

# DRAG'N'DROP

Volume 10 Issue 5  
Spring 2021  
£3.75

RISC OS Pi and all RISC OS 5 machines

Type in  
Monotrons  
Icon Flag  
Generator

Tutorials  
Schema2

Toolbox with Basic

80 BBC  
Books

Reviews  
Ice Caves  
Kyocera M5521



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

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

It's continued to be one of our best selling products.

That's why we thought we'd make an improvement by enlarging the collection to 80 books.

That's over 17,000 pages of high quality viewing (and printing) in popular formats for most computing platforms. All on one CD-Rom\*.

Owners of MS Windows and Macintosh machines can access the books in Adobe PDF and HTML format. As can RISC OS

users who also will benefit from the original, Impression and EasiWriter files.

Plus over 3,000 typed-in and debugged listings, ready to run.

Many of these programs will work on modern RISC OS computers like the Raspberry Pi.





- 100 Programs for the BBC
- 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
- +The BBC Micro Rom Book
- +BBC Micro Wargaming
- +BBC Programs Volume 1
- The BBC Micro Revealed
- Best of PCW Software
- +Biology Programs for the BBC Computer
- Brain teasers 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
- Acorn Electron User Guide
- Virgin Games for your BBC
- +Virgin Games for your Electron
- Writing Educational Programs on the BBC and Electron
- +New additions to the '55'.

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, don't miss out on this astounding compilation of 80 BBC and Electron books.

\* 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

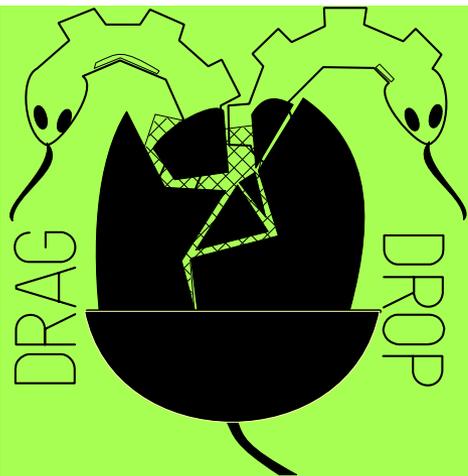


## EDITORIAL

Welcome to this edition of *Drag 'N Drop*. There will be six issues in volume 10 so look out for the summer edition as well.

It struck me that all the RISC OS software in the the news section of the last edition was freeware but RISC OS developers need to pay their bills! So please consider supporting paid-for software: whatever the size of your pocket there is something to suit. If you like games there is a new release from AMCOG for under a tenner, maybe you can make a pledge to the Cloverleaf project, buy a copy of the Iris web browser, or even a whole new machine being sold by RISC OS-friendly firms.

Chris.



Copyright ©2021 Drag 'N Drop  
Produced on RISC OS computers

This issue has been blessed with contributions from the following people:  
Norman Lawrence (Schema2)  
Tony Bartram (Attack of the Monotrons)  
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. All articles and advertisements are published in good faith. No materials in this publication are meant to be offensive or misleading. If you come across something you believe is either of the above please contact the editor using the details below.

Contact Information  
Editor: Christopher Dewhurst  
Email: [editor@dragdrop.co.uk](mailto:editor@dragdrop.co.uk)  
[www.dragdrop.co.uk](http://www.dragdrop.co.uk)

<b>Editorial</b>	<b>4</b>
<b>Beginner's Page</b>	<b>5</b>
<b>News and App Updates</b>	<b>6</b>
<b>Attack of the Monotrons</b>	<b>9</b>
<b>Toolbox from Basic</b>	<b>14</b>
<b>Kyocera M5521 printer review</b>	<b>19</b>
<b>OCR online</b>	<b>21</b>
<b>Schema 2</b>	<b>22</b>
<b>Spy Mission: Ice Caves review</b>	<b>28</b>
<b>Optical Mouse Pen</b>	<b>29</b>
<b>Icon Flag Generator</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.

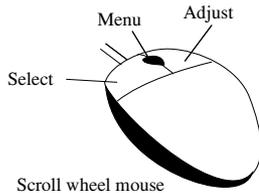


Type AUTO for automatic line numbering. Press Escape to stop and type SAVE "myprog" followed by Return to store *myprog* on hard disc. To return to the desktop type \*QUIT.

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

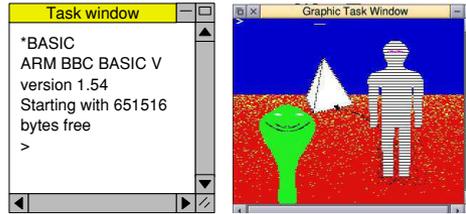
## How do I open a Task window?

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

## 80 BBC and Electron Books

Easter 2021 saw the release of a new, extended version of the hugely popular BBC and Electron programming books collection.

*80 BBC Micro and Electron Books* is a compilation of digitally remastered (no scans) programming books accessible on all computer platforms. It was produced entirely on RISC OS so you get the Impression and/or Easiwriter files and there are PDF and HTML versions too, along with disc images/directories of the type-in programs.

A lot of computer programming theory is as relevant today as it was 40 years ago regardless of the language being used for coding; many listings, written in BBC Basic, will run without modification on the RISC OS Pi.

Prices are £14.00 for a CD-Rom and £16.00 for USB flash drive including postage to anywhere in the world. (There's no 'upgrade' as such to the original *55 BBC Books*, the 25 extra books are worth at least £14.00 in their own right!) Get your copy whilst these special

introductory prices are held.

## Alternative Payments

So far PayPal has been the only way to purchase *Drag 'N Drop* from our website but, as we like to give readers choices, we are developing a page where you will fill in an order form which will be emailed to you with our bank details, so you can log in to your bank (or visit your branch) to make payment and your order will then be delivered.

This will also work for international payments like Euro.

## RISC OS awards

Polling is now open for the RISC OS 2020 awards, you can vote for the best (and worst) products and services in the RISC OS world last year.

Visit [www.riscosawards.co.uk/](http://www.riscosawards.co.uk/) and click on 'Vote now in the 2020 Awards Poll'. Of course we would be really pleased if voted for *Drag 'N Drop* in the the 'Best publication



or offline resource category'! Polls close on 31st May 2021.

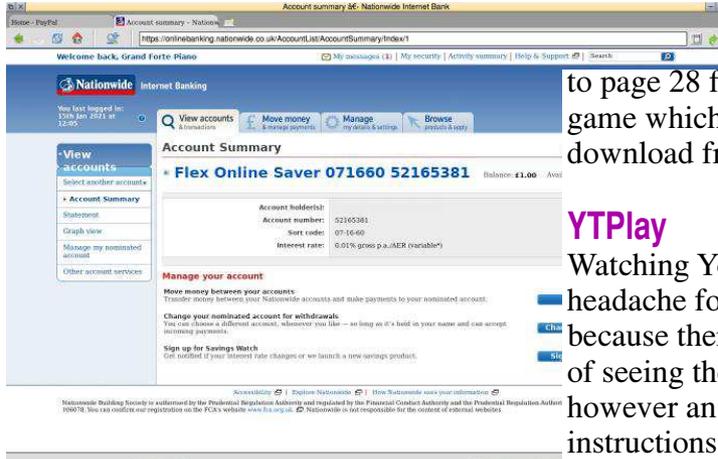
## Iris 1.010



Iris is a RISC OS browser capable of handling many modern websites coded in HTML 5 and Javascript.

Technically it's a RISC OS port of the engine behind Apple Safari and is a work-in-progress by RISC OS Developments. We've used it for Paypal and Internet banking without hassle so it's more than capable if a little expensive at £49.99 (plus extra if you want to make a donation towards development) from !Store.

(Actually what you buy from !Store are some screenshots and login credentials to RISC OS Developments' software page where there are other goodies to be had.)



Online banking with RISC – Iris web browser

## PiTools

A new software package has been released by R-Comp for Raspberry Pi users. PiTools 1.12b includes utilities to automatically connect to the internet (instead of having to faff with your !Boots), a suite of monitor definitions, screen locks and fault recovery. PiTools costs £34.99 and is available as a download from !Store.



## Ice Caves

AMCOG have released Spy Mission: the Ice Caves of Dr Atom, a sideways scrolling adventure set in the Antarctic. Turn

to page 28 for our review of the game which costs £9.99 as a download from !Store.

## YTPlay

Watching Youtube videos can be a headache for RISC OS users because there is no direct way (yet) of seeing them on a web browser, however an updated set of instructions on how to download and convert video files using FFmpeg, FFplay, a

Python program Youtubel and YTplay (!) can be found at <https://www.riscository.com/2020/watching-youtube-videos-on-risc-os/>



## Cloverleaf ReKicked

The Cloverleaf Kickstarter project didn't make the €50,000 target required by January 2021 and has since been relaunched by German developer Stefan Frolich, this time with a more modest target of €5,000 (£5,217) but a tighter deadline of 16th June 2021. There is more choice though: you can mix and match using the 'Add-on'

feature e.g. WiFi development as your main pledge plus another amount for a new photo editor for RISC OS, and/or several hundred Euro for backing the porting of RISC OS onto Cloverleaf-branded machines using the Rockchip RK3399 processor. Read more on Kickstarter at [www.kickstarter.com/projects/riscos-cloverleaf/risc-os-built-the-future-os-for-your-powersaving-computer](http://www.kickstarter.com/projects/riscos-cloverleaf/risc-os-built-the-future-os-for-your-powersaving-computer)

## Archive on schedule

And finally a nod to our sister publication Archive which has returned to a regular schedule, costing £6.99 per issue on a subscription basis. The March/April edition is out now and more details can be found at [www.archivemag.co.uk/cover/current.html](http://www.archivemag.co.uk/cover/current.html).



# 40 years of improving on the best.

In 1981 the first BBC Microcomputer was released with 16K RAM, 8 colours, and a clock speed of 2MHz.

Over the next 40 years a pedigree of fast machines running the world's best operating system, RISC OS, appeared. We won't bore you with the rest of the facts. Except to tell you about the latest computer. Which runs RISC OS\*, of course. It has 253,952 as much RAM, 2 million more colours, runs 900 times faster, and is 10 times lighter than the BBC Microcomputer.



BBC Microcomputer Model A. 8 colours, 16K RAM, 2MHz, 3700g.



Raspberry Pi 400. 16M colours, 3968MB RAM, 1.8GHz, 386g.

# The new Raspberry Pi 400. Still improving on the best.

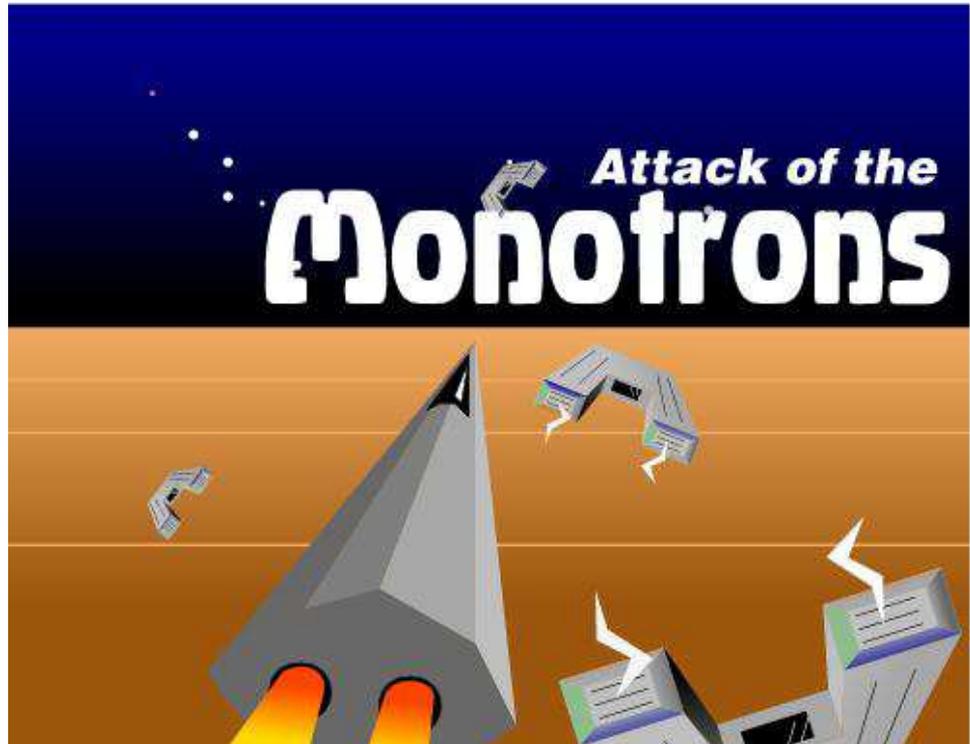
Raspberry Pi 400 machine available from all good internet retailers. RISC OS downloadable separately. "Raspberry Pi" is a trademark of the Raspberry Pi Foundation. E&OE. \*Other operating systems available.

The magnetic Monotrons are attacking the planet with increasing speed and your mission is to fend off the deadly forces before they drain your shields.

Use the Z and X keys to move your ship left and right, ? and @ to move up and down. Hit the space bar to fire your laser cannon.

Attack of the Monotrons was written by Tony Bartram to demonstrate the 3D graphics programming techniques we featured in the Winter 2020 edition of *Drag 'N Drop*.

The game features lots of sound effects and you should ensure the RDSP module is installed. It can be downloaded free from [www.amcog-games.co.uk/rdsp.htm](http://www.amcog-games.co.uk/rdsp.htm).



### Monotrons listing

```

10REM Attack of the Monotrons
20REM A simple 3D Game by AMCOG
30REM (C) 2021 Drag N Drop
40PROCInit
50ON ERROR PROCError
60MODE 32
70PROCUseTripleBuffering
80REPEAT
90PROCCls
100PROCInstructions
110PROCCls
120PROCGame
130UNTIL FALSE

```

```

140END
150
160DEF PROCInstructions
170UDU 4
180FOR I% = 1 TO 3
190COLOUR I% * 7
200PROCText(200,1000, "Attack of t
he Monotrons", &FF3276,40,20)
210PRINT TAB(10,20);"Controls:"
220PRINT TAB(10,21);"-----"
230PRINT TAB(10,25);"Z - Left    X
- Right  ? - Down  @ - Up"
240PRINT TAB(10,27);"(SPACEBAR) -
Fire"

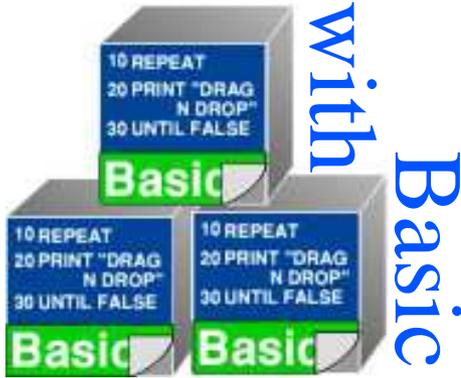
```

```

250PRINT TAB(10,30);"Shoot the Mon
otrons that are attacking you. They
increase in speed within a wave"
260PRINT TAB(10,31);"Play through
100 attack waves. Your shields will
recharge after being hit"
270PRINT TAB(10,35);"Last Score =
";SCORE%
280PRINT TAB(70,5);" Press (ESCAPE
) to exit"
290PRINT TAB(20,50); "PRESS (ENTER
) TO START"
300PROCTripleBuffer
310NEXT

```

# Toolbox



In the Winter 2021 edition of *Drag 'N Drop* we introduced ourselves to the Toolbox, a set of modules built into RISC OS to assist with programming multi-tasking (Wimp) applications.

Common aspects of the RISC OS look and feel like placing an icon on the iconbar and opening an 'About This Program' window can be left to the Toolbox and we only have to write a minimum amount of code.

Wimp event number &200 is delivered to the Wimp poll loop to indicate the Toolbox has done something, the programmer can then interrogate the Toolbox's own events and take further action.

Toolbox applications must have a

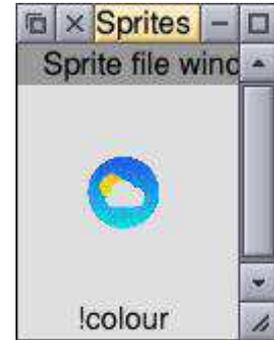
Res file and a Messages file residing in the application directory along with the usual Boot, Run, Sprites and RunImage files. RunImage can be written in Basic (or any language really) meaning Toolbox applications don't have to be coded in C as the original Acorn documentation from the '90s might lead us to believe.

Refer back to the previous article if the structure of a Toolbox application directory is unclear or if you aren't sure where to find !ResEd needed for building the Res (Resources) file.

This time we will build an application which renders graphics in a window and allows the user to choose colours for the shapes from a menu.

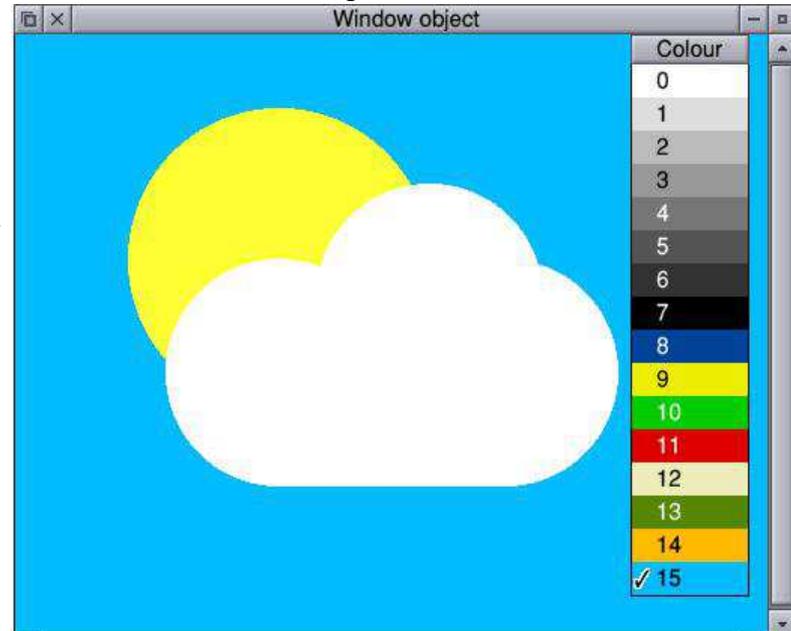
First create an application directory called !Colour, design a sprite called !colour in Paint and save it inside !Colour as

!Colour.Sprites.



Create a one-line Obey file: `Iconsprites <Obey$Dir>.Sprites` and save it as !Colour.!Boot.

Next create the Resources file. Load up !ResEd and click New from



# Kyocera M5521 multi functional printer

**Product:** Kyocera Ecosys 5521cdn

**Price:** £219.90

**Supplier:** Printerland

www.printerland.co.uk tel 0800 840 1992

**PS3 driver for RISC OS** £35.00  
from [www.mw-software.com](http://www.mw-software.com)

Although *Drag 'N Drop* is a digital magazine there is regular need in the office to print documents, product labels, leaflets for shows, and so on.

For eight years our 'workhorse' has been a trusty OKI321 colour laser printer and in March we decided to upgrade to a Multi-Functional Device (MFD).

The main requirement was that it had to understand PostScript so that it could be used with the RISC OS PostScript 3 drivers. It was desirable that replacement toner powders and chips could be purchased (rather than toner cartridges) as part of *Drag 'N Drop's* commitment to the environment. A little bit of market research showed a popular model which would meet our needs was the Kyocera Ecosys 5521.

The unit has a footprint of 16½ × 16½ inches (41 × 41 cm) and a

height of 20 inches (50cm) and weighs approx 26 kg. The printer mechanics and document trays are housed at the bottom in a pleasing white plastic with black plastic for the control panel and scanner.



A standard kettle lead provides the power and this is supplied alongside an almost-indecipherable, multi-language 'quick start' guide with the full user guide on DVD-Rom. The M5521 connects to the Raspberry Pi with a USB type B to A lead (not supplied). Optionally you can plug an ethernet cable for

connection to a network and a telephone cable for sending faxes (yes, in the 2020s people still send faxes!) You can also print with Apple AirPrint and Android with Kyocera mobile print although as we are concerned with RISC OS we don't review those aspects here.

Room is needed on three out of four sides of the unit: the paper cassette and manual feed tray is accessed from the front, a side door provides access to the toners and a rear flap for removing paper jams.

A USB socket to the right on the front is for USB flash drives (memory sticks) for scanning and PDF files saved on the memory stick can be printed directly.

The control panel consists of no less than 52 buttons and a 2 × 1 inch LCD screen lit in light blue with black characters which we found easier on the eye than MDFs with colour screens.

Setting up the RISC OS printer driver was very simple and took less than five minutes: after plugging in the USB cable, load up !Printers, switch on the machine, wait for the pop-up and drag the PoScript3 file

# OCRonline

Nowadays there are few interactive websites that work with Netsurf and one of these is [www.newocr.com](http://www.newocr.com).

It's a free and unrestricted online optical character recognition (OCR) service which works

with RISC OS.

Drag and drop a file onto the 'Drop file here' box then click the Preview button. The site claims to handle multiple file formats. We've tried JPEGs and PDFs with PDFs of JPEG images working best.

Images can be any colour depth and multiple page PDFs can be uploaded. Select the page number from the drop down menu, then

click the OCR button.

The text appears in the box at the bottom (you may have to scroll down). Press Ctrl+A (select all) > menu > Save. Or you can use the global clipboard on RISC OS 5.28, press Ctrl+C to copy the text to the clipboard and Ctrl+V to paste the plain text into an open Edit window. ● NewOCR.com produces very accurate and quick results.

Chapter Nine  
Pictures in Motion

One highly popular application for a home computer is as a games playing machine. For many computer games, particularly the arcade type, the computer must present moving objects – invaders, missiles, spaceships – on the screen.

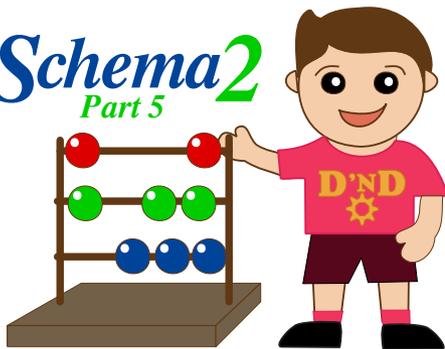
The basic principles of displaying moving objects on a computer are similar to those used in making a cartoon film. We agree that the television display presents 25 complete pictures in rapid succession every second. If we assume that an object is in a slightly different position or with its shape slightly different in each successive picture then the object will appear to move. To achieve reasonably smooth movement the change in position should be made at least once every 1/25 second. If the change in one picture is less than this the movement will appear jerky but larger changes between pictures will cause the motion to appear to be in a straight line.

In the simplest form of animation an object such as a ball or a spaceship is moved from one position to another on the screen. For more realistic results the object on the screen may change shape as it moves. An example of this would be a character walking across the screen. If the image of the man remains the same he would appear to glide across the screen rather like a ghost. To give the impression of walking or running the shape of the man must change from one picture to the next. If the man is walking, his arms and legs must be in slightly different positions in successive pictures. If the man is running, his arms and legs must be in different positions in successive pictures.

Chapter Nine  
Pictures in Motion

One highly popular application for a home computer is as a games playing machine. For many computer games, particularly the arcade type, the computer must present moving objects – invaders, missiles, spaceships – on the screen.

## Schema2 Part 5



generous provision of information, including a Schema2 Macro manual when I visited the 2018 London Show. Thank you Julian!

### Macros

At some point when working with Schema2, a user will need to do something that is beyond the standard capabilities of the software, perhaps a function to obtain a polynomial fit for a set of experimental data or draw a graph not part of the Schema2 set.

When such needs arises then a macro may be the answer, because they provide a means to extend the standard functions offered by Schema2.

The Schema2 macro language is modelled on BBC Basic, and offers all the power and flexibility in data processing that you would expect from a conventional programming language. Schema2 comes complete with a separate macro editor called MacroEdit. This provides some of the features of !Edit to permit creating new macros, as well as the editing and correcting of existing ones.

In addition MacroEdit is used to compile macros and it will highlight

any mistakes in the macro. The compiled macro can be saved in the normal manner.

### Minimum Macros

Macros are self-contained pieces of code which do a specific task and deliver a result. They can be called from within spreadsheet cells, or from the macro menu. When used from inside a cell as an expression or formula they're indistinguishable from a standard function call.

Like standard functions nearly every macro takes one or more parameters which are the input values for the computation. Each macro has its own pattern of parameters, some may be single quantities while others represent blocks of cells or arrays of data.

Mathematical macros begin to be useful when they calculate functions that cannot be written down as a simple formulae.

The absolute minimum macro requires only three lines of code and must include:

- a header line,
- at least one statement and
- a terminator line.

This example from the Schema2 macro handbook illustrates the use

**Last time we looked at the techniques used to create a spreadsheet for the dean's best student prize and finished up using Workspaces as a repository for a collection of spreadsheets.**

Since then I discovered that while saving Workspaces worked perfectly on my trusty ARMX6 and Armbook, an internal error was generated when saving Workspaces on a Titanium, Pi 3 or Pi 4B. So I contacted Christopher Bazley and he sorted out the problem, recompiled the program and uploaded the new program to his website before you could say "Schema2 backwards". Many thanks Christopher.

Before starting to look at macros, I must also acknowledge the unstinting help that I received from Julian Fry as I wrestled with Schema2 Macros and for his

**Product:** Spy Mission: The Ice Caves of Dr Atom

**Price:** £9.99

**Supplier:** AMCOG through !Store

**The latest games release from Ambiguous Contrasts is a sideways scrolling shoot-'em-up set in caves underneath the Antarctic ice sheets.**

*Ice Caves* loads up with a polar scene of a nuclear power station, this is the plant from which you are fleeing the evil Dr Atom in a stolen atomic-powered vehicle.

The screen display changes to a mission briefing and control summary. A system of icons and pointers is used to redefine the keys, see what objects you'll meet, select a cave with a passcode, or quit to the desktop.

Clicking start puts you in the first cave, *Spy Mission* is a sideways scrolling affair and you have to navigate the tunnel in your nuclear

car shooting robots, picking up boxes of ammunition (there are three weapons of varying power) all the while watching that your reactor doesn't overheat.

It's very easy to run out of lasers or let the reactor go critical and I found the controls tricky to start with but I soon got the hang of it.

danger zone to green before proceeding – it gives you a little breathing space.

At the end each the cavern is a large robot which takes multiple shots to destroy before you are allowed to proceed to the next cave in your quest to get to the surface.

The game has excellent sound

effects and several background music tracks to choose from including volume control. The graphics are large and quite well drawn.

● *Ice Caves* gives satisfaction of adventure, blasting away at robots but at the same time needing some thinking, and it's definitely worth the money.



I actually like the fact you have to come to a halt sometimes in a random nook in the cavern walls to let the reactor meter drop from the



# Optical Mouse Pen

**Product:** Wireless Optical Pen Mouse

**Price:** £9.99

**Supplier:** various

These little devices have been on the market for a while now (I bought one from eBay) and seem to have taken over from graphics tablets. I do quite a lot of graphic design so wondered if they work on RISC OS (they do to a point) and how easy they are to use, or whether they might be just a gimmick.

The box contains the pen which is approx 14cm (5½in) long with 4 buttons plus on/off switch, USB nano transmitter, instruction leaflet and a stand. A single AAA size battery goes into the compartment which has a slide-off cover at the end of the barrel.

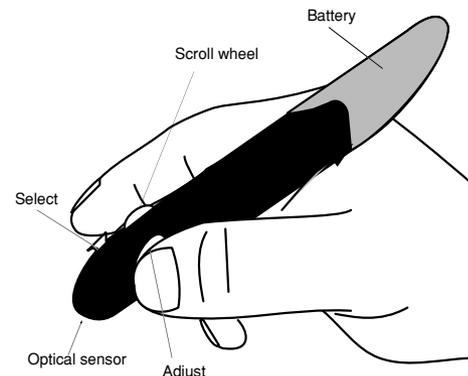
The transmitter plugs into the USB port of the Raspberry Pi and there is a very small on/off switch on the underside of the pen. From then on it's 'plug and play' with the 'nib' of the pen containing the optical

sensor so it operates like an ordinary wireless mouse.

Whichever hand the pen is held in the Select button and separate scroll wheel sits below the index finger. If held in the right hand a thumb-operated oval button acts as Adjust. If left-handed it would be the middle finger used for Adjust.

A fourth button on the top of the pen called a CPI switch in the instruction leaflet doesn't appear to do anything, on RISC OS anyway.

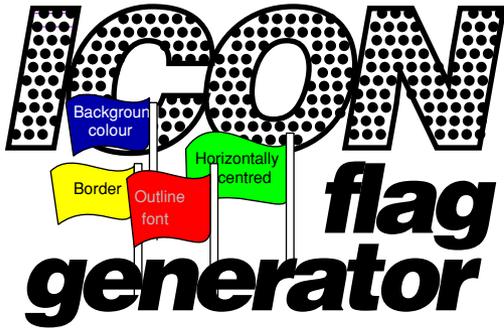
There isn't a menu button, unfortunately and neither do combinations of the other buttons act as Menu. I have my ordinary mouse plugged in too so I just use the Menu button on that.



The pen mouse is a useful addition to the digital artist's tools particularly for freehand drawing and handwriting. My graffiti on a wall (in Paint) could be better, it took a while to remember to take my finger off the Select button in time!

**Chris Dewhurst**





Icon Flags Generator is a programming aid for RISC OS software writers of desktop applications.

The bits of the 'icon flags' word determine whether an icon contains a sprite, has a border, how the text is justified and so forth.

Calculating the icon flag word can be time-consuming business but the type-in app presented here allows you to quickly set or unset the options just by pointing and clicking, calculate the icon flag value, and see how the icon itself will appear. Plus, if you are using RISC OS 5.28 or above you can copy and paste the icon flag value directly into your program.

Type in the listing and, ensuring it's fully debugged, save it. Double click to run. Click with select on the radio icons to toggle the relevant

flags on or off. Type numeric values in the four boxes at the bottom and click Calculate to see the relevant hexadecimal value and also how the icon will appear.

Note that if you select the Sprite bit, a cog wheel or Acorn (depending on which version of RISC OS you use) will be used as a demonstration sprite. If the Outline Font button is on the icon text is rendered in Trinity Medium.

If you are using RISC OS 5.28 and above you can double click the hexadecimal number to highlight it, type Ctrl+C to copy to the clipboard and Ctrl+V to paste into your program in Edit or whatever text editor you are using.

**&07004161**

To quit the application simply click on the X icon at the top left hand corner of the window.

● This program is one of many appearing in the Book of Application Stuff to be released by *Drag 'N Drop* publications later in the summer. It shows how easy it is to write multi-tasking desktop apps for RISC OS without reams of code.

### ICONFLAGS listing

```
10REM Icon Flag Generator
20REM (c) 2021 Drag N Drop
30ON ERROR PROCERR0R
40APP$="Icon Flag Generator"
50SYS "Wimp_Initialise",200,&4B53
4154,APP$
```