

FROBNICÉTE

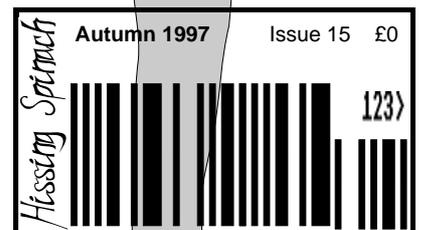
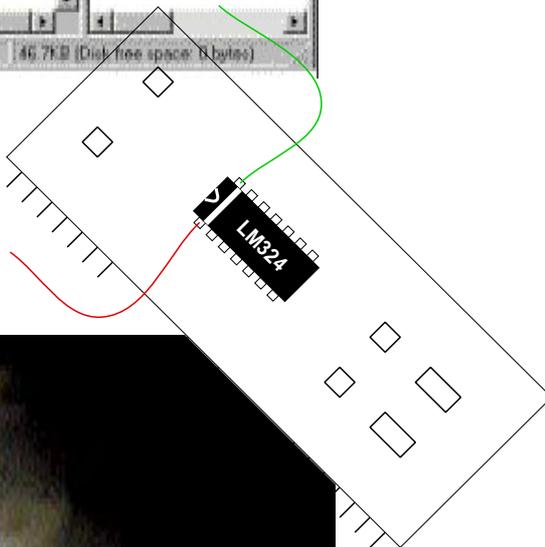
LE MAGAZINE POUR UTILISEUR DE ORDINATEUR

«ACORN»



- ASSEMBLER
- HACKING
- FRANCE
- DIY AUDIO

and, of course,
DIGIWIDGET!



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Credits:

Editor Richard Murray [froblicate@argonet.co.uk]
Contributors . . Richard Murray, the Happy Hacker, Glenn Richards.
Style Guide © 1993 Acorn Computers Ltd
Graphics Richard Murray.
Stars and Lunar object provided courtesy of the Big Bang (or your friendly omnipotent being).
HiFi upgrade diagrams by Glenn Richards.
DigiWidget (front cover) by Richard Murray.

Written ~~entirely~~ on location in Ille-et-Vilaine, France.
mostly

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Comments? Submissions? Questions?

froblicate@argonet.co.uk

Or visit our web site (as seen in Acorn User)...
<http://www.argonet.co.uk/users/rmurray/froblicate/>

EDITORS PAGE

Well, this issue was *almost* written entirely on location in France.

Then I returned to England, to find Glenn Richards had written an article and I was selected to beta-test the new Acorn WWW browser and, ah well...

So, what have you got to look forward to? Well, the demented hacker meets a girl and gets a bit warm about certain subjects – that's what happens when you look at the same network drive for too long! Whatever the hacker says, don't take it too seriously or you might be offended. He welcomes suggestions of other daft ideas/people/things to <ahem> insult...

Then our assembler programming section gets on with our compressed screen loader. The code is pretty similar to the saver, as you'll see.

Next up, an article that is sure to be popular. Software hacking. The sort of the Frobnicate was born for.

Then a look at what happened in that country across the Channel – life without a modem.

Following that, a confession. A confession linked to common sense and reality (for a change!) and a little bit about how *you* can explore that reality.

The old debate is next. The Frobnicate email address has been a bit quiet recently, so time to stir things up a bit. Three comments that, on a newsgroup, usually get things going. Note – I've not mentioned the editor wars. Maybe I'll do that next time!

Qu'est-ce que c'est, ça? slags of PCs. Nothing new there! And on that same page we hold a tribute to one of the most impressive coders RiscOS has ever had the pleasure of running code from...

DigiWidget moves from a cartoon strip to a story,

and all is not happy in Angela's life, it seems. The cartoon strips may be back, but it isn't as easy as you may think to draw stuff in !Edit. The fact that I'm crap at drawing people is immaterial... :-)
Actually, I think I've got her body looking quite nice <hmmm!> it's just the head that is causing me grief.

After DigiWidget comes Glenn's article on how *you* can get decent sound from your computer. Lots of nice soldering and guarantee voiding. The **other** thing Frobnicate was born for. Hehehe...

Don't take too long recovering from that though, as a look at the power of the media follows shortly. Again, it does not claim to offer solutions (if I could do that, I'd be doing that and making lots of money), however it does give you something to think about. We should all exercise the grey matter once in a while. :-)

Retournez – clan CD-ROMs and the new browser...
...which overflows onto the next page. Sorry, no screenshots as things are moving too quickly. One day I faked a screenshot and the next day it was up an running. Wheeee!

Don't forget – pop by the Frobnicate WWW site every so often. Things change, and when those things change you'll know about it from the WWW site.

Happy reading!

Richard Murray (editor)

Email: frobnicate@argonet.co.uk
WWW: <http://www.argonet.co.uk/users/rmurray/frobnicate/>

Diary of a ~~demented~~^{NOT SO} hacker

Where'd everybody get the idea that I was demented?!?

I should sue.

I really should. There's gotta be something about it in law. Human rights, maybe. The right to hack without being labelled "demented" or "geek" or "nerd". And if there isn't, it won't take terrifically long to go on-line and add something. Tidy up a few unnecessary laws, such as "theft of electricity" when you phone phreak, that kind of rubbish. Oh, and totally make it illegal to have more than four administrators per task *whatever* that task may be.

For all you up and coming hackettes, you might like to know that my scribblings are now available on the big (and some might say bad) Internet. You know, the place where female genitalia present themselves to you before you've even switched on the modem. These media people must have a whole bunch of URLs I never found.... Anyhow, point your browser (preferably ArcWeb or the Acorn browser, Fresco at a push, never MSIE) to:

<http://www.argonet.co.uk/users/rmurray/hacker/>
and (cliché alert!) "enjoy!".

Sorry it took so long. Was busy with other activities. As you know, I saw this doctor guy in the newsagent and *appropriated* some hardware off of his SWITCH card. Well, he must have some bizarre connections because astonishingly I saw him on the security camera the other day. He had a copy of one of my invoices and he was looking up the address. So I hacked the bank (easier than you might think!) to send me a SWITCH card with a number almost identical to his, only two digits transposed. We met, sat down, I apologised profusely and he bought it!

Turns out there is some freaky lab down the road. Our doctor has like a billion degrees in subjects I didn't know existed, and he makes LASER guidance systems. His claim to fame is a smart missile used extensively in the Gulf War. I wrangled for a job there – sounds like fun – but the military have a very thorough vetting procedure. Not to mention the fact that I'm clueless when it comes to stuff like that hardware. They don't even program in the usual computer languages!

There are probably only four places I would not hack. The Pentagon, the NSA, MI5 and the British military. All four of them are so paranoid they'd know you were there before you knew you were there. Like that guy a

while back that hacked the Pentagon with a BBC micro or something ridiculously low-tech. He wasn't a hacker – he got caught. The whole point is to *not* get caught.

So, life continues. I am doing well at college. This is an honest "doing well", not a computer modified one! The Principal and Sopowitz still look at me as if I'm the spawn of Satan, but Albert Sanawuse is acting like he's my personal slave. After walking on the harddiscs for two weeks solid, I now know all the juice and hidden stuff and, frankly, it has started to get boring. There's only so many times you can read the iternal emails between the Principal and the cookery teacher (good bribe, I'll bet his wife doesn't know!) and some really explicit emails between one female secretary and another female secretary. Might get out my binoculars and see what a female-female friendship means when it "goes all the way". For the benefit of younger readers, I'll keep the remainder of my sick little comments to myself... Cucumbers! Oh, sorry.....

Talking of females, I have found my own. She doesn't know it yet, though. A trawl in her user directory reveals no relationships. She is small, about five four at a guess with fuzzy hair that seems like a blonde redhead that can't quite decide which to go with. She has that *studenty* look and is currently being taught the horrors of PASCAL. I've hooked my video recorder into the college security video cameras (courtesy of the framestore and the college ISDN link) and spend time drooling over her. She isn't what you would call "well proportioned", but I never did figure the idea of judging a girl by the breasts, butt and legs. Seems to me everybody is looking at the wrong end. As for beauty – it's an odd thing. She does not fit the profile of *traditional* beautiful, but the me she rocks. She is eighteen, never had a boyfriend as far as I could tell and she lives alone in a little apartment on the west side of town. Bought outright, no mortgage. Always pays her bills on time and she regularly receives cheques from the local council. I think she works part-time in the library...

It was a cold night. I was standing in the rain somewhere in the west side of town. The place where the street lights are far apart, creating little blips of orange light in a void of darkness. Few cars came this way since the bypass was finished. As the road was running with water from the blocked drain, it was just as well. I found a little shelter in the overhang of a small oak. You might be wondering why I'm hanging around

getting wet when I could easily hook up an SSTV camera and watch from home. Well, I'm not sure exactly where my future wife (hehehe) lives and if you want to do something right, you should do it yourself.

I switched to the other side of the oak and lay low. My binoculars picked her up a way away. Do I watch or do I approach? If I approach, what do I say?

I took Sarah's plastic bag and carried it for her. She too was soaked, wearing her library uniform. The bag was heavy, full of books. I rattled off some really lame excuse about being out birdwatching and caught by the storm. She bought that and no hacking was needed.

She sat on the end of her bed sipping a mug of tea. I sipped mine and looked around. Her apartment consisted of a bedroom which was wall to wall with books. A little kitchen area and a living room. Her bed, her life, was contained in this living room. The apartment below was for sale, and the one above was used by some rich guy on his holidays into the country (whatever nutter would call this place the "country"?). Other than that, she lived here alone. Her back window overlooked a field and then the river. Her front window overlooked the road and more fields, with a school beyond. It was quiet and dark around this place.

Two hours later I found out she likes me, but her parents had recently died in a car accident and she wasn't sure if having a relationship was a good idea at this time. I told her I was a freelance programmer and to call on me if she had any queries. She kicked off her wet shoes and said she was going to bed, she was tired. I wasn't sure if I was supposed to stay or go. So I went. Better leave when expected than hang around too long. She didn't seem like the type to hop into bed on the zeroth date. Neither did I.

And that was the end of Sarah, as far as I could tell. She acknowledged me in the hound halls and sometimes sent me email, but nothing more. I didn't push it. Sometimes a fantasy is better when it remains a fantasy. Meeting her that stormy night did nothing to change my ideas, but who knows. Maybe she had wanted me to stay? And that wouldn't have been right. What with the death of her parents, the timing was all wrong.

The college upgraded to Windows 95 and that offer a whole lot more potential for hackings. I reconfigured the

computers to use the old file manager and program manager, then installed MSIE version 4 beta release to confuse the hell out of everybody. A little faux Java and every so often political slogans would pop up. It was a case of hating everybody equally, with the possible exception of the party I disliked the least.

What is it about hackers that gets such a bad reputation? It seems totally legal for people to charge over the odds for a public utility, to give themselves massive payrises and for the public consumers to foot the bill. However if somebody tries to point out the faults in the system and do something about it – it is illegal.

Of course it is illegal. The people that rip you off make the laws. Talk about a lose-lose situation. You lose. You lose. You lose. And through slow integration and years of ignorance and ignoring, it is accepted that costs are astronomically high. Take for example petrol. I'm not a user myself, but I'm not stupid enough to have missed it. The prices went up during the Gulf War (reminiscent of computer memory prices rising when some factory in India burned down – why?), and suddenly we went metric. Prices have continued to rise ever since. Much of the cost is tax. Milk, going metric, but the prices stay the same even though you now get about 12% less.

Don't think my hackings are all for my benefit. I often hack into the DHSS and see who is on a benefit (and truly deserves it), and then I twiddle their bill for them. They are not aware of this. I don't want them to be. It's like my service to the community. Like the guy down the road whose phone line I often nick. He gets a good rebate on that, so no problem. Often I twiddle the exchange routers to think it is a fault in the logging. However the fuel bill hits him hard. He is like two million years old and needs the heat on so he doesn't, like, die. But no rebate or discount is forthcoming. You'll often hear excuses like "Well, if we give you a discount then we'd have to give everybody a discount". I don't hear that one coming up when they allocated themselves payrises.

A leading public figure has very sadly been killed. I could add my condolences, but the ocean of flowers in London says it all. So I bookmark ColourTrans and close my PRM. There are several interesting questions to be addressed here. As a hacker I am paranoid. This paranoia stretches to asking why the surveillance camera just happened not to be working. How do we know that the driver was indeed drunk? If we are dealing with the grey men in grey suits, they have astonishing powers. And I can think of several reasons for the scenario – and the blame will be dumped nicely on the press which, to the grey men, must be a right pain in the ass. However my

reasons are not to be disclosed now. Come on guys, exercise your mind matter and think about it yourself.

Leading us onto another personal hate of mine. Our lack of rights. Exactly how many people can control you without your consent? How many people can come busting down your door without your consent? And how often do those people apologise?

I hold the opinion that paedophiles should forever burn in hell for what they do, and the punishments for that (and rape, murder etc) need to be tightened up from *life* ~ = 3 years to *life* = *life*.

However people have an uncanny ability to judge and pass sentence on a whim. So-called vigilante groups might hear a garbled whisper and think that somebody is a sex offender. So 'round his place they'll go throwing stones through his windows, spray painting on his walls and telling him to take a flying.....

If he *did not* commit the crime, it's nearly impossible to convince such people otherwise. And even if the authorities put it in no uncertain terms, there will still be dislike and mistrust.

What gets me is these people seem to be justified in what they do. Of course it is okay to burn his house down, he (might have) committed a crime (we think).

Now, **DON'T** think I'm defending sex-attackers. Far from it. I'm defending *innocent* people subjected to horrifying abuse on what amounts to be no more than a whim multiplied by paranoia. Such paranoia can (and does) exist. Look at the anti-commie witch-hunts in the U.S. at the height of the Cold War. Lives ruined and for what? (I'll yack about the concept of *all-american* some other time).

By all means, a sex-offender (particularly with young children) deserves to have their rights to society stripped, and be crapped upon by everything higher up the evolutionary scale than the earthworm; but just imagine if the victim was totally innocent...

Now, as we are busily letting off steam, let's attack something you see in the movies... The *all-American hero*. What do they mean by *all-American*? As a civilisation, America is a mixture of British, Spanish, Italian, German et cetera et cetera. I mean, America has literally no history. Something that is around two hundred years old is seriously old. Their history really started with the *Mayflower*. And as for the people that

have the absolute right to call themselves all-American, they are placed in "preserves" and regarded as oddities.

Take the Editor's hang out in France. It dates back God only knows how long. Estimate five hundred years. In those days the Earth was flat and the Americas didn't exist.

So what is this all-American business? Somebody who upholds the right guaranteed by constitution to bear arms? That gets you labelled as a militant or a crackpot (depending on whether or not you still worry about the Commies). How about the right guaranteed by constitution to freedom of speech and political choice? Just announce in a crowd that you openly support the Commies. Hehe – that was a *tad* below the belt, but you get the point.

So, back to my PRMs, back to ColourTrans. Old RiscOS and Arther DeskTop have the palette manager accepting colour slider values between 0 and 255. Same for !Draw and when the Internet (font color = #ffffff) uses the 0 to 255 scheme. So why doesn't ColourTrans have a SWI where you can say you want 60 red, 60 green and 100 blue. Also, why is there nothing to do the same in percentages, and to do the reverse (tell you what components make up a colour). What a pain. Still, I'm happily surfing the Internet using the college ISDN link. Easier and cheaper to dial college than to dial London, You see, I am sending corrupted parts of a Windows swapfile to certain annoying email spammers. Like the ones inviting me to see young schoolgirls performing indecent acts with certain parts of certain domesticated animals. Or those offering to sell you software to spam tens of thousands of people an hour. I'm not able to remove my email address from these lists, but I *can* send them coredumps.

You know, they pick up on news postings and WWW pages. On your news postings you should forge the headers (the Editor tends to use "xxargonet") and include emailing instructions in your signature. Not the real email address, but how to send it (like "remove xx to email me"). On your WWW pages, you should provide a fake mailto link, like nobody@nowhere.com or something. Set the <a> to have no text and leave it.

Or, to be a bit more vindictive, set the WWW page and your news reply to to say "postmaster@127.0.0.1" so auto-spam software posts it all to the postmaster of the domain.

Or if you are feeling *really* vindictive and annoyed, set it to "postmaster@cyberpromo.com". After all there is no law stopping them sending you crap, so you send some back. Just **forge your headers**. Hehe... I'm off, got to sort out this business with ColourTrans and dream of Sarah.....

Assembler programming

In the last issue we created a program to save 16 colour screens in a compressed form.

If you remember from last time, our format is to be defined as:

Ident: “BudgieScrn (compressed 1)” <newline> which is 26 bytes.
 Mode: 1 byte giving mode number.
 Palette: 16 entries, six bytes each. Giving red, green and blue values for first flash colour and second flash colour or each entry.
 Image: Data as defined above.

```
REM >BudgieSoft screen loader © 1997 Richard Murray
REM V1.01 [Froblicate #15]
:
ON ERROR PRINT REPORT$+" at "+STR$(ERL/10) : END
:
DIM code% &1000
FOR pass% = 4 TO 6 STEP 2
P%=0
O%=code%
[ OPT pass%
```

Again, a standard beginning...

```
MOV    R10, R14
MOV    R0,  #&4C
SWI    "XOS_Find"
BVS    exit
MOV    R5,  R0
```

Our program is designed to be called as “SLoader <filename>”. We preserve the return address and try to open the filename in our entry parameters. If the V (oVerflow) flag is set, something went wrong so we exit. Otherwise we move the file handle into R5 for safe keeping.

```
MOV    R8,  #0
.skip_header
MOV    R1,  R5
BL     read_byte
ADD    R8,  R8,  #1
CMP    R8,  #26
BLT    skip_header
```

Skip the header text. **IMPORTANT:** A discrepancy has crept in. The version printed had a “ 1” at the end of the identification string, the source code supplied did not. The CMP R8 should compare with #24 (if you have no 1 and #26 if you do). These are two defined variants of the screen format. More details on this later.

```
MOV    R0, #&87
SWI    "XOS_Byte"
```

Get the current screen mode. If you are wondering about the “get character at cursor position”, read issue 14..

```
MOV    R1, R5
BL     read_byte
CMP    R0, R2
SWINE  &100 + 22
SWINE  "OS_WriteC"
```

Here we read the screen mode defined and compare it with the current screen mode. If different, we change to the required mode.

```
ADR    R0, vdu_block
ADD    R1, R0, #12
SWI    "OS_ReadVduVariables"
LDR    R2, [R1]
LDR    R3, [R1, #4]
ADD    R3, R3, R2
SUB    R2, R2, #1
```

As the screen addresses can change, they are not written to the file. We have to find them out for ourselves. We do assume that MODE 12 is the same across the entire range of RiscOS computers (multisync users can fudge it with the megamodes module). This calls “OS_ReadVduVariables” asking for the screen base address and the size of the screen. Adding the two gives us our result, with the data held in the memory area defined later as “.vdu_block”.

```
MOV    R4, #0
ADR    R7, os_block
.col_loop
MOV    R1, R5
STRB   R4, [R7, #0]
MOV    R0, #17
STRB   R0, [R7, #1]
BL     read_byte
STRB   R0, [R7, #2]
BL     read_byte
STRB   R0, [R7, #3]
BL     read_byte
STRB   R0, [R7, #4]
MOV    R0, #&0C
MOV    R1, R7
SWI    "OS_Word"
MOV    R1, R5
MOV    R0, #18
STRB   R0, [R7, #1]
BL     read_byte
STRB   R0, [R7, #2]
```

```

BL      read_byte
STRB   R0, [R7, #3]
BL      read_byte
STRB   R0, [R7, #4]
MOV    R0, #&0C
MOV    R1, R7
SWI    "OS_Word"
ADD    R4, R4, #1
CMP    R4, #16
BLT    col_loop

```

This lengthy section takes an area known as “os_block” (defined later) and reads colour data into it, building up each colour in turn.

```

MOV    R0, #0
MOV    R1, R5
.main_loop
BL      read_byte
MOV    R4, R0
BL      read_byte
.loop2
SUB    R0, R0, #1
STRB   R4, [R2, #1]!
CMP    R0, #0
BGT    loop2
CMP    R2, R3
BLT    main_loop

```

Here is the main loop. What it does is it reads the value of the current byte (ie: the colour) and then it reads how long it continues for. As a byte can only hold 256 different values, it loops up to a maximum of 255 times, writing this byte into memory thus reconstructing the image.

```

MOV    R0, #0
MOV    R1, R5
SWI    "XOS_Find"

```

This wraps up, closing our file. It falls through to “exit” which follows...

```

.exit
MOV    PC, R10

```

Leave the program – places stored return address (in register 10) into the Program Counter (register 15).

```

.read_byte
SWI    "XOS_BGet"
MOVVC  PC, R14

```

Simple routine to read a byte of data. Not terribly efficient, however you could change it to move the file handle here instead of beforehand (using MOV R1, R5). It returns by way of function returning (move return address into Program Counter); but only if the V flag is clear. If something went wrong, however,

then we fall through to “error” which follows.

```
.error
MOV    R2, R0
MOV    R1, R5
MOV    R0, #0
SWI    "XOS_Find"
MOV    R0, R2
ORR    PC, R7, #1<<28
```

This closes the file, restores the cursor and exits with the V flag set (error condition). It is the ‘standard’ error handler for this program.

```
.vdu_block
EQUd    149
EQUd    7
EQUd    -1
EQUd    0
EQUd    0
```

This is the block for the OS_ReadVduVariables command. The 149 and 7 are the codes for the values we wish to read. The -1 terminates the list. The two 0’s are where the information is placed by the OS.

```
.os_block
EQUd    0
EQUb    0
ALIGN
```

This reserves a little memory for the OS_Word call which sets up the palette.

```
]
NEXT

OSCLI("Save <Obey$Dir>.Sloader "+STR$(code%)+ " "+STR$(O%))
OSCLI("SetType <Obey$Dir>.Sloader &FFC")
```

And finally the end. Close the loop, save the file and exit.

There you have it!

To use it, try an Obey file similar to:

```
| Obey file to run SLoader
|
<Obey$Dir>.SLoader <Obey$Dir>.comp_piccy
```

Now, you should remember two things:

1. I mentioned that I would discuss the various formats.
2. I showed you how this format can be inefficient (issue 14).

So we shall, in the next issue, propose a new format that will make the compression even more efficient. And, later, we shall consider a “smart” loader that can automatically identify the type of image being loaded and decode it properly.

For now, however, I shall outline the major image types:

Version 0:

Header: “BudgieScrn (compressed)”

In this format, the image data consists of ‘colour’ and ‘count’ pairs. This might get rather inefficient with dithered or complex images.

As the header is only 24 bytes long, this format has been deprecated.

Version 1:

Header: “BudgieScrn (compressed 1)”

Exactly the same as Version 0 except with a 26 byte header so that it is easier to recognise (both by humans and software).

Version 2:

Header: “BudgieScrn (compressed 2)”

To be discussed in a later issue of Frobnicate.

So now you have the ability to load and save compressed 16 colour screens. You have done something useful with your ARM code. Wasn’t that better than poking “Hello World!” into random memory locations to see how quickly you could crash the computer? :-)

If you plan to write a decoder, to include it in one of your programs, the current BudgieSoft specification *only* requires you to be able to load the same formats you save. However BudgieSoft recommends that you provide the ability to load both types (as the code to handle all three types is not very complex, the standard BudgieSoft loader release will handle all three types).

The specifications available from BudgieSoft are:

- BudgieSoft compressed image type 0 (deprecated)
- BudgieSoft compressed image type 1
- BudgieSoft compressed image type 2

The specifications come complete with necessary encoding and decoding software, but no sources. Supplied with each is the “standard decoder” which understands all the formats.

Note: There are no order codes or references for the specifications, ask for it by name.

Hack *Hack Hack*

Welcome to this, the first article of what is bound to be a controversial series on hacking software. You will see some ideas on copy protection, code and how to manipulate it. You will not, however, learn how to deregister !ArtWorks. What you do with this information is entirely up to you. However use a little common sense. Software piracy is illegal. Standard disclaimers (if you get nicked, it is nothing to do with me etc etc) apply!

Okay. This first article will guide you through a relatively simple hack to get you used to how code *appears* and how to use the most excellent of editors, !Zap (by Dominic Symes). Users of !StrongEd will have to wing it – the concepts will be quite similar.

If you are using !Edit... Yes, it is good. Yes, you may have strong bonds to it, but no it won't disassemble for you. Get hold of !Zap. It is free and any Acorn software collection with an ounce of decency and self-respect will have a copy... BBSs, the Internet, PD libraries, coverdiscs et cetera.

The hack we shall perform is, as I said, simple in essence. We have a really stupid program called *HackProg*. It will tell you your operating system is compatible if you are using Arthur 1.2 (!!!). For the newbies or those not clued up, Arthur 1.2 was the operating system before RiscOS 2. It featured a largely single-tasking Desktop written in BASIC that had bright orange icon bar and bright blue background. Words come to mind, like *interesting*, *different* and *sick*. If you have Internet access, go visit <http://www.qsure.demon.co.uk/arthur/> for a taste. That is, I guess, what happened to RiscOS 1.

Anyhow – Arthur 1.2 is given as a compatible OS and all others are *incompatible*. Our duty to mankind is to make all operating systems compatible.

So load !Zap and drag in *HackProg*. It will appear as several columns; numbers in yellow, some red/cyan junk, more numbers in orange and text in yellow and white. This is the disassembly window. For now, press *Ctrl + Shift + F1* to enter text mode.

It is useful to recognise parts of a program in text mode. Do this also in !Edit so you don't need to rely on !Zap (which is bigger). Full screen display, you'll see about twelve lines of junk in red and white. Inside that junk will be the two possible messages.

Further down, "Shared C Library" which indicates the program is a C program. Then another giveaway of C – loads and loads of "0đ ã" which is the redirection table. When a C program is started, the addresses of all the main C functions are pasted into here. Calling a C function involves branching to the right lookup which then branches into CLib (in ROM or softloaded).

Finally a lot of zeros. This is data area, workspace and a place where junk is stored.

Now press *Ctrl + Shift + F5* to return to the disassembly.

The yellow numbers on the left are the current address. Usually for an application this counts up from &8000. It goes in steps of four, because an ARM word is four bytes.

The four red/cyan characters represent the physical data, as you saw in the raw text mode just now. Each character represents a byte.

The orange numbers are the opcode, what the four bytes represent. You will notice that these bytes are backwards to the way you'd expect. Look at the top line. "000û" is "FB000000" and not "000000FB" as you might have expected.

The next column, yellow and white, shows the

disassembly. “EF00011” doesn’t mean much to most of us, but “SWI OS_Exit” might.

To be really pedantic, “E” is the ALways condition. “F0” is the opcode for SoftWare Interrupt and “00011” means the seventeenth (&11) SWI code. Of course, remembering that kind of stuff is not necessary now that programs are smart enough to decompile instructions for you!

The final, optional, column in green are warnings and notes provided for your benefit.

Now move down to the “Compatible” message. It should look like:

```
0000812C : ble! : 21656C62 : CMNCS R5,R2,ROR #24
00008130 : ..00 : 00000A0A : ANDEQ R0,R0,R10,LSL #20
00008134 : Cong : 676E6F43 : STRVSB R6,[R14,-R3,ASR #30]!
00008138 : ratu : 75746172 : LDRVCB R6,[R4,#-370]!
```

As you can see – the beginning of the message is at location &8134. It is usual for data to be moved into the program with a statement such as “ADR Rx, #&8134”. So we shall look for that now...

```
000080CC : 0Pēā : E5801000 : STR R1,[R0,#0]
000080D0 : 0Qā : E35100A0 : CMP R1,#&A0 ; =" "
000080D4 : C00ē : 0A000003 : BEQ &000080E8
000080D8 : .0•ā : E28F0F0A : ADR R0,&00008108
000080DC : ø00ē : EB0000F8 : BL &000084C4
000080E0 : A0 ā : E3A00001 : MOV R0,#1
000080E4 : $A0ē : EB000124 : BL &0000857C
000080E8 : Q0•ā : E28F0F11 : ADR R0,&00008134
000080EC : ô00ē : EB0000F4 : BL &000084C4
```

There, second from the bottom is our ADR statement. Looking up, we can begin to see what this code is doing. Knowing in advance that Arthur 1.2 is identified by the code &A0, it becomes much clearer...

We compare our byte with &A0
 If equal, branch to &80E8
 Load the no-go message into R0
 Call &84C4 (which is a C routine).
 Move 1 into R0.
 Call &857C (which is another C routine).

Now we are at &80E8.
 Load the go message (at &8134) into R0.
 Call &84C4 (a C routine).
 Etc...

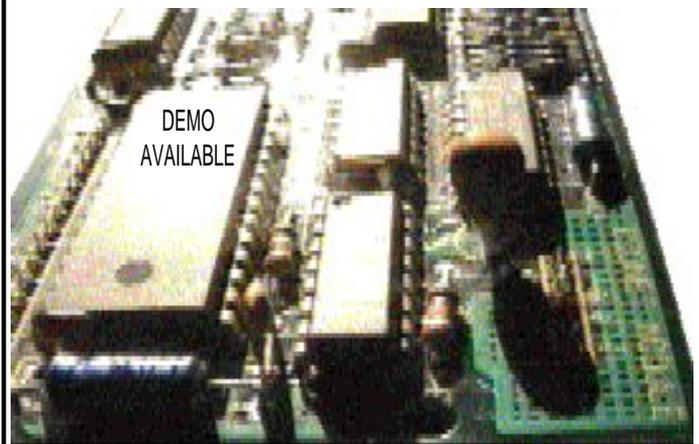
Following that, it stands to reason that our hack will involve changing “BEQ &000080E8” to read “B &000080E8” so highlight the correct line and press RETURN. A little writable bit will appear at the bottom of the window. Move your cursor to the opcode and delete the “EQ” part. Press RETURN to update, and save the program.

That line, incidentally, should read as:
 000080D4 : C00ē : EA000003 : B &000080E8

Run the program and observe the results.

Like it says, congratulations on your first hack.

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Life without a modem

Here, again, in this country of Asterix and vegetable throwing – where veg is known by the nice name “legumes” and Wednesday is called “Mercredi”. Isn’t that a *cool* name for a day?

The moon is called the “lune”, and glasses (of the optical variety) are called “lunettes”.

It is hot. Not astonishingly hot, not painfully humid but a nice dry Orangina–drinking type of hot with cooling breezes. Constantly, for two weeks. Apparently it’s been like that all summer.

Now, anybody who has given notice to my WWW site will know that *food rules*. I can live without music. I can live without Acorn (I think!) but I can’t live without good food. To give you an example – I rue the day McDonalds stopped doing rootbeer in England. Damn British probably couldn’t decide whether or not they liked it. Now they get cola. Spit... I mean, Rootbeer Day was like a totally major personal crisis. Forget puberty, forget my 21st – **this was bigger!!!! :-)**

So over here I was amazed to buy a piece of beef filet for the equivalent of £2.30. It was circular, about three and a half inches across and just under an inch thick. A piece of fat was wrapped around it and all tied neatly. The meat itself was cooked in a *suggestion* of olive oil, on minimum gas for about quarter of an hour. Real slow and gentle. It was brown on the outside and red inside. Just how I like it. I put it on my plate, alone. And began eating. Now, normally I cover my beef in ketchup and eat it with fries – often the beef itself is of dubious origin and is slammed between two bits of bread!

But this... This *deserved* to be eaten on its own with nothing. The flavour of it was all that was needed. I ate it slowly savouring every mouthful. This beef was pure, melt in the mouth and contained absolutely no fat or gristle or other icky bits. This was beef heaven, and it only cost me £2.30.

In England? Let’s just say that I don’t eat filet in England because it is expensive.

Certain chocolate products (like a bar, named after a planet NASA is currently interested in (subtle huh?)) has a wrapper written in several European languages. English isn’t one of them.

Why? Because over in Europe they get real chocolate bars. In England, the law apparently allows you to include 5g of rat droppings in every kilogram. Now, this isn’t to suggest that the aforementioned bars are full of rat poo... It is more likely this:

A chocolate powder drink in England tastes different to the same thing in France. The difference? A substance known as “lecithin” which is a cheap bulking agent. Can make one tonne of cocoa stretch much further. The French container lists it as max. 10%. The English one tastes more dilute and doesn’t list how much is in it. English foods can obviously be bulked more.

Now, back to this rat poo. 5 grams in a kilo doesn’t sound like much does it? Well, imagine it like this. Stack four of those large expensive chocolate ‘slabs’ together. That is your kilogram. Now beside it place two teaspoonfuls of cocoa (or three square sugar cubes). This is your rat poo, hair, cow dung and other contamination.

Sickening isn’t it? I’m sure, however, the manufacturers are fastidiously clean. After all, can you imagine the press if somebody opened a bar of “XXXXX” and found a rat tail?

Now, on a drive somewhere we came across a field. This field smelt slightly minty. The plant was fairly tall and contained many five–pointed leaves near the top. For all intensive purposes, this plant looked exactly like hemp. Hemp is a useful plant, it has

medicinal uses and can also be used to make twine for holding things together.



If you managed to miss both the sixties and college life, then you might not be aware that hemp is also known as Mary Jane; which is Marijuana in Spanish.

NOW you see why I was somewhat bemused to pass acre upon acre upon acre of the stuff? I was expecting to go round a bend (not round *the* bend – I’ve already done that!) and see a faded orange van with a yellow flower painted on it, and several guys wearing lurid shirts, headbands, flares, long hair, all happily smoking away.....

But no. And as this was in a farmer’s field in vast quantity it was, I presume, legal!

Now, when I talk to the French I always begin by apologising for not speaking French. That excuses me from odd looks if I wave a three-phase plug and boldly announce that the assistant’s skirt is a yellowy orange circular thing (with two girl children) that is quietly pulsating in the sky.

I can listen/read a moderate amount of French if it is spoken slowly and clearly (on the principle of one word every so often, fill in the blanks) but I can’t speak or write it. So asking for a rubbery bit that connects to the back of a toilet is a bit problematic. It is a “joint-etanche”, if I remember correctly. The French language (which is a major pain in the...) would pronounce this as something along the lines of “Jwaa eh-ton” (the “on” sounding like the on in “honey”, only slightly nasal).

Sure. I knew that. ;^)

What amazes me, as I’ve written in Froblicate before, is the French people in this area don’t really regard the English. We aren’t oddities (much), we aren’t “John” and nobody gives us the finger and yells obscenities. England, on the other hand, is

different. All foreigners are odd. For one thing, Britain seemed convinced that everybody else drives on the wrong side of the road – even when significantly outnumbered. All foreigners are called “John”, although visitors the the Costa with an iota of class might call them “Juan” which is more likely their name. And I used to live in a town where the local yobs would happily insult anybody that looked foreign. I good few shopkeepers wouldn’t be able to speak French to a visitor with little english.

Okay, so maybe it is unfair to take the yobs as representative of England. Now, where are the French yobs? Drunken adolescents roaming the streets smashing beer bottles all over the road and spraypainting obscenities. People do spraypaint in France. Saw some today – “Ban nuklear test” and “Facho jamais”. The first was accompanied by a radiation symol, the second by a Swastika. The latter means “Faschist never”, the former is obvious!

Electronics magazines are more interesting over here. One details the building of an FM transmitter with automatic mic/line switching. Another details how to build the exceedingly cool “Tesla coil”¹ (if I build one, it may well make it into Froblicate). Such things would be *censored* in England. Radio transmitters are illegal and the coils are dangerous. What you or I think, or how we think, is immaterial. Hehe – don’t get me started on movie censorship. Hmmph!

I can’t really think of a nice way to round up this article. It’s 0:00h CET (22:00h GMT, 23:00h BST) and I’m ready to sink into oblivion after sanding down one of the window shutters ready for undercoat and repainting. So many things to do, so little time. I’m hacking swathes of bad herbs (weeds) with a petrol strimmer, and eagerly await a time when I can fire up the flamethrower (pun intended). This is a real flamethrower – pressurized fuel can and nozzle. Three rings prewarm the fuel before it is burnt. HmMMM... :-)))))))))

¹ - It is a coil driven at a high-current moderately high frequency (several kHz usually, tuned to the coil in use). An output of 200,000,000 volts is not uncommon. They are used as little lightning generators in SF movies and have interesting scientific applications. Above all, *they rock*. 200 million volts, wheeeeeeeeeee! :-)

Pigs in Spaaaaaaace!

I *believe* in extra-terrestrial life.

Before you send me postcards from Area 51, let me expand upon that single thought.

Pick a nice clear night away from bright lights where you can see a little more than just the moon. Lie back, let your eyes adjust. You'll see thousands of little dots of light with a band of fuzzy stuff running across. Using a simple pair of binoculars, that fuzz turns into millions of stars. A telescope will show more stars beyond.

Each star could be a potential sun... From Rigel and Betelgeuse to those known only by a number. The Pleiades are a cluster and the "Nébuleuse de la Tête de Cheval" (Horse head nubula – I'm using a French star chart) in Orion is most impressive.

Now, if each star is a potential sun then each sun could have a potential solar system around it. And each potential solar system could have a life-bearing planet.

Okay, I know the chances of life on other planets is small, but consider these two points:

1. Even if the chance of life is scientifically and accurately determined by the year 2000 to be 0.0000000001% – how many life-bearing planets would that be out of thousands of millions of stars?

2. Regard Earth as a fish tank. In this fish tank are freshwater fish requiring moderately warm water. Another fishtank is needed for cold saltwater fish... In essence, why should alien lifeforms be humanoid in shape? A recent episode of *Sliders* gave us an intelligent flame (as in fire!).

I'm not really into parallel worlds where another me

is writing about the other me thinking about the other me (errrrr....) and I don't go in for the theory of the greys and the greens... Nixon talking politics with aliens and abductions.



A smart person might ask where these aliens are. Well, more to the point – where are *we*?

We have only sent one craft out of the Solar System, a bunch of craft to other planets. We have recently planned to visit Mars, but currently have only walked on our satellite – the Moon.

We are hardly conquestors of Space. We have crawled out of our fishtank and examined a few empty bowls around us.

So, you have probably guessed that I'm into Astronomy. It is new to me. I'm not to bothered with equatorials and declinations and right ascensions... For me I wish only to look far beyond our planet and dream about what is out there. My equipment will never match the professionals, so I doubt I'll ever look into my telescope and make startling discoveries... I'm content to observe. So that is why I plan on getting my first (real) telescope fairly soon.

And I'll let you know what I see. Maybe even distribute a few photographs.

As for you... I recommend you pick up any decent star book (one that looks good is "Guide pratique de l'Astronomie" by David H. Levy – published by Readers Digest should be an English version), and just look at the photographs. I don't doubt that they are real, and as you will see – there is a lot of weird and wonderful stuff out there...

For stargazing you need only one thing... Good eyesight (or your glasses). Other benefits would be a reclining chair or a deck chair, and a hot water bottle.

To progress beyond this stage, you might like to go for a moderate pair of binoculars. The bigger the better – massive magnification coupled with large lenses for maximum light gathering. Sadly, such binoculars are hard to come by and quite expensive. For myself, I chose a pair of Practika Sport binoculars with a 12 × 50 rating. A nice size so can be taken on day trips, and lenses large for extra light gathering.

Keeping your binoculars steady can be difficult, and lead to arm strain. So I suggest you find a ball of string and an old camera tripod. Some ingenuity will have you rigging it all up so the eyepieces hover just above your eyes when you lie back in your chair...

What you REALLY need is a telescope. These are serious, large and costly. I'll let you know how I get on with mine.

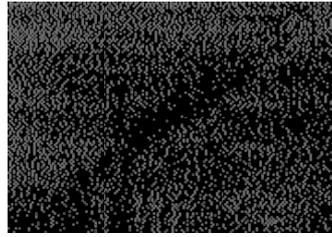
The electronic solution... Nowadays everybody and their grandmother has a video camera, or knows a friend that does. Many of them boast low light ratings and impressive zoom. 10× with electronic doubler (thus 20×) or 10× when in low-light mode. Sensitive to 0.5 lux blah blah...

Forget about it. Electronic doublers are usually slightly fuzzy (the moon shot on the previous page was taken using the electronic doubler facility of my camera – it is actually the end of an eclipse of a full moon!).

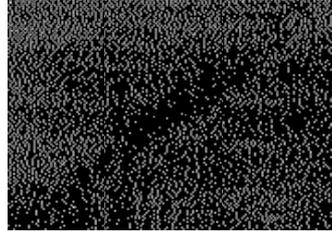
As for low-light capacity, this is an image of the side of the house, down the tarmac area and the stars above.



Impressive huh?



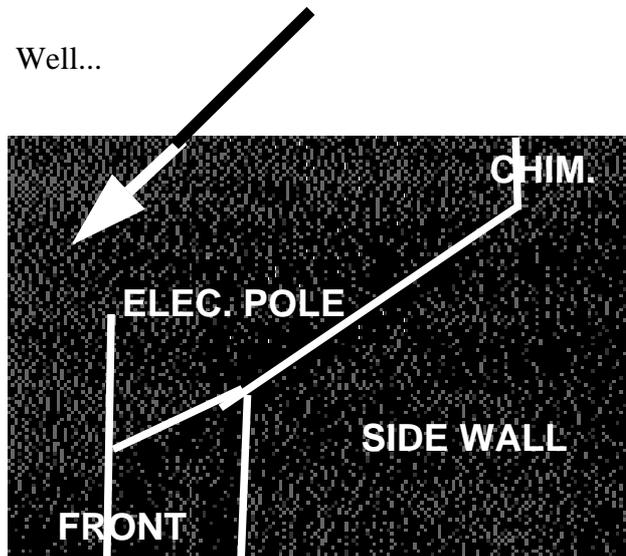
If we convert to greyscale and apply a gamma correction of three, you can see the outlines of the building start to appear.



Knocking the gamma back to two and applying a pre-sharpening of nine, it looks like...

But where is our star?

Well...



That is, of course, a very simplified view of the house, but it does illustrate how the average video camera is not too terrifically good at star pictures!

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The old debate...

I would like to hear your comments on the points raised here, so *please* send email to “frobnicate@argonet.co.uk”.

ONE CLICK OR TWO?

The new Windows will allow you to select your preference of one click or a double-click. Myself I like the security of clicking twice before all hell breaks loose (and you find you've just loaded Lemmings). Is it really so complicated? You click once to *do* something (click on an icon on the icon bar, or the Okay icon) and click twice to *select* something (like a file to load or application to run). Sometimes actions are represented by double-clicking to make them harder to 'get' by accident (ie, click here to reset machine with a Cancel icon beside it).

If everything is one click away, it would be simpler in that you don't have to think about what you are doing and how many clicks are needed, however you may end up loading a lot of stuff unintentionally. A good example where a single-click action is semi-disastrous is the close application icon in Windows95 (top right).

ONE BUTTON, TWO BUTTONS OR THREE?

Still on mice and clicking... The one button (Mac) mouse was debated at length on comp.sys.acorn.advocacy a while back. You cannot tell me that it is quicker to go up to the menu bar than to open a context sensitive menu. Sorry, but point back no way will I accept that “Move mouse to top of screen, click” is quicker than “Click”.

Likewise, Windows(95) have pull down menus a la Mac, with a few pop-up menus if you use the right button. Many PC mice only have two buttons, and to be honest, it is possible to live with two. One to select stuff and one to pull up menus.

RiscOS uses all three buttons. Many applications use ADJUST (right button) incorrectly – the name implies that it should alter something. Indeed the PRM suggests that ADJUST should do nothing rather than mimic the SELECT button. ADJUST is useful, you can SELECT-drag across a range of files, and use ADJUST to knock out certain files you don't want included. Quicker than selecting each individually. Unlike Mac or Windows, RiscOS has a defined context-sensitive menu system and a button dedicated to it.

WITH A C OR WITH A K?

The word, by now, should be obvious. “Disc” (or “disk”). It is a common argument with computer techies who would rather argue spellings than debug their latest creation. It is generally accepted that “disk” is British and “Disc” is an Americanism. Whatever, we use “Compact Discs” and mutter about abbreviated forms of “micro-diskette”. Me, I'm with the “C” people, but eventually it is a matter of opinion. Either way is correct, though there is a certain 'nationalism' applied to using the spelling “disk”.

Qu'est-ce que c'est, ça?

Seen in the RiscOS Style Guide (iss 1 July 93 p8):

It is much better that you write a small program that does something simple, and does it well, than a sprawling mass that crashes occasionally.

M\$ take note!

This time we are going to ask ourselves why applications have become so large and so bloated. We will probably pick heavily on Windows, with the /WINDOWS/SYSTEM directory oft used as a dumping ground for .DLL files.

In the old days, when a 640K 8088 or a 1Mb 80286 were common, applications were sometimes cumbersome, but entire OS's came on a handful of floppy discs. Word processors did what you asked and spreadsheets all looked alike. The 32K BBC micro, alongside, had the entire Micro Office suite on a cassette tape. There is a lot of difference between Micro Office and WordPerfect, but both applications were not stunningly complex and large.

Now, the Pentium is the one to have (if you believe the adverts) and applications are shipped on CD-ROM. Okay, some things like Encarta or Cinemania require a CD-ROM and may well fill it. But then again some things shouldn't require a CD-ROM, and still fill it. From what I've heard, there is an entire game hidden in M\$ Office! Now, is this necessary? We talk about code-bloat, but really when you get down to it, is all the stuff contained necessary? A spell link chequer is dead useful at times, but a grammatical analyser? Few people write 100% exactly correct English, so a gramcheck may end up getting in the way. Like the spellcheck in Frobnicate when it encounters source codes.....

MS-WORKS. I like this software. It is reasonably complex, yet so simple a kid could use it. Knowing the National Curriculum, they probably do. Hidden within it is a drawing program that resembles !Draw. Is that necessary? In a way, it is. But not with WORKS, it should have been part of Windows itself (like !Draw is part of RiscOS).

DLLs... What is a DLL? It apparently stands for Dynamically Linked Library, a bit like pieces of SharedCLibrary merged at runtime. Question is, why are there so many? It is as if every program requires them now – especially those written using VisualBASIC. Along with VBX and VDX (VisualBASIC extension and Virtual Device driver IIRC),

Comments?

Email frobnicate@argonet.co.uk with 'em all! :-)

Thank you

From Frobnicate and
many Acorn users

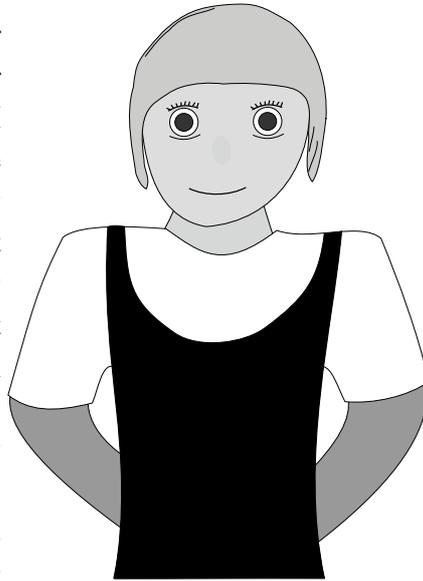
to

David Pilling

for many many software
innovations such as Spark(FS),
Ovation, TWAIN drivers, ArcFax,
Hearsay and much more besides.

DIGIWIDGET

I've stayed away from computer games after my recent encounter with the PacMan ghost. I'm lucky I didn't wet my pants, he's lucky the yellow hungry guy wasn't nearby and the waitress is lucky she didn't see him. I had a few Cherry Brandies (getting drunk isn't something you worry about when you are already talking to a ghost) and he had a few beers. Apparently life isn't all it has cracked up to be. Okay, so you get eaten, your eyes fly back and you are reborn. Being



eaten is painful and a serious blow to your pride. He wants to haunt the creator of the game for all eternity, as the poor guy is faced with something like military duty. When some snot-nosed brat presses a button, he must fly away to a tiny looped labyrinth and chase (and be chased) until snot-nose gets bored.

So here I sit, in the Café again. It is night time, raining and my life sucks. Not as much as the ghost, but Deunan Sector is boring. I'm the quality control girl. The job involves taking this little gadgets out of a box (well, one from every batch). I then hook it up and switch on my computer to monitor it. I zap it with an electrostatic probe, dunk it in a bowl of water and finally jump on it a few times and either break it or my shoes. I don't know what these things are (actually I do – environmental monitoring devices for military purposes – but I'm just the control girl and I'm not supposed to know!). If it survives all of that, I get the lads in. The lads are floor workers who wear Doc Martens and florescent orange padded overalls – a long way from the stuff I wear. I hand them the box and hold on to a very long lead attached to it. They then drop kick it around the place. If it survives that I dump the thing into a solder vat. If it survives that (and many do), I

get the lads to run over it with the crawler. It often takes about a minute of that before conking out. Once one has been tested it cannot be put back in the shipment. As it is military, the things are incinerated after testing. So we find all sorts of fun ways to kill the thing. Okay, so it is a cheap thrill – if your life consisted of hook, zap, jump over and over – you'd want some excitement too. One of the lads has given me a dodgy LASER cannon that failed test (couldn't sustain a minute at full power) but should be sufficient to eradicate these little boxes. I might try microwaving one too.

But for now, I'm bored and depressed. Winter is closing in and it really gets me down. The ghost told me I should take a career change. "Nice young girl, experienced in FoxPro and breaking gadgets". Somehow I don't think that will set my mailbox on fire.

When I feel like this, I pull out my laptop and write screenplays. Most of them are crap, some weird and a few are dramatisations of sexual fantasies. Okay, I'm a bit embarrassed to be writing that stuff before ever having sex, but I watch TV – and the biology is only a few steps away from "This way up". I'm currently writing a rather sleazy tale of a girl who accidentally zaps herself during testing and enjoys it a bit too much. No, that isn't me! I guess I've been watching a bit too much Troma recently.

But right now there is me. In the Café. With another cherry brandy. The waitress is looking at me with pity in her eyes. Do I look that bad? Do I need a change of scene that badly?

I figure yes.

The Café is advertising for night-time waitresses. As I am often here at night, I figure I might as well do something. Part time and a change of scene. After covering myself in vinaigrette and nearly frying my dress (I never was good in the kitchen), I get the hang of it.....and the job.

My first night is relatively quiet. The original waitress, Chantal, introduces me to the regulars and when they've gone we sit and swap life stories over a bowl of chips. Chantal is French and pronounces all her R's like a short burst of radio static mixed in with an R. Her E's are often exaggerated in strange places. The word "water" would become "woh-tearh" (with the "tear" as in to rip something, not a teardrop). It turns out she owns the Café. Could well explain the French menus in the place.

The next night was more interesting. A youngish man, say 25 or 30, walks in and orders an omelette, plain and an Earl Grey tea. Chantal panics because she didn't know the tea drawer contained anything other than Typhoo. He selects a song on the jukebox. The Spice Girls "Two become one" and spends the duration of the song pacing up and down the room. I, Chantal and the one regular watch him in astonishment. The cook calls out the order number six is ready. He is watching too.

"Sir? Sir? Your omelette. Sir?", I say gently. He still paces the room. I know the song. It'll finish soon so I leave it for now.

The song finishes and he sits at a stool. I walk over and hand him his order. He looks at the bag, both sides and then the bottom. He never looks inside the bag. He removes the order slip stapled to the side, screws it up into a tiny ball and flicks it gently off my head.

"I am not a number", he says.

With that, he lays down a five pound note for a one pound fifty omelette, and walks out.

I sort his change and run out into the night. I see somebody moving to the left so I run towards them. By the time I get to where I saw the shadows move, there was nobody. I stood in the rain for a minute, listening. Then I slowly walk back.

I'm drenched by the time I return. Chantal sits me down with a cup of tea and the regular ambles over and comments on how weird that was. He introduces himself as Richard and watches me drink my tea. Feeling a little disconcerted at being scrutinised, I drink up and wander back behind the counter. I'm still wet but the kitchens are warm.

"Get that often?", I ask.

"Sometimes the peculiar ones visit by. My favourite are bored girls like you once were, who drink a bit much. They can be very happy after a drink.", Chantal replied.

"Was I very happy?", I asked.

"No, you used to cry".

My heart sunk. I don't remember that at all. I never really showed my emotions to anybody except the face in the mirror. Now I find out I cried here. My life must really have sucked.

Chantal must have noticed my reaction to that. She put an arm around me and said "You are much more happy now". I smiled. She was right. Being a waitress might seem a bit of a dead-end job, but it was a change and that is what I needed.

Chantal is happy because she runs the place and juggles logistics in the dull moments. The chef is happy because he is a bit odd about his food. If it isn't perfect, it gets slung and recooked. And me? I have two contrasting jobs and friends.

By the end of the day my feet hurt and I can hardly undress before reaching bed.

But I'm happy now.

And that's all that matters.

DIY Hi-Fi Audio upgrades

by Glenn Richards

Introduction

Anyone who uses an Acorn computer for audio will tell you one thing - the sound quality is pretty awful. Unless you have a RISC PC with 16-bit sound, the output is dull and muffled, and generally sounds like AM radio. Even on the Issue 1 RISC PC (without the 16-bit sound upgrade) it's not brilliant, although it is slightly better. Why?

The answer is that Acorn, in their infinite wisdom, decided to fit a low-pass harmonic filter to the sound output. All well and good, but their filter design cuts off at around 5KHz (a little higher on the RISC PC), leaving a distinct shortage of treble. This article shows you how to get it back again.

IMPORTANT:

Neither the publishers nor Squirrel Solutions accept any responsibility for any damage caused to your computer whilst performing any of these modifications. The following procedures are carried out completely at your own risk. Also note that applying a soldering iron to your computer's motherboard will invalidate the warranty.

Upgrading the audio output circuit

There is a possibility your computer may be upgradable without modifying the motherboard.

The A305, A310, A4x0(1), A540 and A5000 can be upgraded without modification to the motherboard.

The A3000, A3010, A3020 and A4000 require a small modification to the motherboard. With the exception of the A3000, this is a very fiddly process and should not be attempted unless you have a miniature soldering iron, with a bit size of 1mm *maximum*.

The RISC PC with Issue 1 motherboard cannot be upgraded - you'll have to buy a 16-bit sound card instead.

All required parts are listed along with Maplin Electronics order codes.

Upgrading a 3-box Acorn computer

This section covers the A305/310, A400 series, A540 and A5000.

Parts required:

- 1 2x5 way IDC header (JB59P)
- 1 strip 0.1" connector pins (JW59P)
- 1 DIN-4 phono plug cable (RW17T)
- Screened cable

Remove the lid from your computer, and remove any podules, and the backplane where fitted. Locate the auxiliary audio connector as follows:

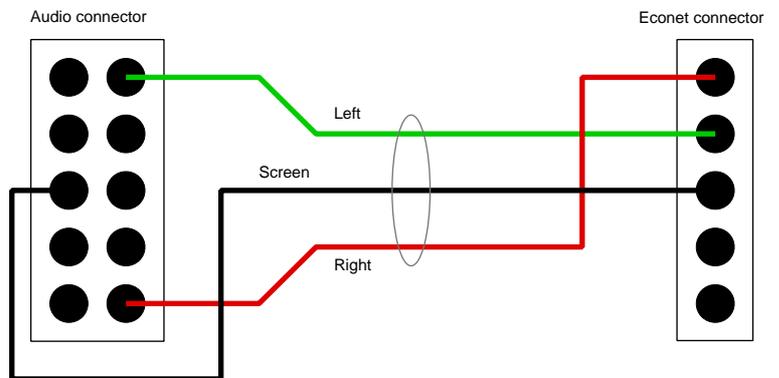
- | | | |
|-----------|---|---|
| A310/A4x0 | - | Rear of motherboard at extreme right |
| A4x0/1 | - | Towards rear of motherboard, near the centre |
| A540 | - | Unsure of exact location, check behind headphone socket |
| A5000 | - | Towards rear of motherboard, behind headphone socket. |

The connector is fairly easy to spot, it consists of 10 pins in a 2 by 5 arrangement. Now locate the Econet connector on the rear panel. Somewhere near this there will be a 5-pin socket on the motherboard.

If you have Econet fitted to your computer, you will obviously not be able to use the Econet socket to connect the hi-fi sound. You can still upgrade the machine however.

You will now need to make up a cable like this:

This cable should be long enough to connect between the auxiliary audio connector and the 5-pin Econet connector. One row of pins on the audio connector are wired together on the motherboard; the screen connects to this side. The other connector can be inserted either way around.



Re-assemble the computer, and connect the DIN-Phono cable to the Econet socket. Plug the phono plugs into a spare input on your hi-fi amplifier, which pair carry the signal will depend on which way around the 5-way connector is, and the type of lead supplied.

If you already have Econet fitted to your computer, simply run the screened cable out through any convenient hole in the back panel and fit a suitable audio connector to the end. You will not require the DIN-Phono lead in this case.

Upgrading an A3000

WARNING: *This upgrade involves soldering and track cutting on the motherboard. Only carry out this procedure if you are totally sure of what you are doing.*

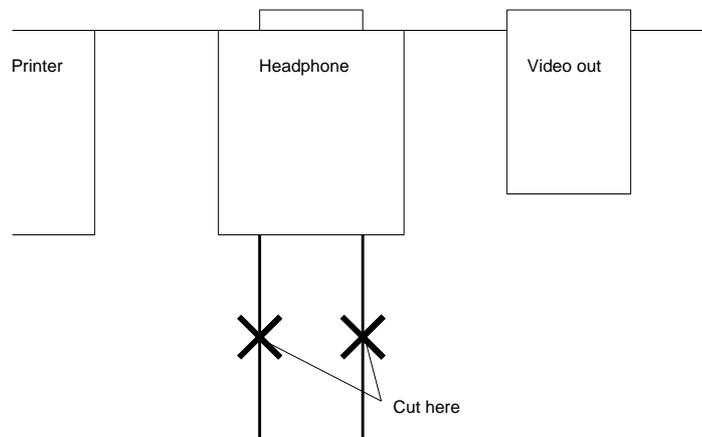
Parts required:

2 10µF 16V axial-leaded electrolytic capacitors (FB22Y)

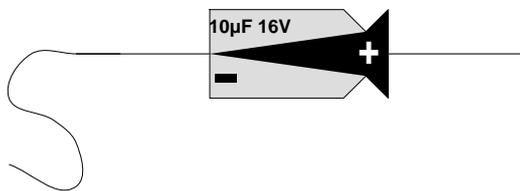
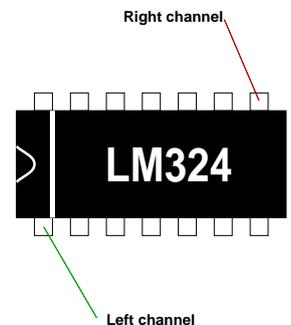
Hook-up wire as required

Open up the computer and remove any fitted expansion podule. Unplug the keyboard, then remove the 4 mounting screws holding down the floppy drive. Lift the drive clear of the casing and disconnect its power and data cables, putting it carefully to one side. Next remove any memory upgrade. Remove the 2 screws near the memory connector, and the single smaller screw at the extreme rear right of the motherboard. Lift the motherboard out of the case, and place it on a firm but soft surface.

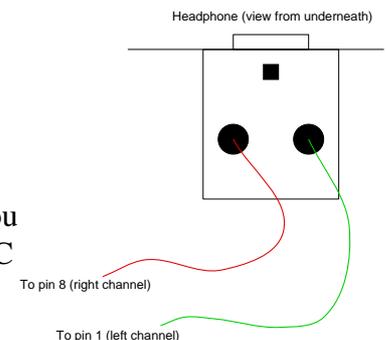
Locate the headphone socket on the rear panel. With a Stanley knife, cut the 2 PCB tracks as indicated:



Next locate the filter chip. It is an LM324 op-amp, and is located under the floppy drive. Now make up two flyleads, about 8 inches long, and solder one end to the negative terminal of one of the electrolytic capacitor. Solder the positive end of the capacitor to the LM324 chip, pin 1 is the left channel and pin 8 is the right. Wrap a small piece of insulating tape around the bare wires of each capacitor to avoid a potential short.



Thread the flying leads through one of the floppy drive mounting holes and turn the motherboard over. Solder the flying leads to the headphone socket on the underside of the motherboard as shown:



The upgrade is now completed. Re-assemble the computer and test it. You can obtain the sound output from the headphone socket, using a standard PC sound card cable or a pair of active loudspeakers.

Upgrading an A3010, A3020 or A4000

WARNING: *This upgrade involves soldering and track cutting on the motherboard, and removal and refitting of components. It also entails some surface-mount work. Only carry out this procedure if you are totally sure of what you are doing.*

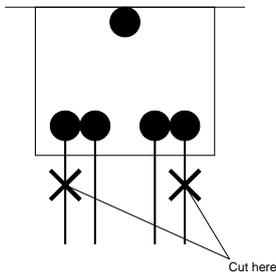
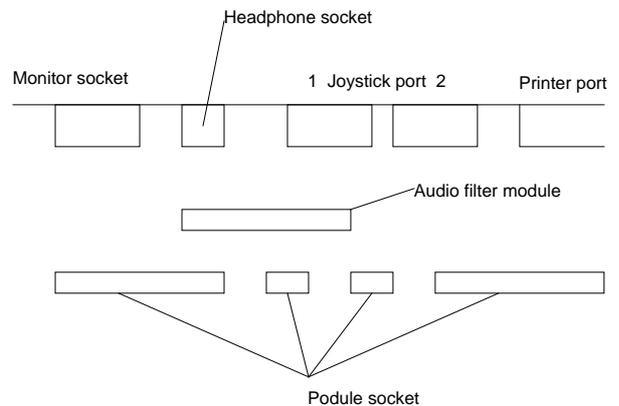
Parts required:

2 10µF 16V axial-leaded electrolytic capacitors (FB22Y)

Hook-up wire as required

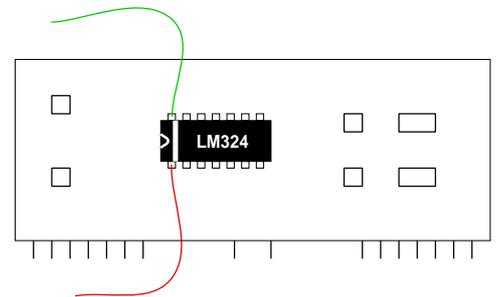
Open up the computer, and remove the metal screening shield. Remove the motherboard completely from the case, on the A30x0 you will need to remove all the screw posts from the sockets on the rear panel. Turn the motherboard over and with extreme care desolder and remove the headphone socket. **Do not damage the socket; you will need to refit it later.**

Locate the audio filter as shown on the diagram to the right. This diagram is based on the A3010, but should be similar for the A3020. The A4000 may be dramatically different, but the audio filter should be easy to spot; it is a small vertically mounted circuit board with the words "Acorn Audio" printed on one side, and a few surface mounted components on the other.



With a Stanley knife, cut the tracks on the motherboard as shown. Next make up 2 flying leads with capacitors attached in the same way as for an A3000. There should be sufficient spacing between the circuit board and the base of the plastic moulding of the headphone socket to enable you to attach the flying leads to the outer terminals on the socket before resoldering it to the motherboard. With the socket opening facing towards you, and the pins facing downwards, the left channel connects to the outermost right pin (the tip) and the right channel to the outermost left (the ring).

On the rear of the audio module you will see a surface-mount chip, which will be marked either LM324 or just 324. Solder the positive terminals of each electrolytic capacitor to pins 1 and 14, which are the leftmost pins at the top and bottom of the chip. Pin 1 (nearest the motherboard) is the right channel, pin 14 (at the top) is the right channel. **Do not remove the audio module from the motherboard, it will be irreparably damaged!** You must instead solder to the module without removing it, for this you will need a very fine soldering iron and a steady hand.



Once the connections are secure, re-assemble the computer. The unfiltered sound will be available on the headphone socket, and will in addition be fed to the internal loudspeaker, thus improving the quality whether an external sound system is used or not.

POWER

When you get engrossed in it, *Without Warning* can be a very realistic film.

I was watching *WatchDog* and wondering if these people know how influential they can be? I remember when BT introduced CallerID, *WatchDog* paraded up an down screaming about rights of privacy and such. In reality, most other western countries worth mentioning already have such systems. I reckon it should be auto-blocked for people registered ex-directory. Otherwise, the only people worrying is the guy who's wife discovers the last call was from his *bit on the side*.



One of the most powerful televised scenes, in my opinion, is in the final episode of *Prisoner*. In the beginning, #6 becomes the newly elected #2 after killing the old #2 in a bizarre way (walking around him saying *die! die!*

die! die! die! until he does). He watches the trial proceedings of the young man who rebels by dancing around singing 'dem bones, 'dem bones, 'dem dry bones and which bone is connected to which other bone (causing all the jurors, which are dressed in Klu Klux Klan type stuff, to start dancing around. Then #6 is introduced to the weird #1. Suddenly the young lad, #6 and the old #2 (who was somehow reincarnated along the way) grab guns and start shooting everybody. Across this, you hear the jukebox with *All you need is love* by the Beatles. Now *THAT* is a powerful scene.



For those interested in the followings, #1 blasts off in a rocket causing "The Village" to be evacuated. The three drive out in a truck (driven by the little butler). The truck has bars down the sides and they drive up to London singing and dancing. The young lad is dropped off, where he tries to thumb a ride. The old #2 gets off outside Big Ben and #6 and the butler go to #6's old house. The butler goes in, and #6 gets in his sports car and drives into the distance.....

Anyhow, enough of that (and feel free to email corrections!).

The point is do the media realise exactly how much power they have? Television, cinema, radio and even printed media. If somebody announced that brand XYZZY was stuffed with morphine, then their sales would plummet. If brand XYZZY was advocated, their sales will rise. We are talking real people here, not the adverts (though judging by the comments on Spice Girls toys, I'm sure a certain brand of crisps and a certain brand of softdrink are enjoying their popularity). Just imagine if the *And finally...* item on the night-time news described how relaxing Trevor finds it to lie in bed after a long day gently sipping a mug of Options hot chocolate. He is a newsreader. People trust him. If he says something, people will listen.

On Radio 4 I heard a part about the media and the police discussing the media following the police on raids and recording everything. They discussed illegal entry laws, they discussed liaison and this and that. Never did they mention that firstly the raided person might not want to be recorded. Neither did they think to consider the effects of a failed raid (ie, the victim was truly innocent). What if you disagree? Do they not show it or do they fuzz out your face and show the rest of you anyway?

I like *L.A. Heat* (Bravo). I like car crashes, violence, explosions and the like. Some people may think I'm a sick little individual but I'm perfectly aware that it is scripted and performed as a stunt. So Chase McDonald has a habit of trashing cars in spectacular ways (you can't really imagine it – one scene I like leaves a mile or two of highway looking like total destruction – it has to be seen to be believed!).

However there is an increasing number of slightly disturbing real life type things, mostly US imports, with names like *Earthquake!* and *When stunts go bad* and *Real TV*. These show real events captured by pros and amateurs. Often the fatal-ending scenes are not broadcast (but that's not always the case). And you know that that person isn't going to get up, change into clean clothes and go fetch their paycheck. They're dead, and you just watched it.

So maybe it is time the media as a whole discussed the power and influence they have, what they do with it and the best way to utilise this power.

Meanwhile I'll go watch *The Nanny* and see what she gets up to this time.

Retournez...

Upon my return to the land of angles, I was greeted with two bits of good news (and loads of spam).

Firstly the Acorn Clan newsletter. It has gone from being a bunch of hotch-potch press releases to something a lot more professional looking, a proper newsletter of the sort Frobnicate dreams of being!



Attached to this was a CD-ROM that contained some interesting stuff – applications discs, old clan discs, free software, demos, ARMLinux, upgrades and more. There is a Library directory (shown above) that includes loads of e-books from the cheesy Romeo & Juliet to Orson Wells. I spent a happyish night reading the beginning of *The Secret Garden*. Happyish – PC's can't anti-alias remember?!

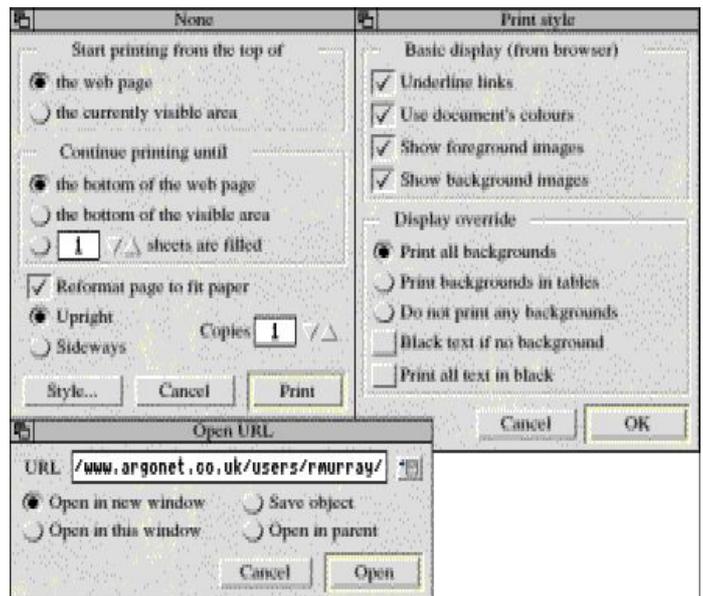
Shakespeare isn't something I studied in school (I thought it sucked then) and still now I think it

sucks. For example, take Romeo's death scene:

[Drinks]
 O true apothecary!
 Thy drugs are quick. Thus with a kiss I die.
 [Dies]

Now tell me that isn't like a Rory Bremnerish parody of an already bad play?

The second bit of news is that Argonet have selected me to help betatest the new WWW browser (you know, Acorn's all-singing all-dancing). I'd be glad too but having difficulty getting the nested-frames WIMP up and running. C'est tragédie!



The templates above show some of the complexities of the browser, complexities which may bring it ahead of all competition. The screenshot was faked using the demo version of ResEdit.

And so it remains for me to wade through all the junk email telling me of hundreds of missed opportunities and *naked babes with huge.....* yes, quite! :-)

...and *that* browser!

Yes, *that* browser. *That* browser. You know, the new Acorn one that Argo members get. That one that comes with the nested–windows version of the WIMP. That one that does tables and frames and animated GIFs and is a bit too simple looking for its own good. That one that doesn't use a cache (yet?) but is dead quick at rendering HTML. That one that can show you the page whilst fetching graphics.

You know, *that one*.

Yes readers, I am a beta tester of the new WWW browser (as are most brave Argo people). Initial impressions are a bit disappointing, however. As a RiscOS 3.10 user I was faced with a 2.5Mb download in order to install the new !Boot setup so I could load the installer! This decompresses to over 4Mb so a quick fiddle cut it down drastically – by half. RiscPC users don't get this hassle.

The new WIMP looks pretty much like the old one except all the nice backgrounds and font hacks fail to affect it. :-(Also it takes a slight dislike to !Zap.

Once I had twiddled by boot setup to select between old style and new style, I chose new and booted.

Then I ran the new browser, which was named !Voyager for some reason. It loads, pops up an icon and sits there.

Clicking SELECT moans about unable to fetch something (the default page is set to Argo's homepage at <http://www.argonet.co.uk/>). So I drop in my homepage. It moans about being unable to fetch something (the counter) and displays my page. So I wander around my site. This browser, when properly integrated, will blow you away. It is *quick* and seems to be fairly stable on my site. Memory consumption is fairly low – I suspect it does JPEGs native? All in all, I was impressed and look forward to a full release – preferably accompanied with some updated system ROMs for my A5000 (hint! hint! Acorn!)..



THE END

A Hissing Spinach Production.

No stars or constellations were injured
in the making of this production.

Any similarity to other realities or
actual realities, future, current or present,
is unintended and purely coincidental.

