



DRAG'N'DROP

RISC OS **PI** • Beagle • Armini • Lyonix

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Volume 4 Issue 4

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Bumper
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SERIES

PMS, Fireworkz,
Sprites, All Sorted

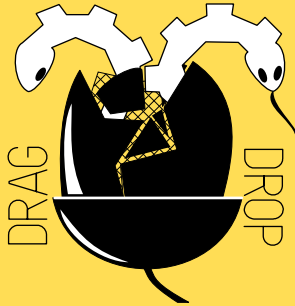
FEATURES

Anatomy of a Drawfile
Using Cineworks

8-BIT

Eastor
BBC Games retro

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This issue has been blessed with contributions from the following people:

Dave Straford (All Sorted)

Jon Robinson (Cineworks)

Matthew Thompson (BBC Games Retro)

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.

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EDITORIAL

The main theme of this issue was going to be hardware. I once managed to burn a CD on my Raspberry Pi with a portable DVD-RW drive and Stefan Hubersn's test release of !CDVDBurn for Beagleboard and Pi. But then I could not for the life of me get it working again, hence some faulty CDs I sent out which I had to replace. Stefan please keep working on !CDVDBurn!

So the front cover of this issue turned into an example of what might be "Extreme Piing". Do you think it will catch on? Have you taken your Raspberry Pi to an unusual location?!

Many of you have asked, at shows, whether it would be possible to subscribe to Drag 'N Drop. I've been hesitant up till now because (a) I wanted to see how the magazine panned out i.e. not take your money then fail to deliver and (b) it would be quite a lot of extra work for me if everyone's subs started running out at different times. But see the news pages for how to pay in advance for Volume 5. You can now pay by cheque or internet banking, or carry on buying the magazine issue-by-issue with Paypal. The choice is yours!

There's not much more to say apart from thanks to the contributors of articles to this issue and enjoy the read!

Chris.

Christopher Dewhurst

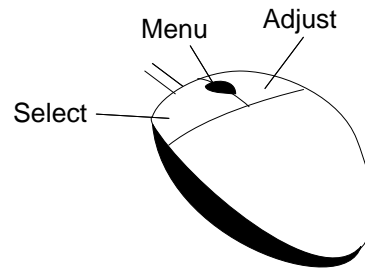
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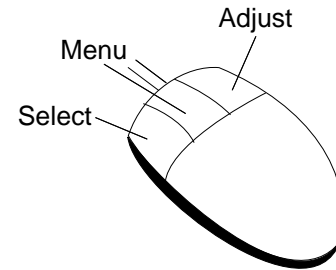
Beginner's Tips: Know your Mouse



The mouse used with RISC OS is a three-button variety. We call the buttons Select, Menu and Adjust. If your mouse has a scroll wheel then the scroll wheel doubles up as the menu button.



Scroll wheel mouse

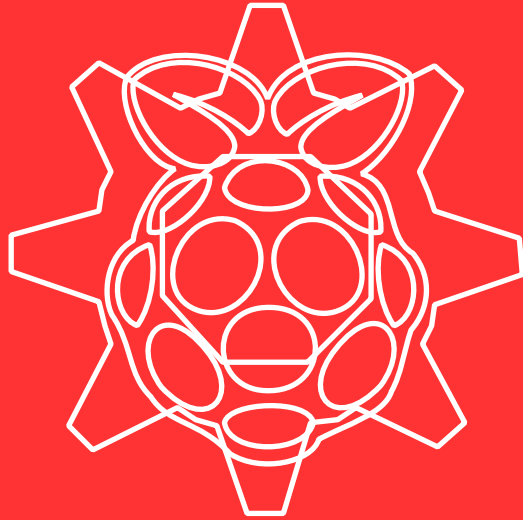


3 button mouse

When we say "select click" we mean click the left button. The "Menu" button is used to call up the menu. RISC OS applications do not need to litter the screen with icons whose function can be accessed through the menu. That means more room to work.

When we say "select click" we mean click the right hand button. If you have called up a menu (with the menu button) you will frequently find options can be turned on or off with the adjust button whilst the menu is still on the screen. That means you don't have to go back and click the menu button again. Less mouse mileage, more efficient.

Do you have a question? Don't be afraid to ask! Write to editor@dragdrop.co.uk



KEEP CALM

and use

RISC OS Pi

NEWS



You can now pay by cheque!

The usual way to pay for Drag 'N Drop is by PayPal through the dragdrop.co.uk website. We appreciate not everyone has (or wants) a Paypal account. In fact, Paypal takes with 10% (30 pence) of every issue of Drag 'N Drop sold.

We have therefore set up a bank account so you can pay by cheque or internet banking. Please use the order form on the website – there is also a copy of at the back of this issue.

Additionally, to assist people wanting to pay this way we are offering a subscription for volume 5. You pay £12.00 and we will email you the next four issues beginning with Volume 5 Issue 1 and ending with Volume 5 Issue 4.

This is for volume 5 only – it would just be too complicated if everyone's subscriptions started and ended at different times, I'm afraid!

Note you will still be able to

sample/buy the magazine on an issue-by-issue basis with Paypal.

Back Issues CD-Rom

This will be the last time the back issues CD-Rom is updated, at least for the time being. It will contain all 16 issues from Volume 1 Issue 1 to this one, Volume 4 Issue 4. The price remains at £12.00 including postage to most of the world.

We regret we can't offer "upgrades" from people who have already bought the CD but bear in mind that you are getting the magazines for 25p each – a fantastic saving of over 90% on the cover price!

Programs Archive

To save aching fingers and mouse buttons we are putting together an archive of all the "type-in" program listings. Price will be just £3.00 available through dragdrop.co.uk or via the order form. (Programs are included on the back issues CD-Rom so if you've bought the CD-Rom you don't need to buy the programs archive.)

Netsurf 3 series

Netsurf 3.0 was released at the Wakefield Show in April, marking the start of rudimentary Javascript support. The official release can be downloaded from [www.netsurf-](http://www.netsurf-browser.org)

browser.org. Test builds of the next release version 3.1 are available at <http://ci.netsurf-browser.org/builds/riscos/>. Remember you can turn javascript off if necessary by menuing over the iconbar icon, Choices > Content > Disable Javascript.

Iconv, AcornURI, SharedUnixLibr CryptRand and Tinct modules are now included in the download (inside !System.310.Modules) so there is no need to get them separately.

Beagleboard SP6

Super Pack 6 for Beagleboard and Armini owners on the Armini support scheme is available from R-Comp. It is touted to bring your machine up to scratch ready for the impending release of RISC OS 5.20. Those who buy an Armini from June 24th onwards will already have SP6 installed.

If you haven't already been making use of the download area get along to www.armini.co.uk/users. You will need your username and password given to you when you joined the support scheme. There are lots of goodies included like an Archimedes emulator, Aemulor Pro, Fireworkz, MusicCD and fonts.

SP6 weighs in at about 34 meg (compressed) so make sure you have enough room on your hard disc or SD card to accommodate it.

EASTOR

Can you crack the challenge?

As promised in the last issue we present *Eastor* for the BBC Micro and Electron.

The game listing is in two parts. Part 1 assembles the machine code and sets up the sprite and data tables. It CHAINS the second part which initialises the map and plays the game.

The listings should be saved as EASTOR1 and EASTOR2 respectively. EASTOR1 must be run with PAGE at &1A00.

Even split into halves the 8 bit machines still don't have enough memory to hold the source code and object code in Ram at the same time in Mode 1.

The solution is to choose Mode 5 to set up the sprites because it has exactly the same number of colours and pixel/byte encoding as Mode 1 but the screen Ram takes up half the size.

If you don't want to wait for the sprite data to be set up every time, remove the REM from line 60 of EASTOR2. It will then *LOAD the object code, saved by EASTOR1 as ECODE.

EASTOR1 Listing

```
10 REM Eastor 8 bit
20 REM By Czody
30 REM (c) Drag 'N Drop 2013
40 MODE 5:VDU 19,2,2;0;19,3,3;0
;
50 PRINT "Please wait."
60 DIM col% 3
70 code%=&1100
80 addr%=&3000:REM scr start mo
de 1
90 PROCassemble
100 D%=map%
101 PROCsetupsprites
120 OSCLI"SAVE ECODE "+STR$~code
%+" "+STR$~P%
130 END
140
150 DEF PROCsetupsprites
160 store%=sprites%
170 REPEAT
180 FOR x%=0 TO 3:READ x?:col%:N
EXT
190 REPEAT READ a$
200 IF a$<>" " AND a$<>"END" PROC
onesprite
210 UNTIL a$="" OR a$="END"
220 UNTIL a$="END"
230 ENDPROC
240
250 DEF PROConesprite
260 IF a$="0" a$=STRING$(20,"0")
270 FOR x%=0 TO 19
280 GCOL0,(col%+VALMID$(a$,x%+1
,1))
290 PLOT69,(x% AND3)*8,1023
```

Keys

A	Up
Z	Down
N	Left
M	Right

Variables

over%	=1 when player has run into the deadly plants, = 2 when golden egg collected.
mx%,my%	Coordinates of man
E%,F%	Contents of next and next but one cell
K%	Key pressed, matched to "AZNM" using INSTR
map%	Map byte array
scrtab%	Table of screen addresses
sprtab%	Table of sprite addresses
srctab%	Table of screen addresses

```
300 IF (x% AND3)=3 ?store%=?&580
0:store%=store%+1
310 NEXT
320 ENDPROC
330
340
350 DEF PROCassemble
```



many screens to explore and puzzles to solve.

There is no current planned release date for the game but it is complete and ready for release so it is likely to be available to buy in both download and physical formats.

In the meantime you can check out a couple of playable demos here at:

A brand new game for the BBC Micro is due for release shortly.

Mountain Panic is an arcade adventure in the style of games like Citadel, and will be released by Retro Software.



Written By Dave Footitt, the game is based on *At the Mountains of Madness*, by H.P. Lovecraft.

The game is written in Mode 2 so is bright and colourful and there are

http://www.retrossoftware.co.uk/wiki/index.php/Mountain_Panic



For more information, a sample video and more screen shots, visit the Retro Software website here

http://www.retrossoftware.co.uk/wiki/index.php/Mountain_Panic.

A full review will appear when the game has been released.

BBC Playground

Dave Edwards, master of the massive [Acorn Electron World](#) has announced a transformation project which will turn AEW into something "truly fantastic".

Also forthcoming is a new resource called [bbcmicroplayground.com](#) where he will feature review some of the really, really obscure BBC games in video format.

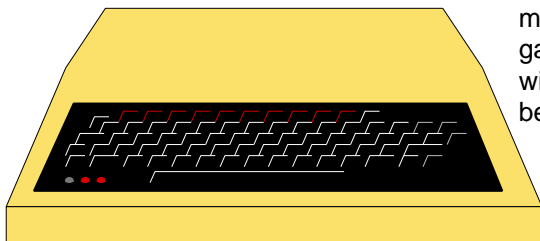
Watch this space!!



BBC Micro Books

Don't forget that Drag 'N Drop's own *huge* collection of digitally remastered BBC Micro books is still available. See the separate advert in this issue for details and order through www.dragdrop.co.uk for just £12 including P&P to just about anywhere on the globe !

BBC MICRO



volumes were for the Electron only, where as others where BBC/Electron releases. It also meant you could get these games on tape commercially without having to type them in beforehand.

There were 10 volumes which contained the following:

Games Retrospective

Part 3

Following on from my previous *BBC Game Retrospectives* I thought I would take a look at the compilations which I bought over the years, showing what was released and what was on them. This is not a definitive list of compilations but a lookback at the ones I had or remeber.

Alternative Software

Budget software house Alternative Software produced a series of compilations called *Triple Deckers*. They were unsurprisingly a collection of three games released at a budget price of £1.99.

The quality of games varied as many of the titles included on these compilations were from the pages of *Electron User*, so some

Volume 1 – *Grand Prix, Day at the Races, Manic Mole.*

Volume 2 – *Invasion Force, Haunted, Parachute.*

Volume 3 – *Lunar Invasion, Jam Butty, Lander*

Volume 4 – *Howzat!, Fishing, Golf*

Volume 5 – *Star Fight, Skramble, Karate Warrior*

Volume 6 – *Cavern Capers, Snap Dragon, Castle Of Sand*

Volume 7 – *Atom Smash, Knockout, Reaction Tester*

Volume 8 – *Grebit, Mr Freeze, Fruit Worm*

Volume 9 – *Break Free, Missile Jammer, Code Breaker*

Volume 10- *Rockfall, Money Maze, Bunny Blitz*

There was also a sport compilation called *Sport Spectacular* which brings together 10 great sporting-themed games. To be honest none of them were that great, but they were all on disc for a change. The disc included

Soccer Boss, Microball and *Indoor Soccer*, plus two *Triple Decker* titles which all contain sport games.

Audiogenic

A few compilations were released by Audiogenic, one was late in the day of the BBC and I had jumped ship to RISC OS by then, but the short lived series of *Fab Four* (wonder where they got that title from?) had just the one volume, however the quality of this one volume is one of a high standard, you get *Thunderstruck 2, Omega Orb, Psycastria* and *Sphere Of Destiny*. Not a bad line up if you like taxing platformers, insanely fast shooting games and bouncy spheres.



BBC Bonanza was one title I did own. Audiogenic describe it as "7 Astounding games for the BBC" but I wouldn't go that far! Whilst *Contraption, Psycastria, Thunderstruck* and *Last Of The Free* are all high quality releases, the others are not that amazing. *Ultron* was an OK shoot-em-up, I can't even

Not scans.

Over the past few years we've been busy putting together this astonishing collection of 55 BBC Micro and Electron programming books. Unlike any other collections on the 'net these aren't just scans packaged up in PDF format but very high quality digitally remastered and debugged editions – and you can run a lot of the Basic programs on modern machines like the Raspberry Pi!

The CD ROM contains all books in RISC OS Impression/Easiwriter format (complete with fonts, Drawfiles etc.), two types PDF (fonts 'mapped' to the standard Postscript set and 'Type 1') plus HTML (all platforms) together with program directory (RISC OS) and disc images for use on emulators (all platforms).

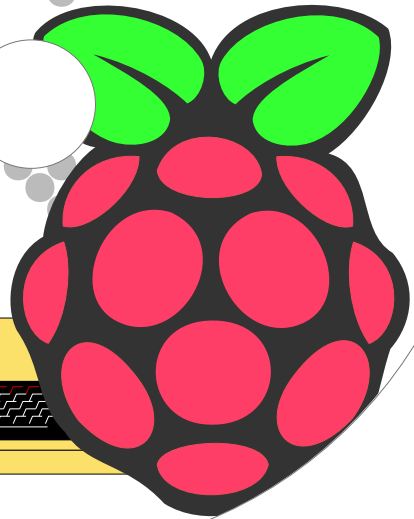
For the full list of books see below...don't miss out on this amazing compilation!

£12

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or use order form

55

**BBC Micro
Books**



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 • 60 Programs for the BBC Micro • Advanced Basic Rom User Guide • Advanced Graphics on the BBC Model B • 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 • The Basic ROM User Guide • Best of PCW Software • Brainteasers for the BBC and Electron • 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 • Essential Maths on the BBC and Electron • BBC Micro Expert Guide • Games and Other Programs for the Electron • Games BBC Computers Play • The Electron Gamesmaster • Giant Book of Arcade Games • Graphic Art on the BBC and Electron • BBC Micro Graphics and Sound • Graphics on the BBC Microcomputer • Graphics Programming on the BBC • Graphito • Graphs and Charts on the BBC Micro B • Handbook of Procedures & Functions • How to Write Adventure Games on the BBC and Electron • Instant Arcade Games • Invaluable Utilities for the Electron • The BBC Micro Machine Code Portfolio • Making Music on the BBC Micro • Mastering Assembly Code • 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 • BBC Micro Programs in Basic • Quality Programs for the BBC • The Second Book of Listings • The Super-User's BBC Micro Book • The BBC Micro Book • The BBC Micro Revealed • Acorn Electron User Guide • Virgin Games for your BBC • Writing Educational Programs on the BBC and Electron •

Music writing with

PMS

Part 3

In the last part we began typesetting piano (two-stave) music. We'll kick off this time looking at chords.

Chords are notated by enclosing the note names in brackets. For example, here is a simple block-chord passage.

```
(EGB) (#FA#C') (GBD') (A#C'E')
```



Any number of notes can be enclosed in the brackets and so any chord can be displayed. Even though all the notes of the chord are of the same duration, the duration must be specified for each note of the chord. You cannot have one note as a quaver and the rest as crotchets – PMS will just complain – unless you construct the stave in voices, which we'll come onto later.

the duration must be specified for each note of the chord

The order in which you specify the notes in a chord doesn't matter – (EGB) or (GEB) or (BGE) all produce an E minor minim triad – but it's best to decide on either bottom up or top down and stick with the same method for consistency.

Listing 1 and Figure 1 shows the first eight bars of a Carl Czerny study. Czerny was a 19th century Austrian pianist, composer and teacher whose work deserves to be more popular than it is. His keyboard exercises may be short but they really rock!

If you've been paying attention you will understand most of the PMS nomenclature but there are a few new ones.

```
@Progressive Study No.1  
@Carl Czerny Op.100
```

```
heading "|100 Progressive Studies  
No.1"  
heading "||C.Czerny Op.139-1"  
  
bracket  
brace 1-2  
notespacing *0.75
```

```
[stave 1 treble 1 time C]  
(: [slur] E' F' |  
G' (C'E') [endslur] |  
(bd') [slur] (bd') (c'e') (d'f')  
[endslur] |  
[slur] (D'F') (C'E') [endslur] |  
[slur] E' F' |  
G' (C'E') [endslur] |  
[slur] (bd') (c'e') (d'f') (bd')  
[endslur] |  
[slur] c' e' d' [endslur] r :)|  
  
[endstave]
```

```
[stave 2 treble 1 time C]  
[slur/b] (: c g d g |  
e g c g [endslur] |  
g` g g g |  
b` g c g |  
[slur/b] c g d g |  
e g c g [endslur] |  
g` g g f |  
[slur/b] (ce) g (ce) [endslur] r  
:)|  
  
[endstave]
```

To give your piece a title use the '**heading**' directive. The vertical bars separate the left, centre and right elements. Usually you would have one line giving the title of the piece and the line below in smaller typeface, right justified the composer. You can optionally control the size of the typeface and the spacing. For example if you wanted the piece's title to be larger:

```
heading 18 "||100 Progressive  
Studies No.1"
```

The 18 between heading and the 100 Progressive Pieces is the type size. If you wanted to leave more room below the text (for instance, the C.Czerny looks a bit too close to the stave particularly if there were high notes):

```
heading 10 "||C.Czerny Op.139-1"  
24
```

would print the composer's name in 10 point text leaving a 24 point gap

In this instalment of the series we'll be learning how to use tables in Fireworkz's letter mode.

using fireworkz part 2

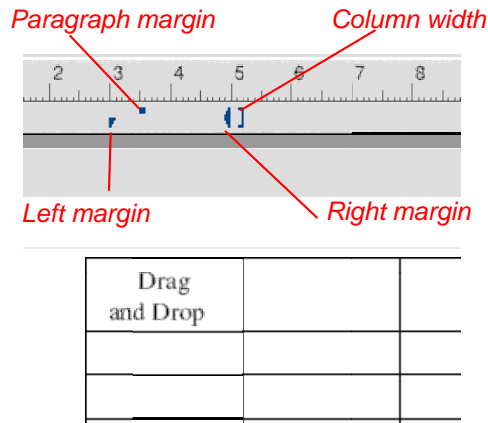
First of all open a new document by select clicking on the iconbar icon, ensuring "letter" is highlighted, and select click the OK button.

The button to create a table is shown in figure 1 (find it one from the right, in the same row of icons where you found the style and effect icons last time).



Figure 1

The insert table dialogue box comes up, prompting you for the initial number of rows and columns in the table. (You can add or delete rows and columns later if needed.) Make the number of columns 3 and the number of rows 10 and click OK. A blank grid will appear.



Click in any of the cells and see what happens in the ruler bar. Various blue shapes or **markers** appear. Now type something.

Try clicking and dragging the marker which looks like a semicolon. If you clicked the top of the semicolon (on the dot

shape) then the **paragraph margin** moves. If you clicked on the bottom of the semicolon (on the comma) the whole **left margin** moves including the paragraph margin.

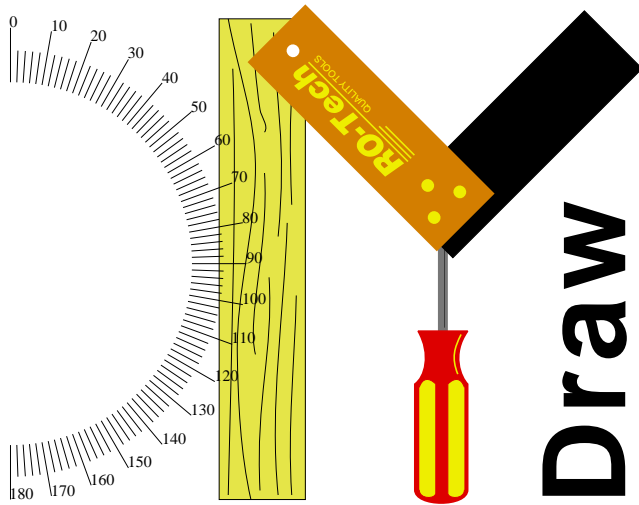
The triangular marker controls the right margin and the square bracket is the column width.

Experiment by dragging the paragraph margin, left margin, right margin and column width markers. If you double click with the select button on the

column marker Fireworkz will widen the column to accommodate the longest line of text it can on one row.

Notice you can click in the empty space to the left of the table and drag the markers, for example clicking and dragging the column width marker moves the whole table to the left or right.

Now, populate the table with the sizes of metric paper from the table in figure 2. Don't worry about the colours yet, just type in the data.



This is an occasional series where we look at how Draw, a high quality app which comes free with every copy of RISC OS, can help you with your DIY projects.

Here we look at making polygonal frames out stripwood which are filled with cement and left to dry to make concrete paving slabs. They can be rectangular or more exotic e.g. hexagons.

Stripwood is usually sold in lengths of 180cm (6 feet) or 240cm (8 feet). I want to make a square frame (four sides) from the 180cm length with no wastage. $180 \div 4 = 45$ cm so we can get four lengths of 45cm from that 180cm length of wood.

Step 1. In Draw turn on the grid and grid lock by clicking Menu and adjust clicking on Show. Remember,

adjust clicking on a menu option leaves the menu on the screen – one of the reasons why RISC OS is easy and an efficient OS. So you can now put the grid lock on by selecting the next option on the menu, Lock. Select it with the left (select) button so the menu disappears as you won't need it again.

The default grid lock is 1cm with 2 divisions, i.e. each spot on the screen is half a centimetre (0.5cm or 5mm) apart.

We are going to make a scale drawing of one of the 45cm lengths.

Remember, adjust clicking on a menu option leaves the menu on the screen – one of the reasons why RISC OS is easy

Step 2. Start with the rectangle tool. Make it 1cm high - it doesn't matter

what width but 0.5cm will do. Now click Menu > Y Scale. We could enter 45 and scale the 1cm rectangle by 45 to make it 45cm but that would be far too big for the page. Instead we choose something sensible like 11.25 which is 45 divided by four so giving us a scale drawing of 1:4. See figure 1.

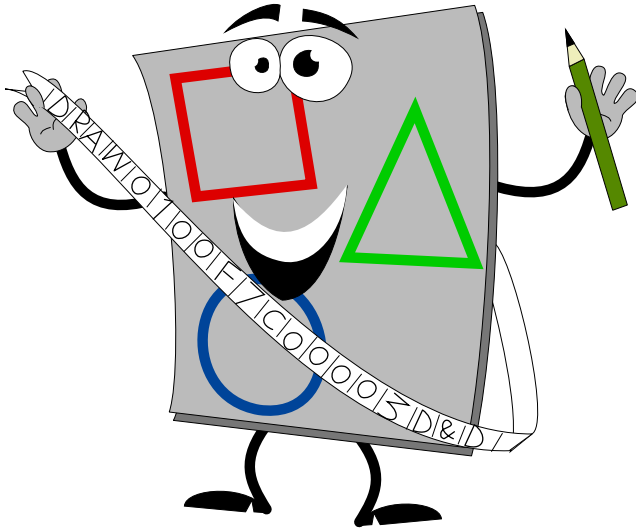
Step 3. We need to think about how we cut the wood so that four lengths will make a square frame. A square has right angles (90 degrees) and to join two strips of wood the end of each has to be cut at $90 \div 2 = 45$ degrees. This is called a mitre joint. Figure 2 shows some mitre joints.

Step 4. Draw a vertical line - it doesn't matter how long it is but it must be vertical and make it a dashed line by Menu > Line pattern. Having the grid lock on helps. Select the line by select clicking on it. If you find it difficult (the line is very thin) then drag a box around the line to select it.

Step 5. Rotate the line by 45 degrees anticlockwise. This is done using Menu > Transform > Rotate > 45. We are going to position the rotated line at the top of the rectangle. Select both the line and the rectangle and then Menu > Select > Group.

Step 6. Now we are going to use the justification options to align the shapes at their tops. Do this by

Anatomy of a Drawfile



In this article we explore the Draw file format which will help you if you need to write applications that output diagrams or graphics in Draw format.

The first word of all Drawfiles spells out "Draw" in Ascii characters. In computing, when talk about a "word" we mean a collection of bits of a certain length, a bit like a word in English is a collection of letters of any length. A byte is a word of 8 bits. A convention has been established, however, in RISC OS where "word" means a group of four bytes (32 bits).

In hexadecimal the Ascii characters for "Draw" are &44, &72,

&61 and &77 in hex. So every Drawfile begins with these four numbers as shown in Figure 1. It's a memory dump of a simple Drawfile, a straight line measuring one inch long.

Words one and two concern which version of Draw which created the file. They aren't the same as the numbers which appear on the "About this program" window. They are currently fixed at 201 and zero and we don't need to bother ourselves with this so we will ignore them.

Words three to five contain the name of the program which created the Draw file. This could be Draw itself or the name of the application which output the file, which is up to twelve characters in length padded with zeroes.

Now, a Drawfile consists of a number of "objects". When we talk about an "object" we mean a group of words (themselves groups of four bytes, remember) which give, for example, the coordinates which make up a square. This is a very simplified

example. In actual fact there is a shedload of data which stipulates the object's line width, fill colour and so on. We'll come to that in a minute.

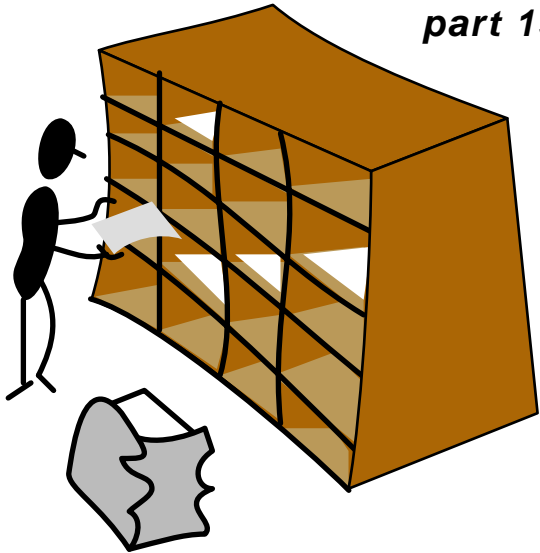
A Drawfile consists of a number of 'objects'

Words six to nine describe what is called the "bounding box" – the coordinates of the bottom left and top right of the entire drawing. If you are familiar with BBC Basic's graphics windows then it's the same concept: left edge, bottom edge, right edge and top edge in that order.

Draw's coordinates are derived from BBC Basic's 1280 by 1024 coordinate system, sometimes referred to as "OS Units". There are 256 Draw units per OS Unit. In theory if you had a drawing which completely covered the desktop it would be 1280 x 256 by 1024 x 256, or 327,680 by 262,144 Draw Units big. Roughly speaking, an A4 page in Draw at 1:1 magnification covers the desktop. In the real world an A4 sheet measures 297 by 210mm so that gives an accuracy of more than 1/1000th of a millimetre – far greater than is needed for everyday purposes. The only limit to the coordinates is what can be held by one word of memory.

ALL SORTED

part 13



As I explained in the previous part of this series, the Timsort is an adaptive merge sort designed by Tim Peters for use in the Python programming language.

Tim called his new sort Timsort, simply because he could, and this is what I've been working towards in the last three articles. Unfortunately BBC Basic is not ideally suited to a Timsort, but we can get part way there.

Let's just start by quickly recapping what we looked at in parts 10 to 12.

In part 10 we saw that reversing a string of data is actually very easy, yet some sort processes are

incredibly inefficient at it, and in part twelve we saw that we could find chunks of contiguous data in our input, and reverse it easily if it is necessary.

In part 10 we also saw that we could improve on the insertion sort when we know that the initial chunk of data is already sorted. This too we went on and looked at in part twelve, combining it with the reversing to enable us to get reasonable sized chunks of data to work with.

In part 11 we saw how we could improve on the merge process of the merge sort, so that we actually sorted less data, and at the same time we saw that by looking at the relative sizes of the two chunks to merge, we could improve our merge process even further. We looked at this again in part 12 and, combining it with the improvements from part 10, we have started to get towards our ultimate goal of a Timsort.

All the data coming out of the reversing process and modified Insertion sort processes went into our modified Merge processes. It now is

(almost) the adaptive merge sort that Time Peters envisaged.

However, we haven't got there yet. This part produces a final, simplified, Timsort. I'll explain what I mean by 'Simplified' at the end of the article.

In the last three parts I suggested something, then came up with code to implement it. In this part, I'm going to show you the code up front, and then explain it.

So, to start with, the main Timsort code:

```
REM *=====*
DEF PROC_Simplified_Tim_
Sort(Size%)
REM *=====*
REM If there are less than 65
entries to be sorted, just use
a (modified) Insertion sort.
REM If there are more than 64
REM entries
REM 1 Calculate the ideal minimum
merge size
REM 2 Repeat until all the data
has been scanned:
REM 3 Scan through the data
finding sequences of
Strictly descending or
Ascending data
REM 4 For Strictly descending
sequences only, reverse in
place
REM 5 Ensure sequence is at least
minimum merge size, and if
not expand by insertion
sorting to the minimum merge
size
REM 6 Push each sequence onto the
stack
```

Over the last few issues of *Drag 'N Drop* we've been looking at sprites with arcade games in mind.

These aren't the system sprites offered by RISC OS but our own routines which directly access the screen Ram. There are no sprite facilities on the 8-bit machines so we are forced to use direct memory access. This is much quicker anyway.

Whether you own a Raspberry Pi or Electron, the principles are exactly the same for all machines with variations on where in memory the screen Ram starts, number of pixels per byte and pixels across the screen (the size of the screen Ram).

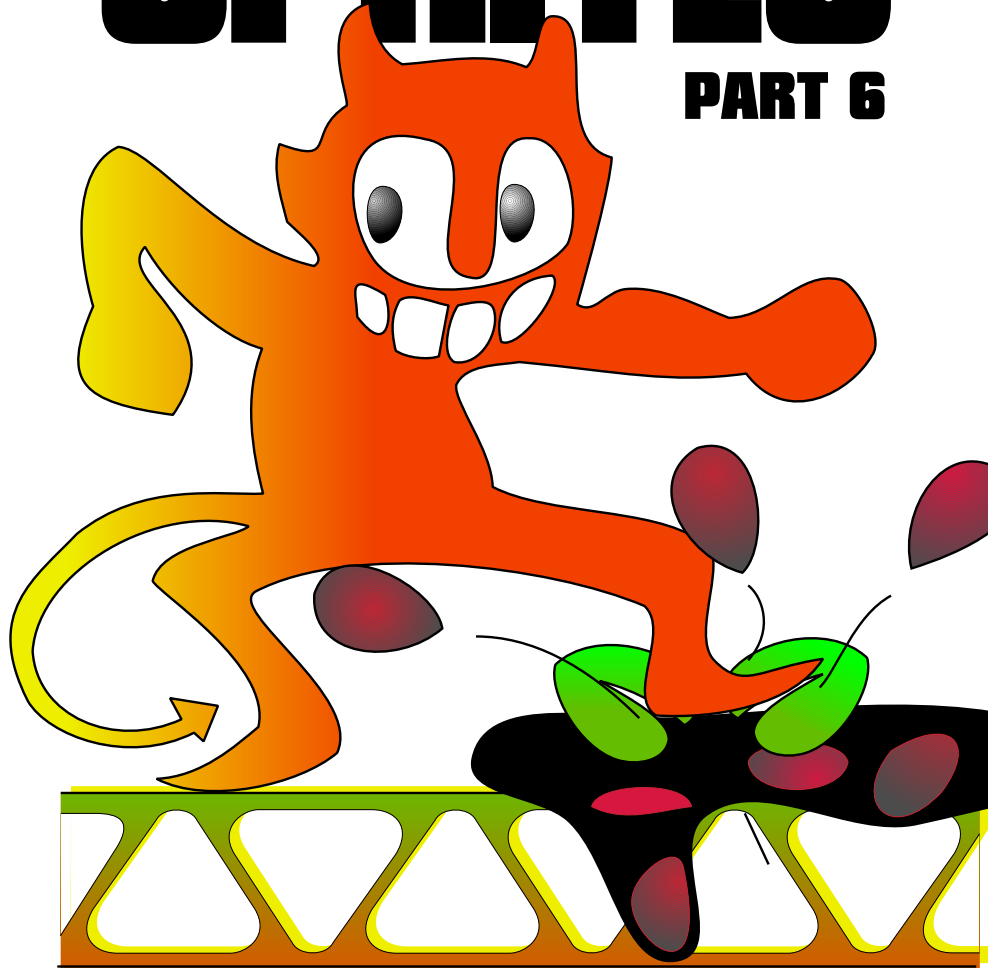
Incidentally if you are having trouble displaying Mode 13 on the Raspberry Pi try adjusting your monitor setting to "Auto" and not "Generic".

In Part 5 we looked at scrolling games like Repton, where you have a plan view of a maze. This time we'll investigate ladders and platform (L&P) games where you have a side on view.

In an L&P game, the platforms tend to be a long horizontal characters such as girders and long vertical objects (like ladders). We could use the techniques in Part 5 to store what's in every cell of the screen. But in an L&P game more of the screen tends to be unfilled than in a maze game it's better to store the data as follows:

SPRITES

PART 6



Simple Video Editing using CineWorks on RISC OS

When it was released in the late 1990s [CineWorks](#) was one of a trio of programs developed by the programmer, Henrik Pederson, for Oregon Developments.

It was meant to be the RISC OS equivalent of Adobe Premiere on the Mac and PC. But unlike the other two audio programs, ProSound and StudioSound, CineWorks never really took off.

The reason was that sound samples that you could play about with on ProSound and StudioSound were readily available on cheap PC CDs. But the Replay movies, required by CineWorks, were not. If you wanted to use your own video clips in CineWorks, the only way to obtain them was to use one of the RiscPC podule video digitisers.

Because of the slow speed of the RiscPC motherboard, the picture quality that could be offered by these digitisers was pretty poor. And the cost of even fairly poor-quality Replay footage was quite high.

So, if you were serious about digital video, you were going to buy a faster Windows PC with a better digitiser. And at £500 a pop the price tag for a RiscPC digitiser, was

probably too high for the casual RISC OS hobbyist. Consequently, CineWorks never really got off the ground.

Since then, because of the excellent MPEG player developed by André Timmermans, MPEG has increasingly become the video format of choice on RISC OS, and Replay has, more or less, been forgotten about.

I was hoping that a better video digitiser would appear for the Lyonix, and that CineWorks would be upgraded to work with it, to kick start video editing on RISC OS again. But that never happened.

Consequently we have no easy way of editing and combining high-quality video clips on RISC OS, at the moment. And we certainly don't have a non-linear editing system like Adobe Premier, which can work with anything better than the low-quality Replay clips produced by the original RISC OS digitisers.

However, CineWorks is not completely dead. Recently work has re-started to increase the number of video formats that Cineworks can load. And once you have got it looking the way you want it to in

Editor's notes

Cineworks hasn't been "32 bitted" although we haven't tried it under the new Pi version of Aemulor. It does work on the Lyonix under Aemulor however.

Cineworks can be downloaded from hpb.iconbar.com. You need to do a bit preparation to get it running.

Set the filetype of Cine to Archive. Copy !CineWorks and !ARWork out of the Cine archive to a new directory (e.g. Cineworks). Make a copy the !ARWork application directory and call the copy !ARMovie. Change the following line inside !ARMovie.!Run

```
Set ARWork$Dir <Obey$Dir>.Work
```

to

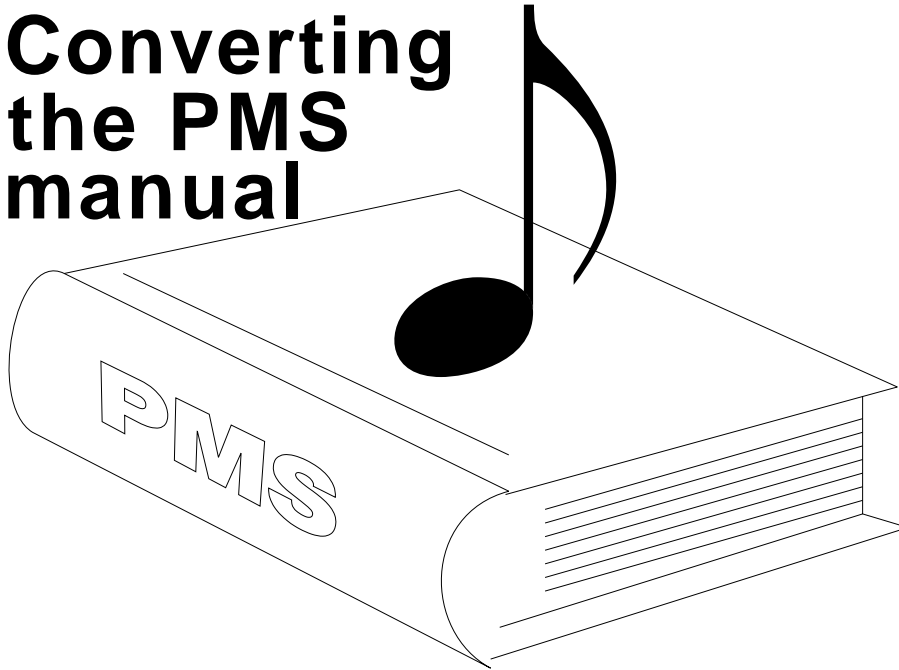
```
Set ARMovie$Dir <Obey$Dir>
```

Drag and drop !CineWorks onto Aemulor.

We hope this article generates enough interest for a proper Raspberry Pi version of Cineworks.

The manual can be found at <http://freedom.is/cineworks/>

Converting the PMS manual



The Philips Music Scribe manual (PMW/pdf) does not display properly on RISC OS with current PDF viewers.

The text renders correctly but the music font is embedded in a particular format known as PostScript Type 1 which the main PDF reader on RISC OS, that is !PDF, currently cannot handle. Musical illustrations show up as blanks.

Within the the PMS.Fonts. Postscript directory is a Postscript file called PMS-Music. It contains the definitions of the music font in geometric format: lines, arcs, fill data and so on needed to construct

the musical characters.

The idea is to substitute the Type 1 data with the geometric data. This enables the musical illustrations to be rendered properly. In this article we describe the steps needed to achieve this.

There is an unresolved issue – a very minor one affecting duplicate printing of small sections of staves.

The tools required are:

- !PDF, or application which can export a PDF file in PostScript
- !PrintPDF and associated Ghostscript, or application which

- can produce a PDF file from Postscript
- !Edit, or any text editor (e.g. StrongEd)

Firstly you need to decompile the PDF manual into PostScript. In !PDF choose Menu > Save > Postscript. Save the file as PMW/ps in a suitable location. Note that it will be quite large (over 2 megabytes) and may take time to save on slower machines.

Make a copy of the PMS-Music Postscript file. On the filer display click on PMS-Music with the menu button and choose File 'PMS-Alpha' > Copy > PMS-Alpha2.

Open PMS-Music2 in a text editor (shift + double-select-click). Delete everything up to but NOT including the line

```
100 dict begin
```

Press the End key on your keyboard to jump to the end of the text file. Now type the following lines:

```
/musicfont6 /PMS-Music findfont 6  
scalefont def  
/musicfont8 /PMS-Music findfont 8  
scalefont def
```

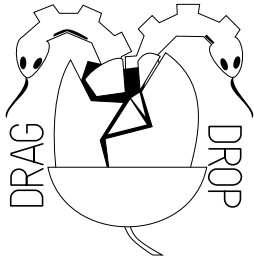
These two PostScript subroutines prepare the music font for rendering at point size 6 and 8 respectively.

Save your modified PMS-Music2 file.

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CJE Micros www.cjemicros.co.uk

Datawave www.datawave.nl

David Pilling Software
www.davidpilling.net/riscos.html

Electronic Font Foundry thefonts.com

MW Software www.mw-software.com

Orpheus Internet
www.orpheusinternet.co.uk

Organizer www.organizerpim.co.uk

PiLearn www.pilearn.com

R Comp www.rcomp.co.uk

RISC OS Code www.riscoscode.com

RISC OS Open Ltd
www.riscosopen.org

Webwonder/ProCad
www.zynet.co.uk/dsnell/Welcome.html

User Groups

HHRUG (Hemel Hempstead RISC OS user Group)
Area: Hemel Hempstead
Meets every 3rd Wednesday of the month
£3.50 per evening (£3.00 if paid 3 months in advance)
www.hhrug.org/

ICENI
Area: Ipswich
Meets every 1st Wednesday of the month
Visitors free for the first time
www.icenicomputerclub.org.uk

LAUG (Liverpool Acorn User Group)
Area: Liverpool
Meets every second Tuesday of the month
Free entry
www.orpheusweb.co.uk/bob.williams/laug/index.htm

ROUGOL (RISC OS User Group of London)
Area: London
Meets every third Monday of the month
Free entry
<http://rougol.jellybaby.net>

RONWUG (RISC OS North West User Group)
Area: North West
Meets 3rd Weds every month
Free admission
www.ronwug.org

SASAUG (Surrey and Sussex Acorn Users Group)
Area: Surrey and Sussex
Meets every second Monday of the month
£1.50 per meeting for members
www.sasaug.org.uk

WROCC (Wakefield RISCOS Computer Club)
Area: Wakefield
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CD'12



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