



# A codec message

In a step-by-step picture guide, Panicos Georgiades and Gabriel Jacobs show you how to set up audio codecs in Windows 95. Plus, your multimedia queries answered.

**W**e have lots of your queries to catch up with this month, so let's make a start by dealing with a question sent to us by Peter Kenny. He writes: "Your article, in the October issue, referred to a number of compressed sound-file formats. I was interested in the GSM format which is, indeed, listed under Multimedia Properties in my Windows 95 system. However, when I tried to play the GSM sample from the CD-ROM on my system, nothing happened, although all the other samples seemed to work. Do I need to do anything to install the GSM codec in my system?"

"The reason for my interest in GSM is not altogether to do with multimedia, but rather because my data/fax/voice modem (US Robotics Sportster) records all voice messages in files with a .GSM extension. I have been trying to find out about the layout of these files because I want to translate them into .WAV files that I can play through my SoundBlaster-16 card. USR has been very unhelpful. Do you know whether these files are in the GSM format described in your article, or where I can get at any documentation of GSM (preferably on the internet)?"

You can check whether the GSM compressor has been installed on your system by clicking on the multimedia icon in the Control Panel and looking under the list of audio codecs. If it's not there, you can install it from the Win95 CD-ROM. If it is there, you can check its configuration settings by clicking on it. Our file is 44.1kHz, mono. The setting for decompression should be set to All rates.

GSM stands for Global System (for

Mobile (Communications) but the initials are taken from its earlier, French, name: *Groupe Special Mobile*. The Windows 95 bump states that GSM compresses and decompresses audio data conforming to the ETSI-GSM (European Telecommunications Standards Institute — *Groupe Special Mobile*) recommendation 6.10. The GSM 6.10 is a speech encoding system, used in Europe, that compresses 160 13-bit samples into 260 bits (or 33 bytes) — that is, 1,650 bytes/sec (at 8,000 samples/sec). A free implementation can be had on the net using ftp from [tub.cs.tu-berlin.de](http://tub.cs.tu-berlin.de), file /pub/tubmik/gsm-1.0.tar.Z.

Additionally, there are two US standards: 1016 (Code Excited Linear Prediction, or CELP, 4,800 bits/sec) and 1015 (LPC-10E, 2,400 bits/sec).

The GSM files created by your modem are probably of genuine GSM format, since GSM compression was made for telephony. But you really need to contact the people who wrote the software that comes with your modem and which creates those files, if you wish to decipher them yourself. We assume that your software doesn't have an option to convert them into WAV files. Some similar software, such as SuperVoice, does this for you.

You'll find many web sites offering GSM-to-WAV conversion programs. Do a Boolean search on GSM and WAV.

## A useful reference

"I work for a company that produces electronic books consisting mainly of text and still graphics. We are very keen to offer more video and sound in our products, but are having difficulty in locating anyone who

can provide a digitising service. I would therefore be extremely grateful if you could send me a list of suitable companies."

Paul Cox, Oxford

See the PCW September issue for our review of the *Multimedia and CD-ROM Yearbook*, which contains about 1,400 businesses in the UK providing multimedia products and services. (See the "PCW Contacts" box, page 314, for details.)

## Sound-card choice

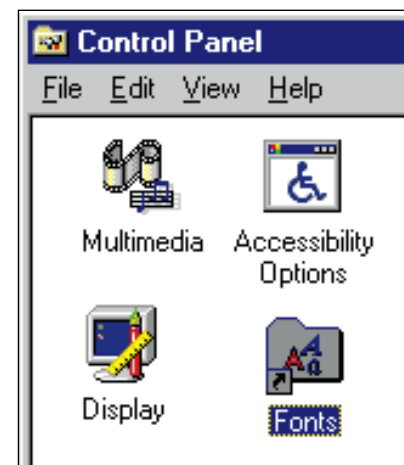
"I bought your book on MIDI, published by the Sigma Press in 1990, and I've been following the advice given in your column here in PCW, but I really need some help with specific questions. I've recently switched from being mainly a Mac user to owning a plug-and-play Win95 Pentium PC with Adobe Premiere, 3D Studio, and Animator Studio. I also have Roland kit from the cheap end of the range (CM32).

"I want a sound card with good built-in wavetable sounds, versatility, stable performance and a dependable MIDI interface. Sampling is something I'd like to do, but this is only one priority.

"I've read that some cards don't have hardware MIDI interfaces but use a software TSR to emulate it. This can cause MIDI sounds to fail if another TSR overwrites it. I've also read that cards without hardware FM synthesis emulate SoundBlasters in software — that seems like asking for setup headaches and conflicts. Although the option of digital output sounds useful, I don't know how I'd use it.

"I'd appreciate your guidance on what to buy, and I should say I've not seen straightforward buying advice in any

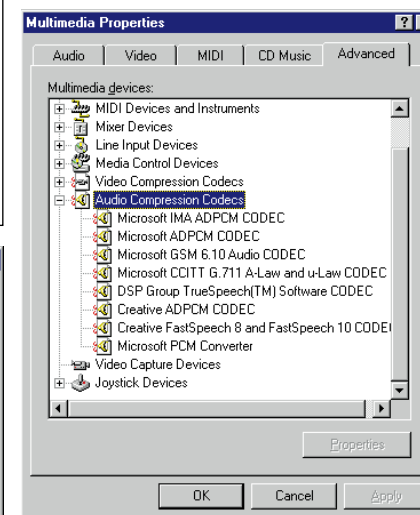
## Setting up audio codecs in Windows 95 — your step-by-step guide



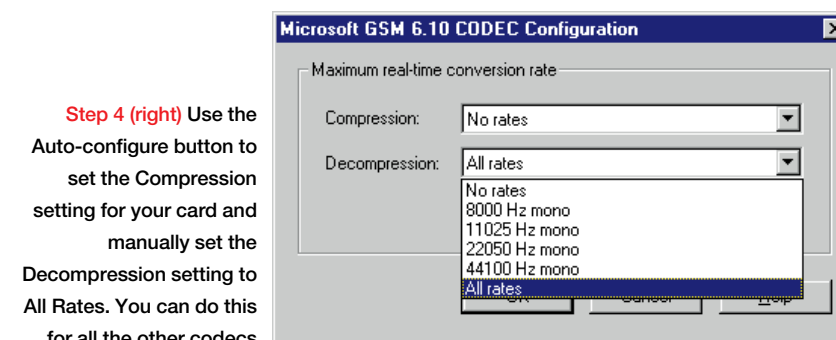
**Step 1 (left)** Open Multimedia in the Control Panel and select Advanced



**Step 2 (below)** Select GSM audio compressor from the Audio Compression Codecs



**Step 3 (left)** Click on Settings



**Step 4 (right)** Use the Auto-configure button to set the Compression setting for your card and manually set the Decompression setting to All Rates. You can do this for all the other codecs

computer magazine. Nevertheless, I've got a shortlist of five with some 'Fors and Againsts' that I've gleaned from reviews: it is as follows:

1. Turtle Beach TBS2000. Good sounds, good track record, but software MIDI interface. No daughterboard connector. Not easy to get hold of and a bit pricey.
2. SoundBlaster 32. Reasonable price for average sounds, RAM for sampling, good support (I think). Many users, digital output, but software MIDI. No sequencer supplied and no daughterboard connector.
3. SoundBlaster AWE-32. As above, plus reasonable software and daughterboard connector but overpriced (in my opinion).

Perhaps about to be replaced, and due for better synth chip?

4. Orchid NuSound. Good price, average sounds. Good package. Hardware MIDI, daughterboard connector (Orchid's board is only about £20) and NuPanel control panel. But sounds are not the best. No sampling, no digital output and perhaps due for a new card with sampling?
5. Gravis Ultrasound PnP. Good price for good sounds. Sampling, reasonable track record, hardware MIDI but no daughterboard connector. Software perhaps not as good as AWE and not so widely used. SoundBlaster emulation in software.

*"And, while I'm asking questions: is an alternative to having a card with sampling, having an expensive sequencer which will mix synth sounds with digital audio sounds? I don't suppose it is because other software (games, Animator Studio) won't be able to play back a mixture of the two as the sequencer can."*

Robert Wood  
Open University

Lots of questions! We'll try and answer most of them. And thanks for those mini-reviews, although we can't comment on all the details.

Firstly, we should say that some of the views given in the articles in the magazines you've been reading are a bit dated and, frankly, not worth bothering about. Eleanor Turton-Hill's group test of sound cards (PCW April '96) is more up to date.

There's no need to worry about FM emulation and MIDI TSR emulation. These are related to programs running under DOS or strictly using the hardware MPU MIDI interface standard. Most cards come with Windows drivers which override, and/or render useless, any DOS drivers and settings.

The TBS2000 has the same kind of interface as the AWE-32. You can get it from Millenium Music, Tech-mate, Turnkey (see the "PCW Contacts" panel for details) and any of the Byte superstores.

The plain truth is that you won't find a single card that will do everything you want at the best quality. The best overall card which has most of what you want is the AWE-32 (the full version rather than the budget item) at about £170 (plus VAT), which is not expensive for what it offers. It's true that the on-board sounds are a bit thin, but they're no worse than the other cards you mention. A new version (AWE-64) will be out sometime in January with 64-note polyphony. An additional (more expensive) model, the AWE-64 Gold, featuring instrument modelling, will also be available in the New Year.

The best wavetable sounds we've heard on a PC card can be found on the Yamaha DB50 daughterboard (£129) which has an excellent MIDI implementation. You see, it's not just the quality of the samples, but also how much control you have over them during playback — if you want your music to have some expression, that is.

Sequencers need not be expensive

## Dear Santa...



Before getting on to our Christmas wish list, let's take a brief look back at 1996. For us, it has been a year when computer companies have actually believed their own hype. Consequently, they have devoted huge efforts and resources to developing products for the internet. For instance, most multimedia authoring programs have had new features added to them, allowing users to create multimedia applications for the net. It has been our job to report on many of these, and in most cases we've been amused rather than impressed. Sorry, but the truth is that if you want multimedia, forget the internet. It's too slow even for still pictures, let alone sound and video. If you want to enjoy multimedia, get it on CD-ROM. Even when everyone has cable lines — with the 17Gb storage of a double-sided DVD (when it's out, if ever) — it will be decades before the internet can deliver comparable performance.

■ We wish the hype over multimedia on the internet would simply stop. Last year, one of our wishes was for full-screen video. So how far have we got? The new version of Adobe Premiere boasts support for 32 x 32 pixel video output for use on the net, and we bet that kids are asking their parents for a magnifying glass for Christmas so they can view it!

■ While on the subject of the net, we wish that web page designers would stop trying to show off and use less video and graphics so that pages would display faster. If you opt not to display graphics, you're left with an awful feeling that you might have missed something. We simply wish they would cut out the gizmos. After all, when you've seen one, you've seen them all.

■ We wish that Windows wouldn't ask us to press OK when there's nothing else to press and things are very far from OK.

■ We wish that when you get the message Abort, Retry, Fail, and you select Retry, something would actually happen other than the same message appearing again and again, until you press Abort or Fail.

■ We wish there was more hardware compatibility. We've spent more days sorting out hardware incompatibility problems with Windows 95 in the last year than we care to contemplate — Plug-it-in 'n Play "solve the problem".

■ We wish there were new typefaces designed specifically for reading text from a computer monitor, and that all programs (especially multimedia authoring tools) would anti-alias fonts on-the-fly.

■ We wish (every year, not just this one) that companies and organisations would stop announcing products before they have dreamed of them. CD-X and DVD were announced ages ago. Where are they? And where are the large flat-screen LCDs which we can hang on our wall — the ones we were promised last decade?

■ We close our eyes and wish hard for no more answerphones on customer support lines, and no more "musak". We want to talk to *real* people at the other end — people who know what they're talking about.

■ We wish for more and cheaper electronic pens to replace mice.

■ And finally, we wish that computer companies would concentrate on delivering what customers want, as they used to in the eighties, as opposed to concentrating on buying each other out, as they have been doing over the last five years. They've been so busy eliminating competition that they've brought stagnation to the computer industry; something which inevitably happens when there aren't enough manufacturers around.

nowadays to incorporate audio as well as MIDI tracks. Only if you want to manipulate your own original sounds as musical instruments (change the pitch and so on) do you need a card that handles sampling. The AWE-32 can use up to 28Mb of RAM, and there are lots of CDs with sounds for it. Steven Helstrip has reviewed some in his Hands On Sound column.

You only need a card with digital In/Out if you want to communicate with digital equipment such as an audio DAT machine. You should note that most digital cards are more expensive and don't have MIDI sounds on them.

To avoid setup headaches, go for a card for which the drivers have been around and well-tested for some time.

■ Please note: this is the last Multimedia column to be included in the Hands On section of PCW, but you will still be able to read all about the various aspects of multimedia in other parts of the magazine. Panicos Georgiades and Gabriel Jacobs will continue to write for us from time to time.

### •PCW Contacts

If you have any queries, or interesting multimedia-related topics to discuss, we'll be pleased to hear from you. You can contact us at [g.c.jacobs@swansea.ac.uk](mailto:g.c.jacobs@swansea.ac.uk) or [panicos@dial.pipex.com](mailto:panicos@dial.pipex.com)

The Multimedia and CD-ROM Yearbook  
Macmillan General Books 0171 881 8000

TBS2000 soundcard Millenium Music,  
0115 9552200; Tech-mate 01206 793355;  
Turnkey 0171 379 5148



# Drive ways

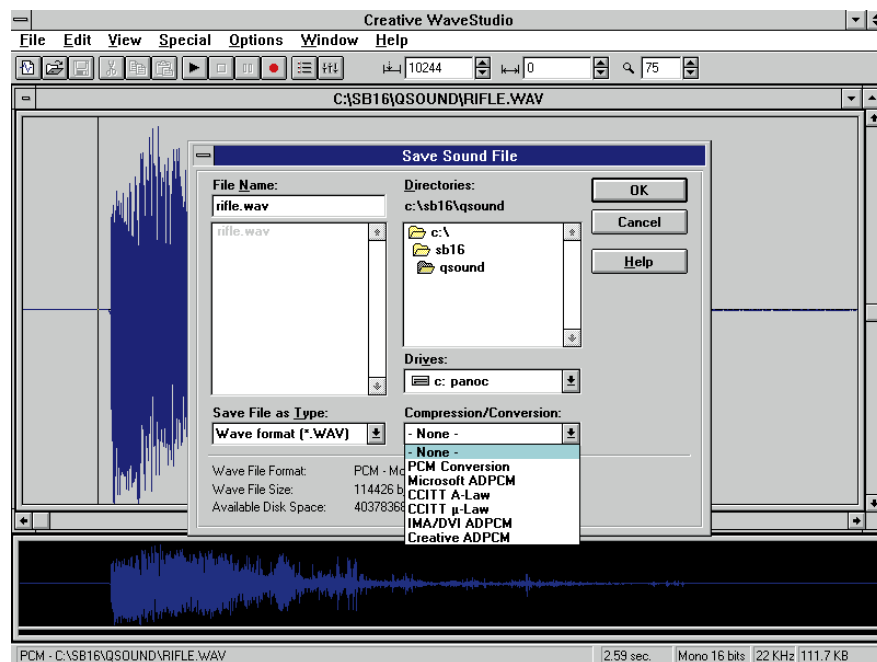
Panicos Georghiades and Gabriel Jacobs explain the pros and cons of today's special AV drives to help you decide whether or not they are worth the extra cost.

**T**his month we dedicate most of our column to an important issue in multimedia production — disk drives. We examine whether there really is a need for the special kind of audio-visual drives now available. But first, a short letter.

Robin Penny writes: *"Thanks for your article on audio compression in the October issue of PCW. Unfortunately, you failed to answer the real question, which is how do you compress WAV files in the first place? I read a lot of mags but have not seen this question answered anywhere. Presumably, as the codecs are in place when you install Video for Windows, you do not need to do anything for decompression to occur. I use a SoundBlaster 16 PnP card but it does not have the ADSP chip. I heard that one is needed to handle compression."*

In Windows 3.1, once you install Video for Windows some of the codecs we mentioned (most importantly, ADPCM) become available to you. With Windows 95, all of them are available on the Win95 CD, but you do have to install them. They're to be found in the multimedia section of the installation procedure.

Files don't compress automatically when you save, simply because you have a card which is capable of compression, so you need to initiate the procedure. The Windows 95 Sound Recorder offers several compression options including all the installed compression drivers when you save a WAV file. Alternatively, you can use other sound-editing software for compression. Creative Labs supplies WaveStudio with most of its sound cards, which gives you additional compression options when you save a file. Unfortunately, the Windows 3.1 Sound Recorder has no



WaveStudio gives you more than one compression option when you save a file

options to compress files so you're forced into using a third-party sound editor that supports compression.

Judging from the fact that you have a plug-and-play card, you must be using Windows 95. If you're into audio editing and find the Windows Sound Recorder a bit limiting, a program we use and find very good is SoundForge 3.0. Generally, an ADSP chip isn't needed for non-realtime compression and decompression. Even for realtime applications, a high-powered machine (anything above a 486/33) can do the job in software. For MPEG sound, you need a higher spec: an ADSP chip can help relieve your machine of some of the necessary work. See next month's instalment on audio compression.

## AV hard disks — are they worth it?

A number of hard-disk manufacturers either produce special audio-visual (AV) versions of their drives, or incorporate features which enable them to be termed "audio-visual". That means the drives are especially suited to handling digital audio and video data. Of course, they charge more for these drives: about 15 percent above the price of a normal drive.

The market for this type of drive can be divided into three major groups. At the top end (in terms of requirements) there are companies such as BT and other future broadcasters who wish to provide video-on-demand. They need to store lots of full-length films as well as allowing viewers to download them, thus very high

capacity and performance hard disks are required.

In the middle, there are the video-editing companies, music studios, TV and radio stations and commercial multimedia developers. For these organisations, the capacity of the drives does not need to be quite as high as when providing video-on-demand because much of the editing may have no realtime requirement.

At the bottom, there is the increasing market of home video and music enthusiasts, and producers of multimedia games, presentations and training programs. The capacity and specification requirements are lower due to the fact that home-quality video doesn't need as much storage space as broadcast-quality.

This third category of user has the least money of the three yet most of us ordinary mortals belong to it, so it's for the sake of the majority that we have carried out an experiment to determine what difference AV drives make. Before revealing the results, we should say something about the relevant factors affecting disk drives which are used for audio visual material.

The first factor is capacity. A 500Mb hard disk is adequate to store your disk-hungry Windows 95 (about 75Mb) and still leave you with space for your letters and all that email you may get from the net in the next five years. But a 500Mb hard disk can store less than 20 seconds of broadcast-quality video, or 80 seconds of (VHS-equivalent) home-quality video.

Yes, with compression you can get more, but when you're editing original material you don't want to use too much compression as it degrades the quality. You also need at least as much working space as that taken up by your video material.

The second factor is random access time. Video and audio data accessed in realtime, during simple playback or recording, requires the characteristics of a disk to be that of tape giving an uninterrupted supply of data, but this is made difficult by the requirements of digital editing (the need to jump from place to place). In addition, sound and video data is not always interleaved (stored close together). During editing, it may be in two different files. Also, files may be fragmented on the disk and if you're dealing with many tracks you'll be using many files anyway.

Hard disks nowadays manage about eight to nine millisecond access times, but that's the duration of two frames of video. In

audio terms, eight milliseconds is a long time: it's a sizeable part of a consonant sound in speech, which you'll definitely miss if it's not there; furthermore, in that amount of time, out of the 44,000 units needed for every second of CD audio about 350 units of sound is stored. Missing even one such unit can create abrupt changes in the level, which will come out as clicks and crackles.

The third factor is the rate of data transfer between disk and computer. You need a high sustained transfer rate for audio visual work. You can get ordinary hard disks with high average transfer rates, but this is no good if the rate fluctuates too much. You may have a drive that takes 60 seconds to copy a 60Mb file (average = 60 read + 60 write = 120/60 seconds = 2Mb/sec), but in those 60 seconds the transfer rate may fluctuate between 1Mb/sec and 2Mb/sec.

On the other hand, you may have another drive which takes 90 seconds to copy the same file (average = 60 read + 60 write = 120/90 = 1.5 Mb/sec), but where the transfer rate fluctuates only between 1.4Mb/sec and 1.6 Mb/sec.

The second drive with the lower average transfer rate (but the higher sustained minimum transfer rate of 1.4Mb/sec instead of 1Mb/sec) will be better suited to audio visual work.

The transfer rates of hard disks are presently still quite low and for professional video work, single hard disks are not used. Instead, arrays of hard disks are combined to reach the required figures. For multimedia production and audio and home video editing, some of the latest hard disks are adequate, but the question we finally come to is: is it worth paying the extra for a specialised AV drive?

## Micropolis

We asked Micropolis, probably the best known of the hard-disk manufacturers which produce this type of drive, to lend us four of its products for testing purposes.

Micropolis AV drives incorporate a number of features which make them specialised:

- They give a constant data transfer rate by using caching techniques to keep realtime disk housekeeping, and therefore interruptions, to a minimum.

- Soft data errors which, on an ordinary disk, may take a comparatively long time (850 ms) to correct, are corrected in ten milliseconds or less on the fly with the use of a dedicated correction engine which also

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cuts out retries. Retries require a complete revolution of the disk and they are not uncommon on a conventional drive. You do not notice them because everything is happening so fast, but they can nevertheless ruin a smooth audio visual transfer.

■ On many conventional disks, thermal re-calibration, where the drive heads are re-aligned to take into account any changes in temperature, takes place every ten minutes or so. The process is eliminated in the Micropolis AV disks (not just deferred) by the use of a special servo system.

■ De-gaussing (the correction of magnetic orientation) of the data head takes less time than on a conventional disk.

Other AV drives are available from Seagate, Hewlett-Packard, Conner, Quantum and others. Not all achieve their AV capabilities in the same way as those from Micropolis. For example, some concentrate on cutting down time-consuming error-logging, improving error management and thermal re-calibration in ways which are different from the Micropolis methods, configuring disk cacheing, buffering in special ways, and so on.

In the meantime, how did the Micropolis disks perform? Well, we did carry out some benchmark tests for our own satisfaction, but numbers weren't really of interest to us. What we wanted to know was whether there was any noticeable difference between a conventional and an AV drive when grabbing and playing video.

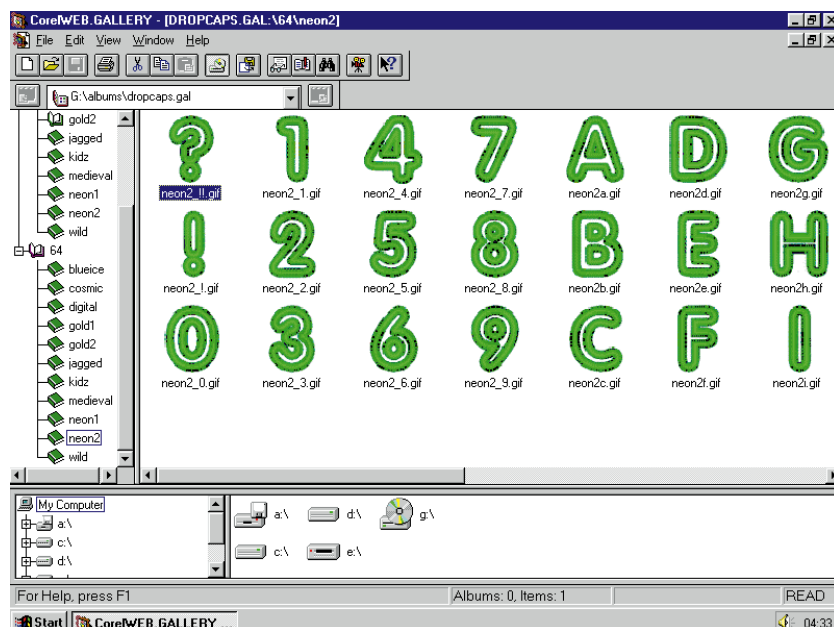
We tested an AV and a standard model from two classes of drive: the 4221 and the 4421. The drives were all internal and we tested them on the same PC using the same SCSI-2 controller and software. Conditions remained the same and we exchanged one disk immediately after another.

In both cases, the difference between the AV and non-AV versions of the drives was not dramatic, but it was noticeable as well as measurable (in lost frames) when dealing with a video clip even as short as 60 seconds. We measured differences of five to ten frames in 1,000.

All drives behaved better in capturing data than in playing it back, and video tended to be jerky on playback even when no frames were reported as missing during capture. This was due to the computer processor being busier at playback. It's also a characteristic we've noticed on other drives from other manufacturers.

During playback, the AV versions of the

## CorelWeb.Gallery

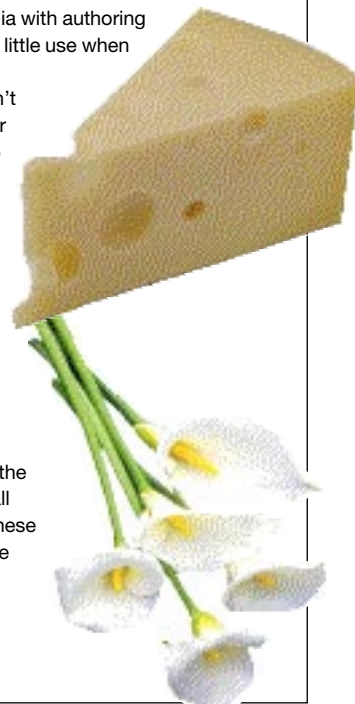


Many manufacturers provide multimedia clip art and clip media with authoring packages and sometimes separately, and quite a lot of it is of little use when you're working on a project that involves original material.

The reasons are usually that the style of the clip art doesn't match what you want, the quality isn't up to what you want, or simply because you want to use something that is different to everyone else's.

A product released recently for the web, called CorelWeb.Gallery, can just as well be used in multimedia development. It contains a substantial selection of goodies,

including arrows, bullets, buttons and dividers. There are also dropcaps, icons, backgrounds, objects, thousands of photos and clip-art images, all organised into 120 themes. We were very impressed, especially with the small file sizes and the small number of colours used in these images, which save space and downloading time. CorelWeb.Gallery costs around £79.



drives gave a perceptibly smoother performance than the non-AV versions. We discovered that the differences in performance between the AV and non-AV versions increased when the RAM in the machine decreased. Not surprising, because less memory means less buffering.

In conclusion, if you're writing CDRs or dealing with multitrack audio or output of edited video onto tape, an AV drive is definitely worthwhile, especially if your machine has less than 32Mb RAM. If your

machine has that amount or more and you're not dealing with realtime playback applications, the difference will certainly be there. You just may not notice it.

### PCW Contacts

If you have any queries, or interesting multimedia-related topics to discuss, we'll be pleased to hear from you. You can contact us at [g.c.jacobs@swansea.ac.uk](mailto:g.c.jacobs@swansea.ac.uk) or [panicos@diapipex.com](mailto:panicos@diapipex.com)  
**Micropolis** 01724 751315  
**Soho Sound House** 0171 379 5148



# Pro-creation

Corel has given birth to its latest package, Click & Create. Panicos Georgiades and Gabriel Jacobs take a peek.

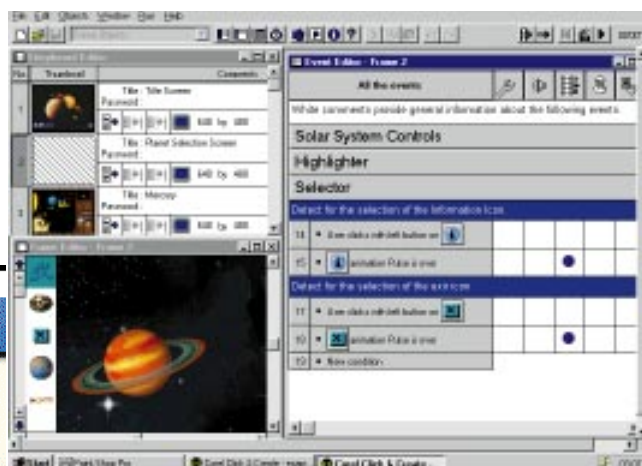
**H**ow many multimedia authoring packages can you name? Five? Ten? Twenty? You may be surprised to learn that there are more than 50 for the various platforms but they are not all called authoring packages. Some call themselves presentation packages, while others are full-blown programming languages. A newly-released package from Corel, Click & Create, joins this large and growing group.

Click & Create is sold as a powerful multimedia authoring tool, at a suggested price of £495 (not cheap by any means). Despite being targeted more at developers than home users Click & Create is not, in our opinion, as powerful as Director or Toolbook although we recognise that much

here depends on your particular needs. Anyway, the package does have the Corel badge and offers a number of interesting facilities and resources.

You can use it to develop CD-ROM titles and corporate presentations, although it's wildly overpriced if all you want to use it for

**Click & Create: storybook, frame and event editors**



is presentations. It can also be used to create screensavers and (very successfully) games.

As for that price tag, Corel is offering a special price of £199 if you want to change from your current authoring system (this is what's generally known in the software business as a "competitive upgrade").

Click & Create works under Windows 3.x and 95/NT. It comes in both 16-bit and 32-bit versions and includes support for DirectX and WinG. A Mac runtime player has been scheduled for release as a free add-on and should be available by the time you read this.

The package includes many features and facilities. There are button, animation, picture and morphing editors. There's ODBC (Open DataBase Connectivity) support and specialised game-editing tools.

Applications can be saved as EXE files (or as screensaver SCR files) and you can distribute your applications free-of-charge, although you need to include the product's logo on your packaging.

The two modes supported are frame mode for slides in a presentation or pages in a book, and timeline mode, as in a movie

where events happen at a specific time. There are editors for these, as well as a storyboard and event editor. This latter is really the powerhouse of the package. You build up events and when they occur you can trigger actions: play video, CD audio and so on. By using the events editor and menus and dialogue boxes, the program does away with the need for a programming language.

The support for media is extensive and equivalent to that found in any package at the top of the range. If you don't have enough of your own media there's Liberia,



A multimedia music title, compiled using Click & Create

consisting of repackaged bits from the clipart that comes with Corel Draw. It's very large and probably better than that offered by any other multimedia package available. There's an extra CD-ROM with 210 fonts, 1,100 images, 250 video/animation files, 1,400 sound effects, 200 transitions and more. The MIDI files were done by our friend Ian Waugh and they're very good. Although 30-days' free technical support is less than you get with other packages, you do not have to pay for the telephone call because it's on a freefone line.

Only time will tell whether or not this product can make a significant dent in the large market shares currently held by Director, Toolbook and their ilk. There's bound to be a shake-out soon — even the potential of the multimedia authoring tool market isn't infinite. We wouldn't dare hazard a guess at who will be the eventual winners.

You can find more details about Click & Create on the internet at <http://www.corel.com/click&create>

## Going Dutch or going Greek?

**Q.** "I live in the Netherlands and bought a six-speed Vertos CD-ROM drive locally. Although it has now broken, it's still under warranty. But I have a big problem because the dealer has gone bankrupt. I've searched (in the Netherlands) for Vertos but it doesn't seem to exist.

Via the internet I have managed to track down Vertos's home page in Greece and

have mailed the company several times, so far with no result. Really, when you buy something in good faith and want to invoke the warranty you should be able to find the company responsible.

I've read in your magazine that Seagate and Sony will repair equipment if a dealer isn't able to. Shouldn't this be standard procedure for all products?"

**Guido Schonkeren**  
<csg807@wing.rug.nl>

**A.** We publish your letter because, indirectly, it raises two important issues relating to the current state of multimedia hardware.

The first is that the market forces which cause dealers to go bust are, in the end, very much in favour of the consumer. For some time now we have seen falling prices as competition intensifies. If multimedia is to reach its true potential, this competition must continue and many dealers will go bust in the process (it's a fact of life) but it also means that the survivors will be forced to offer less in the way of after-sales service and that is very worrying.

The second issue is that because prices are falling so consistently and so rapidly, we're almost moving into throw-away multimedia hardware. So it would hardly have been worth sending your CD-ROM drive abroad for repair or replacement. Here in the UK, you can now obtain drives from around £35. You should take into account the fact that when you send equipment away for repair, you will

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Click & Create can be used to author multimedia, games and screensavers



be without it for perhaps several weeks. It gets close to the point where you might well consider throwing it away and buying new.

In your particular situation, however, you haven't extracted the right information from the net: Vertos isn't a Greek company; the Greeks haven't really manufactured anything since the Parthenon!

Vertos CD-ROM drives are made by Elitegroup Computer Systems in Taiwan. We have no Netherlands address but in the UK they're at Unit 10, Victory Business Centre, Worton Road, Isleworth TW7 6DB (telephone +44 181 847 3332). If you contact the company, giving the serial number of your drive, it should be able to tell you where to get it repaired or replaced.

Perhaps it's about time we had a European Consumer Protection body?

### Making Movies

**Q.** "I am keen to try video editing on my PC: nothing professional, just VHS film of my family growing up, our holidays and so on. I want to transfer the video from my camcorder to my PC, edit it, inserting titles and transition effects and then dump it onto VHS tape as a finished product.

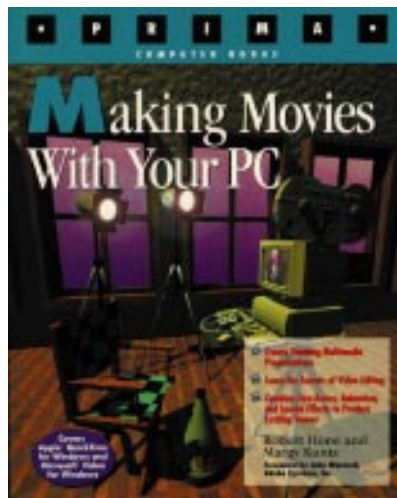
I have only seen one advertisement for a complete package, the FAST Electronics F60, which includes hardware and software. However, I am reluctant to commit myself before knowing firstly, whether there are other ready-made solutions and secondly, whether I couldn't construct a purpose-built set-up using a multimedia card and separate software. Many of the multimedia cards I have seen advertised seem to support video capture but not transfer to tape. Any suggestions?"

David Challes

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**A.** We receive many queries on this subject. Yes, you're right: you do need to get a card that supports video output as well as input. But the F60 is not your only option.

Miro DC1, DC20, Reveal VE500P and the new Diamond Crunch It 2000 (as well as others) have video output and are bundled with video-editing software (mostly Adobe Premiere LE or Ulead Media Studio). Some of these cards start at just over £350. There's not really a lot of difference between them and most use the same types of chip. The Reveal VE500P (also named Video Artist), offers a complete package including a book, called *Making Movies with your PC* (ISBN 1-55958-389-4).



However, it's important to take a number of other things into consideration. You need a good hard disk with lots of space and a high and constant transfer rate, especially since you'll be playing back to record the result to video. A transfer rate of over 2Mb/sec (actual figures, not manufacturer's specifications, so take care) is required for a good recording with no deterioration. For VHS quality you can capture at 352 x 288 pixels at 25fps compressed at 4:1.

For this level of performance, an audio-visual drive would be preferable. It gives smoother capture and playback. Two Gigabyte drives can now be had for just under £400. (See next month's column for more on audio-visual hard disks).

If you have a machine that has a PCI motherboard, you will achieve better results (i.e. you'll capture more data per second) with a PCI capture card, as opposed to an ISA card.

### Fungus Illuminatus

**Q.** "I tried to use the *Illuminatus* demo on the PCW CD-ROM, but it won't run because it wants CTL3D.DLL. Where I can get this?

Secondly, do you think we might ever see a review of expert systems in PCW? Perhaps this is too specialised but I would like to produce an illustrated guide to species identification for a group of fungi. It looks as though *Illuminatus* might be suitable and quite inexpensive. I want to do run-time versions but not allow people to readily copy my information.

It has been suggested to me that you can do just about everything you need to with a Windows help file (although I'd imagine there's not much security). I am not a programmer. Indeed, my attempts at

programming in the past have been most unsuccessful!"

Christopher Walker

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**A.** In answer to the first part of your question, CTL3D.DLL can be found on the PCW cover-mounted CD-ROM in the directory which holds the Video for Windows 1.1e files. You can copy it to your Windows\System directory and decompress it using:

```
Expand CTL3D.DL_ CTL3D.DLL
```

Better still, just install Video for Windows which you need to do anyway to run the video files on our CD-ROM.

Expert systems are not our speciality, so we'll pass on your request to our features editor. But with respect to your illustrated guide to fungi, *Illuminatus* is a simple program to use and doesn't require a distribution licence. It's cheap, and most of your data gets embedded in the application so it's not easy to copy. But do bear in mind that no information is safe once it's in electronic form: however much you encode it, once it's on the screen, all someone has to do is press the Print Screen key and it's copied to the Windows clipboard.

The other point to consider is whether you want a text-search facility and how much data your application will hold. If you're dealing with many hundreds of species, a Windows database program (Access, Paradox, dBase, or Approach) may do the job better and more easily than a multimedia authoring tool. With the coming of multimedia authoring tools, database programs seem to have suffered something of a decline (in these types of applications), which is a pity because very often they're exactly what you need.

We assume, in suggesting this, that you have only text and pictures — no video or sound. We also assume that you'll have no hotwords that link to other topics and no pictures with hotspots that lead to other pictures or text. Authoring tools such as *Illuminatus* and other multimedia authoring software are built specifically to take account of such things.

### PCW Contacts

If you have any queries, or interesting multimedia-related topics to discuss, we'll be pleased to hear from you. You can contact us at:

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