the icons on the pinboard	Select all
Deselect icons	Clear selection
Use a sprite as a backdrop	Make backdrop
Remove a backdrop	Remove backdrop

The Remove option does not in any way delete your files. It simply removes the icon from the Pinboard display.

Tidy

Click on **Tidy** and all of the background icons will line up neatly from left to right along the top of your screen.

Grid lock

The **Grid lock** option ensures that icons do not overlap each other. Icons will line up on an invisible grid on the screen. If you want to be able to place your icons anywhere, make sure that this option is not ticked.

Remove icon/ Remove selection/ Close window

If you press Menu over an icon, you can remove it by clicking on **Remove icon**. You can also use this with the **Select all** option to remove all the icons. Removing an icon from the background does not delete it from your disc.

You can also use the Adjust button to select several icons and then use the **Remove selection** option.

You cannot remove iconised windows in this way since these iconised windows may contain data that you are currently changing. Iconised windows must be double-clicked on and then closed using the Close icon.

Select all/ Clear selection

Select all selects all icons on the background (apart from iconised application windows). **Clear selection** deselects all icons on the background.

Make backdrop

One of the prettier uses of the Pinboard is to display a picture as a backdrop. You can display any Sprite file (as produced by Paint for example). The sprite is automatically resized so that it occupies the whole of the background. For best results, 256 colour pictures should be displayed using one of the 256 colour screen modes, such as mode 15. However, they can be displayed in any mode.

Changing screen modes is described in the chapter entitled *Colours and screen modes* on page 115.

To display a picture, drag the sprite file onto the background and click menu over it; then click on **Make backdrop**.

Make backdrop also has a submenu for finer control of backdrop pictures:

Scaled has the same effect as clicking on **Make backdrop**. A sprite is scaled to fill the whole screen.

Centred has the effect of centring a sprite on the background. The desktop retains the correct proportions of the sprite.

Tiled will make copies of a sprite and tile it so that it fills your screen from the top left; try it and see.

Remove backdrop

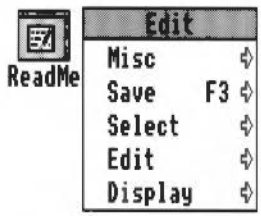
You can remove a backdrop picture by clicking on **Remove backdrop**.

Save

Save allows you to save your Pinboard configuration to a file. Double-clicking on this file will restore Pinboard to its saved state. The Pinboard configuration is also saved with a Desktop save. It does not save information about iconised application windows.

Iconised application menu options

If you press Menu when the pointer is over an iconised application window, you will see the standard Pinboard options. However if you hold down Shift and press Menu you will display the menu options associated with the running application's windows.



A menu may not appear if the window that was iconised did not allow menuing at the edge of its window, or if the window did not use menus at all.

Saving the pinboard configuration


!Boot

Saving a Desktop boot file (see the chapter entitled *Desktop boot files* on page 109) will save the exact configuration (including the icons and the backdrop) of your Pinboard. It does not save information about iconised application windows.

Pinboard display characteristics

You can edit your Desktop boot file by hand. Add one or more of the following lines to the file:

`Pinboard -Grid`	Starts the Pinboard with grid lock.
`Pinboard`	Starts the Pinboard without grid lock.
`Backdrop` *`filename`*	Gives the filename of the sprite to be used as a Pinboard backdrop, for example: `Backdrop adfs::4.$.alfalfa` Makes a backdrop by displaying the sprite `alfalfa`.
`Backdrop` *`filename`* `-Scale`	Scales the sprite so that it covers the background completely.
`Backdrop` *`filename`* `-Centre`	Centres the sprite so that it keeps its proportions.
`Backdrop` *`filename`* `-Tile`	Makes enough copies of the sprite to cover the background completely.
`Pin` *`filename position`*	Gives the position of an icon on the background, for example `Pin Resources:$.Apps.!Configure 350 500` puts the !Configure icon on the background at position 550 500 (given in OS units).

2 Discs, networks and filing systems

In the last chapter we mentioned that RISC OS provides and supports a number of different filing systems, which have been designed to suit the type of storage device on which they are found. The main filing systems are:

filing system	**used on**
ADFS (or SCSIFS)	floppy discs, hard discs
NetFS	file servers
RAMFS	RAM discs
ResourceFS	ROM

The RISC OS Filer (described in the previous chapter) gives a uniform user interface to all these filing systems, but there are a few special features provided with each one, which are described here. These are accessed from each storage device's icon bar menu (displayed by clicking Menu over it).

Floppy and hard discs

All computers are fitted with a floppy disc and some have a hard disc too. These discs usually use ADFS. The main exception to this would be a SCSI hard disc, fitted as an option along with a SCSI expansion card, and as standard on some machines. Click Menu over the hard disc icon on the icon bar, and the menu header will tell you whether the hard disc is ADFS or SCSI. The differences between ADFS and SCSIFS are not apparent on the desktop, so this section will be relevant to both filing systems. (Acorn SCSI discs come with their own documentation – the SCSI *Expansion Card User Guide*.)

Displaying the disc icon bar menu

Click Menu over the floppy disc icon on the icon bar, and the disc menu will be displayed. This is the similar for floppy and for hard discs, although **Format** and **Backup** are greyed out on hard disc menus.

The disc menu gives you access to the filing system tasks you may need to carry out using discs and disc drives (in addition to the general tasks controlled by the Filer, which are described in the previous chapter). These tasks are covered overleaf.

Use the following table to decide which menu option you need to carry out a particular task:

Task	Option
Backup a floppy disc	Backup
Check a disc for defects	Verify
Check how much space is left on a disc	Free
Clear a disc's directory displays off the screen	Dismount
Close all the files on a disc	Dismount
Format a floppy disc*	Format
Park the heads of a hard disc	Dismount
Rename a disc	Name disc

*See *Format* on page 34 for information about formatting hard discs.

Name disc

Disc names

Floppy disc drives are identified by icons numbered :0 and (if a second floppy disc drive is fitted) :1. Hard disc drives are identified by icons numbered :4 and (if a second hard disc drive is fitted) :5, though if a hard disc has been given a name such as IDEDisc4, the name will appear on the icon bar instead of the number.

Each disc may be referred to either by a name, or by the number of the drive on which it is mounted. The former method is recommended, since it means you do not have to worry about where the disc is; the filing system will prompt you to insert a disc if it is missing from the drive.

Disc names follow the same rules as file names. It is advisable to keep disc names unique, so that the filing system can tell them apart. When you set up a floppy disc for the first time, it is given a name based on the current date and time.

Setting and changing disc names

To set or change the name of a disc:

1. In the case of a floppy disc, ensure that the disc is formatted and is not write-protected, then insert it into the disc drive.
2. Move to **Name disc** on the icon bar menu for the disc drive.
3. Type in the name (it must be at least two characters long).

Press Return or click a mouse button. If you have any directory displays open for the disc, they will be closed when you rename the disc. See page 18 for information about naming restrictions.

Dismount

Dismounting discs

When a floppy disc has been inserted into the computer, and its directory display is displayed, it can be said to be 'mounted'. When you have finished with a disc, it is useful to 'dismount' it. This closes all the files on the disc, removes its directory displays from the screen, and tells the computer to forget about it. To dismount a disc:

1 Insert the floppy disc into the disc drive (if it's not still in there).

2 Choose **Dismount** from the icon bar menu for the disc drive.

Dismounting a hard disc also parks its heads so that it can be moved safely once the computer has been turned off. The disc remains dismounted until the next time it is accessed, or until the machine is next switched on. It is good practice to dismount the disc before turning the computer off, even if it is not going to be moved. The **Shutdown** command also dismounts and parks the disc drive heads.

Using more than one floppy disc

You can of course use the same floppy disc drive for more than one disc. When you open the directory display of a floppy disc, the computer makes a note of its name, so that if the disc is not in the drive when the computer needs it, a dialogue box appears, prompting you to insert the disc. Insert the required disc into the drive. You may then need to click on **OK** to tell the computer the disc is there; this depends on the disc drive that has been used in your computer.

If you decide not to go through with the operation (for example, if the requested disc is not available), click on **Cancel**. The response to this will depend on the command or application that needed the disc; in general it results in the operation being cancelled. An error message may be displayed as well.

If you insert a disc that has the same name as one already in use, you will be asked if you want the computer to forget the earlier disc. If you do, click on **OK**; otherwise remove the new disc and click on **Cancel**. For these purposes, a disc is still 'in use' if, for example, there is a directory display open for it.

When you are copying from one floppy disc to another using a single drive (by dragging a group of objects), you may be asked to swap the discs occasionally, which becomes tedious when copying many files and directories. See the section entitled RAM *discs* on page 46 for information on how to do this faster.

Format

Formatting discs

Formatting a disc means setting up information on the disc about the way data is stored on it. You will need to format a disc in the following circumstances:

- To prepare a new, blank disc for use. (If you try to use a disc that has not been formatted, an error message will be displayed.)
- To erase the entire contents of a disc and bring it to a known, clean state.

  Warning: When a disc is formatted, any data that was previously stored on it is permanently lost.

To format a floppy disc:

1 If the disc is not already in the drive, insert it.

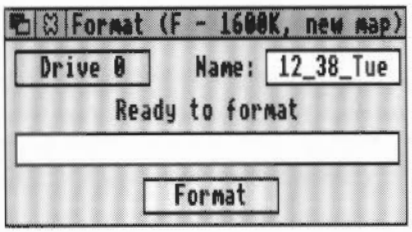
2 If the disc is not a new one, and a directory display for it is on the screen, dismount the disc by choosing **Dismount** from the icon bar menu.

3 Move to the **Format** submenu of the icon bar menu for the disc drive.

4 Choose the disc format.

Normally you will want to choose ADFS 800K (E) format (or 1.6M format if your computer uses high density floppy discs). The section *Choosing the disc format* overleaf describes all of the available disc formats in more detail.

5 The Format dialogue box is displayed. Click on **Format** to go ahead with the operation; click on the close icon to abandon the operation. During formatting and verifying, an indication of the progress of the operation will be displayed. You can interrupt the formatting process by clicking on **Pause**.



6 When formatting is complete you will see the message **Disc formatted OK**. Finish formatting by clicking on OK.

If the disc formatting process found errors on the disc you should turn to page 37 for instructions on how to map out the defect.

The Format dialogue box

In addition to formatting the disc, the Format dialogue box also lets you give the floppy disc a name.

If you don't give a floppy disc a name, the default name given to the disc is based on the date and time: for example 11_27_Mon. If you want to give a disc a name, click over the **Name** box and type in the name. See page 32 for details of file and disc naming conventions.

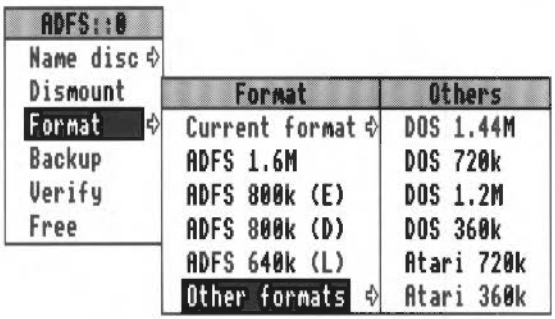
Formatting a hard disc

Hard discs are supplied ready-formatted, and you should not need to reformat them. In the unlikely event that a hard disc does have to be reformatted, use the program **HForm**, described in the appendix entitled *Formatting a hard disc* on page 225.

If you wish to format a SCSI disc refer to the SCSI *Expansion Card User Guide*.

Choosing the disc format

Formats are chosen from the Floppy disc icon bar menu. Display the format sub menu to the formatting options.



If you have a computer that does not support high density floppy discs, the ADFS 1.6M, DOS 1.44M and DOS 1.2M options will not appear in your menu.

There are four different ADFS RISC OS formats for floppy discs:

- **ADFS 1.6M**. This format can store 1.6MB of data.

  You can only use this format if your computer has a high density disc drive fitted (see the *Welcome Guide* for details). High density floppy discs (1.44MB IBM type discs) must be used. High density discs must only be formatted using ADFS 1.6M format. Each directory can contain up to 77 files and subdirectories.

- **ADFS 800K (E)**. This format can store approximately 800K of data.
  It is the best format for discs that do **not** need to be used on older versions of the operating system (pre-RISC OS 2.00). It should be used whenever possible (unless your computer has a high density disc drive, in which case use ADFS 1.6M format). Each directory can contain up to 77 files and subdirectories.
- **ADFS 800K (D)**. The format can store approximately 800K of data.
  This format is compatible with the Arthur 1.20 operating system. Each directory can contain up to 77 files and subdirectories.
- **ADFS 640K (L)**. The format can store approximately 640K of data.
  This format is compatible with ADFS on Arthur 1.20 and ADFS on the Master, Master Compact, BBC Model B and BBC Model B+ computers fitted with 3.5" disc drives. Each directory can contain up to 47 files and subdirectories.

There are four different DOS compatible formats for floppy discs:

- **DOS 1.44M**. This IBM format stores up to 1.44MB of data.
  The disc can be read from and written to by any MS-DOS computer with a high density 3.5" disc drive. You can only use this format if your computer has a high density disc drive fitted (see the *Welcome Guide* for details). High density floppy discs (1.44MB IBM type discs) must be used.
- **DOS 720K**. This IBM format stores up to 720K of data.
  The disc can be read from and written to by any MS-DOS computer with a 3.5" disc drive.
- **DOS1.2M**. This IBM format stores up to 1.2MB of data.
  It requires an IBM PC/AT type 5.25" disc drive attached externally. The disc can be read from and written to by any MS-DOS computer with a high density 5.25" disc drive. High density floppy discs (1.2MB IBM type discs) must be used. Contact your supplier for more information on using external 5.25" disc drives.
- **DOS 360K**. This IBM format stores up to 360K of data.
  It requires a standard 5.25" disc drive attached externally. The disc can be read from and written to by any MS-DOS computer with a 5.25" disc drive. Contact your supplier for more information on using external 5.25" disc drives.

There are two different Atari compatible formats for floppy discs:

- **Atari 720K**. This Atari format stores up to 720K of data.
  The disc can be read from and written to by any Atari ST computer with a double-sided 3.5" disc drive.
- **Atari 360K**. This Atari format stores up to 360K of data.
  The disc can be read from and written to by any Atari ST computer with a 3.5" disc drive.

Notes about formatting

When you are using ADFS 800K (D) and ADFS 640K (L) formats, you may occasionally need to 'compact' the disc. This is because the free space may become fragmented, making disc access slower and preventing large files from being saved. A message will appear on the screen when compaction is necessary. To compact your disc you use the *Compact command. For more information on *Compact, read the chapter entitled *Star command summaries* on page 161.

ADFS 800K (E) and ADFS 1.6M format discs never need compacting. These formats are also safer (more resistant to disc errors) in that the information which tells the computer where to find information on the disc, is held duplicated on the disc. However, because there is additional information stored on an 800K (E) format disc, there is slightly less space available, so it may not be possible to copy a completely full 800K (D) format disc to an 800K (E) format disc.

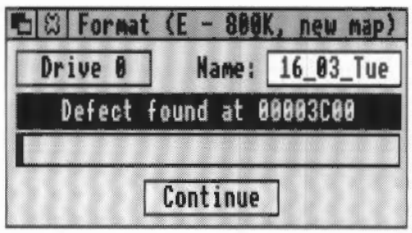
DOS-formatted discs can be used just like RISC OS format discs, and in addition they can also be used in any DOS computer with a suitable disc drive. This enables you to transfer files between the RISC OS and DOS operating systems. For more information about DOS files and discs, read the section entitled *Using DOS-formatted discs* on page 49.

Atari-formatted discs can be used just like RISC OS format discs, and in addition they can also be used in any Atari computer with a suitable disc drive. This enables you to transfer files between the RISC OS and Atari operating systems. For more information about Atari files and discs, read the section entitled *Using Atari ST-formatted discs* on page 52.

Some RISC OS computers may not support some types of 5.25" disc formats; check with your supplier for more details.

Disc errors and defects

If your floppy disc has a defect in it, this defect is flagged during the formatting and verifying process. If this occurs, click on **Continue** so that the area of the disc in which the defect occurs is not used. If you don't want to continue with the format/verify process, click on the window's Close icon.

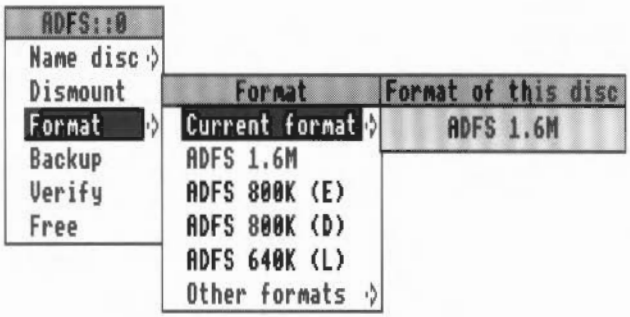


If a defect occurs with a floppy disc during its use (a rare occurrence) you will see a Disc error message. To correct the error you should copy any files you want to save on the affected disc onto another disc, and then reformat the affected disc. Formatting the disc will 'map out' the defect and the disc can then be used again.

If you do not wish to reformat your floppy disc, a defect can be mapped out using the *Defect command. See the chapter entitled *Star command summaries* on page 161 for more details. If you get continual disc errors on a floppy disc, the disc may be defective and you should no longer use it.

Current format

If you want to find out what type of format a floppy disc has, put the floppy disc in the disc drive and, from the **Format** menu, display the **Current format** box. This will tell you the format type and storage capacity of the floppy disc.



Backup

It is a good idea to make backup copies of floppy discs from time to time, in case a disc is damaged or a file is accidentally deleted. In addition, it is recommended that you make backup copies of applications supplied on discs, and use the backups as your working discs.

The backup process copies an entire floppy disc (from the 'source' disc to the 'destination' disc) as a single operation, and can be done using either one floppy disc drive or two.

Warning: Backing up a disc deletes the entire previous contents of the destination disc.

If the destination disc is a new, blank disc, it must be formatted first (see *Format* above).

The destination disc will be given the same name as the source disc.

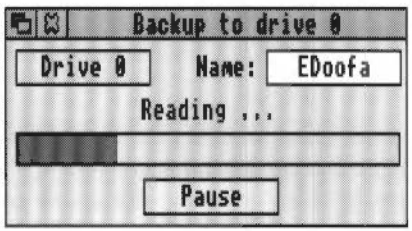
You cannot back up from a D or E format to an L format disc, nor from an L to a D or E format disc. In general you should only back up onto discs with the same format as the source disc.

During a backup, you should, for safety, write-protect the source disc.

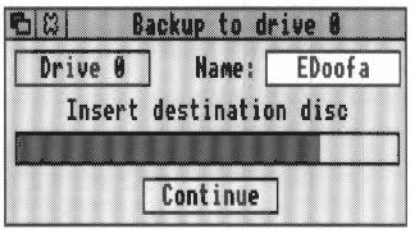
To back up using a single disc drive:

1 Choose **Backup** from the icon bar menu for the disc drive.

2 When prompted, insert the source disc into the disc drive and click on **OK**.



3 Similarly, when prompted, insert the destination disc, and click on **OK**. Repeat steps 2 and 3 as prompted until all of the data has been copied.



4 When the Backup has finished, click on the Close icon to conclude the operation.

To back up using two disc drives:

1 Insert the source disc into drive 1.

2 Insert the destination disc into drive 0.

3 Click Menu on the drive 1 icon and move to the **Backup** option, which now has a submenu: click on **to drive 0**. If you prefer, you can back up from drive 0 to drive 1 by inserting the source disc into drive 0, the destination disc into drive 1, and selecting **to drive 1**.

4 You will be asked whether you are sure you want to go ahead with the backup operation; click on **OK** to proceed.

5 When the Backup has finished, click on the Close icon to conclude the operation.

If you are using your computer a lot, it is good practice to back up the files you have been working on at least once a day, and to back up all your files once a week, or once a month.

Besides giving you some protection against hardware failures or discs becoming damaged, making backup copies also gives you a way of recovering files if you accidentally delete them or overwrite them. Naming discs with the date of the backup will help you find out when the backup was made, without having to check the date of the files on the disc.

Verify

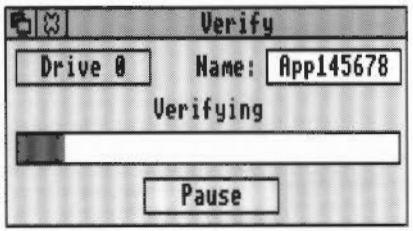
You can check whether the disc is free from defects by verifying the disc. Verifying checks that all the data on the disc is readable (it does not check that the data is correct). This is not something you need to do very often, but is a good idea if, for example, you have made a backup of important data and want to check that it is stored safely. A disc is verified automatically when you format it.

To verify a disc:

1 Insert the floppy disc into the disc drive.

2 Choose **Verify** from the icon bar menu for the disc drive.

The Verify dialogue box is displayed and the verify starts.



If there are no faults on the disc, the message **Disc verified OK** appears. If there is a fault, the position of the error on the disc is displayed. Clicking on **Continue** maps out the error so that the bad part of the floppy disc is not used again.

A defect can also be mapped out using the *Defect command. See the chapter entitled *Star command summaries* on page 161 for more details.

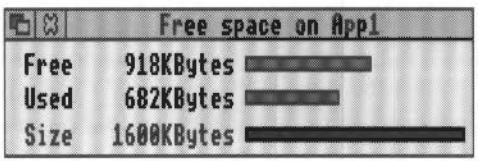
Free

To check how much free space is available on a disc:

1 Insert the floppy disc into the disc drive.

2 Choose **Free** from the icon bar menu for the disc drive.

The amount of free space on the disc, together with the amount of space that is in use, are shown in KBytes (Kilobytes). This window is updated whenever the space on the disc changes.



What to do if something goes wrong

Most errors and problems connected with discs are accompanied by self-explanatory messages. Often all you need to do is acknowledge that you have read the error message by clicking on the appropriate box. There are a few cases that are more serious or need a little extra explanation.

Protected disc

The message 'Protected disc' indicates that a floppy disc is write-protected. This prevents you from accidentally writing to the disc. You can remove the write protection by sliding the small tab at one corner of the disc so that the hole is blocked off.

Disc errors

Occasionally, a disc may become damaged. For example a defect may develop in the magnetic surface of the disc. In this case, you may see a message such as:

```
Disc error 10 at :0/00000400
```

If a lot of these errors occur, you are advised to reformat the disc, first copying any undamaged files to another disc. If the disc errors persist after reformatting, throw the disc away (or in the case of a hard disc, consult your supplier).

A similar error can occur if you try to use a disc that has not been formatted.

For a full explanation of most user-level error messages refer to the appendix entitled *Error messages* on page 249.

Networking

If your computer is connected to an Acorn–supported network, such as Econet, you will be able to access file servers that use NetFS (the Network Filing System). This section describes the extra filing system features available that NetFS supports, additional to those of the Filer covered in the previous chapter.

An introduction to networks

A network is usually administered by a network manager (a person, rather than a piece of software). Each computer connected to a network (including the file server itself) has a station number, and the network manager can assign a network name to a network. The network manager allocates each network user a username, used to identify them to the network. Users may, if they wish, set a password, which prevents individuals from logging on under someone else's name.

Your computer can be configured to recognise a fileserver and printer server automatically; see the chapter entitled *Setting the configuration* on page 85 for more details.

Pathnames

The name used for NetFS in paths is `net` and the name and/or number of the file server; for example

```
net::Business
```

Updating of network directory displays

If a file shown in a directory display on your screen is deleted by another user, your display will not be updated automatically. If you then try to open the deleted file, you will get a 'File not found' error message. You can update the display by closing the directory display and opening it again.

Displaying the Net icon bar file server menu

To display the Net 'File server' menu, click Menu on the Net icon.

Use the following table to decide which menu option you need to carry out a particular task:

Task	Option
Check how much space is left on a disc	Free
Display a list of available file servers	FS list
Log off from a file server	Bye
Log on to a file server	Logon
Open the root directory of the file server	Open $

FS list

To check which file servers are available, choose **FS list** from the File server menu. A list of file servers is shown in a window. **Full info**, reached via the Display menu in this window, shows the file server net address (a number) as well as its name.

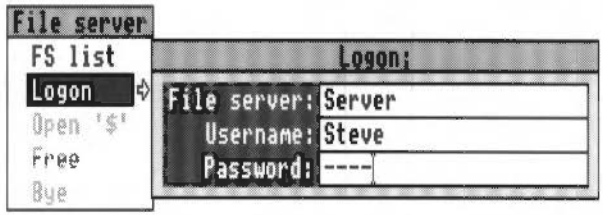
To log on to a file server from the file server list, click Select or Adjust on one of the file servers. The same dialogue box as is used in **Logon** below appears.

Logon

To log on to a network file server:

1 Move to the **Logon** submenu of the File server menu. Alternatively, click on the Net icon.

2 Type in the name of the file server (this may already be set up), the username, and (if needed) the password. Press Return at the end of each of these.



If the file server is available, and the username and password are valid, a directory display for the user directory (the top-level directory in the user's own network file directory tree) is opened; otherwise an error message is displayed. When you have successfully logged on, the Net icon on the icon bar changes (the text underneath the icon is the file server's number or disc name).

You can also log on from the file server list, as mentioned above in **FS list**.

To log on **without** displaying the user directory, hold down Shift while you press Return for the last time when logging on; do not release Shift until the file server name or number appears underneath the Net icon on the icon bar, indicating that you are logged on.

If your network manager has not allocated you a user directory, you will log on to the root directory of the fileserver instead.

You can, of course, log on to several file servers; a Net icon is displayed on the icon bar for each file server.

Open $

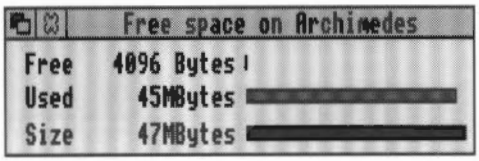
On a file server you log on to your user directory. This is one or more levels down from the root, unlike most other storage devices, where the first directory you open is the root directory. The user directory is sometimes referred to as the user root directory. Pathnames to the user root directory must begin with &.

You can open the root directory of the file server by choosing **Open $** from the File server menu. If the file server has more than one disc, the disc names will be displayed as a submenu; click on the disc whose root you want to display.

Access to areas, other than your user area, may be denied to you by the network manager.

Free

To check how much space is available on a file server, choose **Free** from the File server menu. This displays the free space on the file server. **Free** is the amount of space you have left in your user area. **Used** is the amount of space that has been used (by all users) on the file server. Size is the total size of the file server disc.



If you find that you are running out of space, ask your network manager to allocate you some more space.

Bye

When you have finished using a file server, log off by choosing **Bye** from the file server menu. Any directory displays for the file server will be closed.

What to do if something goes wrong

'Econet not plugged in' error message

Probably the most frequent error encountered when attempting to log on to an Econet network is 'Econet not plugged in'. This means that your machine is physically disconnected from the Econet network, either at the back of the computer or at the socket box at the other end of the cable.

Newly-connected file servers

If a new file server has been connected to your network, it will not automatically appear on the FS list. To make it do so, log on to the new file server explicitly using the fileserver number (ask your network manager), and the next time you display the FS list, the new file server will be included.

Applications copied from a network

If you copy an application from the network, log off the network, and then (without first loading the application itself) double-click on a file for that application, you will see the message 'Not logged on'. This is because the computer, having 'seen' that the application came from the network, is still trying to find it there. When you have copied the application, you should therefore run it from your own disc (by double-clicking on it) before attempting to load a file into it.

Network failures

If there are any serious errors, such as damage to the disc of a file server, these should be handled by the network manager. The only error you are, in general, likely to meet when using the network is failure of the network itself, rather than the filing system. This can happen for a variety of reasons: both 'hard errors', such as the network becoming disconnected, and 'soft errors', such as the network

becoming jammed as a result of too many people using it at the same time. Most problems tend to be soft and can be cured by trying the operation again, or by logging on to the file server again.

For a full explanation of most of the common error messages you might encounter, turn to the appendix entitled *Error messages* on page 249.

RAM discs

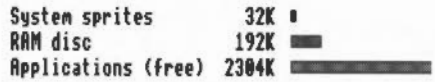
A RAM disc uses a block of memory reserved from the computer's RAM (Random Access Memory). It is called a RAM 'disc', because you can use it in a way very similar to a hard or floppy disc. However, the important thing to remember is that objects on the disc are not 'safe' in the way that objects on real discs are safe: they will be lost when the computer is switched off or reset.

Access to the RAM disc is much faster than access to a floppy or hard disc.

The RAM disc uses the RAM filing system (RAMFS).

Creating a RAM disc

You can create a RAM disc for the current session using the desktop Task Manager. The 'bar' is in the third section of the Task Manager window, marked **RAM disc**. Press Select to the right of the **OK** label – at the point where the bar will start – and drag the bar that appears to the size you want.



You can change the size of the RAM disc after you have created it, but only if it is empty. When you have created a RAM disc, an icon appears on the icon bar. Click on this icon to open the directory display.

If you want to set up a RAM disc each time you use the computer, use the !Configure application described in section entitled *Memory* on page 94.

Using a RAM disc

A RAM disc is a convenient way of speeding up some operations, at the cost of using some of the computer's memory. Three examples are given here.

Copying between floppy discs using a single drive

As mentioned in the section *Dismount*, earlier in this chapter, when you are copying a group of objects from one floppy disc to another using a single drive, you have to change the disc after each file or directory. This can become tedious. An alternative

is to allocate as much space as you can to a RAM disc, copy all the files (or as many as will fit) into the RAM disc from the source disc, and then copy them from RAM disc to the destination disc. When you have finished, delete the files from the RAM disc, and quit the RAM disc by choosing **Quit** from the icon bar menu.

Keeping frequently-used files in a RAM disc

Another common use of the RAM disc is to hold programs and data files that you use frequently. Keeping them in the RAM disc reduces the time they take to load, and may help you avoid having to change discs to find them.

Do not keep files that you are **changing** in the RAM disc: it is too easy to switch off the computer without transferring them to a permanent medium such as a hard or floppy disc or a network file server. If you use the **Shutdown** option from the Task Manager, it will warn you if there are still files in the RAM disc.

Running part of an application from a RAM disc

If your computer has only a single floppy disc drive but more than 1MB of RAM, and the application you want to run uses two floppy discs, you can use a RAM disc as a substitute for a floppy disc drive. Decide which disc you wish to transfer to RAM and insert it into the disc drive. Choose **Free** from the icon bar menu; the Free space **Used** bar tells you how large the RAM disc needs to be. Create a RAM disc of the appropriate size. Then copy the contents of the floppy disc to the RAM disc.

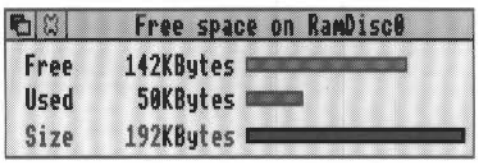
Before loading a file into the application, double-click on the parts of the application you have transferred into RAM, so that the computer knows that it should find them there, rather than looking for them on the floppy disc.

Displaying the RAM disc icon bar menu

As with most storage devices, the RAM disc has its own icon bar menu with options specific to the filing system. Click on Menu over the RAM disc icon on the icon bar and the RAMFS menu is displayed. This gives you access to two commands – **Free** and **Quit**.

Free

To see how much space is available, click Menu on the RAM icon, and choose **Free**. This displays the total free and used space, in KBytes.



Quit

When you have finished using the RAM disc, you can remove it from the icon bar by pressing Menu on the RAM icon and clicking on **Quit**. If the RAM disc is not empty you will be given a warning that you will lose its contents if you go ahead. Click on **OK** to close the RAM disc if you don't mind losing it, or on **Cancel** if you want to keep it.

The Apps directory

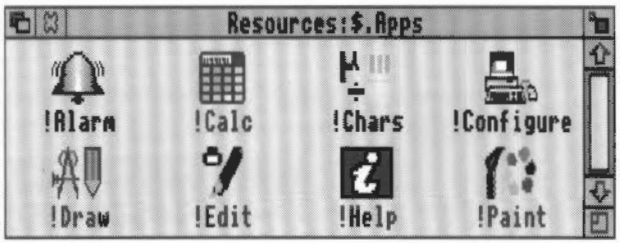
The Apps directory on the icon bar contains applications that are held permanently inside the computer in ROM (Read Only Memory). Stored in ROM, these applications load more quickly than from disc, and take up less RAM while they are running. The four most generally useful RISC OS applications – Edit, Draw, Paint and Configure – are among those held in ROM.

The Resource Filing System (ResourceFS) handles access to the applications and files stored in ROM. The principal difference between ResourceFS and other filing systems is that you cannot alter or delete anything held in it.

When you switch on your computer, one of the icons on the left of the icon bar is the ResourceFS icon, with the word Apps underneath it. Click on this icon to display the Apps directory of ResourceFS in a normal directory display.

The directory structure of ResourceFS is similar to that of any other filing system.

Here is the directory display for the Apps directory:



Displaying the Apps icon bar menu

The Apps directory has its own icon bar menu with an option specific to the filing system. Click on menu over the Apps icon on the icon bar. The menu will be displayed, containing the single option **Open '$'**.

When you click Select on the Apps icon, its directory display appears on the screen. Its title bar shows that it is not, however, the root directory of Resources; rather like the user directory on a file server (described earlier in this chapter), it is the one you are most likely to find useful. You can open the root directory if you wish by pressing Menu on the icon bar icon and clicking on **Open '$'**.

Auto-starting Apps applications

You may want some of the applications in the Apps directory to start automatically each time you switch on your computer. You can do this by using the Configure application. For more information about auto-starting applications, read the section entitled *Applications* on page 101.

This is particularly useful if you have a computer without a hard disc. If you have a hard disc, you can achieve the same – and more – by using the **Desktop boot** option from the Task Manager menu (described in the chapter entitled *Desktop boot files* on page 109).

Desktop boot files allow you not only to auto-start Apps applications, but also to log on to networks and to load applications stored on discs and file servers.

Using DOS-formatted discs

As well as using the standard RISC OS formats for floppy discs, you can also use floppy discs formatted using the standard DOS formats.

DOS-formatted discs can be used in exactly the same way as RISC OS-formatted discs; just put them in the disc drive and click on the floppy disc icon to view them. This feature is especially useful if you want to move files between RISC OS and DOS computers.

The menu options available for DOS files and directories are exactly the same as those for RISC OS files and directories. Files can be copied and moved between RISC OS and DOS directories in the normal way. To **run** DOS applications, you will need the PC Emulator (available from your supplier).

Instructions for formatting with the DOS disc formats are given in the section entitled *Floppy and hard discs* on page 31.

Moving RISC OS text files to a DOS computer

If you save RISC OS files to a DOS-formatted floppy disc you can transfer the files to a DOS computer simply by taking the floppy disc and reading it in a DOS computer.

You should be able to read text files (those created by Edit). However 'top-bit set' characters are not supported. In practice this means that all the letters you can type on the keyboard, except the £ sign, will be readable. Most characters generated using !Chars will not be readable and may be translated into different characters when read on a DOS computer.

Binary and other non-text files will probably not be readable on a DOS computer.

Moving text files from a DOS computer to RISC OS

You can transfer files from a DOS computer to RISC OS by taking the files stored on a DOS-formatted floppy disc and reading it on a RISC OS computer.

The same restrictions apply in that only standard characters will be readable. The £ sign will not be readable nor will any 'top-bit set' characters. In practice this means that all the characters you can type on the keyboard except the £ sign will be readable.

Some DOS word processors end each line with a carriage return and a line feed; this makes text look double-spaced when it is read into Edit. This can be cured easily by using Edit to replace the carriage returns with nothing.

Translating file names and attributes between DOS and RISC OS

RISC OS file names are limited to 10 characters without an extension whilst DOS names are limited to eight characters with a three letter extension. The DOS interpretation of special characters is also different. File names are therefore mapped as follows:

- When copying from RISC OS to a DOS disc, names are truncated to eight characters. For example Configure becomes CONFIGUR. The RISC OS filetype of an object is preserved.
- When copying from a DOS disc to RISC OS the filename, including the extension is truncated to 10 characters. One of the characters will be a '/' which is added to separate the filename from the extension. For example, AUTOEXEC.BAT becomes AUTOEXEC/B.
- File names are only truncated if the command *Configure Truncate is set to **on**, which it is by default. If *Configure Truncate is set to **off**, an error is generated.

When copying from one DOS disc to another DOS disc (or a DOS hard disc partition), file names are never truncated. All eight characters, the dot separator and the three character extension are copied. However, when looking at the files in a directory display, only the first 10 characters are displayed and the 'dot' separator is displayed as a '/'.

File access

Since there is not a complete mapping between RISC OS file attributes and those provided by DOS, access rights are set as follows:

- A RISC OS file which is locked will be **read only** under DOS.
- A DOS file which is **read only** will be locked under RISC OS.

DOS file icons

If you display a disc that contains DOS files, the RISC OS Filer displays them with this icon.

You can copy DOS files onto any RISC OS floppy or hard disc; the files retain their DOS filetype and are not translated in any way.

If you wish, you can assign RISC OS file types to DOS file types using the *DosMap command. This will, for example, let you assign DOS files with the extension TXT the RISC OS filetype Text. For more information refer to the DosMap command in the chapter entitled *Star command summaries* on page 161.

Accessing DOS hard disc files

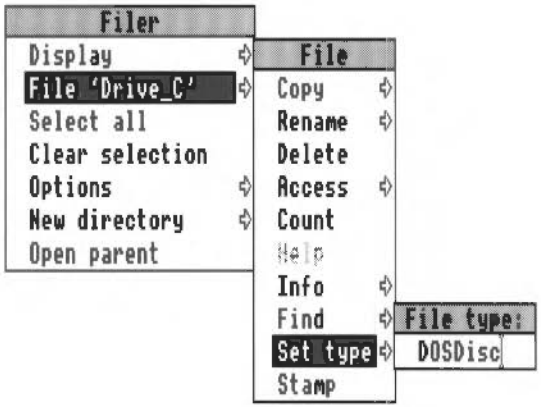
If you have a DOS hard disc file that you created using the PC Emulator, you can use the Filer to treat the file as a normal directory. This will allow you to access the DOS files in a RISC OS directory display. If you created the hard disc files using PC Emulator 1.7 or later this will happen automatically.

Before the DOS file can be accessed by the filer, you have to change its 'file type'.

To change the file type:

1. Display the directory in which your DOS hard disc file resides.
2. Click on the hard disc file.
3. Click menu and display the **Set type** box from the **File** menu.
4. Delete the wording in the **Set type** box and replace it with the name **DOSDisc.**

5 Press Return.



Your file now displays the DOS disc directory icon. Double-click on the icon to display the files on your DOS hard disc.

Copying and moving DOS hard disc files

If you wish to copy or move your hard disc file, it will be copied or moved as a single file, not as a series of files and directories.

If you wish to copy it as files and directories, double-click on the DOS directory icon, and then copy the files from within it.

Deleting DOS hard disc files

If you wish to delete your hard disc file, the Delete option on the filer will delete it as a single file (not as a directory).

You should be very careful not to accidentally delete your hard disc file.

Using Atari ST-formatted discs

Atari ST-formatted floppy discs can be used in exactly the same way as DOS-formatted floppy discs. See the previous section for details. Instructions for formatting with the Atari ST disc formats are given in the section entitled *Floppy and hard discs* on page 31.

3 Fonts

A font is a set of characters that share a similar design. Fonts are grouped into three categories:

- The **typeface** name (for example, Homerton) is common to a whole font family and describes all fonts with the same general appearance.
- The **weight** indicates the thickness of the characters. For example, a font of normal density is often called Medium, while heavily printed fonts are often called Bold.
- The **style** indicates other basic variations in the characters, for example, Italic, Oblique or Shadow.

For example the font *Homerton.Bold.Oblique* consists of the following: Homerton is the typeface. Bold is the weight. Oblique is the style.

Built-in fonts

RISC OS comes with a set of fonts permanently built into the computer's ROM. These fonts are available for use by all applications that can use fonts. The fonts are called Corpus, Homerton and Trinity:

This font is called Corpus
This font is called Homerton
This font is called Trinity

Each of these fonts also comes in Bold, Italic and Bold Italic (or Oblique) styles:

This is Corpus Medium Oblique
This is Corpus Bold
This is Corpus Bold Oblique

This is Homerton Medium Oblique
This is Homerton Bold
This is Homerton Bold Oblique

Disc-based fonts

As well as the built-in fonts, a collection of disc-based fonts is also included on the applications discs. The !Fonts application on the applications disc contains the disc fonts. To make the disc fonts available for use, you should open the directory display containing the !Fonts application. Once you have done this, the computer will then know where to find the fonts.

The fonts supplied with the !Fonts application are as follows:

This font is called System Fixed

This font is called System Medium

This font is called Portrhouse

Portrhouse is an additional font that has been designed to suit a standard monitor. However it is not an outline font, so it will begin to look ragged at large point sizes.

The system fonts are versions of the same font that is used for directory displays and icons on the desktop.

There is also a special symbol font, Selwyn. This has a character set that gives special symbols.

You can add further disc-based fonts to your !Fonts applications. See the section entitled *Adding more fonts* on page 57.

About fonts

The fonts supplied with your computer fall into two categories:

- Fixed-pitch fonts
- Proportionally-spaced fonts.

Fixed-pitch fonts (such as System font and Corpus) allow the same amounts of space for each character. An 'i' will take up the same amount of space as an 'm'.

Proportionally-spaced fonts (such as Homerton and Trinity) allocate different amounts of space to different characters. Thin characters take up less space than fat ones.

Anti-aliasing

All fonts (apart from the System font and Portrhouse) can be anti-aliased. Anti-aliasing uses shaded pixels at the edge of each character to blur the edges of a character, so making it lose its jaggedness. This makes the character look better on screen. To control the amount and type of anti-aliasing applied to each font, see the *Fonts* section of the Configuration application on page 98.

Font cacheing

The built-in fonts are stored within the ROM in outline form. When the fonts are requested for display they are processed and stored in a font cache for future use. Any subsequent use of that font will not require any processing and the characters will be displayed much faster. To control the amount and type of cacheing applied to each font, see the *Fonts* section of the Configuration application on page 98, and the *Memory* section on page 94.

For a more thorough explanation of both anti-aliasing and cacheing, see the appendix entitled *Fonts and the Font manager* on page 241.

Font size

Most applications let you select the size of the font you wish to use. The font size is measured in points, a point being 1/72 of an inch. Some applications also allow you to set the font height separately. If you want characters with different height and width values, set the size first and then the height. Acorn fonts can be sized to any height or width allowed by the application.

This is Homerton 8 point
This is Homerton 10 point
This is Homerton 12 point
This is Homerton 14 point
This is Homerton 24 point

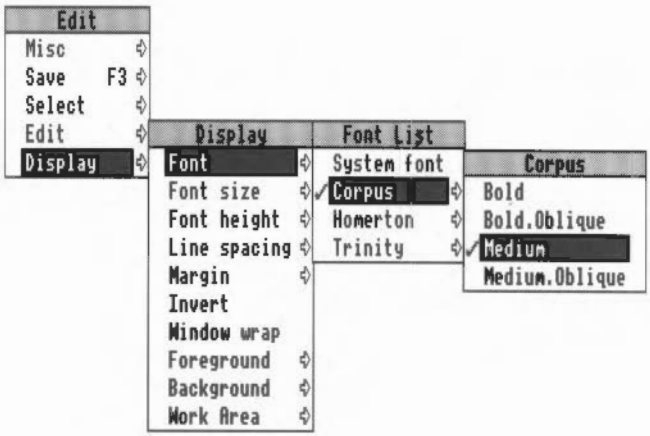
Using fonts

There are two applications in the applications suite that use fonts – Edit and Draw. These two applications use them in slightly different ways. Edit can display text in any type of font; however it can only print out in the font that is standard on your printer. On the other hand, Draw can both display and print fonts of varying size and typeface.

Fonts are used extensively by packages such as Acorn Desktop Publisher.

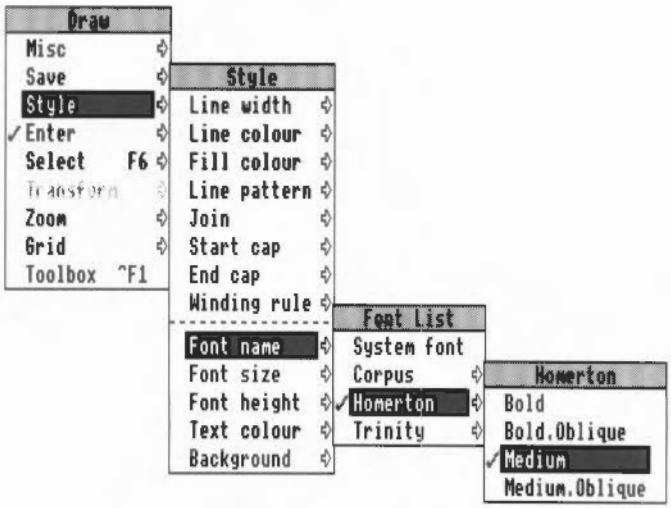
Using fonts in Edit

If you want to display your Edit text in a particular font on the screen, click Menu over the Edit window and choose the Display menu. Go to the Font menu and click on the font you wish to use.



Using fonts in Draw

You can put text using fonts into a drawing created with Draw. Select the Text tool, then click Menu over the Draw window and choose the Style menu. Go to the Font name menu and click on the font you wish to use. See the RISC OS 3 *Applications Guide* for more details.



Printing with fonts

If you have used fonts in your application, you can (if the application permits it) print out using those fonts also. Exactly the same outline fonts are used for both the screen and the printer. PostScript printers behave slightly differently.

The RISC OS printer manager program sits between the application and the printer. Printers, printing and printer drivers are explained fully in the next chapter entitled *Printing* on page 59.

Font mappings on PostScript printers

PostScript printers have their own set of fonts stored inside the printer. When you print to a PostScript printer the Acorn Screen fonts are mapped to the PostScript fonts inside the printer in the following way:

Acorn font family	PostScript font family
Trinity	Times
Corpus	Courier
Homerton	Helvetica
Selwyn	Zapf Dingbats
Sidney	Symbol

Acorn fonts not mapped directly to PostScript fonts are downloaded automatically by the printer manager as required.

Additional Acorn fonts can be mapped to PostScript fonts. For more information about using Acorn fonts with PostScript printers, refer to the section entitled *Downloading fonts to PostScript printers* on page 78.

Adding more fonts

The Applications Suite contains the utility !Fonts, which contains the Portrhouse, System and Selwyn fonts mentioned earlier. Additional Acorn fonts are available from your supplier. Some applications also supply you with additional fonts.

If you have a hard disc drive, you should normally keep your !Fonts application in the root ($) directory. If you do not have a hard disc drive, you should copy !Fonts to an empty floppy disc and use this disc to hold all your fonts.

You can have more than one !Fonts application, so if your fonts floppy fills up, or you have too many fonts to fit into a single directory, create a second !Fonts application on a new floppy disc. Make the computer recognise the new fonts contained in the !Fonts application by double-clicking on the !Fonts icon.

Adding Acorn outline fonts

These instructions show you how to copy new outline font directories into your !Fonts application.

1 Display the directory display containing !Fonts.

2 Open the !Fonts application directory (by holding down Shift and double-clicking on the icon).

3 Copy the directory containing the new font into the !Fonts application directory.

4 Close the !Fonts application directory.

5 Activate the new fonts by double-clicking on the !Fonts application.

At the start of each session in which you wish to use the fonts, you should open the directory display containing !Fonts, so that RISC OS knows where the fonts are held.

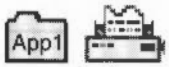
Acorn font packs contain a special program that automates the installation. Read the Acorn font pack documentation for more details.

Additional information about how to use !Fonts is given in the chapter entitled *System applications* on page 121.

Converting PostScript fonts to outline fonts

It is possible to convert standard PostScript Type 1 fonts to Acorn Outline fonts using the T1ToFont application supplied in the Application suite. For more information, look in the chapter *T1ToFont* in the RISC OS 3 *Applications Guide*.

4 Printing



All printing is handled by the printer manager, **!Printers**. The printer manager provides an interface between your printer and the file that is being printed.

Before you can start printing, you need to set up the printer manager so that it is using the correct printer driver for your printer. After that you need to set up the printer driver so that it communicates correctly with your printer.

This chapter tells you how to

- set up and connect your printer
- choose which printer driver to use
- configure the printer driver
- print a file.

It then goes on to explain further options such as:

- Screen and printer fonts
- Adding new fonts
- Using PostScript fonts
- Text formats
- Downloading and mapping fonts
- Customising printer drivers.

Setting up the printer

Before you can print from your computer, you need three things:

- a suitable printer
- a printer cable, with connectors for the computer and the printer
- an appropriate printer driver (supplied on the Applications discs).

Types of printer

Your supplier will advise you on suitable printers for your computer. RISC OS supports most types of popular dot matrix printer, such as the Epson FX and LQ and the NEC PinWriter, as well as colour printers such as the Integrex. It also supports laser printers compatible with the HP LaserJet and Apple LaserWriter (PostScript).

The following printers are among those supported:

- Acorn JP150
- Apple PostScript
- Apple ImageWriter II
- Canon Bubblejet
- Citizen Swift series
- Epson EX, FX & JX series
- Epson MX & LQ series
- HP LaserJet & DeskJet series
- IBM Proprinter series
- IBM PostScript printers
- Integrex Colourjet
- Linotype typesetters
- NEC P series
- QMS ColourScript
- Oume ScripTEN
- Star LC & XB series
- Star Laser Printers
- TI OmniLaser printer
- Most PostScript laser printers

If your printer is not on this list, check the RISC OS 3 Release Note to see if your printer is now supported. You can also often run your printer in emulation mode. Most dot-matrix printers can emulate the Epson FX or LQ printer. Most non-PostScript laser printers can emulate the HP LaserJet or DeskJet printers. Read your printer's user manual for more information.

All the printer drivers (technically, they are Printer Definition files) are contained in individual manufacturer's directories within the **Printers** directory on App 2.

You can create a printer driver that is specifically tailored for your printer. The *PrintEdit* application, described in the *Applications Guide*, allows you to create a new printer driver.

Connecting the printer

If you are connecting the printer directly to your computer you have two choices: connection via the serial port or the parallel port. Generally using the parallel port will be quicker; however not all printers have a parallel connection. Your supplier will be able to advise you on which port to use.

Your supplier will also be able to advise on a printer cable. If you are making one yourself, details of the pin connections from the computer's output ports can be found in the *Welcome Guide*. You will also need to consult the printer documentation for information on how to wire the connector to the printer. A cable suitable for an IBM PC or compatible will often be suitable for your computer.

If you are connected to an Econet network or an Ethernet network (via NFS), you may have access to a network printer. Consult your network manager for more information.

The printer manager

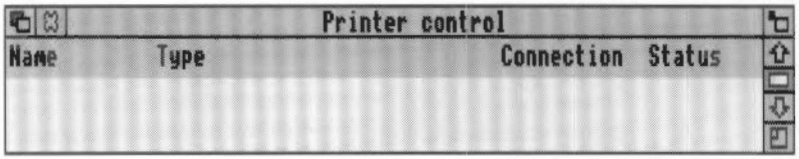
The printer manager is an application (called !Printers) that provides an interface between the printer and your application software (an editor or word processor, for example). The printer manager is used for printing files, and to provide printer support for applications.

The printer manager application uses printer definition files to tell the computer what type of printer you are using. These files are contained in individual manufacturer's directories within the **Printers** directory in App 2.

The rest of this chapter tells you how to load and set up the printer manager.

Loading the printer manager

Load the printer manager by double-clicking on the !Printers icon. After a few seconds the printer manager icon appears on the icon bar. Click Menu over the Printers icon and then choose the **Printer control** menu option.



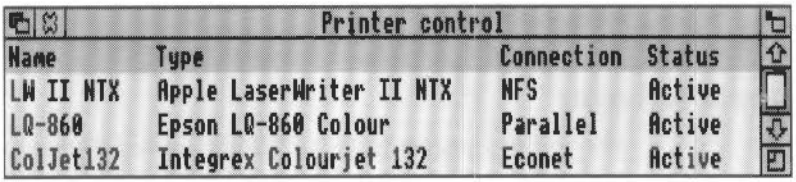
This displays the Printer control panel. The next step is to load a printer driver.

Loading printer drivers

Load a printer driver by opening the **Printers** directory in App 2. This contains the printer driver directories. There is a directory for each printer manufacturer. Open the directory that corresponds with the manufacturer of your printer.

Choose the appropriate printer driver for your printer; the driver will have a similar name to that of your printer. Drag the appropriate printer driver onto the Printer control window. The printer name will appear in the window.

If you want to have more than one printer loaded, drag additional printer drivers to the Printer control window.



Choosing a printer type

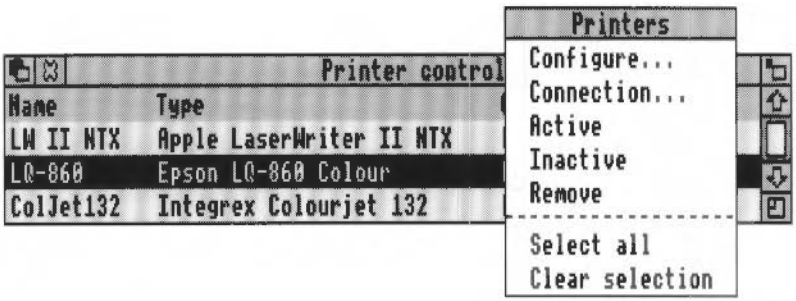
You should choose the printer type that is closest to the printer you have. If your printer is not listed, it may have a compatibility mode that can be selected. 9-pin dot matrix printers can usually emulate the Epson FX printer, while 24-pin dot matrix printers can usually emulate the Epson LQ printer; your printer manual should give details.

Non-PostScript laser printers can often emulate the HP LaserJet or have a compatibility mode that emulates the HP LaserJet (or DeskJet); again, your printer manual should give details.

Choosing the right configuration

After you have loaded your printer driver, you must choose the correct printer type and configuration to give the results you want.

To display the configuration window, either double-click on the printer driver in the printer control window, or select the printer entry and choose the **Configure** option from the Printer control window menu.



If you want to change the configuration of a printer that is already on the icon bar, then click on the printer icon on the bar while holding down Shift.

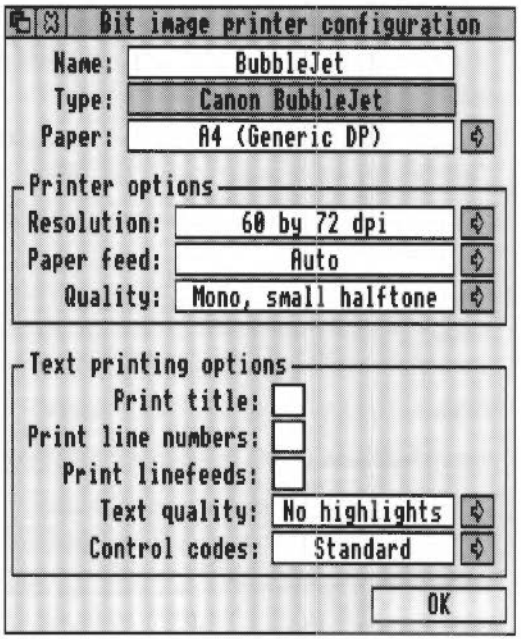
Classes of printers

There are three classes of printers; each has a slightly different configuration menu. These are:

- PostScript compatible printers (type PS).
- LaserJet and DeskJet compatible printers (type LJ).
- Dot-matrix and Inkjet printers (type DP).

In the following sections, each configuration type is explained separately.

Configuring Dot-matrix and InkJet printers



Dot-matrix and Inkjet-type printers use the Bit-image configuration window.

Choosing the printer name and paper type

The **Name:** box gives the name that will appear beneath the printer icon. You can, if you wish, change this to something more meaningful for you.

The **Paper:** box gives the paper size to be used by the printer. This is usually A4 (Generic DP) in Europe. If you want to change the paper size, click on the righthand arrow icon; this displays the **Paper sizes** menu. Choose the alternative

paper size you wish to use. The paper sizes marked **Generic DP** are usually best for non-PostScript type printers. It is also possible to generate other page sizes using the **Edit paper sizes option** from the icon bar menu; see page 71 for more details.

Printer options

The printer **Resolution** menu can be displayed by clicking on the righthand arrow icon. Increasing the resolution usually gives a better quality image, but printing usually takes longer.

The **Paper feed** menu can be displayed by clicking on the righthand arrow icon. This menu lets you choose between Auto and Manual paper feed. Choose **Auto** if your printer has a sheet feeder or uses fanfold paper. Choose **Manual** if you have to insert each page by hand while printing is under way; you will then be prompted to insert paper at the end of each page. Choose **Roll** if your printer is using a roll of paper.

The **Quality** menu lets you choose the type of printout quality. Click on the righthand arrow icon to display the menu.

Mono prints black and white output only. It does not halftone fonts or sprites; it only halftones Draw files.

Grey prints pictures in shades of grey. It halftones all types of files. You should always choose this option, unless speed of printing is more important than print quality, in which case choose **Mono** instead.

Colour prints in colour on colour printers.

Small halftone prints in 4x4 pixel halftones for grey scales and colour.

Large halftone prints in 8x8 pixel halftones for grey scales (no colour). Large halftones give better quality than small halftones.

Dithered gives the best quality results, especially for grey scale pictures. However it takes longer to print than the halftone options.

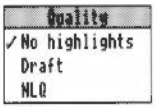
Text printing options

The text printing options allow you to control the way text is printed from an editor (such as Edit). Many applications override these options and replace them with other parameters.

Print title puts the filename, time, date, and page number at the top of each page.

Print line numbers puts line numbers at the beginning of each line.

Print linefeeds sends a linefeed to the printer (as well as a carriage return) at the end of each line. If you find that your printer is producing a blank line after each line of text, you should turn this option **off**. If your printer is printing everything on one line, then you should turn this option **on**.

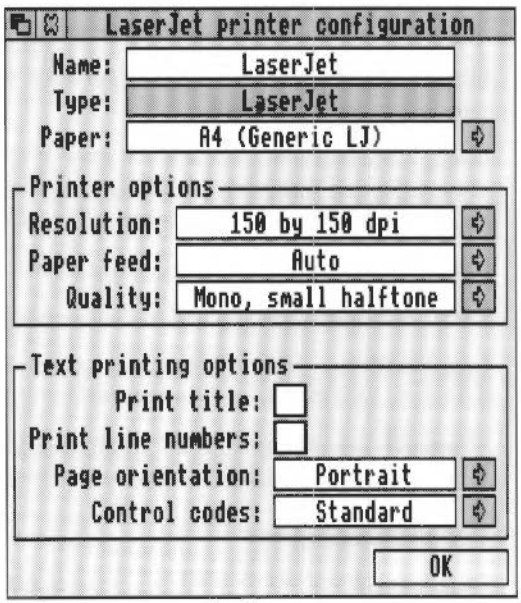


Click on the righthand arrow icon to display the **Text quality** menu. Text quality can be either **No highlights, draft** or **NLQ** (near letter quality). NLQ looks better but takes longer. (NLQ also uses more ink and wears the printer ribbon out quicker).

Click on the righthand arrow icon to display the **Control codes** menu. Control codes alter the way in which text files are printed. This should normally be set to **Standard**. **Display** causes all control codes and top-bit-set characters to be printed in hexadecimal notation. **Ignore** causes all control codes and top-bit-set characters to be ignored.

When you have finished configuring your printer, click on **OK**. If you want to go back to your old settings, ignoring any changes you may have made, click on the Close icon.

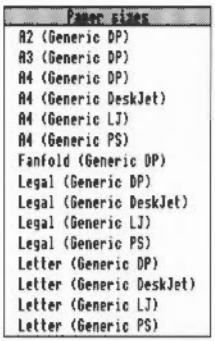
Configuring LaserJet printers



LaserJet is the collective name given to all laser printers that can emulate the HP LaserJet printer.

Choosing the printer name and paper type

The **Name:** box gives the name that will appear beneath the printer icon. You can, if you wish, change this to something more meaningful for you.

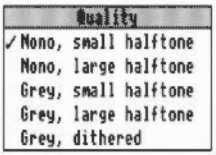


The **Paper:** box gives the paper size to be used by the printer. This is usually A4 (Generic LJ) in Europe. If you want to change the paper size, click on the righthand arrow icon; this displays the **Paper sizes** menu. Choose the alternative paper size you wish to use. The paper sizes marked **Generic LJ** are usually best for LaserJet type printers. It is also possible to generate other page sizes using the **Edit paper sizes option** from the icon bar menu; see page 71 for more details.

Printer options

The printer **Resolution** menu can be displayed by clicking in the righthand arrow icon. Increasing the resolution usually gives a better quality image, but printing usually takes longer.

Paper feed menu can be displayed by clicking on the righthand arrow icon. The menu lets you choose between Auto and Manual paper feed. Choose **Auto** if your printer has a sheet feeder or uses fanfold paper. Choose **Manual** if you have to insert each page by hand while printing is under way.



The **Quality** menu lets you choose the type of printout quality. Click on the righthand arrow icon to display the menu.

Mono prints black and white output only. It does not halftone fonts or sprites; it only halftones Draw files.

Grey prints pictures in shades of grey. It halftones all types of files. You should always choose this option, unless speed of printing is more important than print quality, in which case choose **Mono** instead.

Colour prints in colour on colour printers.

Small halftone prints in 4x4 halftones for grey scales and colour.

Large halftone prints in 8x8 pixel halftones for grey scales (no colour). Large halftones give better quality than small halftones.

Dithered gives the best quality results, especially for grey scale pictures. However it takes longer to print than the halftone options.

Text printing options

The text printing options allow you to control the way text is printed from an editor (such as Edit). Many applications override these options and replace them with other parameters.

Print title puts the filename, time, date, and page number on each page.

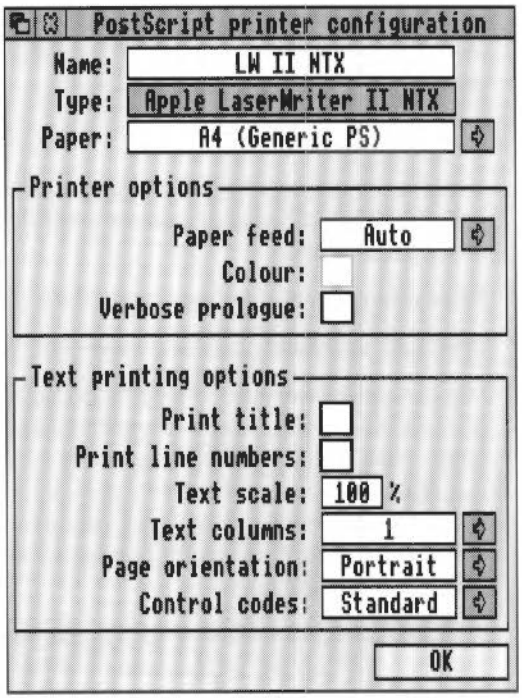
Print line numbers gives each page line numbers.

Click on the righthand arrow icon to display the **Page orientation** menu. Page orientation allows choice of portrait or landscape orientation text. Portrait prints along the shorter side of the paper while landscape prints along the longer side.

Click on the righthand arrow icon to display the **Control codes** menu. Control codes alter the way in which text files are printed. This should normally be set to **Standard**. **Display** causes all control codes and top-bit-set characters to be printed in hexadecimal notation. **Ignore** causes all control codes and top-bit-set characters to be ignored.

When you have finished configuring your printer, click on **OK**. If you want to exit without saving your changes, click on the Close icon.

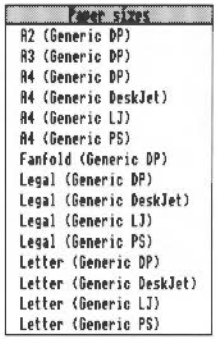
Configuring PostScript printers



PostScript is the name given to all laser printers that are PostScript-compatible.

Choosing the printer name and paper type

The **Name:** box gives the name that will appear beneath the printer icon. You can, if you wish, change this to something more meaningful for you.



The **Paper:** box gives the paper size to be used by the printer. This is usually A4 (Generic PS). If you want to change the paper size, click on the righthand arrow icon; this displays the **Paper sizes** menu. Choose the alternative paper size you wish to use. The paper sizes marked **Generic PS** are usually best for PostScript type printers. It is also possible to generate other page sizes using the **Edit paper sizes option** from the icon bar menu; see page 71 for more details.

Printer options

Paper feed menu can be displayed by clicking on the righthand arrow icon. Normally the **Paper feed** option should be set to **Auto**. If you are feeding paper or envelopes through the manual feed choose **Manual**.

Choose **Colour** if you are printing in colour on a colour PostScript device.

Choose **Verbose prologue** if you wish to declare all of the PostScript printer fonts. However, most applications are satisfied with a simple prologue. This option gives you the same prologue as that used by the RISC OS 2.00 printer drivers; it is included for backward compatibility only. Do not choose this option unless your application requires it.

Text printing options

The text printing options allow you to control the way text is printed from an editor (such as Edit). Many applications override these options and replace them with other parameters.

Print title puts the filename, time, date, and page number on each page.

Print line numbers gives each page line numbers.

You can adjust the size of the printed type by giving a **Text scale** factor. PostScript printers have a wide range of available sizes, so you can scale the text to suit your taste. 100% gives standard sizes, 200% uses twice the size, and 50% gives half the size (twice as many characters per inch). The scale factor is in the range 20% to 999%. However there must be at least 10 characters on a line, so more than 700% will give an error if used with portrait mode. You can select a different scale factor for each orientation.

Click on the righthand arrow icon to display the **Text columns** menu. Text Columns specifies the number of columns of text to be printed on each sheet of paper. The printer manager remembers the two chosen values – one for portrait and one for landscape printing.

Click on the righthand arrow icon to display the **Page orientation** menu. Page orientation allows choice of portrait or landscape orientation text. Portrait prints along the shorter side of the paper while landscape prints along the longer side.

Click on the righthand arrow icon to display the **Control codes** menu. Control codes alter the way in which text files are printed. This should normally be set to **Standard**. **Display** causes all control codes and top-bit-set characters to be printed in hexadecimal notation. **Ignore** causes all control codes and top-bit-set characters to be ignored.

When you have finished configuring your printer, click on **OK**. If you want to exit without saving your changes, click on the Close icon.

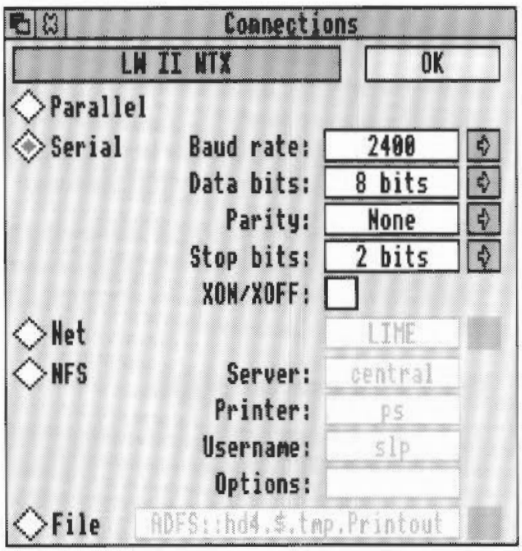
Communicating with the printer

This section applies to both PostScript and non-PostScript printers

Once you have loaded the printer driver, you must set it up so that it can communicate with the printer.

Click Menu over the Printer control window and choose the **Connection** option. This displays the Connections window.

The printer driver can send printed output to the printer using the **Parallel** port, the **Serial** port or through a **Net** or **NFS** network port; additionally it can save printer output in a **File** for later printing. The communications port you choose will depend upon your printer and printer cable. Check with your supplier for more details, or read your printer manual.



Choose one of the following connection options:

Parallel allows you to connect a printer to the parallel port.

Serial allows you to connect a printer to the serial port. You can set the Baud rate, Data bits, Parity, Stop bits and XON/XOFF. To alter the values, click on the righthand arrows and choose a new value.

Net allows you to connect to a network printer. To change the name of your printer, click on the righthand arrow and choose a new printer. Alternatively you can type in the name or station number of the printer to use. You must have a network connection to use this option.

NFS allows you to connect to printers available on NFS networks. You cannot use this option unless you are already running Acorn's TCP/IP communication protocol product. For an explanation of how to fill in the NFS fields, ask your network manager. Alternatively read the TCP/IP *Protocol Suite User Guide*. You must have an Econet or Ethernet network connection to use this option.

File allows you to send printer output to a file. Type the name of the file into the File field (using the complete pathname). Alternatively click on the righthand arrow and drag the **Save as** box to the desired directory display; your output will now be directed to this file.

If you want to change the printer connection of a printer that is already set up on the icon bar, click Adjust on the printer icon while holding down Shift.

Activating the printer

Once you have set up the configuration and connection options correctly, you must make the printer ready for use by clicking on **Active** in the Printer control menu. When you do this the printer icon on the icon bar changes to reflect the printer you have chosen. You can now start printing.

The Printer control menu also allows you to make a printer **Inactive**, so that it can't be used. Additionally you can remove a printer from the Printer control window by choosing the **Remove** option. The next section, *Saving your choices*, shows you how to save changes permanently.

Using more than one printer

If you have dragged more than one printer to the Printer control window you can activate them all. A printer icon is displayed on the icon bar for each active printer. This facility can be useful if you have a printer connected directly to your computer, and you also have access to another printer connected via a network.

Although you can have many printers activated on the icon bar, only one of these printers is highlighted; all of the others are greyed out. When you click on the Print option in an application, the file to be printed is sent to the highlighted printer.

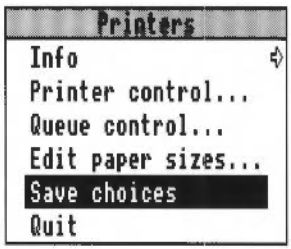
You can choose to print using a different printer by clicking on that printer's icon on the icon bar. This highlights the new printer driver and greys out the old one.

You can also print using any of the printer drivers (highlighted or not) by dragging files onto the desired printer's icon.

Saving your choices

You should save any changes you make to the settings for your printer, otherwise you will have to go through the setting up procedure again, next time you start the printer manager. To do this, click on the **Save choices** option on the printer icon bar menu.

Once you have saved your setting, the printer manager automatically loads your activated printer driver onto the icon bar each time you start the printer manager.



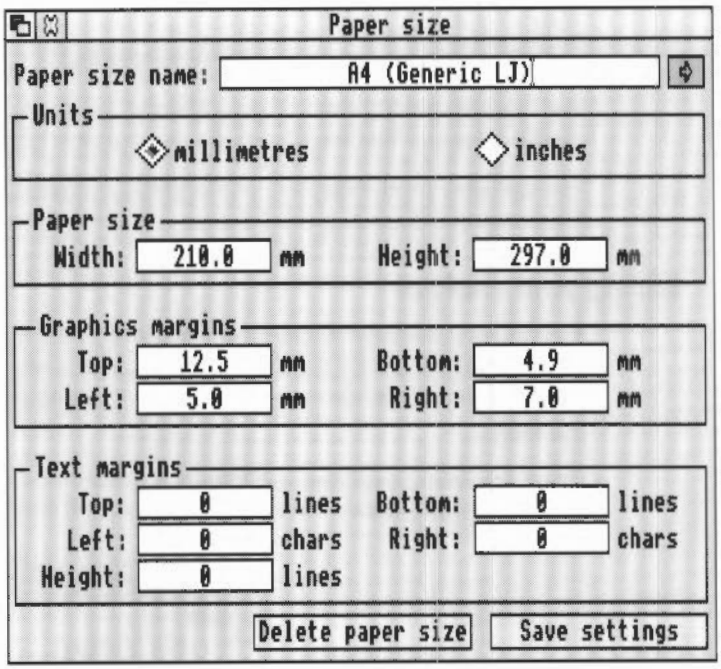
Editing paper sizes

You can, if you wish, set up new page sizes for your printer. From the icon bar menu, display the **Edit paper sizes** dialogue box.

From this dialogue box you can select your paper size by clicking on the righthand arrow and choosing a paper size.

These are:

- A2 – 549.8 mm by 420 mm
- A3 – 420 mm by 297 mm
- A4 – 297 mm by 210 mm (the default option)
- Fanfold – 279 mm by 203mm
- Letter – 279.4 mm by 215.9 mm
- Legal – 355.6 mm by 215.9 mm



These are the generic types of page size. Additional sizes that fine tune these dimensions are also given for the various printer types: DP for dot-matrix printers, PS for PostScript printers and LJ for LaserJet and DeskJet for DeskJet printers. These additional sizes define the Graphics and Text margins for the printers.

Defining your own paper dimensions

Once you have selected your basic paper size you can fine tune it to your own requirements. You can change the name in **Paper size name** and change the **Paper height** and **width** if you are using a special sized paper. Finally you can change the margins within which text and graphics will be printed. Click on the **Save settings** box to save the new paper dimensions for future use.

PostScript printers, and some other printers, need to know which tray to take paper from. This information is derived from the Paper size name. The name should therefore be in the form `paper size (name)`, where the `paper size` is the size of the paper in the paper tray. For example, A5 (memo-letter) will use paper in the A5 tray.

Graphics margins

The graphics margins must reflect the true printable area of the page (look this up in your printer manual). The margins ensure that graphics are printed properly and they are also used by applications (such as Draw). The margins correspond to those of a portrait page; landscape page values are worked out automatically. The graphics margins exist to tell the printer where to print on a piece of paper. The margins cannot be used to, in effect, move the printed result around on the page.

Text margins

Text margins are measured as relative to the printable area of the page (defined by the graphics margins). The **Left** and **Right** margins are measured in characters and the **Top** and **Bottom** margins measured in lines. The **Height** is the total number of lines on a page, including the text margins. If you want to move the position of the text output on the page, alter the text margin settings.

PostScript and HP LaserJet compatible printers

For these printers, the total number of lines per page and characters per line are determined automatically.

The printer is configured to use 10 characters per inch and 6 lines per inch in portrait orientation and 14 characters per inch and 8.5 lines per inch in landscape orientation.

A LaserJet II cannot match these defaults exactly and uses its internal font at 10 characters per inch and 6 lines per inch in portrait orientation and 16.66 characters per inch and 8 lines per inch in landscape orientation instead.

PostScript printers determine the font size from the **Text scale** and **Text columns** values in the **Configure** dialogue box.

Changing the page length on Dot-matrix printers

If you require an unusual page length you should set it by altering the Text margins Height box, as well as in the graphics margins. For example, if you are printing labels, you may have six rows of labels on a sheet of A4 paper. Set the Text height to be something like 11 lines so that the printer will form feed to the start of the next label correctly. This is because the Text height is used to tell the printer how long the paper is for both text and graphics printing.

Saving your choices

To save any changes you make in the Page size dialogue box, click on **Save settings**; this saves them for the current session. If you wish to save the changes permanently, you should click on the **Save choices** option in the icon bar menu.

If you wish you can delete a paper size by selecting it and then clicking on **Delete paper size.** You can only delete sizes that you have created or altered. When you have finished, close the window by clicking on the close icon.

Printing a file

Now that you have connected a suitable printer, loaded a matching printer driver and configured it to suit the printer and the job you want to print, you are ready to start printing.

To print a Draw file, Paint file or other application file, drag the file onto the printer driver icon. If the application is not already running, it will be loaded before the file is printed (as long as the filer has 'seen' the application). For example, if you want to print a Draw file, Draw will be loaded onto the icon bar. However Text files are printed directly (!Edit is not loaded). While a file is being printed, **Printing** appears beneath the icon.

Paint and Draw files and those of many other applications can also be printed by selecting **Print** from the appropriate menu in each application; alternatively you can press the Print key.

When the printer manager is loaded, it also loads a printer module, which can be used without the user interface offered by the printer manager. If you are short of memory you may find it convenient to use this module on its own: for example, when you are printing graphics from Draw (you can't use the module on its own when printing from Edit). To do this, install the printer in the normal way, and then remove it from the icon bar by selecting **Quit** from the icon bar menu. The printer icon will now disappear, but the printer module remains behind.

Printing several files

You can print several files one after another, either by opening their directory display, selecting the files to be printed and then dragging their icons onto the printer icon, or by dragging more file icons onto the printer icon while printing is in progress. The names of files to be printed are placed in a printer queue.

Pressing the Escape key

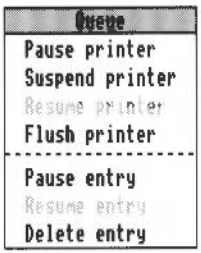
You can stop a print job at any time by pressing the Escape key. After pressing Escape you should then reset your printer. This allows the printer to be 'off-line' again.

Queue control

If you want to print several files, you do not have to wait until one has finished printing before sending the next. Files to be printed wait in a print queue until the printer is ready for them. This way you can carry on with your work at the same time as the printer is printing.

To control the print queue, choose **Queue control** from the icon bar menu. This displays a list of files to be printed in the **Printer queue** window. You can also display this window by clicking Adjust on the printer icon on icon bar.

Menu over the first entry in the queue



Clicking Menu over the first entry in the Printer queue window displays the **Queue** menu from which you control the printer.

Pause printer stops sending your file to the printer. The rest of the unprinted part of the currently printing file is not printed until you click on **Resume printer**.

Suspend printer prints the file currently being printed and then stops the printer. No further files are printed until you click on **Resume printer**. The printer queue is frozen in its current state.

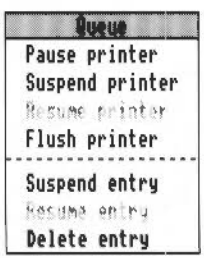
Flush printer deletes the entire print queue so that no more files are printed or queued.

Pause entry stops the current entry printing and carries on with the next entry in the print queue.

While an entry is suspended, it can be removed from the queue completely with **Delete entry.**

Menu over subsequent entries in the queue

If you Menu over one of the other entries in the printer queue (an entry not currently printing) you can choose the additional **Suspend entry** option. **Suspend entry** stops the printer from printing a file in the print queue. The print queue 'jumps over' the suspended file. The file can be put back in the queue to be printed by clicking on **Resume entry**.



Advanced printing

You should now know enough about printing to be able to set up the printer manager to print with your printer. The rest of this chapter deals with some of the more advanced aspects of printing. These are:

- Types of text printing – plain and fancy
- Speeding up graphics printing
- Printing 1st Word Plus files
- Downloading and mapping fonts to PostScript printers.

Unless you are interested in one of these areas, you don't need to read the rest of this chapter.

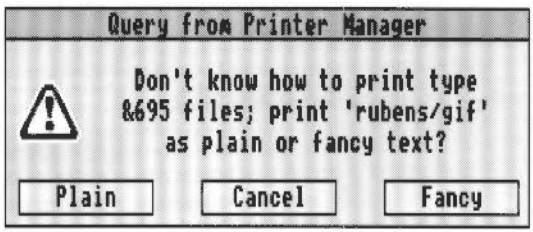
Plain and fancy text printing

Text printing (such as printing from Edit) uses the printer's own internal font to print in.

There are two types of text printing – *Plain* and *Fancy*. The way in which a file is printed depends upon its type:

- Command and Obey files are always printed as plain text
- Text files are always printed as fancy text
- PostScript files (with the file type PoScript) are sent to the PostScript printer for interpretation
- Other files check with their application (eg Draw files check with !Draw) to see how they are printed.

If the original application cannot be found, a dialogue box asks if the file should be printed as plain or fancy text.



If you see this message you should try to find the application that the file requires to print properly. If you don't have the application, try printing it using the **Plain** option. The **Fancy** option is most often used to print files created using 1st Word Plus.

Speeding up graphics printing

This section refers only to dot-matrix, inkjet and HP LaserJet type printers; PostScript printers handle graphics printing in a different way.

Graphics printing can be slow. However you can speed it up in the following ways:

- Print in monochrome instead of Grey scale. You only need grey scale if you are printing fonts, or printing sprites in shades of grey or in colour.
- Maximise the free memory in your computer by quitting all the applications you are not currently using, any RAM disc you may have, changing to a different screen mode (mode 0 or mode 11 are better) and reducing the system sprite memory.
- Configure a fairly large font cache – at least 128KB. The font cache can be temporarily changed using the Task manager. See page 103 for information.
- Increase the size of the printer buffer using the *Configure PrinterBufferSize command. See page 172 for more information.

Printing 1st Word Plus files

1st Word Plus is a word processor, available from your Acorn dealer. You can print 1st Word Plus files when 1st Word Plus is not running by dragging the files onto the printer icon in the normal way.

If your 1st Word Plus file contains sprites, they will not be printed if you use this method; instead, use the printer drivers supplied with 1st Word Plus. You should also use the 1st Word Plus printer drivers if your document uses footnotes.

If 1st Word Plus is running, you can still print using the printer manager, but printing will in fact be controlled by 1st Word Plus. It is therefore still essential in such circumstances that you set the features you need on the 1st Word Plus keypad.

Printing 1st Word Plus files using the other printer drivers

For successful printing, you will need to do *one* of the following:

- Ensure that the computer has not 'seen' the 1st Word Plus application directory during the current session.
- Enter the Command Line (Press F12) and type:

```
*Unset Alias$@PrintType_AF8
```

- Edit two files within 1st Word Plus itself: the !Boot file and the !Run file. Remove the following line from both of these files:

```
*Set Alias$@PrintType_AF8 Run <Obey$Dir>.!Run %%*0 -print
```

The fancy text format

Fancy text format understands text printing options such as Paper feed, Title, Number lines, Print quality and Control codes. Plain text format ignores these settings.

The fancy text file format is mainly the same as the 1st Word Plus file format, and so most of the highlighting (in 1st Word Plus files) is printed correctly. This means you don't have to load 1st Word Plus to print out your 1st Word Plus files (although you can't print sprites). The fancy text file format is described in detail in the appendix entitled *The Fancy text file format* on page 247.

Downloading fonts to PostScript printers

Dot-matrix, LaserJet and InkJet printers use RISC OS fonts for both displaying text on screen and for graphics printing. PostScript printers, however, use RISC OS fonts for displaying text on screen and use PostScript fonts for printing. These PostScript fonts are can be both built into the printer and downloaded (sent from) by the computer.

Whenever you send a file to the printer, the printer manager:

1. Converts (or maps) any Acorn fonts needed to PostScript fonts.
2. Sends the fonts to the printer.
3. Sends the file to be printed.
4. After the file is printed, it erases the downloaded fonts from the printer's memory.

The printer manager uses the printer's built-in PostScript fonts when they are available, speeding up printing text files considerably.

If you constantly use fonts that are not resident inside the PostScript printer, you may find that your files print faster if you pre-send (download permanently) the fonts when you first start using the printer manager. Permanently downloaded fonts stay inside the printer, ready for use, until the printer is reset or switched off.

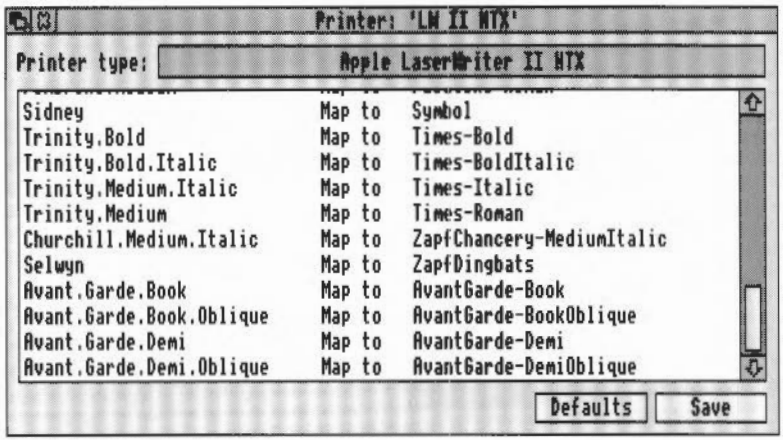
Downloading fonts 'permanently'

The application *FontPrint* is used to download fonts to the printer, where they will stay resident until you reset the printer. Before running Fontprint you must have the printer manager application *Printers* loaded onto the icon bar. The printer manager must also be active and configured for your PostScript printer.

To prepare fonts for downloading:

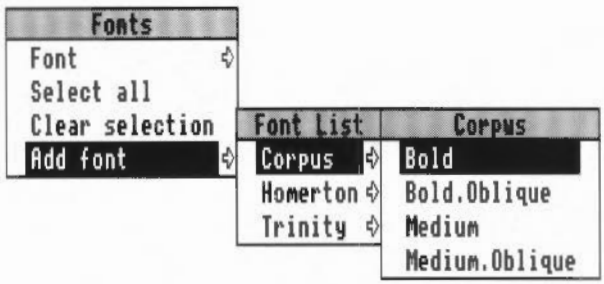
1 Load FontPrint onto the icon bar by double-clicking on its icon.

2 Click Select on the FontPrint icon bar icon to display the FontPrint window.

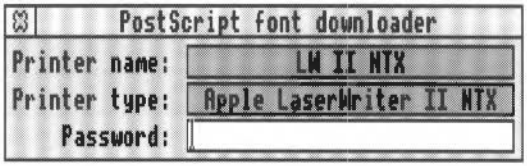


3 Click Menu over the window to display the **Fonts** menu.

4 Select the Acorn fonts that you wish to download by choosing the fonts from the **Add font** submenu. They will be added to the FontPrint window at the end of the list.



5 When you have selected the fonts you wish to download, click on the **Save** box. This saves the download information within the printer manager.



6 The PostScript font Password box is displayed. You should now type in the password for your printer. Unless the password has been changed, the printer will have the password '0' (the number zero). The fonts will only be downloaded if you type in the correct password.

When you clicked on the Save box you stored the information about which fonts you wanted downloaded.

The printer manager will now download your chosen fonts to the printer whenever the printer manager is started. It will also ask you to enter the printer password each time.

Mapping Acorn fonts to PostScript fonts

Instead of Acorn fonts being downloaded to the printer they can instead be mapped to a corresponding PostScript font.

What is mapping?

Mapping is the technique by which an Acorn font is used by the computer, but the equivalent PostScript font is used by the printer. For example, the Acorn font Homerton.Medium is always mapped to the PostScript font Helvetica. This way the built-in PostScript fonts are used whenever possible.

You don't need to use this mapping facility unless you have purchased **additional** fonts that you wish to map to PostScript fonts. All of the Acorn fonts that are supplied with your computer are automatically mapped to PostScript fonts.

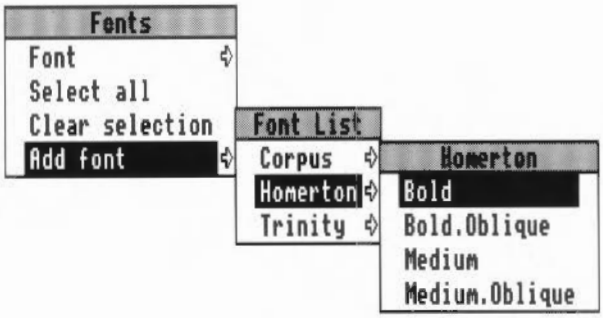
If you have added additional fonts to the !Fonts application you may want to map these to fonts in the PostScript printer. Mapping and downloading can be mixed: some fonts can be mapped while others are downloaded.

To map an Acorn font to a PostScript font:

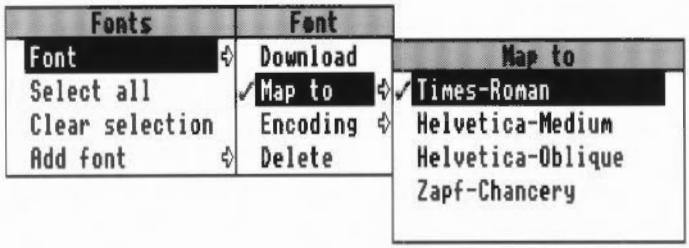
1 Load FontPrint and display the FontPrint window.

2 Click Menu over the window to display the **Fonts** menu.

3 Select the Acorn fonts that you wish to map to PostScript fonts by choosing the fonts from the **Add font** submenu. They will be added to the FontPrint window at the end of the list.



4 Once you have chosen the fonts, highlight each one in turn and map them to the corresponding PostScript font using the **Font/Map to** submenu. The **Map to** menu lists the fonts available on the printer.



5 When you have finished mapping the fonts, click on the **Save** box. This saves the file within the printer manager. The printer manager will now use this file to map fonts to your chosen printer whenever the printer manager is run.

Mapping to a non-standard PostScript font

If you wish to map to an additional PostScript font which is resident in the printer, but which is not in the standard list of fonts in the printer driver, you can add this additional PostScript name in the writeable field at the end of the Map to sub-menu.

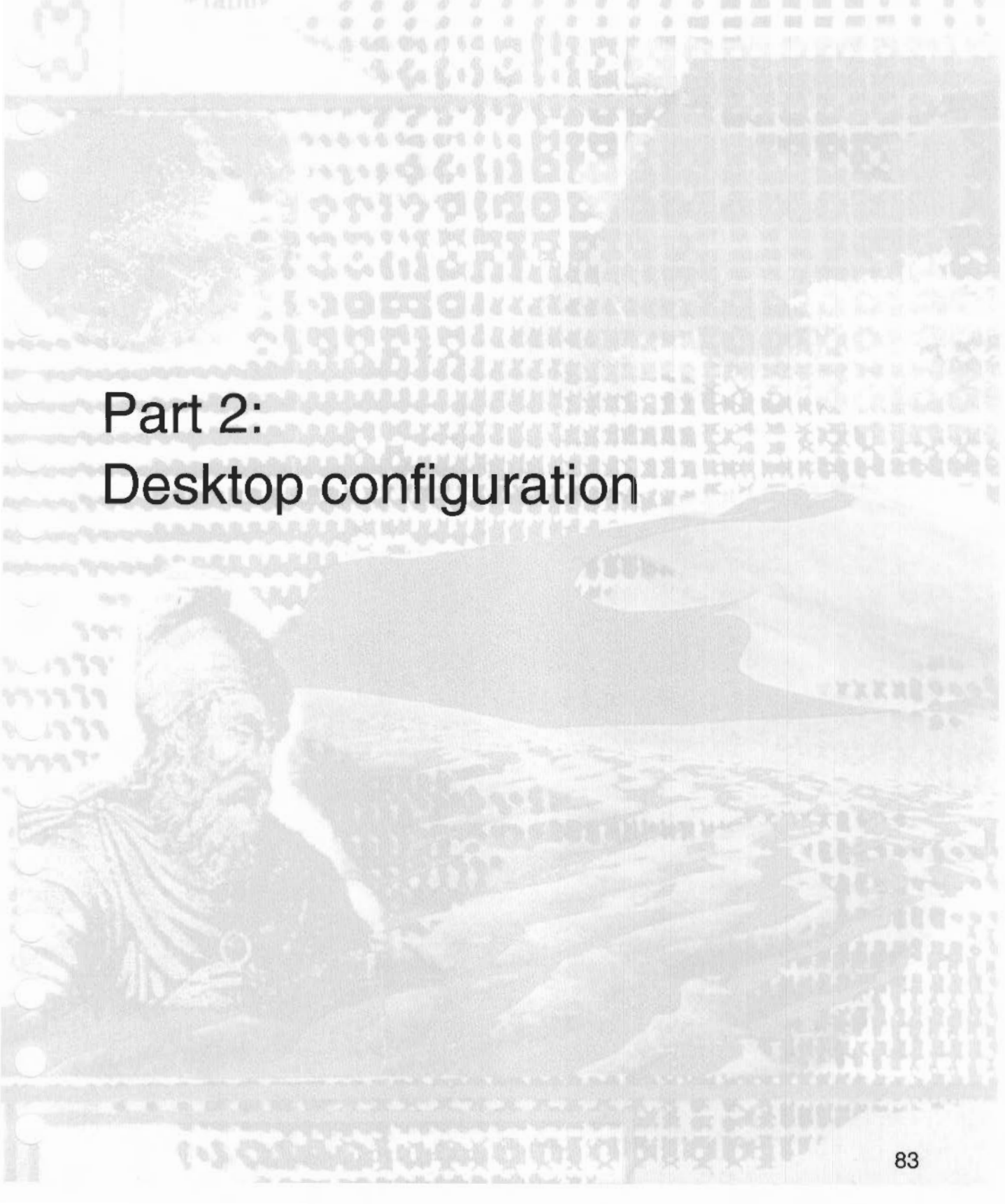
Choosing the encoding type

If you are mapping fonts, you can also choose **Encoding** from the **Font** menu. The encoding type determines the character set used by the PostScript printer. Most fonts will use the Adobe standard encoding; this is the default encoding.

Bitmap fonts

Bitmap fonts, such as Portrhouse, cannot be downloaded to a PostScript printer.

Part 2:
Desktop configuration



5 Setting the configuration

Your computer will function well with the default settings that were set up when the computer was made. However you can change most of the settings that affect RISC OS configuration to suit more closely your own particular way of working, by using the application **!Configure**. Changes to the configuration mostly take effect as soon as you make them, and are maintained when you switch the computer off.

With Configure you can change the configuration of the

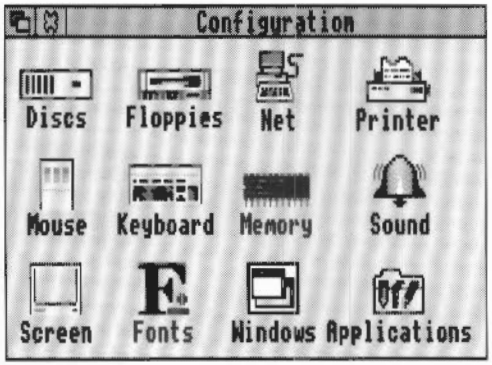
- hard discs and floppy discs
- networks and printing
- sound and screen
- windows and memory
- mouse and keyboard
- applications and fonts.

Warning: You should always keep a saved copy of the configuration of your computer so that you can restore the configuration to its original state. See the section entitled *Saving and loading configurations* overleaf.

Starting Configure

To start Configure, double-click on its icon in the Apps directory display.

The icon appears on the icon bar. Open the Configure window by clicking on the Configure icon on the icon bar.



To open any of the Configure option dialogue boxes, click on the relevant icon. For example, to change the sound system configuration, click on the sound icon. The table below shows the icons to choose to carry out specific configuration tasks:

To set the:	Choose
Hard disc drive configuration	Discs
Floppy disc drive configuration	Floppies
Network configuration	Net
Printer configuration	Printer
Sound configuration	Sound
Monitor configuration	Screen
Window behaviour	Windows
Memory allocation	Memory
Mouse gearing	Mouse
Keyboard rate	Keyboard
Application start-up	Applications
Font configuration	Fonts

Saving and loading configurations

You should always keep a copy of your own configuration file so that if you lose your configuration you can easily and simply restore it. The configuration can be lost (or partly lost) by

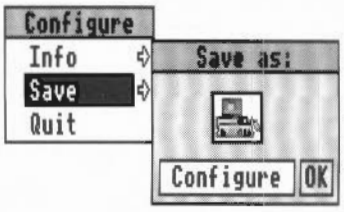
- the computer's internal battery failing
- using one of the special power-on reset combinations
- using an unwise *Configure command
- changing Configure without remembering your initial settings.

To save a configuration:

1 Press Menu on the Configure icon on the icon bar.

2 From the **Save** option display the **Save as** dialogue box, showing the special Configure icon.

3 Type in the filename you want, and save it by dragging the icon to a directory display. Keep a copy on floppy disc in a safe place.



You may also find it convenient to save more than one configuration; perhaps your computer is used by someone else who prefers a different setup from you.

You should keep your configurations on a floppy disc and keep them in a safe place. If the configuration in your computer is lost for any reason (when the CMOS RAM is cleared by a Delete power-on for instance) you will need to restore your configuration settings from disc.

Restoring a configuration

You can restore a configuration by dragging a previously-saved configuration file icon onto the Configure icon on the icon bar. However it is simpler just to double-click on the configuration file.

What is in a configuration file?

Configuration files record only those features that you can set using the Configure application, but not the aspects of your computer's configuration that can be changed using the Command line. You should keep a separate note of changes you make to the configuration via the command line. For more information about commands available from the command line, read the chapter entitled *Accessing the command line* on page 127.

The configuration file may prove particularly useful if you are running an application that uses a large proportion of the computer's memory. Such an application's documentation should contain advice about how to change configuration details so as to release as much memory as possible, but this may produce a configuration that, while it is useful for a particular application, may not suit your usual requirements.

You could therefore save several configuration files, each optimised to a particular application or way of working that you could use whenever necessary.

Quitting Configure

To exit from Configure, click Menu over the Configure icon, and select **Quit**. You can also close the Configure window, leaving the program running, by clicking on the Close icon. If you do this, the window can be re-opened by clicking on the Configure icon.

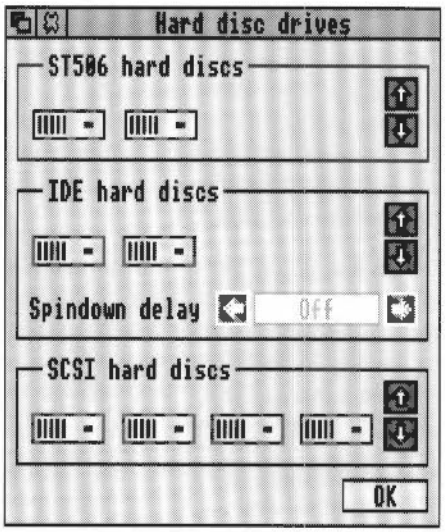
The configuration windows

The configure windows use some special conventions:

- When you click on the single righthand arrow a menu is displayed. You can also click Menu to display the menu.
- When you type a number or word into a box, make sure you always press Return, otherwise your typing will not be remembered by the computer.

Discs

Click on the up and down arrows to change the number of hard disc drives you have in your computer.



You can have

- up to two ST506 hard discs
- up to two IDE hard discs
- up to four SCSI hard discs.

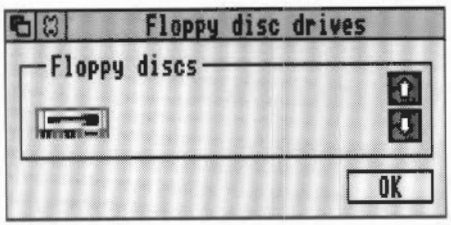
Usually your computer will only support one type of hard disc (ST506, IDE or SCSI). As a guide, computers introduced before A5000 have ST506 discs, except for A540, which has a SCSI disc (clicking Menu on the drive icon will display a SCSI menu). A5000 and later computers are fitted with IDE discs. Consult your supplier if you are in any doubt.

When you have selected the number of hard discs, click on **OK** to make the changes. Do not select a different number of hard discs from those actually in your computer as this may cause problems.

If you have a portable computer you can also set the IDE disc drive **Spindown delay**. This is the interval between the last disc access and the disc drive motor being turned off. Once the motor is turned off, the drive is reactivated (the motor is turned on again) as soon as you access the hard disc. Turning the motor off helps save the batteries.

Floppies

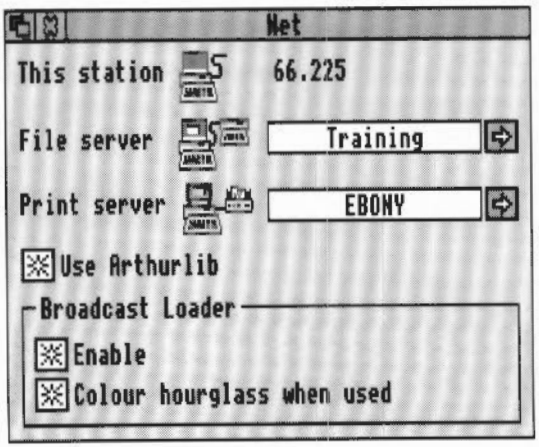
Click on the up and down arrows to change the number of floppy drives you have so that they reflect the number in your computer. RISC OS supports a maximum of four floppy disc drives.



When you have selected the number of floppies, click on **OK** to make the changes. Do not select a number of floppies different from that actually in your computer.

Net

This option is only available if you are connected to a network.



This station

This gives the Net station number of your computer. The number before the dot is the net number, common to all computers on your net. The number after the dot is the station number of your computer; it is set by your network manager.

File server

This sets the file server (by number or name) that will be selected by default when you click on the Net icon bar icon, in order to log on to a network.

Display the list of possible file servers by clicking on the right arrow. Click on a server name to select it.

Print server

This sets the printer server (by number or name) that will be selected by default when you use the printer manager to print to a remote network printer.

Display the list of possible printer servers by clicking on the right arrow. Click on a server name to select it.

Use ArthurLib

If this box is starred, the library directory $.ArthurLib is selected after log on. If this box is not selected, then the library directory $.Library is used. Your network manager will tell you which option to use. This option is not set immediately; the computer has to be reset before this option takes effect.

Broadcast Loader

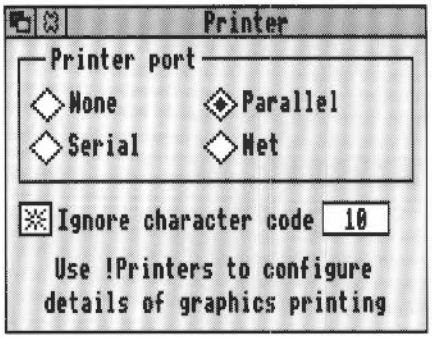
Click on **Enable** to activate the Broadcast Loader. The Broadcast Loader is used to increase performance when loading application software from file servers in a busy environment. Clicking on **Colour hourglass when used** displays the hourglass in a different colour during Broadcast Loader operation.

If you have the **Colour hourglass when used** configuration option set, you will see that the hourglass changes colour, going red when re-broadcasting a request and green when receiving a rebroadcast.

This network software operates without you having to take any actions. If a message packet fails it is automatically re-requested.

Printer

This dialogue box sets up the basic printer port configuration.



Printer port

This sets the type of printer connection that you are using. It can be set as follows:

- **None** tells the computer that no printer is connected.
- If you have a printer connected directly to your computer, it should be connected via the serial or parallel port: your printer manual will tell you which to use. The Printer port should then be set to **Serial** or **Parallel** accordingly.
- **Net** tells the computer to use a printer connected to your network (if you have one).

This dialogue box controls where print commands issued from the command line are sent. You will normally use the desktop application !Printers to do all your printing, so the options set in this window will not be used.

Using the Printer manager application is described in the chapter entitled *Printing* on page 59.

If you have more than one printer connected, decide which one of the printers should receive print commands from the command line and configure the window accordingly.

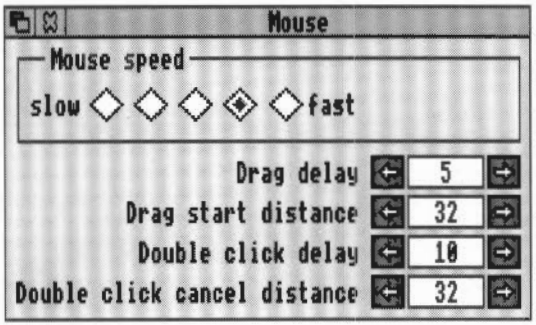
Ignore

This option tells your printer which character to ignore. This may be necessary because printers differ in whether they expect lines to end with a linefeed character (ASCII 10) or a carriage return. If you find your printer double-spaces all text, then click on the **Ignore** box and enter 10 in the box on the right. If, on the other hand, your printer produces overprinted lines, then click in the **Ignore** box to remove the star.

If you have two printers, and they both have different printer ignore characters, you can, most probably, change the printer ignore character by changing settings on the printer itself. Look in your printer manual for more details. You will normally use the desktop application !Printers to set the printer ignore character, so the options set in this window will not be used.

Mouse

This dialogue box sets up the mouse configuration options.



Mouse speed

This option controls how fast the pointer moves as you move the mouse.

Mouse speed can be set from slow to fast. The faster the speed set, the quicker the pointer moves around on the screen.

Drag delay is the amount of time you need to hold down the mouse button before the computer decides you are starting a drag operation. The default for this option is 5 tenths of a second.

Drag start distance is the distance you can move a mouse before the computer decides a drag has occurred. The default for this option is 32 OS (operating system) units.

Double click delay is the time interval in which two successive clicks are interpreted as a double-click. The default for this option is 10 tenths of a second.

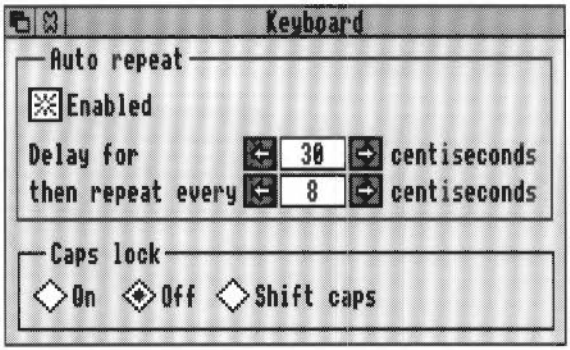
Double click cancel distance is the distance you can move the mouse during a double click operation before the double-click is cancelled. The default for this option is 32 OS units.

Values that differ greatly from those above may give rise to very strange effects with some applications.

There are approximately 180 OS units per inch in Mode 12 on a 14" monitor.

Keyboard

This dialogue box sets up the Auto-repeat and Caps Lock options for the keyboard.



Auto repeat

This option controls how quickly characters are repeated when you hold down a key on the keyboard.

To enable auto repeat, click on the **Enabled** box.

The **Delay for** rate is the time interval before a key starts to autorepeat. Use the arrow keys to adjust this rate. The default value is 32 centiseconds.

The **repeat every** rate is the time interval between the generation of auto repeat characters. Use the arrow keys to adjust this rate. The default value is 8 centiseconds.

Caps Lock

This option configures the state of the Caps Lock key when the computer is turned on.

Choose one of the following options by clicking on its radio icon (button):

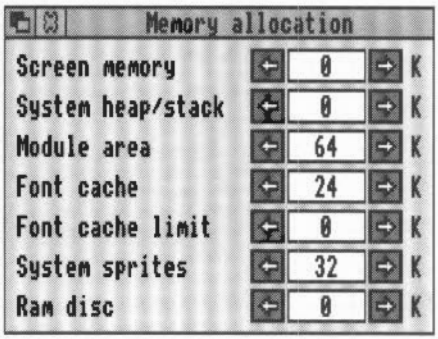
On configures Caps Lock to be on – when you type you will see uppercase letters.

Off configures Caps Lock to be off – when you type you will see lowercase letters.

Shift caps configures Caps Lock to be on – when you type you will see uppercase letters. However holding down the Shift key will produce lower case letters, which does not happen when **On** is chosen.

Memory

You can change the allocated memory by clicking on the right arrow to increase memory and on the left arrow to decrease memory. Alternatively you can click over the numbers and type in your alternatives. Remember to press Return when you have finished.



Screen memory

This reserves an area of memory for use by the screen. Normally you will not need to reserve any screen memory, since the memory required for the screen is taken automatically if it is available. However if you are low on memory and wish to reserve some for the screen, use this option. See the section entitled *Changing screen modes* on page 117 for information about the memory requirements for each screen mode.

System heap/stack

This reserves extra memory for the System heap over and above that needed initially by the system. We recommend that you leave this value at zero (0) unless you have a specific application that requires a different setting.

Module area

This reserves memory for modules that will be loaded from disc. This is extra on top of the area used by the ROM modules. We recommend that you leave this value at zero (0), unless you know that an application you will be using has a large number of RAM modules. Even then this will not be a problem unless you are running short of memory.

Font cache

This reserves an area of memory for use with outline fonts. If you never use outline fonts (if, for example, you only use the System font) you can set this to zero. If you do use outline fonts you should set this to a small value (approximately 32KB). The

size of the font cache depends on the font characteristics and the screen mode you are using. However the font cache can grow to the size defined by the font cache limit option if the free memory is available. See the appendix entitled *Fonts and the Font manager* on page 241 for more information.

Font cache limit

This value specifies the maximum size to which the cache may grow. When the cache reaches this setting, old fonts will be selectively deleted from the cache as new ones are added. If this value is zero or smaller than the Default font cache then the cache will not expand. See the appendix entitled *Fonts and the Font manager* on page 241 for more information.

System sprites

This reserves an area for use by system sprites. This option can normally be set to zero. Some games may require a small sprite area (approximately 32KB).

Ram disc

This reserves memory for a Ram disc, and if a non-zero value is set, the Ram disc icon appears on the icon bar. Unless you always use the Ram disc it is probably less wasteful of memory to start the Ram disc from the Task manager when you want it.

These memory allocation options are not set immediately. The computer has to be reset before these options take effect.

Desktop boot overrides !Configure settings

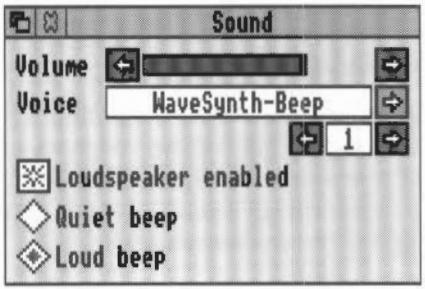
When you save a Desktop boot file, the values of the Font cache limit, System sprites and Ram disc are saved in the Desktop boot file.

When you switch on your computer, the values set by !Configure are read in. Then the computer reads the Desktop boot file. The values of the Font cache limit, System sprites and Ram disc then overwrite those just set by !Configure.

This can cause problems if you change these values (using the Task manager) before saving the Desktop boot file and are unaware of the consequences.

Sound

This dialogue box sets the Sound configuration.



Volume

Sound volume sets the volume of the computer's speaker. This controls the overall level of sound output from any sound-generating activity, and determines the range within which the computer's beep will sound.

Voice

Voice sets the voice which will be output by the first of the computer's eight sound channels. Since this is the channel used by the beep, you can use this setting to change the type of beep to any of the installed voices. Repeated clicking on the left or right arrows cycles through the voices available. Click over the right arrow to display a list of installed voices. Choose a voice by clicking on it.

Loudspeaker enabled

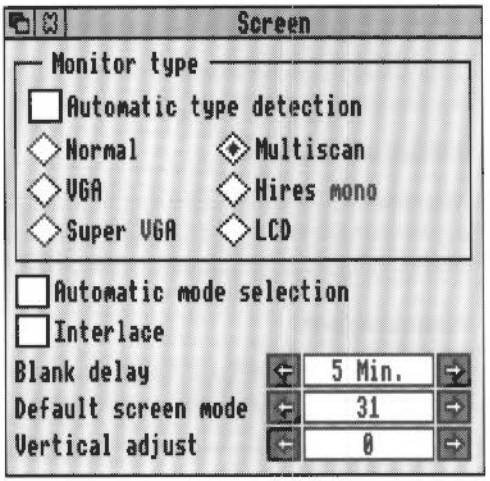
Clicking on Loudspeaker enabled switches the computer's own loudspeaker on or off. When switched off, sound may still be output via headphones or an external loudspeaker plugged into the socket on the back of the computer.

Beep

This sets the level of the computer's standard beep, used for giving warnings, drawing your attention to error messages, and the like. The 'meaning' of **Quiet** and **Loud** is determined by the value you have set for Sound volume: a Loud beep is not quite as loud as the highest value you have set the volume.

Screen

This window sets up the Screen configuration parameters



Monitor type

You can choose from six monitor types:

- **Normal** – for a standard monochrome or colour monitor.
- **Multiscan** – for a multiscan monitor.
- **VGA** – for a VGA-compatible monitor.
- **Super VGA** – for a Super VGA-compatible monitor.
- **Hires mono** – for a very high resolution monochrome monitor.
- **LCD** – for portable computers.

Additionally you can click on **Automatic type selection** if your computer can automatically detect monitor types.

For more information about monitors and the screen modes they can display, see the chapter entitled *Colours and screen modes* on page 115.

If you click on **Automatic mode selection**, the computer will automatically pick a mode that is compatible with your monitor type.

If **Interlace** is chosen, screen interlace is switched on. Interlace gives a better quality picture with some types of monitors and screen modes. Normally interlace is switched off.

Blank delay

This controls how long the interval is between the last key press or mouse movement and the screen blanking (turning off). Moving the mouse or pressing a key switches the monitor screen on again.

Note: There may be interference on the blanked screen if a sound is played while the screen is blanked out. This is nothing to worry about.

Default screen mode

This determines the screen mode in which the desktop starts up; it can be set to any of the values listed on page 220, but those that operate with most monitors are modes 12 (16 colours) and 15 (256 colours).

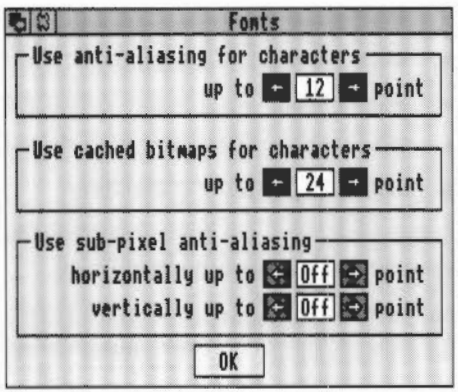
Vertical adjust

This allows you to adjust the vertical alignment of your screen. This is useful if the desktop is not centred on your monitor.

Click on the arrows to move the number between -4 and 3. -4 represents four lines down while 3 represents three lines up.

Fonts

This dialogue box allows you to change the font configuration.



The Font manager uses a technique called *anti-aliasing* to improve the quality of fonts. This technique blurs the jagged edges of characters making them look much smoother. All character sizes are given in points. A point is equivalent to 1/72 of an inch.

Use anti-aliasing

Click on the arrows to place an upper limit on the size of anti-aliased fonts. Fonts in larger sizes are usually printed without anti-aliasing. Larger fonts benefit less from anti-aliasing, and since an anti-aliased font occupies a lot more memory than a non-anti-aliased font, it is not worth displaying large fonts with anti-aliasing.

Use cached bitmaps

Click on the arrows to specify the largest font size which is to be kept in the font cache. Fonts in the font cache are stored as bitmap fonts. Bitmaps allow speedy text drawing to the screen. Fonts larger than this size will be drawn from outlines directly to the screen without caching and without anti-aliasing. If the cached bitmaps value is set high, and you are using a few large fonts – for headlines, perhaps – they may take up all the font cache, flushing out smaller fonts.

This parameter is relevant for the printer, especially if you are printing documents with a lot of text. Its ideal value depends on the screen mode, printer type and the printer resolution.

If you have one of the larger and more powerful RISC OS computers, or are printing at a high resolution, you may wish to increase the values of this parameter.

Use subpixel anti-aliasing

This controls a refinement of anti-aliasing in which four separate versions of each character are retained. This can have a beneficial effect on the quality of characters (on the screen) at small point sizes. However it is heavy on computing power and may result in unacceptably slow screen updates. Therefore this parameter should not normally be changed from its default value of OFF.

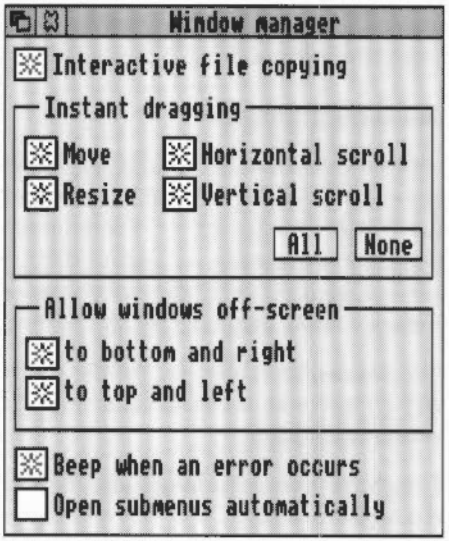
OK

Clicking on the OK box redraws the screen using the values you have set up with this window.

If you want to understand more about how the Font manager operates you should read the appendix entitled *Fonts and the Font manager* on page 241.

Windows

This window is used to configure the way the desktop windows behave.



Interactive file copying

This option allows background Filer operations, the normal way to use RISC OS. This option is normally left starred – enabling interactive file copying.

If you do not use Interactive file copying, the desktop cannot be used for other purposes while Filer copying operations are in progress. Not using Interactive file copying can sometimes result in quicker Filer operations. These Filer operations may also take up less memory.

Instant dragging

When set, these options update the screen as a window is dragged, resized or scrolled. There are four possible states, any of which can be on or off. When these options are starred, the screen is updated instantly, when off, only a dotted outline moves until you have finished the drag. Using outline moves is usually quicker than instant updating:

- **Move** gives instant effects when you move a window around the screen.
- **Resize** gives instant effects when you resize a window.
- **Horizontal scroll** gives instant updating of the windows' contents when using the horizontal scroll bars.
- **Vertical scroll** gives instant updating of the windows' contents when using the vertical scroll bars.

Click on **All** to select all of these options and **None** to deselect them all.

Allow windows off-screen

Windows can be dragged off screen so that part of the window is not on the desktop. You cannot lose a window, since part of the Title bar is always visible on screen:

- **to bottom and right** means that you can drag windows off the righthand and bottom edges of the screen.
- **to top and left** means that you can drag windows off the lefthand and top edges of the screen.

Beep when an error occurs

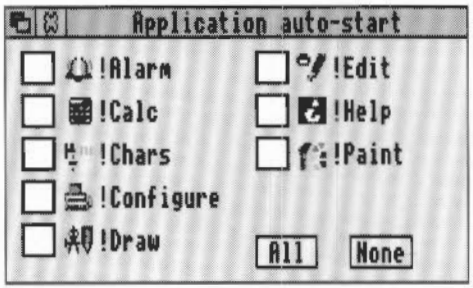
This causes a beep to sound whenever an error box is displayed on screen.

Open submenus automatically

This option allows submenus and dialogue boxes to display automatically after a short delay. Submenus are indicated by a righthand arrow on the menu.

Applications

This window allows you to specify which applications, if any, will be started automatically when you switch on or reset your computer.



Click over the applications you wish to auto-start each time you switch on or reset the computer. Auto-started applications appear automatically on the icon bar. Click on **All** to auto start all the applications and click on **None** to remove auto-start from all applications.

You can also automatically start applications in another, more versatile, way with a Desktop boot file. See the chapter entitled *Desktop boot files* on page 109 for more details. You cannot have a combination of Auto-start applications and a Desktop boot file. If you run a Desktop boot file, the Auto-start options will be ignored.

6 Fine tuning the configuration

To set the overall configuration of your computer, use the !Configure application described in the previous chapter. To change the configuration interactively, use the **Task manager**.

The Task manager is the control panel for the computer. Through it you can monitor and control your system resources. The Task manager differs from Configure in that Configure changes a setting permanently, while the Task manager can change settings on-the-fly for as long or as short a time as you want. All changes to the Task manager are 'forgotten' when the computer is reset.

'Tasks' include anything the computer is doing: running an application, controlling what appears on the screen, managing areas of memory, and running the Task manager itself.

The Task manager icon (the Acorn) is located at the extreme righthand end of the icon bar. It is used

- to control and monitor tasks and the use of the computer's memory
- as a means of access to the Command Line
- to enable you to start up your computer exactly the way you want, with specific applications running
- to leave the desktop
- to shut down your computer before switching it off.

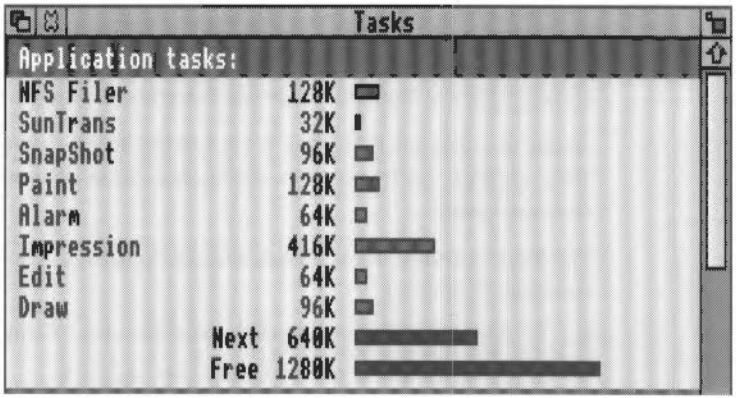
Monitoring and controlling tasks and memory

Clicking on **Task display** on the Task menu (or simply clicking on the Task manager icon itself) produces a window containing details of the current tasks and the use of the computer's memory. You will need to use scrolling and/or resizing to see all of this display. Memory usage is presented in the form of a number and a bar graph. When the bar is displayed in red, you can alter it by clicking Select within a bar, or by dragging the end of the bar to the value you want. The operating system imposes some restrictions on the amount of memory you can give to each item. The display's parameters are shown in several distinct sections:

- Application tasks
- Module tasks
- System memory allocation.

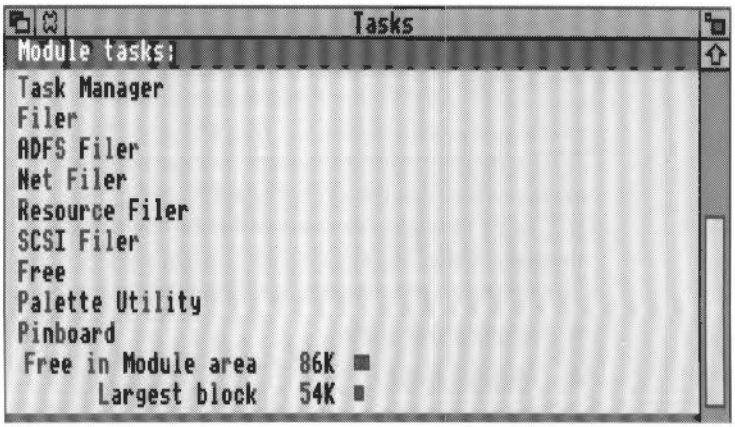
Application tasks

At the top, entitled **Application tasks**, there is a list of the tasks which are currently running, and how much memory they are using. The areas marked **Next** and **Free** indicate how much memory will be allocated by default to an application when it starts up, and how much free memory is remaining in the system. These two values can be changed. Most applications override the values allocated to **Next** and **Free**, giving them the new values they need. You may find it useful to allocate more space to **Next** before opening a new **Task window**; since the computer does not know what the task is going to be, it cannot automatically transfer space from **Free** to **Next**.



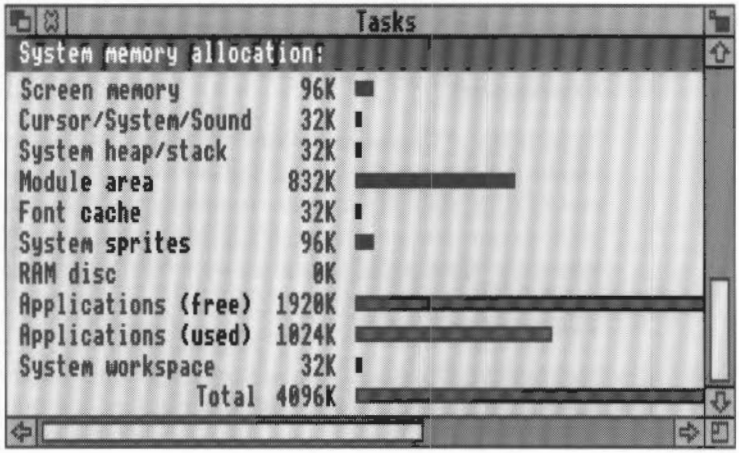
Module tasks

The next section – **Module tasks** – lists all tasks which are running as relocatable modules (applications which run as if they were extensions to the operating system), together with the amount of free memory in the module area.



System memory allocation

The third section of the display – **System memory allocation** – shows how the computer's memory is partitioned. Some of the values in this section can usefully be changed. For example, when using a large number of fonts the system may begin to run rather slowly; increasing the area allocated to the font cache will speed things up. However, if you are using any fonts besides the system font, you should not gain space for other tasks by reducing the font cache to zero. (For more information on fonts and the font cache, see page 99.) A second candidate for reduction is the **System sprites** memory, since this space is not normally used by the desktop.



Forcing tasks to quit

The Task manager can be used to force any of the tasks from the first two sections of the display to quit:

1 Position the pointer over the entry for the task you wish to quit and click Menu.

2 Move to the submenu entry for the task, and click on **Quit**.

The task will quit, and the memory it was using is freed. Although some programs (including Edit, Draw and Paint) will warn you if there is some work you have not saved, not all programs do so; this command should therefore be used with caution, as a last resort to force termination of a program that has got out of control.

The task display is updated dynamically as applications are running. This allows you to monitor the state of the system.

Command line options

The following options are used to access the command line. Most users will not normally need to use the command line. For more information on the following options, see the chapter entitled *Accessing the command line* on page 127.

New task

To start a new task, move to the **New task** submenu of the Task menu. This produces a box into which you can type any Command Line command. If the command causes a task that is not a desktop application to run, any output from the task will be displayed in a new window; other tasks will be suspended until this task has completed. If the task is a desktop application, starting it from the **New task** submenu is equivalent to double-clicking on the application.

* Commands

By selecting *** Commands** from the Task menu, you can enter Command Line Mode. A * prompt appears at the bottom of the screen, and you can enter operating system commands. To return to the desktop, press Return at a * prompt without entering any other characters on the line. Pressing F12 is equivalent to selecting *** Commands** from the Task Manager menu.

Task window

This option allows you to use Command Line mode in a window. To open the window, choose **Task window** from the icon bar menu. You can have more than one task window open. When you open a task window, you will see the * prompt. You can now enter operating system commands in the window. Using the Task window is explained fully in the chapter entitled *Accessing the command line* on page 127.

Exit

Clicking on **Exit** causes the desktop and all tasks to be closed down and replaced by the command line. The desktop may be restarted by typing `desktop` at the * prompt, and then pressing Return.

Starting up your desktop 'world' automatically

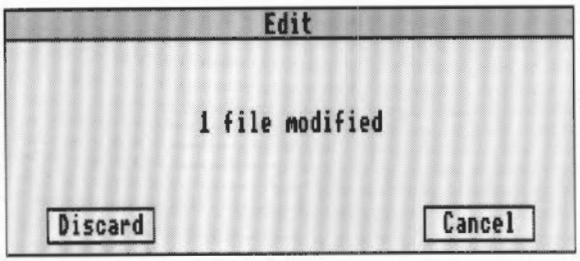
You may find that you want at least some applications running every time you use your computer. If you are connected to an Econet network, you probably want to log on to that every time you switch on, too. You can do things like this using the **Desktop boot** option. Using the Desktop boot option is explained fully in the chapter entitled *Desktop boot files* on page 109.

Shutting down and switching off the computer

The **Shutdown** option causes the desktop and all tasks to be closed down. You are logged off any network and file servers you were logged into and your disc drive(s) are parked so that it is safe for you to switch your computer off. This is more important if you are using a hard disc than if your computer only has floppy disc drives. After you have clicked on **Shutdown**, the computer then tells you that it is ready to be switched off. If you want to start using the computer again straight away, click on the **Restart** button.

Warning messages

As you shut down the computer, RISC OS checks your computer to see if you have saved all of your currently open files. If it finds a file that has not been saved you will see a message much like this one from Edit.



If you don't want to save the file, click on **Discard**. The file's contents are lost and the shutdown procedure carries on. If you want to save the file, click on **Cancel**. This stops the shutdown procedure so that you can save the file. After saving the file, start the shutdown again by clicking on the **Shutdown** option.

7 Desktop boot files

When you first switch on the computer, the desktop is empty waiting for you to start work. However by using a **Desktop boot** file you can tell the computer to start up certain programs and to set certain options each time you start up the computer. For instance you could start up Edit and Alarm, and then log onto your file server automatically.

These actions can all be controlled by the desktop boot file. The following section shows you how to make a desktop boot file. It then goes on to show you how to modify it to include your own commands and scripts.

Starting up your desktop 'world' automatically

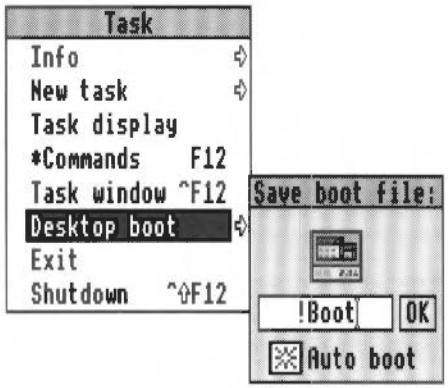
The desktop boot file takes a snapshot of the way your desktop looks and stores this snapshot in a file. When you next start your computer, the computer automatically runs the desktop boot file. This then changes the desktop to be exactly like the desktop you saved in the desktop boot file.

To create a desktop boot file, follow these steps:

1. Make a list of exactly what you want your desktop boot file to do.
2. Save any files you are working on.
3. Press Ctrl-Reset to restart your computer.
4. Set up your desktop just as you want it when you switch on. This might include:
   - starting one or more applications
   - opening one or more directory displays
   - loading a printer driver
   - logging on to a network.

It is important that you do not do anything additional to this process, as otherwise your boot file will become cluttered with instructions you do not really want: hence the need for planning. For example, opening a window for a directory containing applications will tell the computer where to find those applications, and these instructions will also be incorporated into your boot file.

5 When you are ready, press Menu over the Task manager icon (the acorn) and move to the **Desktop boot** option and display its dialogue box, which looks like this:



6 If the box next to the words **Auto boot** does not contain a star, click on it so that it does. This ensures that the file is run each time the computer is started For the experts, it performs a:

- *Opt 4 2 command – This makes the Boot file run.
- *Configure Boot command – This ensures that a power on, Ctrl-Reset or Ctrl-Break runs the boot file.
- *Configure Drive command – This sets the drive to be selected at power on.

7 Save the file as !Boot in the root directory of your hard disc if you have one, or as !ArmBoot if your home directory is on the Econet network. If your computer has only floppy discs, save the file as !Boot in the root directory of a floppy disc. To run the desktop boot file you should insert this floppy disc before you switch on your computer. If the applications on the desktop you are saving have been loaded from more than one disc, the computer will remember the names of the discs and prompt you to insert them when necessary.

If you want to run the !Boot file without displaying the directory in which the Boot file is stored, save the !Boot file by defining a specific pathname in the Save as box.

Now each time you switch on or reset your computer, your desktop will be automatically configured.

Applications written before RISC OS 3 was released cannot automatically be saved using the Desktop Boot option in this way. However, you can still add lines to your desktop boot file by hand.

Inside the desktop boot file

This section looks at the typical lines found in a desktop boot file. You don't need to know these details to **use** a desktop boot file, but an understanding will be useful if you decide to **edit** your desktop boot file by hand.

The following example uses typical values; however these may be different with your computer.

WimpSlot -next 640K

This gives the amount of memory allocated to the next application, usually 640KB.

ChangeDynamicArea -FontSize 0K
ChangeDynamicArea -SpriteSize 0K
ChangeDynamicArea -RamFsSize 0K

These give the amount of extra memory reserved for Fonts, the Sprite cache and the RAM disc. These are normally set by the Configuration application, Configure. However if you change them with the Task manager before saving your boot file, those changes will be saved here and will override any set by Configure.

WimpMode 20

This tells the desktop which screen mode to use.

Desktop SetPalette

This tells the desktop which set of colours to use. This reflects the settings chosen using the Palette.

net:logon :Business Steve

This line logs Steve onto the file server 'Business'.

Filer_OpenDir adfs::HD.$ 2 712 712 188 -sn -si

This line causes the root directory of the disc HD to be displayed when the desktop starts up. The numbers define the position of the display on the desktop and the parameters -si and -sn define the format: small icons and sorted by name.

The position of directory displays on the screen is given in OS units and, the display type given with one or more of the following parameters:

- –li, large icons
- –si, small icons
- –fi, full information
- –sn, sort by name

- –st, sort by type
- –ss, sort by size
- –sd, sort by date.

Filer_Boot Resources:$.Apps.!Alarm

This line defines a file stored in a directory. It causes the file's location and sprite to be stored in memory so that when the sprite is looked at again, this information does not have to be read in again.

You can hand edit the desktop boot file to add Filer_Boot lines. Adding lines for files in frequently-used directories will speed up opening these directories (the first time) but will make starting up or resetting the computer take longer.

Run resources:$.Apps.!Edit

This runs the Edit application so that its icon appears on the icon bar.

You can hand edit the desktop boot file to run any applications in this way.

Set Edit$Options F13 B1 W8 H12 NTrinity.Medium

This sets up some configuration options for the Edit application. These options are saved automatically when you save your desktop boot file.

You can also add configuration options to the file. Details of configuration options for each of the applications in the application suite can be found in the *Applications Guide*.

It is possible to have configuration options for applications that are not loaded immediately. These configuration options are kept in memory and used when the relevant application is loaded.

Editing the desktop boot file

It is fairly easy to edit your desktop boot file so that it performs exactly the actions you require.

To view the desktop boot file, start !Edit and then drag the desktop boot icon onto the Edit application.

Most of the applications in the application suite have a set of parameters that tell the application how to behave. These parameters can be saved using the Desktop boot option and then edited using the Edit application.

For example, if you use Edit and perform a desktop save, the following lines could appear within the desktop boot file:

```
Set Edit$Options F8 D NCorpus.Medium
Run resources:$.Apps.!Edit
```

The line beginning `Set...` tells Edit to display the text colour in dark blue, leaving the background white, switches word wrap on, and sets the font to Corpus.Medium.

The line beginning `Run...` starts the application. So if you were to delete the Run... line, Edit would not start but its option parameters would be read in and stored. Now, when you double-click on Edit, it will automatically start with a blue Corpus.Medium text.

Occasionally you might want to edit out the Run... line so that the application is not started. This will leave the Set... line which contains the parameters you use with your application. Now, whenever you start your application, it will use the parameters that are in the appropriate Set... line. Editing your file in this way will let you set up parameters for your applications without actually starting them.

Most applications have these option parameters and they can all be saved in your desktop boot file.

You should be careful when experimenting with desktop boot files. It is very easy accidentally to save a desktop boot file and in doing so wipe out your current desktop boot file. Take a copy of your current desktop boot file before you start experimenting, or save the resultant desktop boot files with a name other than !Boot. You can then use Edit to copy the relevant parts of the files into a new !Boot file.

Any edit file can be made a desktop boot file simply by giving it the file type Desktop (Use the Set type option in the File menu), naming it !Boot and placing it in the root directory.

Adding other parameters to the Boot file

You can add many other types of commands to your Boot file; however most of these commands apply only to the command line interface. However to show you what is possible you may want to add the following line to your boot file.

```
SetMacro CLI$Prompt <Sys$Time> *
```

This sets the command line prompt to display the time. Add it to the bottom of the boot file, restart the computer, press F12 and have a look.

For more information about how to make boot files containing parameters that affect command line operations, read the chapter entitled *Notes for command line users* on page 133.

Overriding the CMOS RAM settings

When you run a !Boot file that has been created by the Desktop boot menu option, it can override some CMOS RAM settings that are set by the !Configure application. This can cause confusion. The following settings are affected:

- Font cache size
- Sprite cache size
- RAM disc size
- Desktop screen mode
- Auto starting of applications.

Starting up

The !Boot file is executed after the desktop has been started. However, it is possible to use the desktop at the same time as the applications defined in your !Boot file are being loaded, so don't be surprised if you see your applications appear on the icon bar shortly after switching on.

8 Colours and screen modes

The **Palette** allows you to set up the colours used by the desktop, and the screen modes used to display the desktop.

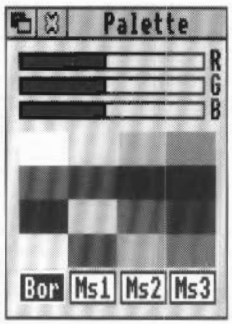
The **Palette icon** is located on the right of the icon bar.

It is used for

- setting the palette (the colours used on the desktop)
- inverting the screen grey scales
- changing to a different screen mode
- saving the current palette
- setting the desktop to its default values.

Setting desktop colours

The palette defines the set of 16 colours that will be used by the desktop, and the colours of the pointer and the screen border. Each colour is defined in terms of the intensity of the red, green and blue colour "guns" in your monitor. For example, setting all three guns to zero intensity produces black, and all three fully on produces white.



To see the current setting, click on the palette icon. The palette window then appears. The 16 desktop colours are shown in the middle section of the window. You can check the precise setting of a colour by clicking on it. The logical number associated with the colour is displayed, and the sliders at the top of the window

show the red, green and blue intensities. To change a setting, position the pointer within one of the sliders, and drag it to the level you want. The colours on the whole screen reflect the changes as you make them.

You can use the palette to change the border and pointer colours, by clicking on one of the boxes at the bottom of the window and adjusting the sliders as above. The boxes are:

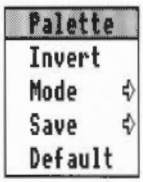
- **Bor** to set the screen border colour
- **Ms1** to set the pointer's outer colour
- **Ms2** to set the pointer's inner colour
- **Ms3** to set the alternative pointer colour (used for certain special pointers).

If you change the colour balance of colours 0 (white) or 7 (black), the grey tones 1-6 are changed to match when you release Select. However, if you then restore colour 0 or colour 7 by dragging the sliders back to their original positions, you will find that the grey tones are not identical to the ones you started with, and in particular, the main desktop background colour no longer matches the border. To restore the original palette, choose **Default palette** on the palette's icon bar menu.

When you have finished changing the palette, click on the Close icon in the palette window. If you want to save the changes permanently, see *Saving the palette options* overleaf.

Other Palette functions

Click Menu over the Palette icon to display the menu.



Inverting the grey scale

The first 8 colours of the palette (colours 0 to 7) are normally used to provide a scale of grey shades running from white to black. You can invert them by clicking on **Invert**. Inverting the colours causes light shades to become dark, and vice-versa, so white is changed to black, light grey to dark grey, and so on.

Changing the screen mode

Change the screen mode by displaying the **Mode** submenu and clicking on the mode you wish to use. If the mode number is not displayed, move to the bottom of the menu, type in the mode number and then press Return.

Screen modes and monitor types are dealt with in detail in the next section.

Saving the palette options

If you change the desktop colours, you may wish to save them for later use. To do this, move to the **Save** submenu. You can then save the file by dragging the icon to a directory display.

To restore the palette from a file, either double-click on a palette file, or drag the file onto the palette icon on the icon bar. Palette files are indicated by a palette icon in the directory display.

The current palette is also saved when you create a desktop boot file, as described in the chapter entitled *Desktop boot files* on page 109.

Setting the palette to its default values

A default palette is built into the computer. To set the current palette to this default, click on **Default**.

Changing screen modes

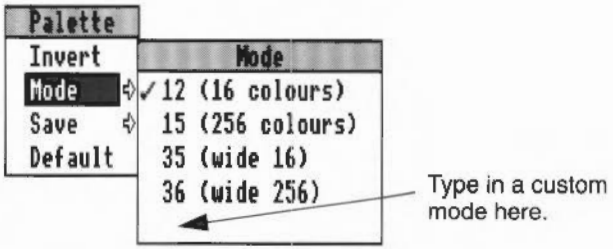
RISC OS can display its desktop in different **modes.** Modes change the size of the desktop display and the number of colours the desktop can display. For example, mode 12 can display 16 colours simultaneously and mode 15 displays 256 colours. Mode 16 can display more information on the screen than mode 12, but the text size is smaller.

You can change the screen mode by clicking Menu on the **Palette icon**, and moving to the **Mode** submenu. A list of standard modes is displayed. Either choose one by clicking on the menu item, or move the pointer to the bottom menu item, type in the number of the mode you want and then press Return.

A full list of screen modes with full information about their individual characteristics is contained in the appendix entitled *Screen modes* on page 219.

You must check your *Welcome Guide* to see which monitor types and screen modes are valid for your computer hardware.

This is the Mode menu you get if you are using a standard monitor (normal). If you are using a different monitor type, such as VGA or Multiscan you will see a slightly different Mode menu.



Mode versus performance trade-offs

For each monitor mode, there is a compromise between the graphics resolution, the number of colours, the display refresh speed, speed of processing and memory usage. Generally, the greater the graphics resolution or number of colours, the slower the screen displays and more memory is used.

The modes with larger graphics resolution generally give better quality graphic displays, while modes with greater OS (operating system units) resolution allow you to fit more on the screen.

In general, the higher the resolution chosen, the slower the overall performance of the computer.

Suggested screen modes

The modes available depend on the configured monitor type and the model of computer.

A 16-colour mode is most commonly used for 'everyday' use. Depending on your monitor type you may use different default settings.

For standard colour or monochrome monitors

Mode 12 is most commonly used. Mode 35 may provide a useful alternative, as it uses more of the monitor's border. Some users may find that it loses some pixels at the edges of the screen, so it may not be suitable.

Mode 15 has the some characteristics as mode 12, but displays 256 colours.

Mode 16 provides more pixels horizontally than mode 12 so that 130 columns of text can be displayed in the window. However, you may find it harder to read than mode 12.

Multi-frequency (multiscan) monitors

In addition to modes 12, 15, 16 and 35, these monitors can also use mode 20 and mode 27. Some users find that mode 27 may flicker less, as it has a higher refresh rate. Mode 39 (mode 40 for 256 colours) allows more information to be displayed on the screen and mode 31 may also be used on some monitors.

VGA and Super VGA monitors

Mode 27 is most commonly used on VGA monitors. For Super VGA monitors, mode 31 is most commonly used.

Mode 28 has the some characteristics as mode 27, but displays 256 colours.

Other considerations

If you need more memory or more processor power, than you can change temporarily to a mode with fewer colours or a smaller picture. For instance, when printing graphics, a move to mode 0 (or mode 25 for a VGA monitor) can release memory, so making printing faster.

If you use a VGA or multi-frequency monitor in the higher resolution screen modes, your computer's performance may suffer unless you change the settings in the **Fonts** window of the **Configure** application. Anti-aliasing should be set to at least 24 points high, and cached bitmaps on screen set to at least 48 points high. It may also be worth increasing the size of your font cache.

9 System applications

Your applications discs contain the system applications !System, !Scrap and !Fonts. !System and !Scrap are essential to allow applications to run on your computer. !Fonts is used to store any additional fonts you may buy.

If you were supplied with a single Applications disc you will find these applications in the root directory. If you were supplied with two applications discs you will find these applications on App1.

!System

!System is used as a standard location in which to keep system modules issued to replace or to supplement existing parts of the operating system.

When you buy additional applications for your computer you may find that additional modules are supplied. The documentation supplied with the application will tell you how to combine them with any modules you already have.

Modules kept in !System are loaded as required by applications; you will not need to take any special action.

Where to keep your !System

Hard disc users should always store !System in the root directory ($), so that !System is seen by the operating system as soon as the hard disc is accessed.

Floppy disc users should keep !System on a special floppy disc that should be inserted and clicked on whenever you restart the computer. This disc can also contain other system files such as boot files and fonts. Floppy disc users should not dismount this disc as the computer needs to remember its name and contents.

Network users who are booting their computers from a network or running applications stored on a file server can store !System on the file server. See your network manager for details.

!Scrap

!Scrap gives the computer somewhere to store temporary files. Applications often use temporary files during copying and saving; these files are erased when they are no longer needed.

Where to keep !Scrap

Hard disc users should always store !Scrap in the root directory ($), so that !Scrap is seen by the operating system as soon as the hard disc is accessed.

Floppy disc users should keep a copy of !Scrap on every floppy disc that contains an application. This may seem wasteful of disc space, but Scrap only takes up minimal space when not in use. Also keeping !Scrap on every disc will eliminate the need for frequent disc changes as long as you are using the !Scrap on the current floppy disc; always double-click on the new !Scrap after you change discs.

Network users who are booting their computers from a network or running applications stored on a file server can use a !Scrap stored on the file server. See your Network Manager for details.

!Fonts

RISC OS contains a range of fonts stored permanently inside the computer. In addition to these some additional fonts are also held on disc in the !Fonts application.

Fonts are used not only for screen displays but also by all printers, except for PostScript printers such as the Apple LaserWriter which have their own built-in fonts. The fonts are controlled by a part of the operating system called the Font manager.

Acorn's Font manager uses outline fonts, where only the outline of each character is stored. When you request a font, the computer loads the outline font, scales it to the size you want, and fills in the outline.

If you want to know more about outline fonts and how they are used, read the appendix entitled *Fonts and the Font manager* on page 241.

To display a list of available fonts, open a !Edit document. Press Menu, move the pointer to the **Display** submenu, and from there to the **Fonts** submenu. This will show a list of available fonts.

Where to place !Fonts

Hard disc users should always store !Fonts in the root directory ($), so that !Fonts is seen by the operating system as soon as the hard disc is accessed.

If you do not have a hard disc drive, you should copy !Fonts to a special floppy disc and use this disc to hold all your fonts.

Adding fonts

If you want to add more fonts to your system you can purchase font-packs from your supplier. Additional fonts are placed within the !Fonts application that was supplied on your Applications discs.

For more information about adding fonts, see the section entitled *Using fonts* on page 55.

Upgrading your old !Fonts application

If you have been using an 'old' !Fonts supplied with an earlier version of RISC OS you must upgrade your application by copying the font directories from the old !Fonts into the new !Fonts.

Because RISC OS now contains the Corpus, Homerton and Trinity fonts in ROM, these fonts should **not** be transferred across to the new !Fonts. Additionally, if you already have the Selwyn and Portrhouse disc-based fonts, do **not** transfer these across to the new !Fonts, as the latest versions of Selwyn and Portrhouse are already included.

To move font directories to the new !Fonts, follow these steps:

1. Open the application directories for both the old and the new !Fonts by holding down shift and double-clicking on the Fonts icon.

   In the old !Fonts you will see various directories. You must only copy the directories that contain the fonts. Do not copy anything else.

   Remember, do not copy the Corpus, Homerton, Trinity, Selwyn or Portrhouse font directories.
2. Copy the remaining font directories into the new !Fonts application.
3. Close the !Fonts applications and then double-click on the !Fonts icon. The disc fonts will now be available.

   You should also stop using the old !Fonts.

Hints and tips

RISC OS 3 can support a number of different Fonts directories being used simultaneously. This makes adding new fonts to the system very easy – whenever directories of fonts are seen, they can be accessed.

If your fonts directory contains fonts that duplicate those in the ROM, the ones on disc are used in preference (in case they are newer or better in some way).

The applications Draw, Edit and Chars refresh their font menus instantly when the list of fonts available changes – there is no longer a need to quit and restart those applications.

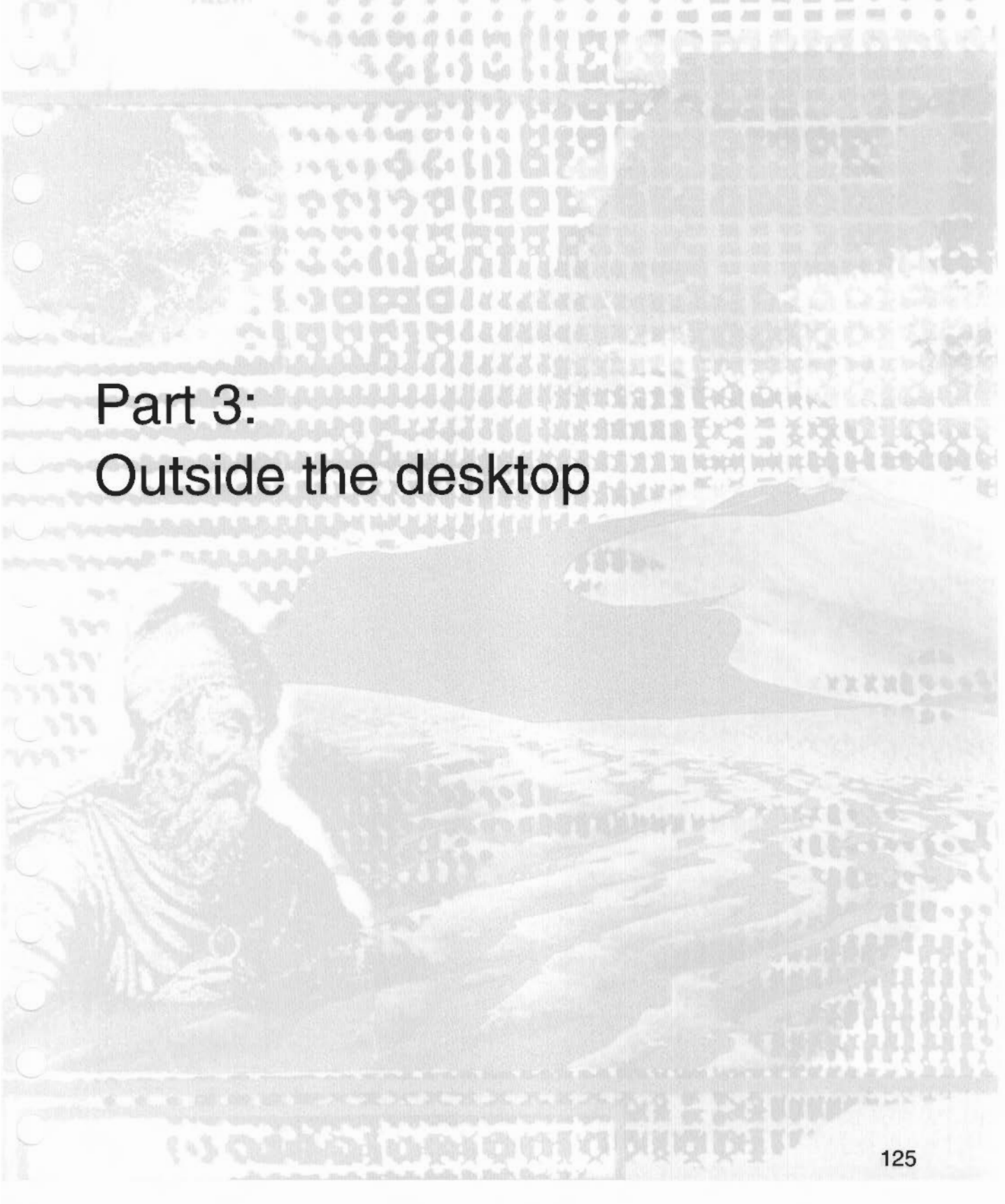
If you accidentally use a pre-RISC OS 3 type !Fonts, you will no longer be able to use any of the ROM fonts. The only way to cure this problem is to reboot the computer.

!Fonts Sidney encoding

The !Fonts application has within it a Sidney directory that contains a Sidney encoding but does not contain any font information. The encoding allows files that contain Sidney symbols to be printed on a PostScript printer. However, these symbols will not be visible on screen.

If you have a copy of the full Sidney font you should copy the contents of the Sidney font directory into the Sidney directory containing the encoding. Do not delete the encoding file.

Part 3:
Outside the desktop



10 Accessing the command line *

Most of you will use the RISC OS desktop for almost all of your computing tasks. However occasionally you may venture into the world of the command line.

*

The command line is very different from the desktop. Gone are the windows, icons and menus. These are replaced by a set of single line commands that always start with a star, the Star Commands (known as * Commands).

One of the main reasons for using the command line is to write scripts. Scripts are small programs that help you control the computer. The command line is also used to issue operating system commands from BASIC.

Accessing the command line

There are four different ways of accessing the command line. Two of these do so within the desktop itself; one suspends the desktop temporarily and one quits the desktop entirely. Additionally you can set up your computer so that it never starts the desktop.

The command line is accessed from the Task manager icon bar menu. To illustrate this we will use the simple * Command, *Cat. *Cat just displays a list of the files in the current directory.

The option **New Task** gives you a small box into which you can write a single * Command. Choose **New Task**. Type in the command *Cat, then press Return. The result will be displayed in a window on the desktop.

A more useful window into the command line is given by the **Task window** option. This displays an Edit-like window into which you can type commands. At the top of the window is a * (the command line prompt) and the caret. Choose Task Window and type *Cat again. The Task window behaves just like any other desktop window. Its menu options are explained in the section entitled *Using the Task window* on page 128.

To halt the desktop temporarily and replace it with the command line interface, click on ***Commands** (or press F12). A line will appear at the bottom of the screen, containing a * (the command line prompt) and a flashing line (the cursor). The lower part of the screen will display a list of the files in your current directory, with the * prompt at the foot of the screen again. Now press Return again: the desktop will reappear, looking just as it did when you saw it last.

To leave the desktop more 'permanently', choose the **Exit** option. If you have any work on the desktop that you have not saved, you will be asked if you want to save it first. The screen then goes blank and a * prompt will appear. To start the desktop again, type `desktop` at the * prompt.

Command line mode

The star (*) prompt indicates that you are in command line mode and that the computer is expecting a command to be typed. Note that command line mode is referred to as 'Supervisor' on all screen displays.

The commands in this guide are always preceded by a star. The star is provided as a prompt in command line mode, so you do not have to type it (though it does not matter if you do: any extra stars are ignored). However, if you type a * Command following some other prompt (at the BASIC > prompt, for example), you must precede it by a star so that the computer knows how to interpret what follows.

Starting BASIC from the command line

Enter BASIC by typing `*BASIC` from the command line. The prompt will change from * to >. To confirm that you are in BASIC, type in the following one-line program (using capital letters):

```
FOR N=1 TO 20: PRINT "HELLO": NEXT N
```

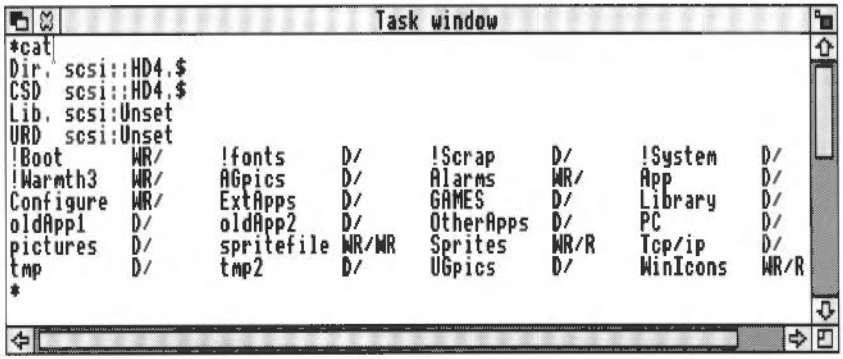
This will cause the word `HELLO` to be printed twenty times. Leave BASIC by typing `QUIT` or *Quit.

For more information on using BASIC, turn to the appendix on BBC BASIC on page 235.

The BBC BASIC Reference Manual, available from your supplier, is a complete reference guide for the BBC BASIC language.

Using the Task window

The Task window allows you to use the command line within a window. To open a Task window, choose **Task window** from the Task manager icon bar menu. When you open a Task window, you will see a * prompt. You can now enter commands in the window just as if you were using the command line itself. Like any other application, you can have more than one Task window at the same time.



The major advantages in entering commands in a task window instead of at the command line prompt are that:

- Other applications continue to run in their own windows while you run the task. (This does mean, though, that the task may run more slowly than it would using other methods of reaching the command line.)
- Commands that you type, plus the output (if any), appear in a conventional Edit type window, and may therefore easily be examined by scrolling up and down in the usual way. When you type into the window, or when a command produces output, the window immediately scrolls to the bottom of the text. Anything you type in is passed to the task, and has the same effect as typing whilst in command line mode.

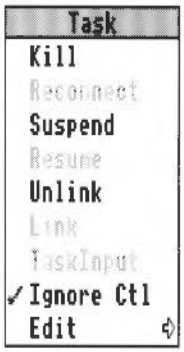
  You can change this by **unlinking** the window: in this case, anything you type in alters the contents of the window in the same way as any other Edit window, even while a task is running. Keyboard shortcuts only operate if the window is unlinked.

You can also supply input to a task window by selecting some text from another text file and choosing **TaskInput** from the task window menu.

You cannot use graphics in a task window. The output of any commands that use graphics will appear as screen control codes in the task window.

The task window is controlled by Edit, so don't be surprised if you see the Edit icon on your icon bar.

The menu for a Task window contains the following options:



Kill stops and destroys the task running in the window. **Reconnect** starts a new task in the window, allocating memory to the task from the Task manager's **Next** slot.

Suspend temporarily halts the task running in the window. **Resume** restarts a suspended task.

Unlink prevents the sending of typed-in characters to the task. Instead, they are processed as if the task window were a normal Edit text window. **Link** reverses the effect of Unlink.

TaskInput reads task input from the currently selected block.

Ignore Ctrl, when selected, prevents any control characters generated by the program from being sent to the screen.

Edit leads to the normal Edit menu. Although this makes available most of Edit's features, you cannot use facilities such as the cursor keys or keys such as Page Up and Home while you are using a task window. If you want to use Edit's keyboard shortcut features, **Unlink** the window first.

Some guidelines and suggestions for using Task windows

To use a Task window, you will need to be familiar with command line mode. There are some commands which you will find are more useful in a Task window than they are directly from the command line. However you will also find that nearly all of the commands that affect the configuration of the desktop can also be performed using the desktop application **Configure** and the Task manager **Task display**.

Here are a few commands to whet your appetite:

- `*wimpslot` *`min [max`*] can be used to adjust the amount of memory available to the task, which will otherwise start up using the **Next** space allocation. You can examine this using the Task manager window. *`min`* and *`max`* indicate how much memory the task is allowed to have. If you want to remove all the memory allocated to a task without closing its window or destroying the task, use the command `*Wimpslot 0 0`.
- `*Filer_opendir` *`path`* opens a new directory display for the directory with the given path. The path must start with a filing system name, but need not be a full pathname. For example, `adfs:@` will open a display for the current directory.

The command `*Spool` should not be used from a task window. Because its effect is to write everything that appears on the screen to the spool file, using `*Spool` from the desktop will produce unusable files full of screen control characters. There is, in any case, no point in using `*Spool`, since the output from the task appears in the window, and can be saved using Edit as normal.

When you run a command in a Task window, the computer divides its time between the Task window and other activities running in the desktop. You should note that some time-consuming commands, for example, a `*Copy` of a large file, may prevent access to the filing system that they use until the command is complete.

Note that command line notions such as 'current directory' become relevant when you are using Task Windows.

All of theses commands are described in detail in the chapter entitled *Star command summaries* on page 161.

The command line help system

The command ***Help** gives brief information about each command in the operating system. `*Help` *`keyword`* displays a brief explanation of the keyword and, if the keyword is a command name, the syntax of the command.

If you are not sure about the name of a command:

`*Help Commands` will list all the available utility commands;

`*Help FileCommands` will list all the commands relating to filing systems;

`*Help Modules` will list the names of all currently loaded modules, with their version numbers and creation dates;

`*Help Syntax` explains the format used for help messages.

The usual use of *Help is to confirm that a command is appropriate for the job required, and to check on its syntax (the number, type and ordering of parameters that the command requires).

When you issue the *Help command at the normal command line prompt, 'paged mode' is switched on: the computer displays a screenful of text, then waits until you press Shift before moving on.

The specification of the keyword can include abbreviations to allow groups of commands to be specified. For example,

```
*help con.
```

produces information on *Configure and *Continue. You can also use this to establish the current abbreviation for a command. Since RISC OS uses the first command it finds that matches an abbreviation, typing *Con. is equivalent to *Configure. For the *Continue command, the minimum abbreviation must distinguish it from *Configure, and is therefore *Cont. These abbreviations may change as new commands are added.

11 Notes for command line users

Command line users will find many hint and tips in the following sections. The chapter is split up into the following sections:

- **Command line syntax**, detailing the syntax you need to use within the command line.
- **System devices**, giving you a summary of useful system devices you can use.
- **System variables**, explaining how variables are used by the operating system.
- **Command and application options**, explaining how to use variable options with commands and applications.
- **Command scripts**, showing you how to write Command and Obey files to control the computer.
- **Using GS formats in scripts**, showing the formats used to handle control characters.

Command line syntax

The interface to the command line is built into the RISC OS operating system and processes valid commands sent as text strings. The text string is normally terminated by Return.

The syntax of each command in the following chapters is described in a standard way, with examples of its use where these are helpful. The symbols used in syntax descriptions are:

italics	indicate that an actual value must be substituted. For example, *filename* means that an actual filename must be supplied.
[...]	indicate that the item enclosed in the square brackets is optional.
|	indicates alternatives. For example, 0 | 1 means that the value 0 or 1 must be supplied.

What are parameters?

RISC OS commands are sometimes followed by one or more *parameters* which tell the computer how you want the command to be modified. Ordinary English is not so very different: in the sentence 'Give a dog a bone' the word *give* is like the

command, and a *dog* and a *bone* are the parameters. And because it doesn't make much sense just to say 'Give' – you have to say what to give, and who to give it to – these 'parameters' are not optional.

In the following descriptions, the parameters are in italics. So the English example would be described like this:

give *someone something*

but you would type, for example,

```
give a dog a bone
```

or

```
give everyone a pay rise
```

However, whereas in English you can substitute several words separated by spaces for a single parameter, in RISC OS you can leave spaces only **between** parameters, since otherwise the operating system cannot tell where you want one parameter to end and the next to begin.

Command line parameters may be optional: in this case they are shown in the syntax within square brackets. Often, when a parameter is specified as optional, the operating system will supply a default value; the value of this is specified for each command.

Numeric parameters

Some commands have one or more numeric parameters. These are interpreted as decimal by default (unless the description of the command specifies otherwise), but it is possible to express them to any base by prefacing the parameter itself with the base followed by an underscore, as in the following examples:

`*Eval 2_1010101`	Returns the integer value of the argument, 85.
`*Eval 16_FFF`	Similarly, returns the value 4095.

an alternative form for hexadecimal uses the & sign to signify base 16:

```
*Eval &FFF
```

Decimal and hexadecimal are likely to be the most useful bases.

Wildcards

It is useful in many command line operations to specify objects using 'wildcards'. There are two wildcards:

*	stands for zero or more characters
#	stands for a single character

Examples

`he*`	would stand for *he*, *help*, *hello*, or *hencoop*
`he*p`	would stand for *help* or *hencoop*
`he##`	would stand for *help*, *hens* or *head*, but not *hen* or *health*

Checks on the command

Before a command is executed, the command line interface carries out a certain amount of pre-processing on the line:

- Stars and spaces are skipped. The command line prompt includes a star, so there is no need to type one, but it doesn't matter if you do.
- Comment lines are ignored. Comments are introduced by typing '|' as the first non-space character on a line.
- Command length is checked. Command lines must be less than or equal to 256 characters, including the terminating character. Lines which are too long produce an error message.
- Redirection (output to a file, or input from a file) is checked.
- Single-character prefixes are checked, such as '/', equivalent to Run, or '%' which instructs the command line interface to skip alias checking.
- Alias commands are checked. (The section entitled *System variables* on page 137 gives more information on the use of aliases.)
- The command is passed for execution. Commands offered to the command line interface are looked up in the OS table, passed to any other modules, the filing system manager, and finally *Run as a file of the name given, in an attempt to execute the command.

Full details of this checking are given in the RISC OS *Programmer's Reference Manual*.

File redirection

A powerful feature of RISC OS is the ability to redirect input or output streams (or both) for the duration of the command. By default, output is directed to the screen, but it may be convenient to redirect the output stream to a file so that it can be later examined in more detail or further processed.

The format of a redirection is:

`command { redirection spec }`

where the `redirection spec` is at least one of:

`> filename`	Output goes to `filename`.
`< filename`	Input read from `filename`.
`>> filename`	Output is appended to `filename`.

Note the following:

- Spaces in the redirection specification are significant.
- The braces are a literal part of the redirection format.
- There must be a single space between each pair of elements for it to be recognised as a redirection.

Examples

```
*Cat  { > mycat }
```

This sends a list of the contents in the current directory to a file called `mycat`.

```
*Help Cat { > AllHelp }
```

This sends all the help information on the * command Cat, (elicited by the command `*Help Cat`) to a file called `AllHelp`.

System devices

The operating system contains a number of useful system devices, which behave like files in some ways. You can use them anywhere you would normally use a file name as a source of input, or as a destination for output. These include the following:

System devices suitable for input

`kbd:`	the keyboard, reading a line at a time (this allows editing using Delete, Ctrl-U, and other keys)
`rawkbd:`	the keyboard, reading a character at a time
`serial:`	the serial port
`parallel:`	the parallel port
`null:`	the 'null device', which effectively gives no input

System devices suitable for output

`vdu:`	the screen, using GSRead format (see page 150)
`rawvdu:`	the screen, via the VDU drivers
`serial:`	the serial port
`parallel:`	the parallel port
`printer:`	the currently configured printer
`netprint:`	the currently configured network printer

`null:` the 'null device', which swallows all output

These system devices can be useful with commands such as *Copy, and the redirection operators (> and <):

`*Copy myfile printer:`	Send `myfile` to the printer
`*Cat { > printer: }`	List the files in the current directory to the printer
`*Cat netprint:`	Display the currently selected network printer and a list of available network printers.

The system device `null:` is useful to suppress unwanted output from a command script or program:

`*myprogram { > null: }`	Runs `myprogram` with no output

The most useful system devices for the general user are likely to be `printer:` and `netprint:`

System variables

Introducing variables

The section entitled *Saving and loading configurations* on page 86 describes how Configure stores the settings used at start-up time in the computer's RAM. As well as these, there are other settings that RISC OS needs, such as how you like the time and date to be printed, how you want the *Copy command to work, and what prompt you like. These are stored in system variables.

However, unlike configuration features, your settings for system variables are not preserved when you switch the computer off or reset it. When you do this, the computer always goes back to the default values for the standard set of system variables. You can see these default values by typing *Show just after switching on your computer.

In addition to RISC OS system variables, applications commonly use variables of their own, to control their default behaviour. For example, Edit uses variables to store your choices of display font, background colour and so on. Where there are such variables, they are listed in the relevant chapter in the *Applications Guide*. Some suggestions for using them are also included later in this chapter.

Setting variables in a boot file

If the default values are not the ones you want, you can change them using the *Set command. The computer does not remember system variables between sessions, so if you want different default values you must change the variable each time you

use your computer. Rather than typing them each time by hand, you can include the *Set commands in a boot file (a file that is run each time you use the computer).

However, although you could create such a boot file 'by hand', typing it in Edit, a much easier way is to use the Task manager's desktop boot facility, described in the chapter entitled *Desktop boot files* on page 109. You will then not need to understand anything about system variables as such, since you can simply set up the desktop the way you want it and make a desktop boot file. Even if you wish to edit the boot file created by the Task manager, that is the easiest way to start.

Referring to variables

Each variable is accessed by its name, which can contain any character which is neither a space nor a control character. As with filenames, the case of characters is remembered, but is ignored when the names are looked up.

Application variables

There are many different system variables provided and used by RISC OS, as well as some which may be added by applications. You can see them all by typing *Show (use Shift to display each successive screenful).

The following section gives standard names used for some of the variables that are bound to a particular application.

App$Dir

An *App*$Dir variable gives the full pathname of the directory that holds the application *App*. This is typically set in the application's !Run file by the line:

```
Set App$Dir <Obey$Dir>
```

App$Path

An *App*$Path variable gives the full pathname of the directory that holds the application *App*. An *App*$Path variable differs from an *App*$Dir variable in two important respects:

- The pathname includes a trailing '.'
- The variable may hold a set of pathnames, separated by commas.

It's common to use an *App*$Dir variable rather than an *App*$Path variable, but there may be times when you need the latter.

An *App*$Path variable might, for example, be set in the application's !Run file by the line:

```
Set App$Path <Obey$Dir>.,%.App.
```

if the application held further resources in the subdirectory *App* of the library.

App$Options

An *App*$Options variable holds the start-up options of the application *App*:

- An option that can be either on or off should consist of a single character, followed by the character '+' or '-' (eg `M+` or `S-`).
- Other options should consist of a single character, followed by a number (eg `P4` or `F54`).
- Options should be separated by spaces; so a complete string might be `F54 M+ P4 S-`.

This variable is typically used to save the state of an application to a desktop boot file, upon receipt of a desktop save message. A typical line output to the boot file might be:

```
Set App$Options F54 M+ P4 S-
```

An application should only save those options that differ from the default, so there will be no line at all if the application is in its default state.

App$PrintFile

An *App*$PrintFile variable holds the name of the file or system device to which the application *App* prints. Typically this will be `printer:`, and would be set in your application's !Run file as follows:

```
Set App$PrintFile printer:
```

Changing and adding commands

Alias$*Command*

An Alias$*Command* variable is used to define a new command named *Command*. For example:

```
Set Alias$Mode echo |<22>|<%0>
```

By using the name of an existing command, you can change how it works.

Using file types

File$Type_XXX

A File$Type_XXX variable holds the textual name for a file having the hexadecimal file type XXX. It is typically set in the !Boot file of an application that provides and edits that file type. For example:

```
Set File$Type_XXX TypeName
```

The reason the !Boot file is used rather than the !Run file is so that the file type can be converted to text from the moment its 'parent' application is first seen, rather than only from when it is run.

Alias$@LoadType_XXX, Alias$@PrintType_XXX and Alias$@RunType_XXX

These variables set the commands used respectively to load, print and run a file of hexadecimal type XXX. They are typically set in the !Boot file of an application that provides and edits that file type. For example:

```
Set Alias$@PrintType_XXX /<Obey$Dir> -Print
Set Alias$@RunType_XXX /<Obey$Dir>
```

Note that the above lines **both have a trailing space** (invisible in print!).

The reason the !Boot file is used rather than the !Run file is so that files of the given type can be loaded, printed and run from the moment their 'parent' application is first seen, rather than only from when it is run.

Setting the command line prompt

CLI$Prompt

The CLI$Prompt variable sets the command line interpreter prompt. By default this is '*'. One common way to change this is so that the system time is displayed as a prompt. For example:

```
SetMacro CLI$Prompt <Sys$Time> *
```

This is set as a macro so that the system time is evaluated each time the prompt is displayed.

Configuring RISC OS commands

Copy$Options, Count$Options and Wipe$Options

These variables set the behaviour of the *Copy, *Count and *Wipe commands. For a full description type *Help Copy at the command line.

System path variables

File$Path and Run$Path

These variables control where files are searched for during, respectively, read operations or execute operations. They are both path variables, which means that – in common with other path variables – they consist of a comma separated list of full pathnames, each of which has a trailing '.'.

If you wish to add a pathname to one of these variables, you must ensure that you append it once, and once only. For example, to add the 'bin' subdirectory of an application to Run$Path, you could use the following lines in the application's !Boot file:

```
If "<App$Path>" = "" then Set Run$Path <Run$Path>,<Obey$Dir>.bin.
Set App$Path <Obey$Dir>.
```

Obey files

Obey$Dir

The Obey$Dir variable is set to the directory from which an Obey file is being run, and may be used by commands within that Obey file.

Time and date

Sys$Time, Sys$Date and Sys$Year

These variables are code variables that are evaluated at the time of their use to give, respectively, the current system time, date and year.

Sys$DateFormat

The Sys$DateFormat variable sets the format in which the date is presented by some commands. For details of the format used by this variable, see page 141.

!System and !Scrap

System$Dir and System$Path

These variables give the full pathname of the System application. They have the same value, save that System$Path has a trailing '.', whereas System$Dir does not. You must not change their values.

(There are two versions of this pathname for compatibility with some old applications).

Wimp$Scrap

The Wimp$Scrap variable gives the full pathname of the Wimp scrap file used by the file transfer protocol. You must not use this variable for any other purpose, nor change its value.

Wimp$ScrapDir

The Wimp$ScrapDir variable gives the full pathname of a scrap directory within the Scrap application, which you may use to store temporary files. You must not use this variable for any other purpose, nor change its value.

The desktop

Wimp$State

The Wimp$State variable shows the current state of the Wimp. If the desktop is running, it has the value 'desktop'; otherwise it has the value 'commands'.

Command and application options and other variables

Some commands, such as *Copy and *Wipe, can operate in a variety of ways. For example, you can effectively turn *Copy into a Move command by setting the D(elete) option, which deletes the source file after copying it to another directory or filing system. You would do this by typing

```
*Set Copy$Options <Copy$Options> D
```

at the command line prompt. These options are described in the entries for each command in the chapter entitled *Star command summaries* on page 161.

Several applications, such as Edit, Draw, Alarm and Paint, also use system variables to record, for example, whether you want the Paint colours window to appear automatically when you open a sprite window, or whether you want the toolbox to be displayed by default in Draw. Such variables use the format *App*`$Options`, where *name* is the name of the application in question. These variables will only be listed in the computer's response to the *Show command if you have changed them from their default values.

In addition to 'options', applications may use other variables for a variety of purposes. For example, Acorn Desktop Publisher needs to know where its 'Work' directory is. It will find this out when the Work directory has been displayed on the screen, and it assigns the directory's pathname to the variable `dtp$WorkDir`. To avoid having to carry out this action each time you use the application, you can put a *Set command identifying the directory in your boot file, for example:

```
*Set dtp$WorkDir adfs::HardDisc.$.Applics.dtp.WorkDir
```

Setting the date and time format

The date and time format can be set by altering the system variable Sys$DateFormat. The text of this variable is printed as set, except when a % appears. In this case, the next one or two characters are treated as a special field name which is replaced by a component of the current time. The field names, which may use upper or lower case, are:

Name	Value	Example
CS	Centi-seconds	99
SE	Seconds	59
MI	Minutes	05
12	Hours in 12 hour format	07
24	Hours in 24 hour format	23
AM or PM	'AM' or 'PM' indicator	pm
WE	Weekday, in full	Thursday
W3	Weekday, short	Thu
WN	Weekday, as a number	5
DY	Day of the month	01
ST	Ordinal pre/suffix	st nd rd th
MO	Month name, in full	September
M3	Month name, short	Sep
MN	Month as a number	09
CE	Century	19
YR	Year within century	87
WK	Week of the year	52
DN	Day of the year	364
TZ	Timezone	BST
0	Insert an ASCII 0 zero byte	
%	Insert a %	

To cause leading zeros to be omitted, prefix the field with the letter Z. For example, `%zmn` means the month number without leading zeros. %0 may be used to split the output into several zero-terminated strings.

Changing Sys$DateFormat affects the output of some commands, such as *Info and *Ex, but does not affect the *Time command.

Example 1: changing the time and date format

Begin by typing

```
*Info ThisFile
```

where `ThisFile` is a file in your current directory. The information displayed includes the time when the file was last altered.

```
ThisFile   WR/r  Obey  18:53:39 26-Oct-1988  848  bytes
```

Change the date format, and get the information again, showing the time in the new format:

```
*Set Sys$DateFormat %we %zdy%st %mo %ce%yr (%z12:%mi %am)
*Info ThisFile
ThisFile WR/r Obey Wednesday 26th October 1988 (6:53
pm)   848  bytes
```

Example 2: creating your own command line prompt

You can also use a system variable to change the operating system prompt – normally * – by setting the variable CLI$Prompt to (for example) the character #:

```
*Set CLI$Prompt #
```

You can also set one variable to the value of another:

```
*Set CLI$Prompt <Sys$Time>
```

This sets the prompt to the system time, but only does so once, when the command is given. However, it would clearly be more useful if the prompt always showed the current time. To do this, change CLI$Prompt from a variable into a macro. A macro is similar to a variable, but is evaluated every time it is used, instead of just once when it is set. Therefore, type the following:

```
*SetMacro CLI$Prompt <Sys$Time> *
```

Each time Return is pressed at the command line prompt a new prompt is given (unless you have not typed anything since the last Return; you will then be returned to the desktop); the current time is worked out and displayed, followed by a space character and an asterisk:

```
12:59:06 *
12:59:07 *
12:59:08 *
```

Other uses for system variables

The names of commands may be changed using the *Set command with variables whose name starts Alias$... This allows you to add new commands, to change the meaning of existing commands, to combine commands together, and to add your own parameters to a command.

Programmers can use system variables to pass values between programs. One program can create and write to a variable which another program can then read. Such variables should have names starting *App$*, where *App* is your program; this avoids problems caused by programmers using the same system variable names.

Command scripts

Command scripts are files of commands that you would normally type in at the command line prompt. There are two main uses for such files:

- To set up the computer to the state you want, either when you switch on or when you start an application.

  This type of command script is commonly known as a boot file, because it is used to 'boot up' the computer. You can create such a file without needing to know anything about the command line, using the **Desktop boot** facility in the Task manager, described in the section entitled *Inside the desktop boot file* on page 111.

- To save typing in a set of commands you find yourself using frequently.

  For example, if you often want to display information about a file and then print it, you can combine the commands `*FileInfo` and `*Type` into a command script.

You may find using an `Alias$...` variable to be better for the second case. The main advantage of using variables rather than command files is that they are held in memory and so are quicker in execution; however, they are only really suitable for short commands. If you use variables you will probably still want to use a command file to set them up when you switch on.

Command and Obey file types

There are two types of file you can use for command scripts: Command files, and Obey files. The differences between these two file types are:

- An Obey file is always passed to the command line interpreter, whereas a Command file is passed to the current input.
- An Obey file is read directly, whereas a Command file is treated as if it were typed at the keyboard (and hence usually appears on the screen).
- An Obey file sets the system variable Obey$Dir to the directory it is in.
- An Obey file can have parameters passed to it.

The differences between Command and Obey files is explained in an example on page 148.

Additionally there are the TaskExec and TaskObey file types. These are very similar to Command and Obey files. Their main advantage is that they multitask under the desktop:

- A TaskExec file is *Exec'd in a task window.
- A TaskObey file is *Obey'd, opening a task window only if needed for I/O. It quits the window when finished.

Creating a command script

A command script can be created using any text or word processor. If you created the file using Edit, you should set the file's type by pressing Menu over the Edit icon on the icon bar and choosing the desired file type, such as Command or Obey.

When you save the file you should consider in which directory you will save it. By default, files are looked for first in the current directory, then in the library. Therefore, if you want to avoid having to type the full pathname of the file every time you run it you should save it in one of the following:

- The directory from which the command script will be run (typically your root directory, or an application directory)
- The library. The library is typically `$.Library`, but may be `$.ArthurLib` on a network; see `*Configure Lib` in the section entitled *Configuration commands* on page 155.

Running the script

Provided that you have set the file type to Command or Obey, the file can then be run in the same ways as any other file, by

- typing its name at the * prompt
- typing its name preceded by a * at any other prompt (some applications may not support this)
- double-clicking on its icon in a directory display.

The same restrictions apply as with any other file. If the file is not in either your current directory or the library, it will not be found if you just give the filename; you must give its full pathname. This assumes you have not changed the value of the system variable Run$Path.

Making a script run automatically

You can make scripts run automatically

- from the network when you first log on
- from a disc when you first switch the computer on
- from an application directory when the application is run.

To do this, your file must be called `!Boot`, or `!ArmBoot` on the network (this is to distinguish a boot file for a machine running RISC OS from an existing `!Boot` file already on the network for the use of BBC computers).

In the first two cases you will need to use the `*Opt` command as well; see the section entitled *Filing system commands* on page 153.

For an example of the last case, you can look in any of the application directories in the Applications Suite. To do this on the desktop, hold down Shift as you double-click on the application directory, otherwise the application will run.

Using parameters

An Obey file – but not a Command file – can have parameters passed to it, which can then be used by the command script. The first parameter is referred to as %0, the second as %1, and so on. You can refer to all the parameters after a particular one by putting a * after the %, so %*1 would refer to all the parameters from the second one onwards.

These parameters are substituted before the line is passed to the command line interpreter. Thus if an Obey file called `Display` contained:

```
FileInfo %0
Type %0
```

then the command `*Display MyFile` would do this:

```
FileInfo MyFile
Type MyFile
```

Sometimes you do not want parameter substitution. For example, suppose you wish to include a *Set Alias$.. command in your file, such as:

```
Set Alias$Mode echo |<22>|<%0> Desired-command
```

The effect of this is to create a new command 'Mode'. If you include the *Set Alias command in an Obey file, when you run the file the %0 will be replaced by the first parameter passed to the file. To prevent the substitution you need to change the % to %%:

```
Set Alias$Mode echo |<22>|<%%0> Command-needed-in-file
```

Now when the file is run, the '%%0' is changed to '%0'. No other substitution occurs at this stage, and the desired command is issued.

Examples

These example files illustrate some of the differences between Command and Obey files:

Example 1

```
*BASIC
AUTO
FOR I = 1 TO 10
  PRINT "Hello"
NEXT I
END
```

If this is a command file, it will enter the BASIC interpreter, and input the file shown. The command script will end with the BASIC interpreter waiting for another line of input. You can then press Esc to get a prompt, type RUN to run the program, and then type QUIT to leave BASIC. This script shows how a command file is passed to the input, and can change what is accepting its input (in this case to the BASIC interpreter).

On the other hand, if this is an Obey file it will be passed to the command line interpreter, and an attempt will be made to run these commands:

```
*BASIC
*AUTO
*FOR I = 1 TO 10
*  PRINT "Hello"
*NEXT I
*END
```

Only the first command is valid, and so as an Obey file all this does is to leave you in the BASIC interpreter. Type QUIT to leave BASIC; you will then get an error message saying `File 'AUTO' not found`, generated by the second line in the file.

Example 2

The next example illustrates how control characters are handled:

```
echo <7>
echo |<7>
```

The control characters are represented in GSTrans format (see the section entitled *Using GS formats in scripts* on page 150). These are not interpreted until the echo command is run, and are only interpreted then because echo expects GSTrans format.

The first line sends an ASCII 7 to the VDU drivers, sounding a beep. In the second line, the | preceding the < changes it from the start of a GSTrans sequence to just representing the character <, so the overall effect is:

```
echo <7>        Send ASCII 7 to VDU drivers – beeps
echo |<7>       Send <7> to the screen
```

Example 3

The last examples are a Command file:

```
*Set Alias$more %echo |<14>|m %type -tabexpand %*0|m %echo |<15>
```

and an Obey file that has the same effect:

```
Set Alias$more %echo |<14>|m %type -tabexpand %%*0|m %echo |<15>
```

The only differences between the two examples are that the Command file has a preceding * added, to ensure that the command is passed to the command line interpreter, and that the Obey file has the `%*0` changed to `%%*0` to delay the substitution of parameters.

The file creates a new command `more` – taking its name from the UNIX 'more' command – by setting the variable `Alias$more`:

- The `%` characters that precede `echo` and `type` ensure that the actual commands are used, rather than an aliased version of them.
- The sequence `|m` represents a carriage return in GSTrans format (see the section entitled *Using GS formats in scripts* overleaf). It is used to separate the commands, just as Return would if you were typing the commands.
- The two `echo` commands turn scroll mode on, then off, by sending the control characters ASCII 14 and 15 respectively to the VDU drivers.
- The | before each < prevents the control characters from being interpreted until the aliased command `more` is run.

The command turns scroll mode on, types a file to the screen expanding tabs as it does so, and then turns scroll mode off.

Using GS formats in scripts

The GSTrans and GSRead formats are used by a number of commands that need to be able to handle control characters, and characters whose top bit is set. They enable you to use these characters, which would otherwise cause unpredictable output from your monitor or printer, and which would be difficult to enter directly from the keyboard. The two formats are identical.

Conventions

The GSRead or GSTrans format is used by some commands to read characters that you type in. The characters are interpreted using the following conventions:

- A character preceded by a | is converted into the relevant control code: |C would become ASCII 3 (which is Ctrl C).
- An integer within angle brackets is converted into the equivalent ASCII code: <7> would become ASCII 7.
- A variable name within angle brackets is replaced by the value held in the variable, or is ignored if the variable does not exist.
- All other characters are unchanged.

A full list of ASCII codes and how to obtain them is given below. Of course, any ASCII code may be obtained by enclosing it in angle brackets as described above, and this may be easier to remember than the symbol encoding.

ASCII code	Symbols used	
0	|@	
1 – 26	|*letter* eg	|A (or |a) = ASCII 1 |M (or |m) = ASCII 13
27	|[or |{	
28	|\	
29	|] or |}	
30	|^ or |~	
31	|_ or |'	
32 – 126	keyboard character, except for:	
"	|"	
|	||	
<	|<	
127	|?	
128 – 255	|!*coded-symbol* eg	ASCII 128 = |!|@ ASCII 129 = |!|A etc

You must use |< to prevent the < from being interpreted as the start of a number or variable name enclosed in angled brackets.

To include leading spaces in a definition, the string must be in double quotation marks, ", which are not included in the definition. To include a literal " character in the string, use \" or "".

12 Types of star command

This chapter gives a short summary of each of the types of *Commands and then gives a list of *Commands in each grouping. Once you have found the *Command of interest you can look up a summary of its function and its syntax in the next chapter.

For full information about the star commands in this and the next chapter, refer to the RISC OS *Programmer's Reference Manual*.

Filing system commands

Before you use these commands you should have read the chapters on filing systems. Those chapters introduce the filing systems and describe how they work, and also explain the terminology used in this chapter.

In many commands, reference is made to the current directory; many parameters, if omitted, will default to this directory. You can determine at any time which the current directory is by typing *Cat and then pressing Return; this displays a catalogue of the current directory. It is important to realise that opening or closing a directory display in the desktop does not change the current directory. Use the command *Dir to change directory within the command line.

General filing system commands

The commands in this section are relevant to the operation of all filing systems.

*Access
*Append
*Build
*Cat
*CDir
*Close
*Copy
*Count
*Create
*Delete
*Dir
*Dump
*EnumDir
*Ex
*Exec
*FileInfo
*Info
*LCat
*LEx
*Lib
*List
*Load
*Opt 1
*Opt 4
*PipeCopy
*Print
*Rename
*Remove
*Run
*Save
*SetType
*Shut
*ShutDown
*Spool
*SpoolOn
*Stamp
*Type
*Up
*Wipe

Filing system-specific commands

The commands below are specific to particular filing systems, and you can only use them when the relevant filing system is selected as the current filing system.

Disc-specific commands

The Advanced Disc Filing System (ADFS) is the default filing system, and is supplied with every system. However most of these commands also apply to other disc filing systems such as the SCSI Filing System (SCSI) and the Compact Disc Filing System (CDFS). ADFS controls the local disc storage media (floppy disc, and hard disc if fitted). This version of ADFS is compatible with previous versions of Acorn ADFS.

*ADFS	*Defect	*Mount
*Back	*Dismount	*NameDisc
*Backup	*DOSMap	*NoDir
*Bye	*Drive	*NoLib
*CheckMap	*Format	*NoURD
*Compact	*Free	*URD
*CopyBoot	*Map	*Verify

Network-specific commands

The Network Filing System is for use with a local area network, such as Econet. For general information on NetFS, see the chapter entitled *Discs, networks and filing systems* on page 31.

*Net	*I am	*Pass
*AddFS	*ListFS	*PS
*Bye	*ListPS	*SDisc
*Free	*Logon	*SetPS
*FS	*Mount	

Other filing system-specific commands

The Advanced Disc Filing System (ADFS) and, for network users, the Network Filing System (NetFS) are the most commonly used, but more specialised filing systems – such as the RAM filing system (RAMFS) and the desktop filing system (ResourceFS) – have commands to select them, which are listed below. Some of these filing systems may not be present on your computer.

*Ram	*SCSI	*CDFS
*ResourceFS		

Configuration commands

These commands are used to configure, or set up, the computer. The main command used is the *Configure command, which has many possible parameters, one for each of the CMOS RAM options you can set with it. CMOS RAM contains values of settings used at startup time; these values are not lost when mains power is switched off, since CMOS RAM is supported by batteries: the memory is therefore known as 'non-volatile'.

The Configure application, !Configure, can control most of these features, such as mouse speed, keyboard auto-repeat, sound volume, printer type, the keyboard Caps Lock, and the type of window dragging. The !Configure application is described on page 85.

Changes set with *Configure are recorded immediately, but take effect only after power on or a hard reset.

The Configure application also provides a facility for saving configurations as files. Such files will incorporate settings only for those features that can be set with the !Configure application, not for those that have to be set in the command line.

The *Status command displays a list of the current options and their currently assigned values, the entire collection of settings being known as the configuration status of the machine.

User preferences

This group of configuration commands allows you to customise the operation of your computer to suit your personal working style.

*Configure Boot
*Configure Caps
*Configure Delay
*Configure Dir
*Configure DumpFormat
*Configure FileSystem
*Configure Language
*Configure Lib
*Configure Loud
*Configure Mode
*Configure NoBoot
*Configure NoCaps
*Configure NoDir
*Configure NoScroll
*Configure Quiet
*Configure Repeat
*Configure Scroll
*Configure ShCaps
*Configure SoundDefault
*Configure Truncate

Desktop preferences

This group of configuration commands allows you to set up your desktop configuration to suit your own way of working. These commands are usually set using the !Configure application.

*Configure MouseStep
*Configure WimpAutoMenuDelay
*Configure WimpDoubleClickDelay
*Configure WimpDoubleClickMove
*Configure WimpDragDelay
*Configure WimpDragMove
*Configure WimpFlags
*Configure WimpMenuDragDelay
*Configure WimpMode

Hardware configuration

This group of configuration commands allows you to set up your computer to suit its hardware specification and the range of peripherals such as printers that are connected to it.

*Configure Baud
*Configure BST
*Configure Cache
*Configure Country
*Configure Data
*Configure Drive
*Configure DST
*Configure Floppies
*Configure FS
*Configure GMT
*Configure HardDiscs
*Configure IDEDiscs
*Configure Ignore
*Configure MonitorType
*Configure NoDST
*Configure Print
*Configure PS
*Configure Step
*Configure Sync
*Configure Territory
*Configure TimeZone
*Configure TV

Memory allocation

This group of configuration commands allows you to optimise the use of memory. The default memory allocations take into account the model number of your Acorn computer (and hence the overall size of memory), so these values should not be changed for general use.

For many of these commands you can specify the amount of memory to reserve either in kilobytes or in pages of memory. It is preferable to use kilobytes, as the page size could change on future versions of the hardware. For reference, the current page sizes are:

1Mbyte machines:	8Kbytes
2Mbyte machines:	16Kbytes
4Mbyte machines:	32Kbytes
>4Mbyte machines	32Kbytes

You can see how memory is allocated and make temporary changes by using the Task manager from the desktop.

*Configure ADFSbuffers
*Configure ADFSDirCache
*Configure FontSize
*Configure FontMax
*Configure FontMax1
*Configure FontMax2
*Configure FontMax3
*Configure FontMax4
*Configure FontMax5
*Configure PrinterBufferSize
*Configure RAMFsSize
*Configure RMASize
*Configure ScreenSize
*Configure SpriteSize
*Configure SystemSize

System variables

The chapter entitled *Notes for command line users* on page 133 describes how RISC OS stores settings used at start-up time in the computer's RAM.

These are the commands used for system variables:

*Show
*Set
*SetEval
*SetMacro
*Unset

Module-related commands

A relocatable module is a piece of software which, when loaded into the machine, behaves like a normal application program or as an extension to the operating system. Modules can contain programming languages or filing systems; they can be used to add new * commands.

Relocatable modules run in an area of memory known as the Relocatable Module Area (RMA) which is maintained by the system. They are 'relocatable' because they can be loaded at any particular location in memory.

RISC OS provides facilities for integrating modules in such a way that, to the user, they appear to be a full part of the system. For instance, the operating system responds to the *Help command, extracting automatically any relevant help text.

Several * commands are provided by the operating system for handling modules, including one for loading a module file from the filing system, and these are described in detail in the next chapter.

*Modules
*RMClear
*RMEnsure
*RMFaster
*RMInsert
*RMKill
*RMLoad
*RMReInit
*RMRun
*RMTidy
*ROMModules
*Unplug

Sound system commands

RISC OS contains a sound synthesizer which allows up to eight 'instruments' to be played at once, with mono or stereo sound production for each instrument. The sound system can be controlled with great subtlety, the details of which are outside the scope of this guide. Individual sound commands are listed below; for further information, refer to the chapter on Sound in the RISC OS *Programmer's Reference Manual*.

The Maestro program is included on the Applications disc; it enables you to compose and replay music.

*Audio
*ChannelVoice
*QSound
*Sound
*Speaker
*Stereo
*Tempo
*Tuning
*Voices
*Volume

FX commands

*FX commands access the operating system OS_Byte routines and require from one to three parameters. Like many of the operating system commands, many *FX actions can be carried out from the desktop. For example, the printer ignore character can be set using the Configure application. In addition, there is little error handling built in to *FX commands, and invalid values are not rejected and may have unpredictable results. Most *FX commands have now been replaced by better RISC OS operations; *FX commands have been retained for reasons of backwards compatibility.

For further information, refer to the RISC OS *Programmer's Reference Manual*.

Debugger commands

These commands are for use when debugging applications:

*BreakClr
*BreakList
*BreakSet
*Continue
*Debug
*InitStore
*Memory
*MemoryA
*MemoryI
*ShowRegs

Desktop commands

These commands are related to the desktop, filer and wimp behaviour:

*AddTinyDir
*Backdrop
*Desktop
*Desktop_...
*Desktop_SetPalette
*Filer_Action
*Filer_Boot
*Filer_CloseDir
*Filer_OpenDir
*Filer_Run
*Filters
*IconSprites
*Pin
*Pinboard
*Pointer
*RemoveTinyDir
*ShellCLI
*ShellCLI_Task
*ShellCLI_TaskQuit
*ShowFree
*TaskWindow
*ToolSprites
*WimpMode
*WimpPalette
*WimpSlot
*WimpTask
*WimpWriteDir

Sprite commands

These commands are used to control sprites:

*SChoose
*ScreenLoad
*ScreenSave
*SCopy
*SDelete
*SDisc
*SFlipX
*SFlipY
*SGet
*SInfo
*SList
*SLoad
*SMerge
*SNew
*SRename
*SSave

Font commands

These commands are used to control fonts and font usage:

*FontCat
*FontInstall
*FontLibrary
*FontList
*FontRemove
*LoadFontCache
*SaveFontCache

Miscellaneous star commands

These commands control the behaviour of the keyboard, VDU and printer ports, including customising the computer for international use. In addition, there are commands of interest to programmers and those who wish to prepare Obey files or startup scripts (for more information, see the chapter entitled *Notes for command line users* on page 133).

*Alphabet
*Alphabets
*BASIC
*BASIC64
*BlankTime
*Cache
*ChangeDynamicArea
*ColourTrans
*Country
*Countries
*Echo
*Error
*Eval
*Go
*Gos
*If
*Ignore
*Key
*Keyboard
*Obey
*Podules
*PoduleLoad
*PoduleSave
*Quit
*Shadow
*Territories
*Time
*TV

13 Star command summaries

This is an alphabetical list of every * Command available under RISC OS 3. It does not contain * Commands provided by the addition of expansion cards or extra filing systems.

Each command is followed by a short explanation of its function and its command syntax. This is not intended as a complete explanation of the command, but as a quick reference for experienced users who may prefer to use the command line. All of these commands are explained in greater detail in the RISC OS *Programmer's Reference Manual*.

Command syntax

The syntax of each command in the following sections is described in a standard way. The symbols used in syntax descriptions are:

italics	indicate that an actual value must be substituted. For example, *filename* means that an actual filename must be supplied.
[...]	indicate that the item enclosed in the square brackets is optional.
|	indicates alternatives. For example, 0 | 1 means that the value 0 or 1 must be supplied.

The star commands

*Access

*Access changes the attributes of all objects matching the wildcard specification. These attributes control whether you can run, read from, write to and delete a file.

Attributes are:

L	Lock object against deletion by any user
W	Write permission for you
R	Read permission for you
/	Separator between your permissions and the public's
W	Write permission for the public (on NetFS)
R	Read permission for the public (on NetFS)

*Access *object_spec* [*attributes*]

*AddFS

*AddFS adds a remote file server's disc to the list of file servers' discs that are known to NetFS. If only the file server is specified, then all its discs will be removed from the list.

```
*AddFS file_server_number [disc_number [:]disc_name]
```

*AddTinyDir

*AddTinyDir adds a file, application or directory to the icon bar. If no pathname is given, it adds a blank directory icon to the icon bar.

```
*AddTinyDir [object]
```

*ADFS

*ADFS selects the Advanced Disc Filing System as the current filing system.

```
*ADFS
```

*Alphabet

*Alphabet selects an alphabet, setting it according to the country name or alphabet name. With no parameter, this command displays the currently selected alphabet.

```
*Alphabet [country_name|alphabet_name]
```

*Alphabets

*Alphabets lists all the alphabets currently supported.

```
*Alphabets
```

*Append

*Append opens an existing file so you can add more data to the end of the file. Pressing Escape finishes the input.

```
*Append filename
```

*Audio

*Audio turns the Sound system on or off.

```
*Audio On|Off
```

*Back

*Back swaps the current and previously selected directories on the current filing system.

```
*Back
```

*BackDrop

*BackDrop puts the first sprite in the given sprite file on the desktop background. If no filename is specified, the current backdrop's placing is altered.

```
*BackDrop [-Centre|-Scale|-Tile] [filename]
```

*Backup

*Backup copies the used part of one floppy disc to another; free space is not copied.

```
*Backup source_drive dest_drive [Q]
```

*BASIC

*BASIC starts the ARM BBC BASIC V interpreter. For full details of BBC BASIC, see the BBC BASIC *Reference Manual*, available from your Acorn supplier.

```
*BASIC [options]
```

*BASIC64

*BASIC64 starts the ARM BBC BASIC VI interpreter, supplied on disc with your RISC OS computer – provided its module has already been loaded, or is in the library. For full details of BBC BASIC, see the BBC BASIC *Reference Manual*, available from your Acorn supplier.

```
*BASIC64 [options]
```

*BlankTime

*BlankTime sets the time in seconds before the screen blanks. If, during this time, there is no activity (i.e. no keyboard or mouse input is received, and – with the `W` option – there is no writing to the screen) the screen then blanks.

The blank time is only retained until the next reset.

```
*BlankTime [W|O] [time]
```

*BreakClr

*BreakClr removes the breakpoint at the specified address or register value. If you give no parameter then you can remove all breakpoints.

```
*BreakClr [addr|reg]
```

*BreakList

*BreakList lists all the breakpoints that are currently set.

```
*BreakList
```

*BreakSet

*BreakSet sets a breakpoint at the specified address or register value.

```
*BreakSet addr|reg
```

*Build

*Build opens a new file and directs subsequent input to it. Pressing Escape finishes the input.

```
*Build filename
```

*Bye

*Bye ends a filing system session by closing all files and unsetting all directories and libraries.

Other actions are filing system dependent, and where relevant may include dismounting discs, parking the heads of hard discs, and logging off the current fileserver.

```
*Bye
*Bye [[:]file_server]                    (NetFS syntax)
```

*Cache

*Cache turns the cache on or off. With no parameter, it gives the cache's current state.

```
*Cache [On|Off]
```

*Cat

*Cat lists all the objects in a directory (by default the current directory).

```
*Cat [directory]
```

*CDir

*CDir creates a directory with the specified pathname. On NetFS, you can also give the size of the directory.

```
*CDir directory [size_in_entries]
```

*CDFS

*CDFS selects the CD-ROM Filing System as the current filing system. This command is only available if you have a CD-ROM drive fitted.

```
*CDFS
```

*ChangeDynamicArea

*ChangeDynamicArea changes the size of the font cache, system sprite area and/or RAM disc.

```
*ChangeDynamicArea [-FontSize n[K]] [-SpriteSize n[K]] [-RamFsSize n[K]]
```

*ChannelVoice

*ChannelVoice assigns a voice to a channel. By default, only the first of the eight voices will be available. To make others available, use the BASIC `VOICES n` command.

```
*ChannelVoice channel voice_number|voice_name
```

*CheckMap

*CheckMap checks that the map of an E- or F-format disc has the correct checksums and is consistent with the directory tree. If only one copy of the map is good, it allows you to rewrite the bad one with the information in the good one.

```
*CheckMap [disc_spec]
```

*Close

*Close closes all open files on the current filing system.

```
*Close
```

*ColourTrans...

*ColourTrans... commands are for internal use only, and you should not use them.

*Compact

*Compact collects together free space on a disc by moving files.

```
*Compact [disc_spec]
```

*Configure

*Configure sets the value of a configuration option in the CMOS RAM. If no parameters are specified, the available configuration options are listed.

```
*Configure [option [value]]
```

*Configure ADFSbuffers

*Configure ADFSbuffers sets the configured number of 1 Kbyte file buffers reserved for ADFS in order to speed up operations on open files. A value of 1 sets a default value appropriate to the computer's RAM size; a value of 0 disables fast buffering on open files.

```
*Configure ADFSbuffers n
```

*Configure ADFSDirCache

*Configure ADFSDirCache sets the configured amount of memory reserved for the directory cache. A value of 0 sets a default value appropriate to the computer's RAM size.

```
*Configure ADFSDirCache size[K]
```

*Configure Baud

*Configure Baud sets the configured baud rate for the serial port.

```
*Configure Baud n
```

*Configure Boot

*Configure Boot sets the configured boot action so that a power on, reset or Ctrl Break runs a boot file.

```
*Configure Boot
```

*Configure BST

*Configure BST (short for British Summer Time) is identical to the command *Configure DST, and is provided only on machines configured for the UK territory.

```
*Configure BST
```

*Configure Cache

*Configure Cache sets the configured cache state to be on or off.

```
*Configure Cache On|Off
```

*Configure Caps

*Configure Caps sets the configured value for Caps Lock to ON.

```
*Configure Caps
```

*Configure Country

*Configure Country sets the configured alphabet and keyboard layout.

```
*Configure Country country_name
```

*Configure Data

*Configure Data sets the configured data word format for the serial port.

```
*Configure Data n
```

*Configure Delay

*Configure Delay sets the configured delay before keys start to auto-repeat.

```
*Configure Delay n
```

*Configure Dir

*Configure Dir sets the configured disc mounting so that discs are mounted at power on.

```
*Configure Dir
```

*Configure Drive

*Configure Drive sets the configured number of the drive that is selected at power on.

```
*Configure Drive n
```

*Configure DST

*Configure DST sets the configured value for daylight saving time to ON.

The time zone is set when you configure your computer's territory, rather than by this command.

```
*Configure DST
```

*Configure DumpFormat

*Configure DumpFormat sets the configured format used by the *Dump, *List and *Type commands.

```
*Configure DumpFormat n
```

*Configure FileSystem

*Configure FileSystem sets the configured filing system to be used at power on or hard reset.

```
*Configure FileSystem fs_name|fs_number
```

*Configure Floppies

*Configure Floppies sets the configured number of floppy disc drives recognised at power on.

```
*Configure Floppies n
```

*Configure FontMax

*Configure FontMax sets the configured maximum size of the font cache.

```
*Configure FontMax mK|n
```

*Configure FontMax1

*Configure FontMax1 sets the maximum height at which to scale from a bitmap font rather than from an outline font.

```
*Configure FontMax1 max_height
```

*Configure FontMax2

*Configure FontMax2 sets the maximum height at which to scale from outlines to anti-aliased bitmaps, rather than to 1 bit per pixel bitmaps.

```
*Configure FontMax2 max_height
```

*Configure FontMax3

*Configure FontMax3 sets the maximum height at which to retain bitmaps in the cache, rather than the outlines from which they were converted.

```
*Configure FontMax3 max_height
```

*Configure FontMax4

*Configure FontMax4 sets the maximum width at which to use horizontal subpixel anti-aliasing.

```
*Configure FontMax4 max_width
```

*Configure FontMax5

*Configure FontMax5 sets the maximum height at which to use vertical subpixel anti-aliasing.

```
*Configure FontMax5 max_height
```

*Configure FontSize

*Configure FontSize sets the configured amount of memory reserved for the font cache.

```
*Configure FontSize sizeK
```

*Configure FS

*Configure FS sets the configured default file server for NetFS.

```
*Configure FS file_server
```

*Configure GMT

*Configure GMT (short for Greenwich Mean Time) is identical to the command *Configure NoDST, and is provided only on machines configured for the UK territory.

```
*Configure GMT
```

*Configure HardDiscs

*Configure HardDiscs sets the configured number of ST506 hard disc drives recognised at power on. These disc drives are the standard ones fitted to early models of RISC OS computers (e.g. the Archimedes 400 series).

```
*Configure HardDiscs n
```

*Configure IDEDiscs

*Configure IDEDiscs sets the configured number of IDE hard disc drives recognised at power on. These disc drives are the standard ones fitted to more recent models of RISC OS computers (e.g. the A5000).

```
*Configure IDEDiscs n
```

*Configure Ignore

*Configure Ignore sets the configured printer ignore character.

```
*Configure Ignore [ASCII_code]
```

*Configure Language

*Configure Language sets the configured language used at power on.

```
*Configure Language module_no
```

*Configure Lib

*Configure Lib sets the configured library selected by NetFS after logon (0 for the default library, 1 for $.ArthurLib).

```
*Configure Lib [0 | 1]
```

*Configure Loud

*Configure Loud sets the configured volume for the beep to its loudest volume.

```
*Configure Loud
```

*Configure Mode

*Configure Mode sets the configured screen mode used by the machine. It is identical to the command *Configure WimpMode.

```
*Configure Mode screen_mode|Auto
```

*Configure MonitorType

*Configure MonitorType sets the configured monitor type.

```
*Configure MonitorType n|Auto
```

*Configure MouseStep

*Configure MouseStep sets the configured value for how fast the pointer moves as you move the mouse.

```
*Configure MouseStep n
```

*Configure NoBoot

*Configure NoBoot sets the configured boot action so that a Shift power on, Shift reset or Shift Break runs a boot file.

```
*Configure NoBoot
```

*Configure NoCaps

*Configure NoCaps sets the configured value for Caps Lock to OFF.

```
*Configure NoCaps
```

*Configure NoDir

*Configure NoDir sets the configured disc mounting so that discs are not mounted at power on.

```
*Configure NoDir
```

*Configure NoDST

*Configure NoDST sets the configured value for daylight saving time to OFF.

The time zone is set when you configure your computer's territory, rather than by this command.

```
*Configure NoDST
```

*Configure NoScroll

*Configure NoScroll sets the configured scrolling so the screen does not scroll upwards at the end of a line.

```
*Configure NoScroll
```

*Configure Print

*Configure Print sets the configured default destination for printed output.

```
*Configure Print n
```

*Configure PrinterBufferSize

*Configure PrinterBufferSize sets the configured amount of memory reserved for printer buffering.

```
*Configure PrinterBufferSize mK|n
```

*Configure PS

*Configure PS sets the configured default network printer server.

```
*Configure PS printer_server
```

*Configure Quiet

*Configure Quiet sets the configured volume for the beep to half its loudest volume.

```
*Configure Quiet
```

*Configure RamFSSize

*Configure RamFSSize sets the configured amount of memory reserved for the RAM Filing System to use.

```
*Configure RamFSSize mK|n
```

*Configure Repeat

*Configure Repeat sets the configured interval between the generation of auto-repeat keys.

```
*Configure Repeat n
```

*Configure RMASize

*Configure RMASize sets the configured extra area of memory reserved for relocatable modules

```
*Configure RMASize mK|n
```

*Configure ScreenSize

*Configure ScreenSize sets the configured amount of memory reserved for screen display.

```
*Configure ScreenSize mK|n
```

*Configure Scroll

*Configure Scroll sets the configured scrolling so the screen scrolls upwards at the end of a line.

```
*Configure Scroll
```

*Configure ShCaps

*Configure ShCaps sets the configured value for Caps Lock to ON, Shift producing lower case letters.

```
*Configure ShCaps
```

*Configure SoundDefault

*Configure SoundDefault sets the configured speaker setting, volume and voice.

```
*Configure SoundDefault speaker volume voice_number
```

*Configure SpriteSize

*Configure SpriteSize sets the configured amount of memory reserved for the system sprite area.

```
*Configure SpriteSize mK|n
```

*Configure Step

*Configure Step sets the configured step rate of one or all floppy disc drives.

```
*Configure Step n [drive]
```

*Configure Sync

*Configure Sync sets the configured type of synchronisation for vertical sync output.

```
*Configure Sync 0|1|Auto
```

*Configure SystemSize

*Configure SystemSize sets the configured extra area of memory reserved for the system heap.

```
*Configure SystemSize mK|n
```

*Configure Territory

*Configure Territory sets the configured default territory for the machine. Use this command with caution; if you set a territory that is unavailable your computer will not start, and so you will have to reset your CMOS RAM.

```
*Configure Territory territory
```

*Configure TimeZone

*Configure TimeZone sets the configured local time offset from UTC. The time offset must be in the range –13:45 to +13:45, and must be an exact multiple of 15 minutes.

```
*Configure TimeZone [+|-]hours[:minutes]
```

*Configure Truncate

*Configure Truncate sets the configured value for whether or not filenames are truncated when too long for a filing system to handle.

```
*Configure Truncate On|Off
```

*Configure TV

*Configure TV sets the configured vertical screen alignment and screen interlace.

```
*Configure TV [vert_align[[,]interlace]]
```

*Configure WimpAutoMenuDelay

*Configure WimpAutoMenuDelay sets the configured time the pointer must rest over a menu item before its submenu (if any) is automatically opened.

```
*Configure WimpAutoMenuDelay delay
```

*Configure WimpDoubleClickDelay

*Configure WimpDoubleClickDelay sets the configured time after a single click during which a double click is accepted.

```
*Configure WimpDoubleClickDelay delay
```

*Configure WimpDoubleClickMove

*Configure WimpDoubleClickMove sets the configured distance from the position of a single click within which a double click is accepted.

```
*Configure WimpDoubleClickMove distance
```

*Configure WimpDragDelay

*Configure WimpDragDelay sets the configured time after a single click after which a drag is started.

```
*Configure WimpDragDelay delay
```

*Configure WimpDragMove

*Configure WimpDragMove sets the configured distance from the position of a single click that the pointer has to move for a drag to be started.

```
*Configure WimpDragMove distance
```

*Configure WimpFlags

*Configure WimpFlags sets the configured behaviour of windows when dragged, and of error boxes:

Bit	Meaning when set
0	window position drags are continuously redrawn
1	window resizing drags are continuously redrawn
2	horizontal scroll drags are continuously redrawn
3	vertical scroll drags are continuously redrawn
4	no beep is generated when an error box appears
5	windows can be dragged partly off screen to right and bottom
6	windows can be dragged partly off screen in all directions
7	open submenus automatically

```
*Configure WimpFlags n
```

*Configure WimpMenuDragDelay

*Configure WimpMenuDragDelay sets the configured time before an automatically opened submenu is closed. During this time you can move the pointer over other menu entries without closing the submenu, making it easy to reach the submenu.

```
*Configure WimpMenuDragDelay delay
```

*Configure WimpMode

*Configure WimpMode sets the configured screen mode used by the machine. It is identical to the command *Configure Mode.

```
*Configure WimpMode screen_mode|Auto
```

*Continue

*Continue resumes execution after a breakpoint, using the saved state.

```
*Continue
```

*Copy

*Copy makes a copy between directories of any object(s) that match the given wildcard specification. Options are taken from the system variable Copy$Options, and those given to the command.

Options (use '~' to force off, e.g. ~C):		**Default**
A(ccess)	Force destination access to same as source	ON
C(onfirm)	Prompt for confirmation of each copy	ON
D(elete)	Delete the source object after copy	OFF
F(orce)	Force overwriting of existing objects	OFF
L(ook)	Look at destination before loading source file	OFF
N(ewer)	Copy only if source more recent than destination	OFF
P(rompt)	Prompt for disc to be changed as needed in copy	OFF
Q(uick)	Use application workspace as a buffer	OFF
R(ecurse)	Copy subdirectories and contents	OFF
S(tamp)	Restamp date-stamped files after copying	OFF
(s)**T**(ructure)	Copy only the directory structure	OFF
V(erbose)	Print information on each object copied	ON

```
*Copy source_spec destination_spec [[~]options]
```

*CopyBoot

*CopyBoot copies the boot block from one MS-DOS floppy disc over the boot block of another.

```
*CopyBoot source_drive dest_drive
```

*Count

*Count adds up the size of data held in one or more objects that match the given wildcard specification. Options are taken from the system variable Count$Options, and those given to the command.

Options (use '~' to force off, e.g. ~C):		**Default**
C(onfirm)	Prompt for confirmation of each count	OFF
R(ecurse)	Count subdirectories and contents	ON
V(erbose)	Print information on each file counted	OFF

```
*Count object_spec [[~]options]
```

*Countries

*Countries lists all the countries currently supported.

```
*Countries
```

*Country

*Country selects the appropriate alphabet and keyboard layout for a given country. With no parameter, this command displays the currently selected country.

```
*Country [country_name]
```

*Create

*Create reserves space for a new file. No data is transferred to the file. The optional load and execution addresses and length are in hexadecimal.

```
*Create filename [length [exec_addr [load_addr]]]
```

*Debug

*Debug enters the debugger. Type `Quit` to exit.

```
*Debug
```

*Defect

*Defect reports what object contains a defect, or (if none) marks the defective part of the disc so it will no longer be used.

```
*Defect disc_spec disc_addr
```

*Delete

*Delete erases a single named file or empty directory.

```
*Delete object_spec
```

*Desktop

*Desktop initialises all desktop facilities, then starts the Desktop. It also runs an optional * Command or file of * Commands.

```
*Desktop [command|-File filename]
```

*Desktop_...

*Desktop_... commands (except for *Desktop_SetPalette: see below) are for internal use only, and you should not use them.

*Desktop_SetPalette

*Desktop_SetPalette alters the current Wimp palette.

```
*Desktop_SetPalette RGB0 ... RGB15 RGBbor RGBptr1 ... RGBptr3
```

*Dir

*Dir selects a directory (by default the user root directory) as the current directory on a filing system.

```
*Dir [directory]
```

*Dismount

*Dismount ensures that it is safe to finish using a disc by closing all its files, unsetting all its directories and libraries, forgetting its disc name (if a floppy disc) and parking its read/write head.

```
*Dismount [disc_spec]
```

*DOSMap

*DOSMap specifies a mapping between an MS-DOS extension and a RISC OS file type. If the only parameter given is an MS-DOS extension, then the mapping (if any) for that extension is cancelled. If no parameter is given, then all current mappings are listed.

The mappings are only retained until the next reset.

```
*DOSMap [MS-DOS_extension [file_type]]
```

*Drive

*Drive sets the current drive if NoDir is set.

```
*Drive drive
```

*Dump

*Dump displays the contents of a file, in hexadecimal and ASCII codes. The optional file offset and start address are in hexadecimal.

```
*Dump filename [file_offset [start_address]]
```

*Echo

*Echo displays a string on the screen (after translating it using OS_GSTrans).

```
*Echo string
```

*EnumDir

EnumDir creates a file of object leafnames from a directory that match the wildcarded pattern (by default '').

```
*EnumDir directory output_file [pattern]
```

*Error

*Error generates an error with the given error number and explanatory text.

```
*Error [error_no] text
```

*Eval

*Eval evaluates an integer, logical, bit or string expression.

The expression can use the following operators:

+	addition or string concatenation
–, *, /, MOD	integer operations
=, <, >, <=, >=, <>	string or integer comparison
<<, >>	arithmetic shift left and right
>>>	logical shift right
STR, VAL	conversion between strings and integers
AND, OR, EOR, NOT	(bitwise) logical operators
RIGHT, LEFT	substring extraction
LEN	string length

You can also use brackets.

```
*Eval expression
```

*Ex

*Ex lists all the objects in a directory (by default the current directory) together with their corresponding file information.

```
*Ex [directory]
```

*Exec

*Exec instructs the operating system to take its input from the specified file. If no parameter is given, the current exec file is closed.

```
*Exec [filename]
```

*FileInfo

*FileInfo gives full file information for the specified object(s).

```
*FileInfo object_spec
```

*Filer_Action

*Filer_Action is used to start a Filer_Action task running. This command is intended for use only within desktop applications.

```
*Filer_Action
```

*Filer_Boot

*Filer_Boot boots the specified desktop application by running its !Boot file.

```
*Filer_Boot application
```

*Filer_CloseDir

*Filer_CloseDir closes a directory display on the Desktop, and any of its sub-directories.

```
*Filer_CloseDir directory
```

*Filer_OpenDir

*Filer_OpenDir opens a directory display on the Desktop. Switches are:

Switch	Alternative	Meaning
-SmallIcons	-si	display small icons
-LargeIcons	-li	display large icons
-FullInfo	-fi	display full information
-SortByName	-sn	display sorted by name
-SortByType	-st	display sorted by type
-SortByDate	-sd	display sorted by date
-SortBySize	-ss	display sorted by size

Each parameter – except for the switches – can be preceded by a keyword:

Keyword	Alternative	Precedes parameter
-directory	-dir	*directory*
-topleftx	-x0	*x*
-toplefty	-y1	*y*
-width	-w	*width*
-height	-h	*height*

```
*Filer_OpenDir directory [x y [width height]] [switches]
```

*Filer_Run

*Filer_Run performs the equivalent of double-clicking on an object in a directory display.

```
*Filer_Run object
```

*Filters

*Filters lists all currently active pre- and post-Wimp_Poll filters.

```
*Filters
```

*FontCat

*FontCat lists the fonts available in Font$Path, or in the given directory.

```
*FontCat [directory]
```

*FontInstall

*FontInstall adds a directory to the list of those scanned for fonts. It also rescans the directory, even if it was already known to the Font Manager.

```
*FontInstall [directory]
```

*FontLibrary

*FontLibrary sets a directory as the font library, replacing the previous library in the list of those scanned for fonts.

```
*FontLibrary directory
```

*FontList

*FontList displays the fonts in the font cache, its size, and its free space.

```
*FontList
```

*FontRemove

*FontRemove removes a directory from the list of those scanned for fonts.

```
*FontRemove [directory]
```

*Format

*Format prepares a new floppy disc for use, or erases a used disc for re-use.

Formats are:

F	1.6M	RISC OS 3	77-entry directories, new map
E	800K	RISC OS	77-entry directories, new map
D	800K	Arthur 1.2	77-entry directories, old map
L	640K	all ADFS	47-entry directories, old map
DOS/Q	1.44M	MS-DOS 3.20	double sided high density 3½" disc
DOS/M	720K	MS-DOS 3.20	double sided 3½" disc
DOS/H	1.2M	MS-DOS 3	double sided high density 5¼" disc
DOS/N	360K	MS-DOS 2, 3	double sided 3½", 5¼" disc
DOS/P	180K	MS-DOS 2, 3	single sided 5¼" disc
DOS/T	320K	MS-DOS 1, 2, 3	double sided 5¼" disc
DOS/U	160K	MS-DOS 1, 2, 3	single sided 5¼" disc
Atari/M	720K	Atari ST	double sided 3½" disc
Atari/N	360K	Atari ST	single sided 3½" disc

Early models of RISC OS computers cannot use DOS/H, DOS/Q and F formats. RISC OS 2 only supports L, D and E formats.

The default is to use F-format if possible; otherwise E-format is used.

`*Format` *`drive`* `[`*`format`* `[`*`disc_name`*`]] [Y]`

*Free

*Free displays the total free space remaining on a disc. For NetFS, *Free displays a user's total free space, as well as the total free space for the disc.

`*Free [`*`disc_spec`*`]`

`*Free [:`*`file_server`*`] [`*`user_name`*`]` (*NetFS syntax*)

*FS

*FS selects the current file server, restoring that file server's context (for example, its current directory). If no argument is supplied, information is given about your current file server, followed by any non-current servers.

`*FS [[:]`*`file_server`*`]`

*FX

*FX calls OS_Byte to alter status variables, and to perform other closely related actions.

`*FX` *`reason_code`* `[[,]` *`r1`* `[[,]` *`r2`*`]]`

*Go

*Go calls machine code at the given address (default &8000), passing it an optional environment string.

```
*Go [hexadecimal_address] [ ; environment]
```

*GOS

*GOS calls command line mode, and hence allows you to type * Commands.

```
*GOS
```

*Help

*Help gives brief information about each command. There are also some special keywords:

`*Help Commands`	lists all the available utility commands
`*Help FileCommands`	lists all the commands relating to filing systems
`*Help Modules`	lists the names of all currently loaded modules, with their version numbers and creation dates
`*Help Station`	displays the current network and station numbers of your machine
`*Help Syntax`	explains the format used for syntax messages

```
*Help [keyword]
```

*I am

*I am selects NetFS and logs you on to a file server. Your user name and password are checked by the file server against the password file before allowing you access.

```
*I am [[:]file_server_number|:file_server_name] user_name [|:Return]password]
```

*IconSprites

*IconSprites merges the sprites in a file with those in the Wimp sprite area.

```
*IconSprites filename
```

*If

*If conditionally executes a * Command, depending on the value of an expression.

```
*If expression Then command [Else command]
```

*Ignore

*Ignore sets the printer ignore character.

```
*Ignore [ASCII_code]
```

*Info

*Info gives file information for the specified object(s).

```
*Info object_spec
```

*InitStore

*InitStore fills user memory with the specified value or register value, or with the value &E6000010 (which is an illegal instruction) if no parameter is given.

```
*InitStore [value|reg]
```

*Key

*Key assigns a string to a function key.

```
*Key keynumber [string]
```

*Keyboard

*Keyboard selects the appropriate keyboard layout for a given country. With no parameter, this command displays the currently selected keyboard layout.

```
*Keyboard [country_name]
```

*LCat

*LCat lists all the objects in the named library subdirectory (by default the current library).

```
*LCat [directory]
```

*LEx

*LEx lists all the objects in the named library subdirectory (by default the current library) together with their file information.

```
*LEx [directory]
```

*Lib

*Lib selects a directory (the default is filing system dependent) as the current library on a filing system.

```
*Lib [directory]
```

*List

*List displays the contents of the named file using the configured DumpFormat. Each line is numbered.

```
*List [-File] filename [-TabExpand]
```

*ListFS

*ListFS displays a list of the file servers which NetFS is able to recognise. The optional argument forces the list to be updated before it is displayed.

```
*ListFS [-force]
```

*ListPS

*ListPS lists all the currently available printer servers, optionally showing their status as well.

```
*ListPS [-full]
```

*Load

*Load loads the named file. The optional load address is in hexadecimal.

```
*Load filename [load_addr]
```

*LoadFontCache

*LoadFontCache loads a file that was previously saved using *SaveFontCache back into the font cache.

```
*LoadFontCache filename
```

*Logon

*Logon logs you on to a file server. Your user name and password are checked by the file server against the password file before allowing you access.

```
*Logon [[:]file_server_number|:file_server_name] user_name [[:Return]password]
```

*Map

*Map displays a disc's free space map.

```
*Map [disc_spec]
```

*Memory

*Memory displays the values in memory, in bytes if the optional B is given, or in words otherwise.

```
*Memory [B] addr1|reg1
*Memory [B] addr1|reg1 [+|-]addr2|reg2
*Memory [B] addr1|reg1 +|-addr2|reg2 +addr3|reg3
```

*MemoryA

*MemoryA displays and alters memory in bytes, if the optional B is given, or in words otherwise.

```
*MemoryA [B] addr|reg1 [value|reg2]
```

*MemoryI

*MemoryI disassembles memory into ARM instructions.

```
*MemoryI addr1|reg1
*MemoryI addr1|reg1 [+|-]addr2|reg2
*MemoryI addr1|reg1 +|-addr2|reg2 +addr3|reg3
```

*Modules

*Modules displays information about all installed relocatable modules.

```
*Modules
```

*Mount

*Mount prepares a disc for general use by setting the current directory to its root directory, setting the library directory (if it is currently unset) to $.Library, and unsetting the User Root Directory. For NetFS, *Mount selects a disc from the file server by setting the current directory, the library directory and the User Root Directory.

```
*Mount [disc_spec]
*Mount [:]disc_spec        (NetFS syntax)
```

*NameDisc

*NameDisc (or alternatively, *NameDisk) changes a disc's name.

```
*NameDisc disc_spec new_name
```

*Net

*Net selects the Network Filing System as the current filing system.

```
*Net
```

*NoDir

*NoDir unsets the current directory.

```
*NoDir
```

*NoLib

*NoLib unsets the library directory.

```
*NoLib
```

*NoURD

*NoURD unsets the User Root Directory (URD).

```
*NoURD
```

*Obey

*Obey executes a file of * commands. Argument substitution is performed on each line, using parameters passed in the command. With the -v option, each line is displayed before execution. With the -c option, the file is cached and executed from memory.

```
*Obey [[-v][-c] [filename [parameters]]]
```

*Opt 1

*Opt 1 sets the filing system message level (for operations involving loading, saving or creating a file) for the current filing system:

`*Opt 1,0`	No filing system messages
`*Opt 1,1`	Filename printed
`*Opt 1,2`	Filename, hexadecimal addresses and length printed
`*Opt 1,3`	Filename, and either date stamp and length, or hexadecimal load and exec addresses printed

`*Opt 1 [[,]n]`

*Opt 4

*Opt 4 sets the boot action for the current filing system:

`*Opt 4,0`	No boot action
`*Opt 4,1`	*Load boot file
`*Opt 4,2`	*Run boot file
`*Opt 4,3`	*Exec boot file

`*Opt 4 [[,]n]`

*Pass

*Pass changes your password on your current fileserver.

`*Pass [old_password [new_password]]`

*Pin

*Pin adds a file, application or directory to the desktop pinboard, positioning its icon at the given coordinates (in OS units).

`*Pin object x y`

*Pinboard

*Pinboard initialises the pinboard, removing any existing pinned icons and backdrop.

`*Pinboard [-Grid]`

*PipeCopy

*PipeCopy copies a file one byte at a time to one or two output files.

`*PipeCopy source_file destination_file1 [destination_file2]`

*PoduleLoad

Copies a file into an expansion card's RAM.

`*PoduleLoad expansion_card_number filename [offset]`

*Podules

*Podules displays a list of the installed expansion cards and extension ROMs.

`*Podules`

*PoduleSave

*PoduleSave copies an expansion card's ROM into a file.

`*PoduleSave expansion_card_number filename size [offset]`

*Pointer

*Pointer turns the mouse pointer on or off.

`*Pointer [0|1]`

*Print

*Print displays the contents of the named file by sending each byte to the VDU.

`*Print filename`

*PS

*PS changes the default printer server, checking that the new one exists.

`*PS printer_server`

*QSound

*QSound generates a sound after a given delay.

`*QSound channel amplitude pitch duration beats`

*Quit

*Quit exits from the current application.

`*Quit`

*Ram

*Ram selects the RAM filing system as the current filing system.

```
*Ram
```

*Remove

*Remove erases a single named file or empty directory. No error message is given if the object does not exist.

```
*Remove filename
```

*RemoveTinyDir

*RemoveTinyDir removes a file, application or directory icon that was previously placed on the icon bar by a *AddTinyDir command. If no pathname is given, all such icons are removed from the icon bar.

```
*RemoveTinyDir [object]
```

*Rename

*Rename changes the name of an object, within the same storage unit.

To move objects between discs or filing systems, use the *Copy command with the **D**(elete) option set.

```
*Rename object new_name
```

*ResourceFS

*ResourceFS selects the Resource Filing System as the current filing system.

```
*ResourceFS
```

*RMClear

*RMClear deletes all relocatable modules from the module area. Use this command only with extreme caution, as it is so drastic in its effects.

```
*RMClear
```

*RMEnsure

*RMEnsure checks that a module is present and is the given version (or a more recent one). The command is executed if this is not the case.

```
*RMEnsure module_title version_number [command]
```

*RMFaster

*RMFaster makes a module faster by copying it from ROM to RAM.

```
*RMFaster module_title
```

*RMInsert

*RMInsert reverses the action of a previous *Unplug command, but without reinitialising any modules.

```
*RMInsert module_title [ROM_section]
```

*RMKill

*RMKill deactivates and deletes a relocatable module. Use this command only with extreme caution, as it may be drastic in its effects.

```
*RMKill module_title[%instantiation]
```

*RMLoad

*RMLoad loads and initialises a relocatable module.

```
*RMLoad filename [module_init_string]
```

*RMReInit

*RMReInit reinitialises a relocatable module, reversing the action of any previous *RMKill or *Unplug command. Use this command only with extreme caution, as it may be drastic in its effects.

```
*RMReInit module_title [module_init_string]
```

*RMRun

*RMRun runs a relocatable module, first loading and initialising it if necessary.

```
*RMRun filename
```

*RMTidy

*RMTidy collects together free space in the module area by moving and reinitialising all the modules it contains. Use this command only with extreme caution, as it is so drastic in its effects

```
*RMTidy
```

*ROMModules

*ROMModules displays information about all relocatable modules currently installed in ROM.

```
*ROMModules
```

*Run

*Run loads and executes a file, optionally passing a list of parameters to it.

```
*Run filename [parameters]
```

*Save

*Save copies the given area of memory to the named file. The length and addresses are in hexadecimal.

```
*Save filename start_addr end_addr [exec_addr [load_addr]]
*Save filename start_addr + length [exec_addr [load_addr]]
```

*SaveFontCache

*SaveFontCache saves the current contents of the font cache to a file.

```
*SaveFontCache filename
```

*SChoose

*SChoose selects a sprite from the system sprite area for use in subsequent sprite plotting operations.

```
*SChoose sprite_name
```

*SCopy

*SCopy makes a copy of the source sprite within the system sprite area, and renames it as the destination sprite.

```
*SCopy source_sprite_name dest_sprite_name
```

*ScreenLoad

*ScreenLoad loads the contents of a sprite file into the graphics window.

```
*ScreenLoad filename
```

*ScreenSave

*ScreenSave saves the contents of the graphics window and its palette to a file.

```
*ScreenSave filename
```

*SCSI

*SCSI selects the SCSI Filing System as the current filing system. This command is only available if you have an Acorn SCSI expansion card fitted.

```
*SCSI
```

*SDelete

*SDelete deletes one or more sprites from the system sprite area.

```
*SDelete sprite_name1 [sprite_name2...]
```

*SDisc

*SDisc selects a disc from the current file server by setting the current directory, the library directory and the User Root Directory.

```
*SDisc [:]disc_spec
```

*Set

*Set assigns a string value to a system variable.

```
*Set varname value
```

*SetEval

*SetEval evaluates an expression and assigns its value to a system variable.

```
*SetEval varname expression
```

*SetMacro

*SetMacro assigns an expression to a system variable. The expression is evaluated each time the variable is used.

```
*SetMacro varname expression
```

*SetPS

*SetPS changes the default printer server, without checking that the new one exists.

```
*SetPS printer_server
```

*SetType

*SetType sets the file type of the named file to the given textual file type or hexadecimal number. If the file does not have a date stamp, then it is stamped with the current time and date.

The command `*Show File$Type*` displays a list of valid file types.

`*SetType` *`filename file_type`*

*SFlipX

*SFlipX reflects a sprite in the system sprite area about its x axis.

`*SFlipX` *`sprite_name`*

*SFlipY

*SFlipY reflects a sprite in the system sprite area about its y axis.

`*SFlipY` *`sprite_name`*

*SGet

*SGet gets a sprite from a rectangular area of the screen, defined by the two most recent graphics positions (inclusive), and then saves it in the system sprite area.

`*SGet` *`sprite_name`*

*Shadow

*Shadow sets which bank of screen memory is used on subsequent mode changes.

`*Shadow [0|1]`

*ShellCLI

*ShellCLI invokes a command shell from a Wimp program, starting it as a Wimp task.

`*ShellCLI`

*ShellCLI_Task

*ShellCLI_Task runs an application in a window. This command is intended for use only within desktop applications.

*ShellCLI_TaskQuit

*ShellCLI_TaskQuit quits the current task window. This command is intended for use only within desktop applications.

*Show

*Show displays the name, type and current value of any system variables matching the name given. If no name is given, all system variables are displayed.

```
*Show [variable_spec]
```

*ShowFree

*ShowFree shows within a desktop window the amount of free space on a device.

```
*ShowFree -fs fs_name device
```

*ShowRegs

*ShowRegs displays the register contents for the saved state.

```
*ShowRegs
```

*Shut

*Shut closes all open files on all filing systems.

```
*Shut
```

*ShutDown

*ShutDown closes all open files on all filing systems, logs off all NetFS file servers and parks hard disc heads.

```
*ShutDown
```

*SInfo

*SInfo displays information on the system sprite workspace.

```
*SInfo
```

*SList

*SList lists the names of all the sprites in the system sprite area.

```
*SList
```

*SLoad

*SLoad loads a sprite file into the system sprite area.

```
*SLoad filename
```

*SMerge

*SMerge merges the sprites in a file with those in the system sprite area.

```
*SMerge filename
```

*SNew

*SNew deletes all the sprites in the system sprite area.

```
*SNew
```

*Sound

*Sound generates an immediate sound.

```
*Sound channel amplitude pitch duration
```

*Speaker

*Speaker turns the internal speaker(s) on or off.

```
*Speaker On|Off
```

*Spool

*Spool sends everything appearing on the screen to the specified file. If no filename is given, the current spool file is closed.

```
*Spool [filename]
```

*SpoolOn

*SpoolOn adds everything appearing on the screen to the end of an existing file. If no filename is given, the current spool file is closed.

```
*SpoolOn [filename]
```

*SRename

*SRename renames a sprite within the system sprite area.

```
*SRename old_sprite_name new_sprite_name
```

*SSave

*SSave saves the system sprite area as a sprite file.

```
*SSave filename
```

*Stamp

*Stamp sets the date stamp on a file to the current time and date. If the file has not previously been date stamped, it is also given file type Data (&FFD).

```
*Stamp filename
```

*Status

*Status displays the value of a configuration option in the CMOS RAM. If no option is specified, the values of all configuration options are shown.

```
*Status [option]
```

*Stereo

*Stereo sets the position in the stereo image of a sound channel.

```
*Stereo channel position
```

*TaskWindow

*TaskWindow starts a background task, which will open a task window if it needs to get input, or to output a character to the screen.

```
*TaskWindow [command] [[-wimpslot] nK] [[-name] taskname] [-ctrl]
            [-display] [-quit] [-task &xxxxxxxx] [-txt &xxxxxxxx]
```

*Tempo

*Tempo sets the Sound system tempo.

```
*Tempo tempo
```

*Territories

*Territories lists the currently loaded territory modules.

```
*Territories
```

*Time

*Time displays the day, date and time of day.

```
*Time
```

*ToolSprites

*ToolSprites merges the sprites in a file with those in the Wimp's pool of border sprites, which are used to redraw window borders.

```
*ToolSprites filename
```

*Tuning

*Tuning alters the overall tuning of the Sound system. A value of zero resets the default tuning.

```
*Tuning relative_change
```

*TV

*TV adjusts the vertical screen alignment and screen interlace.

```
*TV [vert_align[[,]interlace]]
```

*Type

*Type displays the contents of the named file using the configured DumpFormat.

```
*Type [-File] filename [-TabExpand]
```

*Unplug

*Unplug kills and disables all copies of a ROM resident module. If no parameters are given, the unplugged ROM modules are listed.

```
*Unplug [module_title [ROM_section]]
```

*Unset

*Unset deletes a system variable.

```
*Unset variable_spec
```

*Up

*Up moves the current directory up the directory structure by the specified number of levels.

```
*Up [levels]
```

*URD

*URD sets the User Root Directory (URD). If no directory is specified, the URD is set to the root directory.

```
*URD [directory]
```

*Verify

*Verify checks that the whole disc (by default the current disc) is readable.

```
*Verify [disc_spec]
```

*Voices

*Voices displays a list of the installed voices by name and number, and shows which voice is assigned to each of the eight channels.

```
*Voices
```

*Volume

*Volume sets the maximum overall volume of the Sound system.

```
*Volume volume
```

*WimpMode

*WimpMode changes the current screen mode used by the Desktop.

```
*WimpMode screen_mode
```

*WimpPalette

*WimpPalette uses a palette file to set the Wimp's colour palette.

```
*WimpPalette filename
```

*WimpSlot

*WimpSlot changes the memory allocation for the current and (optionally) the next Wimp task.

```
*WimpSlot [-min] minsize[K] [-max maxsize[K]] [-next nextsize[K]]
```

*WimpTask

*WimpTask starts up a new task from within another task.

```
*WimpTask command
```

*WimpWriteDir

*WimpWriteDir sets the direction of text entry for writeable icons to either the default for the current territory, or the reverse of that.

```
*WimpWriteDir 0|1
```

*Wipe

*Wipe deletes one or more objects that match the given wildcard specification. Options are taken from the system variable Wipe$Options, and those given to the command.

Options (use '~' to force off, e.g. ~C):		**Default**
C(onfirm)	Prompt for confirmation of each deletion	ON
F(orce)	Force deletion of locked objects	OFF
R(ecurse)	Delete subdirectories and contents	OFF
V(erbose)	Print information on each object deleted	ON

```
*Wipe object_spec [[~]options]
```

Appendices

Appendix A: Upgrading from RISC OS 2.00

Many changes have been introduced into RISC OS. If you have used RISC OS 2.00, you will find the new version very familiar; this summary will acquaint you quickly with the new features to look out for, which are all documented fully in the appropriate chapters of this guide.

Applications in ROM

The most important change introduced into RISC OS is the incorporation of several applications, including those you are most likely to use, into the computer's ROM. This means that instead of loading these applications from disc you run them from the ROM, so that not only do they load more quickly, they also occupy much less space in RAM (they do still need a little). This is particularly important if you have a 1MB computer.

Click on the Apps icon on the icon bar to display the applications stored in ROM.

Changes have also been made in many of the applications themselves, especially to Draw, Paint, Edit and Alarm, which have been enhanced. These are documented in the *Applications Guide*.

The desktop

If you have used RISC OS before, you will find the desktop quite familiar. One detail that you will notice straight away is that when you click a mouse button once, the pointer shape changes to a double arrow. As long as it stays double, the computer will recognise a second click as part of a double click.

The Filer menu and Filer operations have been considerably enhanced. New features include:

- Filer actions such as formatting, verifying, copying and deletion can now take place 'in the background', allowing you to get on with something else while lengthy activities proceed.
- A 'find' facility enabling you to search directory structures for files and subdirectories.
- Setting of a file's type and date from the desktop.

- Dragging the scroll bar with Adjust now puts the window into 2D scrolling mode. The mouse can alter both the horizontal and vertical view positions on the document.
- Changes in the way access is controlled.
- New Desktop options – Force and Newer – give you greater control over copying of files.
- You can now select a group of objects by dragging a box round them.
- Pressing Shift while clicking on the toggle full size icon displays the window full size but leaves the icon bar visible.

Windows can be dragged partially off the screen, and files can be run by dragging them onto the icon bar (provided an appropriate application can be found).

Task manager

A new feature in the Task manager enables easy creation of desktop boot files, so that you can start up your computer the way you want it without needing to know anything about the Command Line.

A Shutdown option now lets you shutdown your computer in a controlled way, allowing you to save all your files before switching off.

Printing

Printers are now controlled by the Printer manager application. This new application results in much improved printing. There is now a much greater range of printers supported. You can now also have several printer drivers operating at the same time.

Fonts

The standard range of fonts has now been stored in the ROM and can be used with applications without memory penalties. This means that all users can now use fonts. The fonts stored inside the computer are Trinity, Corpus and Homerton.

Pinboard

The icons of files, directories and applications can now be pinned onto the background. This enables them to be found easily without having to remember the directory structure.

Running applications can also be iconised in the same way.

ARM 3 support

There is now support for the ARM 3 processor with *Cache and *Configure Cache commands.

!Configure

The system configuration application has been greatly enhanced and improved. Most *Configure commands can now be performed (with 'instant effect') using this desktop application. There should no longer be any need to use the *Configure command line commands.

DOS and Atari discs supported

RISC OS can now read and write to DOS and Atari format discs. RISC OS can also recognise any DOS hard disc partition files you have created using the Acorn PC Emulator.

Additional disc formatting options for DOS and Atari discs have been added, as has support for high density discs (if appropriate hardware is available).

F12 key use

The use of the F12 key has changed slightly:

- F12 displays the command line at the bottom of the screen.
- Shift-F12 toggles the icon bar to the front or back of obscuring windows
- Ctrl-F12 displays a Task window
- Shift-Ctrl-F12 shuts down the computer.

Screen modes and monitor types

The number of screen modes and monitor types has been greatly increased.

Appendix B: Getting the best out of 1MB computers

Acorn computers have come a long way since the first BBC Model A, with 16KB of RAM. A 1MB RISC OS computer has 64 times as much memory. However, at the same time, applications have become a lot more powerful and some can use up a large part of your computer's memory, making it hard to get the best advantage of the multi-tasking facilities offered by RISC OS.

In addition, although some RISC OS computers have a hard disc and two or even more floppy disc drives, the majority have only a single floppy disc drive.

This appendix therefore presents some suggestions for getting the best out of 1MB computers without hard discs, including those with only one floppy drive.

Resetting the computer

Some applications require the loading of relocatable modules: software extensions to the operating system. When you remove such an application from the icon bar, it may leave some or all of these modules behind, since they may be needed by another application. However, when you are very short of space, this behaviour – normally helpful – may mean that you do not have enough space for the next application.

It is therefore a good idea to reset the computer before attempting to load an application that will need almost all the computer's RAM. Before doing this, make sure you save any work you have done, as it will be lost from the computer's memory when you reset. To reset the computer, press Ctrl-Break or Ctrl-Reset. Then load the application you want to use.

If you have a 1MB computer with a hard disc containing a boot file that runs some applications each time you switch on, carry out the reset by holding both Ctrl and Shift while pressing Reset; this will prevent the boot sequence from being executed.

Choice of screen mode

The appendix entitled *Screen modes* on page 219 lists the screen modes that are available on RISC OS computers. The table there shows the memory used by each screen mode. If you are very short of memory, you should use mode 12 for a colour display (even if you have a multi-frequency scanning rate monitor). If you are happy with a monochrome display you can save even more memory by using mode 0, 8 or 11 on a standard-resolution monitor or mode 19 on a multi-frequency scanning rate monitor.

Opening directory displays

When you open a display for a directory containing applications, the computer runs the boot file for each application. This loads the applications' sprite files, which then occupy some of the computer's memory. For example, if you have a hard disc and you keep a lot of applications in a single directory, their sprites might take up as much as 30K. If you are very short of memory, you cannot afford to waste this space and you should therefore not open directories containing applications you do not want to use. To achieve this, keep your applications – especially those with large sprite files – in separate directories.

If you hold down Ctrl when opening a directory by double-clicking, the sprites used by any applications are not loaded into the sprite pool; this also saves memory.

Printing

If you do not intend to do any printing during your session, do not load the Printer manager at all. If you do intend to print, and you are using an application that enables you to print by selecting a menu option (rather than by dragging a file to the printer driver icon), you can save some space by first loading the printer driver and then removing it again. This leaves behind the printer driver module, which is all you actually need in order to print from such an application. You will of course need to do this **after** resetting the computer.

If you are using Edit, you must have the full Printer manager application loaded for Edit to print correctly. Edit will not print with only the printer module loaded.

For non-PostScript printers, the printing process also requires memory to use as a buffer space; the more that is available for this, the faster printing will be. You can increase the free space by temporarily switching to mode 0 while you print.

Finally, note that on non-PostScript printers, printing in landscape format uses more memory than printing in portrait format.

Optimising memory usage

Use the Task manager to display the computer's current memory usage. You can change any of the red bars to release as much memory as possible for applications. Candidates for reduction include:

- The Screen memory.
- The Font cache (provided the application does not make extensive use of fonts; if redrawing the screen takes a long time, you have made the font cache too small).
- The System sprites: this can always be reduced to zero except when playing some games.
- The Module area.

SetIcons application

SetIcons can use up a significant amount of free memory, up to 60KB. If you need this extra memory for running applications, do not use SetIcons.

Using a RAM disc

If your computer has only a single floppy disc drive but more than 1MB of RAM, and the application you want to run uses two floppy discs, you can use some of the available memory to create a RAM disc. Decide which disc you wish to transfer to RAM and insert it into the disc drive. Choose **Free** from the icon bar menu to see how large the RAM disc needs to be, and create a disc of the appropriate size, using the Task manager. Then copy the contents of the floppy disc to the RAM disc.

Before loading a file into the application, double-click on the parts of the application you have transferred into RAM, so that the computer knows that it should find them there. Otherwise, it will look for them on the floppy disc.

Installing more memory

Perhaps the easiest way to increase the usability of your computer is to add additional memory to your computer. Most RISC OS computers can be expanded beyond 1MB. With 2MB or more, memory constraints are no longer a problem and memory saving measures do not have to be employed.

Appendix C: Resetting and power-on

In certain circumstances you will find it necessary to 'reset' (switch off – then on again) your computer. These include:

- When a program or application has 'hung'; nothing is happening, and clicking mouse buttons or typing at the keyboard has no effect.
- When you upgrade your computer by, for example, inserting more memory, changing the system configuration, or connecting a different type of monitor.
- If you wish to use an application that will need nearly all of your computer's memory, a reset will remove such things as unwanted modules which may be using up space you need.

Resets come in increasing 'strengths', and to understand these you need to know a little about configuration. You have probably already met this through the desktop Configure application (see page 85). Configuration information is stored in memory which is supported by batteries and therefore retains its contents even when the computer is turned off, so that you do not have to set them every time you use it. This memory is sometimes referred to as the CMOS RAM. Configuration 'tells' the computer about, for example:

- What hardware you have in your system: for example, what type of monitor, printer (if any) or disc drives.
- What language you wish the computer to run when it is switched on. 'Language' here includes the desktop.
- How loud you want the beep to sound.

Resetting the computer involves the use of certain keys on the keyboard and the Reset switch. It sometimes involves switching your computer off and switching it on again while holding down a key. Each of the possible combinations is described in this chapter.

Switching on

When you first switch on the computer it goes through a power-on self test routine. While the test is in progress the screen changes colour and the floppy drive's LED flashes once. If the LED flashes more than once, or the screen display jams

showing the same colour, a fault has been detected and startup is halted. (Note that some third party hardware add-ons, such as a VIDC enhancer, may cause a 'fault' to be reported.)

Normally the startup proceeds to the desktop display. Any keys held down to alter the CMOS configuration are not detected until the self test has finished.

If you are using a Super VGA monitor, you won't see these self-tests. This is because Super VGA monitors only lock onto the display signal when the self-test is over.

Saving your configuration on floppy disc

You should always make sure you have a copy of your configuration saved onto floppy disc; you can then easily restore the computer to your required configuration after the reset. For full details refer to the chapter entitled *Setting the configuration* on page 85.

Resetting your configuration while switching on

You can reset the configuration when you switch on the computer. To do this hold down the appropriate key and switch the computer on. Do not release the key until text has appeared on the screen. There are two choices, **R** and **Delete**:

R causes some of the computer's CMOS RAM to be reset. The information that is retained relates to expansion cards, the Econet station number, the country code, and the number of hard and floppy discs. Information about these will not be lost when you hold R while switching on. Use this reset when upgrading your computer.

Delete causes **all** the computer's CMOS RAM to be reset to its initial factory values, with the exception of the Econet station number. You should not normally use this reset.

These actions are sometimes referred to as 'R-power on' and 'Delete-power on' resets.

Getting a picture on your screen

After you have reset your configuration you may need to alter some configuration values that control how the computer outputs its display to a monitor. Both the above power on resets set the Monitor Type, Sync, and Mode/WimpMode to 'Auto'.

If your computer can auto-detect monitor types it will sense the type of monitor lead connected to it, and choose the correct monitor type and sync, and an appropriate screen mode. So long as your lead is the correct one for your monitor,

you will get a display. If your computer is an older model that cannot auto-detect monitor types it will select mode 12 on monitor type 0 (a standard monochrome or colour monitor), with sync type 1 (composite sync). In most cases this will still give you a display.

However if you cannot see a picture on your screen you should use the procedure below to set your monitor type and sync type.

Once you can see a picture on your screen, you can use the **Screen** window in the **Configure** application to set up your monitor correctly.

Setting the monitor type

You will need to follow the original power on reset with a second (different) reset to select the correct monitor type. Switch the machine on with the appropriate key from the numeric pad held down:

0	Standard monochrome or colour monitor
1	Multi frequency monitor
2	64Hz high-resolution monochrome monitor
3	60Hz VGA-type monitor
4	Super VGA-type monitor
5	LCD Liquid crystal displays

Setting the sync type

In a few cases you will still not get a display on your monitor, because the monitor has vertical instead of composite sync. In this case, repeat the reset process, but use the T or Copy key instead of the R or Delete key respectively. The same default values are set as before, except for the sync type, which will now be correct for your monitor. You may then need to set the monitor type again.

Summary

In summary, you should go through the following steps, stopping as soon as you get a display:

1. Reset the values by switching on while holding down the R or Delete key.
2. Set the monitor type by switching on while holding down the correct numeric key.
3. Reset the values by switching on while holding down the T or Copy key.
4. Set the monitor type by switching on while holding down the correct numeric key.

Using the Reset switch

Pressing the **Reset** switch alone causes a 'soft' reset. This resets your machine, restarting RISC OS. You will lose any unsaved work.

You can get other types of Reset options by holding down certain keys whilst you press the Reset switch:

- Holding down the **Ctrl** key causes a 'hard reset'. This is more severe than a soft reset (but still doesn't reset your machine as thoroughly as switching it off, then on again).
- Holding down the **Shift** key reverses the action of the configured boot option. If there **is** a boot file set to run, it is **not** run. If there is a boot file **not** set to run, it **is** run.
- Holding down ***(on numeric keypad)-Reset** causes the Command Line to be entered, rather than the configured language (such as the Desktop or BASIC).

You can combine the effects of these keys; for example pressing ***(on numeric keypad)-Ctrl-Shift-Reset** on a machine configured to auto-boot would cause a hard reset, after which the Command Line would be entered, and the boot file would not be run.

Using the Break key

Pressing the **Break** key (to the right of the twelve function keys) on its own acts like pressing the Escape key; for instance it may interrupt a program. However, if you press it whilst holding down any of the keys that affect the Reset switch it acts like the Reset switch, except that it does not reset the computer's hardware. For example:

- Pressing **Shift-Break** causes a soft restart of RISC OS, reversing the normal auto-boot behaviour.
- Pressing **Ctrl-Break** causes a hard restart of RISC OS, which is more severe in its effects.

The computer has a Break key as well as a Reset switch so that applications such as emulators can respond differently to them. For example, !65Host uses Break to reset the emulated computer, while Reset still resets the RISC OS computer itself.

Restoring default values

It is sometimes useful to restore all the values to their default settings. (For instance, someone else might use your computer and change the configuration, or the batteries that power the CMOS RAM might become flat.) To restore the default values, switch the machine on with either the R key or the Delete key held down.

Page size

Some of the default values depend on the size of a 'page' of memory. This value depends on how much RAM the computer has. A page is the smallest unit into which memory is split. The page sizes are given on page 156.

R power on

An '**R power on**' preserves the Econet station number, the country code, the number of floppy discs, the number of hard discs and all bytes relating to expansion cards. All other bytes are cleared to zero, and then the following defaults are set:

Configure option	Status	Meaning
Baud	4	Serial port set to 1200 baud
No Boot		Do not run boot file at power on or reset
No Caps		Caps lock off at power on
Data	4	Serial port set to 8 bit words, no parity, 2 stop bits
Delay	32	32 centisecond delay before keys auto-repeat
No Directory		No directory selected by ADFS at power on
DumpFormat	4	Control characters printed using GSRead, top-bit characters printed
FontSize	32K	RAM reserved for font cache
FontMax	0K	No maximum size for font cache
FontMax1	16pts	Fonts higher than 16 points not rescaled from bitmap
FontMax2	12pts	Fonts higher than 12 points not anti-aliased
FontMax3	24pts	Fonts higher than 24 points not cached
FontMax4	0	No horizontal sub-pixel anti-aliasing
FontMax5	0	No vertical sub-pixel anti-aliasing
Ignore	10	ASCII line feed ignored by printers
Language	10	Desktop selected at power on
Mode	Auto	Automatically determines the screen mode
MonitorType	Auto	Automatically determines the monitor type
MouseStep	3	Medium mouse movement

Configure option	Value	Meaning
Print	1	Parallel printer port used
PrinterBufferSize	1K	Printer buffer
Quiet		Beep set to half volume
RamFsSize	0K	No memory reserved for RAMFS
Repeat	8	8 centisecond keyboard auto-repeat rate
RMASize	0K	Extra RAM reserved for relocatable modules
ScreenSize	160K	RAM reserved for the display screen
Scroll		Screen scrolls when the end of a line is reached
SpriteSize	0K	RAM reserved for system sprite pool
Sync	Auto	Composite sync selected
SystemSize	0K	No extra memory reserved for system heap
TV	0,1	Interlace off
FileSystem	ADFS	ADFS selected at power on
Truncate	on	Truncates long file names for RISC OS
Territory	1	Territory UK
GMT		Greenwich Mean Time
TimeZone	+0:0	No offset
Cache	on	ARM 3 only
ADFSBuffers	4K/Mbyte	Sets default according to size of memory
ADFSDirCache	4K/Mbyte	Sets default according to size of memory
Step	3	3ms floppy disc drive step rate
FileServer	254	Default net file server set to 0.254
Library	ArthurLib	Network library set to $.ArthurLib
PrinterServer	235	Default net print server set to 0.235
SoundDefault	1 7 1	Speaker on, maximum volume, voice 1
WimpFlags	111	Windows fully instant when moving
WimpDragDelay		5 * 1/10 second
WimpDragMove		32 OS units
WimpDoubleClickDelay		10 * 1/10 second
WimpDoubleClickMove		32 OS units
WimpAutoMenuDelay		0 * 1/10 second
WimpMenuDragDelay		0 * 1/10 second
WimpMode	Auto	Mode used for desktop (Same as Mode)

The actual values of these defaults may differ with your computer and its memory size. To see the current settings of your computer, go into the command line by pressing F12 and then type Status and press Return. Press Return again to go back to the desktop.

If your computer cannot auto-detect monitor types, the Auto settings are equivalent to mode 12 on monitor type 0 (a standard monochrome or colour monitor), with sync type 1 (composite sync).

Computers with SCSI discs will have additional settings that are determined by the SCSI card itself.

If you have a portable computer, these settings may default to slightly different values.

Saving the configuration

You can save configuration to a file by using the following command line commands. You will need to put a floppy disc in the drive:

```
*Status { > adfs::0.$.Status }
*SetType adfs::0.$.Status text
```

Delete power on

A '**Delete power on**' also sets the defaults defined by an R power on. Additionally the following defaults are also set:

Drive	0	Drive 0 selected at power on or reset
Floppies	1	Single floppy disc
HardDiscs	0	No ST506 hard disc
IDEDiscs	0	No IDE hard disc
Country	UK	Country UK

Only the Econet station number is preserved.

Appendix D: Screen modes

RISC OS can display its desktop in different **modes.** Modes change the size of the desktop display and the number of colours the desktop can display. For example, mode 12 can display 16 colours simultaneously and mode 15 displays 256 colours. Mode 16 can display more information on the screen than mode 12, but the text size is smaller.

Mode table

The table of modes on the following pages show:

- The mode number.
- The text resolution in columns × rows.
- The graphics resolution in pixels, which corresponds to the clarity of the mode's display.
- The size in OS units, which corresponds to the area of desktop shown by the mode. (The greater the resolution, the larger the workspace area displayed).
- The number of colours available.
- The memory used to display the screen.
- The bandwidth used to display the screen. This corresponds to the load the mode places on the computer – the greater the bandwidth, the slower the computer operates.
- The monitor types that support that mode:

0	Standard monochrome or colour monitor
1	Multi frequency monitor
2	64Hz high-resolution monochrome monitor
3	60Hz VGA-type monitor
4	Super VGA-type monitor
5	LCD (Liquid crystal display)

Monitor types and screen modes

Not all monitors can display all screen modes. The following table lists the screen modes each monitor can display:

Monitor number	0	1	2	3 and 5	4
Monitor type	Standard	Multi frequency	Hi-res mono	VGA and LCD	Super VGA
Mode 0 – 15	✓	✓		✓ †	✓ †
16,17	✓	✓			
18 – 21		✓			
22	✓	✓			
23			✓		
24	✓	✓			
25 – 28		✓		✓	✓
29 – 31		✓			✓
33 – 36	✓	✓			
37 – 40		✓			
41 – 46		✓		✓	✓

† VGA and Super VGA type monitors can display modes 0 to 15 with reduced height (letterbox mode). These modes are retained for compatibility.

List of screen modes

This is the list of screen modes supplied with RISC OS. Third party suppliers may produce software and hardware that produces different video modes; such modes are not listed here.

Mode	Text resolution	Pixel resolution	OS units resolution	Logical colours	Mem used	Band-width	Monitor types	Notes
0	80 × 32	640 × 256	1280 × 1024	2	20K	1M/s	0,1,3,4,5	③
1	40 × 32	320 × 256	1280 × 1024	4	20K	1M/s	0,1,3,4,5	③
2	20 × 32	160 × 256	1280 × 1024	16	40K	2M/s	0,1,3,4,5	③
3	80 × 25	Text only	Text only	2	40K	2M/s	0,1,3,4,5	③⑤⑦
4	40 × 32	320 × 256	1280 × 1024	2	20K	1M/s	0,1,3,4,5	③
5	20 × 32	160 × 256	1280 × 1024	4	20K	1M/s	0,1,3,4,5	③
6	40 × 25	Text only	Text only	2	20K	1M/s	0,1,3,4,5	③⑤⑦
7	40 × 25	Teletext	Teletext	16	80K	4M/s	0,1,3,4,5	③⑤
8	80 × 32	640 × 256	1280 × 1024	4	40K	2M/s	0,1,3,4,5	③
9	40 × 32	320 × 256	1280 × 1024	16	40K	2M/s	0,1,3,4,5	③
10	20 × 32	160 × 256	1280 × 1024	256	80K	4M/s	0,1,3,4,5	③
11	80 × 25	640 × 250	1280 × 1000	4	40K	2M/s	0,1,3,4,5	③
12	80 × 32	640 × 256	1280 × 1024	16	80K	4M/s	0,1,3,4,5	③
13	40 × 32	320 × 256	1280 × 1024	256	80K	4M/s	0,1,3,4,5	③
14	80 × 25	640 × 250	1280 × 1000	16	80K	3.9M/s	0,1,3,4,5	③
15	80 × 32	640 × 256	1280 × 1024	256	160K	8M/s	0,1,3,4,5	③
16	132 × 32	1056 × 256	2112 × 1024	16	132K	6.6M/s	0,1	⑥
17	132 × 25	1056 × 250	2112 × 1000	16	132K	6.5M/s	0,1	⑥
18	80 × 64	640 × 512	1280 × 1024	2	40K	2M/s	1	
19	80 × 64	640 × 512	1280 × 1024	4	80K	4M/s	1	
20	80 × 64	640 × 512	1280 × 1024	16	160K	8M/s	1	
21	80 × 64	640 × 512	1280 × 1024	256	320K	16M/s	1	
22	96 × 36	768 × 288	768 × 576	16	108K	5.4M/s	0,1	①⑧
23	144 × 56	1152 × 896	2304 × 1792	2	126K	8.1M/s	2	
24	132 × 32	1056 × 256	2112 × 1024	256	264K	13.2M/s	0,1	⑥
25	80 × 60	640 × 480	1280 × 960	2	37.5K	2.3M/s	1,3,4,5	
26	80 × 60	640 × 480	1280 × 960	4	75K	4.5M/s	1,3,4,5	
27	80 × 60	640 × 480	1280 × 960	16	150K	9M/s	1,3,4,5	
28	80 × 60	640 × 480	1280 × 960	256	300K	18M/s	1,3,4,5	
29	100 × 75	800 × 600	1600 × 1200	2	58.6K	3.3M/s	1,4	①②
30	100 × 75	800 × 600	1600 × 1200	4	117.2K	6.6M/s	1,4	①②
31	100 × 75	800 × 600	1600 × 1200	16	234.4K	13.2M/s	1,4	①②
33	96 × 36	768 × 288	1536 × 1152	2	27K	1.4M/s	0,1	①
34	96 × 36	768 × 288	1536 × 1152	4	54K	2.7M/s	0,1	①
35	96 × 36	768 × 288	1536 × 1152	16	108K	5.4M/s	0,1	①
36	96 × 36	768 × 288	1536 × 1152	256	216K	10.8M/s	0,1	①
37	112 × 44	896 × 352	1792 × 1408	2	38.5K	2.3M/s	1	①
38	112 × 44	896 × 352	1792 × 1408	4	77K	4.6M/s	1	①
39	112 × 44	896 × 352	1792 × 1408	16	154K	9.2M/s	1	①
40	112 × 44	896 × 352	1792 × 1408	256	308K	18.5M/s	1	①
41	80 × 44	640 × 352	1280 × 1408	2	27.5K	1.7M/s	1,3,4,5	①③④
42	80 × 44	640 × 352	1280 × 1408	4	55K	3.3M/s	1,3,4,5	①③④
43	80 × 44	640 × 352	1280 × 1408	16	110K	6.6M/s	1,3,4,5	①③④
44	80 × 25	640 × 200	1280 × 800	2	15.7K	0.9M/s	1,3,4,5	①③
45	80 × 25	640 × 200	1280 × 800	4	31.3K	1.9M/s	1,3,4,5	①③
46	80 × 25	640 × 200	1280 × 800	16	62.5K	3.8M/s	1,3,4,5	①③

Notes on the display modes

These notes refer to the note numbers in the far right column of the table.

1 These modes were not available in RISC OS 2.00, nor (except for mode 31) were they available in RISC OS 2.01.

2 These modes are not available on early models of RISC OS computers (i.e. the Archimedes 300 series, 440, and 400/1 series, and the BBC A3000).

3 These modes are handled differently with a VGA or Super-VGA-type monitor. **If you are using such a monitor**:

- These modes are all displayed on a screen having 352 raster lines. Where a mode has fewer than 352 vertical pixels, it is centred on the screen with blank lines at the top and bottom. Because of their appearance these modes are known as letterbox modes.
- The refresh rate is 70Hz.
- The bandwidths shown in the table for these modes are lower than these monitor types consume, because no allowance has been made for the blank lines.
- Early models of RISC OS computers (i.e. the Archimedes 300 series, 440, and 400/1 series, and the BBC A3000) scan these modes slightly slowly. Most VGA and Super-VGA-type monitors can still successfully lock onto this signal, but some may not. Furthermore, these models do not provide a **Sync Polarity** signal. This makes the effect of letterbox modes (see above) more severe.

4 Early models of RISC OS computers (i.e. the Archimedes 300 series, 440, and 400/1 series, and the BBC A3000) scan these modes slightly slowly when used with multi-frequency monitors.

5 These modes do not display graphics, and are provided for compatibility with BBC/Master series computers.

6 In these modes circles, arcs, sectors and segments do not look circular. This is because the aspect ratio of the pixels is not in a 1:2, 1:1 or 2:1 ratio.

7 These are gap modes, where the colour of the gaps is not necessarily the same as the text background.

8 This mode is not available in RISC OS 3.00. It provides a double-sized display suitable for use by visually impaired people. Unfortunately some applications may not provide correct displays when used with this mode.

Other considerations

You must check your *Welcome Guide* to see which monitor types and screen modes are valid for your computer hardware.

Modes

- **Modes 33 to 36** display pixels right to the edge of the screen, leaving no border. You may find that some pixels are lost at the edge. One use for these modes is in superimposing captions or other material on top of video signals, where it is important to be able to use the whole screen.
- **Modes 44 to 46** provide displays for the PC Emulator CGA modes at full height.
- **Modes 2 to 7** and **mode 10** are not used by the desktop.
- **Mode 32** has not been defined.
- In some high-resolution modes your screen may flash as your floppy disc drive is accessed; this is nothing to worry about.

Refresh rates

Modes have different refresh rates; normally the higher the refresh rate the less flicker is seen on the display:

- **Modes 0 to 22, 24, and 33 to 36** have a refresh rate of 50Hz.
- **Modes 29-31** have a refresh rate of 56Hz.
- **Modes 25 to 28 and 37-46** have a refresh rate of 60Hz.
- **Mode 23** has a refresh rate of 64Hz.

256 colour modes

In 256 colour modes, there are some restrictions on the control of the colours. Only 64 base colours may be selected; 4 levels of tinting turn the base colours into 256 shades. Also, the selection from the colour palette of 4096 shades is only possible in groups of 16.

Monitor types

If an attempt is made to select a mode which is not appropriate to the current monitor type, a suitable mode for that monitor is used. For example, an attempt to select mode 23 on a type 0 monitor will result in mode 0 being used.

The monitor type 'AUTO' is used by computers that can automatically identify the monitor type connected.

Appendix E: Formatting a hard disc

HForm is used to format discs that use either the ST506 or IDE interface.

Hard discs fitted to Acorn computers and hard discs supplied as upgrades, are supplied ready-formatted and it is not necessary to reformat them. However, you may want to reformat your hard disc at a later date. For this purpose, the application HForm is used. This is supplied on the App2.

Hard discs with a SCSI interface are formatted in a different way: for information on this, refer to the guide supplied with your SCSI Expansion Card.

Normally, during the formatting, HForm will prompt you to confirm the name of the disc in your computer. The application gets this information from the previous format type; you do not need to know the manufacturer of your hard disc.

There may, however, be some occasions when it is necessary to enter the specifications of the hard disc. For example:

- If you are adding a new hard disc.
- If the hard disc has not yet been formatted.
- If the information on the hard disc has been corrupted or is incorrect.

If you need to alter the specifications of the hard disc, you should consult the manual accompanying your hard disc for its precise specifications.

How to format a hard disc

WARNING: Reformatting your hard disc will permanently remove all data stored on the disc. It is essential that data you wish to keep is copied to a floppy disc (or otherwise backed up) before the disc is reformatted.

In the following instructions it is assumed that you have to reformat your hard disc because of repeated hard disc errors. In order to carry out the reformatting successfully you should have a record of the disc errors which have occurred and their addresses.

HForm allows you to leave the program at any time by pressing the Escape key. Additionally, at the end of the Format options you will be asked if you want to proceed with the formatting; answer NO and HForm will quit without formatting your disc.

For the purpose of this example it is assumed that your computer is fitted with a 53Mb Rodime hard disc. However, you do not need to know the manufacturer of your hard disc or its specifications, since you can just accept all the defaults offered.

There are two stages to formatting the hard disc:

- Entering the specifications of the hard disc; known as the hard disc shape.
- Entering the list of defects on the hard disc.

Entering the hard disc shape

1 Double-click on the HForm application.

2 HForm will then prompt you as follows:

```
HARD DISC FORMATTER
Format which drive (4 - 7)? 4 (press Return)
```

The internally fitted hard disc drive is numbered 4, while subsequent hard disc drives (if fitted) are numbered 5 to 7. If you want to accept the default drive number 4, press Return, otherwise type the desired number and press Return.

3 Once you have told HForm which hard disc you want to format, HForm checks the type of hard disc and displays the following or a similar message:

```
Drive 4 is an ST506 drive
This disc was last formatted using the standard shape
for a 53Mb Rodime RO3065
Do you wish to use this shape (Y/N) ?
```

IDE drives display drive-type information on the screen.

To continue with the formatting, type Y and press Return.

```
Old or New map format (O/N) ?
```

Most hard discs now use the new format; type N to continue with the formatting. IDE drives do not give you this option.

4 HForm now gives you the following choices:

```
A: no more changes
B: add defect by cylinder, head, byte/sector
C: add defect by disc address
D: remove defect
A, B, C or D?
```

If you are simply formatting a disc, type A for the formatting to contine.

If you wish to add a defect to the disc's defect list continue with the next section.

Recording a list of hard disc defects

Skip this section if you don't want to add any defects to the hard disc defect list. A defect is a fault that has been detected in part of the disc. The following process marks the defective part of the disc, so that the defective part is no longer used.

After you press Return at the last option, HFORM will list the current defects (if any) on the hard disc and invite you to change the list by adding any new defects that you may have discovered. You may wish to add a new defect because ADFS has previously returned an error message, such as:

```
Disc error 10 at :4/00831E00
```

1 To record a single defect on the defect list, select option C. If you have more than one defect to record and your disc is in D format, see the following section entitled *Recording more than one error on a* D *(old map) format disc*. If your disc is in E format, multiple errors can be added in any order.

2 Type in the defect address exactly as it appeared in the disc error message, but omit the colon.

3 When you have entered all the defects you wish to, select option A.

Continuing the format

1 You will now be asked if you want to:

```
Format or just initialise the drive (F/I) ?
```

To continue with the format type F.

If you are reformatting an existing hard disc, just initialising the disc will be sufficient. You only need to format the disc if it has never been formatted before, or if it was previously formatted using the wrong parameters.

2 At this stage you will be asked if you want to carry out a soak test. Soak testing repeatedly formats and checks the disc. It can be used to check that the state of the defects on the disc is stable.

```
Soak test the hard disc for defects (Long/Short/None) ?
```

If you want to carry out a soak test, type in either L or S and press Return.
L is the long test; the disc is continuously tested until you press the Space bar.
S is the short test, which is just one scan of the disc, lasting a few minutes.
If you don't want to soak test, type in N and press Return.

3 This is followed by a further prompt:

```
Are you SURE you want to do this to drive <drive number>
(Y/N) ?
```

Type Y and press Return to start the format or initialisation.

4 If you specified the long soak test, the test continues until you press the Space bar. It is recommended that you carry out the soak test for at least 24 hours.

If you do not perform a soak test, and if the verification process detects any additional defects, HFORM will then repeat the formatting and verification process in order to include the new defects. It will display the messages `Formatting` and `Verifying` as it does so.

5 The final prompt is

```
Large file allocation unit? 512
```

Press Return to accept this default.

If you expect to use the disc for a very large number (several thousand) of small files, type 256 in response to this prompt. Other values can also be used.

The formatting process is now complete.

Recording more than one error on a D (old map) format disc

If you have more than one disc error to add to the defect list, you must add them in descending order of hexadecimal address, giving the hexadecimal values of the addresses as shown in the disc error message. When you have listed the disc errors, follow steps 1 to 4, as described in the previous section.

Formatting a previously-unformatted hard disc

Formatting a brand new, previously unformatted hard disc is different from reformatting a hard disc which had already been formatted. This is because you need to record the defects on the hard disc by (physical) cylinder, head and section address rather than by logical address (the hexadecimal address given in disc error messages). There are normally only two circumstances which may require this. These are when you need to

- establish an initial defect list on a brand new, previously unformatted disc
- re-establish the defect list in the unlikely event that it has become corrupted, for example due to a power failure during a previous format operation.

The information on the cylinder, head and sector address is kept on a written defect list which the manufacturer attaches to the body of the hard disc drive. To gain access to the written defect list you have to remove the top cover of the computer. Instructions on how to remove it and basic safety precautions are given in the documentation which accompanies your computer.

1 If there are no initial defects, select option A. Otherwise, to record the initial defect list, select option B.

   If you wish to add any defects by logical addresses (option C) you must do this before entering the defects by (physical) cylinder, head and sector address, i.e. by option B. This applies only to old map discs, i.e. those prepared in formats other than E.

2 Type in the defect addresses exactly as they appear on the list.

3 When you have entered the defects, select option A and follow the procedure described in the previous sections.

Appendix F: RISC OS file types

File types are three-digit hexadecimal numbers. They are divided into ranges:

E00 - FFF	allocated by Acorn for generic data types
B00 - DFF	allocated by Acorn to software houses for applications
A00 - AFF	reserved for use by Acorn applications
400 - 9FF	allocated by Acorn to software houses for applications
100 - 3FF	allocated by Acorn to public domain applications
000 - 0FF	free for users

For each type, there may be a default action on loading and running the file. These actions may change, depending on whether the desktop is in use, and which applications have been seen. The system variables Alias$@LoadType_XXX and Alias$@RunType_XXX give the actions (XXX = file type).

Some types have a textual equivalent set at start-up, which may be used in most commands (but not in the above system variables) instead of the hexadecimal code. These are indicated in the table below by a dagger '†'. For example, file type &FFF is set at start-up to have the textual equivalent **Text**. Other textual equivalents may be set as an application starts – for example, Acorn Desktop Publisher sets up file type &AF9 to be **DtpDoc**, and file type &AFA to be **DtpStyle**. These textual equivalents are set using the system variables File$Type_XXX, where XXX is the file type.

You should use the hexadecimal file type in command scripts and in programs, otherwise you will find that your files will give an error if you try to run them on a machine that uses a territory with different textual equivalents.

The following types are currently used or reserved by Acorn. Not all file types used by software houses are shown. This list may be extended from time to time:

Acorn file types

Type	Description	Textual equivalent	
FFF	Plain ASCII text	Text	†
FFE	Command (Exec) file	Command	†
FFD	Data	Data	†
FFC	Position independent code	Utility	†
FFB	Tokenised BASIC program	BASIC	†
FFA	Relocatable module	Module	†

FF9	Sprite or saved screen	Sprite	†
FF8	Absolute application loaded at &8000	Absolute	†
FF7	BBC font file (sequence of VDU operations)	BBC font	†
FF6	Font	Font	†
FF5	PostScript	PoScript	†
FF4	Dot Matrix data file	Printout	†
FF3	LaserJet data file	LaserJet	
FF2	Configuration (CMOS RAM)	Config	†
FF1	Raw unprocessed data (e.g. terminal streams)	RawData	
FF0	Tagged Image File Format	TIFF	
FED	Palette data	Palette	†
FEC	Template file	Template	†
FEB	Obey file	Obey	†
FEA	Desktop	Desktop	†
FE9	ViewWord	ViewWord	
FE8	ViewPS	ViewPS	
FE7	ViewSheet	ViewSht	
FE6	UNIX executable	UNIX Ex	
FE4	DOS file	DOS	†
FE3	Atari file	Atari	
FE2	Commodore Amiga file	Amiga	
FE1	Make data	Make	
FDF	TCP/IP suite: VT220 script	VTScript	
FDE	TCP/IP suite: VT220 setup	VTSetup	
FDD	Master utilities	MasterUtl	
FDC	TCP/IP suite: unresolvable UNIX soft link	SoftLink	
FDB	Text using CR and LF for line ends	TextCRLF	
FDA	PC Emulator: DOS batch file	MSDOSbat	
FD9	PC Emulator: DOS executable file	MSDOSexe	
FD8	PC Emulator: DOS command file	MSDOScom	
FD7	Obey file in a task window	TaskObey	†
FD6	Exec file in a task window	TaskExec	†
FD5	DOS Pict	Pict	
FD4	International MIDI Assoc. MIDIfiles standard	MIDI	
FD3	Acorn DDE: debuggable image	DebImage	
FD1	BASIC stored as text	BASICTxt	
FD0	PC Emulator: configuration	PCEmConf	
FCF	Font cache	Cache	†
FCE	FileCore floppy disc image	FileCoreFloppyDisc	
FCD	FileCore hard disc image	FileCoreHardDisc	
FCC	Device object within DeviceFS	Device	†

FCA	Single compressed file	Squash	
FC9	Sun raster file	SunRastr	
FC8	DOS MultiFS disc image	DOSDisc	†

Industry standard file types

Type	Description	Textual equivalent	
DFE	Comma separated variables	CSV	
DEA	Data exchange format (AutoCAD etc)	DXF	
DB4	SuperCalc III file	SuperCalc	
DB3	DBase III file	DBaseIII	
DB2	DBase II	DBaseII	
DB1	DBase index file	DBaseIndex	
DB0	Lotus 123 file	Lotus123	
CE5	TEX file	TeX	
CAF	IGIS graphics	IGIS	
CAE	Hewlett-Packard graphics language	HPGLPlot	
C85	JPEG (Joint Photographic Experts Group) file	JPEG	

BBC ROM file type

Type	Description	Textual equivalent	
BBC	BBC ROM file (ROMFS)	BBC ROM	†

Acornsoft file types

Type	Description	Textual equivalent	
AFF	Draw file	DrawFile	†
AFE	Mouse event record	Mouse	
AFA	DTP style file	DtpStyle	
AF9	DTP documents	DtpDoc	
AF8	First Word Plus file	1stWord+	
AF7	Help file	HelpInfo	
AF1	Maestro file	Music	
AF0	ArcWriter file	ARCWriter	
AE9	Alarm file	Alarms	
ADB	Outline font (obsolete file type)	New Font	

Appendix G: BBC BASIC

BBC BASIC is still one of the most popular and widely-used programming languages. It consists of special keywords from which the programmer can create sequences of instructions, or programs, to be carried out by the computer. Such programs might perform calculations, create graphics on the screen, manipulate data, or carry out virtually any action involving the computer and the devices connected to it. Several examples of programs written in BBC BASIC are provided on the Applications suite.

The BASIC language operates within an environment provided by the computer's operating system. The operating system is responsible for controlling the devices available to the computer, such as the keyboard, the screen, and the filing system. For example, it is the operating system which reads each key you press and displays the appropriate character on the screen. Operating system commands can be entered directly from within BASIC by prefixing them with an asterisk (*).

If you want to find out more about the BBC BASIC programming language, you need the BBC BASIC *Reference Manual* available from your Acorn supplier.

On-line help is available within BASIC, just type HELP (in uppercase) for more information.

BBC BASIC V and VI

There are two variants of BBC BASIC supplied with RISC OS 3: BASIC V and BASIC VI.

BASIC V is in the ROM and is almost identical to the BASIC V supplied with RISC OS 2.00. A small number of faults have been corrected.

BASIC VI is essentially the same as BASIC V, but it uses 8 bytes (or 64 bits) to store floating point numbers. BASIC V only uses 5 bytes, so it is slightly less accurate. The 8 byte representation used follows the IEEE standard. Unlike BASIC V, BASIC VI will make use of a floating point expansion card if it is fitted.

Entering BASIC

Basic V

To start BASIC V, display the Task manager menu (click Menu over the Acorn icon at the bottom righthand corner of the desktop). Choose the **Task window** option and then type the following:

```
BASIC
```

Press Return, and the BASIC V version and memory option will be displayed on the screen.

BASIC can also be started from the New Task option on the Task Manager or from the command line (press F12).

Basic VI

BBC BASIC VI is different to BBC BASIC V in that it is stored on disc, not in the computer's ROM. BASIC VI is also known as BASIC64.

BASIC VI is used by some applications (for example SciCalc) so it may get loaded into memory without you having to take any special action.

To start BASIC VI, display the Task manager menu (click Menu over the Acorn icon at the bottom righthand corner of the desktop). Choose the **Task window** option and then type the following:

```
BASIC64
```

Press Return, and the BASIC VI version and memory option will be displayed on the screen. If BASIC VI is not loaded you will get the error message:

```
File 'BASIC64' not found
```

If you get this error message then you should type:

```
SYSTEM:MODULES.BASIC64
```

Press Return, and the BASIC VI version and memory option will be displayed on the screen.

If you now get the error message

```
File 'system:modules.basic64' not found
```

then either you have not seen a !System directory, in which case you should open a directory display on the directory containing your !System, or your !System does not contain a copy of BASIC64. If you don't have BASIC64, you should update it from the !System on the applications discs.

BASIC 64 can also be started from the New task option on the Task manager menu or from the command line (press F12).

BASIC files saved from both BASIC V and BASIC VI are the same and can be run using either BASIC.

Leaving BASIC

To leave BASIC, type `QUIT` (which must be in uppercase) or type `*Quit`.

New features in BASIC VI

The new CRUNCH command strips various spaces from a program. Its argument is a 5-bit binary word. Each bit in the word has a different meaning (for instance bit 0 controls the stripping of spaces before statements; bit 2 controls the stripping out of REM statements).

The new TEXTLOAD command can load a file that is either a BASIC program, or a BASIC program that was saved as a text file. In the latter case, TEXTLOAD automatically renumbers the program. TEXTSAVE stores a BASIC program as a text file, and strips out the line numbers.

Writing and editing BASIC files

Edit will automatically convert BASIC files to and from BASIC tokenised format. Now all editing of BASIC files can be done using Edit. Edit is fully described in the *Applications Guide*.

Command line syntax for BASIC

The following pages describe in full the command line interface for BASIC V and BASIC VI.

*BASIC

The command to enter the BASIC V interpreter.

Syntax

```
*BASIC [options]
```

Purpose

To enter BASIC V.

The options control how the interpreter will behave when it starts, and when any program that it executes terminates. If no option is given, BASIC simply starts with a message of the form:

```
ARM BBC BASIC V version 1.05 (C) Acorn 1989
Starting with 643324 bytes free
```

The number of bytes free in the above message will depend on the amount of memory in your Next slot. The first line is also used for the default REPORT message, before any errors occur.

One of three options may follow the *BASIC command to cause a program to be loaded, and, optionally, executed automatically. Alternatively, you can use a program that is already loaded into memory by passing its address to the interpreter. Each of these possibilities is described in turn below.

In all cases where a program is specified, this may be a tokenised BASIC program, as created by a SAVE command, or a textual program, which will be tokenised (and possibly renumbered) automatically.

```
*BASIC -help
```

This command causes BASIC to print some help information describing the options documented here. Then BASIC starts as usual.

```
*BASIC [-chain] filename
```

If you give a *filename* after the *BASIC command, optionally preceded by the keyword `-chain`, then the named file is loaded and executed. When the program stops, BASIC enters immediate mode, as usual.

```
*BASIC -quit filename
```

This behaves in a similar way to the previous option. However, when the program terminates, BASIC quits automatically, returning to the environment from which the interpreter was originally called. If you have a variable `BASIC$Crunch`

defined, it also performs a CRUNCH %1111 on the program. This is the default action used by BASIC programs that are executed as * commands. In addition, the function QUIT returns TRUE if BASIC is called in this fashion.

*BASIC -load *filename*

This option causes the file to be loaded automatically, but not executed. BASIC remains in immediate mode, from where the program can be edited or executed as required.

*BASIC @*start*,*end*

This acts in a similar way to the -load form of the command. However, the program that is 'loaded' automatically is not in a file, but already in memory. Following the @ are two addresses. These give, in hexadecimal, the address of the start of the in-core program, and the address of the byte after the last one. The program is copied to PAGE and tokenised if necessary. This form of the command is used by Twin (the editor) when returning to BASIC.

Note that the in-core address description is fixed format. It should be in the form:

@*xxxxxxxx*,*xxxxxxxx*

where *x* means a hexadecimal digit. Leading zeros must be supplied. The command line terminator character must come immediately after the last digit. No spaces are allowed.

*BASIC -chain @*start*,*end*

This behaves like the previous option, but the program is executed as well. When the program terminates, BASIC enters immediate mode.

*BASIC -quit @*start*,*end*

This option behaves as the previous one, but when the BASIC program terminates, BASIC automatically quits. The QUIT flag will return TRUE during the execution of the program.

Examples

```
*BASIC
*BASIC -quit shellProg
*BASIC @000ADF0C,000AE345
*BASIC -chain fred
```

*BASIC64

The command to enter the BASIC VI interpreter.

Syntax

```
*BASIC64 [options]
```

Purpose

This has exactly the same purpose as the *BASIC command, and takes the same options, the only difference being that it enters the BASIC VI interpreter instead of the BASIC V interpreter. Additionally CRUNCH is used automatically by BASIC64.

If no option is given, BASIC VI simply starts with a message of the form:

```
ARM BBC BASIC VI version 1.05 (C) Acorn 1989

Starting with 581628 bytes free.
```

The number of bytes free in the above message will depend on the amount of free space in your Next slot.

Examples

```
*BASIC64
*BASIC64 -quit shellProg
*BASIC64 @000ADF0C,000AE345
*BASIC64 -chain fred
```

Appendix H: Fonts and the Font manager

RISC OS computers contain a range of fonts stored permanently in ROM. These fonts are used not only by the screen but also by all printers except for some PostScript printers such as the Apple LaserWriter which have their own built-in fonts. The fonts are controlled by a part of the operating system called the Font manager.

One of these fonts is a simple font used, for example, in Title bars and for filenames in directory displays: this is the System font. It is available in only one size. Applications such as Edit also use the System font unless you decide otherwise. This internal System font should not be confused with the outline fonts System Fixed and System Medium.

The other fonts can be used in any size and have italic and bold variants; some of them use proportional spacing, so that a narrow letter such as 'l' takes up less horizontal space than a wide letter, such as 'M'. Most computers store such fonts in the form of bitmaps (like Paint files) specifying which pixels the computer should paint in order to create the shape of the character. Storing fonts this way takes up a lot of memory, and when larger or smaller sizes are wanted, scaling is often unsatisfactory, producing irregular shapes.

The Font manager

Instead of bitmap fonts, where a font is made up of lots of tiny dots, the Acorn Font manager uses 'outline' fonts (like Draw files), where only the outline of each character is stored. When you request a font, the computer loads the outline font, scales it to the size you want, and fills in the outline. This produces much better effects when fonts are scaled.

As supplied, the font management system is set up to provide a reasonable blend of screen quality and performance for the majority of users (typically those with 1 or 2Mb RAM). However, it is possible to change the Font manager's settings to produce a system with different characteristics, as described below.

Anti-aliasing and hinting

The Font manager uses two techniques to improve the quality of fonts. The first of these is called 'anti-aliasing', and applies only to screen displays. If the outline of a character passes partially through a pixel, a non-anti-aliasing font can only paint the whole pixel or none of it. The result is a jagged edge to the character.

Anti-aliasing relies on an optical trick: the jagged edges are smoothed out by the addition of extra pixels in intermediate colours. You can see how this is done by first typing some text in an Edit window (using a fairly small size – 12 or 14 point, say), or loading an Edit file. Press Menu, move the pointer to the **Display** submenu, and from there to the **Fonts** submenu. This will show a list of fonts available. Click on Trinity.Medium to display the text in an anti-aliased font.

To examine the display more closely, use the Magnifier application, described in the *Applications Guide*.

The Font manager uses a second technique to improve the appearance of fonts, one that applies both to the screen and to printers. This is called 'hinting'. The outline of the character being displayed (or printed) is subtly altered in ways that depend on the resolution of the image being produced. This is particularly effective when fonts are scaled, and when half-tones are not available, as on most printers.

The fonts supplied with your computer are held in Resources:$.Fonts. You can see which fonts are available at any time, with the Command Line command:

```
*fontcat
```

Font cacheing

From each outline font that is requested, the computer calculates the bitmap it needs to display the font at the desired size. It keeps as many of these bitmap fonts as it can in an area of memory called the font cache. If the font cache is not large enough to hold the bitmaps of all the fonts that are in use at a given time, any extra fonts are loaded from the filing system as necessary.

Bitmaps are used because the computer can send these to the computer screen at a much faster rate than it can outline fonts.

The computer will attempt to retain in memory the fonts which are in greatest demand, but to do this requires some sophisticated guesswork. Since this is not always totally successful (the computer cannot read your mind!) there will sometimes be a delay when text is being drawn on the screen, as the font is loaded from the filing system.

Matching font performance to your needs

There is inevitably a trade-off between speed and font appearance. Since users' priorities and aesthetic judgements vary, RISC OS provides two ways of tailoring font performance to your needs and preferences. You can

- change the size of the font cache
- change the way anti-aliasing is done (or switch it off altogether).

Changing the minimum size of the font cache

If you are using a lot of different fonts, you can increase the minimum size of the cache, so that the text is drawn more quickly. This is done by setting the **Font cache** in the **Memory allocation** screen of the **Configure** application (to set it permanently) or by setting the **Font cache** size option in the Task Manager's **Task display** window (to set it for the current session only).

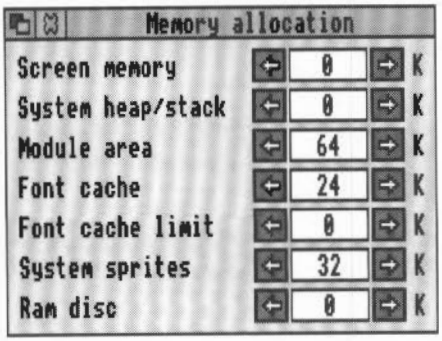
How to set the default font cache using Configure is explained on page 94.

The best size for the font cache depends on several factors: how much memory your computer has, whether you have a hard disc or not, and whether you are currently using many different fonts in an application. For example, a large application needs a font cache of about 64KB even in a 1MB computer, and can benefit from 128KB or 256KB in a 2 or 4MB machine. The default value is 32KB.

Allowing the font cache to grow

If the size of the font cache is too small, the Font manager will attempt to increase its size up to the maximum specified by the maximum font cache. If this happens it will then shrink back to the normal current size as soon as any fonts can be discarded. The Font manager decides to do this rather than throw away cached blocks of currently 'open' fonts.

The value for the maximum font cache size can be set using the **Font cache limit** option on the **Memory allocation** screen of **Configure**.

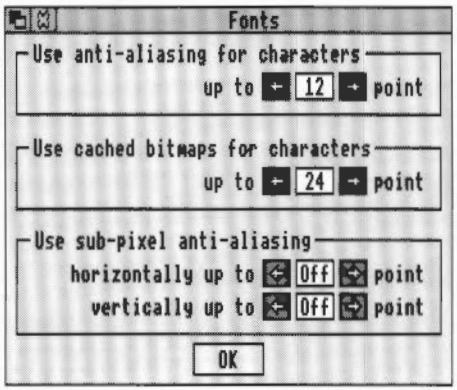


Controlling anti-aliasing and hinting

The effects of anti-aliasing can be fine tuned using the **Fonts** screen in the **Configure** application. Each parameter is specified in points and can be set for both screen and printer. How to set the Font configuration using Configure is explained on page 98.

Use anti-aliasing

This places an upper limit on the size of anti-aliased fonts; fonts in larger sizes are printed without anti-aliasing. Larger fonts benefit less from anti-aliasing, and since a computed anti-aliased bitmap font occupies a lot more memory than a non-anti-aliased bitmap, for most purposes it is not worth displaying large fonts with anti-aliasing. This parameter is relevant only to the screen display. Its default screen value is 24 point in mode 12.



Use cached bitmaps

This specifies the largest font size which is to be kept in the font cache as a bitmap. Fonts larger than this will be drawn from outlines directly to the screen without cacheing and without anti-aliasing. If it is set high, and you are using a few large fonts – for headlines, perhaps – they may take up all the font cache, flushing out smaller fonts. You may find it most efficient to set this value to the size of the body text in your document.

This parameter is relevant for the printer, especially if you are printing documents with a lot of text. Its ideal value depends on the screen mode, printer type and the printer resolution.

If you have one of the larger and more powerful RISC OS computers, or are printing at a high resolution, you may wish to increase the values of this parameter.

Use subpixel anti-aliasing

This controls a refinement of anti-aliasing in which four separate versions of each character are retained. This can have a beneficial effect on the quality of characters at small sizes. However it is heavy on computing power and may result in unacceptably slow screen updates. Therefore this should not normally be changed from its default value of OFF.

Troubleshooting

If every repaint on the screen causes intensive disc and hourglass activity, then the font cache may be too small to hold the range of fonts you are trying to use. In these circumstances, try the following:

1. Increase the size of the font cache using the Task window. The addition of even small amounts of memory can often improve things dramatically.
2. Reduce the maximum size for anti-aliasing (or switch it off altogether). This will enable the font cache to be used more economically with a large number of fonts.
3. Reduce the maximum height of cached bitmaps value (or set it to zero). This should reduce disc activity, but the action of painting on the screen will become much slower.

Printing

When printing, there are conflicting requirements for memory. The Font manager needs memory to cache fonts, and the printer driver needs memory to build up a page image to send to the printer. As both of these affect printing speed, you will have to experiment to find the optimum. Changing to screen mode 0 while printing, for instance, can speed it up considerably. As a general rule these remarks do not apply to PostScript printing, which operates in a different way.

Note also that if you have a non-PostScript printer, the parameter maximum height of cached bitmaps affects whether fonts are cached when printing. If the value in the Printer box is smaller than your typical body text size, there may be a very long pause at the start of each printed page, as all the characters on the page are rendered from the outline form.

Appendix I: The Fancy text file format

Fancy text format understands text printing options such as Paper feed, Title, Number lines, Print quality and Control codes. Plain text format ignores these settings.

The fancy text file format is mainly the same as the 1st Word Plus file format, and so most of the highlighting (in 1st Word Plus files) is printed correctly. This means you don't have to load 1st Word Plus to print out your 1st Word Plus files (although you can't print sprites).

The Fancy text file format

This section specifies the fancy text file format; it is of interest to advanced users only. The format consists of plain text with the following added special sequences. In a text file, the character sequence is a character that stands for the ASCII value given in brackets in the table below:

Character sequence	Meaning	Action
<8>	Backspace character	Backspace if possible
<9>	Tab character	Tabulate to next 8th column
<10>	Line Feed character	Possible end-of-line (depends on options)
<11><x>	Conditional page break	Page break if less than x-16 lines left on page, else a new line
<12>	Unconditional page break	Go to a new page (i.e. a page break)
<13>	Return character	Possible end-of-line (depends on options)
<24><x><y><n>	Footnote reference	Reference to footnote <n>, so print <n>. (x & y are ignored but must be present)
<25>	Soft hyphen	Always print a hyphen

Character sequence	Meaning	Action
<27>	Escape character	Start escape sequence
<28>,<29>,<30>	Soft space	Discard if precedes a <10>, <11>, <12> or <13>, else print a space
<31>	Format character	Start format sequence (reserved for Acorn use)
<127>	Delete character	Ignored

In a text file, the escape sequence is a character that stands for the ASCII value given in brackets in the table below followed by a binary number.

Escape sequence	Meaning
<27><%11000000>	Starts literal escape sequence. This is equivalent to <27><192>. A literal escape sequence is a sequence of characters which are sent directly to the printer – and hence are printer-specific. The sequence is ended by a <27><0>. A "||" pair sends a "|" character, a "|?" pair sends a <127>, and any other "|<x>" sequence sends <x AND 31>. Thus to send an escape character use "|[".
<27><%10fedcba>	If 'a' is 1 then bold style (on = 1, off = 0) If 'b' is 1 then light style (on = 1, off = 0) If 'c' is 1 then italic style (on = 1, off = 0) If 'd' is 1 then underline (on = 1, off = 0) If 'e' is 1 then superscript (on = 1, off = 0) If 'f' is 1 then subscript (on = 1, off = 0) This is equivalent to the range of escape sequences <27><128> to <27><191>.
<27><other>	Ignored

The file format is almost a subset of the 1st Word Plus file format, the basic omissions being headers and footers, and an incomplete implementation of footnotes.

Appendix J: Error messages

There are many possible error messages; this appendix lists some of the more common ones you might see. It also tells you what the more likely causes of an error message are, and what you can do about it. You may occasionally see other error messages which will usually be self-explanatory. If you have serious problems, especially recurring ones, consult your supplier.

User Errors

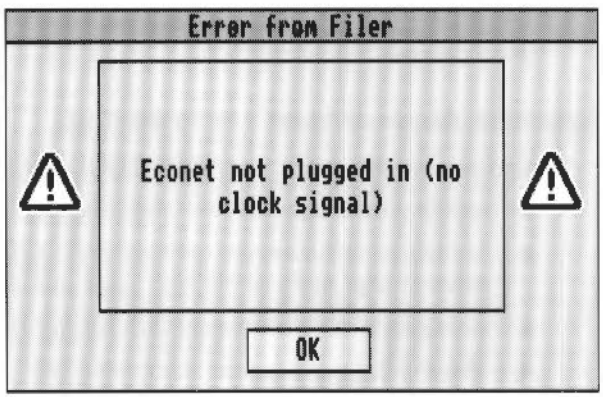
These are errors that are mainly caused by you, the user, performing an inappropriate action. Most of these errors are listed in this chapter, together with a way of curing the error.

Internal errors

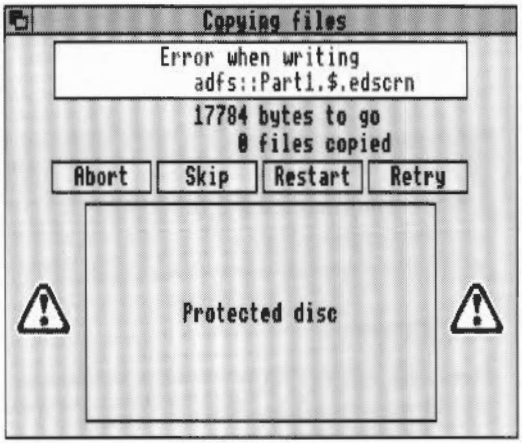
These errors are not caused by the user, but are problems with the system or the Application you are using. The most common internal errors are listed here, together with an explanation as to their cause. Most errors of this type start with the word Internal.

The error message window

This is what a typical error message window looks like:



There is another type of error window you may see, this is generated by the desktop Filer and looks like this:



This type of error box is generated when a file operation is not completed. You should clear the fault and then click on the appropriate filer option. For an explanation of the filer options, turn to the section entitled *The Filer* on page 8.

Error messages

Ambiguous disc name

You either have two floppy discs with the same name, or a single floppy disc has been 'seen' by this machine, taken out and modified on another machine, and then returned to this one. Click on **OK** to tell the computer to regard the current disc as the right one.

Application needs at least xxx to start up

You need to free more memory before the application will run. You can do this by:

- quitting other applications and modules.
- using the Task manager application to reduce the amount of memory used by other things, such as the font cache and system sprite pool;
- changing to a screen mode with a lower resolution and/or fewer colours;
- discarding the RAM disc (if you have one). See the appendix entitled *Getting the best out of* 1MB *computers* on page 207.

Bad wimp mode

You can't change to this screen mode.

Bad station number

You have tried to access a network file server, but you have used the wrong station number.

Can't rename as file <path>.<file>

This may occur when you try to rename a file with a name greater than ten letters. Files cannot have names greater than ten letters. Choose a name with less than ten letters instead.

Cannot transfer file (scrap directory not set)

The Filer needs to see !Scrap before it can transfer the file. Opening a directory display containing !Scrap will cure this problem.

Disc error

This may appear for a variety of reasons. The most common explanation is that the floppy disc has a fault on it. You should copy the data onto another disc and then reformat the disc. If you want to try to salvage the disc without formatting it use the command *Defect.

Data lost

There is a delay on the Econet. Try repeating the command that caused it. If the error happens repeatedly, ask your system manager for help.

Econet line jammed

The Econet is seriously overloaded: inform your network manager.

Econet transmission error

There is a delay on the Econet. Try repeating the command that caused it. If the error happens repeatedly, ask your system manager for help.

Econet station not listening

There is a delay on the Econet. Try repeating the command that caused it. If the error happens repeatedly, ask your system manager for help.

Econet not plugged in (no clock signal)

The Econet is not plugged in. Check the cable running from the socket at the back of the computer to the network socket.

File locked

You tried to do something forbidden to a locked file, such as delete it. You need to unlock it first if you really want to perform this action. The Access option on the Filer/File menu unlocks files.

File not found

The file you have requested has not been found. Make sure that the file exists and then try again. If this message appears when you are using the Econet network, refer first to section entitled *Networking* on page 42.

File open

An operation was interrupted by an error, a reset, or similar. Go to the command line by pressing F12 and type in *Close to close the open file. Press F12 to return to the desktop and then repeat the command that caused the error. If the error persists, restart your computer. *Close will close all files on the current filing system only. *Shut closes all open files on all filing systems.

Font cache full

The space reserved for fonts has been used up. Use the Task manager to reserve more space for the font cache. Alternatively use the Configure application to set the font cache automatically.

Free space map full

The data on your disc has become fragmented, and you should compact the disc. This error is only encountered if you are using the old type D or L formats. Discs are compacted using the *Compact command. See the Command Line section of this guide for the *Compact command.

Internal error: undefined instruction

This error may be caused by a bug in the application you are using. Quit the application and then restart the application.

Internal error: abort on data transfer

This error may be caused by a bug in the application you are using. Quit the application and then restart the application.

Internal address error

This error may be caused by a bug in the application you are using. Quit the application and then restart the application.

No free printer server of this type

This can sometimes be caused by network broadcasts going wrong. Repeat the command you used.

No reply from Econet station

There is a delay on the Econet or the Server is off net; try repeating the command that caused it. If the error happens repeatedly, ask your system manager for help.

No run action specified for this file type

Before a file belonging to an application can be loaded, its application must have been 'seen' (shown on a directory display) at some time in your session. This error message appears when this has not happened. To prevent this error occurring, keep your applications in the root directory of your disc(s), or include statements in your !Boot file that will cause !Boot files in the relevant subdirectories to be run when you power on.

Not enough memory for system variable

The area of memory reserved for the system heap has all been used. Use the Task manager to reserve more space for the System heap/stack. Note that the heap/stack can claim memory automatically from **Free** but not from **Next** slots.

Not enough memory in module area

The area of memory reserved for relocatable modules (the RMA) has all been claimed. Use the Task manager to reserve more space for the module area. Note that the screen/RMA can claim memory automatically from **Free** but not from **Next** slots.

Not enough memory in sprite area

The area of memory reserved for the sprite area has all been claimed. Use the Task manager to reserve more space for the sprite area.

Not enough memory on system heap

The area of memory reserved for the system heap has all been used. Use the Task manager application to reserve more space for the System heap/stack.

Not logged on

You have asked the computer to load a file or application from the network, but you are not logged on. You will see this message if you have just copied an application from the network, logged off, and then tried to load a file straight into the application without loading the application first. The computer tries to load the application from where it first saw it – the network. To avoid this problem, you should first load the application from your disc copy of it, and then load the file.

Printer busy

The printer is not responding. Check that it is plugged in. If you are using the network printer server, try again later when it may be free; if this error occurs repeatedly, consult your system manager.

Printer in use

You are trying to print from more than one application at once. Wait for the first application to finish before printing from the other one.

Printer jammed

The printer is not responding. Check that it is plugged in. If you are using the network printer server, try again later when it may be free; if this error occurs repeatedly, consult your system manager.

Protected disc

The floppy disc you are trying to access is write protected. Move the write-protect tab and try again.

System resources cannot be found

The !System application (provided on disc with your computer) cannot be found. Display the directory containing !System and repeat your command. Some applications need to 'see' !System, even though they do not use it.

End-user licence conditions for the RISC Operating System

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