

Video to DVD - Part 2

T.O.M.S.

In this second part, we'll follow up on various elements of using Microsoft's basic-but capable **Movie Maker** video editing software.

We mentioned previously that we'd look at an alternative edit application – Ulead's *VideoStudio 9* – that we'd bought to do a specific task which Movie Maker can't handle. When we got further into it, we realised it's far more accomplished than first assumed, and tremendous value in every sense. So maybe it deserves a more detailed run-down, with supporting piccies. Look out for that in Part 3.

We've purposely dropped the word "Analogue" from the title of this second part as, apart from picking up a couple of leftovers concerned with capturing video from an analogue source, the rest – editing, movie 'rendering' and DVD-burning – is all in the digital domain.

Indeed, having recently bought the Living with Technology CD, we've spotted Brian Pickard's excellent article on '*Archiving Cine Films to Video/DVD*' in LwT 2.6. This discussed ways of projecting 8mm and Super 8mm *cine* film onto a suitable screen and recording it onto video tape. So hereafter, we're talking common treatment for digital, analogue *and* cine source material.

Which digitiser?

In the first part, we discussed the three alternative hardware solutions for capturing an analogue video source: an internal digitiser card, an external box doing the same job, or the TV card 'cheat'.

Regardless of the method used, the captured video is identical as far as Movie Maker is concerned, so it's a case of choosing which solution suits you best; a pre-existing TV card may even do the job without any additional expense.

In some respects, although slightly more expensive, a plug-in box is rather more convenient for occasional use as all the connectors are easily accessible, without having to 'fiddle round the back'.

Conversely, an internal digitiser card or TV card is arguably more convenient and tidier if you can leave all the cables plugged in at the back. The choice really is yours.

Multiple analogue video sources

You might have a need to digitise video from two or more alternative analogue sources, in which case it's perfectly feasible and may be more convenient to have the relevant unit(s) permanently plugged into the internal card, in a daisy-chain manner. Swapping between them is then normally simply a matter of switching on the intended source and switching off the other(s).

In such an arrangement, the signal is invariably linked through an intermediate unit in a daisy-chain, even if it's switched off, although some trial-and-error may be needed to get the set-up working as you require.

If you need more assistance with this, Richard Watkinson and an iffy outfit called T.O.M.S. jointly ran a series of articles called '*Connecting AV Units*' in LwT, starting in 1.9 p37, all of which are on the LwT CD.

Digital-digital transfer

As Gerald Fitton explained in his monthly column (18.7 p22), plugging a DV camera into the computer, using a Firewire connection, results in the video footage being captured directly by Movie Maker, retaining the digital format throughout.

(Terminology: Don't be confused by the different names used for digital-digital connections. The Institute of Electrical and Electronic Engineers' *IEEE-1394*, Apple's proprietary '*Firewire*' and Sony's '*i-Link*' are

synonymous and identical in specification, performance, connectors and cables. Sockets on desktop computers and peripherals are invariably 6-pin, whereas sub-miniature 4-pin sockets appear typically on laptop computers and DV cameras. Connecting cables are available with all three possible combinations of 6- and/or 4-pin plugs.)

Digital-analogue-digital transfer

If a digital video source device doesn't have a Firewire connection – e.g. a DVD player or digital TV box (*Freeview*, ex-*OnDigital* or even *Sky* digibox) – note that the signal will necessarily be converted to analogue format within the device, before being (re-)digitised by your chosen ADC card or box!

This seems terribly cack-handed but, with *Movie Maker*, we don't know of any way of getting a digital signal from, say, a DVD player or a digital TV receiver, *directly* into the video editing application. The next-best-thing is invariably an S-video or SCART connection, but these support only analogue-format signals.

However, we musn't lose sight of the fact that the majority of readers following these articles (if any...) may simply wish to convert their movies from ordinary video tape – or cine film – onto DVD. For that, the analogue-to-digital conversion we're talking about is perfectly adequate for the task.

Editing and saving ('rendering')

We've already used the word "rendering" a few times in relation to saving your edited epics in *Movie Maker*, and this seems to be causing some confusion, so we need to explain the term.

To do that, we also need to explain the fundamental differences between two of the options in *Movie Maker*'s File menu: **Save Project** and **Save Movie File**. These important functions are present in all movie edit application software, although the names may differ slightly.

The Project file

When setting up a movie project in *Movie Maker*, the first action is to **Capture** the source video footage, whether from a DV camera or digitised from an analogue source.

This input file, in AVI format at 768×576 pixels and 25fps (from a DV camera), or 640×480 pixels at 30fps (from an analogue source), is saved wherever you wish to keep it and is loaded into *Movie Maker* for editing. The audio channel is tied to the video track.

It's important to note that this input file is *NOT* modified in any way throughout the subsequent processes. So if you make a total hash of the editing, you can always start all over again, simply by re-loading this source, input video file.

During the **Edit** process, all you're doing is storing a series of commands to tell *Movie Maker* how you will want the eventual *output* file to look. So individual movie clips can be defined simply by making a record of their respective start and end (In/Out) points.

These may be from totally different parts of the source video file and not necessarily in strict time order (hence the term 'non-linear editing') or even from different video or still image source files.

Similarly, transitions, effects and titles are defined by further commands. In some edit applications (e.g. Irlam's *VideoDesk*), this project 'command' file can be loaded into a text editor, inspected and even tweaked manually if desired.

Don't be concerned if, when viewing your edits in the *Movie Maker* preview window, it all looks a bit low-res and transitions etc are a tad jerky.

This is because the display generated for preview purposes is a bit rough-and-ready at 384×288 pixels and a limited refresh rate. But it's certainly good enough to support ease of editing, to single-frame accuracy.

Saving the Project

When you come to click on **File–Save Project**, all you’re doing is saving the Project ‘command’ file, so clearly it’s a Good Thing to do this on a very regular basis. You can of course set up different movie projects, maybe working on completely different areas of the same source video file, simply by editing and saving two or more project files with different names.

Any editing session can be re-started, from cold, simply by double-clicking on the relevant project command file. This will load Movie Maker, load the project command file and load the associated source movie file(s).

But once again, we stress that any subsequent changes are made to the project command file; the source video file is *not* modified, in any way.

‘Rendering’ the movie

Once you’ve completed the editing process (i.e. once you’re satisfied that the project command file will reproduce the final movie in exactly the way you want it), it’s time to generate the output file, prior to burning to DVD, upload to your website, or whatever.

To do this, click on **File–Save Movie File** which takes the source input video file and, from it, “renders” a new (and quite separate) output video file, in accordance with the edit commands you’ve set up in the project command file.

This is purely a number-crunching exercise for the computer, in the foreground, and how long it takes will depend on the available processing power and how complex the command file is. Simply copying clips from the source movie and re-arranging them into the desired order, without changing their content, doesn’t take very long.

But once you start adding in transitions, effects and/or titles, the clock really does tick away. This is because frames have to be looked at *individually*, all the relevant

command actions applied and the results stored. With 25-30 frames per second, depending on the output format you’ve selected, you can see why it takes time. Even a simple, 2-second crossfade will require 50-60 individual video frames to be rendered.

Which file is which?

To summarise so far: as you progress through these procedures, three or more different files for each movie project will appear, at intervals, in your directory structure:

- The source (input) movie file(s), captured in AVI format. The source file(s) will *not* be modified in any way by the subsequent editing process.
- The project (or ‘command’) file, with the DOS file extension MSWMM. This will be generated when you first click on **File–Save Project**. Further editing and re-saving will overwrite this file.
- The edited (‘rendered’) output movie file. This will be generated only when you eventually click on **File–Save Movie File**. Depending on what output quality you pre-select, it will be in either AVI or WMV format.

When you come to burn the DVD, this is the one passed to the DVD-burning application. But if you want to double-check it before doing so (other than in Movie Maker’s small preview window), it can be run at up to full-screen in *Windows Media Player* or similar. The rendered file quality as viewed will depend on what output settings you’ve made but, if for eventual burning onto DVD, will be much better than the ‘rough cut’ seen in the preview window when editing.

(*Hint:* If you save the input and output files into the same directory, maybe with similar names, it’s ever-so-easy to mix them up, especially if they’re both in AVI format. So we suggest saving them into quite different directories.)

DVD burning limitations

We said in Part 1 that, at the completion of the editing process, Movie Maker doesn't have its own DVD-burning utilities but, in all probability, you'll already have the necessary software to do the job.

Of the various titles we have to do that, from different sources, all of them appear to have a common restriction in that the recording time for a standard 4.7Gb disc is limited to 1 hour maximum. Comparing that with 'consumer' DVD recorders, that seems to equate to the little-used High Quality (HQ) setting.

In practice, that's not a severe limitation. As mentioned in Part 1, lengthy movies are not really a practical proposition with Movie Maker and a 1-hour limit is probably OK, even for recording multiple movies.

But do note that, to fill just a 1-hour disc, this necessarily involves many hours of uninterrupted number-crunching which, even with the most reliable of machines and DVD-burner software, is maybe asking a lot.

(Quick recap: this is to convert the movie file(s), output from Movie Maker in either AVI or WMV format, into the MPEG 2 format required for PAL/DVD burning.)

Transitions and effects

Although we said we didn't intend to cover editing in any detail in these articles, it would be remiss of us not to applaud Movie Maker for its built-in transitions and effects repertoire and give a couple of examples.

At times, these can simplify really quite complex tasks and yet in such a user-friendly fashion that the end result has to have an attached warm glow of achievement.

A trivial example is in solving the poser Bimal Jangra hit after rotating his video camera through 90° and filming in portrait format (discussed in 18.9 pp64-65).

How to rotate the resulting video for display 'right way up'?

In Movie Maker, simply drag the video onto the timeline, select the relevant clip, drag-and-drop the *Rotate 90* effect over the clip – literally to turn the video through 90° – and check it in the preview window.

Sod's Law means it will almost certainly be upside down (*drat!*), in which case Edit-Undo the *Rotate 90* effect, drag-and-drop the *Rotate 270* effect over the clip instead, render the result – and that's it. Easy or what?

Different effects can be superimposed upon each other to produce interesting, composite results and, as we discovered, transitions don't have to be the usual short duration.

As an illustration of that, our favourite DIY demo, resulting in a 'ghost train' effect, involves a 30-second clip of the 10.00 a.m. from Whitby, slogging up the final 1 in 49 into Goathland station (a.k.a. Aidensfield in ITV1's Heartbeat country or, for Potter fans, alight here for Hogwarts...)

Firstly we grabbed the initial frame in the movie clip as a still (no train visible); dragged it out to make it a static, 30-second 'clip' in its own right; turned it into monochrome by dragging Movie Maker's *Grayscale* effect over it (U.S. spelling); and superimposed an emulation of a grainy, 1940's-vintage cine film, complete with badly scratched emulsion; the extraordinarily effective *Film Age, Old* effect (see Fig 1 overleaf).

We then linked the monochrome still and the full-colour movie clip by a simple *Fade* transition, which we again stretched to 30 seconds so that, in effect, the two movie elements were superimposed over each other.

Rendering this 30 secs demo alone took the computer 3½ minutes of number-crunching. The resultant clip starts with the simulated, 'cine film' shot (Fig 1) and ends with the full-colour view of the train entering the station (Fig 3) but, between the two limits, there's a perfectly smooth transition, lasting 30 secs, from one extreme to the other.

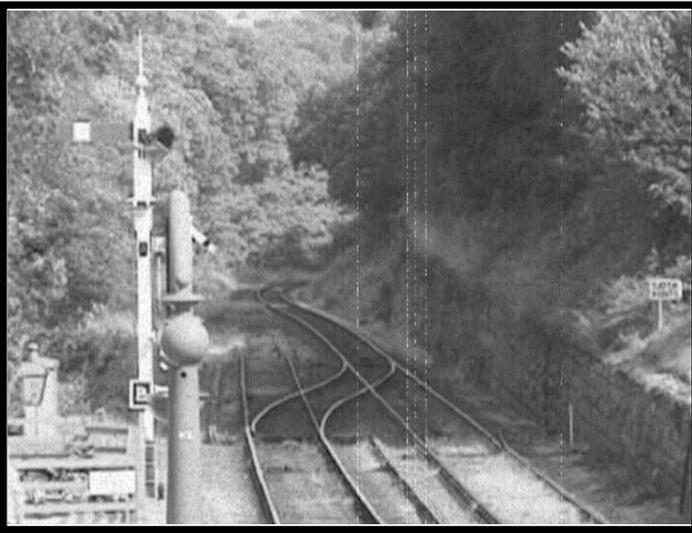


Fig 1 1940-something?

So, at the exact half-way mark, for example (Fig 2), the train is visible – but at 50% transparency – hence the overall ‘ghost train’ effect, emerging from 1948 or later (for the anoraks among you) to the present day...

(*Hint:* To ensure the two merged clips are perfectly synchronised during the 30 sec transition, it’s vital that the camera view isn’t disturbed, so a tripod and ‘hands off’ the camera are essential.)

To fully appreciate these effects, and assuming you have a suitable application for viewing MPEG files (e.g. *Windows Media Player*), you might like to run the ‘Ghost Train’ movie clip accompanying this article. The ghostly stationmaster was feeling faint and a bit off-colour that day...

Whither RISC OS?

Yes, OK, we realise that by this stage you must be asking “What’s all this got to do with RISC OS?” and it’s high time we responded.

Accepting that RISC OS – whether running on a current ARM-powered machine or under VirtualRPC – can’t take a hand in capturing a video source, converting it to digital format (where necessary), editing it and burning the result to DVD, what *has* RISC OS got to do with this topic?

The answer is that, on occasions, we find that all the lovely still-image handling software for RISC OS can be used very conveniently in preparing material for import into and use by Movie Maker. This isn’t an exhaustive treatment but here’s a couple of ideas (more to come in Part 3):

Titles (1) – Although Movie Maker does have a titling facility, with choice of outline font face, size, animation and so on, there are a couple of limitations which can make titles appear rather ‘flat’ and really not very attention-grabbing.

Firstly, unless you superimpose the title over a movie clip, you’re limited to a plain



Fig 2 The ghost train...



Fig 3 The present day...

background (any colour is selectable). Secondly, although the lettering is given a semi-3D effect on some of the optional styles, there's no direct user-control over the 3D aspect; depth, position, transparency, and so on.

Over to RISC OS... Prepare your movie titles in programmes such as *Artworks*, *Draw* or *Paint*; use the outline fonts you're more familiar with; select a more interesting background picture or texture; use a dedicated 'graphical text' utility such as *Fontasy*, *FontFX*, *Insignia* or *Type Studio*; and so on.

The final image should be the right size for import into Movie Maker (768×576 pixels for PAL), and in a 'PC-aware' format. There are many way of doing that. For preference, we use *D2Sprite* to convert a drawfile into a sprite; drop that into *DPingScan* for resizing; output the image as a TIFF bitmap; drag-and-drop it into Movie Maker. A fade-in and fade-out are easy to introduce by using Movie Maker's **Fade** transitions.

Titles (2) – If you superimpose a title generated within Movie Maker over a film clip (animated or still) there's often a problem with readability due to lack of contrast between the relatively 'flat' text font and the background image. Some of the available title animations are better than others in this respect but, if you prefer a simple, static title, preparing it under RISC OS can greatly help.

All the previously-mentioned 'graphical text' utilities can be used to produce the title text on a transparent background to superimpose over a still image but, for extreme simplicity, all we need to do is to type the text into *Draw*, select it and click on **Convert to path**, then make the **Line colour** and **Fill colour** highly contrasting.

It's worthwhile playing with *Draw*'s line and fill colours, and especially the **Line width**, to produce the effect you want.

The resulting title will now always be readable when superimposed over a still image, regardless how complex the background is.

Export the title graphic using exactly the same procedures discussed above and enjoy the results.

If there's a small problem, it's in capturing the desired background image, as a still, in the first place. If we simply click on the **Take Picture** camera icon under Movie Maker's preview window whilst editing, we'll capture the displayed frame, but it'll be in the 'rough-cut', low-res condition (384×288 pixels).

To capture the full PAL-resolution frame, instead we need to run the *source* movie by double-clicking on its icon in the **Collections** pane, find the wanted video frame, then click on the **Take Picture** icon.

This grabs a still at 768×576 pixels and allows us either to transfer it direct to VirtualRPC if running on the PC, or save it to floppy disc or whatever for transfer to an ARM-powered machine.

The composite image at Fig 4 is a simplistic example of what can easily be achieved by combining a title, generated within RISC OS, with a video frame grabbed from within Movie Maker.



Fig 4 Example title text on complex image

As illustrated, the black text outline with a contrasting fill colour will always be legible, regardless of the complexity of the underlying frame, especially if in full colour.

The end bit

Note: If you're running these articles via *Impression*, and wish to view the illustrations in more detail, simply press <ctrl> and double-click on the figure. By the wonders of OLE, this copies the graphic into its parent application (e.g. *Paint* or *Draw*), and can then be zoomed in etc for a detailed shufti.

In Part 3, as promised, we'll have a look at *VideoStudio 9*.

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