
Subject: Re: Best Movie/Animation Format for LARGE files

Posted by [davidf](#) on Sun, 20 Feb 2000 08:00:00 GMT

[View Forum Message](#) <> [Reply to Message](#)

wcapehar@my-deja.com (wcapehar@my-deja.com) writes:

- > I have been working on some large image time series (long in time and
- > large in size) and am wondering what the best format (jpeg/mpeg) for
- > saving them with the least distortion to the frames.
- >
- > Ideas? (I'm already breaking up the time series into smaller clips.)

I've been getting reports--John Broccio's article today is only the latest--of poor resolution when making MPEG movies. I don't know what to make of it. I thought I might check with the folks at RSI and see what I can find out. But in light of what I have been hearing, I'd be thinking about JPEG, probably.

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting

Phone: 970-221-0438 E-Mail: davidf@dfanning.com

Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Best Movie/Animation Format for LARGE files

Posted by [wcapehar](#) on Mon, 21 Feb 2000 08:00:00 GMT

[View Forum Message](#) <> [Reply to Message](#)

I have been working on some large image time series (long in time and large in size) and am wondering what the best format (jpeg/mpeg) for saving them with the least distortion to the frames.

Ideas? (I'm already breaking up the time series into smaller clips.)

Thanks much
Bill Capehart

Sent via Deja.com <http://www.deja.com/>
Before you buy.

Subject: Re: Best Movie/Animation Format for LARGE files

Posted by [davidf](#) on Tue, 22 Feb 2000 08:00:00 GMT

[View Forum Message](#) <> [Reply to Message](#)

William Thompson (thompson@orpheus.nascom.nasa.gov) writes:

> I wonder if the larger movies "coarsen up" to be compatible with Microsoft
> Windows mpeg players. We've been making MPEG movies on our Unix workstations
> using mpeg_encode for some time now. The movies always play well on our
> workstations, but sometimes the movies don't play correctly on Windows
> machines. This problem has always been attributed in the past to the size of
> the individual frames. However, recently I was told that a movie which
> wouldn't play in Windows in its original format, was made to do so when it was
> regenerated at the same frame size, but with a lower quality parameter. The
> current theory is that Windows players refuse to play MPEGs unless they can
> decode them fast enough to play the frames at the correct frame rate.

Just five minutes ago I got a longish response from RSI technical support on this topic, which seems to confirm this theory. It's fairly technical, and I didn't understand a lot of it on first reading, but I'll see what I can do to clean it up and pass it along.

In the meantime, it would probably help to know which *viewers* people are using when they notice problems.

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting

Phone: 970-221-0438 E-Mail: davidf@dfanning.com

Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: Best Movie/Animation Format for LARGE files

Posted by [Steve\[2\]](#) on Tue, 22 Feb 2000 08:00:00 GMT

[View Forum Message](#) <> [Reply to Message](#)

wcapehar@my-deja.com wrote:

> I have been working on some large image time series (long in time and
> large in size) and am wondering what the best format (jpeg/mpeg) for
> saving them with the least distortion to the frames.
>
> Ideas? (I'm already breaking up the time series into smaller clips.)

>
> Thanks much
> Bill Capehart
>
> Sent via Deja.com <http://www.deja.com/>
> Before you buy.

Hi Bill:

Well, this is the one issue in this NG that I can add something to the discussion (though I program in IDL for 5 years or so, I'm no expert). I use direct graphics (too lazy to learn Object graphics) and make animations from 1 MB to 300MB (mpeg's and mjpeg's). I don't know if you can fix IDL's image quality problems, but I do know that there is a default 'quality' factor of 50 or 75 % written into the MPEG routines provided with IDL. I use a separate encoder, already mentioned by another poster here, and generate frames in IDL. The quality is much better than those produced in IDL (btw, IDL makes MPEG-2, while the Stanford encoder, is MPEG-1, an older standard, but more common). I use PPM or GIF format for the frames, as I recall, JPEG didn't give as

nice of results. I think the reason is JPEG is a lossy compression, and the Stanford encoder will take that JPEG and convert it to PPM and then to .Y .U .V component files, then use the MPEG compression, so you are compressing something that has already undergone compression. I could be wrong about that, but my experience is JPEG gave lower quality MPEG's.

GIF gives you nice clean colors and a small file size. PPM is akin to TIFF

in that it is not compressed and has the full color palette included, but is much larger than GIF. I didn't see a difference for my animations in terms of quality when using GIF instead of PPM, though the frame file size is much reduced.

I got to the stage where I couldn't hold all the frames of my animations on disk, and began to use MJPEG. I make each frame and then have IDL run a shell script that compresses each frame into MJPEG format. The MJPEG compression does not use intra-frame statistics, like MPEG does, so you can avoid having to save all the frames on disk before encoding, like you would need to do if you make an MPEG. The exact format of MJPEG will depend on your playback hardware, and you would need that hardware to view the animation. If you have \$\$\$, you could write the MJPEG to DVD, though I hear the DVD writer is a small fortune. The MJPEG will ultimately not achieve any more compression than MPEG, but you can

avoid the huge slew of frames in production. For instance, for my animations, with 30 frames/second, 720x480-24bit frames, that's 1.8GB / minute ! You can use lower frame rates, smaller frames, maybe lower color quality

to conserve disk space. Generally MPEG gives you about 30:1 compression.

In an ideal world, I would always use MPEG, as the movies look the best.

Since MPEG only uses a few frames for statistics, it should in principle

be possible to generate only a short sequence of frames and send these to your own custom-compiled mpeg encoder, and get around having to generate all the frames beforehand, but I don't know of an encoder you could use for this. I haven't looked in detail into the Stanford encoder source, but it is freely available.

Subject: Re: Best Movie/Animation Format for LARGE files

Posted by [thompson](#) on Tue, 22 Feb 2000 08:00:00 GMT

[View Forum Message](#) <> [Reply to Message](#)

wcapehar@my-deja.com writes:

```
> In article <88rm7q$zza$1@pukkie.phys.uu.nl>,
> P.Suetterlin@astro.uu.nl wrote:
>> In article <MPG.131a56a6dc21d88e989a3b@news.frii.com>,
>> davidf@dfanning.com (David Fanning) writes:
>>
>>>> I have been working on some large image time series (long in time and
>>>> large in size) and am wondering what the best format (jpeg/mpeg) for
>>>> saving them with the least distortion to the frames.
>>
>>>> Ideas? (I'm already breaking up the time series into smaller clips.)

>>> I've been getting reports--John Broccio's article today is
>>> only the latest--of poor resolution when making MPEG movies.

>> I had one try at the built-in MPEG creation of IDL and immediately
>> dumped it. I'm creating my mpegs using mpeg_encode (Version 1.5).

>> You have to store the single frames on disk, so no memory
>> limitations. Of course mpeg (and jpeg, too) are lossy compression
>> tools, I only use them if I only want to look at them, and don't
>> intend to do (e.g.) photometric work..

>> PS: That's under Unix. Not sure, but mpeg_encode might also compile
```

>> under other OS.

> I agree with the degradation issue. Small mpeg movies (in time steps
> and in the image sizes) are fine but larger ones, tend to "coarsen up."

I wonder if the larger movies "coarsen up" to be compatible with Microsoft Windows mpeg players. We've been making MPEG movies on our Unix workstations using mpeg_encode for some time now. The movies always play well on our workstations, but sometimes the movies don't play correctly on Windows machines. This problem has always been attributed in the past to the size of the individual frames. However, recently I was told that a movie which wouldn't play in Windows in its original format, was made to do so when it was regenerated at the same frame size, but with a lower quality parameter. The current theory is that Windows players refuse to play MPEGs unless they can decode them fast enough to play the frames at the correct frame rate.

William Thompson
