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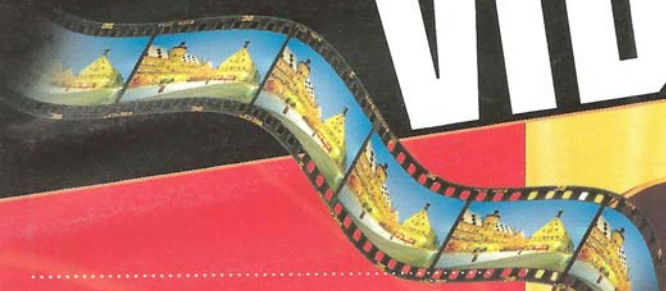
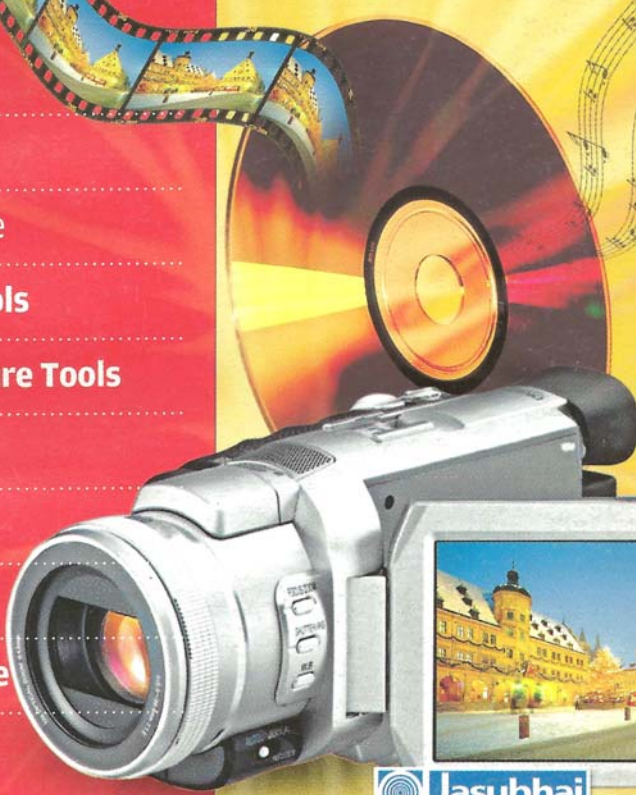
Fast Track to DIGITAL VIDEO





Jasubhai DIGITAL MEDIA

YOUR HANDY GUIDE TO EVERYDAY TECHNOLOGY

Fast Track to Digital Video

By Team Digit

Credits

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Beyond 10-Second Clips

Who amongst those of us with a capable cell phone doesn't like to shoot those occasional one-minute clips of video footage? It's as much fun, if not more, than clicking snaps — but those clips are usually destined to live and die on your cell phone, existing for probably a few days. So there you have it: we're all amateur videographers, and don't have the patience to indulge in it full-time.

Now when you think about how cheap camcorders are getting, the possibility opens up: you can actually make a hobby of it, going well beyond shooting friends getting drunk. If you have some free time and some free money as well, there are few nicer favours you can do yourselves than getting a camcorder and starting off on a truly rewarding venture: digital video.

It's all been dumbed down and made simple for the idiots amongst us: camcorders today are nothing like the strictly-professional equipment of some years ago. They're meant for you to use — right now. If you have the inclination, we have the book — the exact book. This one.

So here's how this little book is organised. First, you need to get to know your camcorder, and chapter 1 is dedicated to that. Then, chapter 2 takes you through all the format jargon your already-initiated friends are spouting all the time, and chapter 3 tells you what you can use to play the videos you shoot.

The fun begins with Chapter 4, which discusses video editing and capture tools; Chapters 5 and 6 are the meat of the book, telling you how to take your videos, and what to do with them once they're on your computer.

Chapter 7 is "optional", so to speak - it's about adding special effects to your video, which you might or might not want to do, depending on how hooked you've gotten. Finally, Chapter 8 goes on about putting your video online and where that'll get you. Our concluding Chapter is a bibliography, online and off.

There are better things to do with your free time than watch TV, and digital videography is one of the better indulgences. We hope this book gets you right on track!

Contents

Getting Started

Each year, innovations in consumer electronics push the envelope on what use the average user can put technology to. The video camera market is no exception. In this chapter we take you through the steps that will help you identify your needs, inform you on the different options that matter, review the PC hardware requirements for your editing needs, and also review the basic accessories that may be needed.

The transition from analogue to digital video cameras has opened up a wealth of possibilities. In analogue, the video was transmitted as complete frames (along with the accompanying audio) and then interpreted by the device into audio and video. This interpretation resulted in a small loss of quality. Digital video does not suffer this quality loss, as all the data is received exactly as transmitted. From its early days of being a heavy piece of iron only seen at weddings and other important functions, the video camera or camcorder has evolved such that you now have a plethora of choices that can appeal to every type of user.

1.1 Identify your needs

Before even stepping into a store to look at the choices available, there are two questions you need to ask yourself: What is your budget? And, What are you going to use it for?

When considering the budget, be realistic. Entry-level models start from around Rs 30,000 or less. Advanced and professional models cost much more, climbing into the Rs 1 lakh range and beyond. As with any consumer electronics product, you pay more for features and functionalities, compactness and compatibility.

Assuming the budget isn't a constraint, you should first get a fix on your needs.

If your shooting is primarily indoors or at family events, the camcorder should have good low-light performance and should be able to take good still pictures. An inbuilt "auto" light that recognises the light conditions

and automatically switches on is a good option to have. As is a pop-up flash that can be used for still pictures. Image stabilisation is also important, and the zoom capabilities can be helpful when you want to take close-up shots.

If you're planning to use your camcorder on vacations and in the outdoors, it should be compact and lightweight, have long battery life, be able to take good still pictures, and should have a good viewfinder. The functionality of the viewfinder can be replaced with that of an LCD screen, but LCDs typically are hard to see in sunlight. You should also consider a wind screen for the microphone and the audio zoom feature that enables you to "zoom" into the audio in the direction in which the camcorder is focused or zoomed in. If you decide to do away with the tripod, be sure to check out for good image stabilisation capabilities. Zoom features will also be needed if you want to take long-range shots.

For sports enthusiasts, your camcorder should support fast shutter speeds, manual control, image stabilisation, and 10x or higher optical zoom. You should also consider a tripod if your shots are going to be over long periods of time.

Parents who wish to capture their kids' every moment through school plays, elocutions and such should look for camcorders that give good low-light performance, good audio or external audio support, 10x or higher optical zoom, and a tripod.

If you are a budding film maker, you will want a camcorder that gives you a great deal of manual control, support for external audio and lighting, and widescreen and cinematic effects. You may also need features like in-camera editing and deletion of scenes, and a whole kit of accessories ranging from the basic tripod to professional audio equipment so you can get that perfect audio stream with your video.

1.1.1. Exposure: Point And Shoot Vs. Manual Control

One of the most confusing as well as most important areas in getting good-quality video are the settings that control focus, shutter speed, and exposure. Manufacturers, in a bid to reduce the confusion, provide "automatic modes" where the camcorder's internal computer judges the correct settings for any given condition. This, however, is a subjective area, and each camcorder model handles this in a different way. Some are better than others.

Most camcorders these days provide different preset modes that can be activated with a button, slider or dial. These pre-set modes are optimised (supposedly) for different settings such as Indoors, Outdoors (sunny/cloudy), Sports, Candlelight, etc. Again, some camcorders are better at it than others. You will need to test and compare different models before letting yourself be satisfied with your choice of camcorder.

For the budding film maker and gizmo geek who wants absolute control over his shot, mid-range and higher-end models offer a wide range of manual control over each and every aspect of the exposure. However, one problem with manual control is the proliferation of buttons and menu options. If manual control is your thing, make sure you test out the camcorder at all imaginable settings for ease of use and quick access to the required menu options. Struggling to adjust the settings in the middle of a shot is not a pretty picture!

1.1.2. Handling Comfort

One factor that should be considered independent of need is handling comfort. This may sound like a minor issue, but after even

15 minutes of continuous shooting, handling comfort will stick out like a sore thumb. A camcorder that doesn't sit comfortably in your grip can be annoying, and can cause you to lose focus on the thing that your supposed to be doing: shoot good-quality video. Be sure to test this out before making your purchase. The camcorder should sit comfortably in your hand (or on your shoulder), and you shouldn't need to engage in acrobatics to activate a function or access a button!

1.2 The Specs Explained — What to look for

As with all consumer products, some features are there more for the marketing buzz, with little practical utility, while certain features will make or break your camcorder experience. Before deciding on your camcorder, be sure to review the specs against this guide. Where possible, test out the features and functionality and satisfy yourself with the performance you get.

1.2.1. CCD (Charge Coupled Device)

The Charge Coupled Device or CCD chip as it is called is the heart of the digital video camera.

The CCD "reads" the visible light that falls on it and converts it into a digital electronic signal which is then stored on the tape, DVD, or other storage device as available on the camcorder. Usually,

a larger CCD means better image quality. The smallest starts at 1/6 inch. These are usually found in lower-priced and budget camcorders. Better models have 1/3 inch and 1/4 inch CCDs. The difference in CCD sizes actually becomes apparent when you compare picture brightness and colours. Larger CCDs will give better picture quality and more vibrant colours. A larger CCD will also give you better quality in low-light situations.

When picture quality really matters, a 3-CCD camcorder should be considered rather than a single-CCD. This was the exclusive realm of professional video cameras once, but is now increasingly found in mid-range models. In 3-CCD camcorders, there is one CCD for each of the primary colours. Colours on 3-CCD camcorders are brighter, more vivid, life-like, and accurate.

CMOS Sensors

While CCDs will remain a staple feature of the camcorder for some time to come, advances in CMOS imaging technology are finally enabling the appearance of CMOS-based camcorders. CMOS imaging sensors are currently used in very high end digital cameras and low-end webcams, but used to suffer from more noise (grainy pictures) than CCDs of comparable performance. These issues are being overcome, and the digital imaging industry is set to go in the direction of CMOS imaging sensors. CMOS sensors have some advantages over CCDs. Both use pixels on which light falls, which is converted to electrical energy and then processed. The difference between CMOS and CCD is that the processing on CMOS is done at the pixel itself, while in CCDs the electrical signal is sent to separate chips for processing.

Finally, take into account the number of pixels on the CCD. A higher pixel count indicates sharper images. However, don't be fooled by the manufacturer's claim of having a higher *gross* pixel count. The keyword is *effective* pixel count. The effective count is what the CCD actually uses. Low-end budget camcorders should have around 290,000 pixels or higher effective. Standard video has around 340,000 pixels effective. Beyond the 340,000 mark, the increase in pixel count has little effect on sharpness, and is subject

to diminishing returns. Most mid-range models support 690,000 pixels effective or higher. However, an effective pixel count of 340,000 should suffice for most situations.

1.2.2. Illumination Rating And Low light Shooting

Most camcorders have trouble shooting in low light. Low-light video will typically have a grainy appearance, which is technically known as noise. Technically, anything other than bright sunlight is a low-light environment! Normal room lighting which is perfectly acceptable to the human eye may show up grainy on recorded video. Be sure to test out the low-light performance capabilities with the demo piece in the store. Shooting in environments such as restaurants will give you unwatchable video if the camcorder's low-light performance is not up to speed.

The illumination rating is the amount of ambient light required by the camcorder to operate without an additional light source. This is measured in lux, a measurement standard for lighting. Lower lux values are better. Entry-level models start at 7 lux or lower. Mid-range and higher models go down as far as 1 or 2 lux. However, this number can be deceptive, as the manufacturer may boast a lower lux level without mentioning anything about the quality of the video being recorded at that lux level! Additionally, if you're using a high-speed shutter, you require still higher illumination.

Another factor that affects the quality of low-light shoots is the aperture rating. Camcorders have iris diaphragms (apertures) that automatically adjust and control the amount of light reaching the CCD. This aperture rating, or F-stop, is denoted by numbers like f2.0, f1.4, or f1.3. The lower the rating, the better the camcorder will work in low light (see §1.2.6 (Shutter Speed) and §1.2.7 (Aperture) for more details).

To counter the quality problems in low-light shoots, most camcorders now have inbuilt lights that, when set on Auto mode, will automatically switch on when the lux level is low. Higher-end camcorders may not have an inbuilt light, but will have a "shoe". This is a slot to connect optional accessories such as microphones or lights. The shoe is linked to the camcorder's controls, enabling it to seamlessly control the attached accessory. Newer camcorders are beginning to appear with LED flashlights rather than the traditional incandescent type. While this might push up the cost of a bit, the investment is good, as LED lights consume less electricity (read: do not drain the batteries as fast), and have a longer life than the incandescent variety.

Additionally, if you plan to use the camcorder to take still photos (not recommended; see §1.2.4 (Still Photos)) you will also need to factor in the requirement for a pop-up flashlight. Like in digital cameras, the flashlight will pop up when light levels are below optimum and you are shooting still pictures.

Higher-end camcorders also have a total darkness shooting option. Primarily, this uses infrared technology to shoot in the dark. Picture quality has much left to be desired, though you will be able to get passable results for some shots such as slow-moving nighttime animals or a sleeping baby.

One other method to improve the brightness of the picture is to use video signal gain, which is optionally available in some camcorders. Gain is the technical term for increasing the amplitude or strength of a signal. However, be warned that gain adjustments can decrease picture quality and increase the noise in the video. So you will need to experiment with the various gain settings, measured in decibels (0 dB, 6 dB, 18 dB, etc.), before determining what works best for the given situation.

1.2.3. Zoom—Optical Vs. Digital

For all practical purposes, ignore the digital zoom number given by the manufacturer. This is pure marketing hype. Digital zoom relies

on a technique known as pixelisation, which drastically reduces the picture quality. Manufacturers will boast of 500x and 800x digital zoom. If you shoot at that number, your video will practically unwatchable. This is similar to the enlarge option in MS Paint: as the size of the picture increases, you just get to see the pixels more closely, rather than any actual close-up of the frame!

Optical zoom, on the other hand, relies on the physical movement of the lens assembly to enlarge the shot or bring long-range subjects closer. 10x optical zoom should do for most situations, and higher-end models may support 20x or even 30x zoom. Even at 10x, the zoom capability approaches telephoto shot quality of still cameras.

1.2.4. Still Photos

Much like digital cameras that offer you the capability of shooting video, camcorder manufacturers incorporate the ability to take still shots. This again is marketed as a major feature, but approach it with scepticism. The technology used to take still shots with digital cameras is radically different from the way a camcorder functions. Just as digital cameras do not take great videos, camcorders don't take great stills. Still-picture quality is measured in mega-pixels. In camcorders, the video quality is largely determined by the size of the CCD and effective pixels in the CCD. You should note that when a camcorder boasts 1 or 2 megapixel still picture capability, this in no way has a correlation to video quality. Do not misconstrue video quality to mean still picture quality. It is a better idea to go with a model without still shot capability and use a separate digital

camera. That said, in the higher camcorder models, you do get digital camera quality stills, though at that price you might want to focus on other, more important features.

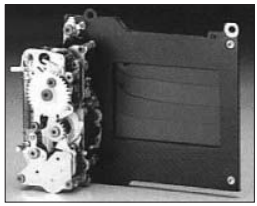
1.2.5. Focus

Focusing is what you (or the camcorder) do to bring the picture into sharp, clear detail. At the budget end, focus control is mostly automatic, that is, the camcorder makes the best judgement it can about the focus required, and adjusts the lens accordingly. As you go up the scale, you can get either a jog dial (a circular dial) or buttons to manually adjust the focus. However, for ultimate control over focus—and this is relevant when you're trying to get those soft focus shots, for example when you want to give a dream like quality to your scene—you need a focus ring around the lens which you can alternate between manual and automatic as required. Also, you should note that autofocus mode is not completely hassle free. When you are panning (moving the camcorder), the autofocus mechanism goes into "hunting" mode, searching for a "target" to lock on to. During this period there might be a bit of a bit of a blur as the auto-

focus mechanism adjusts to the new distance of the subject. Conversely, manual focusing while panning requires a fair bit of skill, which might take you some time to develop.

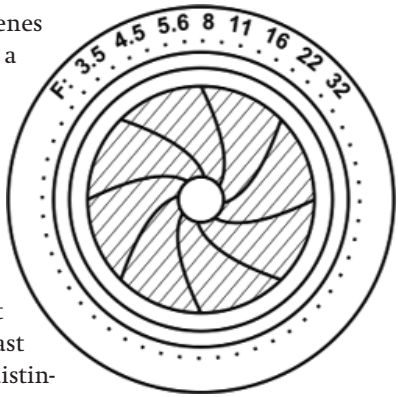
1.2.6. Shutter Speed

The shutter is the mechanical assembly that controls the speed at which light is admitted to the CCD. This is a circular device that rotates, opening and shutting with each rotation. The speed of the shutter opening is what is known as shutter speed and is measured in rotations per second. The range of shutter speed operation will vary according to the model and make of camcorder. This can be from anything as slow as 1/60th of a second to as high as 1/15000th of a second! Recording of high speed motion requires higher (faster) shutter speeds. Recording in low light requires lower (slower) shutter speeds, since the shutter needs to remain open for much longer to admit a sufficient amount of light. If a high-speed motion scene like a car chase is recorded at a low shutter speed, the resulting video will have a blurred or trailing effect. For crisp and sharp video, you need to record it at higher shutter speeds. However, the question is, what if you need to record high-speed motion in low-light conditions? This is a trade off which can to some extent be alleviated by using the correct aperture rating or F-Stop.



1.2.7. Aperture

While the shutter speed controls the speed at which light is admitted, the aperture controls the amount of light that will reach the CCD. This can be imagined as a black window that opens and shuts continuously very fast (shutter) and a curtain (aperture) behind the window that controls the strength of the sunlight entering the room (CCD). The wider the iris (aperture), the more the amount of light that reaches the CCD. This in turn results in a smaller F-stop, which is the measure of exposure. Generally, the aperture size is fixed in most consumer camcorders, so look for a lower F-stop to give you better results in low light situations. The



same goes for high-speed scenes in low light. Variable F-stop is a luxury not usually available in consumer-level camcorders. However, prices are constantly dropping and you may want to consider going in for a camcorder with variable F-stops. A critical reason for this is that CCDs have limited contrast range. They find it hard to distinguish between the lightest and darkest pixels that are more than five F-stops apart. Outside this range, light areas appear as white or bleached, and dark areas look murky or black.

1.2.8. Automatic Vs. Manual Exposure Control

The exposure determines the brightness and crispness of your video. There are four elements that go into controlling the exposure settings: focus, shutter speed, aperture, and colour balance. While the first three have already been explained, colour balance or white balance as it is more popularly known is a feature where the camcorder automatically adjusts the colours in the scene to make it "truer" to life-like colours than what the CCD actually "sees".

Higher-end models may allow you to control each of the four settings individually, though you will need plenty of practice before you can figure out the best combinations that work for any given lighting and movement scenario. Most consumer models have one or two fixed-exposure settings, or will have pre-programmed settings for common shooting situations like Sports, Landscape, Low Light, Sunny, etc. This can be helpful if you are uncomfortable with adjusting each of the exposure control elements individually.

The other factor to keep in mind with manual control, as explained in §1.1.1 and §1.1.2, is ease of button and functionality

access. A complicated button layout and menu functions can become a big hindrance especially when you need to quickly shift exposure modes.

1.2.9. Optical Vs. Digital Image Stabilisation

If you're planning on shooting for long hours, consider getting a tripod. While shooting from your shoulder may look cool, after ten minutes of holding even a lightweight camcorder, your arms and shoulders could develop an ache. Another important factor that should make you consider a tripod is shakiness. This can happen to a greater or lesser extent depending on how long you're holding the camcorder, and can ruin your video. Most newer camcorders have some degree of image stabilisation.

There are two ways image stabilisation is achieved: digitally and optically. In digital image stabilisation, the camcorder's computer electronically shifts the image in the opposite direction to which the minor shake occurs. Like in digital zoom, the downside to digital stabilisation is that there can be degradation in picture quality.

Optical image stabilisation follows the same concept as digital stabilisation, but achieves it by actually moving the lens assembly to compensate for the shake. Needless to say, optical stabilisation is better than digital, but unfortunately, most consumer-grade camcorders only support digital stabilisation.

1.2.10 Widescreen

Widescreen is the ability of the camcorder to shoot in the 16:9 aspect ratio. The aspect ratio describes the ratio of the length to the height of the video. Movies in theatres are usually displayed in widescreen, while TV and video use the 4:3 aspect ratio. The black bars you see when watching some movies on TV is because of the con-

version to 4:3 aspect ratio of a native 16:9 film. Typically, camcorders that boast of the capability to shoot in widescreen do it by electronically approximating the 16:9 aspect ratio. "True" 16:9 camcorders are usually quite expensive—in the range of Rs 4 lakhs or more—but with the introduction of CMOS-based camcorders, prices have started dropping to more reasonable levels of Rs 1 lakh or lower.

1.2.11 Viewfinders And LCD Screens

The viewfinder is the aperture to which you place your eye while shooting. This is being either replaced or complemented with an LCD screen, which can make your indoor shooting experience less stressful

to your eye and neck. However, in bright sunlight, LCDs typically do not perform well, and you will need a large enough viewfinder that you can comfortably place your eye to without needing to squint. Typically, you can play back your shots directly in the viewfinder and LCD. An LCD screen of 2.5 inches (measured diagonally from corner to opposite corner) will be sufficient to monitor your shots, though you might want to consider going with a camcorder with a larger LCD (3-inch) if your budget permits.

1.2.12 Progressive Vs. Interlaced Scanning

Video is generally recorded at about 30 frames per second. Each video frame consists of "fields of resolution." That is, each frame is further divided into a number of horizontal lines of resolution. These lines of resolution give the picture its clarity and vibrancy of colours. To understand this difference in quality, think of VHS video which is in the 240 to 270 lines of resolution range, TV, which is about 330 lines of resolution, and DVD, which approaches 500 lines of resolution. The process of capturing these lines is called scanning. There are two types of scanning: Interlaced and Progressive.

In interlaced scanning, there are two fields of data recorded for each frame. Each field consists of an alternating line of resolution that is recorded alternately. Once both the lines are captured, the frame is said to be created. Thus, the frame consists of two inter-

locking resolution fields—hence the name "interlaced". The direct drawback of this method is that one cannot stop a frame and see a clear picture. Unlike in film, where you can freeze a frame and get a perfect still, the quality of interlaced scanned videos is somewhat inferior. Also, the screen motion when observed very closely exhibits a choppiness and lacks the smoothness and fluidity of film. This effect is especially noticeable in VHS tapes where the screen flickers when you hit the pause button. Most consumer camcorders record use interlaced scanning at 60i (60 frames per second with interlaced scanning) that is equal to 60 fields (lines of resolution) per second which, when interlaced, become 30 frames per second.

In progressive scanning, the two fields of resolution that make up each frame are recorded simultaneously. This produces smoother motion and prevents the flickering when you hit the Pause button. With progressive scanning, the quality begins to approach that of film. Camcorders are available at progressive scanning rates of both 30p and 24p (30 or 24 frames-per-second progressive scan) but this is usually achieved by a bit of hardware / software manipulation that alters and approximates a 60i scan. While this may not give you true film-like motion quality, the choppiness and flicker associated with interlaced scans is almost done away with. "True" 30p camcorders are also available, but they are invariably at the top end of the market.

1.2.13 Audio

Sound is tricky. At the lower end of camcorders, recorded audio can suffer from such things as motor noise, the sound of hands handling the camcorder, or even the breathing sounds of the cameraman! Front-mounted microphones are better at capturing the sound from the front of the camcorder, as against top-mounted ones. However, if audio quality is an important consideration in your shoot, look for camcorders that support external microphones (via a microphone jack) or an accessory shoe (a slot to connect optional accessories such as microphones or lights). Also look for a headphone jack. You can use the headphones to monitor the quality of the audio as it is being recorded. Some

camcorders have an "audio zoom" feature that "zooms" in to pick up the audio from the direction in which the camcorder is pointed. A built-in windscreen on the microphone can help in cutting out the roar of the wind. Mid-range and high-end camcorders also support audio dubbing and CD-quality 12 and 16-bit PCM (Pulse Code Modulation) audio capture on two or more channels. If you're planning on attaching professional audio recording equipment, the camcorder should have the required port, or at least be able to connect to an adapter that will in turn connect the audio equipment.

1.2.14 FireWire or USB?

Digital camcorders record and store the video (and audio) data in digital format. When it comes to transferring to a PC, it becomes important that the data is transmitted without any loss. This is where the FireWire interface comes in. FireWire, also known as IEEE 1394, provides a consistent transfer speed of 400 Mbps.

USB 2.0, on the other hand, claims to support a maximum throughput of 480 Mbps. This figure is slightly misleading, as the actual rate of transfer is controlled by the PC's CPU, and USB 2.0 by itself cannot guarantee the transmission speed.

To transfer digital video, you need a transfer speed of around 3.6 megabytes per second. This is largely due to the nature of the digital video information. FireWire, at 400 Mbps, transfers data at around 50 MB per second. USB 2.0 can theoretically transfer data at around 60 MB per second, but unless both your PC and camcorder supports the USB Video Class 1 transfer standard, digital video over USB is transferred in VGA mode. Additionally, since

most video editing software require FireWire for data transfer, it remains the only viable option to ensure that the footage is transferred without any data loss. If you are keen on any kind of editing, FireWire is the way to go. This will not be much of a problem as most modern camcorders incorporate FireWire. You may, however, need to add a FireWire adapter to your PC.

Another advantage of FireWire over USB when used in combination with the MiniDV tape format is that it enables video editing programs—such as Windows Movie Maker—to automatically recognise the tape and ease the data transfer process.

1.3. PC Requirements And Accessories

1.3.1 PC Requirements

The choice of your PC for your editing needs is linked to the camcorder interface. As mentioned, FireWire is essential, and if your PC doesn't have a port, you should get a FireWire adapter card. If your camcorder supports the memory card (SD Card, Memory Stick, Memory Stick Pro etc) option, then you will also require a card reader attached to your PC.

Video editing is largely a processor-intensive task and a faster PC is always preferable (dual core is best) with 1GB or more of RAM. The PC should at least be a Pentium 4 1.0 GHz with 1 GB of RAM, and sufficient hard disk space for your video files. An hour of raw (uncompressed) video footage requires roughly 14 GB, excluding any space for any other supporting files. You could require three to four times the size of your original video file, as you will want to make copies, cut, splice, and join different lengths of the "film" during the editing process.

1.3.2. Accessories and Optional Features

Other than the camcorder itself, you may also want to look at accessories depending on your needs.

A Tripod
A must if you plan to shoot for long hours. An unsteady hand can be just as damaging to video quality as improper lighting.

External Microphones
Inbuilt windscreens and audio "zoom" help in improving sound quality. But when audio is important, or if you are just plain finicky about being perfect, opt for external microphones. External audio capture systems such as shot guns (used to record sound over long distances or in noiseless environments such as TV interviews) and omni-directional mics, boom poles (overhead extensions used to position the microphone so that it doesn't appear in the scene) and microphone stands, wired/wireless lapel microphones, and headphones (for monitoring the sound as it is being recorded) will help you get cleaner audio. Also, get a book on recording audio with video—the subject is a vast area!

Light grips / light "shoe"
These become important when you are shooting in low light and need the extra clarity.

Analogue-to-Digital Conversion
If you have a large number of older analogue tapes and want to transfer them to digital, you will want to look at camcorders that support this feature, as well as playback of analogue tapes.

Spare Battery Pack

Nothing can be as frustrating as your camcorder dying on you in the middle of a shoot. If you are going to be shooting for long hours, save yourself the heartburn by getting an extra battery pack. Keep it fully charged.

The Format Jungle

The imaging market is a highly competitive space with each vendor trying to outdo the other in the technology used for recording media as well as in the file formats that should be used for encoding digital video. Here's a low-down on all the format jargon you're likely to encounter.

2.1 Recording Media

To understand the progression towards digital video, one needs to understand a bit about the recording quality of various formats past and present. The quality of video is typically measured in *horizontal lines of resolution*. Each picture frame is made up of a number of lines of horizontal lines that "draw" the details of the picture. The simple arithmetic is that as the number of horizontal lines of resolution increases, so does picture quality. With more number of lines comes more detail in every aspect of the picture from skin colour, strands of hair, and other fine-grained details—which actually means every aspect of the picture. TV broadcasts are typically at around 330 lines of resolution. VHS tapes play back at around 240 to 270 lines. The digital formats reviewed here all support up to 500 lines of resolution or higher, depending on the media type and the camcorder.

In the days of the VCR, there was a format war for the VCR tape: Betamax vs. VHS. As you know, VHS won that war. In the case of camcorders, though, history is not repeating itself. The formats jungle has with no clear winners yet. To ease the confusion, we've categorised this discussion according to media type: tape, discs, and flash memory.

2.1.1. Tape

Tape used to be associated with analogue to digital conversion and the resulting loss of quality. No longer. Digital camcorders use digital recording to store data on digital tapes—this ensures there is no loss of video information.

In analogue camcorders, the most popular recording format used to be 8mm/Hi8 tapes. The digital equivalent is the Digital8 format, which delivers high-quality 500-line resolution clarity, depending on the camcorder. Digital8 is a bit larger in size compared to MiniDV (which we'll soon talk about), but it is also cheaper. The tape size also has an impact on the form factor, which limits how compact the camcorder can get. Digital8-based camcorders

are generally bulkier than those that use other formats. The advantage with Digital8-based camcorders is that they are usually backwards-compatible with the Hi8 (8mm) analogue tapes. So, if you have a large collection of analogue tapes, a Digital8 camcorder can help you convert them to digital, transfer them to a PC, etc.

MiniDV is by and large the most popular digital video recording format. It is about half the size of an audio cassette, and can record about 45 to 90 minutes of footage. As with Digital8, recording quality is excellent and, depending on the camcorder, it can record at 500-line resolutions or more. It is a proven tape format and is widely available. One advantage with MiniDV (when used over FireWire) is that it is automatically recognised by movie editing programs. It can automatically wind back the tape and begin the transfer from tape to hard drive with a single click. Additionally, MiniDV tapes support the newer High Definition video standard, which is slowly replacing the current Standard Definition video standard.

MicroMV is the smallest cassette format available, and records directly to tape in the MPEG-2 encoding format. However, MicroMV is not as popular as MiniDV, and Sony, its manufacturers, are also losing interest in supporting the format. Given this situation, it is best to ignore MicroMV-based camcorders, whatever may be the attractions (bargain basement prices, feature lists, etc).

There are other tape formats such as DVCam and ProDV. These are more robust and support better compression, but they are primarily for professionals: camcorders that support these formats start at Rs 5 lakh and higher!

2.1.2. Disc

Camcorders that support both optical discs (DVDs) as well as magnetic discs (hard disks) are becoming increasingly available.

DVD-based camcorders can, depending on the recording quality settings, record 20 minutes to 1 hour of MPEG-2 video. The video

is recorded onto 3-inch DVD discs, which can then be played directly (after "finalisation") on PCs and DVD players, but there are some limitations.

DVD-Rs are write-once discs, and can be played on almost all (except some of the oldest) DVD players. DVD-RW are rewriteable discs that can be recorded over many times. Similar to DVD-Rs, they are compatible with most DVD players. The other DVD format for rewriteable discs, DVD-RAM, is also available in camcorders. However, DVD-RAM discs will not play on anything other than a compatible DVD-RAM player, limiting its universal portability. In using any DVD-based camcorder, ensure compatibility with your PC and your DVD players.

Some camcorders offer hard disk-based storage media. The limitation here was that the storage media was fixed. Unlike DVDs and tape, which you can swap for fresh blank ones, there was an upper limit on the amount of footage you could store on the hard disk. You would then need to transfer the data to some other medium—PC hard disk, external tape, etc., before you could continue with your recording. Manufacturers, in response to these problems, have started incorporating higher capacities and the ability to swap drives once they get full.

One other limitation with hard disk-based storage is that the media is a more "volatile" storage medium compared to tape and DVDs—accidental knocks can potentially damage the hard disk and corrupt the data. The increasing robustness of hard disk construction can alleviate this risk to some extent.

2.1.3. Flash

Flash memory drives have sufficiently increased in storage capacities to become serious contenders. These are available in formats such as the Secure Digital (SD) Card, Memory Stick, Memory Stick Pro, and others. Pure Flash-based camcorders are extremely compact, and can record up to one hour of high-quality MPEG-2 video, dependant, of course, on the memory capacity of the card.

However, the more common trend is to have camcorders that support both tape and flash memory. Tape is used to store digital video, while Flash is used to store still pictures. The card can then be removed from the camcorder, inserted into a compatible card reader that is in turn connected to a PC or other device (such as a photo-printing printer) for data transfer.

2.2 Recording Formats

2.2.1 DV (Digital Video)

The DV format is the video format standard used by MiniDV tapes. Actually, the DV specification defines both the physical media as well as the DV codec used in recording onto the MiniDV tape. It supports uncomplicated editing, transfer over FireWire, and better quality video than the earlier analogue formats. There are some variants on this standard such as DVCAM and DVCPRO, but these are almost exclusively associated with professional systems.

The raw DV data stream can be transferred over FireWire to a PC using supporting software, such as Windows Movie Maker. A 60-minute MiniDV tape is approximately 13-14 GB in size and takes about an hour to transfer. The raw data stream contains the video and audio data as well as any additional meta-information that can be useful while editing. The files are stored with the .dv and .dif extensions. However, most Windows-based video programs do not support direct DV playback, but require that the it packaged into .AVI containers (files) that only contains the audio and video without the meta information. Exceptions to this are QuickTime Player, VLC Media Player and Mplayer.

2.2.2 MPEG

The MPEG (Moving (or Motion) Pictures Expert Group) standards define various video and audio encoding standards. Depending on the media type, video recording is recorded in one of the three defined standards: MPEG 1, MPEG 2 and MPEG 4. (MPEG 3 was orig-

inally defined for High-Definition video, but was later abandoned as MPEG 2 was found to be sufficient).

Camcorder recording media and their associated encoding schemes are as follows:

- MicroDV: MPEG 2
- DVD-R, DVD-RW, DVD RAM: MPEG 2 with some variation
- Flash Memory: MPEG 1, MPEG 2 or MPEG 4

2.2.3 High Definition

All consumer-oriented camcorders on the market today—with the exception of a few—use Standard Definition video for the recording of digital video. SD video, as it is called, relies on the technologies used by the legacy video systems (NTSC, PAL, and SECAM). These legacy systems developed in the 1950s suffer from picture resolution problems which, though largely invisible to the eye, have an impact on clarity and colour fidelity. High Definition TV was introduced as a solution to the inherent problems with NTSC, PAL, and SECAM. HDTV offers very high-quality picture resolution and colour fidelity while supporting the movie theatre style aspect ratio of 16:9 compared to the 4:3 ratio of normal TV.

High Definition video, originally developed by JVC, was designed to be the cost-effective upgrade path for videographers, consumer hobbyists, and anyone with an interest in high-quality video.

HD video camcorders record onto the same MiniDV tapes as standard video, but use entirely separate video compression technology. HD video uses the popular MPEG 2 video codec for recording, while the SD uses the DV codec. HD video, as compared to SD video, has a much higher resolution, which improves the viewing experience, but there are some drawbacks. Due to the nature of MPEG 2 encoding, editing HD video is much more complex. This is especially apparent when splicing scenes together. To overcome this problem, high-end video editing software now

support conversion of the HD video into an intermediate format for editing purposes.

The other drawback is that HD video uses the compressed MPEG 1 Layer 2 audio encoding at a bitrate of 384 Kbps. This is technically inferior to DV audio, which is encoded in uncompressed 16-Bit PCM at 1536 Kbps. However, MPEG 1 Layer 2 @ 384 Kbps is considered "perceptually lossless," that is, the ear will be unable to detect the difference between the two audio encoding schemes.

2.3 Distribution Formats

Once you've shot your video, imported it into your PC and edited it, you are ready to distribute it. Deciding on which distribution format to choose will be dependant on the distribution media, the resolution quality, as well as the size of the resulting video file.

All video formats are encoded using a specific video codec. The video codec compresses the video (and audio) data to suit the requirements of the distribution media. Depending on the compression settings, this can result in a highly compressed video (smaller file size) with very low quality, or a large file size with good quality. There are also other technical considerations that may affect the quality of your output but those are beyond our scope here.

In general, the video editing software will provide you with options to convert into various popular file formats. The DV codec is not an easily distributable format, and you will need to choose in which format you want to encode your recording. MPEG-2, however, is a distribution-ready format, and if your camcoder is DVD- or hard disk-based and you do not plan to do any editing, you can set it to record at the optimum distribution quality. However, we do not recommend this. It is better to do your shoots at the best quality, transfer them to your video edit-

ing software, and then recompress them to smaller file sizes if required. Here are some of the more popular video codecs.

2.3.1 AVI

Strictly speaking, AVI (Audio Video Interleave) is not a codec, but rather, a container framework. This means that AVI can "contain" other video codecs. This is one of the oldest video container formats and supports nearly all available video codecs. In fact, when Windows transfers the DV data from a MiniDV tape, the DV codec is contained within the AVI format.

There are many technical disadvantages with AVI, and many consider it to be an outdated format, especially for distribution. However, there is strong support for this format especially in file sharing communities due to its compatibility with Windows Media Player.

2.3.2 ASF

Similar to AVI, ASF (Advanced Systems Format) is a container format that be encoded with virtually any of the available video codecs. Both AVI and ASF are properitary to Microsoft, and ASF is positioned as the successor to AVI. ASF is ideal for streaming video.

2.3.3 QuickTime (MOV)

Again, MOV, or QuickTime, is a multimedia container format that can contain specific codecs induding the DV codec. QuickTime in many ways is a superior format compared to many other containers due to its ability to separate the audio / video data from metadata such as track lists, subtitles, etc. This makes it very amenable to editing. It also supports in-place editing (that is, without copying) of various other formats such as DV, MPEG-1, and AVI. To create QuickTime movies, however, you will need the QuickTime Pro video editing software. .Mov files, though, can be played using the QuickTime Player, which is available as a free download.

2.3.4 WMV

Windows Media Video (WMV) is the name given to a set of codec technologies standardised by Microsoft. This, in comparison to ASF or AVI, is an actual video encoding / decoding format. It is usually packed in an ASF container, especially for distribution on the Internet. It also supports High Definition video encoding onto standard DVDs in a format known as WMV HD.

2.3.5 MPEG (Moving Picture Experts Group)

The MPEG standard is one of the most widely-used video codec formats, and has gone through many revisions. The main versions of this collection of codec technologies are:

MPEG 1: Originally designed to achieve video quality equivalent to VHS, this is one of the most compatible formats being supported by almost all computers and VCD / DVD players. MPEG 1 is also sometimes referred to as the VCD standard in that it supports Video CDs. However, as computer processing power improved and the demands of higher quality and efficiency increased, other standards were developed to replace MPEG 1.

MPEG 2: This standard, originally conceived as a replacement for MPEG 1, is used encode video and audio for variety of distribution channels including direct broadcast satellite, cable TV and with some modifications and enhancements for standard DVD and HDV systems. It is also used in the SVCD standard and is fully backwards-compatible to play MPEG 1 video streams.

MPEG 4: This standard is designed to replace both MPEG 1 and 2, and supports all the features of both these standards, while adding some fresh functionality such as VRML (Virtual Reality Markup Language) that enables support for 3D rendering, Digital Rights Management, and various other features. The features are modularised, which gives developers the flexibility to decide what feature they would like to implement and what to leave out. QuickTime and iPod video are some of the popular systems that use MPEG 4.

2.3.6 DivX

DivX started its life as a hacked version of Microsoft's MPEG-4 version 3 video codec. The main reason for the hack was that the Microsoft version required that the output be encapsulated in an ASF container, and French hacker Jerome Rota altered the codec to permit storage in other container types such as AVI. Over the years, DivX has acquired a huge fan following, not least because of its relatively high quality video, which uses lossy MPEG 4 Part 2 compression. (MPEG 4 has many parts which describe different aspects of the standard). Many of the newer DVD players support direct playback of DivX-encoded DVDs; also, DV files can be directly converted to DivX even if the process happens to be somewhat complicated.

Playing Video: Tools

Ever been in a situation where you pop in a CD or DVD with the intent of kicking off your shoes and relaxing, and you see one or more of these messages:

Connecting to server for codec
Requesting server for codec
Error downloading codec

If you have, this chapter will clear the fog a bit!

Digital video (the form in which Internet / streaming video is available) is encoded in a variety of ways. Each technique of encoding has its corresponding technique of decoding, and this is where codecs come in.

3.1 Getting The Codecs

Even experts find digital video formats confusing, because most video files consist of two elements: the container and the codec used inside that container.

A codec is a technique (compression algorithm) used to reduce the size of a video file. Usually, this means the discarding of some of the information in the file, but there are algorithms that do not discard information. These are known as lossy and lossless algorithms respectively. Some of the popular codecs are MPEG-1, MPEG-2, MPEG-4, Vorbis, and DivX.

The container describes the structure of the file: where the var-

ious pieces are stored, how they are arranged, and which codecs are used by which pieces. It carries all of the information that tells the computer how to read the file. AVI, Ogg, MOV, ASF, and MP4 are all container formats.

3.1.1 How do I find a missing codec?

When a video is coded with a specific codec and it is not present or properly installed on the user's machine, the video won't play at all, or it won't play properly.

To help solve this, you can use one of these codec analysis tools:

1. VideoInspector (www.kcsoftwares.com) : Analyses most containers (AVI, Matroska, MPEG, and more) and gives download links for the missing codecs.
2. Gspot (www.headbands.com/gspot): A pioneer in troubleshooting video applications, GSpot is a very useful tool despite being lacking in some features.
3. MediaInfo (http://mediainfo.sourceforge.net): An open source alternative to GSpot.
4. AVICodec (http://avicodec.duby.info): A useful application, mainly for the AVI container format.
5. AVI2Clipboard (http://wantos.mosaiegh.net): An extension to the Explorer context menu to easily view and save information about videos within an AVI container.

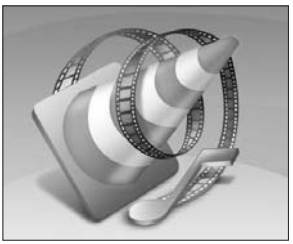
sdfsdfs

The above-mentioned software can be downloaded and run to analyse a video file. However, some caution serves well while installing any codec, since certain ones are known to be incompatibilities with some media players.

3.2 VLC Media Player

VLC Media Player contains many popular codecs in a standalone library. It is one of the most platform-independent players available, and has versions for Linux, Windows, Mac OS X, BeOS, BSD, Pocket PC, and Solaris.

VLC has the not-so-common ability to play video files from RAR archives. Also, it lets the user view the video content of incomplete video downloads, and it does this better than most other software do.


The VLC icon

The codec pack built into VLC is so comprehensive that in cases such as Vorbis, DVD Video and DivX playback as well as parsers for the OGG and Matroska file formats, it is the only application that can play the video and audio files, without the need to download a separate codec pack. In some cases, it is the only player with native support on a system.

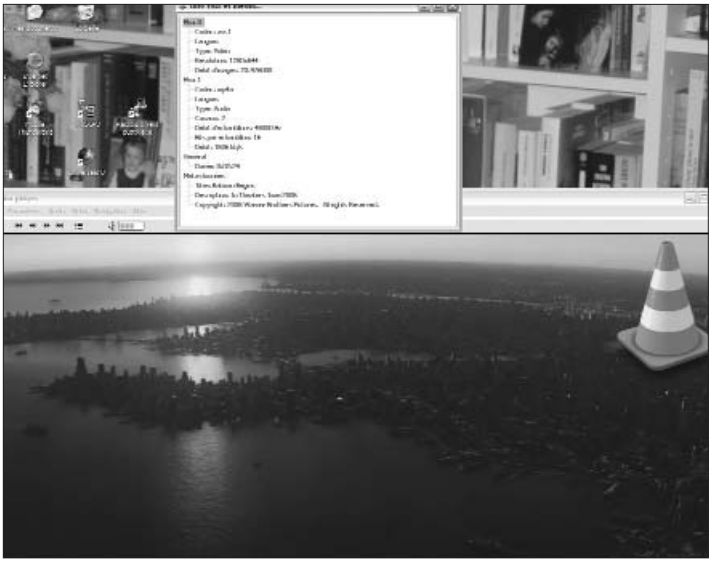
Another interesting feature is the ability to access .iso files so you can play files on a disk image even if you don't have a disk image emulator installed, as is the case with most Windows setups.

We bundle the VLC Media Player in the Essentials section on our CD every month. To download it, visit www.videolan.org/vlc.

3.2.1 Configuring VLC

To open a file, go to File > Quick Open File. The Open File dialog box will appear. Select the file you wish to open, and select Open. VLC will start playing the selected file. An alternative is to drag and drop the file on the VLC main interface or playlist window from Explorer.

To play a CD / VCD / DVD, go to File > Open Disk. In the Open Disk Dialog Box, select the type of media (DVD, VCD or Audio CD).



VLC has the advantage of being able to play a lot of formats

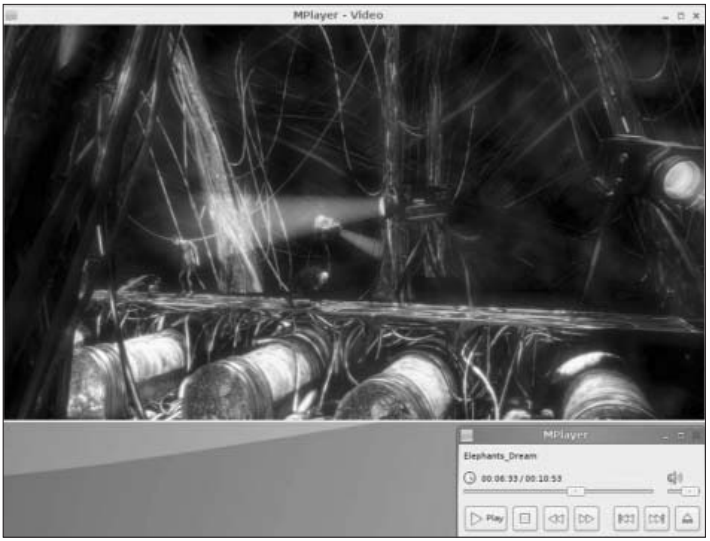
Select the drive from which the media should be read by giving the appropriate drive letter or device name in the "Device Name" text input. If you want to start the DVD or VCD playback from a given title and chapter instead of from the beginning, set it using the Title and Chapter selectors.

3.3 MPlayer

MPlayer is a free and open source media player distributed under the GNU General Public License. The program is available for most operating systems, including Linux, Windows, and Mac OS X.

The player supports a wide number of formats—in fact, more than any other player. In addition, it can save streamed content to

a file. A companion program, a movie encoder called MEncoder, can take an input stream or file and transcode it into several dif-



The MPlayer GUI is relatively uncluttered

ferent output formats, optionally applying various transforms along the way.

MPlayer is a command-line application that has different, optional GUIs for each of its supported operating systems. Popular among them are GMPlayer (an X Window System GUI for GNU/Linux and other Unix-like systems), MPlayer OS X (for Mac OS X), MPUI (for Windows) and WinMPLauncher (also for Windows). Several other alternative GUIs are available for each platform.

MPlayer is available for download at http://www.mplayerhq.hu/design7/dload.html

For a complete MPlayer installation, you will need sources, a set of binary codecs, a set of fonts for the on-screen display, and a skin (for the GUI). All these are listed in the link above, and the

Running MPlayer from the command line

downloads are available for the major OSes. The Features page provides comprehensive details of the software, and also a Documentation page that provides the most comprehensive information about the compatibility and configuration of the software.

3.3.1 Configuring MPlayer

Mplayer caters to the Linux market, and therefore much of the configuring is done through the command-line interface. An excellent resource for MPlayer is provided at the developer's website, www.mplayerhq.hu/DOCS/HTML

3.4 Windows Media Player

Microsoft's Windows Media Player is a digital media player and media library application that is used for playing audio and video on Windows PCs, as well as on Pocket PC and Windows Mobile-based devices.

Windows Media Player is pretty comprehensive when it comes to features

Windows Media Player brings you the ability to rip music from and copy music to CDs, synchronise content with a digital audio player (such as an MP3 player) and other mobile devices, and lets users purchase or rent music from a number of online music stores. The default file formats are WMV (Windows Media Video & Audio), WMA (Windows Media Audio), and ASF (Advanced Streaming Format), and it supports its own XML-based playlist format called WPL (Windows Playlist).

You can obtain WMP at the Microsoft Web site: www.microsoft.com/windows/windowsmedia/download .

The page provides the listing of most of the prevalent versions of WMP. It provides comprehensive information about all the offered products. We'd advise you to download the latest version, since it takes care of most codec issues. A useful service is the details provided under the "Read Me" tab. Here, you will find all the information regarding system requirements, the configuration tips, and so on.

WMP can retrieve song and video information for you from the Net

3.4.1 Configuring WMP

Windows Media Player makes it really easy to play video through VCDs / DVDs. To do so, you can do the following:

1. Start Windows Media Player and insert a CD or DVD into the optical drive. The player will automatically start playing the CD / DVD.

2. If the disc doesn't begin playing, click the Quick Access Panel button and then click the drive that contains the disc, as shown alongside.

If your computer is connected to the Internet, WMP will attempt to retrieve information about the VCD / DVD from a database on the Internet. It then displays that information during playback.

Windows Media Player may not be the best video player, however, it is one of the most widely-used. The fact that it is developed by the world's largest software company ensures that updates and new versions are regularly made available.

The Quick Access Panel

3.5 QuickTime

QuickTime doesn't start playback immediataly—you need to press Play

QuickTime is a multimedia framework developed by Apple. It is capable of handling various formats of digital video, media clips, sound, text, animation, music, and several types of interactive panoramic images. The most recent version is 7.1.3, and is available for Mac OS X. Version 7.1 is currently available for Windows.

The QuickTime technology has three major components:

1. The QuickTime Player, which Apple makes available for free on its Web site and bundles with each of its computers.
2. QuickTime file format: openly documented and available for anyone to use royalty-free.
3. Software development kits available for the Macintosh and

Windows platforms. These kits allow people to develop their own software to manipulate QuickTime and other media files.

The QuickTime player can be obtained from the official site: www.apple.com/quicktime/download. The download is available in two major versions: Macintosh and Windows. In fact, the site automatically takes the user to the page that corresponds to his operating system.

3.5.1 Configuring QuickTime

To open a movie on your hard disk, a CD, or a DVD, do one of the following:

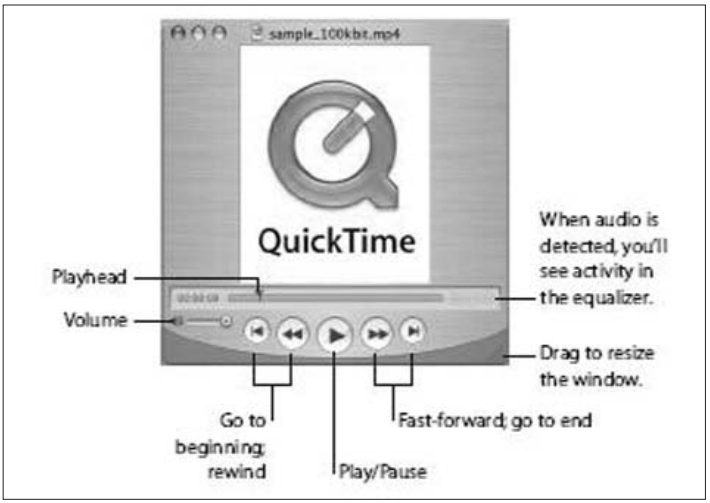
(a) In the Finder (or Windows Explorer), double-click the file or drag it to the QuickTime Player application icon.
(b) Choose File > Open and select the file.
(c) In Mac OS, drag the file to the QuickTime Player icon in the Dock.

To open a movie on the Internet, open QuickTime Player, choose File, then Open URL, and enter the URL for the movie file.

3.5.2 Playing Copy-Protected Movies

QuickTime movies can be encrypted so that only authorised viewers can watch them. Such movies are known as "secured media files." To use such a file, you must enter a "media key," which is usually available from the media file provider.

To enter a media key in Mac OS X:
1. Open System Preferences, click QuickTime, and click Advanced.
2. Click Media Keys.
3. Click the Add button, and then enter the key provided by the author or vendor.



The components of the QuickTime GUI

To enter a media key in Windows:

1. Choose Edit > Preferences > QuickTime Preferences.
2. Click Advanced.
3. Click Media Keys.
4. Click Add, then enter the key provided by the author or vendor.

Besides the general playback features, QuickTime also offers the features to edit and author movies. It has a popular following among a niche section of users.

3.6 RealPlayer

RealPlayer is a media player created by RealNetworks. It plays a number of multimedia formats including MP3, MPEG 4, QuickTime, as well as multiple versions of proprietary RealAudio and RealVideo codecs.

The current version for Windows is RealPlayer 10.5. There are other versions with fewer features available for Mac OS X, Linux,

Xxxxx

Unix, Palm OS, Windows Mobile, and Symbian OS. The program is powered by an underlying open source media engine called Helix.

RealPlayer 10.5 for Windows also contains audio CD burning capabilities, PVR-style playback buffering, multimedia search, Internet radio, a jukebox-style file library, an embedded Web browser (using Internet Explorer), and the ability to transfer media to a number of portable devices including Apple's iPod, MP3 players, and Windows Media devices.

You can get RealPlayer at www.real.com/realplayer.html. There are two versions available: RealPlayer Plus (a paid and more sophisticate version) and RealPlayer Free.

3.6.1 Configuring RealPlayer

This is a quick reference for all the displays and controls that are on RealPlayer.

The Control bar allows you to navigate through the clip you're playing, with player control buttons and a playback position slider. The Control bar also gives you access to the equaliser (in RealPlayer Plus only), RealJukebox, and the Compact Mode toggle.

The Playlist bar will open automatically when you are playing a *multi-clip* (a clip that contains other clips in sequence). The Content panel provides access to RealMedia on the Web. My

Channels lists media channels that offer immediate access to new streamed multi-media content.

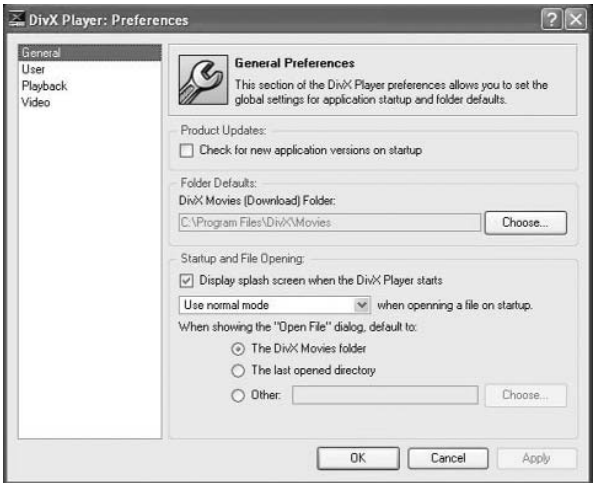
The Display panel is where the visual part of a clip will be shown (text, graphics, and images). It also hosts the Zoom, Video Controls (Plus only), Mute, and Volume, as well as Visualizations (PC) or the Audio Analyzer (Mac) controls.

With all its features, RealPlayer comes across as a very trustworthy and customisable player. However, in recent years, the trend indicates a lowering in popularity.

3.7 DivX

DivX is a video codec that has become popular due to its ability to compress lengthy video segments into small sizes while maintaining relatively high visual quality. DivX uses the lossy MPEG-4 Part 2 compression, where quality is balanced against file size for utility. Of late, DivX has been a centre of controversy because of its use in the replication and distribution of copyrighted DVDs.

The main DivX Player interface



The DivX Player preferences dialog

Many newer "DivX Certified" DVD players can play DivX encoded movies.

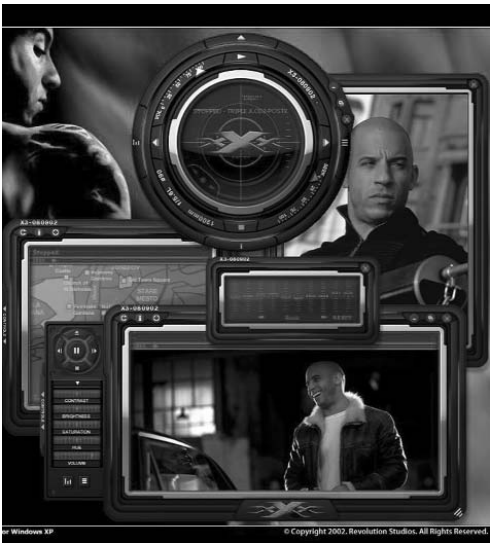
The link for the player and all its assortments is www.divx.com/divx/windows. The DivX player is available in two major flavours: for Windows and for Mac. The site provides detailed information for both the versions. As of now, there are no versions for Linux.

3.7.1 Configuring the DivX Player

DivX codecs, once installed, ensure that any compatible format movie / video runs smoothly and through Windows Media Player, or any media player chosen as default.

The settings can be changed through the Preferences settings of the player by clicking on the down arrow at the upper left corner of the Player window.

3.8 Get ready!



Start Playing!

Once we have the right software installed on our system then the only things required thereafter, are the video/movie to be watched and the time for leisure. Let's get the party started!

Editing And Capture Tools

Now that you've had a look at the software you need in order to play back video, let's go a little further and see what you'll need if you want to be able to edit the videos you capture. The software we speak of here include both paid and free titles, and we suggest you read the reviews carefully to understand what it is you need.

4.1 Editing Tools

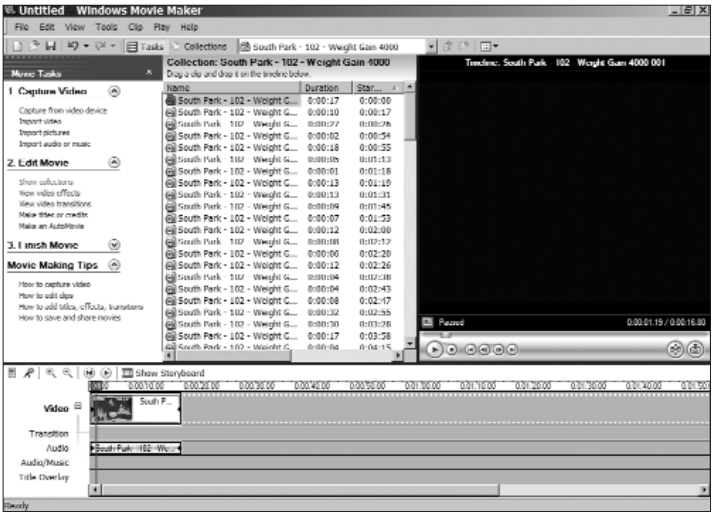
Generally, those serious about video editing don't flinch at paying for software, but if you're just looking to try your hand at it, a free alternative could perhaps be better suited for you. Let's start with the free tools and then get to the paid software. You need to first decide what your needs are.

4.1.1 Windows Movie Maker

www.microsoft.com/windowsxp/downloads/updates/moviemaker2.mspx

Windows Movie Maker (WMM) is something that everyone with Windows XP already has on their computer. This free tool from Microsoft can be found by going to **Start** > **Programs** > **Windows Movie Maker**, or the geek way by going to **Start** > **Run**, typing in "moviemk" and pressing [**Enter**].

As with all Microsoft products, usability is top priority, and WMM is perhaps the easiest video editing software you will ever encounter. It has everything a novice would ever need. Of course,



Windows Movie Maker has a simple editing interface

it doesn't hurt to have a little idea about video editing before you start using any editing tool, but thanks to Microsoft's help ([**F1**]), even absolute beginners will feel right at home in a few hours flat.

All your options are clearly visible, such as importing video, adding transitions, effects and various others. Just import a video file, split it at the points you want to edit out, double-click on segments to select them, press [**Delete**] to delete them—it's all classic Microsoft-style ease of use.

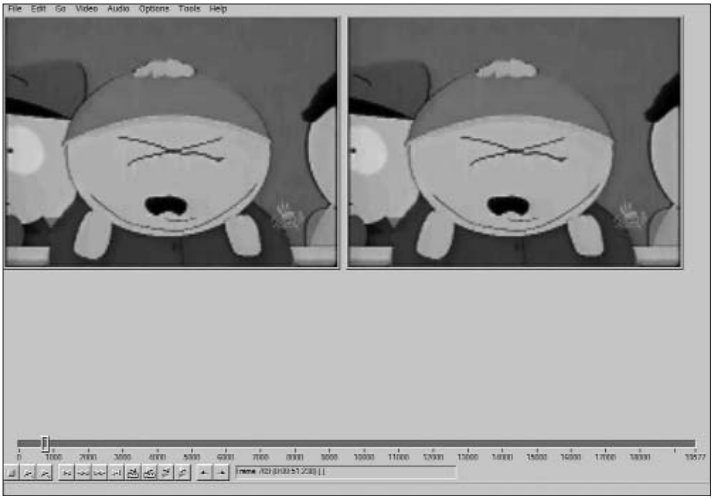
In the preview pane, which is basically Windows Media Player, you can preview any effects that you have thought about applying, and safely change your mind without having to stop and start from scratch. If you do mess up, just use the good old [**Ctrl**] + [**Z**] command to step back in time and get yourself out of trouble.

The drawback is that large files can take a long time to import, especially if all your videos are over the 100 MB mark. Still, if you plan on just doing very basic editing, such as adding a title and credits, and splicing together some clips, it will be a lot cheaper and easier to just use WMM instead of buying professional software. You could always take a walk, make some coffee or do something healthy and fun while you wait for those large videos to be imported into Windows Movie Maker!

Overall, this software is a must-try for beginners, as many people realise that they really don't want any more functionality and features than what WMM has to offer. Plus, did we mention it's free?

4.1.2 VirtualDub
www.virtualdub.org

If you want a little more power in your hands, you have to try VirtualDub. It's very light when it comes to system resources, and opens large files quite fast for editing. It has a slightly unusual interface—if you're used to Windows Movie Maker, that is—and sports the standard two-display look of most video editors.



VirtualDub has the more traditional dual screen editing interface

VirtualDub allows you to merge videos, apply various compression codecs (such as DivX, XviD, Indeo, and more), cut scenes, apply different effects, and do everything you'd expect to be able to with a basic editor... and more.

Everything you need is placed in very accessible menus at the top, and most common effects are already included. Some of these include increasing/decreasing frame rates, brightness and contrast, blur, resizing, and much more.

Using VirtualDub is all about using the markers, which mark the beginning and end of a selection. Once you get the hang of this feature, you will find that it is quite a powerful tool indeed. Once you decide on a selection of frames, you can choose to add filters and effects, and cut, copy, or delete the selection.

VirtualDub is also well-known for its handling and compression of raw video. All you need to do is open the raw video clip in VirtualDub, select a compression codec and then save as AVI. Sit back and watch VirtualDub shrink your clip as fast as your PC will allow.

Being really light on system resources, VirtualDub is often the only tool that most people can afford to run on older computers. Even if you have a top-of-the-line system, and just want to quickly compress movies and do a little bit of basic editing, you will find VirtualDub more than sufficient. The most visible feathers in its cap are:

- At just under 1 MB, it's quite literally the smallest video editing software out there, so even people on dial-up connections can easily download it.
- Being open source, it's constantly being improved, and plugins and filters are being developed all the time. Try **http://neuron2.net** for some cool filters.
- It's free!

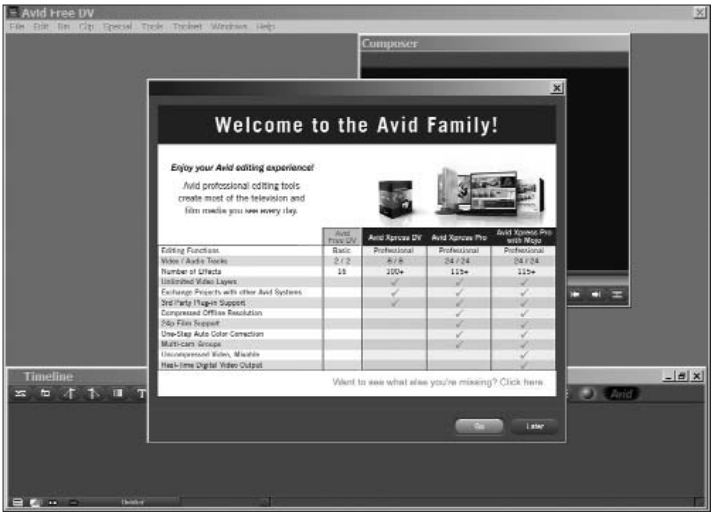
4.1.3 Avid FreeDV

www.avid.com/freedv

Avid, makers of professional video editing software, have a free tool called Avid Free DV that is available for download from the site mentioned above. It's nagware, in the sense that every time you start Free DV, it keeps prompting you to buy the professional tools that Avid makes. Apart from that, however, this software is quite brilliant. We expected to find crippled software, and expected to be nagged to pay for almost every non-standard effect or function, but neither of these happened.

Free DV uses an approach quite different from other editing software, and the novice will have a tough time getting used to the interface. A complete newbie might not be as flummoxed as those of us who have used Windows Movie Maker, VirtualDub, Adobe Premiere Pro, or any of the popular editing software, because it's the habit of the standard editor's usability that one has to overcome.

Free DV uses Bins (a holder for clips and pictures, so you can easily access a selection of audio and video clips or images) to store your clips, and we've heard of some people who just couldn't even get started editing—simply because they couldn't find where to



Avid FreeDV will nag you to buy the professional versions, but is still a very good editor

import their clips to! Take this as a warning: this software seems to be built mainly to showcase the features of the other tools that Avid makes—sort of like a teaser for professionals to show them what they're missing out on.

You should definitely go through the tutorials on the site, and the help files in the software itself before you begin anything. Once you start getting used to the software, however, you will find that it is quite powerful. It's fast too, though perhaps not as fast as VirtualDub, but obviously more feature-rich out of the box.

The biggest advantage is the fact that it is made for both Mac and PC, and thus when editing with a multi-platform computer setup, this is one software that will keep your video editing safe from platform dependence. It's free, providing you register on Avid's site and get the complimentary license key. It's still no match for Adobe's Premiere Pro or Avid's own Xpress Pro, but it certainly does a good job with some cool options such as 16 customisable, real-time effects; a drag-and-drop interface; superimposition of video (video on video); and support for MOV files.

4.1.4 LiVES

http://lives.sourceforge.net/

For all the Linux junkies out there, stop complaining now! Video editing software is not just for the Mac or Windows domains, and there are a lot of free or open source solutions also available. virtualDub is one, but LiVES (Linux Video Editing System) takes editing atop the Penguin to a whole new level!

LiVES features multi-track editing, so you can edit multiple videos at the same time in the same timeline—much like any major editing software will allow you to do. You can run multiple instances, and you'll need mplayer to be able to view or preview your edited videos.

LiVES is still a work in progress, but then again, what software isn't? If you're on Linux, don't miss a chance to give it a go: visit their site and download it pronto. Also take some time to visit the tutorials, which are very helpful.

LiVES allows those of us who prefer Linux to professionally edit videos as well

You can also choose to download the dyne:bolic (**www.dynebolic.org**) OS live CD, and try out LiVES without installing anything on your computer. So if you have Windows, this is your best bet, because you can boot from the live CD and search non-NTFS drives for videos, and then edit them and burn them onto disc, or save them on a partition—all without the need to install Linux! For better performance, though, it's advisable to use it on an installed Linux distro.

Overall, it's quite a powerful video editing system, with a lot of good reviews from penguin-powered professionals!

4.2 Capture / Editing Tools

OK, enough fooling around. Let's get to some of the professional stuff. Here you will find tools that are not only professional editing tools, but also video capture tools. It's a necessity for any good video editing software to offer good video capture tools as well. For semi-professional to professional editing, you can be assured that none of these software are lacking in any manner when it comes to features and powerful tools. If anything, you just have to choose one based on price and the ease of use in terms of interface learning curves.

4.2.1 Adobe Premiere Elements

Now a lot of you who are into video editing will wonder why we're not reviewing Adobe Premiere Pro, looking at Premiere Elements instead. Well, the answer is simple: Premiere Pro is a professional business-level editing tool, which is best suited for design houses and editing studios. At a $849 (Rs 40,000), Adobe Premiere Pro is very obviously not targeted at the home user, whereas Adobe Premiere Elements, at $100 (Rs 5,000) is more in the home-user price league. Also, anyone looking to buy professional products such as Premiere Pro will obviously need a lot more training and help than this *Fast Track* aims to provide!

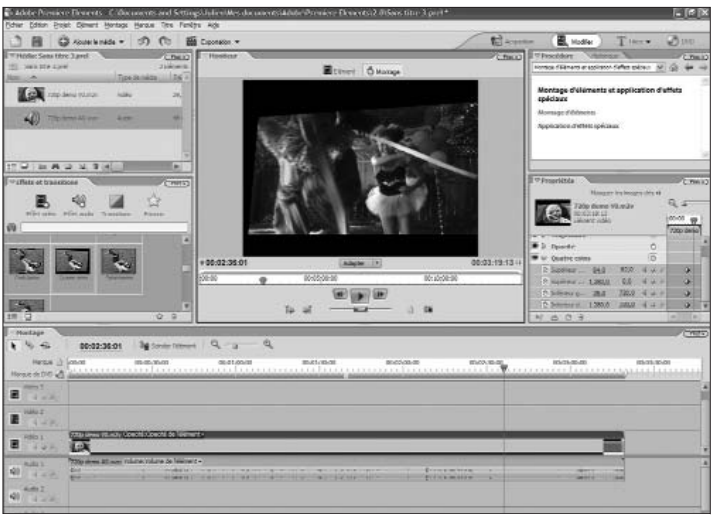
So let's get started with Adobe Premiere Elements.

Premiere Elements not only offers the ability to capture video from camcorders, but also import any MPEG file, AVI, WMV, and QuickTime files as well. You can also import videos from movie DVDs, and almost any type of audio is also supported.

The software has the standard video editing layout, which includes a timeline with multiple video and audio tracks, and has nice big buttons to help you through the standard tasks of capturing, editing, adding effects and transitions, and finally burning your movie onto DVD.

Apart from this basic functionality, which, quite honestly, is expected from a hundred-dollar software, Premiere Elements also offers loads of professional-looking transitions, effects/filters, and various options for creating DVD menus.

For those interested in numbers, there are 130 transitions and over 250 effects available when you're editing your movie. The powerful preview feature will help you decide which effect is best suited to your movie, before you actually apply an effect or transition.



Adobe Premiere Elements is sorely missing a storyboard view

When it comes to still image editing, it's nowhere near as powerful as Adobe Photoshop, but is still pretty good. You will only miss some of the advanced Photoshop editing capabilities here.

In audio editing, Premiere Elements is no match for even a semi-professional audio editor, but it still allows you to trim a clip, fade the audio in or out, cross-fade audio channels, record from the inputs on your computer, and mute specific audio clips. Overall, the audio editing is sufficient for most home and amateur video editors.

We couldn't seem to find the option to limit the video capture in terms of time or size, and a quick check online confirmed that Adobe seems to have forgotten to include this useful feature in Premiere Elements. This is a good option because a lot of us will not have too much free disk space, so, say, if you only have about 10 GB, this feature would have allowed you to specify exactly how much of raw video to capture from your camcorder!

Coming back to the interface, although there is a timeline view, there is no storyboard view, which is almost a must-have if you're making a movie from various clips. The storyboard view helps you organise your clips, so you can quickly call on them when needed, and also helps you plan out your video.

As a pure video editor, however, it offers all the expected options: splitting and trimming of clips, adding text into videos, adding audio tracks, the ability to change video aspect ratios and zooming in and out. You can also change frame rates, brightness, contrast, hue, and more.

Output files can be saved as MPEG-1 and 2, Windows Media and QuickTime. Real Media fans will be disappointed—it doesn't support that format.

Overall, Premiere Elements, like every other software here, offers all the tools a home user will ever need and more, but falls

a little shy when used as a semi-professional or professional tool. Also, if you're running any other Windows version apart from XP, forget about Premiere Elements 3.0—it's built only for XP Home and Professional!

4.2.2 CyberLink PowerDirector Premium

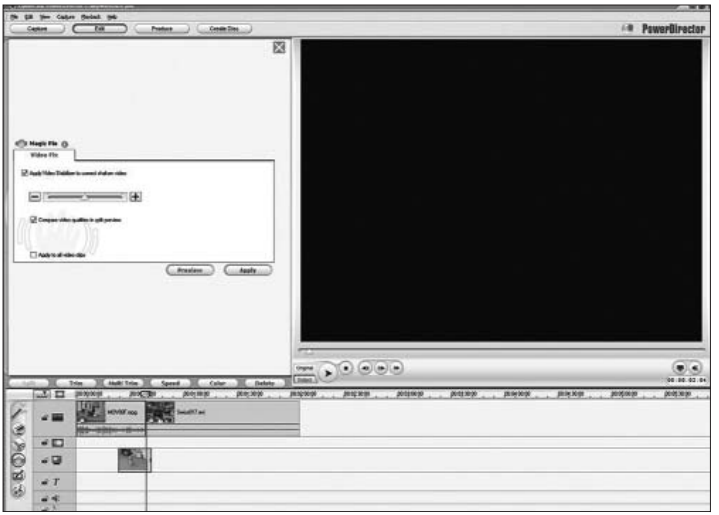
Most of us get CyberLink's PowerDVD Player along with our DVD-ROM/R/RW drives, and use the CyberLink DVD decoder to be able to view movie DVDs on our computers without giving a thought to who CyberLink is and what they do. Well, they also have a very professional video editing software called PowerDirector Premium, which is currently in version 5.

At US $89.95 (Rs 4,300), it's a little cheaper than Premiere Elements, and at first look seems to offer much more. Let's take a look to see whether this holds true.

The first thing you'll come across is the software's "Magic" set of tools, which can be a real boon for the novice video editor. For example, the "Magic Cut" feature will automatically and intelligently chop a long video into little chunks of interesting content, for easier access to parts of your video. (WMM can do something like this, but the Magic Cut feature is more accurate.) Similarly, "Magic Fix" will automatically try and correct the image captured by a digital camera flash that caused red-eye in a subject, and even try and compensate for your shaking hands—auto-correcting the jittered look in videos.

The software also lets you specify a maximum time and size for video capturing, thus giving you ample control if you have space constraints on your hard drive.

As you have guessed, the software is really easy to use, and everything is quite apparent—menus are well placed, buttons are self-explanatory, and the majority of options are no more than two clicks away. It uses the drag-and-drop style of editing, which makes importing videos and moving them about a snap.



CyberLink's PowerDirector is one of the most powerful editors out there today

The zoom function is advanced enough to let you select any portion of your video, and then zoom in to it during normal playback, and zoom out again. Very cool!

As an image editor, PowerDirector allows you to rotate, crop, resize, adjust brightness, contrast, hue, remove red-eye, and some other special effects. Surprisingly, we found the image editing features to be better than Adobe Premiere Elements, and CyberLink deserves a pat on the back for this—we'd never have dreamt that any competing software, in any category, would better any Adobe product when it comes to image editing! The side-by-side preview of the original and edited image is another cool thing in PowerDirector, and is like the icing on the cake.

When it comes to audio editing, all the standard editing features are available. The one that stands out is PowerDirector's ability to automatically lengthen or shorten an audio clip to end along with your video, so you can concentrate on the video editing and "Magic"-ally have the audio end in unison with your video! It also features an inbuilt voice recording feature for those

PowerDirector has a very easy to use, yet powerful interface

of you who want to narrate your movie or specific scenes. PowerDirector also has a very nice audio mixer that will let you control the output volume for the different audio tracks, to get that perfectly-mixed sound output.

However, image and audio editing is hardly why you will buy this software, so let's see if PowerDirector can keep up the good work when it comes to video editing tools.

You can use the picture-in-picture option to merge two videos—perfect for us actually, when we're doing video reviews and don't want to miss any of the action, while also showing the reviewer! We're sure you can find many more ways to use this interesting feature to overlay videos on top of each other.

Since it has both the timeline view and the storyboard view, you can organise things better, and you can edit clips from within either of the two views, saving you the trouble of constantly switching back and forth. The preview window is easily re-sizeable, so you don't have to struggle if you use it at lower resolu-

tions. You can scan (view) videos at high or low speeds, to help you reach a particular scene in a clip much faster. It also allows you to make very nice-looking DVD menus, and includes over 140 transitions and over 50 effect filters. And, finally, when you're ready to output your work, you can choose from almost any video format—including MPEG-1 or 2, Real Media, QuickTime, Windows Media, and even DivX!

The software also claims to render much faster than its competitors, though unless you have a very powerful system, all of these software will seem to take eons anyway! The capture quality is good though, and seems a little better than its competitors here. Capture is possible from camcorders, analogue signals (TV-Tuner cards / analogue camcorders), webcams, and, of course, importing video from the hard drive.

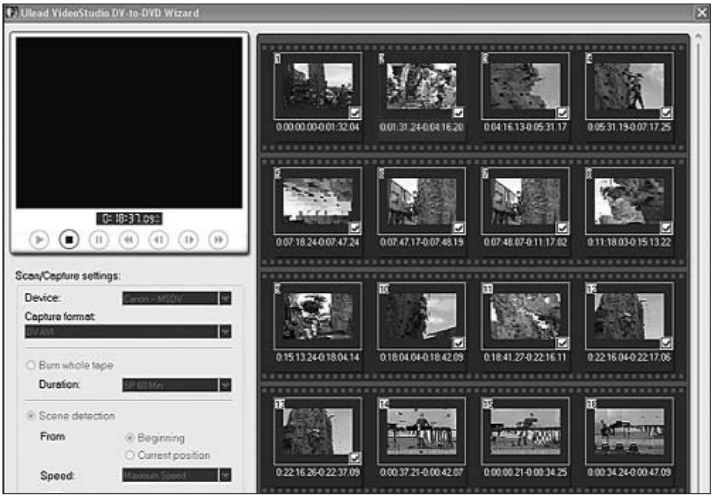
Overall, this seems to be the best video editing software out there, and at $10 less than its competition, is sure to appeal to us frugal Indians—especially when you consider that it's a very powerful video editing software.

4.2.3 Ulead Video Studio

This is another hundred-dollar software, like Adobe Premiere Elements, and to be honest, despite the fact that it's about $10 more expensive than PowerDirector, we still consider it to be a good deal—that's how feature rich it is!

Why do we make such a bold statement? Well, consider that apart from video editing, this software will also allow you to create 3D images for use in Macromedia (now Adobe) Flash, movie screensavers, and supports all Internet-friendly file formats and compression techniques.

Despite the additional options, the software layout is good, and everything is easily accessible. Capturing is made easier by using a Wizard, which automatically detects your camcorder and begins importing video automatically. The software is smart enough to



Ulead's Video Studio 10 doesn't have a good still image editor

segregate all captured video into scenes, which it detects automatically. So instead of one large video file, you get multiple smaller ones that are easier to handle—at the very beginning itself. Just delete scenes that you don't want, and order the ones you do.

You can also batch-capture, and manually select where a scene begins and ends *before* you capture the video, by using a preview function. You can specify a maximum capture time, but sadly, not a maximum size.

Capture sources are the standard digital camcorder, Micro-DV devices, hard drive imports, and analogue sources using TV-Tuner hardware. It supports most formats for images and videos, as well as audio.

The interface has both a timeline as well as a storyboard view, so, as with CyberLink's PowerDirector Premium, organising stuff is a lot easier.

All basic audio editing is supported, including the ability to trim clips, mute, mix, fade/crossfade, record from the PC microphone,


Ulead's Video Studio 10 doesn't have a good still image editor

and add background scores. Image editing is a little weak, and you cannot crop, resize or remove red-eye errors.

When it comes to video editing, Video Studio offers 120 transitions and 45 effect filters. You can split clips, trim them, add text, insert audio, compensate for shaky hands, change aspect ratios, and zoom in and out. An additional feature we didn't find in any of the other two software mentioned here was its ability to loop playback, which is a necessity when making video for the Web.

Another really cool, modern feature is the software's ability to do "green screen" editing, or basically replace a green background behind a subject with another movie clip. So if you're looking to make your own low-budget, special-effects-laden home video, you're going to need Video Studio.

DVD menu creation is as good as the others, and almost all the final output formats you can imagine are supported.

Windows 98 users will rejoice when they hear that this software, unlike the two earlier, will run on their systems. Overall, if it wasn't for poor still-image editing options, Ulead's Video Studio would give CyberLink's PowerDirector a serious run for its money, and this despite the fact that Ulead has priced its product at $10 more than CyberLink's! If you already own a powerful image editor, you might want to consider spending the $10 extra.

4.3 What To Look For

As we've already mentioned, none of the software reviewed here are bad, and all of them will get the job done. Here's a few basic things you should look out for when deciding on a video editing software:

OS: Is your operating system supported? As we've mentioned, if you're running an older version of Windows, make sure that the software you're downloading / buying supports it. There can be nothing more irritating than finding out that the Rs 5,000 you just spent is a complete waste, unless you spend another five to 10 thousand on upgrading your OS!

Try before you buy: Waste some bandwidth and download the trial versions of the software. See if it's what you want, and whether you can use it before you spend money on it.

Ease Of Use: Depending on your level of experience, choose a software that you will not struggle to use. The best way to find out is to use the trial version, and decide whether the ease of use of the software matches your skills. This can work both ways: a novice might find it too hard to use a professional software, and a professional may soon grow tired of a software that has an overly simple layout.

Features: Look for features that you will need when editing your home movies. It's a good idea to make a storyboard, and then imagine the effects that you would like to use in your head. Then look at the software specifications to confirm whether your dream movie can be made or not.

Help / Support: Before you go out and buy the software, read up on some forums and do a little bit of searching to find out how easy it is to get help with the software. We're not just talking customer support here, but also in terms of online communities. The easier it is to find a problem you're facing just by using a search

engine, the less time you will spend scratching your head or waiting for an e-mail from tech support, and more time being productive, actually editing! Detailed help files are also a boon, and perhaps everyone needs to learn from kings of the help file domains such as Adobe and Microsoft.

File Formats: Make sure that the final files you create can be saved as your favourite file-type. As a general rule of thumb, you can also look at the output formats of a video editing software as the input formats it accepts. So, for example, if all you have is videos encoded in Real Media, and want to edit them, buying an editing software that doesn't support Real Media files is just going to be an utter waste of money.

Audio Recording: Very often, you will need to add some narration to your movies, and buying a software that doesn't support voice recording from the PC microphone will just not do.

On The Sets

Now that you've procured all you need to start creating and editing your own movies, it's time to go out and actually get that footage. Whether you're out on holiday or just want to satisfy your directorial itch, the fact that you can practically set up an editing studio in your own home makes it necessary to know the techniques that the professionals use. Or you could just continue to bore your family with your hours of pointless vacation videos.

5.1 Composing Shots And Other Techniques

No doubt you've often encountered shots where the wrong thing is taking attention away from the subject of the shot. Many times, this is due to bad lighting (which we'll come to later), but it could just as well be a mistake in composing the shot—the position of your subject inside the frame can make a world of difference.

Now this image wouldn't look as good if the Sun was in the middle of the shot

The Rule Of Thirds

Contrary to popular belief, the best place for your subject *isn't* the centre of the frame—it's a little off-centre. To be precise, imagine the frame divided into nine parts by two horizontal and two vertical lines. The best places for the subject are at the intersections of the horizontal and vertical lines. This is called the Rule of Thirds, since the subject will be located at the one or two-third mark along the length or breadth of the frame.

Using Zoom Wisely

Ten thousand people have probably already warned you never to use Digital Zoom no matter how tempting it is, but we'd rather take no chances. Digital Zoom gives you grainy pictures, and the farther you stay away from it, the better.

However, there's plenty to worry about even when you're using optical zoom. The most popular is over-enthusiasm with the zoom control. You might remember the ad for a popular music channel—"*Joom in, joom in, joom in.....blaargh! Nononono pull out, pull out, pull out!*"—hilarious that it is, do you really want that in your videos? It's like you walked up to the subject, bonked your head on it and reeled back. If you want a close-up shot of something, try this: hit the pause button on your handycam to pause recording, zoom in and out as much as you want to get the right shot, and then hit the pause button again to resume recording. If this causes too much of a discontinuity in the video, consider using a cutaway shot (described in the next section) or just practise getting a better command of the zoom controls.

Alternatively, you could just eliminate using the zoom altogether. Wherever possible, just get closer to your subject and lean in or out to get the shot you want. You'll even get better sound from the subject this way. Of course, you'll need to keep your hand steady.

Steady, Steady

One of the most undesirable characteristics of home movies is the standard "camera shake" that mars so many shots. One of the best things you can do for jitter-free video is invest in a tripod.

If, however, the tripod gets too cumbersome (and it sometimes will), you could purchase a monopod (like a tripod, only with one leg)—it's less painful to handle than a tripod, gives you more freedom with camera angles, and yet lets you shoot smooth, steady video for all to enjoy.

A monopod can help you get rid of jitters, without restricting your creativity

If you don't have access to the equipment, there are a few things you can do about your posture for a steady shot. Most importantly, unless you're using your other hand to save you from falling off something, always use both hands on the camera—your left hand should be propping up the handycam from the bottom. If you're standing still, lean against a wall to steady yourself, and when walking, try to avoid shooting altogether—some of the jerkiest footage is taken while walking.

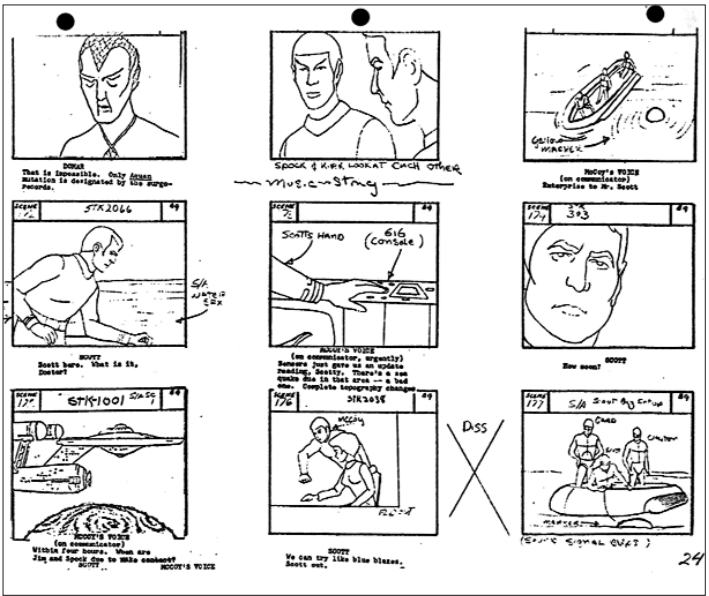
Don't Cross "The Plane"

If you're filming an interaction between two parties—an interview, a sports match, a simple conversation, and so on—you need to keep in mind the virtual plane that separates them. At a foot-

ball match, for example, stay on the side of the team you're shooting. If you go beyond the plane into the other team's side, you might end up confusing the viewer. In general, never take shots from two opposing ends.

5.2 The Storyboard

Before you go out there and start shooting everything in sight, you should plan out your video on a sheet of paper in a set of comic-strip-like frames. This way, you know exactly what you need to shoot, how you need to shoot it, and how long each scene is going to be. You might think that this doesn't apply to your run-of-the-mill vacation video, but think: if you knew exactly how you're going to make your relatives jealous of your trip to New Zealand beforehand, you'd know exactly what style of shots to take to make a crisp yet complete vacation compilation.



A typical storyboard

Making The Storyboard

The procedure itself is quite simple—paper, pencil, and an idea. Like we mentioned before, the storyboard is made in comic-book fashion, with each frame depicting a new scene or a new camera angle. Don't worry—drawing skills aren't necessary. If you can draw half-decent stick figures to represent characters, it will do well enough.

If nothing else, just write down a description of every scene.

Filling It Up

Now that you've planned your movie, you'll need to go out and get the raw footage to fill it up. One rule to follow is the most obvious—record plenty of video. A general guideline is that every hour of final edited video comes out of more than four hours of actual shooting, especially if you're shooting loads of vacation videos. While you've got all the artistic freedom you want, keep in mind these few things:

1. The Establishing Shot

As the name suggests, the establishing shot basically sets the scene. If you're going to an amusement park, for example, the establishing shot can be a wide pan of the entire park. Alternatively, you could just start off with a shot of people screaming their heads off on the rollercoaster. Either way, the establishing shot is one which is a clear indicator of what's to come.

2. The Closing Shot

Just like you need an establishing shot to begin a scene, you will need a closing shot that brings your video to a logical end. This is another area where you can go wild. The closing shot may be as simple as shutting a door, but if it ties in well with the rest of your video, it's sure to make a lasting impression.

3. Cutaways

When you're editing out unnecessary video from your footage, you might often end up with what is called a "jump-cut"—an editing anomaly that causes a jarring disconnect in viewers' minds. For

example, if you're shooting a school cricket match and want to show off your team's two best shots, without the boring stuff in between, you will end up with two shots that show players in totally different positions, making it quite confusing for your viewer. Instead, you could also take a shot of the scoreboard, the crowd, or the guy selling food in the corner, and throw in this shot between the two, thus preventing the jump-cut.

4. Mix It Up

For an entertaining video, make sure you get loads of shots of different types—wide, sweeping shots of landscapes, close-ups or even extreme close-ups of people, shots from your camera rigged to a remote-controlled car à la *Home Alone 3*—the more varied, the better.

And now, on to a few more advanced techniques.

5.3 In Motion

The safest thing to get steady footage, obviously, is to use a tripod or monopod. Trouble is, while these work well when you hold your

A dollie will help you get motion shots

camera stationary, they're hardly useful if, say, you wanted to chase a crawling baby around the house. Shooting video of something that moves is quite tricky, especially if you're trying to shoot steady video while walking. For a steady shot—you guessed it—wheels are involved.

Home-made Dollies

A "camera dolly" is basically a platform that moves on a pair of rails, completed with cameraman sitting on it shooting video and minions who move the platform around at the speed he chooses. At home, you can make your own dolly with something as simple as a sturdy luggage trolley. Actually building tracks in your house might not be such a good idea, but you're welcome to try should the itch hit you. All you need to ensure now is that the trolley's wheels are even and in good condition, and that your floor is fairly smooth. Both these ensure a shake-free video. Get someone to wheel you around, and you have yourself your very own camera dolly! Now you can follow people around or move side by side with them in near-professional style.

More ideas for camera dollies include wheelchairs—Stanley Kubrick's low shots of Danny Torrence on his tricycle in the movie *The Shining* were accomplished using a camera rigged to the bottom of one. Basically, if it's got wheels and won't break under the weight of your camera and/or you, it's got potential.

5.4 Lighting

Like we mentioned before, the wrong lighting can cause your primary subject to be overshadowed by otherwise insignificant elements in the scene. Here's how to work with light.

The Typical Lighting Setup

If you're setting up lighting for indoor shots, there are four different light sources you need to keep in mind:

1. The Fill Light

True to its name, a fill light fills the scene with ambient light, and doesn't cast any shadows. In the daytime, the sun is your fill light—sunlight bounces around your house lighting up everything, so you don't have to bother about lighting every nook and cranny. In the evening or at night, you can use a fluorescent lamp as the fill light.

2. The Key Light

This is the light that will lay emphasis to the details on the main subjects of the scene. The key light is the brightest light in the scene, and it's what you'll be using to play with shadows and highlights, and you should invest a lot of time in setting this up.

3. The Background Light

This light is placed behind the subject to soften any unwanted shadows.

4. The Rim Light or Kicker

This one is optional. The rim light is also placed behind the subject, and it adds definition to the subjects' edges. In the case of humans, it shines through hair (or on bald heads) for a halo-like effect.

The Backlight Fight

If you're shooting in daylight, you're often going to encounter situations when the sun is shining right into your camera, and anyone you film from this angle becomes a silhouette. You don't need to invest in expensive lighting equipment to fight this—you can get yourself some reasonably-priced reflectors from anyone who sells photography equipment and use those to bounce the sunlight onto your subject.

In The Dark

While many cameras come with a "Night Mode," you're best off not using that. The digital "enhancements" only lead to a lot of colour noise and your movie will end up looking grainy. However,

if your handycam has it, you can use its night lamp—basically an infrared lamp that illuminates its immediate surroundings enough for them to be visible to the camera. Unfortunately, this will cause your camera to record in greyscale, but you can get some really interesting effects. If you want a creepy shot of a black cat, for example, shine this light directly into its eyes (the cat won't suffer any harm). In fact, even human eyes get a very eerie look in this mode.

While inbuilt infrared LEDs are fine for shooting objects in the range of a few feet, for longer ranges you'll need a larger and more powerful infrared illuminator. Remember, though, that you won't see any light with your naked eye.

The Right White

The colour white looks different in different environments. For example, under fluorescent lights, it might have a bluish tinge, a yellowish one in the outdoors, and so on.

All handycams come with automatic white balance adjustments for different environments, but they may need tuning from time to time. The general procedure involves pointing your camera at a white surface and telling it that *this* is true white. You will need to consult your camera's manual for more details on how to calibrate its white balance.

5.5 From The TV To Your PC

With Media Center PCs available everywhere, and Windows Media Center being built by default into Windows Vista, your PC will soon become your primary source for TV programs, simply because of the convenience it offers. Pause shows while you go grab a bite, record your favourite programs, even skip through commercials—who wouldn't want that?

What You Need

To start recording your TV programmes to your PC (assuming that you don't have a Media Center PC), you'll need to set up a few things:

1. A TV-Tuner Card

You can get one of these for as little as Rs 1,000, but you should preferably invest in a higher-end brand like Pinnacle or Compro, which will cost closer to Rs 2,000. You'll need a free PCI slot on your motherboard to install it.

2. A huge hard disk

Naturally, since you're going to be recording video, you'll need the real estate for it.

3. PVR (Personal Video Recording) Software

This will usually come bundled with the card itself, and Pinnacle's is quite competent on its own. We've talked about more such tools in Chapter 4.

4. A Cable TV Connection

Duh!

Setting It Up

Setting up your equipment is quite easy. Turn off your PC and insert the TV-Tuner card into the free PCI slot. When you start up, Windows will tell you that it has found new hardware, and will ask you for its driver CD. If you didn't get a driver CD, strong words need to be voiced to your dealer. All you need to do now is bring your cable TV connection to the card.

5.6 Recording Streaming Video

With the number of home-made videos making it famous thanks to sites like Google Video and YouTube, no doubt you've found clips you'd like to store on your hard disk for later viewing. Moreover, downloading video and then watching it is far better than viewing it in instalments over "broadband".

Get videos online from video sites such as Youtube.com and Google Videos

Legality

User-submitted videos on YouTube and Google Video are the property of the creators, so while you're within the law in downloading them, you can't distribute them or host them on your own Web site with the permission of the creators. If you're going to record streaming video from any site, a good idea is to read the site's terms of use; the link is usually at the top or bottom of the site's home page.

Software

There are plenty of free tools out there to record streaming video, one of the best being VLC Media Player (on every *Digit* CD), which easily records Windows Media streams over the Internet.

If you're a Firefox user, you can download the VideoDownloader Firefox extension from http://javimoya.com/blog/youtube_en.php to download videos from YouTube and

The VideoDownloader FireFox plugin

Getting FLVs with FLV Getter

Google Video. At just 20 KB, it lets you decide whether you want to save the stream you're watching or not. YouTube and Google Video deliver content as FLV (Flash Video) streams through your browser, and you'll need a tool like FLV Player to play them.

Once you've downloaded and installed the VideoDownloader extension, all you need to do is bring the VideoDownloader button to the Firefox toolbar by customising it (right-click on toolbar > Customize). When you're on a page that contains streaming video, just click this button and it will give you a list of movies on that page and download links for them. Just click the one you want and you're done!

Other free tools include FlvGetter and VDownloader. VDownloader, in fact, even converts the video to the AVI or MPEG format for you.

To The Lab

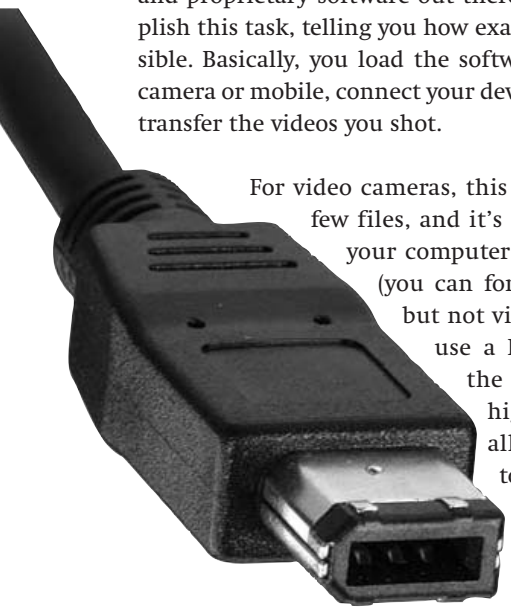
Once you've shot all the video you want, it's time to turn it all digital (if it isn't already), and then edit it to your taste. You might also want to add a few effects and enhance the video to make it look more professional. This chapter will walk you through the basics of editing; if you're already comfortable with basic video editing, skip ahead to chapter 7 for some cool special effects.

6.1 Dumping It All

Everything needs to be on your computer if you want to be able to change it, and this includes videos you've shot on your handycam, digital camera, mobile phone, etc. The only exception is what you're capturing directly onto your computer, such as through a Web cam or from streaming video or live broadcasts on TV.

In the previous chapter, you've seen how you can capture video to your hard drive. The concept is pretty simple for transferring video from your handycam / digicam / mobile to your computer. Every digital device comes with software that can be used to synchronise data between your device and your computer, including video, images, and other data files, such as MP3s, contacts, calendars, etc.

Of course, since there are too many different devices, brands and proprietary software out there that can allow you to accomplish this task, telling you how exactly this is done is quite impossible. Basically, you load the software that's provided with your camera or mobile, connect your device to your computer, and then transfer the videos you shot.



A typical Firewire connector

For video cameras, this isn't as easy as transferring a few files, and it's not like you can connect it to your computer through a standard USB port (you can for digital camera and mobiles, but not video cameras). You will have to use a FireWire port, also known as the IEEE 1394 interface. This is a high-speed interface that will allow you to transfer raw video to your computer for editing. Look at the pictures alongside to see what a FireWire connector and port look like, so you can make sure your video camera and PC both have

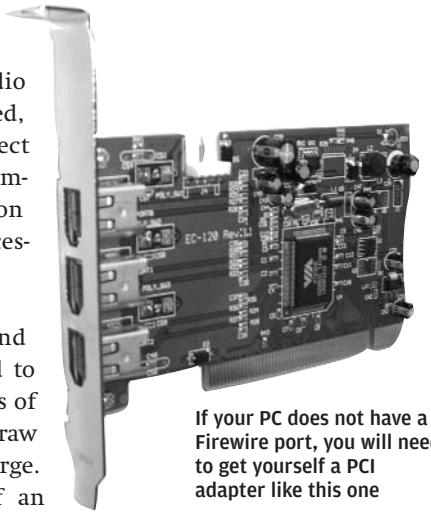
such ports and connectors. If your PC doesn't have such a port, you will have to buy a FireWire card and install it. Call your system engineer and ask for one!

If you have an older camera that's not FireWire-capable, you will need to have a TV-Tuner card, or a video card that has a video-in connector. These are usually S-Video and/or RCA connectors. Look at the pictures alongside to understand what each connector looks like. If your camera has S-Video-out capability, you can connect it to the S-Video input of your video capture card. If not, you will have to use the standard video-out of the video camera to connect to the video-in of your capture card.

Incidentally, if you do not have a video camera, but have some old VHS tapes that have all the memories you want to edit or just store in the digital format, the procedure is the same as that involved in using an older video camera with a video-out RCA jack. All you need to do is connect the video-out of the camera or VHS player to the video-in of your computer via the RCA jacks (generally yellow in colour), and then "record" the output of the camera using the video capture software that came with your capture card.

If you want the audio feed to also be recorded, you will need to connect the audio-out of the camera to the line-in port on the PC using the necessary cables.

When capturing and editing video, you need to make sure you have tons of free disk space, because raw video can be really large. For example, just half an



If your PC does not have a Firewire port, you will need to get yourself a PCI adapter like this one

hour of raw video will occupy about 6 GB of disk space, so be prepared to have to upgrade that 40 GB hard drive if you want to get into video editing. We recommend at least a 200 GB, 7200 rpm SATA (I or II) hard drive if you plan on editing and capturing over two or three hours of video. Of course, that's just disk space, and you have a decent PC configuration as well. Any of the latest CPUs and motherboards will do (a Pentium 4 @3 GHz or AMD Athlon 64 3000+, or better), and at least 512 MB of DDR RAM—we'd still recommend 1 GB of RAM! A DirectX 9 compatible graphics card with 64 MB of video memory is also recommended.

This doesn't mean that people with lower configurations cannot edit videos, it just means that you will need some coffee, snacks and a TV guide handy if you want to try and edit video with anything lower.

6.2 Non-Linear Editing

The definition of Non-Linear Editing (NLE) is exactly what we consider "editing" to be. It is the process or task of taking a video or audio clip (or multiple clips) and splitting and joining various parts together to improve on the original. You can add effects and change the way the clip starts, how it ends, put the ending in the middle, put the start of the clip at the end, etc.

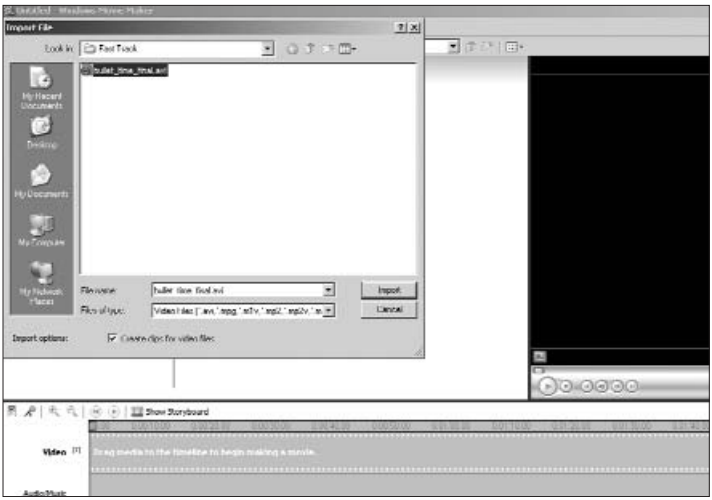
There are other older methods of editing, such as linear editing, which is editing a clip, but not changing timelines or the order of the frames. All the editing you will ever do will be of the NLE type though, so let's just stick with that.

In order to do non-linear editing, you will need to have the video clips on your computer, which we've already spoken about in the previous section. From here on, we will consider that you have the required videos on your hard drive, and walk you through how you can go about editing them.

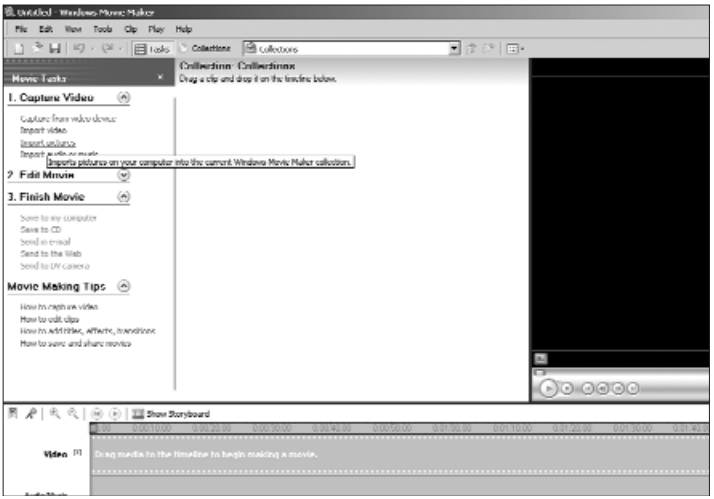
The first thing you'll need is an editing software. Now there are tons of them out there, and you will have seen quite a few options in Chapter 4 of this book, but we're going to stick with the lowest common denominator—Windows Movie Maker. Every PC running Windows XP with SP2 installed has Windows Movie Maker, so that makes it ideal for our example software. Of course, you could use some of the other software mentioned in Chapter 4, especially if you want some powerful effects and editing capabilities. For most people, though, WMM will suffice.

6.3 Windows Movie Maker

You can find Windows Movie Maker (WMM) by going to **Start > All Programs > Windows Movie Maker**, or go to **Start > Run**, type "moviemk" and press [**Enter**]. This will open WMM to the default screen where, on the left, you will see the options to "Capture from video device", "Import Video", "Import Pictures", and "Import audio or music".

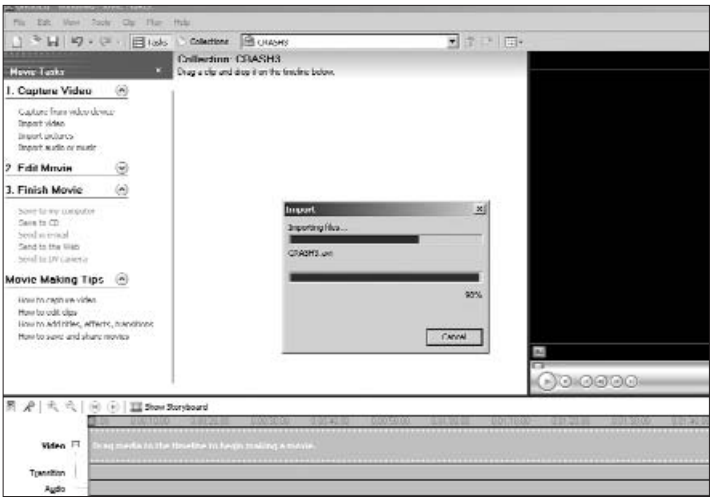


Use the Import function to get clips into Movie Maker



You can also import pictures to WMM

Below, you will see the Timeline pane, where there are horizontal divisions for Video, Audio/Music, and Title Overlay. This is the Timeline, and is where you will be doing all your editing. On the right you'll see the Windows Media Player interface,



Depending on the filesize, importing can take awhile

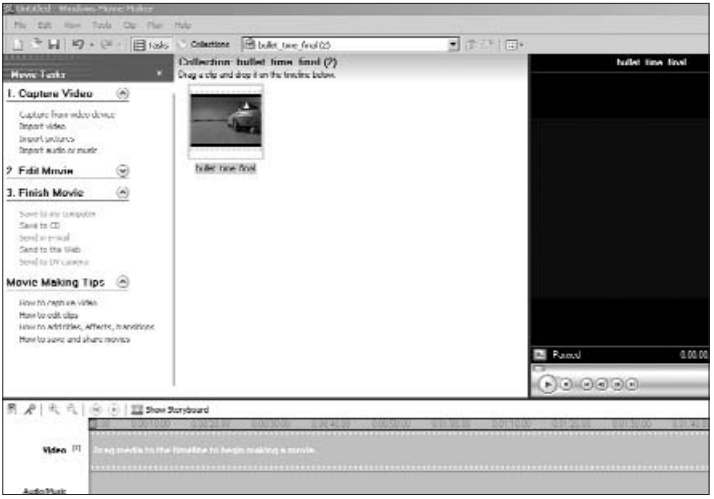
where all your clips can be previewed. Right in the centre, you will see your workspace, where all the imported clips and pictures will be displayed.

You can import all the raw videos you saved from your video camera to WMM. Just click on "Import video", select the video you want to import, and click OK. Wait a while as WMM imports the video—which could be anywhere between a few minutes to over an hour for really large, uncompressed videos.

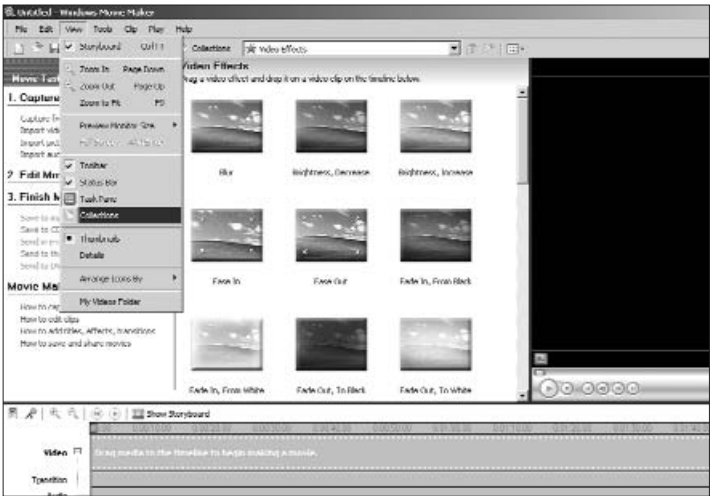
We've shown you, in our September 2006 issue how to make your own bullet-time video, and we used the clips we shot for that in this example.

6.4 Trimming Clips

After you've imported all the clips you need, you can start the editing process. The very first thing to do is select the starting clip. Choose one of the clips you want to start your movie with, then

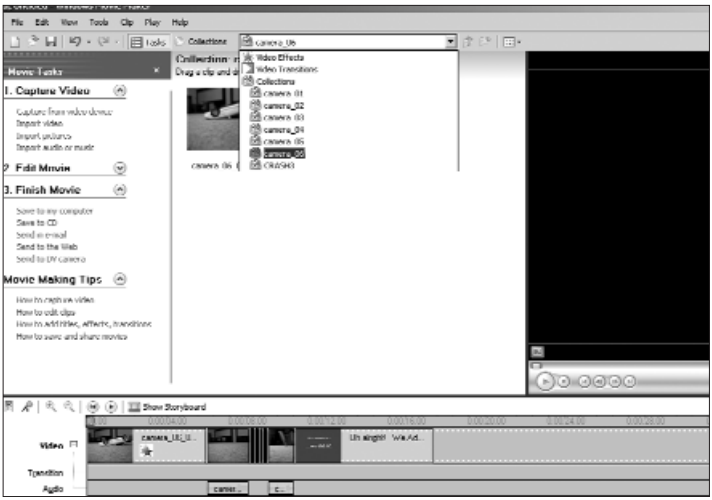


Imported clips are stored as collections in WIndows Movie Maker



Go to View > Collections to see the files that are already imported into WMM

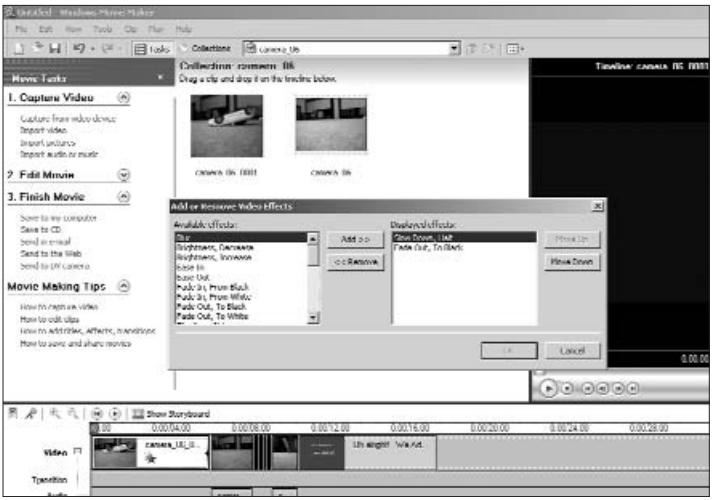
drag it to the Video bar in the Timeline. If the clip is small, you can zoom into the Timeline by holding down [Ctrl] and scrolling down with your mouse wheel.



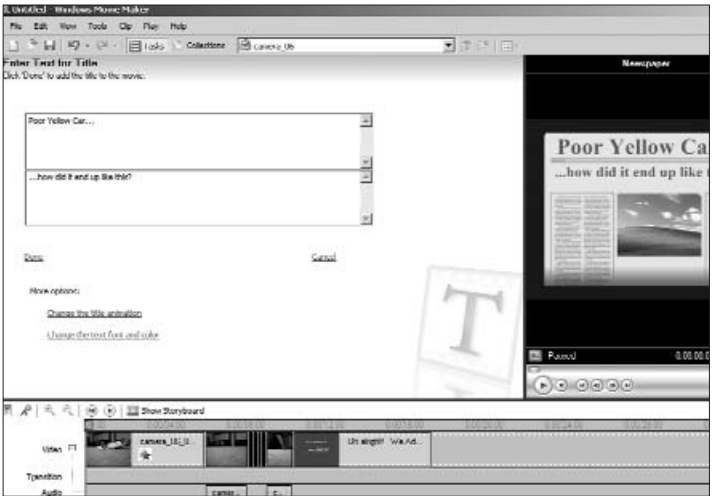
Switch between Collections to find video clips to add to the Timeline

Now, since we're not professionals, we're bound to make a few mistakes when shooting a video, and we need to get rid of the errors. You can trim clips easily in WMM. All you have to do is use the play, pause and frame-by-frame controls of the Windows Media Player pane on the right. View your clip, decide where you want to chop, and press [**Ctrl**] + [**L**]. You can also use the split button at the bottom right of the Media Player pane. This will split the video into two clips at the selected frame. So if you want to delete everything before or after a certain frame, just split the clip into two, select the clip you don't want, and delete it. If you only want to delete a certain section of the video, first split the clip from the beginning of the part you want to delete, then split it again at the last frame of the segment you don't want. Now you have three clips, and the middle one should be the whole segment you want to delete. Just select it and press [**Delete**]. The first and third clip will be automatically joined, and you have just edited out an unwanted set of frames.

The same goes for when you want to move a certain segment to the beginning or to some other place in the timeline. All you

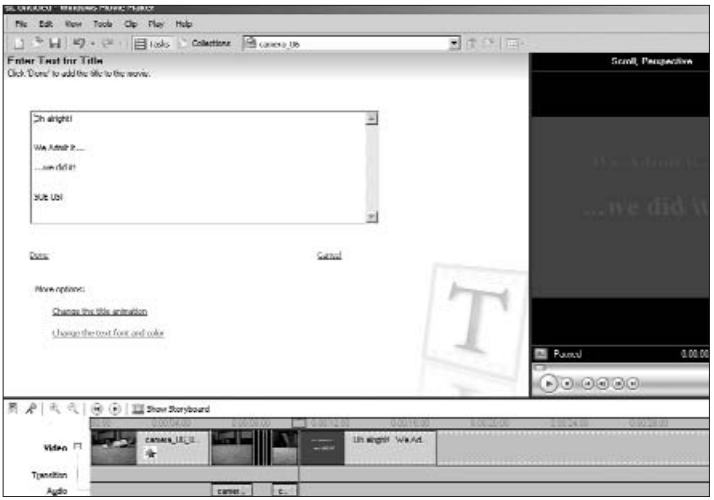


Add effects to clips in WMM to make the final movie look better



Add the text you want to appear as your Title

need to do is split the clip according to your needs, then either drag the bits and pieces and arrange them according to your taste in the timeline, or use the standard cut ([**Ctrl**] + [**X**]), copy ([**Ctrl**] + [**C**]) and paste ([**Ctrl**] + [**V**]) commands to play around with your



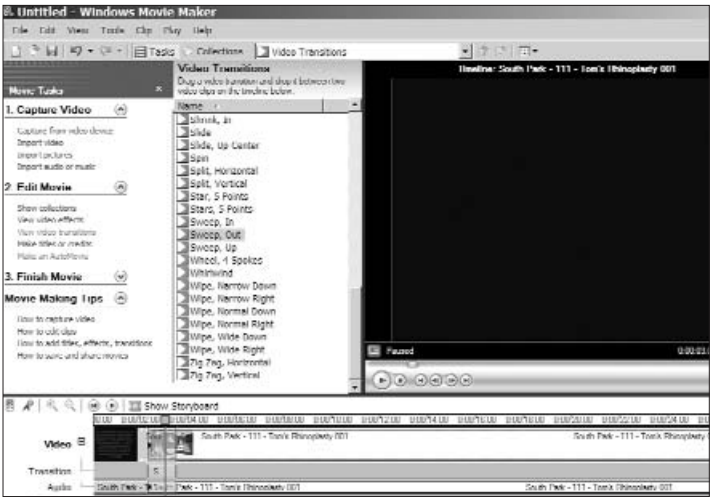
Add credits to the end of the movie

movie. Remember, however, to make sure that you split your video not only to get the part you want to copy, but also such that you can insert it at the correct point!

6.5 Scenes

With every movie, whether it's a video of your annual family holiday that you're trying to spruce up, or a presentation for work, or even your (or your parents') wedding video, you will end up having scenes. Scenes differ from each other in terms of the background, the setting, and even the subjects of the video. It's obvious that you just can't make one clip of your vacation on a beach move seamlessly into another that's set in the Himalayas... or can you?

Thanks to WMM's transition effects, you can try your best to make this abrupt change in scenery and setting as smooth as possible. Get to the first frame of the second clip in the timeline, or basically to the point where you think the transition needs to cover a gap, and then go to the left pane, click on Edit Movie, then on "View



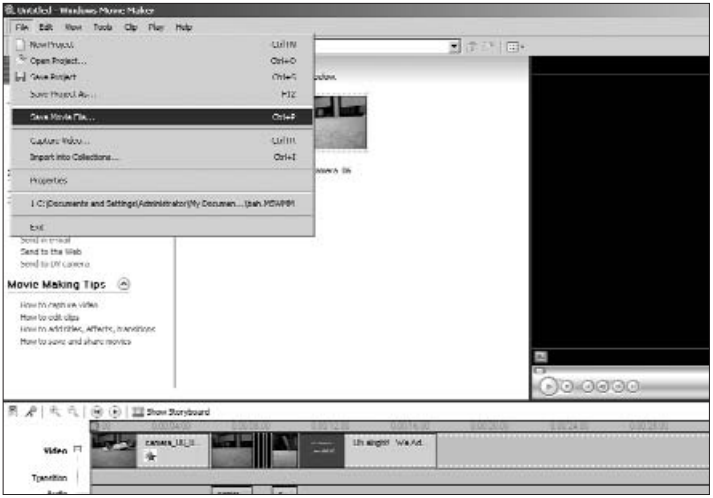
Use video transitions to make the jump from one clip to another smoother

video transitions". Here you will get a list of transition effects that you can preview with the Media Player pane on the right. Once you find something you like, just drag the transition to the Timeline between the two clips you want the transition to occur.

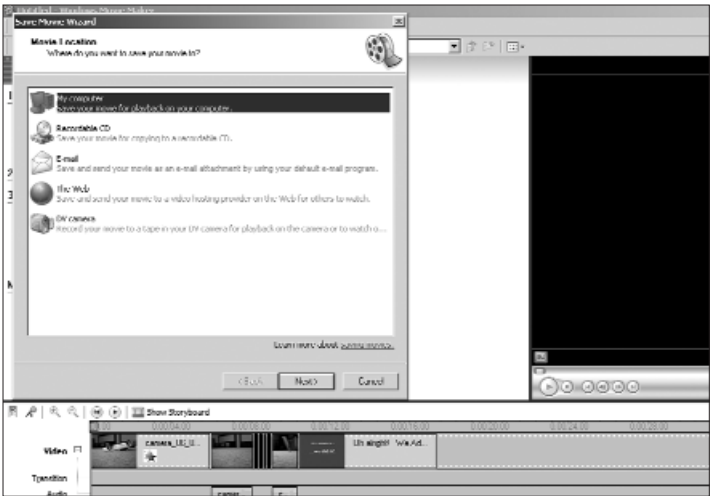
6.5.1 Titles And Credits

You need to add titles and credits to your movie, and this is easily done in WMM. All you need to do is go to the task pane on the left, go to **Edit Movie > Make titles or credits**, and then choose whether you want to add a title at the beginning of the movie and/or the credits at the end.

You can also choose to include the title in the clip itself, and you should click on "Add title on the selected clip in the timeline". Type in your title, then click on the "Change the animation" link on the bottom of the pane to select the type of animation you want for your title. There are a lot of choices here, and you can use the preview pane to see what it will look like. Choose one and then click on "Done, add title to movie".



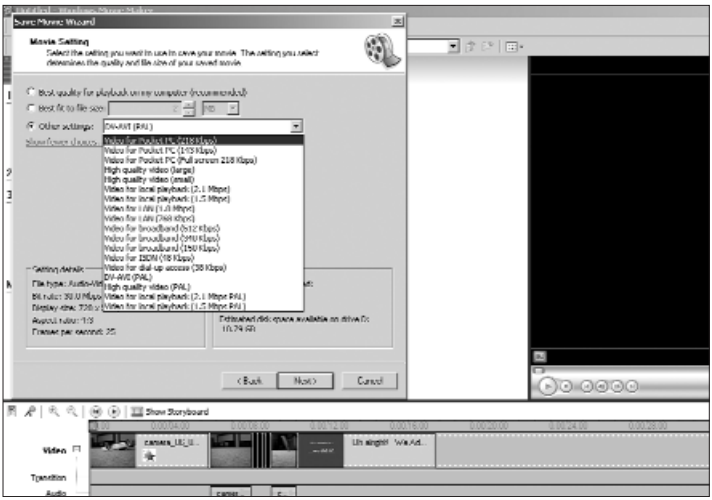
Once you're done, press [Ctrl] + [P] to save your movie



Choose the location you want to save your movie to

6.5.2 Watermark

There isn't a "Watermark" function per se in WMM, but you can easily make one by tweaking the effects. To add a text watermark to your movie clip, go to "Make titles or credits", click on the "Add title



Choose the quality of the video, based on the size you want

on the selected clip in the timeline", and then click on the "Change the text font and color" link below. Now you can change the transparency, colour, and position of the text. You should do this after saving the entire clip as a movie, so that the "watermark" remains throughout the movie, and not just in the selected clip.

6.6 Effects

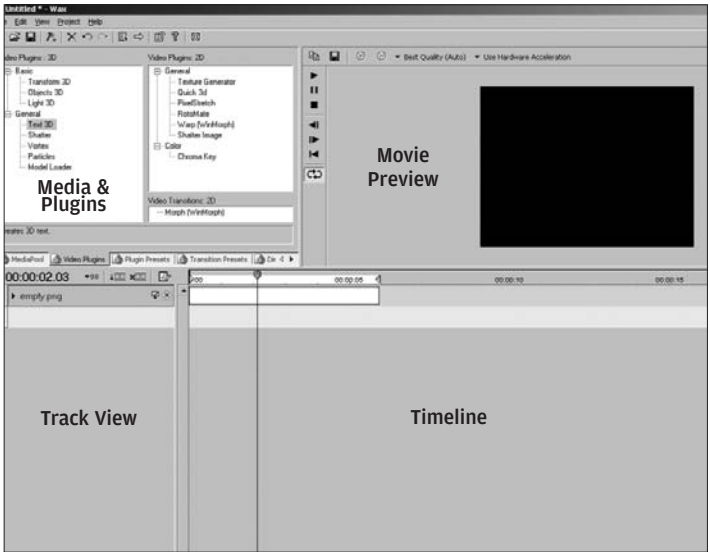
Now that you've seen the most basic of effects in WMM, you can begin experimenting with a few video effects. Right above your work space, you will see a drop-down box that lists your current collection. Click on it and select Video Effects. You will be shown a list of available effects—effects such as Blur, Brightness (Increase, Decrease), Fade In and Out, Sepia, etc. Click on the effect and then preview it to better understand what it does. Choose one of the effects and then right-click and select "Add to Timeline", or just press **[Ctrl] + [D]**. This will add the effect to the current position of the cursor.

For our video, we added a sepia look, and you can view our little effort by going to the **Digital Leisure > Videos** section of the DVD. Another cool effect you might want to try is the "Film Age, Old" effect, which gives the "old" look to your movie clip.

Special Effects

This chapter tells you something about adding special effects to the movies you create. Remember, you're limited only by your imagination—what we present here is just some ideas to consider, and some basic guidelines.

Once you come to grips with putting movies together and some basic editing, there still remains the matter of adding that "extra something" to it. An explosion? Psychedelic colours, perhaps? While there are a large number of professional tools to help you get this done—Discreet's Combustion, Fire and Flame, Adobe After Effects—they're dauntingly expensive and will require a mean machine just to get them started. For the purpose of this chapter, we'll be using Debugmode's Wax (get it from **www.debugmode.com/wax**; it's a mere 2.6 MB)—a free video-editing tool, with some special effects built in. The principles of the effects remain the same across applications, though the implementation differs.

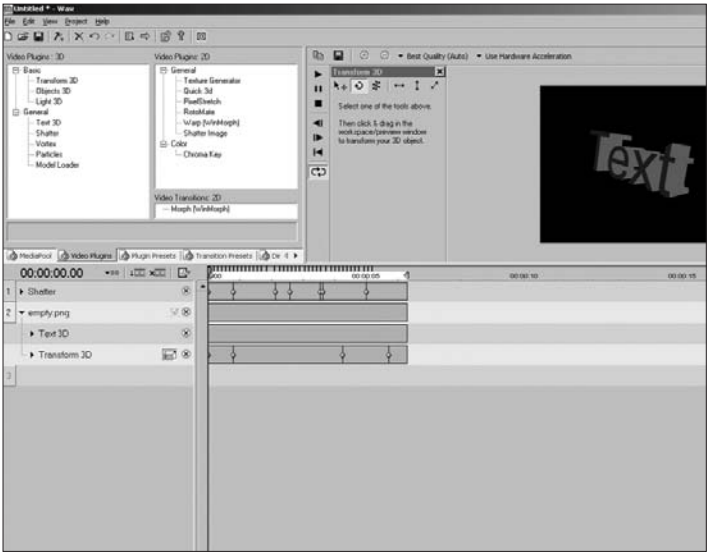


The Wax Interface

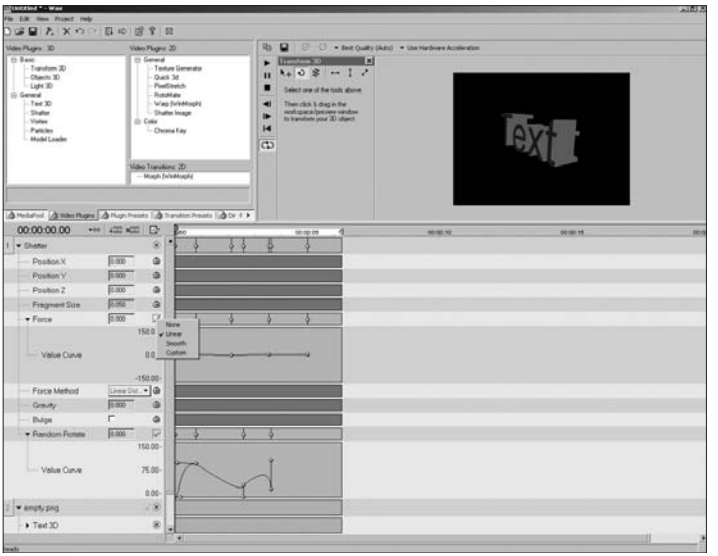
7.1 Your Basic Text Animation

The first thing you can do with a movie is have your own, customised logo or text dance for the audience before the movie actually begins. Wax gives you a number of text presets to work with, and you can either customise one of these, or start your own from scratch. You've already read about adding basic titles to your movies in Windows Movie Maker; we'll just be taking that a step ahead with text effects that we can tweak.

Let's start with a simple 3D text shatter. Open up Wax and right-click in the Media Pool tab at the top left and choose Add Media Files. From Wax's samples folder (**Program Files\Debugmode\Wax 2.0\Samples**), load empty.png. We're basically using this to cheat a little—many effects won't work unless applied to a clip, so we hand them this empty clip. Now drag this file on to the timeline below. Use the controls above the timeline (in the bottom-right panel) to increase the play-



The starting point

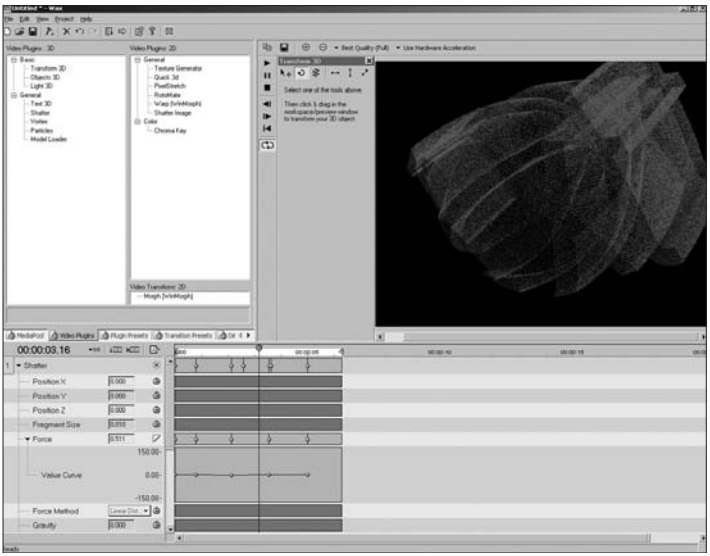


Edit the value curves for Force and Random Rotate

time for the clip as well as the time that empty.png will be shown for.

Next, select the Video Plugins tab in the top-left panel and drag the Text 3D plugin on to the empty.png track. Expand the Text 3D object and enter your text and font size. You can use the button on the Transform 3D track to open a set of interactive tools to manipulate the 3D text in the movie panel itself. From the same video plugins, drag the Shatter plugin above the empty.png track. This is what your workspace should look like now:

Now we'll edit the Shatter parameters. Expand the Shatter track and click on the Keyframing Options icon next to Force, and choose Linear. Expand Force to reveal a Value Curve—this is what we'll use to edit the parameters further. Use the slider at the top and drag it to the left. Now change the value of the Force by dragging on the text box, and you'll also see the value curve changing. Repeat this for a bunch of different values till you get a line like in

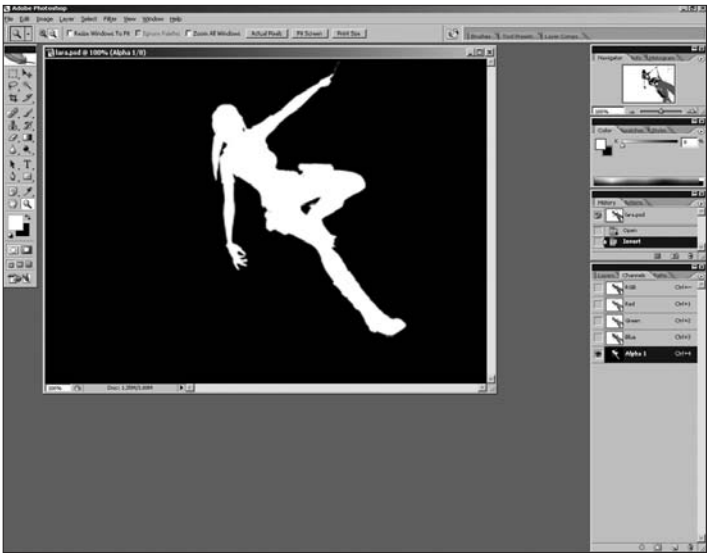


Some more playing around

the screenshot. Repeat the same for Random Rotate, only choose Custom as the keyframing mode—you will then be able make more complex value curves by clicking and dragging at the different points.

To play with this a little more, we rotated the text about a bit (just change the keyframing mode for Angle X, Y and Z under Transform 3D) and turned down the Fragment Size under Shatter *really* low for a powdery effect.

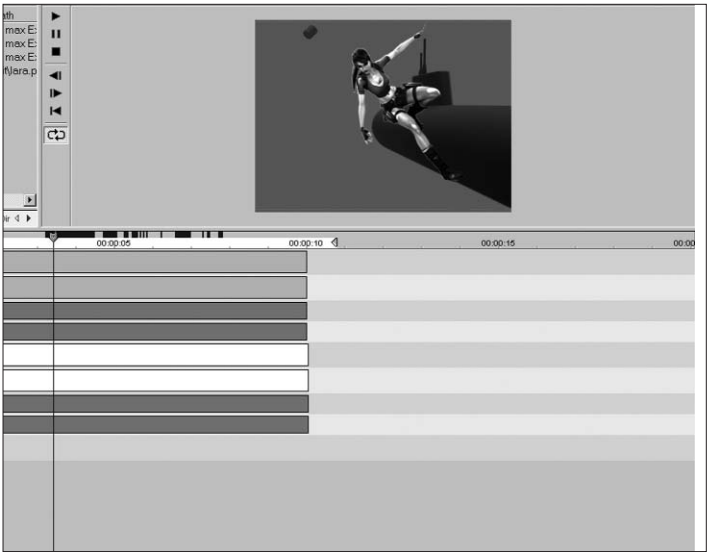
7.2 Fun With Compositing



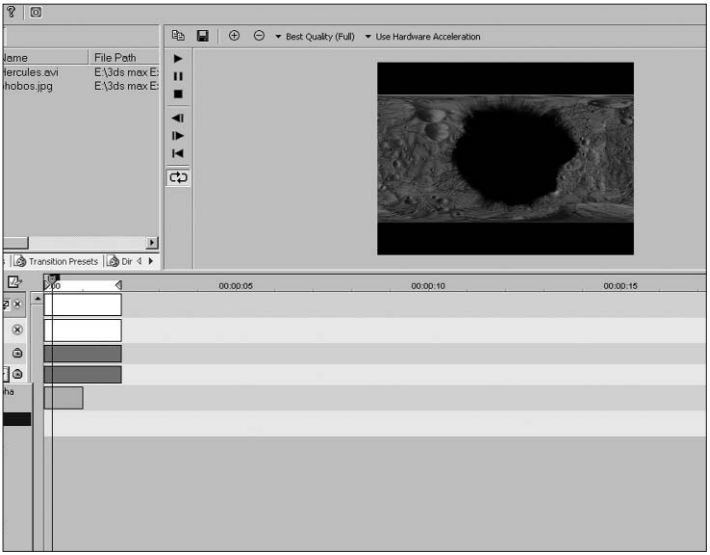
The Alpha channel in Photoshop

Compositing is the art of combining videos and images—much like we do in programs like Photoshop—to create effects in digital video. This can range from simple watermarking to the "invisible man" effects we all love so much. If you're familiar with Alpha channels in images, you can also use them to hide or show parts of the image in your composition.

Getting an image with an Alpha channel into your video is as easy as can be. First, start Photoshop (or whichever image editing program you use, as long as it supports alpha channels), and add a new channel from the Channels palette. The channel is usually black by default, representing total transparency. Paint white over areas that you want to be visible. You can even use different levels of gray for semi-transparent areas. Import this into Wax,



Bringing it into Wax



Some judicious use of Compositing modes makes it look like this image is burning from the inside

Where did the exploding bug come from?

load it as a new track in the bottom-left panel. Click on the check mark at the right hand side of the item to reveal the track properties, and make sure that the Compositing mode is set to Source Alpha. Simple!

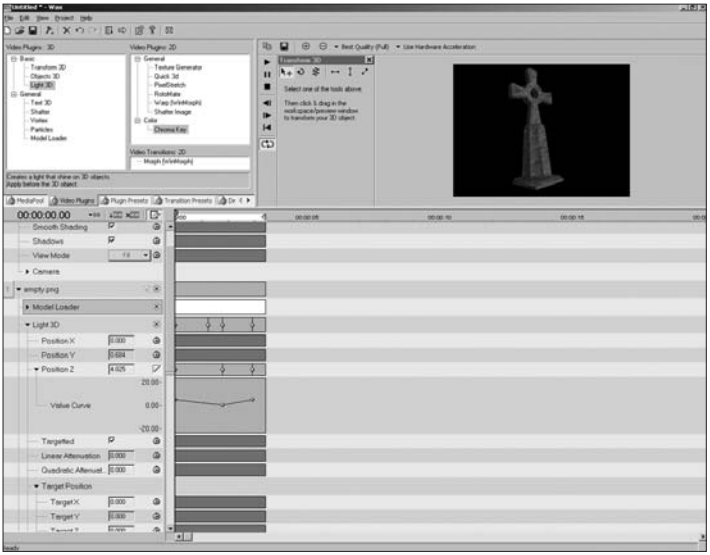
You can also play with different Compositing Modes and see the different effects it can offer you.

If, however, you seem to have video that doesn't come with an Alpha channel (and this will be the case more often than not), you can use a technique called *keying* to get the results you want. When blending actors with computer-generated graphics, movie studios shoot them against a blue or green background, and then "key out" the blue, leaving just the actor and whatever footage they want to place instead of the single-colour background. Alternatively, if you dress your actor in green, and shoot the scene twice—once with and once without the actor, you can make your own "ghost" movie too!

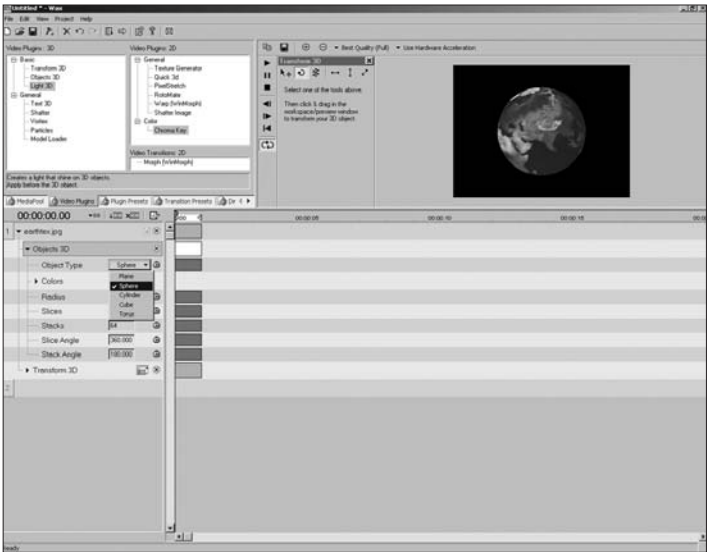
To use keying in Wax, you need the Chroma Key plugin. Simply drag the Chroma Key plugin from the Video Plugins tab in the top-left panel to the clip you want to apply the effect to. Now expand the Chroma Key item and select the colour you want to key out. You can also use the eyedropper tool next to the colour chooser and click on the colour in the video clip itself. It's likely that you'll end up with jagged edges the way we did, so you might need to play with the tolerance a little before you get the effect you want.

7.3 Adding The Third Dimension

The characters and objects in your video need not be the last thing you have in them. If you want to add some 3D buildings or objects, you can even get them into your clip! Nearly all post-production tools feature this, most notably Discreet's Combustion, which integrates beautifully 3ds Max. In Wax, too, you can import 3D objects in the .3ds (3D studio) format and even light them to inte-



Loading the 3D cross in to the scene



Making the world go round

grate them into the scene in a very believable way.

For now, we'll just use Wax's empty.png file from its Samples folder again. Add this to the track view, and from the Video Plugins tab, drag the Model Importer on to this clip. You'll also see the Transform 3D item, so you can turn on the transformation controls and manipulate the object in the scene. Under the Model Importer, select the file you want to import—we took cross.3ds from the samples directory, and loaded cross.png as its map when asked. You will notice once the model is loaded, that it looks quite washed out—some realistic lighting is in order to bring its details out. Drag the Light 3D plugin below the Model Loader to apply a light to it. You can now tweak (and animate) the X, Y and Z positions of the light in the same way we keyframed the 3D text. You can even animate the colour of the light.

An unfortunate limitation in Wax is its inability to edit parameters such as depth of field and field of view—invaluable parame-

ters that can be used when you're trying to integrate 3D models into the scene.

Turning Movies Into 3D Objects

Wax lets you map movies on to basic 3D objects like spheres and cubes using the Objects 3D plugin, and then treat it as any other 3D object. A perfect example is a map of the earth—you could load it into the movie, apply the Objects 3D plugin, select Sphere, and then animate its rotation!

More 3D Effects

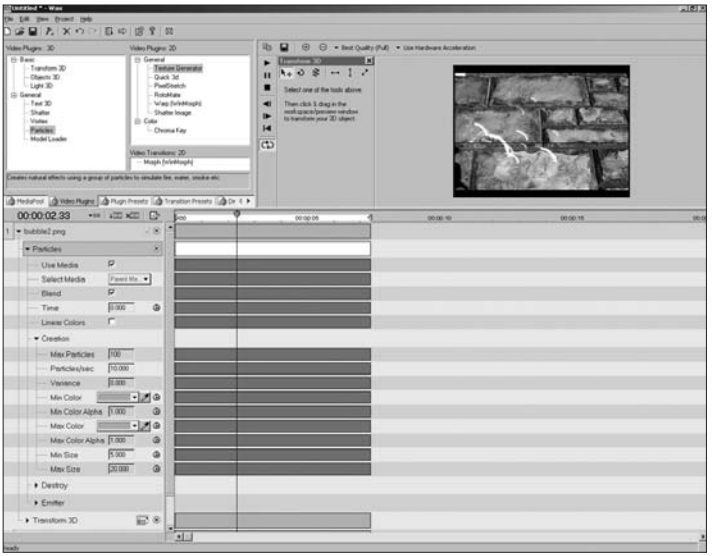
Another thing of interest is the Vortex effect, which creates a tornado-like vortex out of the movie you give it. Like all the other 3D effects, even applying a vortex gives you the Transform 3D option to manipulate the object. To animate the vortex, animate the Bend and Bend Rotate parameters to make the tail dance around a bit.

7.4 Particles

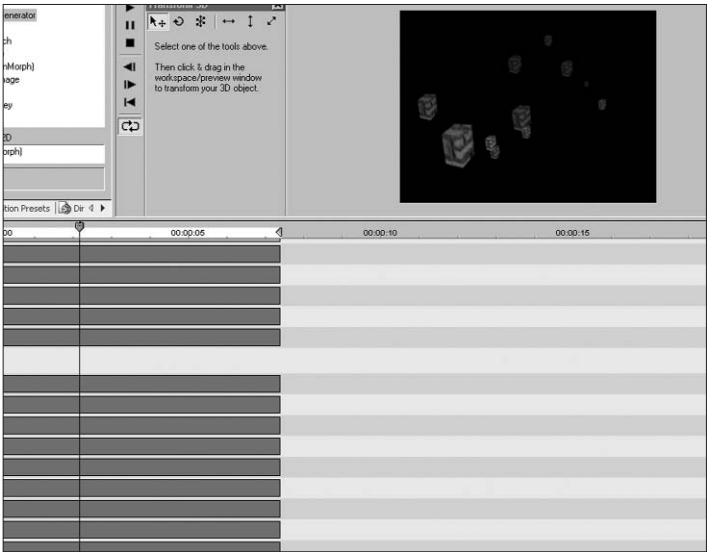
From fire and smoke to flying seagulls—it's all possible with particle systems. To get to grips with the basics, we'll create a bunch of floating bubbles using Wax's particle systems.

To begin with, load bubble2.png from Wax's samples folder, and any background of your choice. Drag the background on to the tracks and the bubble on top of it. From the Video Plugins tab, drag the Particle plugin on to the bubble track, and you'll see a track for both Particles and Transform 3D. If you drag along the timeline now, you'll see that the particle system has defaulted to a simulated fire—we'll be changing that to bubbles now.

Expand the Particles track, and you'll see a checkbox labelled Use Media. You will now see the option to select the media—the default is Parent Media, and you can change this to anything that you've loaded into the media pool. For now, we'll just leave it as Parent Media—the bubble image.



Get the bubbles ready



One cube, many cubes

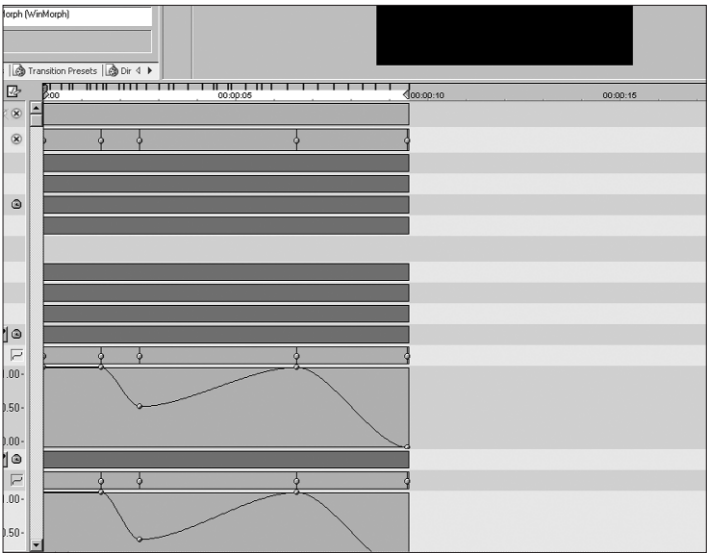
Under Select Media, you can also choose one of the other tracks as media—in the example shown here, we first loaded a JPEG image, applied the Object 3D plugin to it and turned it into a cube, and then selected it as the media for the particles system.

Coming back to the bubbles, you'll see that the default settings produce just too many bubbles, and with yellow and orange highlights. Expand the Creation item, and under it, change the Max Particles to a lower figure—about 100 should do, and change Particles/sec to around 10. Change both the Min colour and Max colour to white, and we're done with this item.

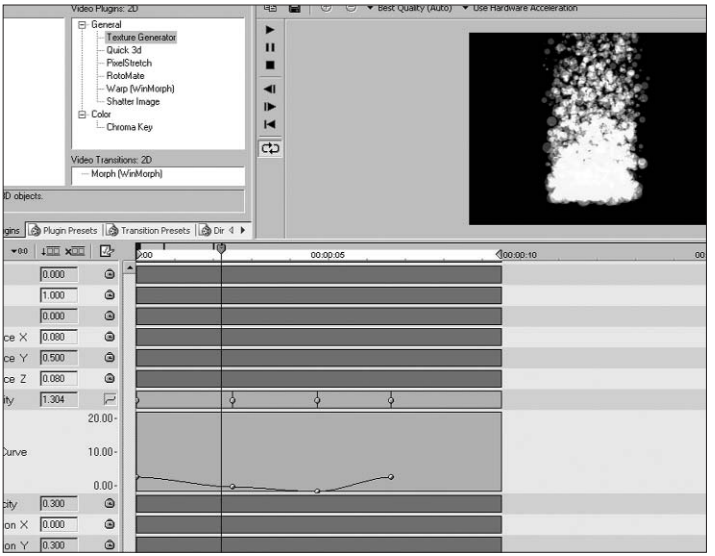
Finally, under Emitter, change the Min Rotate and Max Rotate parameters so that the bubbles don't all look absolutely identical.

Raging Fires

Now that we're done with basic particle effects, let's move on to bigger and better things. We'll use keyframing to manipulate the



Changing the Colour Alpha makes the colour intensity vary over time



Changing the value curve for velocity makes the fire rise and fall

parameters of the particle system to create a more "alive" fire. Start with any image in the media pool—we just used empty.png from the Wax samples folder. The convenient thing with Wax's particles is that they're already set to all you need for a good fire, but not as good as one would want.

The first thing you need to do is change the particle's Min size and Max size to a smaller value—we chose 1 and 2 respectively. Now you see the fire looking much better. Next, we change the keyframing mode for the Min Colour Alpha and Max Colour Alpha to smooth, and draw a curve like the one in the screenshot.

Next, under Emitter, change the keyframing mode for Min and Max Velocity to smooth, and draw the curves to make the particles speed up and slow down for a "raging fire" effect.

Nearly all such programs support particle systems, so no matter which one you're using, the principles remain the same.

7.5 Pick Up Your Paintbrush

If you've always wanted to create your own Lightsaber effect à la Star Wars, you need to use a technique called *rotoscoping*. It involves tracing live-action movement in videos frame by frame, and painting over it. You can use this to either mix your own drawings over live video, or with some meticulous work, create your own cartoon out of real-life footage.

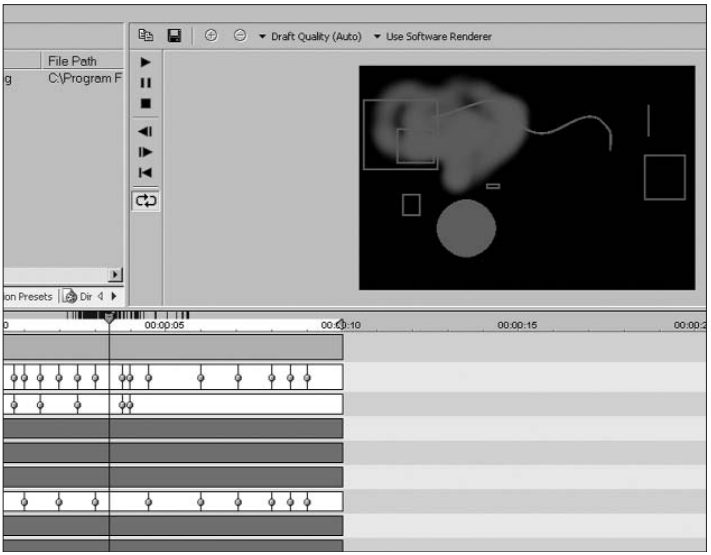
To use rotoscoping in Wax, you need to use the RotoMate plugin from the Video Plugins tab.

The most basic thing you can do with RotoMate is create a slideshow of sorts of your paintings. To get started, pick a movie or image to start on, and drag the RotoMate plugin on to it. You can use the button on the left of the plugin track to open the RotoMate toolbox next to your movie, and use the paintbrush to start painting. Once you've painted a shape, it remains persistent on your movie till the frame where you decide to paint another shape. The old one then vanishes and gives way to the new one. Try it—draw a line, move ahead in the timeline, then draw another line.

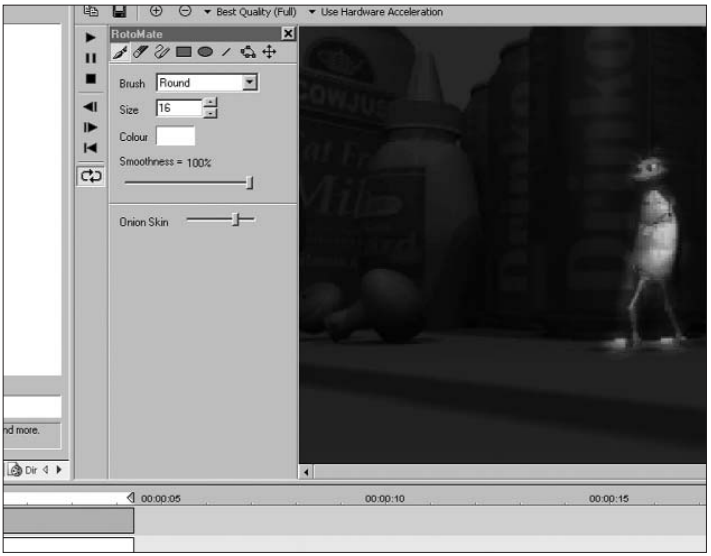
If you select the "Shapes as Mask" option, you will end up with a black background, and every shape you paint over it will let some part of the underlying movie show through. This is especially useful if you want to isolate one part of the movie and keying isn't working for you.

In the example, we've got a walking bug against a complex background, but we still want just that single element. In the RotoMate Toolbox, we'll pull down the Onion Skin parameter to let the movie show through so we know where to paint.

Unfortunately, you'll have to repeat this step for each frame of your movie—at the very least, for each frame that your character is moving—very time-consuming work.



Creating an abstract montage is simple with Wax's Rotomate plugin

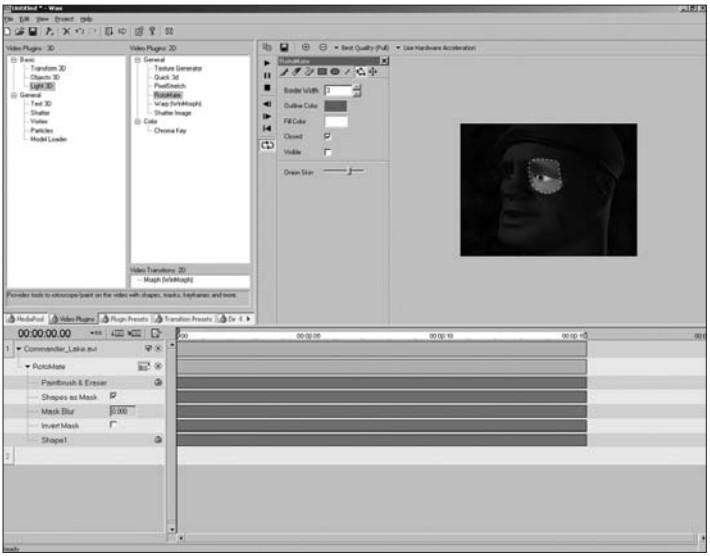


Paint away the mask to reveal the bug

Another way of isolating objects is to use the curve tool, which comes in handy with less complex subjects. Just use the Curve tool to draw a boundary around the object, and make sure that the "Closed" checkbox is selected.

Change the keyframing mode for the curve (it will most likely be called Shape1 in the track view) to smooth, and whenever you need the curve's boundaries to change, just use the Edit or Transform tools to alter it.

While Wax is quite a limited tool in many respects, it's an excellent tool to start learning post-production techniques. It's a bite-sized download, low on system resources, and free! If you want to create more complex effects, you should consider tools like Adobe After Effects—they don't come cheap, though! So what are you waiting for? Download Wax and get cracking!



Draw a curve around the subject

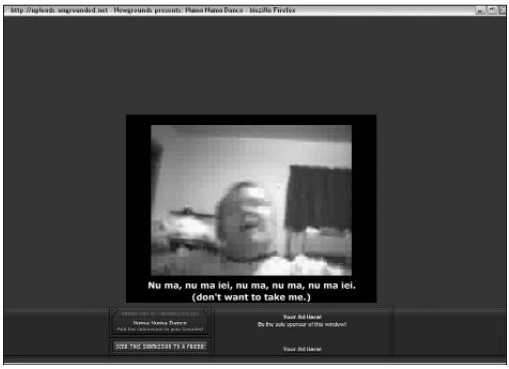
Fame and Fortune

Not since the infamous dotcom bust has getting noticed on the Internet become so fashionable. What the Web has given Joe Average is an opportunity to shine, to show off his true potential, to unearth the diamond within, and to make a complete ass of himself in the process. And we're talking revolutionary stuff here—stuff that spreads fast, stuff that everyone can see and make fun off, stuff that "inspires" hundreds of copies, and stuff that'll make you famous. Read on to find out how *you* can make an ass of yourself.

8.1 A Short History Lesson

A turning point in what Internet video is today is, surprisingly, the leaked Paris Hilton video. The night-mode shot video of the ravishing heiress and her ex-boyfriend doing... err... stuff, showed the true potential of the equation Video + Internet = Fame. Effectively, Paris Hilton, a previously-unknown model with all the talent of a happy chimpanzee became famous, made a reality show, acted in a couple of movies, and recently released a music album. All this just by doing the nasty on tape.

Hilton was one of the first new-generation "Internet Phenomena." True, she had rich parents and a body that only gestures can convey, but one can get famous quick even without those very useful things. The concept of these phenoms is quite like that of bad news—it spreads fast, and everyone wants to know about it. Take the case of the (in)famous *Numa Numa* dance. If the words "What was that?" flashed in your head, shame on you. Go stand in the corner for five minutes and then Google it. You will witness possibly the funniest fun that one has ever made of oneself. In his hilarious take on the Romanian song *Dragostea din Tei*, Gary Brolsma (the protagonist of the video) takes webcam descriptiveness to a whole new level. You have to watch the video to believe it. The podgy 20-year-old shows you why it's cool to be horizontally challenged and flexibly gifted.



Gary getting jiggy with it

The video, first published by Brolsma himself on the Newsgrounds (*www.newsgrounds.com*) Web site has seen over 13 million views!

Brolsma has appeared on TV shows and now is set to release the New Numa. As you can see, you don't need nice curves to get famous.

Soon after the "original" *Numa Numa* was unleashed on an unsuspecting online community, copies sprang up everywhere. In fact, some college students in Canada even made their own video for the song, which gained cult status online almost as quickly as Brolsma had.

Brolsma gave hope to a lot of budding net-video-ists all over the world. Everyone's trying really hard to get noticed, and as they do, levels of insane stupidity increase. Take, for example, emogirl, whose popularity increases by the minute on YouTube. In the span of a few minutes, she uses the word "like" about 8,231 times, and with the most innocently "emo" face you've seen.

American Rock band OK Go has built up an unbelievable fan base simply by hosting their innovative videos on YouTube. Their videos *A Million Ways* and *Here It Goes Again* are two of the most popular videos on the site. They are also possibly the most imitated videos on the Net, with hundreds of four man/boy/girl groups copying the concept. Other bands, too, are becoming more open to the concept of getting to their fans using online video sites.

It's all happening with video. The best part is, you can join in the fun. Very easily.

8.2 Making VCDs And DVDs

The best place to put your thoughts to words is, of course, on paper. And currently, the best way to put your actions to visuals is, of course, on VCD or DVD. There are several software packages that can help you put your home video on a VCD or DVD that will play on any VCD or DVD player. The efficiency of these packages depends on a lot of things such as the size of your video and the format it is stored in.

8.2.1 VCDs

VCD, or Video Compact Disc, as the name suggests, is a format that allows you to store video recordings on compact discs. The major restriction VCDs face is that they are limited to 650 or 700 MB of space. This means you can store, as with audio CDs, only about 74 (or 80) minutes of video on VCDs. VCD video is stored at a video bitrate of 1150 Kbps. VCDs are also fast losing popularity, as DVDs are a far more viable format these days. But VCD media are cheaper, and are good enough if you have about a hour or so of video.

8.2.1.1 VCD Requirements

Once you have your fully-edited home video on your computer, and you want to put it on a VCD and send it around, there are a few things you need before you get started.

- **Blank CD-R/RW:** Obviously. These days, almost all blank CDs are of 700 MB capacity. Depending on how long your video is, you'll need more or fewer of these.

- **File Splitter:** If your video is over 74/80 minutes, it's not going to fit on a single VCD. So you're going to have to split it into parts in order to burn it on to VCDs. These third-party software (file splitters) can split up a large movie into smaller parts.

- **VCD Converter Package:** These software packages can convert your home video from whatever format (WMV, AVI, etc.) they are stored on your computer to VCD-compliant format (MPEG-1), which can be read by any VCD player. They will also convert your video to an acceptable bitrate when converting.

- **CD-R/RW Drive and VCD burning software:** To burn the VCDs. Simple, no?

8.2.1.2 Splitting the Video

Trimming a film movie strip is as simple as taking a pair of scissors and cutting it where you want to split the movie. On the other hand, trimming a digital video involves recreating the entire trimmed bit frame by frame into a new media file. So observably,

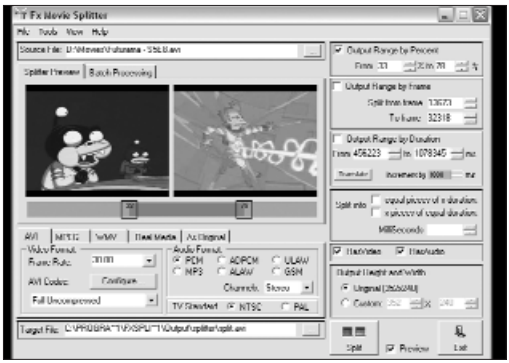
it's tougher. There are several packages available for download that will split a large video (in terms of size and in terms of length) into smaller, more manageable, and more burnable sizes. We looked at two easy-to-use splitters that will get the job done efficiently.

Fx Movie Splitter

This is a very simple-to-operate package that allows you to split almost any media format including AVI, MPEG, WMV, and QuickTime. The interface is straightforward and quite idiot-proof. There's also a pretty nifty audio trimmer that allows you to split audio files into smaller parts. It's shareware, and costs $19.95 (Rs 900) to register.

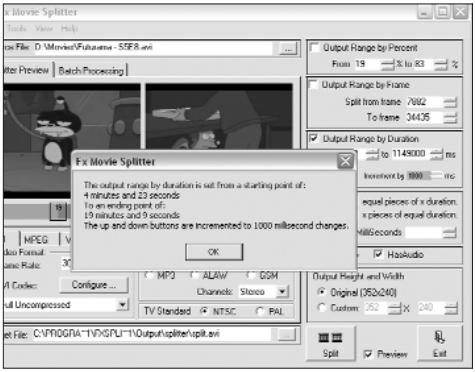
Select the file you want to split. This is called the source file, and can be accessed by using the Source File button. Once it's open, you can choose from where to where you want to split the video, by using the blocks on the splitter bar. There are two blocks on either end of the splitter bar. You can drag each to the place in the video—from where you want the split part of the video to start and where you want it to end.

The numbers within the blocks represent the percentages of the entire source file. The preview screens allow you to view the frames as well, which is a very helpful function if you have a large film that needs to be cut, as it allows you to preserve the continuity of the movie when it is viewed



Fx Movie Splitter allows you to view the frame till which you are cutting the video

on two or more VCDs. You can also adjust the percentages manually by editing the values in the Output Range by the Percent option menu.



Talk about idiot-proof!

You can also change the Output Ranges by frame and by duration. The software even translates into simple terms what the ranges mean when you split the video by duration.

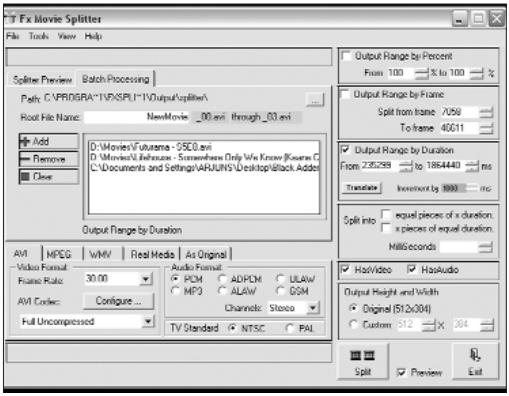
If you want the video to be split into more than one part, you can choose the Split Into option, which allows you to split the video into the number of parts you like—right down to the millisecond. There are also a host of other cool features that allow you a great deal of flexibility with your videos.

Depending on the codecs you have installed, you can choose to save your split videos in the format of your choice, or save it in its source file format. You can also choose to change the height and width of the split video parts to suit what format you are looking for.

If you need to split a number of video files in the exact same gaps, format, etc., the Batch Processing option allows this functionality. However, this option is not recommended if the heights and widths of the videos differ: the splitter will split the files into one standard height and width for all the videos.

In sum, Fx Movie Splitter provides quite a no-nonsense package that does its job, and does it well. If you're someone who's not too

familiar with video editing and the like, or are just looking for something that's a no-brainer and won't take much time getting used to, this is the software for you.



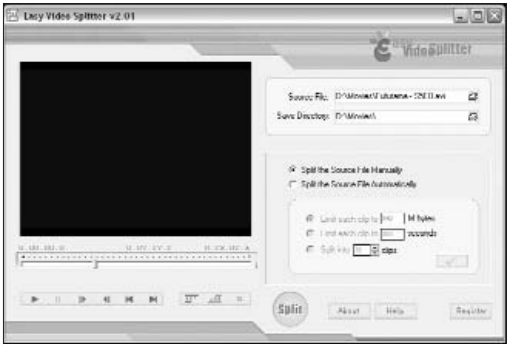
The Batch Processing option is another nifty tool

Easy Video Splitter 2.01 (Shareware)

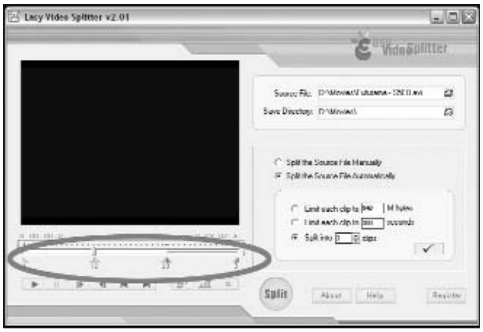
Easy Video Splitter has got to win an award or something for being the only software to be exactly what its name suggests. It's very, very easy— and it's a video splitter. The menu is clutter-free and straightforward, delivering exactly what it's meant to without any frills or fuss.

It's shareware, and costs $19.95 to register (Rs 900).

One of the features that differentiates EVS from other splitter packages is its preview screen, which actually allows you to watch the video and stop it at exactly the part where you want to split the file. Functionality-wise, the package is not as robust as Fx Movie Splitter; however, it makes up in the execution department.



Easy Video Splitter is as easy as it gets



Split your video into multiple parts as you watch it

The software supports most major video file formats, but will split the video in only the source file format.

The preview window also allows you to split a video into multiple parts as you watch the video—a function not present in the Fx Movie Splitter. You simply need to click the "Add new clip and mark Start Point" button, which will create a marker at the place where you want to start each part of the video.

The "Split the Source File Automatically" option gives you several ready-made choices for video splitting, without your having to decide when and where you want the video cut. It allows you to divide the video by file size, time, or parts. EVS also happens to be one of the faster splitters available.

8.2.1.3 Converting to VCD format

VCDs have mainly two types of display resolutions—NTSC (352 x 240) and PAL (352 x 288 pixels). The compression is lesser than standard TV display, which depends on the resolution format (720 x 480 for NTSC and 720 x 576 for PAL). NTSC is a format used mostly in North America. PAL is a more common format. The essential difference between the two when it comes to digital video is the resolution and the frame rate. While NTSC supports a frame rate of 29.97 frames per second, PAL supports 25 frames per second. India uses the PAL format. If you have a VCD imported from the US, it's likely to be only NTSC-compatible.

VCD video is encoded in the MPEG-1 format, and the bitrate is 1150 kilobits per second (Kbps). Audio on VCDs is stored in MPEG-

2 format at 224 Kbps. It's almost as good, if not better, than watching a VHS tape.

There are several software packages that convert your video files from different formats to the standard VCD format. We've featured some of the more popular and easy-to-use ones here.

Amigo Easy Video Converter 5.5 (Shareware)

Like Easy Video Splitter, Easy Video Converter is a very easy-to-use Video converter that allows you to convert video files to a variety of formats. It also allows you to convert PAL video to NTSC and vice versa.

Easy Video Converter converts video to a variety of formats

It's shareware, and costs $25.95 (Rs 1,200) to register.

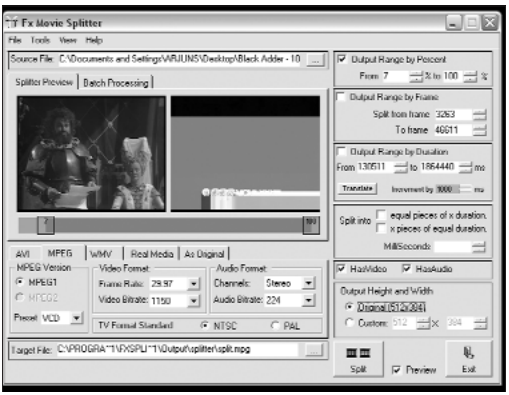
Select the "All to VCD" option from the menu. You will be prompted to select the video source that you want converted to VCD format. Choose your video. You can view the video and details about it in the preview window. Click Next. The Format window gives you some more options. Here, you can also choose from a variety of Split Modes that allow you to split your video depending on its size. You can also choose the size of the video in pixels, and format (NTSC or PAL) that you want the VCD to be in. Once done, click Done. It's really that simple!

Fx Movie Splitter

The Fx Movie Splitter package, too, allows you to convert your

video into the MPEG format that is compatible with VCDs. Once you have chosen your source file, select the MPEG tab below the splitter bar. Use the Preset drop-down to select the VCD preset that will convert the source video into VCD-compatible format. You can choose to convert it to either NTSC or PAL.

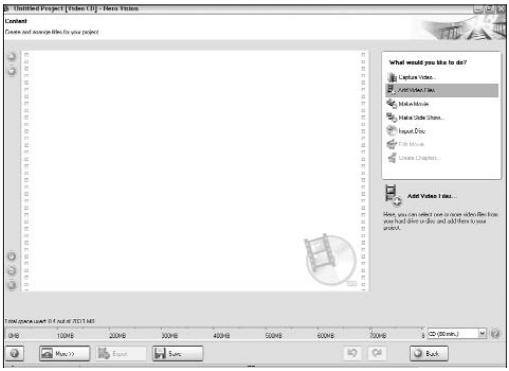
You can choose for the video to be split automatically using the Split Modes



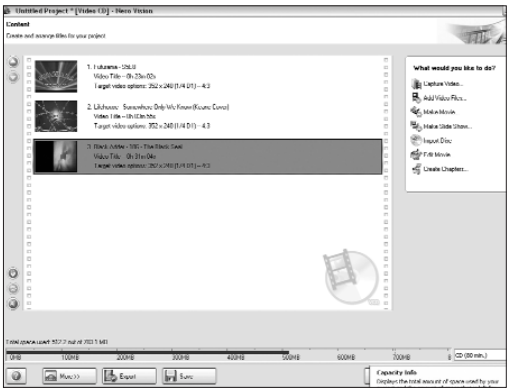
FMS offers a pretty robust MPEG converter as well

Nero 7 Premium

Nero 7 Premium offers a pretty complete multimedia package with a host of features, including a very nifty video editor—though it's somewhat expensive to download the full version, at $59.99 (Rs 2,700). Apart from being the preferred CD/DVD burning software, there is also the option of making VCDs. Select the Make Video CD option from the StartSmart interface. This opens an Untitled Video window, which offers you several options—right from capturing video to making your own movie before converting and burning a VCD.



Making VCDs using Nero is a cinch



Arrange clips in the order of your choice

Click the Add Video Files button on the right-hand bar in the interface. This will prompt you to select the video files you want to burn onto VCD. Select as many files as will fit on the disc, as indicated by the bar at the bottom. If there are several clips, you can reorder them by clicking the green scroll buttons at the top left of the screen.

You can also choose to edit the clips you've added to be burnt. The elementary video editing window that opens gives you some pretty simple video editing options that include options to trim the videos. Once done editing the videos, click Next at the bottom right to return to the Untitled Video menu.

You may also choose to add Chapters to your video, i.e., divide it at various parts so one can easily access a part from the main menu of the VCD. This can be done by selecting the Create Chapters button.

Once you've edited to your video to your satisfaction, click Next. The next menu will allow you to customise the view of your VCD menu. You can use the preset menu template, or choose to create your own using the template editor. After this, you can preview your VCD with a nifty preview tool. The final check is the burn option where you name your VCD and burn it onto disc.

8.2.2 DVDs

DVDs have become to movies what CDs became to music some years ago when they replaced tape as the preferred storage format. As compared to a CD, which can store up to a maximum of 700 MB, a DVD (Digital Versatile/Video Disc) can store up to 4.7 GB. DVD video is encoded in a combination of MPEG-2 compression and different audio compressions such as AC3.

DVDs also allow a much larger scale of interactivity than do VCDs. The amount of content that can be stored on a DVD is obviously the deciding factor on how much can go, but for DVD, it is also a factor of *how* it can go. For example, while a VCD can store video at resolutions of either 352 x 240 or 352 x 288, DVDs can store video at resolutions of up to 720 x 480 or 720 x 576. Extras that can be stored on DVD include still pictures, a variety of subtitles (up to 32), different camera angles, and more. Obviously, DVD gives you a richer video experience than does a VCD.

8.2.2.1 DVD Requirements

Just like with VCDs, there are certain requirements you need to keep in mind and hand while making a DVD.

- **Blank DVD-R/RW:** One should generally do, as you can store a very, very large movie on a DVD.
- **DVD Converter Software:** There are several easily available and easy-to-use tools to help you convert your home video to a DVD-compatible format.
- DVD-R/RW Drive and DVD burning software: To burn the DVD.

8.2.2.2 Converting to DVD video

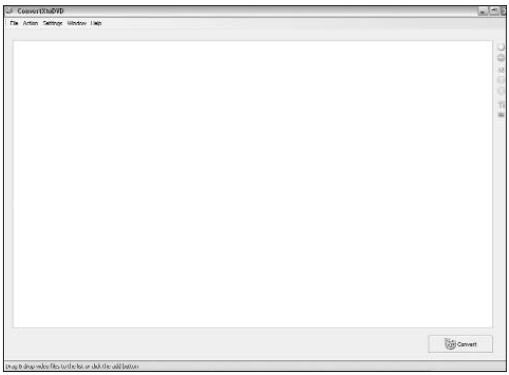
There are several tools that can convert your video files to an MPEG-2 DVD-compatible file. Featured here are some very easy-to-use and not-so-heavy-on-the-hard-disk-and-RAM packages that help you take your regular video files and convert them into video that can be played back on a DVD player.

VSO ConvertXtoDVD

VSO ConvertXtoDVD is a one-click solution to converting your home video to DVD format. It's trialware, priced at Rs 1,600. The software also allows you to burn a video onto a blank DVD, making it a comprehensive package. The interface is clean with loads of space and just the few necessary taskbar options. You can opt for the one-click Convert option for a single video, or burn a bunch of clips together on a fully-customised DVD.

Click on the green Plus sign button on the right-hand menu of the program, and add the video file you'd like burnt onto the DVD. The software displays a Menu drop-down and a drop-down for the video you selected. You can add as many videos as you like, and each of them will have their own drop-downs, making for easy editing options.

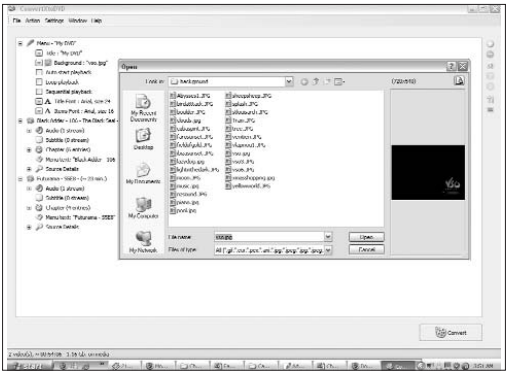
Select the Menu drop-down. Here, you can rename your DVD, change the background for the menu, and even edit the fonts used! You can choose from various options such as Auto Start Playback.



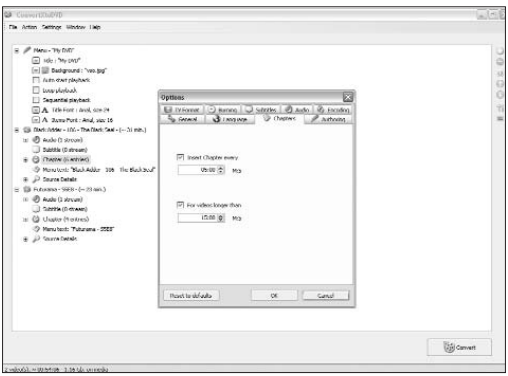
No, it's not a blank screen—it's actually the interface!

In the video clips drop-down, you can access

the DVD options for the selected video clip. You can edit the number of chapters a particular clip has by right-clicking on the Chapters drop-down and selecting the Chapter Options button. Chapters allow you to easily skip to parts in your video.



Choose your own menu background with VSO



ConvertXtoDVD allows you to edit the number of chapters in your video

Click on the Settings button on the right-hand menu. This opens a window that displays the video conversion options you can access. The TV format tab allows you to choose between the NTSC and PAL formats. It also allows you to change your movie to widescreen mode.

Once you're done changing settings, click on the Convert button at the bottom right-hand corner to convert the video clips to DVD video files. You can change the default location of these files by using the Settings option. After the files have finished converting, hit Burn DVD under the Action tab to burn your disc.

Super DVD Creator 9.25

Super DVD Creator is another useful DVD creation tool with the added feature of a live preview screen. It's as simple as a 1-2-3 process that converts your video to DVD-compatible format ready for burning.

It's shareware, and costs $29.90 (Rs 1,350) to register.

Select the Video Disc Builder option from the main menu. This will prompt you to choose the video format—DVD/VCD/SVCD. Click on DVD and move to the next menu. This is essentially the setup of the source clips. Click on the Plus sign at the bottom left corner of the menu to add your video files. Super DVD Creator supports most file types for conversion including DivX and XviD. The blue status bar on the right of the screen shows you how much space is remaining on the DVD.

The preview screen is a cool feature—it allows you to watch your video files within the program itself. Apart from setting start and end points, it also lets you take live screenshots of your video that you can use in your DVD menu (or otherwise).

Super DVD Creator has a very easy-to-use interface

After you're done adding all your files, move on to the next menu, which lets you create the menu. You can choose from the preset templates available, and add your own images to the menu. You can also choose to add background music to the menu. Once

you're done editing your menu, move on to the final step: choose a folder where you want to save the converted video files, select the video format (PAL or NTSC), and hit Start.

8.3 Going Online

The best way to get noticed these days (apart from going to an airport and saying "I have a bomb") is to get online. The best way to share your video is to get online. Now you're obviously not going to sit and courier your holiday video to all your aunts and uncles around the country. The best way to get them to watch it is by uploading it to one of several popular video servers that will host your video for free.

It's fast, it's free, and it's easy. But before you go gung-ho uploading videos everywhere, there are a few things you should know.

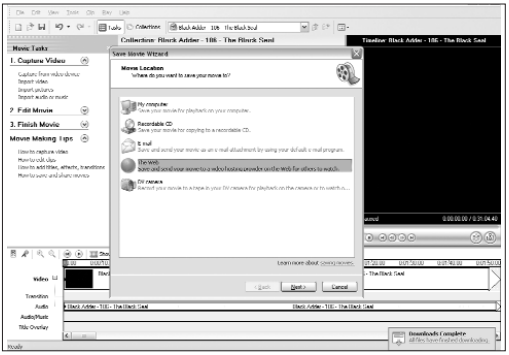
8.3.1 Making Your Video Bandwidth-Friendly

Some things are really obvious—like you can't insert a three-pin plug into a two-pin socket. Like you can't play cricket with a tennis racquet. Like you can't upload a 1 GB video to YouTube without having to either stay up all night (and all day) or without having a T3 connection. Like you can't expect anyone to really watch such a long video on YouTube in that case, can you?

Fear not. If you have a really heavy video file that you want to upload, making it bandwidth-friendly is easy.

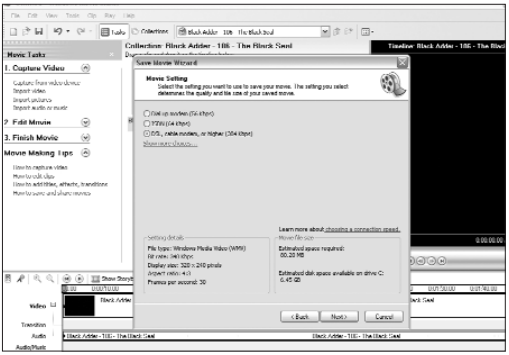
Using Windows Movie Maker

One of the easiest tools to make your video bandwidth-friendly is Windows' very own Movie Maker. Essentially, by "bandwidth-friendly," we mean a video that is not too heavy in terms of file size, and of a resolution that is Net-friendly. For example, YouTube recommends that videos should be 320 x 240. This means that, for example, if your video is 1 GB in weight and more than 640 x 480 pixels in size, then you're going to have some serious cutting to do.



Windows Movie Maker allows you to save your movie customised for the Web

Open a New Project in WMM and open your video in a fresh collection. Now click the Save Movie File button in the File tab. In the Save Movie Wizard window that opens, select The Web.



You can view all the details of your movie in the boxes at the bottom of the screen

The program will prompt you to name your video. After this, it displays a variety of options based on Internet connection speeds. Select the one most suitable to your Web server and your film. The box at the bottom right corner of the screen displays information about how the movie will be after it is converted. In the left-hand box, you can see the resolution and the frame rate at which the movie will be saved.

Click Next, and Movie Maker will save your movie in the form you selected. This is by far the easiest way to make your video bandwidth-friendly. If your movie is still of a very large file size, it's easy to split it into smaller parts (using the video splitters mentioned in §8.2.1.2) and then save it for the Web.

8.3.2 YouTube (www.youtube.com)

YouTube is a great place for every comp-potato. It is by far the most popular free video host on the planet, and its popularity is growing by the minute.

YouTube is big, very big

Currently, it gets over 70 million hits a day! Being a pioneer in its field, it has had several of its features copied in other video hosts. YouTube lets you upload your video onto its server and allows it to be viewed (without downloading on your computer) right on the site.

You need to register to upload a video. Once you're registered, you can upload as many videos as you like, in almost all formats. YouTube recommends, though, that you should upload videos in the MPEG-4 format at a resolution of 320 x 240. There is a file size restriction, however: you can only upload up to a 100 MB at a time, up to a maximum time of 10 minutes. If you want to upload a video longer than 10 minutes, you will either have to upload it in several parts, or get a Director account—which is available free of charge to film directors, animators and the like.

When uploading videos, YouTube gives you the option of adding tags so your video can easily be accessed. The greater and more descriptive the tags, the higher the chance that your video will be found. In fact, some people add all sorts of irrelevant and unrelated tags to their videos just so their video will show up on search results. Try not to do that. Let your video speak for itself (§8.4).

Embed videos in your blog with YouTube

YouTube also has several other funky features, and allows you a great deal of flexibility with your videos. With every video, you get an easily copy-paste-able code that you can embed in your blogs—so you can view videos right from your blog. You can also easily share your videos with a specific, unique link that YouTube gives your video. YouTube also has a very active community structure: there are several groups that allow you to interact with people who have the same interests as you. If you can't find someone who say likes to watch Death Metal music videos, start your own group!

8.3.3 Google Video (http://video.google.com)

Google is into everything on the Web these days. And if it's Google, it's almost certainly good. However, for once, Google doesn't have the dominance it has in almost every other Internet venture they've done: YouTube is by far the most popular video host on the Web. And though it's unlikely that Google can do anything to catch up, Google offers its own, unique video experience.

Where Google lags in terms of popularity, it makes up in terms of features. As opposed to YouTube, Google allows you to upload videos over 100 MB in size (there is no ceiling), and they can be of any length. Video buffering on Google is also very reliable: sometimes, depending on when you access the video, YouTube fails to buffer it, which essentially means you can't view it. This is usually the case with slow- to medium-speed connections (especially dial-up) and popular videos. Google, on the other hand, will buffer every video you are trying to view. It's not a difference in the speed

of loading videos, just in the reliability of them being loaded.

The wide-screen Internet video experience

Apart from this, Google also has a larger viewing size for videos—they recommend a resolution of 640 x 480 for uploaded videos, larger than the YouTube video screen. Which means slower load times for dial-up connections, but better-quality videos.

Google allows you to download the videos you are watching as well, which is a plus if you have a dial-up connection. You'll first need to download the Google Video Player; videos get saved as GVP files that will only run in the Google Video Player. Some videos however, cannot be downloaded. These are the "For sale" videos that one has to buy to watch and play. The purchase option is currently available only in the U.S.

Like YouTube, Google, too, uses tags so one can search for videos. However, the search results you get on YouTube are much more and relevant than on Google—simply because of the number of people who use it.

8.3.4 Vimeo (www.vimeo.com)

As it describes itself, Vimeo is "a really good site for people who like video, and other people." Vimeo has a very, very slick interface and a host of features that other major video hosts don't have. It's nowhere near as popular as YouTube or Google, but it should be,

given its features! However, unlike YouTube, you won't find any copyrighted content here. This means that you're not going to find either Paris Hilton's new music video, or Paris Hilton's old video on this site. What you will get is an engaging video experience.

Vimeo is slick. Very slick

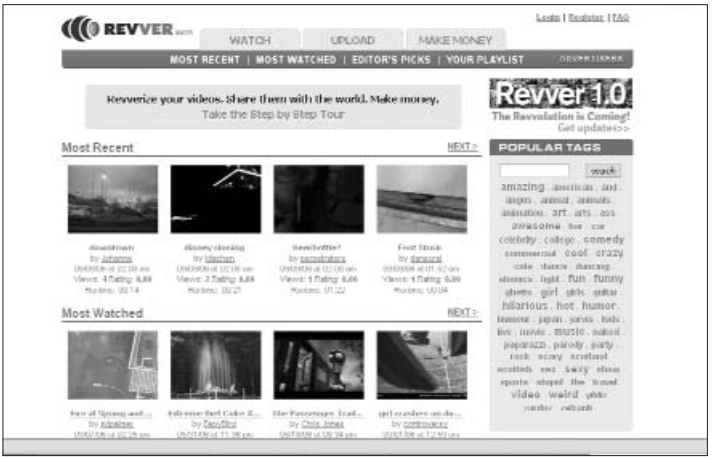
For Vloggers or Video Bloggers, Vimeo is a godsend. It has a growing community that posts essentially their own videos, that is, the videos are either about themselves or have been made by them. Uploads are also very easy, and taggable, of course. You can also download the original videos posted by users. However, you are only allowed to upload 30 MB of video a week, which is a little restrictive.

8.3.5 Revver (www.revver.com)

Ever get the feeling after watching a particularly bad film that you want your money back? The only way you'd watch that 90 minutes of goat vomit would be if they paid you. Revver does. And the videos aren't that bad!

Essentially, Revver works on a very innovative revenue-sharing model. It adds an ad to the end of your video. The ad gets played once your video is done. And for letting Revver put that ad there, you get money. Pretty simple, no? And if you don't want a particular type of ad to be added to your video, you can even specify what kinds Revver can add.

Uploading videos on Revver is pretty simple, and is similar to the other video hosts. Revver "revverises" your video by attaching the ad to the end of your movie. You can also share your video,



Watch, upload, make money... it's really that simple

embed it in your blog, and basically do everything the other video hosts have to offer.

Here are some mini-reviews of other video-sharing sites.

Eyespot (www.eyespot.com)

Eyespot offers easy-to-use video uploading and remixing as well. The interface lacks in the community features department, but there are, of course, tagging, groups, and forums.

In the video editing department, you can trim the beginning and end of your clip, and re-order clips on a timeline. A nice plus is that you can add music and videos to your upload.

One sad part about Eyespot is that you can send invites to your friends to the service, but not directly to a clip you uploaded.

The upload limit is 25 MB, which can be restricting for many. Overall, Eyespot essentially offers easy uploading, but we'd say there isn't too much reason for opting for Eyespot as your video sharing site of choice.

Grouper (www.grouper.com)

We'd call Grouper "YouTube with an inbuilt file-sharing application." For full functionality, you need to download an application; the site is WMP-based, and automatically converts other formats. You can rate and tag videos, there are groups, and also RSS feeds. As sharing videos goes, you can post directly to MySpace and Friendster, and you can download videos as well without hassles.

In the editing department, you can mix and match your videos to your heart's content, and set them to music. The application you need to download does need some revving up.

Jumpcut (www.jumpcut.com)

Jumpcut has one of the slickest interfaces amongst online video sharing sites. The page feels more like an app than like a Web page! Your videos get scaled to a larger size than on other video-sharing sites, but the videos don't auto-play. In addition, when downloading, theres is no indication about how much has gotten downloaded.

You can create, edit and remix video right on the site, and the editing options seem to us the best of the lot. We liked it very much indeed! You can splice your video, re-order shots, add transitions, and even music and photos.

As sharing goes, you can e-mail your video links to anyone, and embed the links in Web pages.

The only gripe we have about Jumpcut is that if you play around too much with your files, the playback isn't entirely perfect.

Videoegg (www.videoegg.com)

One great thing about Videoegg is that there's an application you need to download to be able to upload, and this application gets seamlessly embedded into your browser—bringing in drag-and-drop functionality. Sharing, too, has been implemented well. The

site does lack in the editing department: you have only basic trimming of the beginning and ending of your videos.

When it comes to sharing, you can post directly to Blogger and TypePad. You get a URL for your video, and you also get JavaScript and HTML code custom-made so you can put the code on your own Web page.

Our gripe here is that the video doesn't get properly embedded on some sites, such as Wordpress.

vSocial (www.vsocial.com)

vSocial says it's "the fastest, easiest way to upload, watch and share your favorite video clips." Fonts are large, there's AJAX all over the place, your can tag, rate and review videos, and there are the RSS feeds. The site is a little lacking in the editing department though—try it and you'll see what we mean.

Sharing is a strong point of the site, because you can embed the video on your own site, and also on MySpace, Blogger, del.icio.us, Flickr, and Blog It! (you can write a post on your own blog about a video without leaving the main page).

So is vSocial really the fastest and easiest and all that? Not really, in our experience. As a matter of fact, uploading videos can be really difficult! Besides, all your videos get resized to 320 x 240.

8.4 Getting Famous

Getting famous on the Internet takes almost as much about talent as Britney Spears exhibits when she lip-syncs. You don't have to be a fireball-juggling stand-up comic to get noticed. What you have to be is original. And in the sad case that you can't think of anything particularly unique, here are a few tips on what you can try will probably help you out. Or it will make you look like a complete fool which, given the stuff that's on the Web today, should actually be pretty cool.

Groups are "In"

The more number of people you have involved in your video, the better. Think of it like a grand circus. Group dancing is also in. Particularly if you have the technique or choreography to guide what you're doing. Be experimental though, and use props. Common household items make excellent props. As do domesticated animals. Use liberally.

Action is Good

Fight sequences are great and have been ever since man first invented the motion picture (and since God invented Woman). Try innovative moves. Use self-defence and martial arts techniques such as karate and Tae Kwon Do. If you don't know them, pretend like you do. The more flamboyant and ridiculous your moves, the better.

Solo-Singing is a No-No

Unless you have a very, very unique voice (and we're talking Donald Duck-type unique), avoid videos of you singing songs. If you do intend to sing a song and are hell-bent on subjecting the world to the video, use attractive locales and pictures of the girls you usually see in rap and hip-hop videos.

Stand-Up Comedy Rules

You don't have to be Great-Indian-Laughter-Challenge-type funny, as long as you can make fun of people, especially your-

self. The best looking stand-up comedy is when it's not intentional, that is, when you say something funny without having meant it that way!

World's Wildest Home Videos

The cool thing about home videos is that sometimes the inanest of things seem funny. Obviously, it helps if you have a cat that chases dogs, or a toddler who can play bridge, but not everyone is that lucky. Still, you have no idea how funny some regular home chores can be if screwed up convincingly enough.

Don't Be Serious

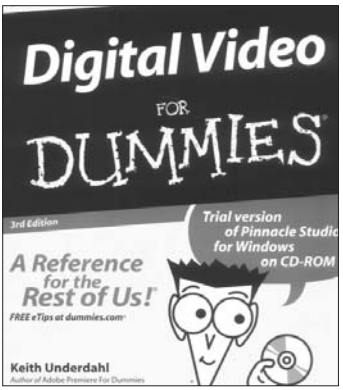
There's always TV for that!

Bibliography

Now that you're almost through with this little book, we point you to online resources—Web sites and books that will help you further your knowledge. Digital Video is an intensely creative field, and there's no limit to how much you can learn!

9.1 Books

Digital Video for Dummies, Third Edition by Keith Underdahl



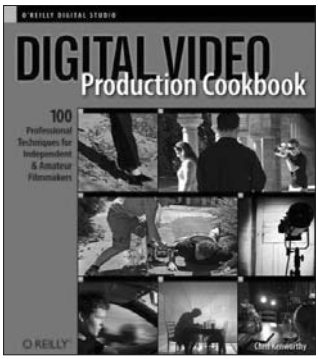
This book has been a top-selling reference for digital video beginners. It is completely focused on consumer digital video users and editors who have little to no experience with DV equipment. The book walks you through the basics of selecting equipment, installing software and hardware, shooting good video, getting files into a PC, editing, and outputting to the Internet, videotape, or DVD. The CD that comes with the book includes trial versions of the editing software covered in the book as well as other digital video tools and sample files.

It's not for everyone, though—apart from the fact that it is targeted at beginners, it primarily uses two programs—Apple's iMovie and Pinnacle's Studio 8. If you're using a video editing program other than these, you may want to look at other books.

Digital Video Production Cookbook by Chris Kenworthy

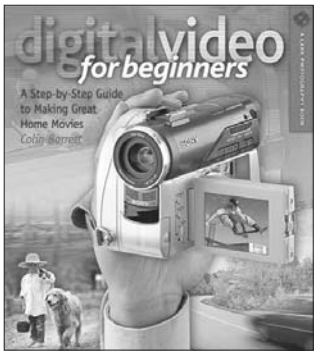
This title teaches you how to create sophisticated-looking visual effects, dramatic shots, and powerful sequences using low-cost methods adapted from high-end professional techniques. The author explains how you can use a digital video camera and basic editing software to create high-end production values with household equipment. The book includes easy-to-follow recipes for creating bluescreen effects, simulating rain, snow,

and so forth, working with backlighting, simulated candlelight, and special lighting effects, night shooting, working with camera movement, adding special effects such as laser bolts, holograms, and explosions, and more.



This is a real how-to book—it's packed with full-colour, step-by-step instructions, inspirational examples, and lots of authoritative information and advice.

Digital Video for Beginners: A Step-by-Step Guide to Making Great Home Movies by Colin Barrett



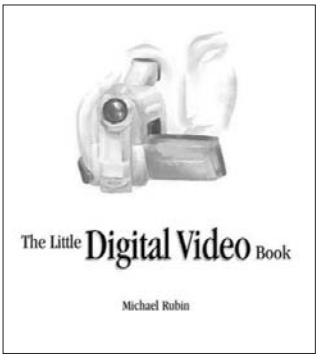
A thorough, practical introduction that covers everything DV. In addition to advice on choosing a camcorder and tips on getting the most out of its features, illustrated tutorials explain how to shoot creatively and master techniques such as point-of-view, close-ups, cutaway shots, and effective lighting. Spice up the sound by incorporating audio tracks, and find out how to create special effects. There's even a detailed description of how to set up a fully functional home editing suite.

The book is divided into 5 sections: What you need to know about your camcorder, Step-by-step shooting techniques, How to shoot great home movies, Step-by-step digital video-editing techniques, and Showing and sharing your movies. Quite the book to follow what you've just read!

Exploring Digital Video
by Lisa Rysinger

Another book written specifically for the digital video novice. This comprehensive book blends industry experience with practical and informative instruction to create a state-of-the-art introduction to digital video. Explored here are the fundamental concepts for those new to the field, while featuring such popular DV editing programs as Adobe After Effects, Apple Final Cut Pro, and Adobe Premiere Pro. The book brings together the latest in software instruction and the best in digital video techniques.

The Little Digital Video Book
by Michael Rubin



This friendly guide to the basics of digital video teaches you how to shoot well, organise easily, and quickly edit your own footage. For new camcorder owners, it's an affordable introduction to the world of quality digital filmmaking. There is very little jargon used in the book; it focuses on practical shooting and editing techniques, and shows you how to start—and actually finish—that video project you have in mind! You get a thorough grounding in the basics of digital video, from how to get a good close-up shot to how to add a soundtrack to your video. The book is platform- and software-neutral.

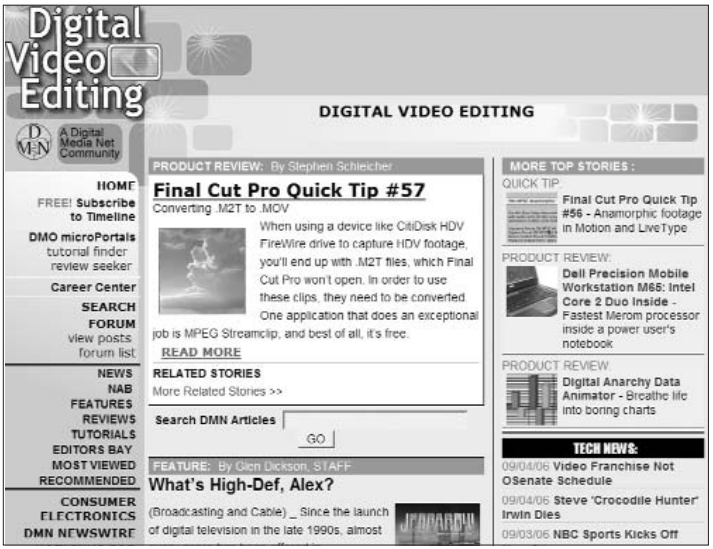
How to Do Everything with Your Digital Video Camcorder by Dave Johnson, Rick Broida, Todd Stauffer, Chad Fahs

Another how-to kind of book. Merging technical savvy and user-friendly language, the book will teach you the essentials of operating digital camcorders and using software to perform remarkable feats of moviemaking. You just need a camcorder, a computer, and some video editing software. Topics include how to capture good digital video, converting existing analogue video for use in your computer's video editor, grabbing still images and animate stills with pans and zooms, learning professional techniques to modify your shots and improve visual interest, adding sound effects and a soundtrack to your movie, and so on.

9.2 Sites

www.digitalvideoediting.com

This site seems one for the almost-pros—those that know their way around digital video, and who are looking to constantly



improve their knowledge. First, there are the mini-tutorials, which are updated every day. For example, one such was "Final Cut Pro Quick Tip #56," which teaches how to use an anamorphic lens, which you might want to do if you don't have a camera that does true 16:9. If "anamorphic lens" didn't scare you off, this site is probably one you'd want to visit.

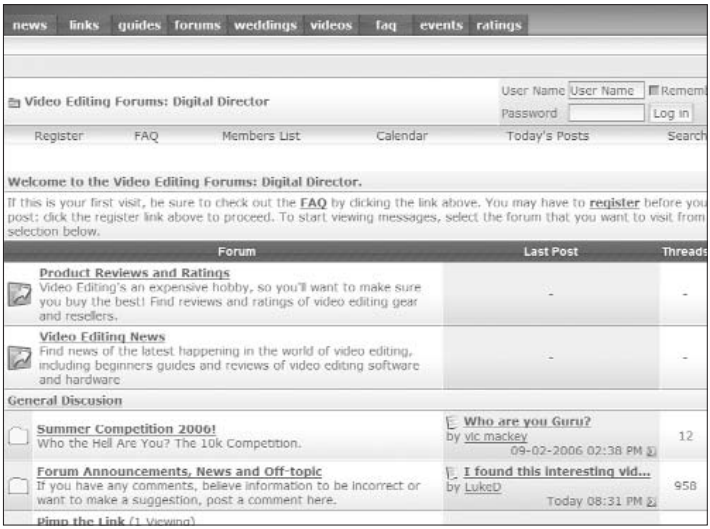
Then there are the product reviews: at the time of writing, being reviewed was, amongst others, a program called Digital Anarchy Data Animator, which helps you bring PowerPoint and other charts to life.

There are full-fledged tutorials as well; if "Adobe Premiere Pro 2.0 for Brand Noobs" sounds interesting, head to this site.

With the sheer amount of content, the front page is no Google's index page; it's littered with links. Amongst other things are links to "Most Recommended Stories" and "Most Viewed Stories." You can search the entire site for what you're looking for, and if you don't find something, post it somewhere on the forums! Yes, the forums seem to us the most useful aspect of the site—there are more than a hundred forums, which deal with topics from Apple DVD Studio Pro to DV Format to Sony Acid. You'll have to visit the site to believe the sheer amount of activity on the forums—which are useful for beginners and pros alike.

www.videoforums.co.uk

Quite simply, this is a forum with a lot of threads on a lot of topics. The thread on Adobe Premiere, for example, runs into 8,000 posts. The forum's main rooms are General Discussion, The Viewing Room (where you can post your videos), Software Problems and Buying Advice, Hardware: PCs and Camcorders, and



a contest of sorts. The forum is fully searchable.

Actually, there's more: clicking on the News link takes you to the latest news related to anything video, and there are articles on the left. A sample list of what you can expect from the site:

- Digital Director's Rough guide to making a scripted video.
- Shoot to Edit: A Guide to Using Your Camcorder
- A Quickstart Guide to Blue Screening—Part One
- Four Free Video Upload Sites
- Shooting Fireworks
- Create a Killer Voiceover
- Create a DVD for Free
- Guide to using your free webspace with digital-director.com
- Working with volume in Premiere

Definitely worth a visit (or two, or three).

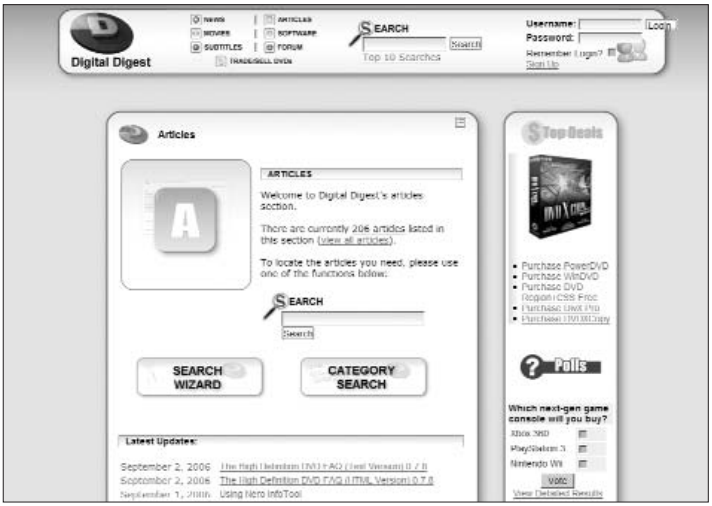
www.dvforum.com

Another forum. Not as large as videoforums.co.uk, but useful nonetheless. The broad topics include General Video, Video Hardware, DVD Authoring, Video Editing, Audio, and Consumer Video. This seems to be a place where even rank beginners come

and post basic questions—for example, under General Video Questions under General Video, the posts we saw went "How much difference do higher-quality miniDV tapes make?", "new to DV camcorders," "about 16x9," and so forth.

www.digital-digest.com

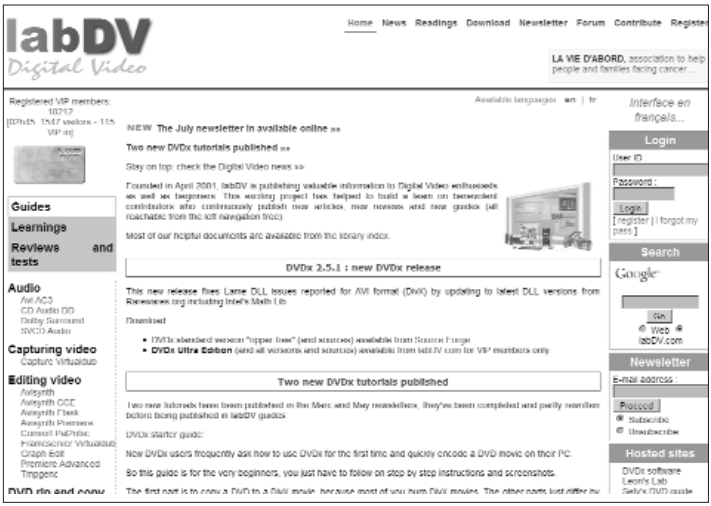
A site "dedicated to digital video formats including DivX, DVD and VideoCD." There is a forum, and there are also downloads, links



and articles. Under Downloads are more than 1,200 software titles, many of them freeware. The forum is too vast to discuss—including, as it does, topics ranging from "H.264 Playback Guide" to "Video and Audio Codecs." Don't forget to take a look at the Articles, which number more than 200. Each article is a comprehensive guide to the topic it covers.

www.labdv.com

Founded in April 2001, labDV is "publishing valuable information to Digital Video enthusiasts as well as beginners. This exciting project has helped to build a team on benevolent contributors who continuously publish new articles, new reviews and



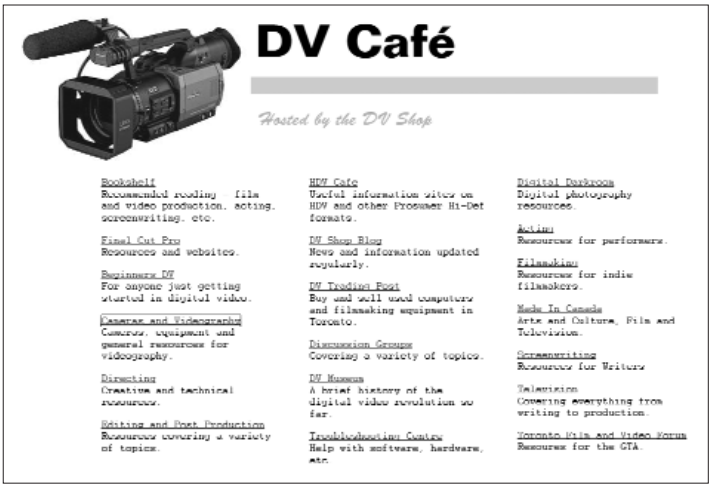
new guides—all reachable from the left navigation tree." The navigation tree's main sections include Audio, Capturing Video, Editing Video, DVD rip and copy, and Authoring.

Much of the site's content is accessible only if you're a "VIP Member," and this content includes articles such as "Tips for making your own movies"—ostensibly for beginners. A year's registration costs $33 (Rs 1,500).

If you're wondering why you might want to pay so much, consider that the site is a comprehensive guide to everything DV. The most useful section of the site is called "Learnings", and under that sub-head you'll find the following: MPEG Explained, DV Explained, Video Discs, Video Tips, Camcorder DV, Video standards, Video techniques, and much, much more.

www.dvshop.ca/dvcafe.html

DV Café is all about links, and then some more links. Whatever you need to know, here's the place to go if you don't know where to go. The main page is sparse, and lists out all the topics covered, including Beginner's DV ("For anyone just getting started in digi-



tal video"), to Editing and Post Production, to advanced things like Directing. Links lead to more links—do yourself a favour and visit this site!

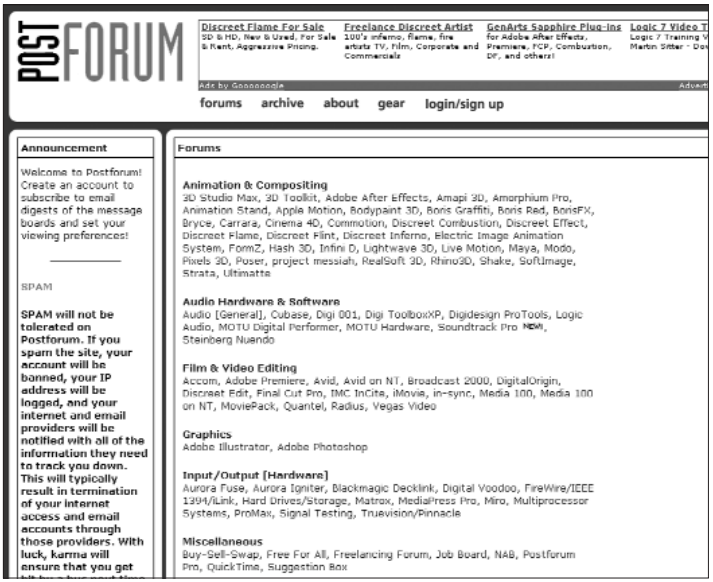
www.digitaleditor.com

This site may seem confusing at first, because there's a lot of stuff unrelated to digital video on the index page. But on the left, you'll

notice Reviews, Tutorials, and Tips & Tricks, which will probably interest you. The reviews seem to be entirely about software. The tutorials section is interesting—here's a sample title: "Synching Audio with Premiere 5.1: Getting video to synch with your audio can be difficult sometimes." Tips & Tricks offers a few tips, but it appears that section isn't regularly updated.

www.postforum.com

This one is for Mac users. It's a huge—and we mean *huge*—site, with



all its forums. The forums are divided into categories like Animation & Compositing, Audio Hardware & Software, Film & Video Editing, Graphics, Input/Output [Hardware], Miscellaneous, and Multimedia & DVD Authoring. Ask away all you want.

There's also a forum archive, so your questions might already have been answered.

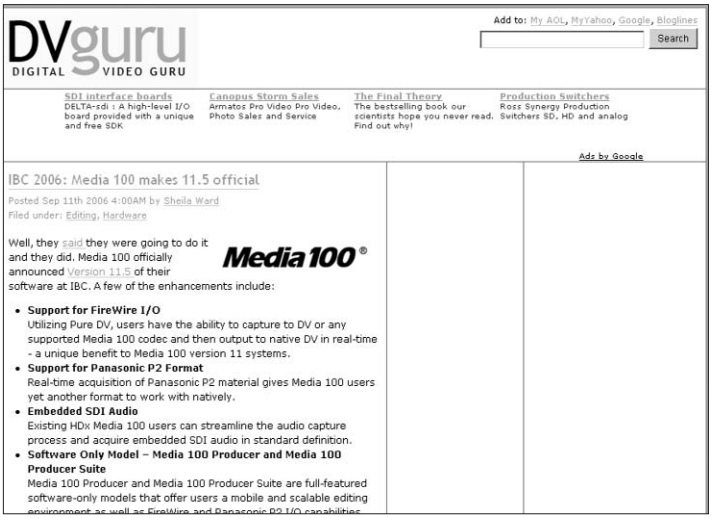
www.dvlive.com

Registration is required to access the forums on this site. Under Features, you'll find such articles as "DVD: The Next Generation—A look at the terminology and authoring workflow of the Blu-ray Disc and HD DVD formats" and "The Boundaries of Copyright." Reviews contains both hardware and software reviews; and there are also Columns and News, apart from the Forums.

A must-visit for those at the intermediate to advanced level in digital video.

www.dvguru.com

Last but not least, we must mention DVGuru. Navigation is simple enough once you get used to the sheer number of links on each



page! And links lead to links—for example, under Tools > DIY, you'll find "Tips on how to make a short film"—which gives you a link to a page that has the tips, and a brief commentary about that page. So essentially, this is a site with a lot of links under one umbrella. Give it a shot.

Notes