

Video Software

Hollywood Style

Linux as a platform has been increasing in both usage and popularity in a number of different and varying areas. Although many see Linux as a primarily server based platform, it is becoming increasingly suitable as a multimedia production platform for a variety of types of media content. One of the most prolific of these areas is video production.

Video by its definition has always been an interesting beast in how it is handled for Linux. There are typically three major areas in which video needs to be supported in an Operating System, and this certainly applies to Linux.

Device Support

Video device support is essential in the authoring of video content. Typically this support refers to video capture devices, video camera's and other hardware devices.

Codecs

Codecs are essential to video in how it is both displayed and authored. Codecs form the compression algorithms and other technical details in how video is played and stored in files. Codecs are infamous in the sense that many codecs are not free and are commercially developed by companies. We will discuss this later in this article.

Video Editing

Video editing is one of the most critical elements in creating video content on a Linux platform. Usually this involves the use of a non-linear video editing application. The typical example of this kind of application on a non-Linux system is Adobe Premier; it allows you to edit a series of separate video clips into a single video stream.

All three of these areas are generally very important to the adoption of video technologies on Linux, and they all co-depend on each other. We will be focussing on a number of these applications in this article, specifically centering

Linux and the world of digital video authoring and playback are getting closer together. We take a look at some of the software available to deal with video in

Linux. **BY JONO BACON**



around the applications that you practically need to handle video.

The codec conundrum

Codecs are a fundamental part of using video, and there are a number of codecs available such as MPEG, Windows Media, Realmedia, Quicktime and many others. The problem with codecs is that many of them are commercial and are therefore unable to be distributed with Linux distributions. Although this can cause a problem, these codecs are however generally useful and the Windows DLL files can be installed in Linux and used by software. The other major problem with many of these codecs is that they are specifically designed for Windows (and sometimes Mac) platforms. This platform dependence means that Linux developers need to work around the platform specific codec issues to ensure they work in Linux.

Although the problem of commercial codecs is there, the situation is getting considerably better with many codecs

now being developed that are cross platform and in many cases free. Examples of these codecs include the following:

DivX

DivX [6] is one of the major codecs that is in use on the Internet today. DivX is developed by a company and is dedicated to ensuring that the DivX codec is cross-platform and freely available. The codec is not an Open Source GPL'ed product, but is given away free of charge on their website. Not only is DivX a freely available codec, but it is actually a pretty powerful codec. An example of this compression was when I compressed a video clip of a song I wrote about my nephew; the video was only 400k larger than the size of the MP3.

Vorbis

One of the newer free codecs that is being developed is a subset of the Vorbis family of codecs. This codec is being developed by Xiph (<http://www.xiph.org/>) and still actively in development.

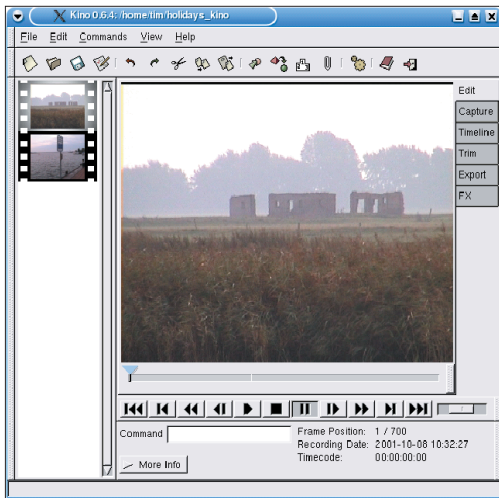


Figure 1: Kino is one of the leading applications for video manipulation in Linux

Video editing

Video editing is the key factor in the desktop Linux video workstation. Although codecs are still important here, the encoding hardware could theoretically be bypassed and raw video files be worked with. If there is no editing software, the video support on Linux would merely be useful for viewing content instead of authoring it.

In the past few years there have been a number of contributions to Open Source in this area, and although none are what I could consider leading edge in comparison to other products such as Adobe Premiere and Avid, many are quite usable in many areas. What is important to decide however, is the extent of what your requirements are for video editing. Some people may simply want to edit various bits of video together and render them to a final file. Some may require other features such as transitions, titles, fades, slow motion, compositing and other facilities. The Linux offerings vary in how they are suitable for these varying requirements and I recommend you give them all a try.

Kino

Kino [1] is looking like one of the most promising non-linear video editing tools for Linux. The GTK based application allows you to capture video from a IEEE-1394 device, record back to the camera and has VTR control. Editing allows you to cut, edit and paste video clips, develop a decision list and export to a number of different formats. Kino has

been gathering some interest from prospective video editors' for a quite a while now and in many cases is synonymous with video support in Linux. The project appears to have a healthy development rate and is getting a series of regular updates from the developers.

Although Kino has many of the typical features of a non-linear editor, it is quite different in its layout and operation and does not actively seek to replicate the Adobe Premier design; an issue that many non-linear editors seek to do. The software was fairly simple to install, and when I got everything ready I fired it up to

give it a whirl. At first I had some codec issues, but after these were resolved I added some source videos and played around with some editing.

Kino is generally a fairly simple application to work with and using it I could perform simple steps such as adding video, making cuts, copying and pasting, trimming and other tasks. A useful aspect with the software is how it displays a series of thumbnails down the side of the window so you can always be clear on which video clips are where.

In practical use Kino fares quite well – its binding of *vi* keys is an interesting and useful feature and the many levels of undo help to ensure that your projects are not at risk from accidental misuse of the application. There are some limitations in Kino, but certainly for simple

editing and authoring this software fares quite well.

We cover using Kino in the workshop starting on page 23 of this issue.

MainActor

MainActor [2] is a commercial application developed by MainConcept. The MainActor application has been developed as a non-linear editing package that from the look of it is comparable to that of Adobe Premier. Unfortunately I was unable to download a copy of MainActor for Linux due to the fact that the Linux release schedule has a new version due to be made available soon (they may have been posted by the time you read this) and as such I could not try the application out on Linux. For the purposes of testing though, and with the promise of a Linux version soon, I downloaded the Windows edition and gave that a test instead.

MainActor is a very promising application. It gave me a real feel of completeness in terms of how the user interface has been designed and modelled around its functionality.

MainActor in use was a breeze to pick up and I found myself loading clips, editing them together and performing other functions with great ease. The software is very intuitive and was quite efficient in its use. Features wise MainActor boasts a good set including support for many different codecs, multiple timelines, preview modes, drag and drop, MPEG encoder, keyframe control and other facilities.

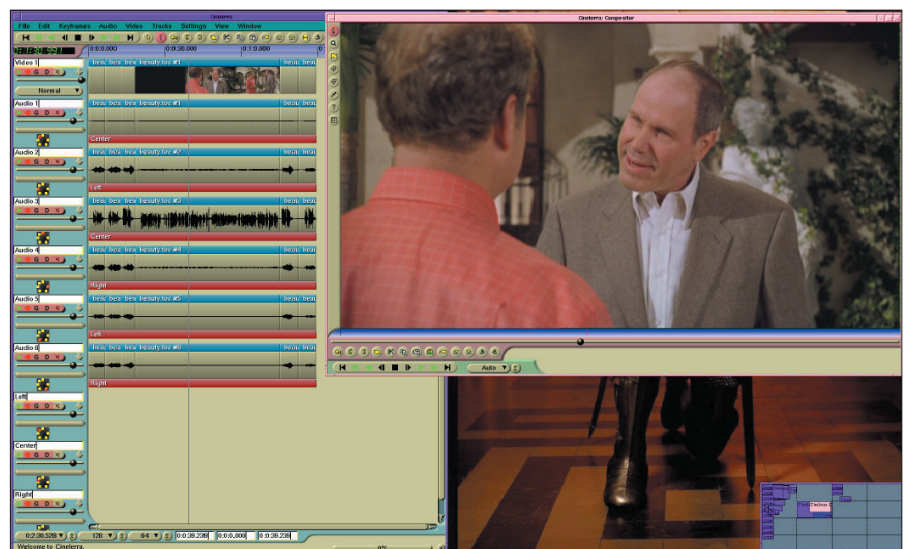


Figure 2: Cinelerra is a powerful application, although its interface will need some getting used to

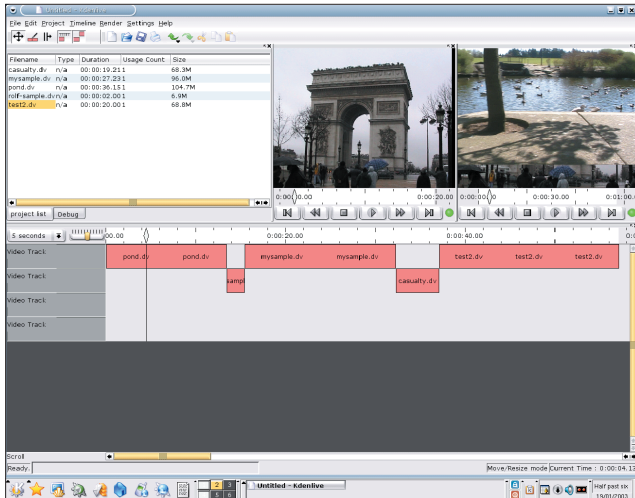


Figure 3: Kdenlive is an editor for KDE under development and could become a powerful application

Cinelerra

Cinelerra [3] is an unusual beast when it comes to testing video editing systems. The project has spawned from the previously available Broadcast 2000 package. When you first go to its homepage you are formally warned in no uncertain terms that Cinelerra is not for consumer usage. This term broadly means that this is a technical application, intended for technical people, and it does not seek too much on hand holding of new users.

Installing video software

In this article we have covered a number of different software applications, and many of these have very similar installation procedures. First you will need to obtain a suitable installation file for your system. This will most likely be either a source archive (tarball), RPM or DEB. You can get these from the sites mentioned at the end:

Specific instructions for compiling these applications is included with each application. Most applications use a similar build process with the GNU development system:

```
./configure
make
make install (as root)
```

If you use an RPM system such as Red Hat, Mandrake, SuSE and others, you can install the RPM file with:

```
rpm -i file.rpm
```

If you use a DEB system such as Debian, Xandros, Progeny, Knoppix and others, you can install the DEB with:

```
dpkg -i file.deb
```

Debian users can also use *apt-get* to install much of the software.

Cinelerra throws you in at the deep end.

In practical usage, this warning is justified. Cinelerra is a large, functional and complex application. This is not the kind of editor that you can just install and use straight away – the editor requires some patience to master it. In defence of this extra work to learn Cinelerra, the developers have created a very powerful and flexible application.

The software has features such as compositing, free form editing, flexible audio and other features.

Cinelerra is obviously flexible, but difficult to use. Although this difficulty is there for new users, with time the interface is very flexible and simply needs practice. It seems that the same interface concept with the 3D modeller Blender are here too – a scary interface when the application loads up, but after some time it makes sense and is very flexible.

Kdenlive

The Kdenlive project [4] was set up to develop an editor based on the KDE environment. It is still quite young in its development, but the application can be used to basically edit video together in a similar fashion to Adobe Premier. On the project website there are some details about the future plans of the program, although the project seems to be on a slow development path. It is well worth installing the software to test however, as even in its current state of development, it may be suitable for your needs.

Playing video

The final issue involved with using video on Linux is actually playing video. This involves the use of codecs previously discussed and a video player to handle starting, stopping and manipulating how the video is handled. There are many video players for Linux with *xanim*, *xine*, *xmms* and *noatun* to name a few.

From my experience, the most advanced video player by far is the mighty

MPlayer [5]. MPlayer is a command line tool with a graphical user interface (called *gmplayer*) and plays a variety of formats including AVI, WMV, MOV, OGG, VCD, DVD, MPEG and many others. Not only is MPlayer capable in its playback, but it is also skinnable, has many configurable options and has a strong and frequently releasing development team.

Conclusion

Video has traditionally been a niche market in the Linux world. Although this market existed, there was little help available in terms of hardware and software support for Linux. As time has ticked over though, this niche market has grown substantially, and there are many Linux tools in development to support these needs.

Although the current state of Linux is certainly not leading edge in terms of video authoring support, there have been many steps made to ensure that video editing solutions are available. Projects such as Kino and Cinelerra are growing in capability and user base, and commercial offerings such as MainActor are helping provide an alternative. As Linux continues to grow and develop, so will its capabilities as a multimedia development platform. ■



Figure 4: MPlayer is one of the most popular video viewers for Linux

INFO

[1] Kino: <http://kino.schirmacher.de/>

[2] MainActor: <http://www.mainconcept.com/>

[3] Cinelerra: <http://heroinewarrior.com/cinelerra.php3>

[4] Kdenlive: <http://www.uchian.pwp.blueyonder.co.uk/kdenlive.html>

[5] MPlayer: <http://www.mplayerhq.hu/>

[6] DivX: <http://www.divx.com/>