Multimedia
LIGHTS
CAMERA
ACTION!

The DeCSS court case is still rumbling in the USA. While we are all waiting lets watch a film under Linux. Colin and John get ready to munch some popcorn

Quite possibly, DVD could be described as multimedia at its best: video, audio, text all rolled together into a rich mixture of sensorial delight – if you are allowed access to it. DVD is digital data, flawlessly copyable data, which has brought about moves by DVD manufacturers to try and limit who and how you can get access to the information contained on it, which all revolves around software licenses.

Unfortunately, no-one in the Linux community will want to go to the expense of producing a commercially licensed DVD player, due to cost, and maybe they shouldn't, due to principle.

But give the Linux community an envelope and they will try their hardest to push it until it bursts. Here, in this article, we will go through just some of the exciting developments that have been made available to Linux users to enable you to view DVD movies, as well as some other video formats, explain the state of their development and how we got some of them to run.

The envelope in this instance is the DeCSS, the **De**cryption part to the **CSS** or Content Scrambling System which is required by all players to watch the vast majority of commercially purchased DVDs.

Because of the licensing and legal issues (see the DeCSS boxout for some links) surrounding DVDs and some of the encryption they use, no single complete package exists and they all require a certain amount of work to get running. Many are under heavy development and so may not be fully suitable for beginners to play with, but this will improve over time.

Real Player

If you are lucky, your distribution will already have RealPlayer G2 from *http://www.real.com* installed. RealPlayer is designed to cope with streaming data, such as that from an Internet news channel or live webcast. It is commonly used to play sound samples of music you want to buy. Built into G2 for us is an AVI file format plug-in.

A trip down to the local computer show lets us buy a whole host of video CDs, which use the AVI format. These usually have very low quality graphics with disjointed playback. They do however hold many hours of film on a standard CD. It is not unusual to find ten hours of TV shows on one CD. With RealPlayer G2 the files are displayed in a small window but full screen is possible with visible pixelation. OSS or Esound drivers are supported, and with webcasting being its main task, using a proxy is straightforward.
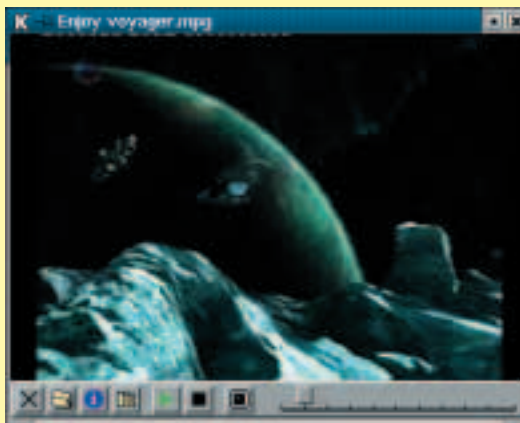
VideoCD (MPEG-1)

ZZPlayer GUI controler

To play VCD (VideoCD) files we turn to the SMPEG library from Loki (*http://www.lokigames.com/ development/ smpeg.php3*). This is a MPEG decoder based on UC Berkeley's mpeg_play. As a front end for the player we can choose from quite a range but found either Enjoympeg or ZZPlayer to be our favourites. For the SMPEG the SDL library is required. This Simple DirectMedia Layer is fast becoming a must-have standard for not only video work but so many of the new games. Enjoympeg is 63Kb in size.
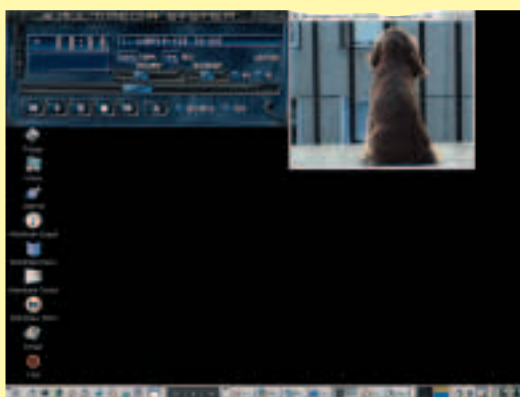
The VCD is treated just as a DVD although of somewhat lower quality. ZZPlayer is designed for the KDE environment although a GNOME GUI also exists.

● ZZ Player – *http://zzplayer.sourceforge.net/*
● Enjoympeg – *http://people.freenet.de/for_Ki/*

As an alternative, xmms can handle the VCD format with the avi plug-in.

EnjoyMPEG running

XMMS playing the MPEG1 file with avi-xmms

DVD, DeCSS and Linux

On January 20, 2000, A United States District Judge issued a preliminary injunction prohibiting the distribution of computer code for reading encrypted DVDs, but only if it is readable by a computer. The upshot of this that everyone is now only too keen to tell you what the code is to decode a DVD, by printing it on ties, writing it on the back of envelopes or putting it in verse.

To read more about this you should see these sites.

DeCSS Central - *http:// web.lemuria.org/DeCSS/* Gallery of CSS Descramblers -*http:// www.cs.cmu.edu/~dst/ DeCSS/Gallery/*

Ogle

Ogle was the first Open DVD player, which supported DVD menus and navigation. It is capable of reading from mounted or unmounted DVDs and hard drives. Displaying both encrypted and unencrypted DVDs using libdvdread/libdvdcss. It also has a fullscreen mode.
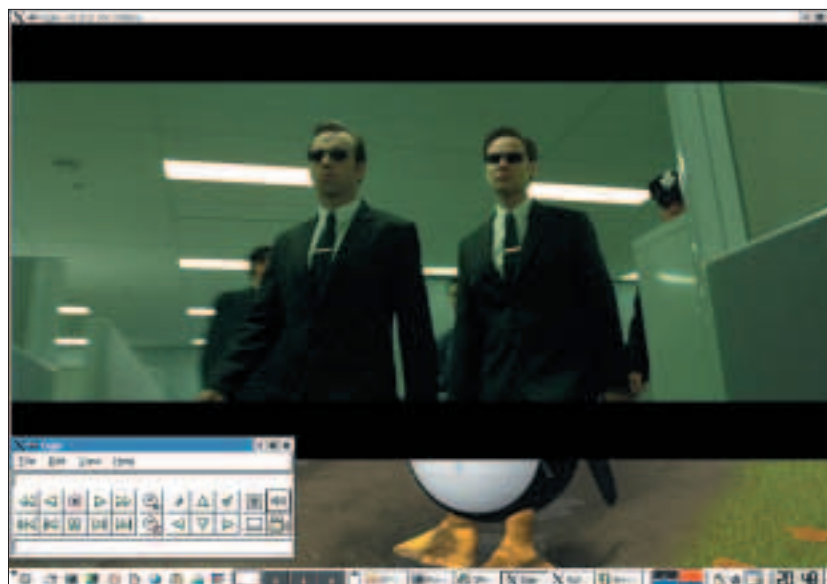
Start by installing the two libraries libxml2 and libxml develop. Next install both ogle and ogle_gui. Use the command *ogle* to start the player. Sound control is achieved via the usual mixer controls such as AuMix. Unlike Xine, Ogle has little control over themes and skins and so looks dated in appearance. But with that said, what really matters is DVD playback.

Using the same libdvdcss package to read encrypted discs, it does allow good control over things such as fast forward and skipping sections. Menu control is possible with either the mouse pointer or via a series of buttons that act on the menu functions. Turning on the subtitles was possible with just one click.

The only disappointment from making this the overall recommendation was that to change DVDs

required us to restart the program, and is that really such a big hinderance?

The latest version of Ogle is 0.8.2 and is available from *http://www.dtek.chalmers.se/groups/dvd/*.

Xine

Xine is probably the most popular of the DVD players currently running under Linux and it's certainly the one with the most pedigree. The User Interface has been refined over the years and now contains many useful features like the snapshot facility, with which you can create backgrounds of your favourite images.

Lights!

Xine is not the most straightforward application to download and run, and it does have quite a few quirks. The main files – the files that make up the

Xine started for the first time

Mplayer

Aimed at being the next generation in multimedia players, Mplayer has a lot to live up to and it's certainly doing just that. Available from *http://www. mplayerhq. hu/homepage/* it comes as source and requires gcc

of either 2.95 or 3.0.x (Not 2.96). The player itself is now at version 0.60 and is ready to go after a simple *./configure make make install*. Don't forget to download a skin so the GUI will work and a font, as well as the codecs. The codecs are the killer feature, as all the new types of video and audio compression are covered. Want to play WMA files in the future? Mplayer will be your friend. Want DivX capability? It's built in.

Many codecs exist because they have had to be reverse-engineered to exploit the proprietary file formats. This also means that, due to their legality, they cannot be included within the standard Mplayer package. In fact, to make Mplayer work as well as it does, the developers have had to call on a wide range of sources, including code sources. The way that some of this code is licensed means that Mplayer can only be distributed in source code format, which you need to compile.

core of Xine – are held in the xine-lib package. This is currently at version 0.9.8. But don't stop downloading there, there are many other things needed to make full use of the player. We recommend that you also download the xine-ui package – to give you the graphical user interface – and the recently released xine-dvdnav so you can navigate menus in films.

The Xine player is capable of handling a wide variety of data formats, of which there are so many of that the unwary can easily be bamboozled. MPEG 1 and 2 film formats are what you will find on a standard film DVD. Then there is DivX which is based upon Microsoft's MPEG-4 format, and MPEG-4 is similar to MPEG 2, but has a much higher level of compression applied to it. This means that both DivX and MPEG4 formats can provide enough data to enable you to get a DVD film packed into the same size that you can get on a normal CD, with very little loss in quality.

The OpenDivX format works just as well, if not better, due to it having fixed and openly scrutinisable format and structure. The other common film format you are likely to come across, though it is now loosing out in the popularity stakes, is VCD. This will also allow you to have hours of video on a normal CD but the quality is poor and can be a little jumpy.

Once you have the xinelib installed, you can then, in theory, be able to watch unencrypted DVDs. This is fine, but you will have to control Xine from the command line and secondly, probably more importantly, you will have to find an unencrypted DVD to watch.

Camera!

With the xine-ui you get a nice graphical interface to start and stop your film playing. Another, very useful addition to tack on to Xine is the dvdnav plug-in. With this you gain a new nav device, with which you can take control of some of the more modern features in today's DVDs, like accessing different camera angles and menus – in fact everything that goes to make DVD the fun multimedia format it is. Special effort has had to go in to providing features like nav.

The next challege is the unencryption of DVDs. First you need to install the libcss files then the libdvdcss. This will leave you at a point where using your DVDs will seem worthwhile.

Now at this point you can fire off Xine using the shell command *xine*, which will open up two windows. The first is the main DVD viewing area and the other is the user interface. Should this second window not appear all by itself then a right mouse button click in the viewing area might be just enough to coax it into life.

From this user interface choose the playlist button and from there take the new menu from the nav
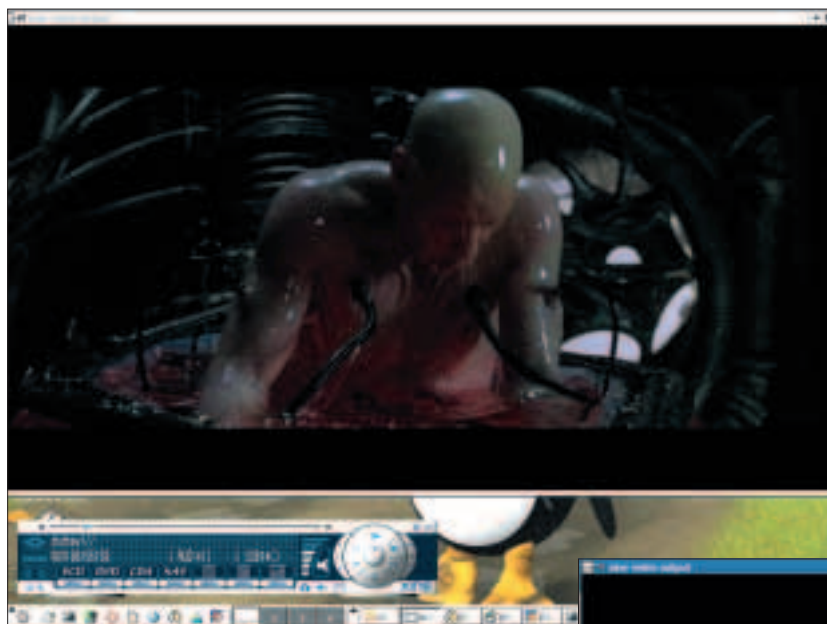
Xine has now settled
as a standard
application

device. This should bring up a playlist of the DVD files in the drop down window. Select one and hit the play button and the film should start. The reason for running this in a terminal for the first time is that any errors that occur are shown in a separate window rather than Xine just crashing out and leaving you without a clue. The first error that usually occurs is no input file to handle the DVD encryption, which means that you failed to load in the css or dvdcss library files.

When loading these from rpm we noted that the dvdcss said it was dependant on libdvdread but in fact needed us to also load in libdvdread-develop package, so there is another file to add to your download list.

Action!

The next stage is sound. The film might be playing but without audio output. Choose the settings icon on the user interface and then the audio tab. Here we now see the audio device is set by default to NULL. Load in the xine-lib-oss libraries and restart Xine with the command line *xine -A oss*. Finally, with any luck, the film is playing as we want.

Now to configure it to appear just as we want it by using the control button. This allows us to adjust the brightness, hue etc. and also allows us to play with the themes and skins available for the player. The nav device also allows the easier use of DVD menus so, for example, you can choose to have subtitles on screen or play the soundtrack in another language.

However, once you've watched the only DVD you have seven times, boredom may set in. At this point you can then start to have fun changing some of the other libraries. Install xine-lib-aa and you can play film rendered in ascii characters. This is quite amazing the first time you see it although it is best watched at a

Making full use of the
features in DVD

distance. You can force the console output to a dev/null device. The console output is useful as it is continually telling you what is happening but we found better performance was achieved with no output.

VCDs and audio CDs played just as easily, though you will find problems if you are trying to get your data off from a SCSI and not an IDE CD-ROM device. One last thing to look out for is for the higher quality SVCDs, they will play but the audio track is usually not in sync. This is easily cured by starting the program with *xine -a 8*.

Info

Xine itself, as well as links to the other accessories mentioned here can be found at *http://xine.sourceforge.net/*