

# Introduction to digital time-lapse video production

(specific examples Based around Canon digital still camera / Win32 system)

**Author: Woody Kitson - [woody@e-Kit.co.uk](mailto:woody@e-Kit.co.uk)**

**Version 1.1**

**Date : 04 Dec 2005**

---



## Introduction

Time-lapse photography is about taking continuous pictures at regular specified intervals over a period of time. These individual frames can then be played back at the desired 'speed' ( frames-per-second [fps]) to look like a speeded up video.

Its one thing obtaining the latest greatest equipment, but that does not necessarily bring you brilliant results instantly. You need time to get to your kit and how it works - especially your camera. Great results can be obtained with a simple digital compact and simple software. With a Digital SLR, you get all the benefits that you would expect when taking any still. Focus control, lens options, I could go on.

An advantage of Digital Compacts over some Digital SLR's is that the 'minimum picture size' (In pixels). The smallest image size for even an old canon EOS 10D is 1600 x 1200. These are large dimensions for a video. Sequences using this size image will take longer to encode, take up more disk space, and depending on your hardware set-up, may limit your minimum interval between each shot.

Using In theory, there is nothing to stop you encoding a high resolution video using these frame dimensions. But you will mostly only be able to view them on a computer. In converting to a DVD format, you will actually be reducing the quality! Saving your frames or videos in a higher resolution will of course keep them ready for next generation, high resolution broadcast and television systems.

While practising with short sequences, it may be best to use 640 x 480 pixel dimensions, but as you progress, you might want to up that to 800 x 600, 1024 x 768 or even 2048 x 1360 to get that HDTV quality video! There is never a need to shoot in RAW format when the frames are to be used for a video sequence.

Here are some values to give you a better idea of common image dimensions:

**DVD Video** : 720 x 576 pixels ( 0.4 Million Pixels )

**HD television** : 1080 x 1920 ( 2 Million Pixels )

**An early 14" colour monitor** : 640 x 480 pixels ( 0.3 Million Pixels)

**A modern 21" flat screens** : 1600 x 1200 pixels ( 1.9 Million pixels )

**'Early' digital cameras** : 800 x 600 pixels ( 0.5 Million pixels )

**A good '2006' digital SLR** : 4000 x 3000 pixels ( 12 Million pixels )

**NOTE:** Pixels do not relate to the 'actual size' of an image. When dealing with screen and print you have dots-per-inch (dpi) that relates to the size of the dots (or pixels). For example you could use a giant DVD screen with each dot 1cm square, giving a

It is also possible to produce a time-lapse using a normal video camera, recording normally, and then increase the fps to speed up the video. You could also do it by deleting frames. If you deleted every other frame, you would effectively speed up the video by 2.

If you are specifically looking to create time-lapse sequences, then I would always recommend using a digital still camera set-up because:

- A) the quality of each frame image will be much better.
- B) easier to manage the data
- C) they are cheaper!

## Basic equipment

- Computer
- Digital Still Camera(s) + Tripod
- Camera control Software
- Image processing Software
- Video encoding Software
- Stable tripod
- Reliable Power supply!

The Computer, software and camera need to be chosen carefully in order to meet your time-lapse requirements. I will not be talking about the various benefits and drawbacks of different hardware and software system set-ups here (Windows/Linux or Canon/Nikon etc.) Any references to a specific set-up will be my own and that is basically:

Computer . . .

- Pentium 3 minimum
- Ports to control Camera (usually USB 1 or 2)
- Decent Hard disk space for image storage

Camera(s) (obviously with standard leads) . . .

- Canon powershot G series (and / or)
- Canon Digital SLR series
- Any solid tripod

Camera Control software . . .

- Canon's remote capture (bundled with camera)
- PSRemote (Breeze systems)

Image Processing Software . . .

- Gimp ([www.thegimp.org](http://www.thegimp.org)) or Photoshop or Paintshop
- ReaConverter ([www.reasoft.com](http://www.reasoft.com))

Video encoding Software

- TMPGEnc ([www.pegasys-inc.com](http://www.pegasys-inc.com))
- Virtualdub

## Preparation

Where are you to set-up and how long do you need to shoot for? think about the duration of the shoot and changes within the cameras view port and your subject(s) within that time.

Depending on the duration of your shooting, protection for your set-up is really important - especially if it is to be left unattended. Clumsy people (including myself), weather, animals and power loss have ruined many a sequence over the years! If you are shooting near people, you must section off an area for your equipment to prevent any disturbances of the kit.

Set-up the hardware – Get your camera stable on the tripod, connect to the computer and ensure a reliable power supply to both. Adjust the power management features of the computer to only power down the screen and disallow automatic shut down and suspend. Also if you are using a laptop, make sure you do not have a lid-close triggering a suspend or shut down.

## Shooting

Depending on your preferences, Start your camera control software. Options for canon users are PSRemote or Remote Capture.

Basic Steps for starting the shooting:

- Connect the the camera with the software
- Ensure images are being saved to the PC hard disk and not the camera
- Set the default folder for you fames to be saved in (and filename options)
- Set the desired resolution for the frames
- Set any special shooting mode adjustments
- Specify the interval between frames you require
- then either specify either:
  1. The total number of frames required or
  2. The duration for which to shoot for
- Do a short test run of 10 – 100 shots and check frames.
- Go for the real thing and then go for a cup of tea

**NOTE:** When selecting a time-interval between frames, remember that you can always delete frames later if you have too many! - Its better to have too many frames than too few!

## Encoding

Once you have a set of images have been obtained, you can then put them into a video format. How to do this is not covered in this document, but a common application is TMPEGenc. You will need to consider:

- The playback frame-rate (how 'fast' it plays)
- The duration of the resulting video
- The Codec used for the video file