

Exploring Replay

Lee Calcraft takes a look at Acorn's Desktop Video Solution.

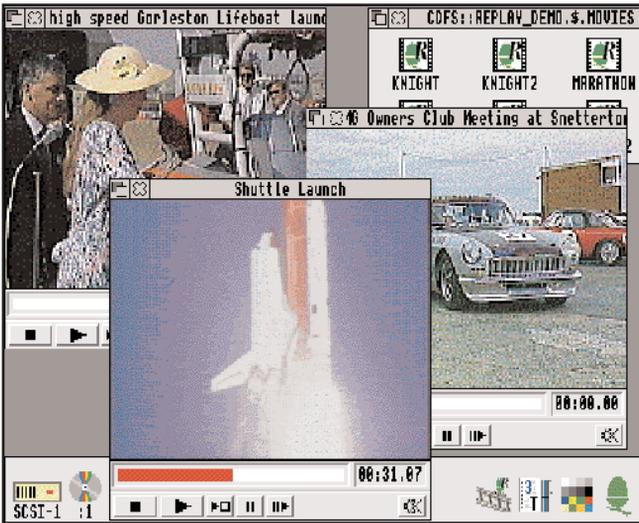


Figure 1. The new version of Replay running with multiple windows

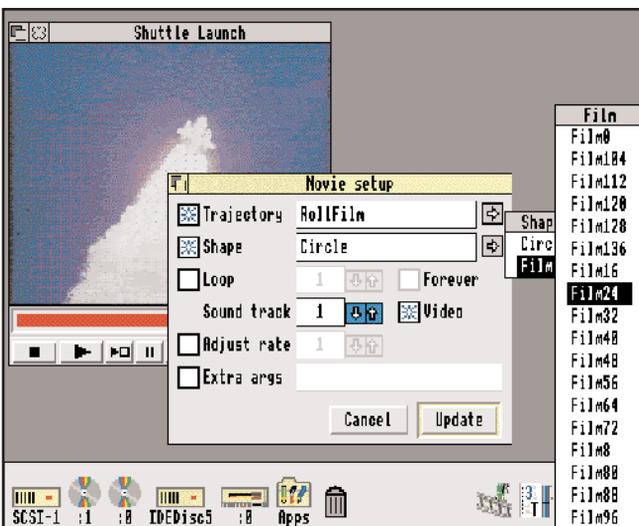


Figure 2. The setup dialogue box, with new Shape and Trajectory menus

The display of moving images forms an important element in the headline grabbing world of multi-media. And thanks to the speed of the ARM processor and the diligence of Acorn's programmers this world is open to all Archimedes users without the aid of special hardware add-ons.

All you need is one or more movie sequences packaged up as Replay files, and a suitable piece of software to play them. In practice, you are more likely to come across Replay movies if you are a CD-ROM user because all but the shortest movie sequences are a good number of megabytes in length, and are not readily distributable on floppy disc. Commercial CD-ROMs such as the Dictionary of the Living World, and British Birds, for example, contain excellent Replay clips, as does Acorn's Replay VideoClip Collection One, though this latter is no longer available.

But CD-ROM is not the only means of distributing Replay movies, and purchasers of the Risc PC will find a number of Replay clips on the hard discs of their new machines. You can also make your own Replay sequences using Irlan's ReplayDIY or CC's Eagle II multi-media card. Additionally, Uniqueway (0222 644611) offer a mastering service, turning video tape into Replay movies at a very reasonable price - and indeed it is Uniqueway that have generated the majority of Replay sequences currently available in the Acorn world.

PLAYING DESKTOP MOVIES

Acorn supply two pieces of software for playing Replay sequences:

- ARMovie and
- ARPlayer

both written in Basic (though ARMovie uses embedded assembler), and both recently re-released with enhanced features. The first behaves as a piece of system software in many respects, and actually contains the code for playing movie sequences, while the second provides a shell giving the user a Desktop application.

If you double-click on a Replay file, the movie will play at a quarter-screen size in the middle

of the Desktop, freezing out all other activities but the mouse, which can be used to pause or halt the display. If you drag your Replay file to ARPlayer you get a more civilised state of affairs in which the movie plays within a Desktop window which contains a full set of controls. Because of the intense demands on the processor however, all other Desktop activities are still frozen, and you cannot drag the window around unless the movie has been stopped.

As to the quality of the movie, that all depends on the settings used when the Replay file was generated, as well as the degree of change from one frame to the next. Replay files use a differential compression technique in which frames are stored as a series of differences from successive previous frames. Every two seconds or so in the sequence a so-called key frame is stored, which contains the full information needed to reproduce it. This means that although you cannot play back a Replay movie in reverse, you do not need to back-track for more than two seconds worth in order to start viewing at any arbitrary point.

All Replay movies store their images in 16-bit colour, and generally speaking will reproduce better on a Risc PC or an Arc with a Colour Card than on a bare 8-bit machine - especially since there is no time for dithering during playback, so some colours will simply appear to be wrong when viewed with an 8-bit palette.

SOUND

The Replay file format can handle digitised sound, and most Replay clips contain a good quality sound track which replays through the computer's loudspeaker.

In fact you can even use Replay files to store sound-only movies, and Acorn provide an application called MultiSound for playing them back. Unlike ARPlayer and ARMovie, this works in the background, allowing full access to the Desktop during playback, and indeed I am listening to a snatch of *Sleeping Beauty* as I write these words.

MOVIE CLIPS IN YOUR OWN PROGRAMS

Although you can play Replay movies directly on the Desktop using the ARMovie or ARPlayer applications, it is also possible to play them in your own programs. This is achieved by calling ARPlayer from the command line. It can be



Figure 3.
Projecting a movie onto a sphere. At full screen size the low resolution of the image shows up (the movie is from the old VideoClip Collection One)

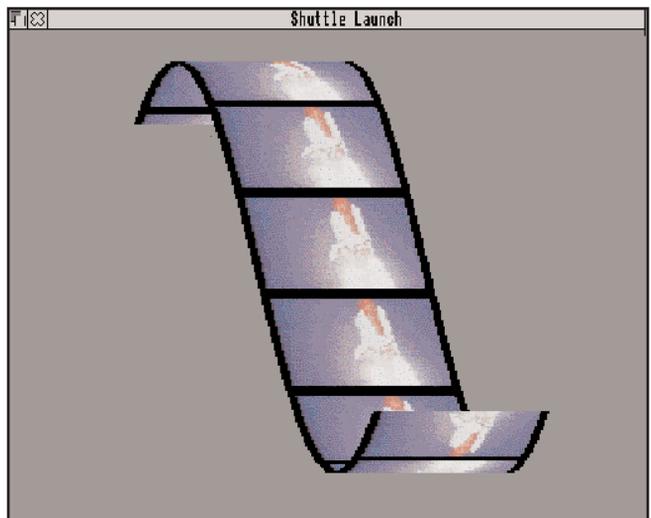


Figure 4.
Projecting a movie onto a roll of film

achieved with a single OS call of the form:

```
SYS Wimp_StartTask , Run <Movie$Dir>.Shuttle
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This will play a movie named Shuttle stored in

the directory <MoviesDir>. Calls of this kind can be issued from any running Wimp program, and will result in the movie being played at a quarter screen size on the Desktop. On completion, control will return to the calling application.

This call can also take a wide range of parameters which can be used to specify things such as whereabouts on the screen the movie is to appear, what frame it is to start at, how many frames it will play for, and whether it is to occupy a full or quarter screen. You can also specify parts of the screen that will contain active control buttons, including Stop, Play, Pause, Fast Forward, Single Frame Advance, Mute etc. - though your program will need to display the buttons itself.

ENTER RELEASE II

This all works rather well, and the new release of the software is even better. In particular it allows you to play movies in non-rectangular viewers on the Desktop, and even to supply a trajectory along which this shape is moving. Perhaps the most dramatic example of this is the bouncing ball scenario. Here the movie plays back as if projected onto a sphere, which bounces around the Desktop, complete with elastic squashing effects as it hits each surface. Other effects include a variety of film sequences where each cell of an unrolled film contains the moving animation (see figure). These effects are controlled from a dialogue box which offers a range of options based on the particular Shape and Trajectory description files present. You can also adjust the playback speed from here, and specify sound-only replay, in which case multi-tasking is fully enabled during playback.

But enough of the fancy tricks! There are two more features of the new version of Replay that will prove useful. Firstly ARPlayer is no longer restricted to a single window: you may have as many movies open on the Desktop as memory allows, though you can still only play one at a time. Secondly, ARPlayer provides a number of rudimentary editing features. The ARPlayer application itself provides a variety of save options, allowing you to extract the soundtrack, the so-called helpful sprite (the sprite which appears when a Replay file is

first loaded), the movie header, and even the data for individual frames. This can then be reassembled using one of the utilities supplied in a special Tools directory.

HOW TO GET A COPY

The Risc PC currently contains an intermediate version of Replay which has all the features described above, though its set of shapes and trajectories are limited, as are the supplied tools.

But in June or July of this year Acorn are aiming to release their complete Replay suite on a multi-media CD-ROM, which will also contain a good number of Replay movie clips together with a selection of still images in JPEG format and a set of MIDI sound files. There will also be demonstration versions of five important multi-media packages: Genesis, Morph, Magpie, PhotoBase and Empire. Acorn have already set the price for this product at a very reasonable £30. It is just the thing for demonstrating the power of the Archimedes and Risc PC platforms, and I have already ordered my copy!

