FS Manager Ver. 0.4

User Guide

(Guide version 2.0)

Contents

Introduction

FS Manager is a windows based program to manage BBC Disk image files. Currently it can handle single sided 40 or 80 track (100K or 200K) DFS disks, 80 or 160 track (320K designated M size or 640K designated L size) ADFS disks. This will be expanded on in the future as the software matures towards version 1.0. Other disk image handlers are available and most can be downloaded from the stairwaytohell.com website in the essentials area.

FS Manager offers a different user interface from the other image handlers in so much that it uses an MDI (Multiple Document Interface), which is the same type of interface as used in MS Excel etc. This groups all the disk image and other windows together within a parent window. Some may prefer this approach, some may not. It also offers a file level hex editor, which is not currently a feature of other disk handlers (that I know of). You may wish to use it for this feature alone.

Whatever disk handler you choose if you come across any bugs or annoying features please feel free to contact me by email : navalenigma@hotmail.com or via the BBC mailing list or on the forums of www.stairwaytohell.com (the preferred method), both of which I read regularly. FS Manager is not GPL and I retain the copyright but is released for free use by anyone who wishes to use it.

If you don't have a copy the latest version can be found at http://www.stairwaytohell.com/dfsmanager/ Thanks go to Dave for hosting the downloads.

Features

MDI interface

Supports 40/80 track single sided DFS disks, 80/160 track ADFS disks.

Dockable toolbars

Drag and drop to/from windows filer

Editable directory/filename/exec address/load address/file attributes

File Inspector - Individual files can be opened up from the Disk window to allow them to be edited in the Hex Editor and in future releases BASIC, assembler and text views of the file all within the File Inspector window.

Hex Editor (within file inspector windows)
- All standard hex editor features such as overwrite/insert/delete/copy/ and paste
- Find by text or Hex values
- Unlimited undo

File compatible with DFS Explorer by Jon Welch
- Files can be dragged freely between the two programs
- Files transferred to the PC can be read back by either program

All child windows (Disk or File Inspector) can be duplicated any number of times allowing you different views of the same disk or file.
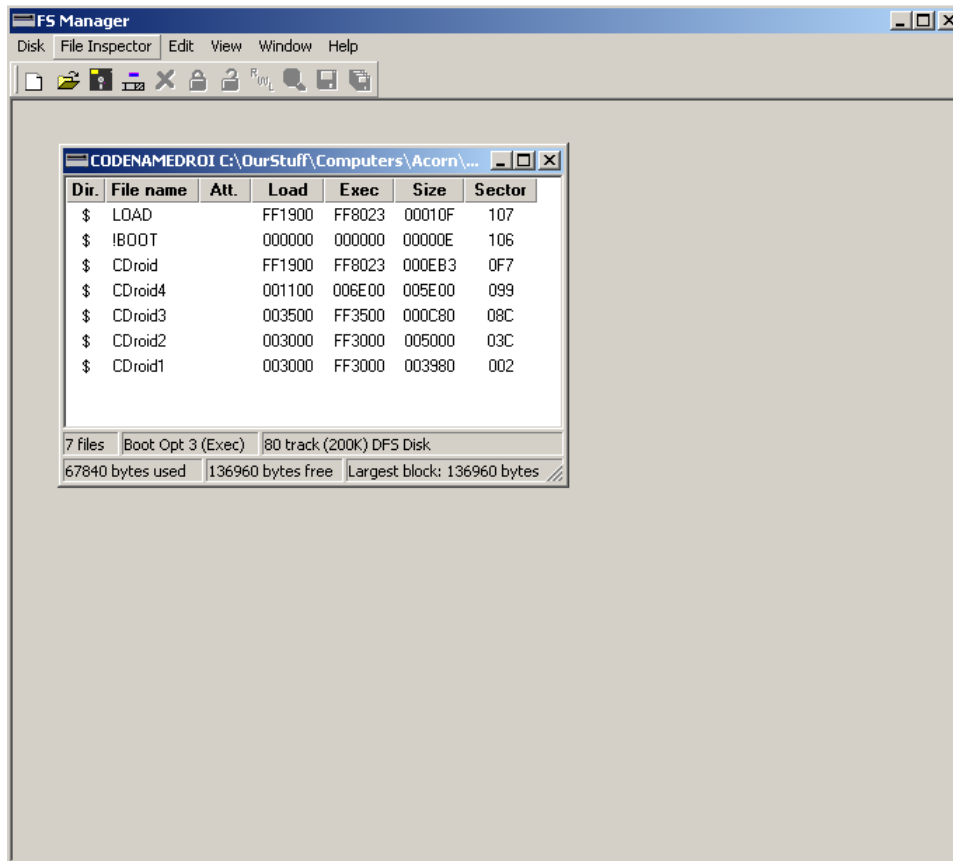
Disk Images

This section takes you through opening and managing disk images and is described for DFS disks, for difference please see the "Additional Features for ADFS Disks".

Opening and creating new disk images

Select 'Open' from the 'Disk' menu or click on the open icon 📂 on the tool bar. Below we can see that we will be using Codename droid in our examples.
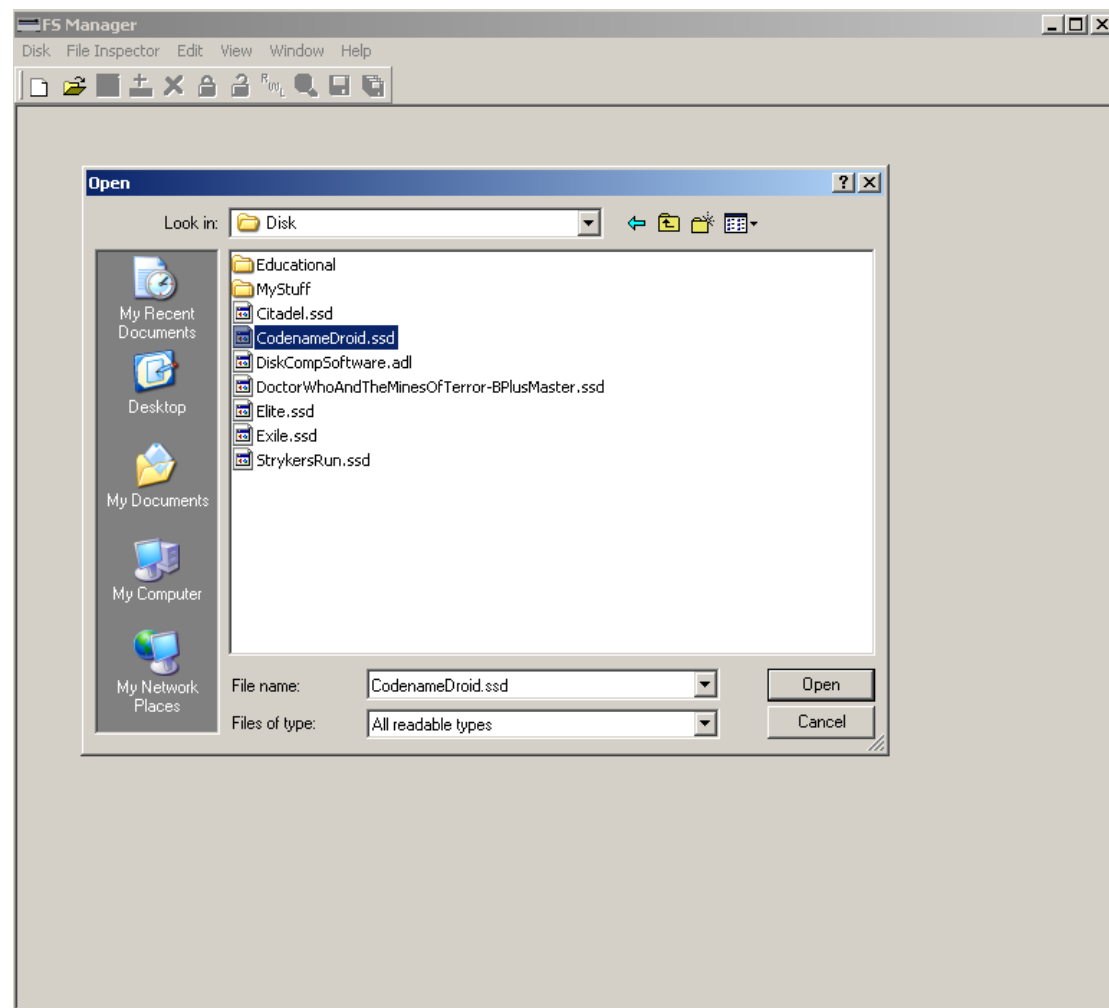
Click 'Open' and you will get a Disk window showing the contents of the Codename droid disk which if it's not been altered before and has come from the stairway to hell archive should look something like this (over page),

You can open as many disk images as you wish, let's create a new blank one to use as a base for some file editing operations later.
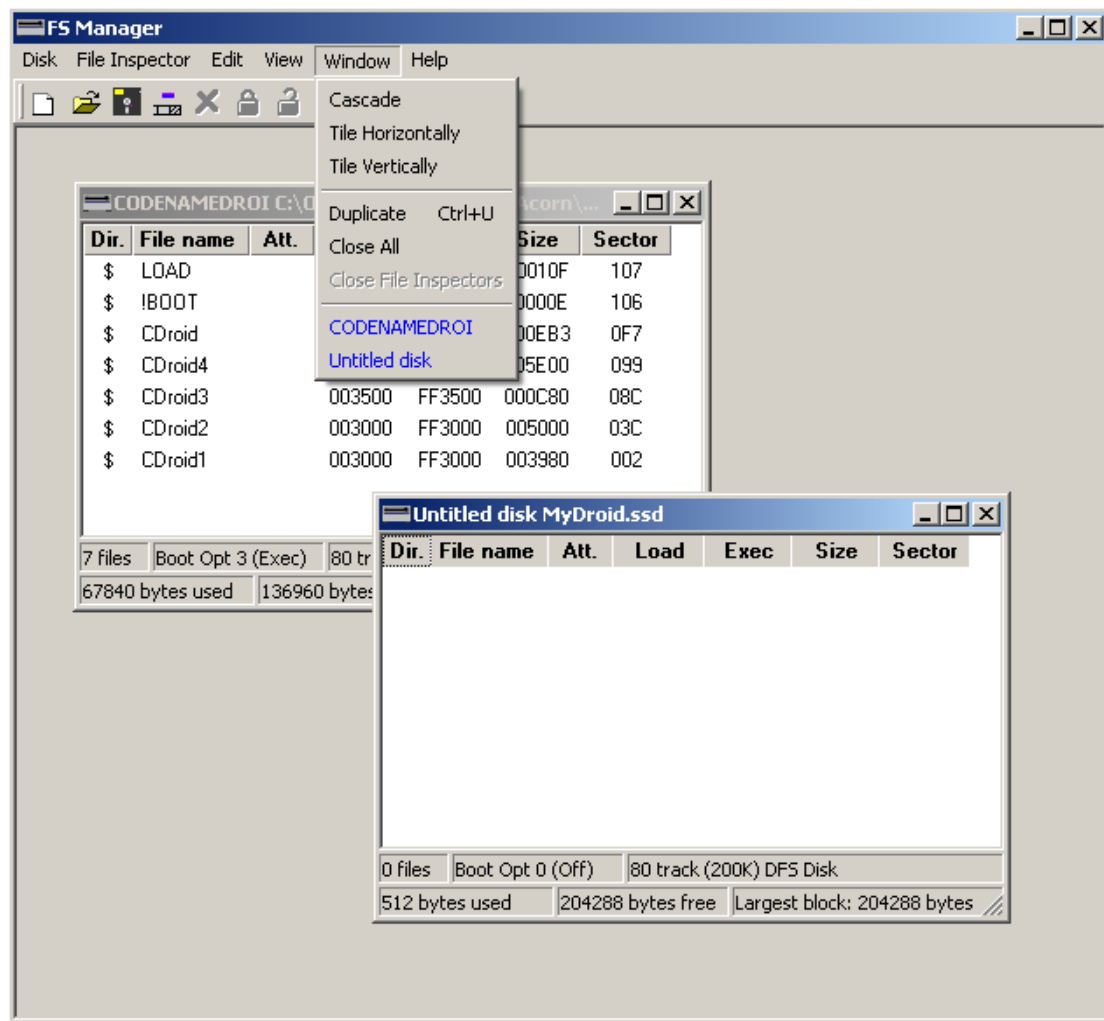
Click on the New disk icon ☐ or select New Disk from the Disk menu. Type in MyDroid into the filename box and ensure that the "Save as type" is set to "Single Sided DFS Disk" and click Save. (The directory should be the same as where you loaded the Codename droid disk previously). The disk image will be saved to disk and an empty disk file window will appear.
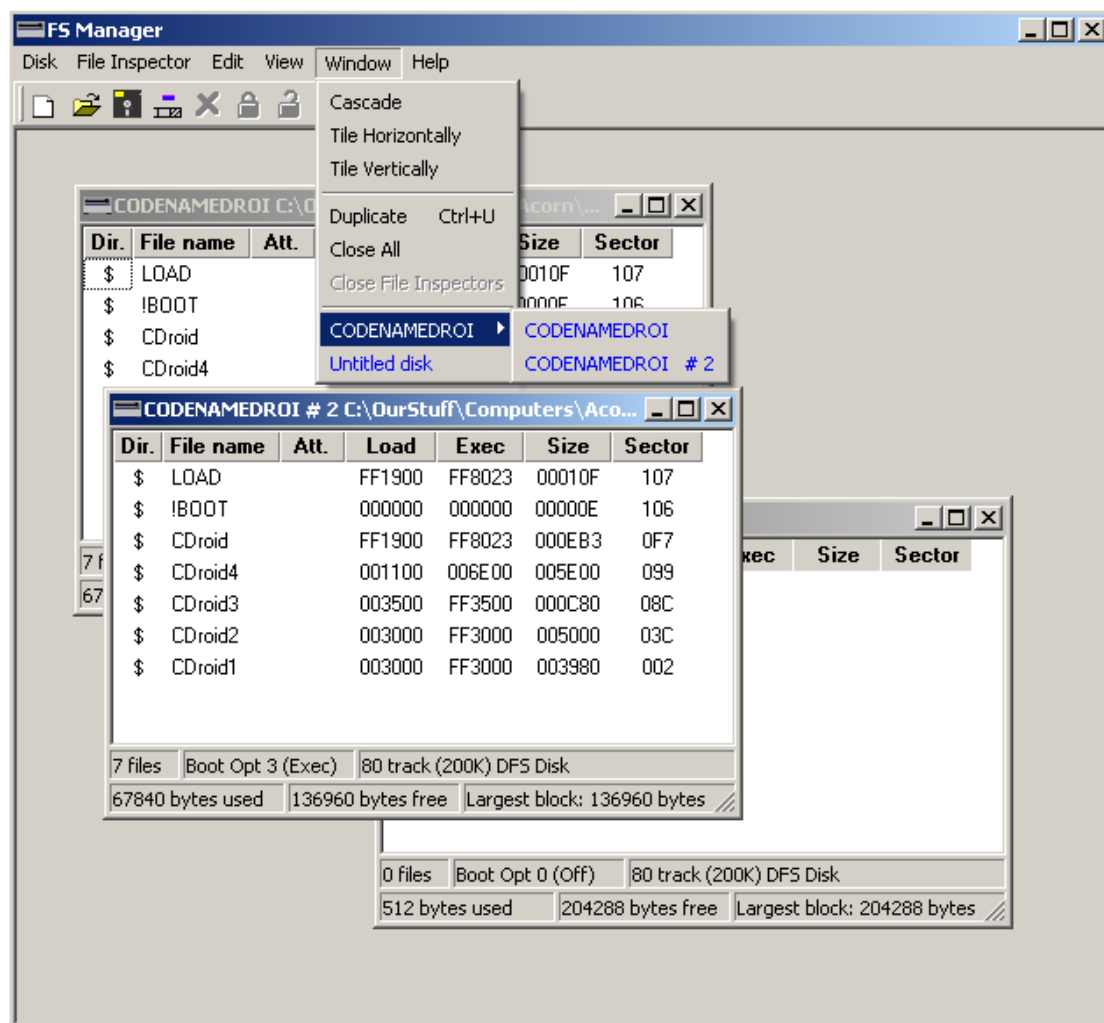
Important Note
It is important to understand how FS Manager handles disk images. The philosophy was to try and emulate the action of any normal OS filer. As such any files you move/delete/rename etc. are moved/deleted/renamed there and then. Other image managers do not work in this way and treat the disks as files and changes are saved on request. You may notice some save disk icons on the toolbar. These are used with the Hex Editor(called File Inspector) and will be de-highlighted when a disk window is foremost. Just think of Disk windows as filer windows.

Duplicating windows and the windows menu
FS Manager can handle an unlimited number of Disk and File Inspector windows (limited by your computers resources). This can lead to windows being buried under a sea of other windows. To help with accessing any particular one, each window opened will have an entry on the windows menu. This can be seen over the page for our example.

FS Manager

Disk   File Inspector   Edit   View   Window   Help

Cascade
Tile Horizontally
Tile Vertically

Duplicate   Ctrl+U
Close All
Close File Inspectors

CODENAMEDROI
Untitled disk

CODENAMEDROI C:\ ...corn\...

Dir.	File name	Att.		Size	Sector
$	LOAD		0010F	107
$	!BOOT		0000E	106
$	CDroid		00EB3	0F7
$	CDroid4		05E00	099
$	CDroid3	003500	FF3500	000C80	08C
$	CDroid2	003000	FF3000	005000	03C
$	CDroid1	003000	FF3000	003980	002

7 files   Boot Opt 3 (Exec)   80 tr
67840 bytes used   136960 bytes

Untitled disk MyDroid.ssd

Dir.	File name	Att.	Load	Exec	Size	Sector

0 files   Boot Opt 0 (Off)   80 track (200K) DFS Disk
512 bytes used   204288 bytes free   Largest block: 204288 bytes

Both disks and File Inspector windows are listed on the windows menu. Disk windows are coloured blue to make them stand out from File Inspector entries. Obviously if you have many windows open this list could also get large and unwieldy. To help with this any duplicated windows are grouped together on a submenu. To see this select the CODENAMEDROI window by selecting it from the menu and then either select 'Duplicate' from the 'Window' menu or press CTRL and U. Viewing the window menu would look as overleaf;

FS Manager

Disk File Inspector Edit View Window Help

Window menu:
- Cascade
- Tile Horizontally
- Tile Vertically
- Duplicate   Ctrl+U
- Close All
- Close File Inspectors
- CODENAMEDROI ▶ CODENAMEDROI
- Untitled disk   CODENAMEDROI # 2

CODENAMEDROI C:\...

Dir.	File name	Att.	...	Size	Sector
$	LOAD			0010F	107
$	!BOOT			0000E	106
$	CDroid				
$	CDroid4				

CODENAMEDROI # 2 C:\OurStuff\Computers\Aco...

Dir.	File name	Att.	Load	Exec	Size	Sector
$	LOAD		FF1900	FF8023	00010F	107
$	!BOOT		000000	000000	00000E	106
$	CDroid		FF1900	FF8023	000EB3	0F7
$	CDroid4		001100	006E00	005E00	099
$	CDroid3		003500	FF3500	000C80	08C
$	CDroid2		003000	FF3000	005000	03C
$	CDroid1		003000	FF3000	003980	002

7 files | Boot Opt 3 (Exec) | 80 track (200K) DFS Disk
67840 bytes used | 136960 bytes free | Largest block: 136960 bytes

					xec	Size	Sector

0 files | Boot Opt 0 (Off) | 80 track (200K) DFS Disk
512 bytes used | 204288 bytes free | Largest block: 204288 bytes

Here the second duplicated window is marked as '#2' and both menu entries are grouped together under the original entry. You may wonder what the point is to duplicating a filer window. Well, for DFS disks with a 31 maximum file limit there probably isn't. But for ADFS with its folders within folders within folders hierarchy it can be useful in viewing more than one folder at a time and for copying between folders. Also for File Inspector windows where the contents can be quite large and viewing different portions of the file at once can be very useful. Rest assured any changes in any duplicated windows will be reflected for all related siblings. This comes more into it's own with the File Inspector described later.

Lets duplicate this window again, press CTRL U. The windows menu and CODENAMEDROI submenu would now look as follows;
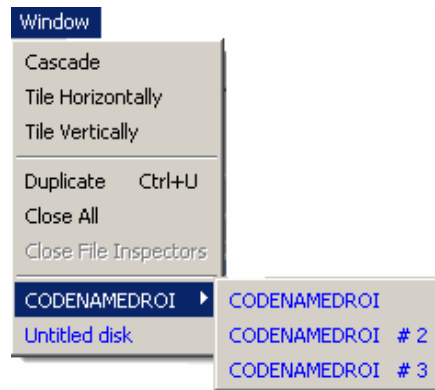
Select CODENAMEDROI # 2 from the submenu and this window will come to the front. Now close it using its close icon. The menus would then look as follows;
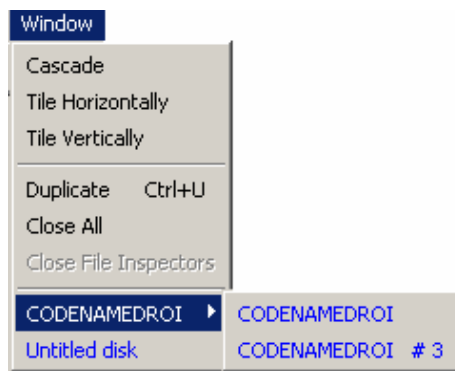
Note the entries keep there original entries, i.e. CODENAMEDROI #3 does not become CODENAMEDROI #2. If you were to duplicate one of these windows again however then the #2 identifier would be re-used.

Lets close our original code name droid window, select CODENAMEDROI from the CODENAMEDROI submenu. Now click the close icon. You'll notice that when the number of related windows (windows that are duplicates of each other) reach just one the sub number, the '#3' will be removed and the submenu will collapse back into just one entry on the main menu.

Copying files
Files can be copied by dragging and dropping between FS manager filer windows or by dragging to or from the windows filer. When dragging to the windows filer FS manager will create a special hidden file (extension .inf) that contains information about the Start and Exec address etc. So that if you subsequently copy a BBC file back to a FS manager window this information is retained. If you drag a none BBC file to FS manager or when where the .inf file has gone missing then the address entries will be reset to 000000 entries. These can be changed manually (more on this later).

NB : Folders from windows can only be dragged to ADFS filer windows, attempting to do so with a DFS filer window will produce a warning that this cannot be done. ADFS filer windows can also drag folders as well as files to windows. Note that if a windows filename is too long for the DFS or ADFS system it will be truncated.

Lets copy all our files from our CODENAMEDROI disk to our untitled disk. Ensure the CODENAMEDROI disk is the foremost window and either select "Select All" from the edit menu or press CTRL A. All files will be highlighted. Drag these files to over to the untitled disk and drop them. Note that the files may be allocated to a different sector on this new disk.

To select no files, click in an empty part of the disk window.

Setting disk options.
Ensure the untitled disk is the foremost window and either click the disk properties icon 🔑 or select 'Properties' from the 'Disk' menu. Set the properties as below and click OK.
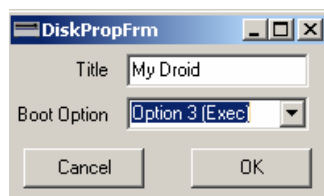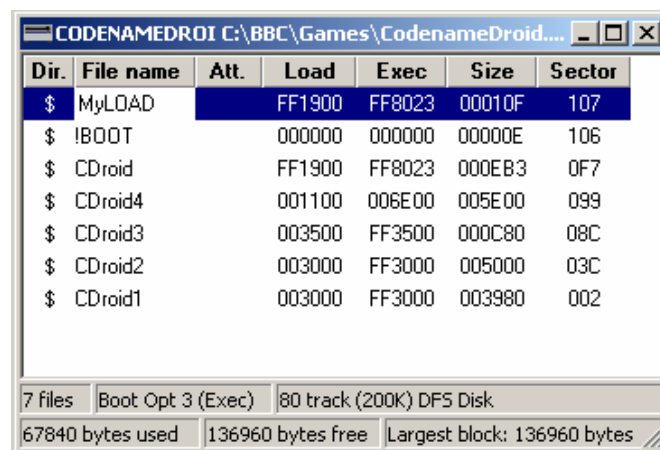

This is now fully functioning copy of Codename droid and you could load this up into an emulator and play the game. Remember if you wish to test this to close the My Droid window first as the file will be locked and in use by FS Manager and until you close the window you will not be able to use it in any other program.

The status bar
At the bottom of every disk window are by default two status bars showing various information about that disk. You can choose to show just the bottom of these two bars if you wish (To save space perhaps). To do this click the 🔲 icon or select "Full Disk Info" from the disk menu. When you do this the icon will change to ⊞. Clicking this again will bring the top status bar back.

Changing file properties.

You can change the following properties of a file : Directory/ Filename/ Attributes/ Load and Exec address's. With the exception of the attributes all these properties can be edited in the same way as most filer OS systems by highlighting the file in question and then clicking again on the entry you want to change. The property will then turn into an editable field as shown below where we have renamed LOAD to MyLOAD. To end the edit press return or click the mouse in another part of the window.

Dir.	File name	Att.	Load	Exec	Size	Sector
$	MyLOAD		FF1900	FF8023	00010F	107
$	!BOOT		000000	000000	00000E	106
$	CDroid		FF1900	FF8023	000EB3	0F7
$	CDroid4		001100	006E00	005E00	099
$	CDroid3		003500	FF3500	000C80	08C
$	CDroid2		003000	FF3000	005000	03C
$	CDroid1		003000	FF3000	003980	002

CODENAMEDROI C:\BBC\Games\CodenameDroid....

7 files | Boot Opt 3 (Exec) | 80 track (200K) DFS Disk
67840 bytes used | 136960 bytes free | Largest block: 136960 bytes

Pressing escape during an edit will cancel the operation and return the value to it's previous entry.

To lock or unlock a file select the file you wish to change and click the 🔒 or 🔓 icon respectively. For DFS windows this is the only attribute that files have and so the attribute button will be de-highlighted for DFS filer windows. How to use the attributes is described in the ADFS section.

Deleting a file

Select the file(s) you wish to delete and either press the DEL key, select "Delete" from the edit menu or click the ✖ icon.

Additional Features for ADFS Disks
Most of what has been described in the *Disk Images* section covers ADFS
disks to. There are a however some difference due to the nature of these
types of disks. Those are described here.

Using a ADFS Disk Image.
The disk utility "Electron ADFS E00" from PRES was used for this example.
Obtained from "Acorn Electron World". Open this disk image in the usual way.
It should look as follows;
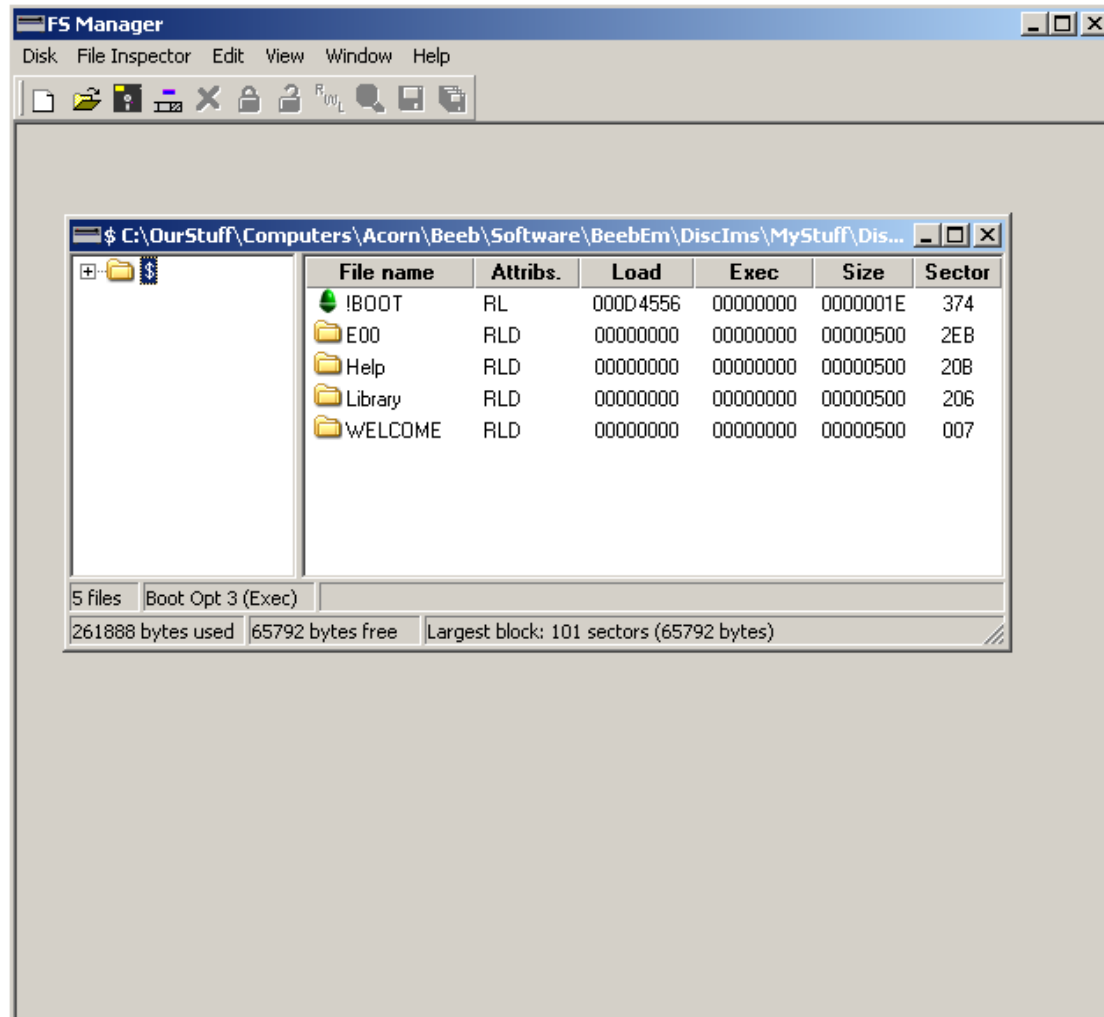
You can perform most normal filer operations that windows supports, such as
clicking the small cross in the left pain to expand that part of the tree and see
the sub folders. Again you can duplicated this window easily by pressing
CTRL-U or by selecting *Duplicate Window* from the *Window* menu.
Additionally you can open one of the folders on the left into a new window by
double clicking on it whilst holding down the CTRL key. Try it on the *Library*
folder and you should get the same as over the page.
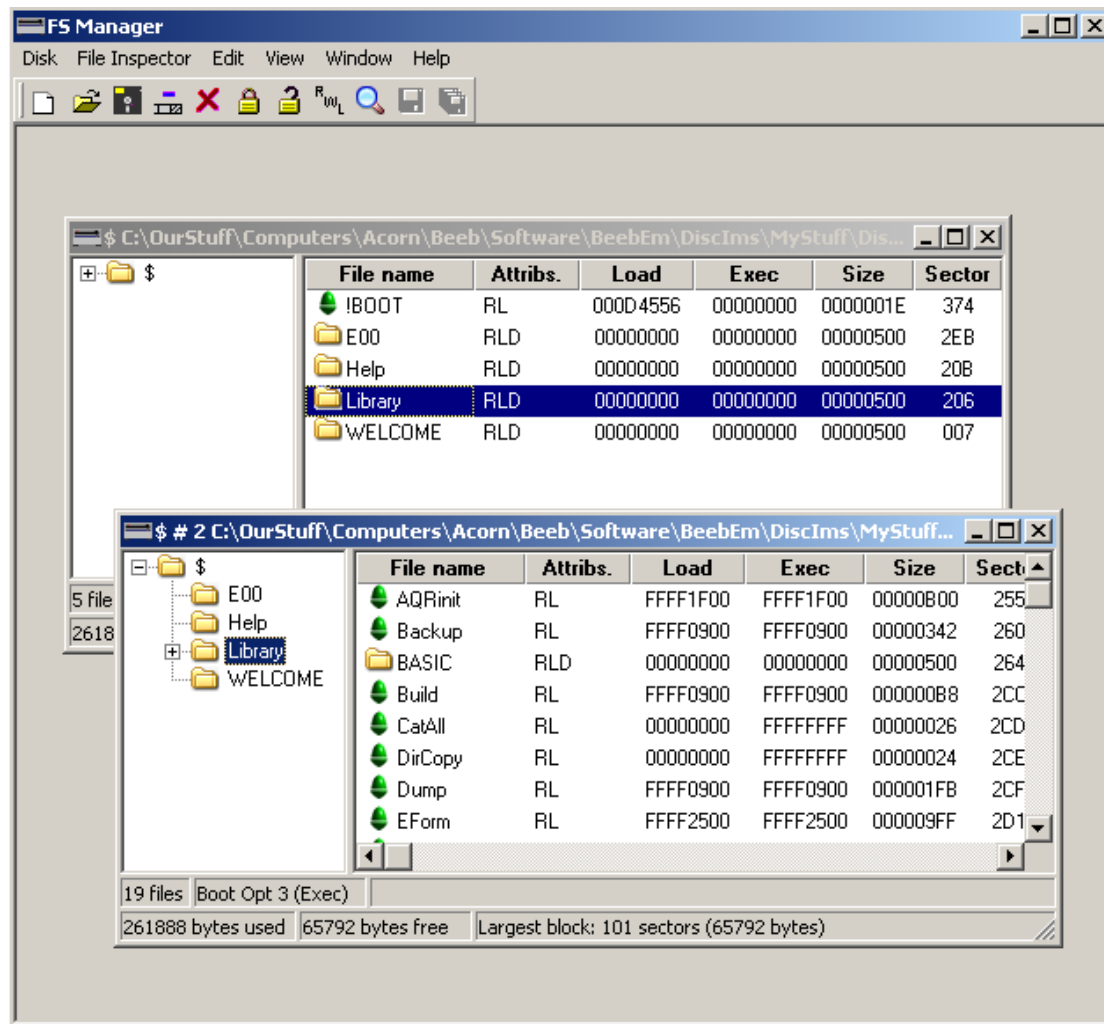
You can see that the contents of the library folder are now displayed in the right pane of this new window and the left frame has been expanded to show the Library Folder in the tree (and it's highlighted for you to).

Now just try double clicking the folder called "BASIC". without holding down CTRL. Turn over the page to see the result.
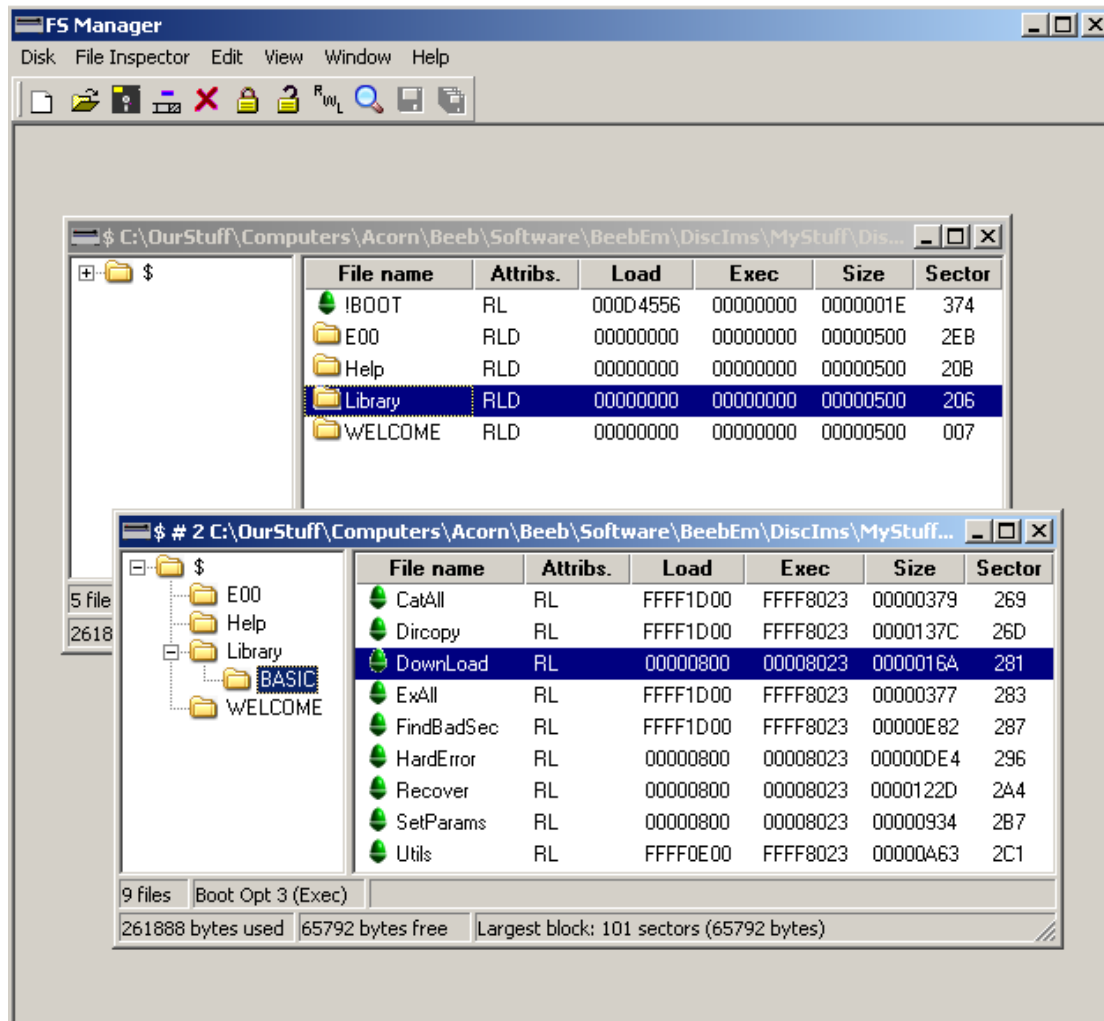
The contents of the "BASIC" folder open in the existing right hand frame and the left frame expands to show the current directory you're within.

New Folders
A new folder can be added to the currently showing folder by simply right clicking in the right hand frame and selecting "New Folder" from the pop up menu. It will have a default name which you can rename in the usual manner by single clicking, waiting a second or two and clicking again.

Attributes
ADFS disks have more than just a locked attribute, they can be set to be read and Write only too. They also have a 'D' (directory) attribute as can be seen in the screenshots but that is not allowed to be changed and is only used by the system. Top change the locked attributes quickly you can use the lock or unlock icon (🔒 or 🔓) as you can with DFS disks. However to access the other attributes you need to click on the attribute icon ^R_{WL}. You can select as many files or folders as you wish before pressing this icon. When you did this you will get the following window (shown over page);
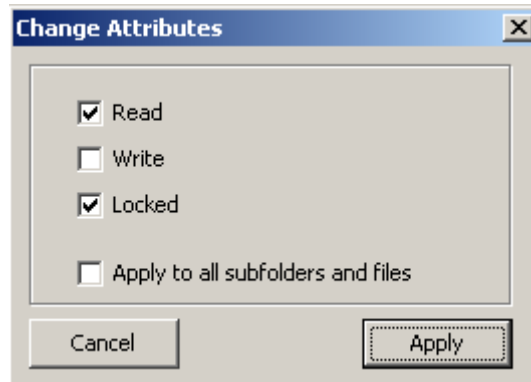
You can then remove or add any attributes to your selected files and folders. If the *Apply to all subfolders and files* option is checked then you settings will be applied to all files and folders within any of your selected folders, and to within the folders of any of those folders etc. tunnelling right down into a folder structure.

This window also follows a common OS convention. If you have two files selected and one is set to Locked and the other not, then the locked box will appear with a tick in it but it will be greyed. This means leave this setting alone. You can then set the *Write* attribute to whatever you wish and press apply and the locked attributes will remain unchanged. If you click the locked option it will cycle between off, fully on (tick in black) and *Leave Alone* (greyed tick).

The File Inspector

One of the main features of FS Manager is the File Inspector. Using this you can view the contents of files and even change them.

Opening a file in the inspector

To open up a file in the File Inspector, select the file(s) and either click the 🔍 icon or select 'Open Inspector' from the 'File Inspector' menu. For our example ensure you have opened the MyDroid disk created in the previous section, select the CDroid4 file and click 🔍.

Finding and changing data

First off, were going to change some of the text in the game. Let's look for the game over text. Press 'CTRL F' or select Find from the 'Edit' menu. Type 'game' in the 'Alpha' entry and click on 'ignore case' as show.
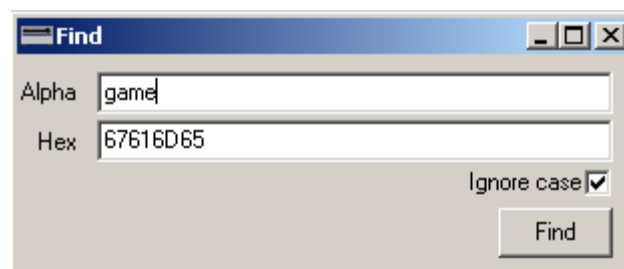
Notice how the 'Hex' entry fills up with the equivalent value in Hex. You can type hex directly into this field if you wish. Click Find.
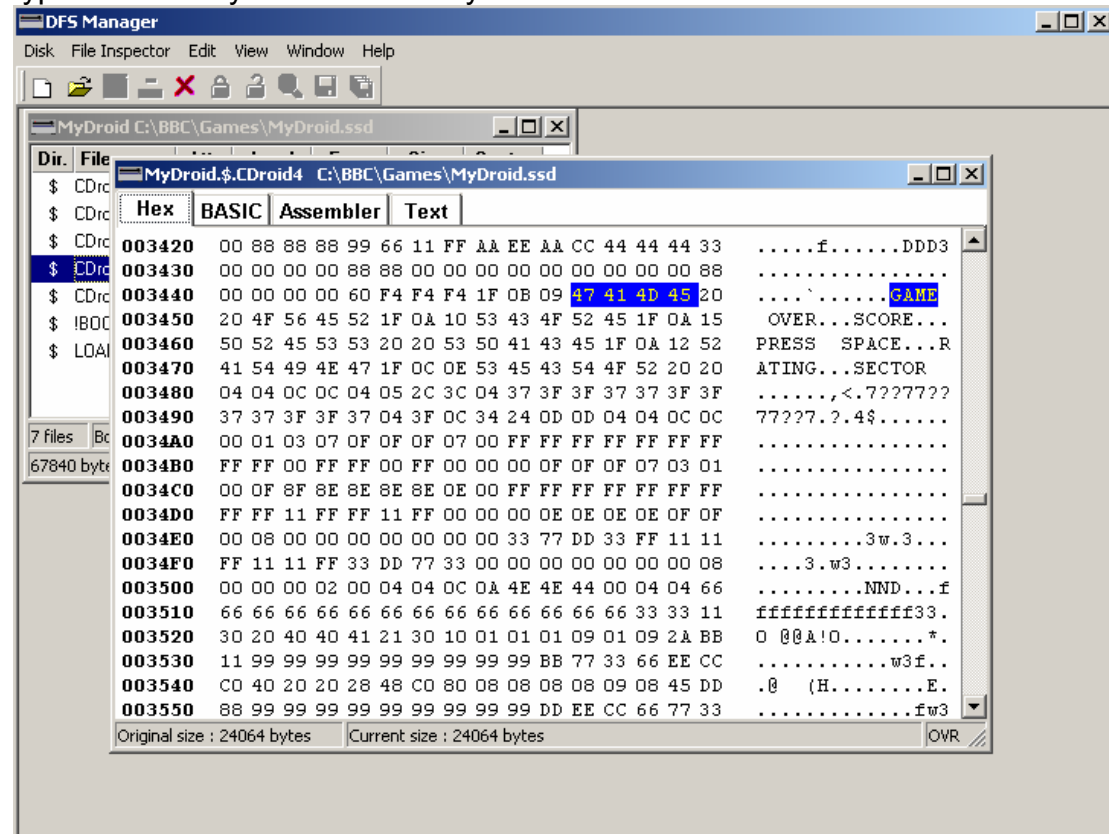
The window will move to the found text and it will be highlighted. If you wish to search for the next entry you would press F3 or select 'Find again' from the 'Edit Menu'. You may wonder why we didn't type in "Game over" into our search. Well if you look carefully there are actually two spaces between 'game' and 'over. So searching for 'game over' with one space would have found no results. It's only because I knew this fact that 'game' was chosen. But if you're not sure how many spaces may be used in phrases you can always search on a single word.

You may notice a lot of '.' In the file. These are shown when the character that the Hex represents is not a screen character for the font used. The screen font range is actually smaller than on a typical beeb and in the future a BEEB font will be used and the correct characters shown.

CDroid4 is a machine code program and as such unless you know exactly what you're doing you will need to preserve the length of the file. So we cannot for example change "Game Over" to be "You failed in your mission". As this would lengthen the file and some of the code may not run correctly. This is mostly due mostly to relative branches. That is to say there are commands that tell the processor to start execution 100 bytes in front of the current command. If you lengthen the file in between the jump instruction and the position it wants to go to then the processor will not branch to the correct place and you program will most likely crash.

But if you just overwrite text you should be perfectly OK. So position the cursor on the letter 'G' of 'game' and ensure you are in overtype mode. This is indicated by the OVR letters in the bottom right corner. If they are INS then press your 'Insert' key to switch to overtype (OVR) mode. Note to type in alphabetical characters you must have clicked on the right hand side alpha section of the Hex editor. If you highlight a Hex value you will only be permitted to enter hex values.

Type in 'YOU FAILED'. Which precisely fits the available space. Note Codename droid can only handle uppercase letters, typing lowercase would result in gobbledegook. Click the save icon 🖫 or select 'Save Changes' from the 'File Inspector' menu. Select 'Close All' from the 'Window' and all windows will close. Now either run the MyDroid disk in an emulator or transfer to your BBC disk by whatever means you use. Run the game. When you lose all your lives you will now see the "YOU FAILED" message instead of "GAME OVER".

If you do make a mistake when editing a file you can always undo your actions by pressing CTRL Z or selecting 'undo' from the edit menu. This can undo all your actions one by one right up until you opened the file in the inspector and is only limited by your computers resources, which for the purposes of this program means basically limitless.

More on the windows menu and multiple views
As mentioned previously any window can be duplicated to provide a different view of the same data. Load in the original CodeNameDroid disk. Look at the windows menu and select the MyDroid disk (in blue).
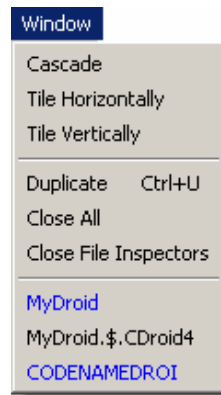

Select the CDROID file and open it up in a File Inspector window. Now look at the windows menu again.
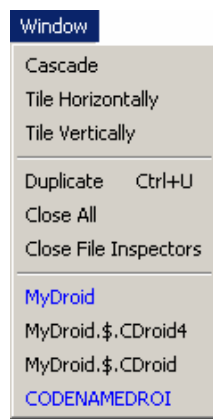
The entry has not been simply placed at the end of the windows menu but has been grouped under it's parent disk. This makes it easy to see which files you wish to work with.

With the CDROID4 inspector window in focus press CTRL U or select "Duplicate Window" from the Windows menu.
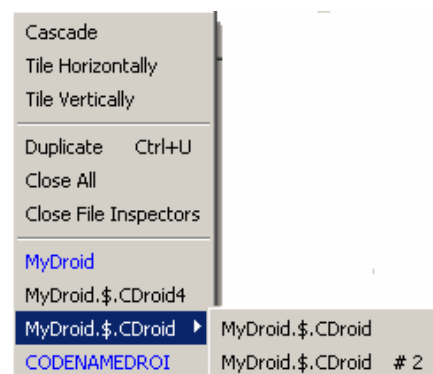
You can see that duplicated windows are grouped together in the same way as they were for disk windows.

Bring CDROID #2 to the front and move the scroll bar so that it scrolls down to around location 0000E0. Now bring CDROID to the from, press and hold the mouse down somewhere on the top line and drag the mouse down. You will see the contents being highlighted and as you go down the and come to an address being show in the CDROID #2 window you will see the contents begin to highlight there also. Whatever you do in one duplicated window has an immediate effect on all the related siblings.

Changing selections
Select an area of around 20 bytes. Using the cursor keys you can move this selection up/down/left and right. Give it a try. Now try pressing the SHIFT key in combination with the cursor keys and see your selections grow. Now press the CTRL key with the cursor keys and see it shrink.

Copying and Pasting
Any selection can be copied in the usual way. Click the cursor where you wish the paste to begin. In overtype mode the amount of bytes copied will be pasted directly over the equivalent amount of bytes starting at the currently selected byte. If in INS mode they will be inserted directly after the currently selected byte.

You can paste text from another app as long as you click in the text area on the right to start your paste. Only data copied from the Hex editor can be pasted by clicking on the byte data. Any Hex data you copy can be pasted into any app that accepts text. You will see the address's are included in the paste as well. All data is separated by spaces and will only generally look correct in mono spaced fonts.

And Finally

This document has not covered everything, if there's anything you think should be included or any mistakes (not including spelling/grammar) then please contact me with the details mentioned at the beginning of this document.