

RISC OS **Pi** and all RISC OS 5 machines

## Feature Amcog Games Kit

# Type in Maestro Bar Copier

Tutorials  
Schema2  
Toolbox

## Vol 1-10 index



# 17,000+ Digitally Remastered BBC and Electron Pages.

The 55 BBC Micro Books CD-Rom was released in 2013 to critical acclaim.

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 100 Programs for the BBC  
 100 Programs for the Acorn Electron  
 21 Games for the BBC  
 21 Games for the Electron  
 35 Educational Programs for the BBC  
 Micro  
 36 Challenging Games for the BBC  
 Micro  
 40 Educational Games for the BBC  
 Micro  
 +40 Educational Games for the  
 Electron  
 60 Programs for the BBC Micro  
 +60 Programs for the Electron  
 Advanced Basic Rom User Guide  
 Advanced Graphics on the BBC Model  
 B  
 +Advanced Graphics on the Acorn  
 Electron  
 Advanced Machine Code Techniques  
 Advanced Programming for the BBC  
 Micro  
 Advanced Programming Techniques  
 for the BBC Micro  
 Advanced Programming Techniques  
 for the Electron  
 Advanced User Guide for the Electron  
 +Adventure Games for the BBC Micro  
 +Applied Assembly Language on the  
 BBC Microcomputer  
 The Basic ROM User Guide  
 The BBC Micro Book  
 BBC Micro Graphics and Sound

BBC Micro Expert Guide  
 +BBC Micro and Electron Book  
 +The BBC Micro Gamesmaster  
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 +BBC Micro Wargaming  
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 The BBC Micro Revealed  
 Best of PCW Software  
 +Biology Programs for the BBC  
 Computer  
 Brainteasers for the BBC and Electron  
 +Building Blocks for BBC Games  
 +Cracking the Code on the BBC Micro  
 Creating Adventure Programs on the  
 BBC Micro  
 Creative Animation and Graphics on  
 the BBC Micro  
 Creative Assembler How To Write  
 Arcade Games for the BBC and  
 Electron  
 Creative Graphics on the BBC Micro B  
 +Discovering BBC Micro Machine  
 Code  
 +Drawing Your Own BBC Programs  
 +Educational Games for the BBC  
 Micro  
 +The Electron Book  
 +Electron Programs  
 +Electron Graphics and Sound  
 Essential Maths on the BBC and  
 Electron  
 Games and Other Programs for the  
 Electron  
 Games BBC Computers Play

The Electron Gamesmaster  
 Giant Book of Arcade Games  
 Graphic Art for the BBC Computer  
 Graphics on the BBC Microcomputer  
 Graphics Programming on the BBC  
 Graphito  
 Graphs and Charts on the BBC  
 Microcomputer  
 Handbook of Procedures & Functions  
 How to Write Adventure Games on the  
 BBC and Electron  
 Instant Arcade Games for the BBC  
 Micro  
 +Instant Arcade Games for the Electron  
 +Invaluable Utilities for the BBC  
 Micro  
 Invaluable Utilities for the Electron  
 The BBC Micro Machine Code  
 Portfolio  
 Making Music on the BBC Micro  
 Mastering Assembly Code  
 +Mastering Interpreters and Compilers  
 Microguide for the BBC  
 More Virgin Games for your BBC  
 BBC Micro Music Masterclass  
 PCW Games Collection for the BBC  
 Practical Programs for the Electron  
 +Procedures and Functions in BBC  
 Basic  
 BBC Micro Programs in Basic  
 Quality Programs for the BBC  
 +Quality Programs for the Electron  
 The Second Book of Listings  
 The Super-User's BBC Micro Book

work on modern RISC OS computers like the Raspberry Pi. That's because they're written in BBC Basic which has come built in to every Acorn or RISC machine since the BBC Model A.

Programs will also run much faster on RISC OS, for example 3D graphics routines produce instantaneous results.

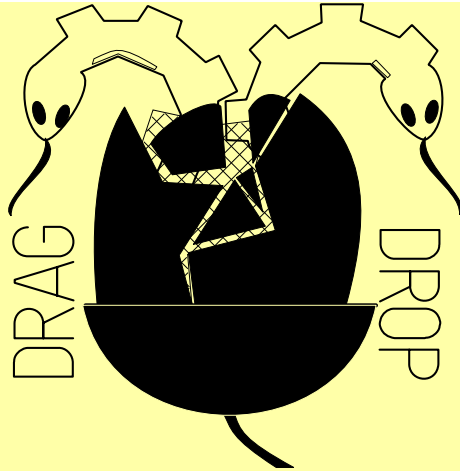
DFS disc images of the programs are supplied for BBC emulators or for writing to physical media for use with 'real' machines.

What we haven't enlarged is the price. It's still just £14.00\*\* on CD-Rom\*.

Whether you are a student learning to code, a professional or hobbyist user or just a collector,

\* Available on USB flash drive for £2.00 supplement.  
 \*\* Prices correct at April 2021. Upgrade from the '55 Books' is £14.00 (i.e. same price)

To order visit [www.dragdrop.co.uk](http://www.dragdrop.co.uk) (Paypal) or email [sales@dragdrop.co.uk](mailto:sales@dragdrop.co.uk) for details of internet bank payments. E&OE



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Produced on RISC OS computers

This issue has been blessed with contributions  
from the following people:  
Norman Lawrence (Schema2)  
Tony Bartram (Amcog Development Kit)  
Christopher Dewhurst (everything else)

The views expressed in this magazine are not  
necessarily those of the editor. Alternative views  
are always welcome and can be expressed by  
either writing an article or a short editorial.  
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come across something you believe is either of  
the above please contact the editor using the  
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## EDITORIAL

The artwork on the front of this issue's *Drag 'N Drop* is from Sybil Harris of [www.sybilharris.com](http://www.sybilharris.com) and features on RISC OS application programming book, out in September.

All being well with the continuing easing of Covid restrictions it will be great to physically go RISC OS computer shows again and I hope to see you there! In this issue we feature AMCOG's enhanced Games Development kit and instalments of two regular series.

If you vaguely recall an article on something, somewhere in *Drag 'N Drop* then consult the updated index, which catalogues all the articles which have appeared in the magazine so far.

Chris.

<b>Editorial .....</b>	<b>4</b>
<b>Beginner's Page .....</b>	<b>5</b>
<b>News and App Updates .....</b>	<b>6</b>
<b>Schema 2 .....</b>	<b>9</b>
<b>Amcog Development Kit .....</b>	<b>15</b>
<b>Toolbox With Basic .....</b>	<b>17</b>
<b>Maestro Bar Copier .....</b>	<b>23</b>
<b>Volume 1-10 Index .....</b>	<b>30</b>

## How do I get the BBC Basic prompt?

Press F12 and type \*BASIC and press Return. You can change the screen mode with MODE n where n is a number e.g. MODE 7 or MODE 0.

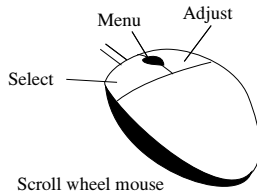


Type AUTO for automatic line numbering. Press Escape to stop and type SAVE "myprog" followed by Return to store *myprog* on hard disc. To return to the desktop type \*QUIT.

Programs listed in *Drag 'N Drop* are assumed to work on all machines with RISC OS 5 e.g. Raspberry Pi, unless otherwise stated.

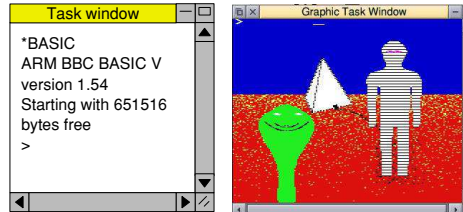
## How do I open a Task window?

Menu click over the Raspberry icon on the right side of the iconbar and select click on Task window. Or press Ctrl+F12.



You may need to reserve more memory for the task. Adjust-click on

the Raspberry icon and under *Application tasks* click and drag the *Next* slide bar out to the right.



You can also type programs in a *task window*, press Ctrl and F12. You can't use the cursor editing facility or change MODE so you might like GraphTask from [armclub.org.uk/free/](http://armclub.org.uk/free/). It allows you to type in and run Basic programs that use simple graphics (not sprites) in a window on the desktop.

To run Basic programs from the desktop, double-clicking with select on the filer icon runs it. Holding down Shift and double clicking loads it into a text editor like !Edit.



## What does 'currently selected directory' mean?

Articles may tell you to set the CSD (currently selected directory). Click menu over filer window and choose *Set directory ^W*. It's where the computer stores the file when you

type SAVE "myprog".

## How do I open an Application Directory?

Application directories begin with a ! called 'pling'. Hold down the shift key and double click select to open the directory.

## I get a blank screen when running games listings

Check you have the Anymode module installed, download it from [www.pi-star.co.uk/anymode](http://www.pi-star.co.uk/anymode). It goes in !Boot.Choices.Boot. Predesk.

Open the !Boot application directory, in the root directory of the SD Card, that is SDFS::RISCOSPi.\$.!Boot. Locate the *Loader* file and with Shift held down double click it to open it. Create a text file in Edit with the following line (press Return at the end):

**disable\_mode\_changes**  
Save it inside Loader as CMDLINE/ TXT and restart your machine.



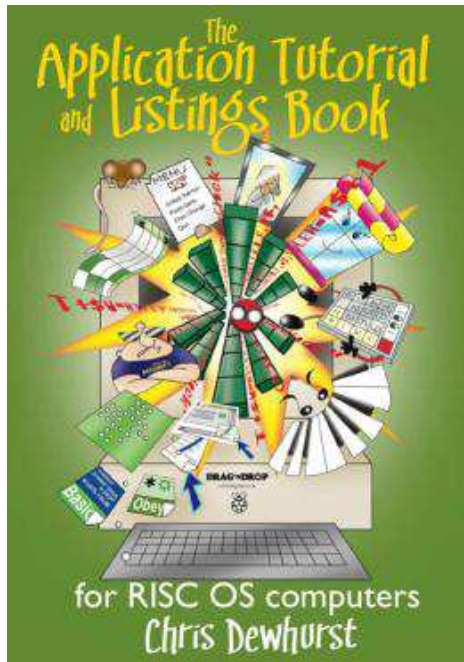
## Sounds are strange

Some listings need the free RDSP module installed. Download it from [www.amcog-games.co.uk/rdsp.htm](http://www.amcog-games.co.uk/rdsp.htm) where you'll find instructions on how to install it.

# News and Application Updates

## The Application Tutorial and Listings Book

The publication date for the book on desktop ('Wimp') applications has been announced as 3rd September 2021.



The format follows previous *Drag 'N Drop* books – A5, wire bound for easy opening with over 300 pages and in excess of 100 demonstration listings in BBC Basic to type in.

Price is £20.00 + P&P, and will be available to order from the website, [www.dragdrop.co.uk](http://www.dragdrop.co.uk).

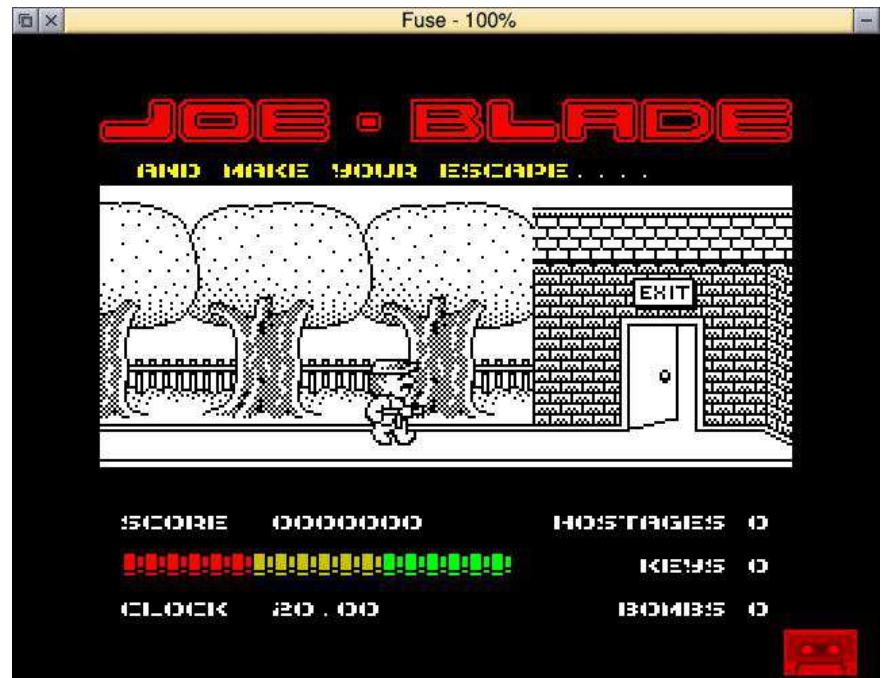
## Fuse Spectrum Emulator

FUSE stands for Free Unix Spectrum Emulator and an update to the RISC OS port comes courtesy of Cloverleaf. Speccy fans can download version 1.5.7 from [riscosclloverleaf.com](http://riscosclloverleaf.com) > download.

It doesn't come with any games but try <https://tzxvault.org> for tape images. The navigation is clunky since Fuse doesn't integrate with RISC OS so you need hit F1 to call up Fuse's own Speccy navigation system.

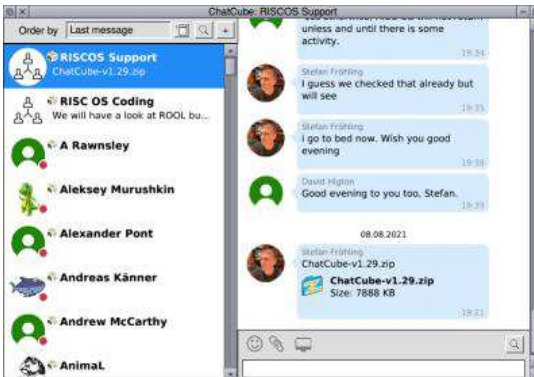
## ChatCube

ChatCube is an instant messaging app (think Telegram) for RISC OS



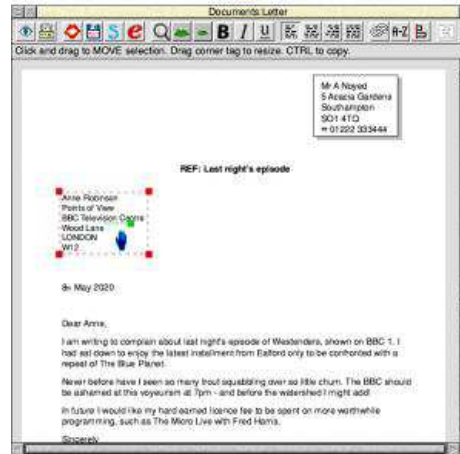


users developed by Cloverleaf and free to download from [riscoscloverleaf.com](http://riscoscloverleaf.com) > download. After a brief installation and a quick registration page you can begin chatting with fellow RISC OS users.



## TextEase 5.99

Version 5.99 of the desktop publishing system from Elesar is available with enhancements. TextEase comes in several versions ranging from the Home edition at £60.00 which is a DTP editor and painting application, to the Pro version for £96.00 which includes a spreadsheet and slideshow facility. Visit [shop.elesar.co.uk](http://shop.elesar.co.uk) > Software to order.



## Show Dates Announced



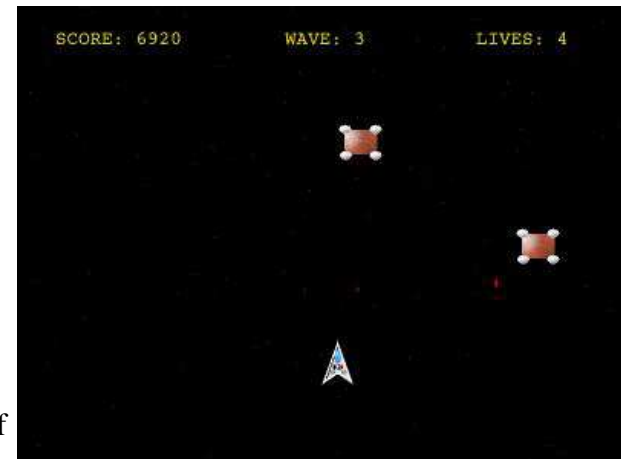
With continuing relaxation of England's COVID restrictions, dates for two of the traditional RISC OS computer shows have been announced. The RISC OS London show is booked for Saturday 30th October 2021 at St Giles Hotel, Feltham. More details and exhibitor info at [www.riscoslondonshow.co.uk](http://www.riscoslondonshow.co.uk).

Not to be left out as part of Boris Johnson's levelling up (if

you believe this you'll believe anything) the north of England RISC OS show is also returning and 23rd April 2022 is the date for the show in Wakefield. More details can be found by going to [www.wakefieldshow.org.uk](http://www.wakefieldshow.org.uk).

## AMCOG Development Kit

The popular games construction software from Ambiguous Contrasts Games has received an update to 1.09.1. Available from !Store, the increased price of £17.99 reflects the enlarged library of music, sprites, samples and addition of another game. Quebix is an action-packed shoot-em up. You can find out more at [www.amcog.co.uk](http://www.amcog.co.uk).



## RPCEmu

Many people use that evil operating system Windows to emulate Arm machines and for a few years RPCEmu has been the free RISC OS emulator of choice. It's now even more straight forward to get up and running at [www.marutan.net/rpcemu](http://www.marutan.net/rpcemu) > Easy Start bundles. Choose RISC OS 3.71 for a typical 90s RiscPC machine allowing the greatest software compatibility whilst the RISC OS Direct 5.27 emulates 32-bit machines like the Iyonix.

RPCEmu can also be made to emulate earlier machines on Windows and if you want to do the

same on a native RISC OS machine look at ArchiEmu which lives at [www.tellima.nl/riscos/](http://www.tellima.nl/riscos/).

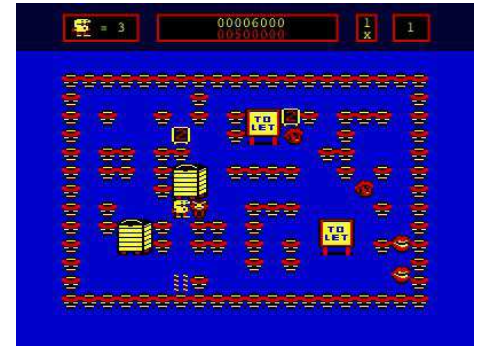


## Games Galore from JVS

JV Software has been busy porting classic arcade games to RISC OS using Amcog's development kit, which we have a special article on in this issue of *Drag 'N Drop*.

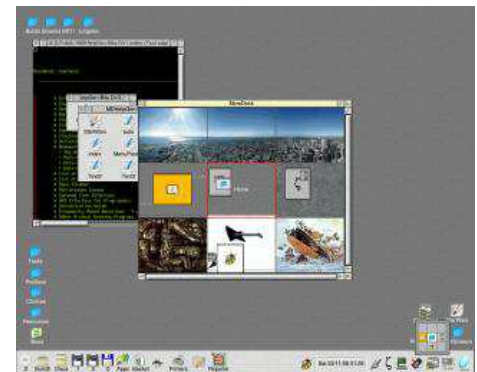
To date, Cavern, Infinite Burner, and Myriapod have been released by the software house completely free of charge. (No bills to pay in JVS land? I want to live there!) They can be downloaded from !Store and the latest addition is a remake of Dickie Brickie, a fiendishly addictive maze game which was originally a type in game in a BBC

Micro magazine.



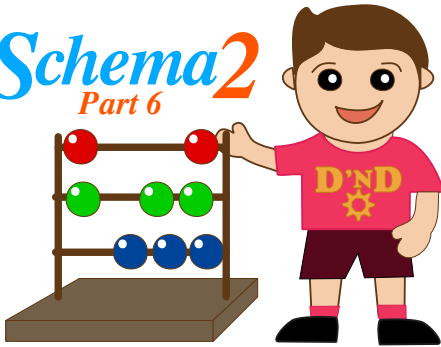
## MoreDesk

7th Software have made their MoreDesk software free, it's an application which allows you have multiple desktops on your RISC OS computer. You can quickly switch between each desktop and each one can have its own pinboard, useful if you are working on several complex projects. Download Moredesk from [www.7thsoftware.co.uk/moredesk](http://www.7thsoftware.co.uk/moredesk).





## Schema2 Part 6



**Schema2's graphic macros enable the user to create two distinct types of graphs, interactive or passive.**

Interactive graphics are editable, they can be hotlinked into a spreadsheet, decorated and let the user change colours, fonts and axis parameters and they will be the subject of future articles. Passive graphics are non-editable and are the subject of this article.

Both types of graphs use the Schema2 drawing functions which let you create a graph or picture of almost any type.

### Drawfiles

In Schema2, drawing a graph or picture consists of writing a macro that sets up a Drawfile in the form of a specified size of blank graph.

Through various commands you can plot lines, rectangles, polygons and curves on the graph.

When the macro that created the Drawfile terminates the Drawfile is rendered (converted into a visible picture) automatically.

It's not necessary to know the details of the Drawfile format but it's defined in the RISC OS

*Programmer's Reference Manual* (see also *The Book of Draw Stuff* from Drag 'N Drop Publications).

In graphs, distances are measured in OS units with horizontal distances measured to the right and vertical distances upwards. The coordinate system has its origin in the lower left hand corner of the window.

The positions and sizes of the various objects are provided by the macro or from the values contained in the cells of a spreadsheet. This allows the picture to be a graphical representation of the data in the sheet. Graphs described in this article are purely passive, they cannot be edited.

In Schema2, each Drawfile has a unique identifier known as a 'handle', which is used as a parameter for all operations on that

Drawfile. A handle is a type of object in its own right, in the same class as integers, strings and faults.

A handle can be assigned to a variable, or passed as a parameter, and macros can return handles as their results but arithmetic on handles is forbidden. When a handle is assigned to a spreadsheet cell the Drawfile it refers to is drawn in that cell.

### Creating a graph

Every graphical macro starts with a blank graph using the function GSTART to create an empty Drawfile. The graph size is specified in OS units by x (horizontal dimension) and y (vertical dimension).

**w = GSTART(x,y)**

The function returns a handle (w), or graph identifier. If an error is returned, it means that the command has failed. The handle is used to draw objects into the graph and when the graph is complete, the macro will return the graph's handle. The graphic primitive functions are now described and their use illustrated with example



**In order to be productive in software it's important to be lazy. Don't repeat work you've done before, employ the simplest solutions and don't do any more work than is absolutely necessary in order to deliver a product.**

And why use RISC OS when you could be writing a game using some multi-gigabyte development system with thousands of features? The answer is, that sometimes less is more. Keeping it simple makes development fun and accessible.

The AMCOG Development Kit available from !Store contains some unique features, such as RDSP which is great if you loved the sound chips in classic retro computers.

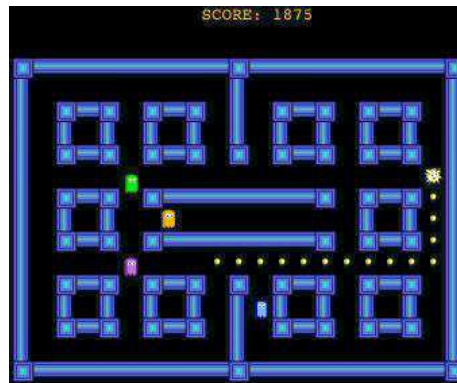
Four years ago I launched the AMCOG development kit which came with two games. The first game was Mutant Penguin and this was used as a way of proving the library of game procedures and

mechanisms that I had developed over my previous four games.



*Mutant Penguin*

Cyborg was developed from Mutant Penguin in around 48 hours and this was intended to be proof that the features of the library made game development much simpler and faster.



*Sparky is a simple tile library game.*

Over time the kit has been extended and improved based on feedback from customers.

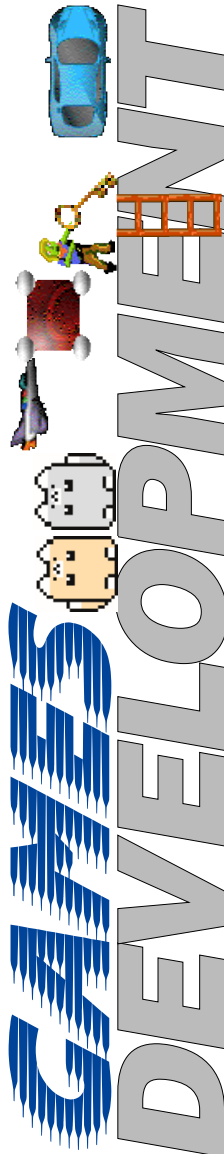
The Sparky case study was added to show how to build up a game in stages. It starts with the maze and adds each feature one at a time until the game is complete. The game itself is only around 100 lines long.

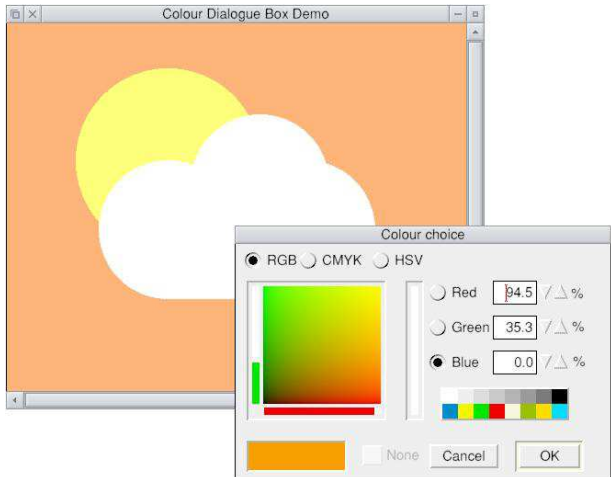
Then examples were added to illustrate different components of the kit including the !Ship example

This example was intended to show how a space invader style game could be created using the development kit.

In the latest release, v1.09, a new case study has been added that shows how the development of such a game can be achieved using the !Ship example as a starting point.

The case study





### Drag 'N Drop.

The Res file is almost identical except with the addition of a ColourDBox primitive. Rather than laboriously describe all the elements of the Res file, they are illustrated with screen dumps from !ResEd below.

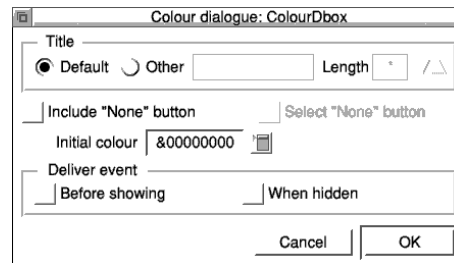
Type the new  
!RunImage file listed,  
you can save yourself

**Last time we wrote a simple  
Toolbox application which plotted  
a graphical scene in a window and  
allowed the user to change a  
colour through a standard  
Toolbox colour menu.**

The first application in this instalment of the series uses a Toolbox colour dialogue box allowing selection of 24-bit colours (not just the 16 ‘Wimp’ colours) then we will write an application to render Draw files with a Toolbox zoom dialogue box.

Create an application directory called **!ColourDB** with **!Boot**, **!Run**, **!Sprites** and **Messages** files. If you're not sure how to do this refer back to the Winter 2021 edition of

some typing time if you have the previous `!RunImage` because as much of the code is the same.



**Toolbox** with **Basic**

10 REPEAT  
20 PRINT "DRAG  
N DROP"  
30 UNTIL FALSE

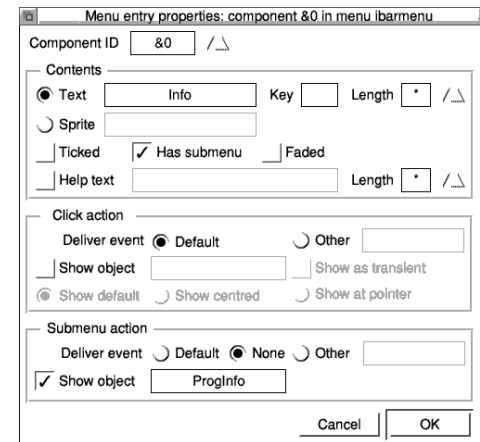
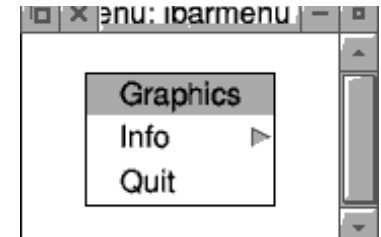
Basic

10 REPEAT  
20 PRINT "DRAG  
N DROP"  
30 UNTIL FALSE

Basic

10 REPEAT  
20 PRINT "DRAG  
N DROP"  
30 UNTIL FALSE

Basic







**Maestro is a capable score editing application which has come bundled with every RISC OS computer. It does lack a bar copying facility, however.**

The application listed here, !BarCopy, addresses that shortfall and makes inputting musical pieces with repetitive phrases a lot easier.

Type in the first listing which creates the application directory and associated files. Then type in the second listing and save it inside the directory as **!BarCopy.!RunImage**. Ensure it's fully debugged and double click to install on the icon bar.

Drag a Maestro file to the iconbar and a window will appear. It is pre-

populated with bar numbers at the top. The starting bar is set to 1, and the last bar in the piece as the finishing bar.



These can be adjusted by clicking with Select in the icon and typing. The bar range is always copied to the end of the piece. The refresh button is discussed shortly.

The filename under which the Maestro file will be saved (with the duplicated bars) is displayed further down. It is set to the original filename with a '+' suffix. Again this can be edited. Clicking Save stores the file and opens it in Maestro.

## Tutorial

We'll transcribe a familiar tune. Set up 3 staves (Single voice + keyboard) in Maestro, input the first

bar (fig.1) and save it as **Best**.

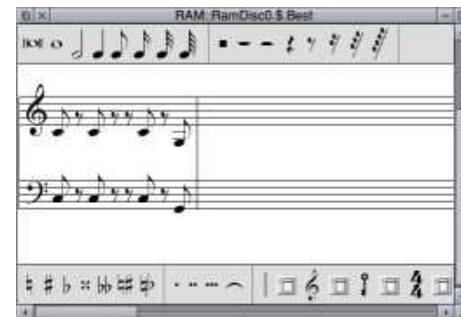


Figure 1

I've shown only the accompaniment staves in fig.1 as the tune doesn't come in until bar 9. Bar 2 is exactly the same as bar 1 so drag **Best** to BarCopy and click Save straight (without altering the bar numbers).



**Best+** opens in Maestro in place of the original file. You'll see that

# Vol 1-10 Index

This index is organised with a reference (e.g. application name) or article/listing/series title followed by the volume – issue number – page.

- &CAFE (series) 7i1-40, 7i2-41
- 105 key UK layout mechanical keyboard (review) 7i3-10
- 16 FFmpeg commands for all needs 10i1-12
- 21st Century Computing (article) 4i2-5
- 24-bit colour 5i2-47
- 256 colour palette switching (article) 8i1-34
- 256 colours 4i2-10, 4i3-9, 5i2-47
- 32-bit PMS Voices (article) 9i3-34
- 32-bitting sound modules (article) 7i2-13
- 3D Graphics 10i2-28
- 3D Wireframe Graphics (series) 7i1-29, 7i2-43
- 55 BBC Micro Books 4i3-21, 4i4-17
- 7-segment LCD 5i3-6
- 76489 chip 1i2-22
- 8-bit roundup (article) 2i1-19
- 8-bit roundup (article) 1i1-29
- 8-bit roundup (article) 1i2-22
- 8-bit roundup – New Releases from Retro Software (article) 3i3-19
- 8-bit Roundup: Retro Software Roundup 3i4-15
- 8-bit: BBC ARM7TDI Upgrade 1i1-29
- 8-bit: BBC GoMMC (article) 2i1-23
- 8-bit: BBC RAM Disc (article) 2i1-19
- 8-bit: BBC Repairing your power supply 1i1-30
- 8-bit: BBC Retro Software Update (article) 2i1-25
- 8-bit: Game On (article) 2i4-17
- 8-bit: Game On 2 (article) 3i1-9
- 8-bit: Look Who's Calling 2i2-19
- 8-bit: Repton – The Lost Realms 2i3-19
- 8-bit: Speak your mind (article) 1i2-22
- 80 BBC Micro Books 10i5-2
- A Celtic Knot in 5 minutes 10i3-23
- A Front End for CDFaker (article) 7i2-24
- A simple thumbnailer (article) 6i1-47
- A Trip Round the Chocolate Factory (article) 1i3-20
- Acorn Electron World (article) 4i2-27
- Acorn speech system 1i2-22
- Acorn World in Pictures 1i1-20
- Acorn – A World in Pixels (review) 10i4-12
- Adding document information to PDF files 3i4-6
- All Sorted 1 (article) 1i1-9
- All Sorted 2 (article) 1i1-22
- All Sorted 3 (article) 1i2-7
- All Sorted 4 (article) 1i3-10
- All Sorted 5 (article) 1i4-11
- All Sorted 6 – the Merge Sort (article) 2i1-4
- All Sorted 7 – Heaps of Data (article) 2i2-7
- All Sorted 8 – Quicker Sorting (article) 2i3-12
- All Sorted 9 – Strands & the Merge sort revisited (article) 2i4-6
- All Sorted 10 – Hacks & Tricks (article) 3i2-10
- All Sorted 11 – Hacks & Tricks (article) 3i3-9
- All Sorted 12 – Mashing it Together (article) 3i4-10
- All Sorted 13 – Timsort 4i4-33
- AltTab 0.42 1i1-3
- Amcog Games Development Kit 8i4-29, 10i6-15
- AMCOG Games Collection 10i2-6
- Anatomy of a Drawfile (article) 4i4-29, 5i2-36, 5i3-27
- Anatomy of a Font (series) 9i1-14, 9i3-19
- APDL 1i3-2
- Archive magazine 10i5-7
- ArcSimp 1i1-3
- ARM7TDMI Coprocessor 1i1-29
- Armbook 10i1-4, 10i2-7
- Armcode bit pattern demo (listing) 5i2-32
- Armcode for Beebsters (series) 8i1-30, 8i2-28
- ARMini computer 3i3-3
- ARMini computer 2i3-2
- ArmSort 4.08 3i4-4
- Artworks 2.X3.00 upgrade (review) 9i3-33
- Artworks Viewer 2.14b 1i4-3
- Attack of the Monotrons (game listing) 10i5-9
- Attack of the Raspberry Macaroons game (article and listing) 8i4-14
- Autofocus app (listing) 8i1-42
- awk 2i3-25
- Backdrops (Desktop Heroes article) 1i3-18
- BarFree 3i3-5
- Basalt 1.50 3i4-4
- Basic V for the Acorn Archimedes (book review) 6i3-6
- BBC Basic Reference Manual (review) 9i2-18
- BBC Micro Games Retrospective (articles) 4i3-26, 4i4-11, 5i2-61
- BBC Microbit 6i4-3