

PC Survival Guide

(Part 2)

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In Part 1 of the Survival Guide we discussed the basics of installing the PC Emulator. We go on now to look at the boot-up files and how they can be set up to create a comfortable DOS working



Boot-up without
AUTOEXEC.BAT

environment.

SETTING UP THE ENVIRONMENT

In PC articles, the AUTOEXEC.BAT and CONFIG.SYS files are often referred to, and it would help to understand the function of these two important files if we were to look at how a normal PC system boots-up.

At switch on (a cold boot) or after pressing Ctrl-Alt-Delete (a warm boot) the PC uses a small routine in ROM, called a bootstrap, to search the disc for a more substantial loading program. The bootstrap will first try to access a disc in drive A (i.e. drive 0 in RISC OS terms) and then, if drive A is empty, search any other floppy drives which happen to be installed, and finally look for a disc in drive C, the hard disc partition.

For this reason, before you click on the PC icon bar icon to boot up the Emulator, you should remove any discs hiding away in your floppy drives. Booting up from a floppy drive can be a useful option and we shall find use for that in a later article, but for now we are setting up the hard disc boot files.

If the disc that is found, hard or floppy, is not a valid system disc, that is one holding the two hidden system files, then an error message will be given and appropriate advice displayed depending upon whether the disc is ADFS or DOS format.

Once the loading program has found IBMBIO.SYS and IBMDOS.SYS it loads them into memory. This basic input/output system only understands a limited range of input/output devices - screen, keyboard, discs, for example - and so the system then looks in the root directory for a file called CONFIG.SYS. This is a file which you can use to tell DOS about any extra drivers which might be needed to control other devices. In this context a device may be a physical entity such as a CD-ROM drive or may be more ephemeral such as a RAM disc or a memory organisation utility. CONFIG.SYS is entirely optional but it can also be used to set up certain other useful configuration options, and it is seldom that a PC is set up without one. Having found and installed these extra drivers the DOS command interpreter, COMMAND.COM, is loaded from the root directory of the system disc and initialised. This file is not optional; without it boot-up cannot be completed.

Once boot-up is complete DOS then looks, again in the default root directory, for a file called AUTOEXEC.BAT. This file is not essential but is there to hold a list of commands which you might wish executed on startup - the kind of thing which we would put in the RISC OS !Boot file. On a simple system the Startup text option in the Emulator configuration set up could be used instead. If the file is not present, DOS will ask for the system time and date to be

confirmed, a relic from the days before internal clocks were standard on a PC (see figure 1).

We can put into the AUTOEXEC.BAT file any legal DOS command we wish in order to set up the computer (in our case, the Emulator) in our favourite state.

CREATING DOS FILES IN EDIT

Our next job, then, is to create CONFIG.SYS and AUTOEXEC.BAT. In MS DOS 3.3, the only facility provided for creating text files is a line editor called EDLIN. Experienced hair-shirt wearing DOS programmers have no trouble at all using this, but those of us used to the luxury of full screen editors find EDLIN a pain. There are many DOS full screen editors available ranging from public domain programs and upwards in cost. Why should we bother when Acorn provided us with Edit for free? We shall use Edit whenever possible. Open an Edit text window by clicking on its icon and type the following:

```
FILES=20
BUFFERS=20
DEVICE=\DOS\ANSI.SYS
~
```

You don't need to use capitals but since DOS will convert all lower case characters to upper case before attempting to interpret them you might as well. A word of explanation is called for. FILES=20 and BUFFERS=20 tell DOS that we wish to set the system up to allow 20 files open at one time using up to 20 buffers. 20 files open at one time might seem a lot but the screen and the keyboard are also treated as files and many DOS applications may have several files open at once.

The penultimate line tells DOS to look in the \DOS directory for a driver called ANSI.SYS and load it. This driver is not essential at the moment, but we will use it in future and now is as good a time as any to install it as an example. The last line is a single tilde character (~) which will become the DOS end-of-file marker. It should be the last character in the file (i.e. no newline

character after it).

Press F3, type in the name CONFIG/SYS and drag the icon to the root directory of

To convert text files created with Edit or DeskEdit in RISC OS format into DOS format the following short program should prove useful. Save it somewhere convenient.

```
REM >RISC>DOS
READ C$
WHILE C$<>"*"
  OSCLI("FX138,0,"+C$)
READ C$
ENDWHILE
END

DATA 26,30,132
DATA 92,110,13,92,120,48,100,92,110,13
DATA 133,129,132
DATA 126,13,92,99,90,13
DATA 132,26,131,*
```

The program simply takes each number in turn from the DATA statements and pushes it into the keyboard buffer. These numbers represent the keystrokes needed to convert the file using the Edit or DeskEdit search-and-replace function.

Open the filer directory containing the RISC>DOS Basic program (if you have a Pinboard available pin up the icon and get rid of the filer window).

Drag the file back into Edit if necessary.

Prepare the Search-and Replace function by pressing F4 to get the Find dialogue box and click on magic characters (this only needs doing once per session).

Make sure that the Edit window has the caret and click on the RISC>DOS icon.

You should see the Search-and-Replace window open and characters magically appear in the dialogue box. When the frantic activity ceases you should have [0d] at the end of each line (carriage

the PC hard disc. We now have a problem. You should find that the file is labelled with a normal text icon and this reminds us that the file is not in a DOS format. DOS expects all lines of text to be terminated with carriage return and line feed characters (characters 13 and 10 - like many other aspects of DOS a relic from

more software in more directories, remembering to separate each entry by a comma. It is essential to specify the drive (e.g. C:) to make sure that files are found if you were ever to work on drive A:.

The path is used when DOS attempts to run files with the .COM, .EXE or .BAT extension. So, for example, when the next command in the .BAT file, AMOUSE, is found DOS will look in each directory in turn until it finds AMOUSE.COM in the directory \UTILS, whereupon it will load and run it.

The command CD \COMMON will simply set up \COMMON as the current directory. Note how the backslash \ is used to locate the directory in the root directory. Otherwise the command would look in the

Normal boot-up

the days of teletype terminals) and the file to be terminated by a Ctrl-Z. RISC OS files make do with a single line feed line termination and the CR<->IF operation in Edit is no help since that simply replaces the linefeed with a single carriage return character.

Now for AUTOEXEC.BAT. Again using Edit create a file containing the following lines:

```
ECHO OFF
PATH C:\;C:\UTILS;C:\DOS
AMOUSE
CD \COMMON
PROMPT $P$G
~
```

Hard disc DOS directory list

When executed, ECHO OFF will merely prevent the rest of the batch file commands from being echoed on the screen and could be left out if you wish. The command does not stop messages from the DOS operations being displayed.

PATH=etc. is a command to tell DOS where to find certain files. Here we have told DOS to look first in the root directory (C:\), then in the UTILS directory (C:\UTILS) and if not found in either of those then in the DOS directory (C:\DOS). You can add more directories to your path in future as you accumulate

current directory for the sub-directory COMMON. Strictly speaking the backslash is not necessary here since the current directory is the root directory but it's a good habit to make commands unambiguous. Life on the command line is hard enough!

Our next piece of self-defence is the final command in this file - PROMPT \$P\$G. This is a command which converts the DOS prompt from the inscrutable default prompt, C >, to the much more useful C:\path\> where path is the full path of the current

directory. It is surprising how easy it is to get lost in a maze of directories without this alteration to the prompt (see also RISC User 6:2 page 57).

Press F3 to save this in the DOS root directory under the name AUTOEXEC/BAT. Yes, that's more than 10 characters but since the file is going to a DOS disc it works. You will notice that in the Filer window the name is chopped off short at both ends, but all 12 characters are there. However, a word of caution: if you try to copy a file with a name of more than 10 characters into an ADFS directory the name will be truncated to that length. This means that, unless you are sure that all filenames are short, you cannot use the ADFS RAM disc, or any other ADFS disc for that matter, to park a DOS file while copying from floppy to floppy. Long filenames are only preserved when copying from DOS to DOS.

Make sure that Edit has the caret and click on the RISC>DOS icon again to convert the AUTOEXEC.BAT file. Save it again and we are ready to go. Open the RISC OS PC directory, double-click on !PCEm to install the Emulator on the icon bar. Make sure the floppy drives are empty, click on the PC icon, and after a successful boot-up the screen should appear as in figure 2.

The mouse driver is loaded, the prompt is set, and we are in the correct directory. Those of a sceptical disposition might like to confirm that the path has been set correctly by typing PATH with no parameters. Finally, just to make sure that we really are in control type:

LABEL C:

DOS has two sorts of command, internal (available immediately from



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