# HARD DISC COMPANION

# User Guide

# BEEBUG

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Backup and Restore were written by Andrew Benham
Spark and the Backup compression code were written by David Pilling?
Find File was written by John Wallace

If you discover a problem in this product please write to the Software Manager at Beebug explaining the problem as briefly as possible, but including all relevant information, e.g. system configuration, hardware add-ons, version of operating system. Please do not return your disc or any peripheral unless you are requested to do so. Always quote the version number of your disc (normally stamped on the disc label), and also in the disc-read module, the version number of the particular program that contains the problem.

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FIRST EDITION 1989

# Contents

# 1. Introduction

Hard Disc Companion provides three useful utilities for Archimedes hard disc users and Econet users. Two of these utilities, Spark and Find File are equally useful when using floppy discs. The three utilities are:

## Hard Disc Backup & Restore

This provides a reliable and easy-to-use facility to backup entire hard discs (including networks) onto floppy discs. It will handle all files that occur on a hard disc including files that are longer than the capacity of a floppy disc, and uses compression routines to reduce the number of floppies needed. Two types of backup are available:

1. a Full backup which copies all files on the hard disc

2. an Incremental backup which copies only those files added or modified since the last backup.

## Spark File Archiver

Spark is a WIMP based file archiver. It allows groups of files or directories to be compressed and collected together in one file. Files can be added to the archive by dragging them from a directory viewer into an archive directory, or extracted by dragging from the archive back to the required directory.

Spark is particularly useful for archiving files which occupy a lot of disc space, e.g. text, sprite and draw files. Since these files compress very efficiently, many more can be stored on disc than normal. Whenever a file is required, it can be dragged straight from the archive into the application - all archiving and compression/decompression being invisible to the user. Spark is especially useful on floppy discs which have a relatively small capacity.

## Find File

Find File is a fast easy-to-use utility for locating files on a hard disc, floppy disc or network. Once a file has been located, you can automatically open a directory viewer on the file for subsequent loading executing etc.

It is beyond the scope of this user guide to describe in detail the operation of the RISC OS Desktop and WIMP system, so please refer to your Archimedes Welcome Guide. Often this user guide refers to 'directory viewer'; this means a window in the desktop environment that displays the contents of a directory.

## Installing Hard Disc Companion

To install Hard Disc Companion on your hard disc, enter the Desktop and open directory viewers on your hard disc and on your Hard Disc Companion master disc. Now drag *!Backup*, *!FindFile*, *!Restore* and *!Spark* from the floppy to the hard disc. Remember to keep your master disc stored in a safe place.

Whilst all of these programs can be run from the Hard Disc Companion master disc, we recommend that the Backup and Restore programs are always run from the hard disc that you wish to backup. For example, if you wish to backup your network server, copy *!Backup* and *!Restore* to the network. If you run Backup or Restore from floppy disc, it will probably result in you having to do a lot of disc swapping.

The file *ReadMe* on the Hard Disc Companion master disc contains any updates to this user guide and may be examined using **\*TYPE readme**. Alternatively, load it into ArcEdit or a similar text editor.

# 2. Hard Disc Backup

## Introduction

Whilst the acquisition of a hard disc is in many ways a boon to the microcomputer user, there are occasions when it may almost be seen as a liability. This is due to a failure on behalf of the user to appreciate the large amounts of data that may be stored on a hard disc drive, and the loss of that data that may occur due to a single fault. A hard disc drive brings with it certain obligations on behalf of the user, namely:

1. A structured approach to the organisation of files on the disc.
2. A formal approach to backing up the disc at regular intervals.

This backup facility aims to guide the user into creating backup disc sets in such a way that the vast majority of the files on the hard disc may be restored following a hard disc failure. The disc set also allows you to revert to a previous version of a particular file, should the current version on the hard disc be accidently erased or incorrectly modified.

The package aims to encourage the user to follow a rigorous 'mainframe type' approach to backups i.e. to produce a full backup disc set at regular intervals (for example, once a month). Such a backup contains every file on the hard disc. In between full backups (for example, once a week), the user should produce 'incremental' backups containing only those files that have been added or updated since the last backup. Using this scheme, the user may at any time restore the hard disc from the backup sets, and only lose those files added since the last backup. Using the above timescales the maximum lost period would be one week. Where the hard disc is used for important applications, a daily incremental backup is advisable.

The program handles files that are too long to fit onto a single floppy disc. Each long file is backed up as a series of parts on consecutive floppy discs after all the shorter files have been dealt with.

# Getting Started

Enter the Desktop, and open a directory viewer on the directory containing the
Backup application *!Backup* (this should be stored on the device you wish to
backup). To run Backup, double-click on the application directory *!Backup*.
The Backup program is loaded, and its icon displayed on the icon bar.

Click the **Select** button (left-hand button) on the Backup icon on the icon bar
to display the following dialogue box:

```
┌─────────────────────────────────────────────────────┐
│ ▣ ⊠           Hard Disc Backup                       │
│ ┌Source──────────────┐ ┌Destination─────────────────┐│
│ │  ▣5    ▉▉▉▉ ▪       │ │ ▉▉▉▉▪  ▉▉▉▉▪               ││
│ │ Econet   :4         │ │   :1     :0                ││
│ │ adfs::HardDisc4.$   │ │  Backup Name:  030ct89    ││
│ └────────────────────┘ └────────────────────────────┘│
│ ┌Backup Type──────────────────────────────────────┐  │
│ │ ◈ Full  ◇ Incremental  from: 19:53 25-Sep-89 (I) │  │
│ │       □ Unstamped Files      □ Verify            │  │
│ └──────────────────────────────────────────────────┘  │
│              Waiting to start                         │
│   Disc:      File:          Complete:                 │
│              Cancel  Start                            │
└─────────────────────────────────────────────────────┘
```
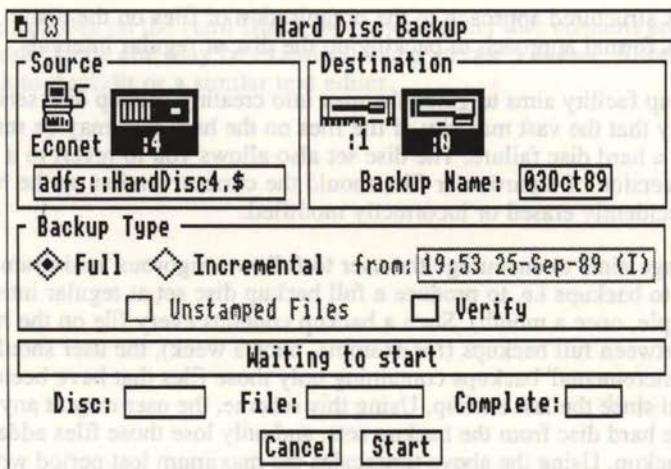
The dialogue box has a number of user inputs, which are detailed in this
section. Normally, you will not need to change these settings since they are
preset to sensible default values.

Click the **Menu** button (centre button) on the Backup icon on the icon bar to display the following menu:
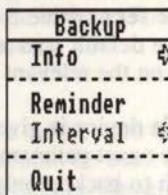
```
    Backup
    Info        ⇨
-----------------
    Reminder
    Interval    ⇔
-----------------
    Quit
```

The options on this menu are as follows:

# Info

**Info** gives some information about the version of the software you are using. The version number given should be quoted in any correspondence with Beebug about this particular program.

# Reminder

If this option is set, you will be reminded at regular intervals to backup your hard disc. Full details of the reminder facility are given later in this chapter. By default the reminder is off.

# Interval

**Interval** specifies the number of days for the reminder facility. The default interval is 7 days. Note that **Interval** is shown in grey and cannot be selected if the **Reminder** is not selected.

# Quit

**Quit** exits the backup program and removes it from the computer's memory. The Backup icon is removed from the icon bar.

# Source Device

The source device is the hard disc drive that you wish to backup. For most users it is drive 4, but it may be set to drive 5 or the network server if they are available on your computer. The default source device is drive 4. To change the source device, simply click on the relevant icon.

The full pathname for the source device is given in the box below the icons. You may edit this to specify the exact pathname from which the backup should begin. For example, if you wish to backup only those files and directories in directory *Utilities*, edit the source pathname so that it reads:

```
adfs::HardDisc.$.Utilities
```

Where *HardDisc* is the name of the hard disc drive. If you click on the network icon, the source pathname is set to:

```
net:&
```

This will backup your own root directory, but to backup the entire network edit the pathname to read:

```
net:$
```

Please note that you must be logged-on to the network before you can make a backup of the network hard disc.

# Destination Device

The destination device is the floppy disc drive on which the backup copies are made. By default it is set to drive 0, but it may be changed to any existing floppy drive by clicking on the relevant icon.

Beneath the destination device icons is a box which specifies the name the backup set will be given. The backup disc set is the set of floppy discs onto which the contents of the hard disc are transferred. By default, the disc set is named with the textual form of the date e.g. 12Apr89. For most users this will be more than adequate since it is automatic and provides a unique name. However, if you wish, you can change it (7 characters max). Individual discs within the disc set are given this name with _num automatically appended to the end, where, *num* is the number of the floppy disc in the set.

Please note that the name of the disc set must be unique, i.e. you should not enter a name which has been used for an earlier backup.

# Backup Type

This option allows you to specify whether the backup should be Full or
Incremental. By default this option is set to Full. Simply click on the
appropriate box to change the setting.

## Full Backup

A Full backup contains every file on the hard disc (with some exceptions - see
**Special Notes** on page 17). It should be used for the first backup you make,
and then at regular intervals afterwards. Since it backs up every file, it often
requires a very large floppy disc set - as many as 20 floppy discs if your hard
disc is very full. For this reason full backups should only be done say,
monthly, and Incremental backups regularly in between (say, weekly or even
daily).

## Incremental Backup

An Incremental backup contains only those files added or updated on the hard
disc since the last backup (or from any date specified). Normally it will
require a much smaller disc set than that required by a Full backup, and should
be done regularly between Full backups. Please note that an Incremental
backup contains the files added/updated since the last Full or Incremental
backup, so you cannot re-use the same discs sets.

To completely rebuild the hard disc, you must restore the last Full backup
followed by all the Incremental backups made since.

The writable icon labelled **from:** shows the date of the last backup followed by
a letter in brackets which indicates whether the last backup was Full (F) or
Incremental (I). If you wish you can edit the date, and thus produce a backup
of all the files added/updated since the date specified. The format for entering
the date is :

        HH:MM DD-MMM-YY

for example:

        13:25 17-Aug-89

Now when you do an incremental backup, only those files updated since the
17th August 1989 will be backed up. To restore this box back to the date of the
last backup, press **Insert**, or to erase its contents, press **Ctrl U**.

When doing Incremental backups, files without datestamps may be
encountered. Obviously the program cannot determine if they have been added
or updated since the last backup. You can decide if these files should be
included in the Incremental backup or ignored by selecting or de-selecting the

option **Unstamped Files**. By default all unstamped files are included in the backup.

# Verify

Floppy disc errors that occur during the backup operation are automatically detected by the program, allowing you to insert a replacement disc for the faulty one. However, there remains a small chance that a floppy disc error may occur unnoticed by the operating system - **Verify** will detect any such error. If **Verify** is selected, each file is verified immediately after it has been backed up. **Verify** does not carry out a byte-for-byte compare, but simply checks that each file can be read back off the floppy disc. **Verify** slows down the backup operation quite considerably, but this may be justified if your hard disc contains important data.

If **Verify** fails, the program assumes that the current floppy disc is faulty, and you will asked to insert a replacement disc. The faulty disc should be discarded.

# Starting The Backup

## The Pre-Backup Pass

Once you have ensured that the source and destination drives are correct and the type of backup is set correctly, you can start the backup by clicking on **Start**. You can cancel the backup at any time by clicking on **Cancel**. The first action during the backup is an analysis of the source device. This counts the number of files to be backed up, and estimates the number of floppy discs required to contain them. These two values are shown in the boxes labelled **Files** and **Discs** respectively. The number of discs given is approximate, and depends upon how efficiently files can be 'fitted' onto the floppies, and how many files are compressed during the backup.

## The Floppy Disc Set

You will now be prompted to insert the first floppy disc of the disc set, for example:

```
┌──────────────────────────┐
│      Insert New Disc      │
│                          │
│  Insert disc: 19Aug89_1  │
│                          │
│    In drive: :0          │
│                          │
│ Current disc: <Empty>    │
│                          │
│      Make   Cancel       │
└──────────────────────────┘
```
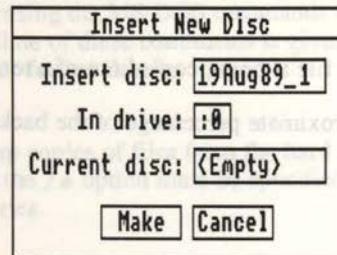
The first seven characters represent the disc name (normally the date), and _1 indicates that it is the first disc in the set. You should have ready at least as many discs indicated in the box labelled **Discs**. Ideally they should be formatted (and blank), but unformatted discs will be formatted before the backup commences, so almost any good quality discs will do. The floppy discs will be completely erased, so do not use discs containing important files.

After inserting the first disc, it's name is checked and if it is not the required name a warning is given. If you are sure you want to use this disc for the backup simply click on **Make**. Alternatively insert another disc if you wish, or click on **Cancel** to cancel the entire backup.

At this stage any existing files will be erased, or if the disc is not formatted then it will be automatically formatted and verified. The backup will now commence. As soon as the first floppy disc is full, you will be prompted to insert the second disc and so on until the entire backup is complete. A message will inform you when the backup is finished.

## Backup Progress

Progress information about the backup is displayed at the bottom of the dialogue box.

**Status** simply tells you what is currently happening, e.g. it states whether files are being copied or compressed.

**Disc** shows the number of the floppy disc currently in the drive, and the approximate number of discs that will be required. For example:

3/~12

This means that files are currently being copied onto floppy disc number 3, and approximately 12 discs will be required in total.

**Files** indicates the number of the file currently being copied, and the total number of files to copy. For example:

46/476

This means that the 46th file is being copied out of a total of 476 files.

**Complete** gives the approximate percentage of the backup that has been completed.
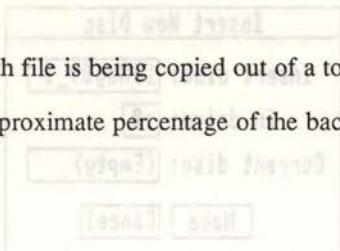
14

# Miscellaneous Features

## Ignore Files
There is a facility when making backups to ignore certain files i.e. they will
not be backed up. The names of the files to be ignored are held in the file
*Ignore* which is stored in directory *!Backup.Resources*. This file may be edited
using ArcEdit to include any file or files that you do not wish to backup. It is
recommended that you set the ignore file to the full pathname of the MS-DOS
partition. If you want to backup your MS-DOS partition please see the notes
below.

## MS-DOS Partition
The Acorn PC Emulator allows part of the hard disc to be partitioned for use
with the MS-DOS operating system. This partition appears as a single ADFS
file normally called *$.PC.Drive_C* and is 10MB in length. It is inefficient for
Hard Disc Companion to backup the partition since it may contain only a few
files but still require 10MB of floppy disc space. It is far better to ignore the
partition and back it up using the MS-DOS commands BACKUP and
RESTORE. A brief outline of these commands is given below, but please refer
to an MS-DOS guide for further details.

### BACKUP
BACKUP makes backup copies of files from the hard disc onto pre-formatted
floppy discs. Note that the **/s** option must be specified in order to copy the
contents of sub-directories.

Syntax:
**BACKUP   <drive>:[<pathname>]   <target   drive>:
          [<options>]**

**<drive>:<pathname>**   is the name of the drive to be backed up. If
                         **<pathname>** is omitted all files are copied.

**<target   drive>:** is the destination ('target') floppy drive.

| | |
|---|---|
| **/s** | backup from all sub-directories |
| **/m** | backup only those files modified since last backup |
| **/a** | add files to backup disc (do not erase target disc) |
| **/p** | pack as many files as possible onto target disc |
| **/d:<date>** | backup only those files modified after specified date |
| **/t:<time>** | backup only those files modified after specified time |

**/l:<filename>**    create a log file on the source disc

### RESTORE
RESTORE copies files back to the hard disc that were backed up using
BACKUP. Files are copied back to the same directory from which they were
backed up.

**Syntax:**
```
RESTORE   <drive1>:   [<drive2>:]   [<pathname>]
          [<options>]
```

| | |
|---|---|
| **<drive1>:** | the drive containing the backup files |
| **<drive2>:** | the hard drive onto which the files are to be copied |
| **<pathname>** | the name of the files to be restored<br>if omitted all files on **<drive2>** will be restored |
| **/a:<date>** | restore only those files modified after specified date |
| **/b:<date>** | restore only those files modified before specified date |
| **/e:<time>** | restore files modified earlier than specified time |
| **/l:time** | restore files modified later then specified time |
| **/m** | restore only those files modified since last BACKUP |
| **/n** | restore only those files no longer on destination |
| **/p** | prompt for permission to restore read-only or<br>hidden files |
| **/s** | restore files in all sub-directories |

16

## Compressed Files

The backup facility contains a powerful file compressor that automatically compresses files so that they take less space on floppy disc. The text file *Ftypes* stored in directory *!Backup.Resources* specifies which types of files should be compressed.

All specified files are compressed except the following:

1. Files that are less than 1K long.
2. Absolute files that have been 'squeezed'.

The file *Ftypes* may have any number of entries, comprising lines with the following format:

&lt;filetype name&gt;,&lt;filetype&gt;

Each entry is divided into two fields separated by a comma. The first field is the name of the filetype - this is for information only. The second field is the filetype in hex. By default *Ftypes* contains the filetypes for text files and sprite files - these compress particularly well. You can add new filetypes to the list by editing *Ftypes* using ArcEdit or another text editor.

## Special Notes

Hard Disc Companion deals reliably with almost all files that can exist on a hard disc. However there are a few limitations beyond the control of the program.

1. A file cannot be backed up if it contains unreadable sectors.

2. A file cannot be backed up if it is open for output at the time of backing up.

3. Pathnames for files are limited to 255 characters. It is very unlikely that this limit will ever be reached.

4. Files added to the hard disc which have datestamps before the date of the last backup will not be backed up when doing an Incremental backup. If you copy files on to your hard disc you should use the S suffix after the copy command so that the files are given new datestamps.

# Reminder Facility

A simple alarm may be set up to remind you at regular intervals to do a
backup. By default, this feature is disabled. To switch the reminder on, install
Backup on the icon bar in the usual way and click the **Menu** button on the
Backup icon on the icon bar. The following menu will be opened:

```
      Backup
      Info      ⇨
 ----------------
 √ Reminder
   Interval   ⇨
 ----------------
      Quit
```
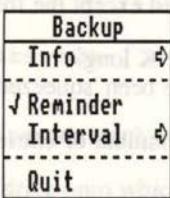
To switch the reminder on, click on **Reminder** in the menu and a tick will
appear next to it. Beneath **Reminder** is an entry called **Interval** which allows
you to set the interval in days between reminders. For example, if this is set to
7 days, the alarm will go off every 7 days.

The reminder alarm takes the form of a small dialogue box which appears
when you open a directory viewer containing *!Backup* and when the specified
interval has passed. The reminder facility is invoked by the auto-boot
mechanism of the backup application, and will only operate if a directory is
opened on containing *!Backup*. It is therefore recommended that *!Backup* is
installed in a directory which is used regularly.

```
         Hard Disc Backup Reminder

  ⚠  Please backup hard disc   ⚠
     Last backup created on

              OK    Cancel
```
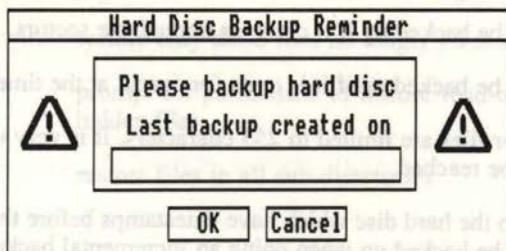
Click on **OK** to automatically run the backup program, or **Cancel** to cancel
the reminder and delete the dialogue box. Please note that if you click on
**Cancel**, the reminder will be repeated the following day, and subsequent days
until you do a new backup, switch off the reminder, or change the interval.

# 3. Hard Disc Restore

The Restore program copies every file (and directory) from a floppy disc set to the hard disc, recreating full pathnames as required. Using this program the files may only be restored with their original names. A Selective Restore program is also provided allowing you to recover individual files - for details see later in this chapter.

## Getting Started

Enter the Desktop, and open a directory viewer on the directory containing the restore application *!Restore*. To run Restore, double-click on the application directory *!Restore*. The Restore program is then loaded, and its icon displayed on the icon bar.

Click the **Select** button on the Restore icon on the icon bar to display the following dialogue box:
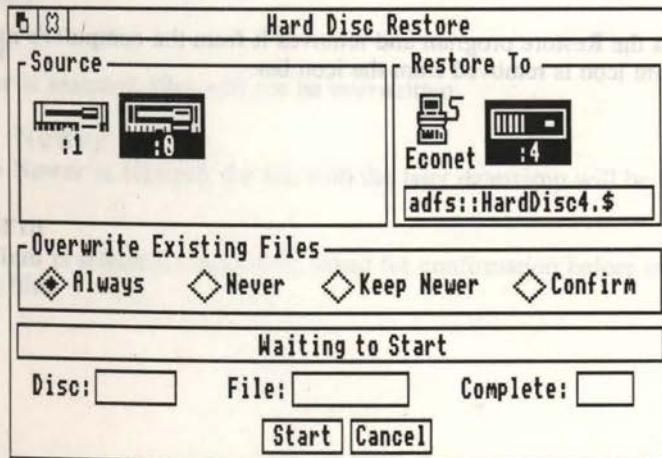


This dialogue box has a number of user inputs, which are detailed later in this section . However, they are set to sensible defaults and normally do not need to be changed.

Click the **Menu** button on the Restore icon on the icon bar to display the
following menu:
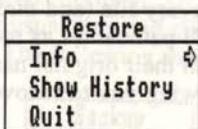
```
      Restore
 Info            ⇨
 Show History
 Quit
```

The options on this menu are as follows:

## Info

**Info** gives some information about the version of the software you are using.
The version number given should be quoted in any correspondence with
Beebug about this particular program.

## Show History

**Show History** displays (in 'paged' mode - press **Shift** to scroll) the backup
'history' file. This may be used to determine when backups have been
performed, and the names of the disc sets involved.

## Quit

**Quit** exits the Restore program and removes it from the computer's memory.
The Restore icon is removed from the icon bar.

# Source Device

The source device is the disc drive into which each backup disc is inserted. By default it is set to drive 0 but it may be changed to any existing floppy drive by clicking on the relevant icon.

# Destination Device

The destination device is the hard drive that you wish to restore files onto. By default it is set to drive 4, but it may be set to drive 5 or the network by clicking on the appropriate icon. The full pathname of the destination drive is shown below the icons. You may edit this string to specify the exact pathname that you wish to restore the files to.

# Overwrite Existing Files

Four options are provided so that you can determine what should happen if the files you are restoring already exist on the destination device.

## Always

If **Always** is selected, files will always be overwritten - even if existing files are locked.

## Never

If **Never** is selected, files will not be overwritten.

## Keep Newer

If **Keep Newer** is selected, the file with the later datestamp will be retained.

## Confirm

If **Confirm** is selected, you will be asked for confirmation before overwriting existing files.

# Restoring a Backup

Once you have ensured that the correct source and destination drives are correct and that overwrite option is set correctly, you can proceed with the restore by clicking on **Start**. You will be prompted to insert the first floppy disc of the set you wish to restore:

```
┌─────────────────────────────────┐
│        Insert First Disc        │
│                                 │
│    Insert first disc of set     │
│         in drive: :0            │
│                                 │
│      Continue    Cancel         │
└─────────────────────────────────┘
```
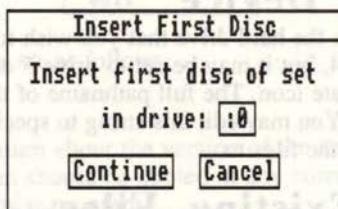
Click on **Continue** to proceed with the restore. The program will then copy each file from the floppy back to the destination device automatically decompressing files as required. Restore progress information is given at the bottom of the Restore dialogue box. Please note that restore does not erase the destination device. A warning is given if the destination device becomes full. If a disc error is encountered, a warning is given and the program proceeds to the next file on the floppy disc.

After the first disc has been restored you are prompted to insert the next disc of the set.

```
┌─────────────────────────────────┐
│        Insert Next Disc         │
│                                 │
│   Insert disc: 21Sep89_2        │
│     In drive: :0                │
│  Current disc: 21Sep89_1        │
│                                 │
│      Skip Disc    Cancel        │
└─────────────────────────────────┘
```
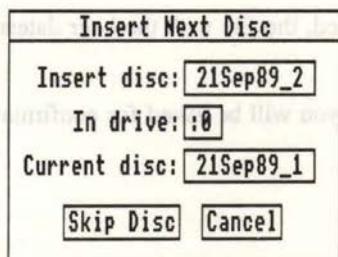
If you insert the next disc it will be recognised automatically and the restore will continue. Alternatively, click on **Skip** to proceed to the next disc. **Skip** is useful if you have lost or corrupted a disc in the set - you will not be able to recover it, but at least you will be able to recover the subsequent discs.

# Selective Restore

The Selective Restore facility allows you to restore individual files from your floppy disc set. Using this program, files may be restored to any drive and to pathnames other than those from which they originated.

First you must determine on which floppy disc the file you required was backed up. If the backup was a full backup, the floppy disc set may be quite large so you will probably need to examine the log file which is stored on the last disc of the set. The log file is simply a complete list of all the files that were backed up, and which floppy disc they were stored on. Use **ArcEdit** or another text edit to examine this file to find the floppy disc number for the file you require.

Once you know which disc contains the file you require, insert that disc into the drive, enter the desktop and open a directory viewer on it. You will see an application directory called *!SaveSet*; this contains all the backed up files. Now double click on *!SaveSet* to display a window containing a complete list of all the backed up files on the floppy. If you get the error System resources cannot be found, open a directory viewer on *!Restore* then try again (*!Restore* contains the program for Selective Restore, and the system must know its location on the hard disc before Selective Restore can be used).

Once you have a list of all the backed up files, you can scroll through them to locate the file you require. To restore a file back to your hard disc (or any other device), click and drag the name of the file to the destination of your choice. You can find further information about any file in the list by clicking the **Menu** button on the relevant file, and then moving the pointer over the arrow to the right of it's filename.

Please note that Selective Restore cannot be used to restore long files that have been split over a number of floppy discs.

23

# 4. Spark File Archiver

## Introduction

Spark is a WIMP based archiving program for the Archimedes used to create and maintain file archives. An archive is a group of files or directories, collected together into one file. Spark may be used to create archives, add items to the archive, or remove items from the archive. Spark can archive entire directories, including nested files and sub-directories. Spark is entirely WIMP based, with the contents of an archive displayed in a similar way to the contents of an ADFS directory. Files may be dragged directly from a directory viewer into an archive, and vice versa. Files may even be dragged straight from an archive into an application.

An important feature of Spark is that it automatically compresses the files being archived. Spark analyses each file as it is added to the archive to determine which of four compression techniques will result in the greatest savings. Just how much a file is compressed, depends on the type of file being archived - typical savings are:

|                |          |
| -------------- | -------- |
| ASCII files    | 50%-60%  |
| Basic programs | 25%-35%  |
| ARM programs   | 20%-30%  |
| Sprites        | 60%-80%  |

As well as creating and maintaining new archives, Spark is compatible with Arc (the original non-WIMP Archimedes archiver) and IBM-PC archivers (both SEA and PKARC).

The original public domain Archimedes archiver Arc and documentation file *Arc_doc* , are also supplied on the Hard Disc Companion disc in directory *!Spark*.

Spark works equally well on hard disc, floppy disc and network.

# Getting Started

Enter the Desktop, and open a directory viewer on the drive containing the Hard Disc Companion disc. To run Spark, double-click on the application directory *!Spark*. Spark is then loaded, and its icon displayed on the icon bar.

## Note

Spark uses the shared C library and the wimp scrap file contained in the *!System* directory, supplied with RISC OS. If you execute Spark before opening a viewer on *!System*, Spark will display the error message System resources cannot be found. To prevent this error occurring, copy *!System* from your Archimedes Applications Disc 1 to the disc containing Spark.

Click the **Menu** button on the Spark icon on the icon bar to display the following menu:

```
    Spark
    New Arc ⇨
    Info    ⇨
    Quit
```

The options on this menu are as follows:

## New Arc

This option allows you to create a new archive. See below for further details.

## Info

Info gives some information about the version of Spark you are using. The version number given should be quoted in any correspondence with Beebug about this particular program.

## Quit

Quit exits Spark and removes it from the computer's memory. The Spark icon is removed from the icon bar.

# Creating a New Archive

In order to create an archive, you need to have on the screen the directory viewer for the directory into which the archive is to be saved. Now click the **Menu** button on the Spark icon on the icon bar, and move the pointer over the arrow to the right of the option **New Arc**.

| Spark | Save as: |
|-------|----------|
| New Arc ⇨ | 🖹 |
| Info ⇨ | |
| Quit | new_arc    OK |

A box appears containing an icon representing an archive file, the default archive name *new_arc*, and an **OK** box. If you want a different name to that given, edit the filename as required. Now place the pointer on the icon, and drag it to the directory viewer. An icon representing the new archive appears in the directory viewer, and an archive viewer appears showing an empty archive.

The archive viewer is similar in style to normal directory viewers with icons representing different types of files in the archive. Most of the operations available on normal directory viewers are available on the archive viewer. The archive viewer can always be distinguished from other viewers by the character '/' that follows the archive name and separates sub-directory names on the title bar.

## Adding Files to an Archive

Files and directories can be added to an archive by dragging their icons from a directory viewer or an application into the archive viewer. You can add individual items or marked selections in the usual way. Archives within archives are shown as directories instead of their usual icons.

## Extracting Files from an Archive

Files and directories can be extracted from an archive by dragging them from the archive viewer into a normal directory viewer, or directly into an application. As usual, an individual item or a marked selection of items may be extracted.

Please note that you cannot run an application directly from an archive. You must extract it by dragging it into a normal directory viewer before running it.

# Opening an Existing Archive

Spark will only recognise archives which have the filetype &DDC. Archives created by Spark are automatically given the correct filetype, but if you have an archive created on another computer then it will probably have the wrong type. In this case, before loading it into Spark you should set the correct filetype using:

```
*settype <archive name> DDC
```

If the archive is recognised it will be displayed in the directory viewer as a small 'ark' icon:

You can open an existing archive in two ways:

    1. double click on it.

    2. drag it onto the Spark icon on the icon bar.

It is possible to force Spark to treat any file as an archive by dragging it onto the Spark icon on the icon bar. This feature is useful if you want to quickly open an archive file with the wrong filetype. If the file is not an archive then the result will be unpredictable.

An example archive called MTVDemoArc is supplied with Hard Disc Companion. It is a 'ray tracing' demonstration which in its original form is over 675K long and comprises 40 files. The archived version is just one file, 246K long. To run the example, open the archive by double clicking on *MTVDemoArc*. Now drag the application *!MTVDEMO* from the archive directory to your hard disc or another floppy (please note that there isn't room on the master disc for both archived and non-archived versions of this demonstration). Once it has been de-archived, double click on *!MTVDEMO* to run it.

# Spark Main Menu

The Spark main menu can be displayed by clicking the **Menu** button on an archive viewer.

The menu options available are listed below.

## File/Selection

The first menu option varies depending on what is selected in the archive viewer. If the **Menu** button was clicked on a file, it will read **File <filename>**. If the **Menu** button was clicked on a directory, it will read **Dir <directory>** name. If a number of files were marked, it will read **Selection**. This option allows you to delete or display information about the object or objects selected. Move the pointer over the arrow to right, to display the **Action** menu.

| Spark | | Action |
|---|---|---|
| File UTIL1 | ⇨ | Info  ⇨ |
| Select All | | Delete |
| Clear Selection | | |
| New Directory | ⇨ | |
| Open Parent | | |
| Options | ⇨ | |
| Test Archive | | |
| Garble | ⇨ | |
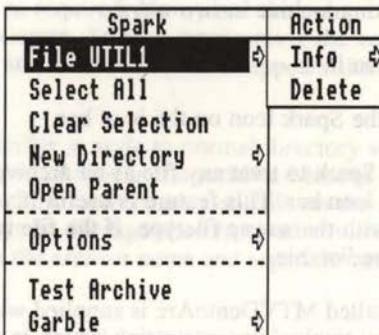
The **Action** menu has two options **Info** and **Delete**.

### Info
Move the pointer over the arrow to the right of **Info** to display information about the archived file or files. This information includes the original and the compressed file length, the date created and the type of file.

### Delete
Click on **Delete** to delete the file or selection of files from the archive

## Select All
**Select All** selects all files and directories in an archive viewer. To select and de-select individual items, click **Adjust** on each one in turn.

## Clear Selection
**Clear Selection** de-selects all files and directories in the archive viewer.

## New Directory

**New Directory** allows you to create a new directory inside the current
archive viewer. Move the pointer over the arrow to the right of **New
Directory**, type in the name of the new directory, and press **Return**.

## Open Parent

**Open Parent** opens a viewer on the parent of the archive viewer (if there is
one).

## Options

Move the pointer over the arrow to the right of **Options**, to display the
following sub-menu:

```
            Spark
    File UTIL1         ⇨
    Select All
    Clear Selection
    New Directory      ⇨
    Open Parent
    -----------------              Options
    Options            ⇨    PC Format
    -----------------       Squash
    Test Archive            No Compression
    Garble             ⇨    -------------------
                            Update Archive
                            Freshen Archive
                          √ Overwrite Files
                            Retain Backup
                            -------------------
                            Save Options
```
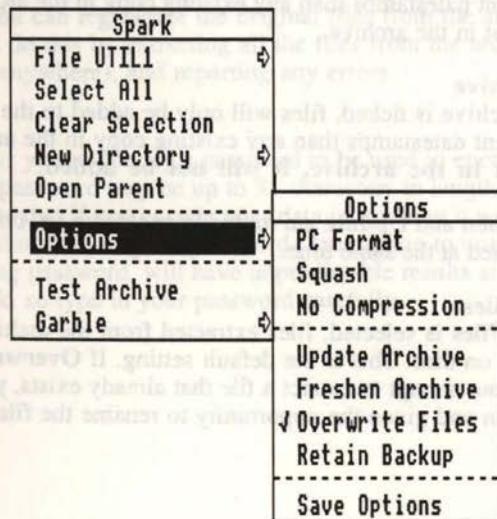
### PC Format

When ticked, this denotes that files added to the archive will be added in PC
archive format. This means that they will be saved without any file attributes
such as load address, execute address, filetype etc. that are Archimedes
specific. If you want your archive to be accessible on an IBM PC (or any other
computer that has an Arc program), you should store files in PC Format. Files
in the archive that are stored in PC Format are identified by a special IBM
icon.

### Squash

When ticked, files added to the archive will be compressed using PKARC style
squashing. Squashing will often only give small savings over normal
compression, and may not even be as efficient. If you intend to pass archives

on to users of other computers, it should be noted that a 'squashed' archive can only be unpacked by a PKARC archiver. It is worth noting that there are far more copies of Arc in circulation than PKARC, and they will not handle 'squashed' archives.

Both Spark and Archimedes Arc (version 1.1 onwards) will unpack 'squashed' archives automatically.

## No Compression
Files added to the archive will not be compressed when this option is selected.

## Update Archive
If **Update Archive** is ticked, files will only be added to the archive if they have more recent datestamps than any existing copy in the archive or if they do not already exist in the archive.

## Freshen Archive
If **Freshen Archive** is ticked, files will only be added to the archive if they have more recent datestamps than any existing copy in the archive. **If the file does not exist in the archive, it will not be added.**

Note that **Freshen** and **Update** are mutually exclusive i.e. both these options cannot be selected at the same time.

## Overwrite Files
If **Overwrite Files** is selected, files extracted from the archive will replace existing copies on disc. This is the default setting. If **Overwrite Files** is not selected, and you attempt to extract a file that already exists, you will be asked for confirmation and given the opportunity to rename the file.

## Retain Backup
Whenever an archive is modified, a temporary backup copy is created, which is normally deleted after the archive has been successfully modified. If **Retain Backup** is selected, Spark will retain the backup copy. The backup copy has the same name as the archive name, but with the prefix *b_*.

## Save Options
This allows you to save the settings of the seven options listed above, so that the next time you run Spark, they will be automatically set up.

# Test Archive
Click on **Test Archive** to test the integrity of the archive. If you intend to put valuable files in an archive, it is advisable before deleting the originals to ensure that you can regenerate the original files from the archive. **Test Archive** will do this by extracting all the files from the archive (without saving them anywhere), and reporting any errors.

# Garble
**Garble** allows you to specify a password to be used to encrypt files in the archive. The password may be up to 31 characters in length, and is not case sensitive. Note that if you encode your data in this way it will be impossible to retrieve it without the original password. Attempting to unpack an archive with the wrong password, will have unpredictable results and may terminate the Spark task, so type in your password carefully.

# Spark Limitations

1. Whenever an archive is modified, Spark creates a backup copy in case anything goes wrong during the archiving process. This uses up disc space, so on an 800K disc you can only create an archive of approximately 400K.

2. A Spark archive can contain a maximum of 255 entries. This limit includes directories, files and all nested directories and files.

3. Spark can only have two archives and a maximum of 8 viewers open at a time.

4. If you transfer a directory from one archive to another, it will appear as an archive. Closing the archive and re-opening it will reinstate it as a directory.

5. Directories are stored as non-compressed archives within archives. This means that any such archive you add to an archive will appear as a directory eventually. Further, to improve performance, the CRC's on these sub-archives are not calculated. This is of no importance as your file data is still protected by individual CRC's on each file. However, if you extract directories using the original non-WIMP Arc, a number of error messages will be displayed – these may be ignored.

# 5. Find File

## Introduction

Find File is a fast, easy-to-use utility for locating files on hard disc, floppy disc and network. Find File runs from the multi-tasking Desktop environment, so it can be left to search for a file while you do other things. As well as finding individual files, Find File can locate files that match a wildcarded search string, or that have a specified filetype. Once a file has been located, Find File can give full information about a file including its filetype, length, and pathname. In addition, you can open a directory viewer on the file so that it can be easily loaded, executed, deleted etc.

Find File works equally well on hard disc, floppy disc and network.

# Getting Started

Enter the Desktop, and open a directory viewer on the drive containing the Hard Disc Companion disc. To run Find File, double click on the application directory *!FindFile*. Find File is then loaded, and its icon displayed on the icon bar.

Click the **Menu** button on the Find File icon on the icon bar to display the following menu:
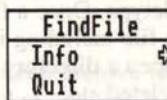
```
  FindFile
  Info      ⇨
  Quit
```

The options on this menu are as follows:

## Info

**Info** gives some information about the version of Find File you are using. The version number given should be quoted in any correspondence with Beebug about this particular program.

## Quit

**Quit** exits Find File and removes it from the computer's memory. The Find File icon is removed from the icon bar

# Using Find File

Click the **Select** button on the Find File icon on the icon bar to display the
Find File dialogue box:

```
┌──────────────────────────────────────────────────────────┐
│ ▣ ⊠              Find File                                 │
│ Search String: [              ]              [Start] [Stop]│
│ ┌Device────────────────────────────────────               │
│  [▦ ▪]  [▭▭▭]  [▭▭▭]  [▦]                                  │
│    :4    :1     :0    Econet                               │
│ Pathname: [adfs::4.$              ]                        │
│ ┌Filetypes────────────────────────────────            ⬆   │
│  ⊠ All        □ ASCII Text                                 │
│  □ Directory  □ Sprite                                     │
│  □ Application □ Draw                                      │
│  □ Basic Program □ Module                                  │
│ Status: [              ]  Count: [0]                   ⬇   │
│ Info: [                              ]                     │
│ Path: [                              ]                     │
└──────────────────────────────────────────────────────────┘
```
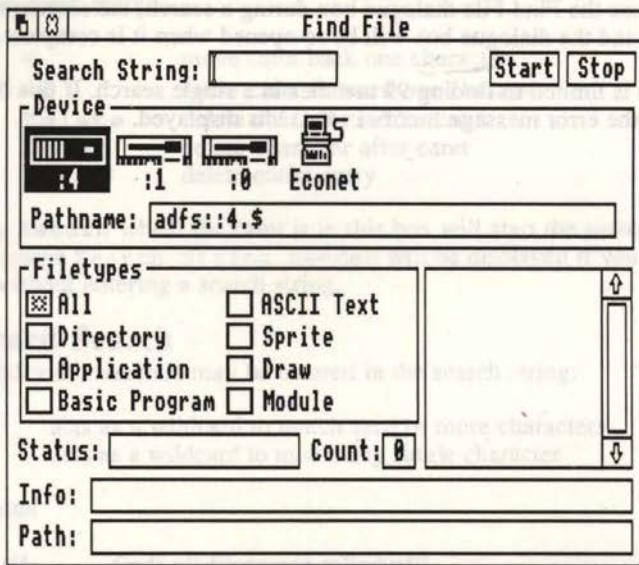
Enter the name of the file you wish to find in the box marked **Search String**,
and press **Return** or click on **Start** to start the search. The box marked
**Status** will display the message Searching... to confirm that the search is
taking place. If any files or directories are found that match your search
string, their names will be displayed in the window at the bottom right-hand
side of the dialogue box. When the entire disc has been searched, the message
Search Complete will be displayed in the **Status** icon. To stop the search
before it is finished, click on **Stop** or press **Escape** - the **Status** box will
display the message Search Stopped.

If more than 6 matches are found, use the scroll bars to scroll through all of
the matches. Once a match has been made, there are two things you can do:

1. Click **Select** (left-hand button) on the filename to display file information
   and the full pathname of the file.

2. Click **Adjust** (right-hand button) on the filename to open a directory
   viewer on file. From the directory viewer you can load the file, delete the
   file etc. in the usual way.

35

**Notes**

1. The operations given above may be carried out whilst the search is in progress.

2. If you close the Find File dialogue box during a search, the search will continue and the dialogue box will be re-opened when it is complete.

3. Find File is limited to finding 99 matches in a single search. If this limit is reached, the error message Buffer Full is displayed.
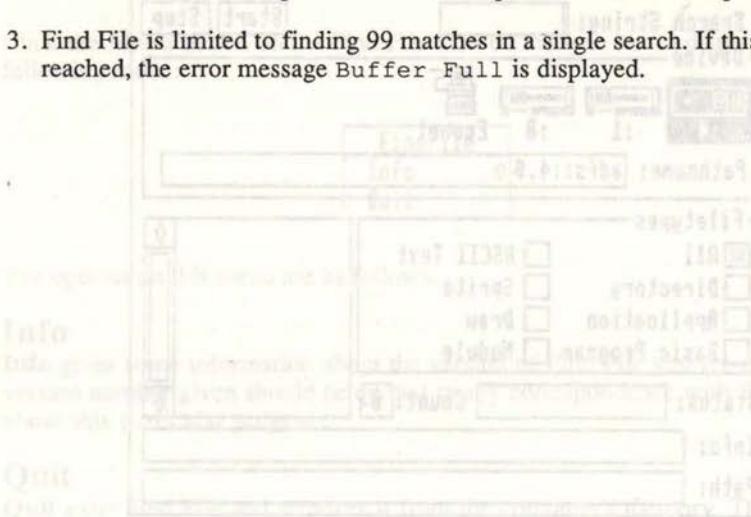
# Search String

The box marked **Search String** is used to enter the search string. If you
make a mistake while entering the search string you can use the following keys
to correct your entry:

| | |
|---|---|
| ← | move caret back one character |
| → | move caret forward one character |
| **Delete** | delete character before caret |
| **Copy** | delete character after caret |
| **Ctrl U** | delete entire entry |

Pressing **Return** whilst the caret is in this box will start the search. The
error message Search String needed will be displayed if you attempt a
search without entering a search string.

## Wildcard Search

Two wildcard characters may be entered in the search string:

    **\***     acts as a wildcard to match zero or more characters
    **#**     acts as a wildcard to match any single character

## Examples

| | |
|---|---|
| **util** | finds all filenames called **util** |
| **util#** | finds files **util1, util2, utils** etc. |
| **\*** | finds all filenames |
| **\*_bac** | finds all filenames ending with **_bac** |
| **\*sprite\*** | finds all filenames called **sprite,** or containing the word **sprite** |

# Device and Pathname

By default, Find File will search from the root directory ($) of your currently
selected drive, The current drive depends on the Drive configuration setting -
normally 4 on hard disc systems, 0 on floppy systems. If your default filing
system is the network, Find File will begin its search from the user root
directory (&) of the network. You can search any other device by simply
clicking on the appropriate icon.
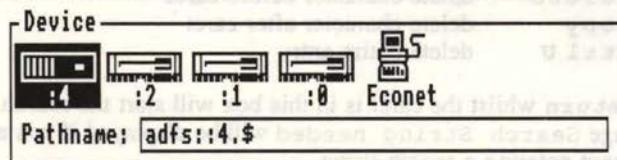


Notice that when you change the device, the pathname in the box below the
icons changes to reflect the choice made. You can alter the pathname yourself
if you need to specify another filing system e.g RAM, or if you only want to
search specific directories. For example, if you want to search the RAM filing
system, edit the pathname to read:

    ram:$

Or if you only want to search through directory *work* (and any sub-
directories) on your hard disc, enter:

    adfs::4.$.work

If you press **Return** whilst the caret is in the pathname box, searching will
commence using the current search string.

# Filetypes

Normally Find File searches for all files that match the wildcarded search string specified. However, if you wish you can search for only those files that have a specified filetype or filetypes. For example, if you are only interested in finding Basic programs, click on the icon labelled **Basic**.

```
┌Filetypes──────────────────
 ☒ All            ☐ ASCII Text
 ☐ Directory      ☐ Module
 ☐ Application    ☐ Sprite
 ☐ Basic Program  ☐ Draw
└───────────────────────────
```
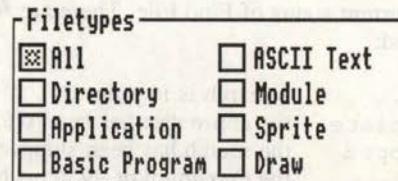
Please note that selecting **Application** will find application directories i.e. directories which have an initial character !.

## Definable Search Options

'The four filetypes that appear in the right-hand column are defined in a text file, and may be altered by the user. The text file is called *Ftypes*, and is stored in directory *!FindFile*. It has four entries, each one terminated by a Carriage Return (or Line Feed):

```
<filetype name>,<filetype><CR>
<filetype name>,<filetype><CR>
<filetype name>,<filetype><CR>
<filetype name>,<filetype><CR>
```

Each entry is divided into two fields separated by a comma. The first field is the name of the filetype that will appear in the dialogue box - it is limited to 12 characters in length. The second field is the filetype in hex. The default file is defined as follows:

```
ASCII Text,FFF
Module,FFA
Sprite,FF9
Draw,AFF
```

If you need to regularly search for, say, Acorn DTP documents that have filetype AF9, you could modify *Ftypes* using ArcEdit as follows:

```
ASCII Text,FFF
Acorn DTP,AF9
Sprite,FF9
Draw,AFF
```

# Status Information

Towards the bottom of the Find File dialogue box are a number of icons that display status information about Find File and about the files that have been found.

## Status

This box gives the current status of Find File. There are four messages that you may see displayed:

        Searching...          a search is in progress
        Search Complete       the entire disc has been searched
        Search Stopped        the search has been stopped by the user
        Buffer Full           the maximum of 99 items has been found

## Count

This icon displays the numbers of files and directories found by Find File.

## Info

This icon displays file information for the marked file, in a format similar to that used by the **\*INFO** command. A file can be marked by simply clicking on its filename. The format of the file information is: access state, followed by filetype, time and date stamps, and finally file length. If the file does not have time or date stamps, load and execute address will be given instead.

## Path

This icon displays the full pathname (or as much of it as possible) for the marked file. If the pathname is too long to fit in the display then three dots are displayed followed by the last 40 characters of the pathname. For example:

    ...isc.$.Beebug.Applications.Graphics.Comms