The Community–Linux Training Centre Project:

Getting to Grips With *Grip*

CLTC Building Blocks Briefing 2

By the Free Range Community–Linux Training Centre Project.
CLTC-BB02, version 1.0, January 2004   http://www.fraw.org.uk/cltc/

Music CDs have been been around for a long time – but mechanical recording media like CDs are on their way out. Today most new recording devices record digitally, producing computer files as their output. But how do you convert all your old, expensive CDs? – with *Grip*.

`grip` is a program commonly called a *ripper* – that is, it rips the raw data from a music CD and encodes it in the required file format.

`grip` is really just a *front-end* (an easy to use graphical interface) for a number of command line programs that read music CDs and process the output into sound files. Whilst there are a number of other rippers around, `grip` is useful because its easy to configure and produce whole CDs as either *MP3* or *Ogg Vorbis* files (the two popular compressed music formats).

Is it legal?

Most CDs are copyright – their content belongs to someone and you are only licensed to play the music from that CD. This is why record companies are suing people who trade music online – the music they are swapping is someone's property, and file sharing isn't included in the license the user buys.

There are however a number of actions that you can carry out with a music CD – collectively called *fair dealing* – that are legal within the European Union. One example is playing your CD to friends, or at a private party – not allowed by the license, but permitted under fair dealing rules in the UK and other European states. One of the fair dealing rules is that you can create a backup of your music CD so that if the disc is damaged you can still play the music. Remember – it's the music that's licensed, not the disc.

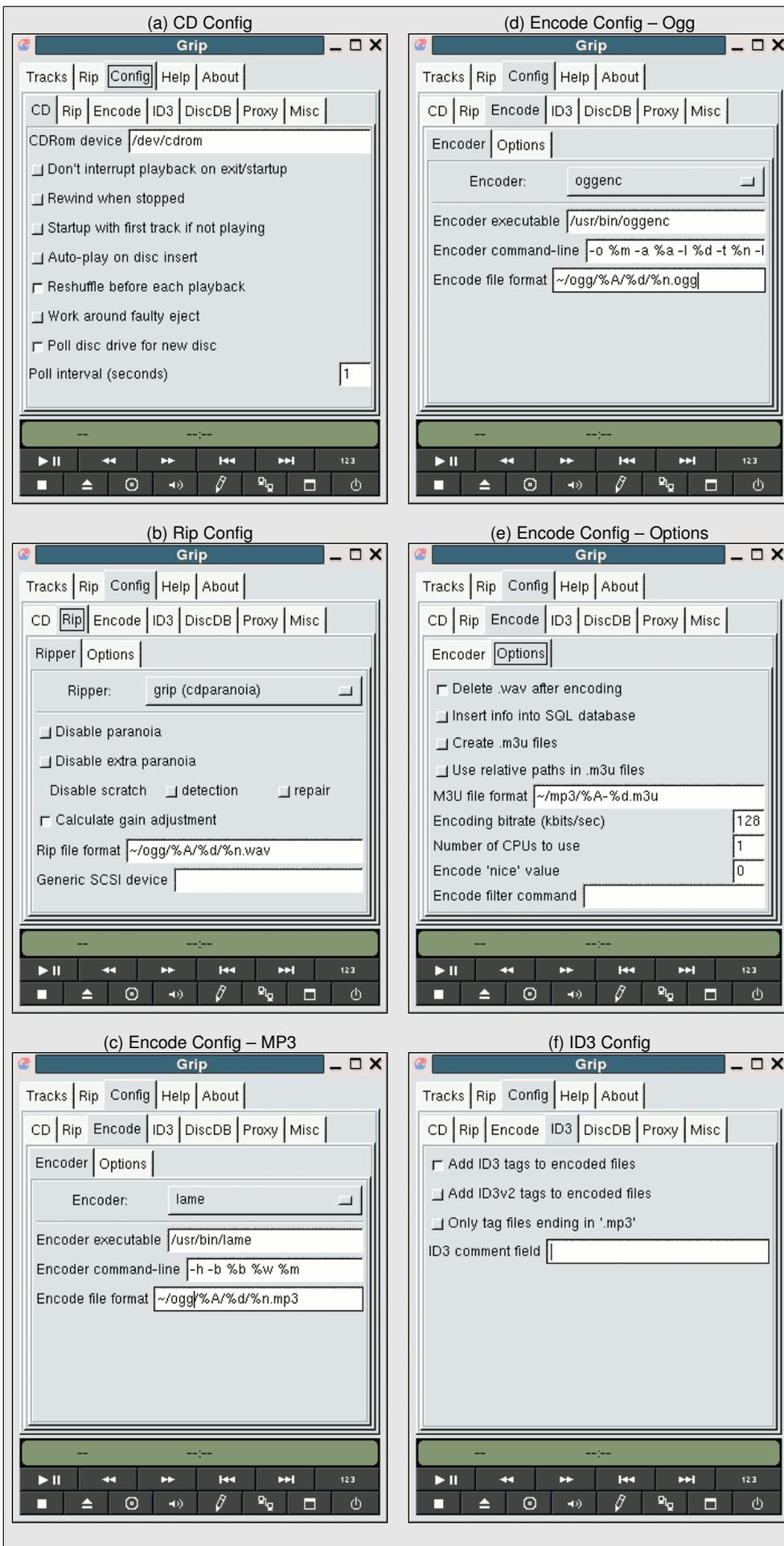Although recent amendments to copyright law has further restricted the fair dealing rules, keeping a copy of the music is still permitted. But, in practice, it is up to you whether you play the CD, or the backed-up music file. In practice, if you lock away your CD so it can't be played, and you only play the music files for your own use and do not share copies of the file, it is arguable that this is legal under the fair dealing rules. So long as only one copy of the music can be played, and only by you, its legal. Of course, this means that you must always keep the original CD, and if you ever sell it or give it away, then you must also delete the music files that you ripped from it.

Ogg or *MP3*?

The key issue is how you choose to encode your music. The most popular format is MP3. But MP3 is claimed by the Franhaufer Institute as their intellectual property. For this reason many Linux distributions do not include MP3 encoders as part of their standard distributions. This is because if they did the Franhaufer institute would come calling for their royalties. Likewise, anyone who used an MP3 encoder to encode music could also be sued for licensing charges by the Franhaufer Institute.

There are a number of MP3 encoders around such as `lame`, `bladeenc` or `mp3encode`. To use one of these encoders you'll have to search online for a package to download and install. `grip` will find the encoder program when you start encoding CDs, and pass the program the appropriate commands to process the files.

There is an open source alternative to MP3 that's every bit as good in terms of compression and

(a) CD Config

(b) Rip Config

(c) Encode Config – MP3

(d) Encode Config – Ogg

(e) Encode Config – Options

(f) ID3 Config

sound quality – *Ogg Vorbis*, or just *Ogg*. Ogg files are created using a program called `oggenc`. Because it is open source `oggenc` is included with the major Linux distributions. The only problem with Ogg Vorbis is that many hardware MP3 players will not play Ogg files. However, for computer-based playing there are a number of Ogg players, such as `freeamp` or `XMMS`, that play Ogg files.

Setting up Grip

The fact that `grip` is a front end for other console programs means that you can change how music is ripped from the CD and how it is encoded. When first running `grip` you need to configure it to your particular preferences.

When you run `grip` you get a small window with five tabs – *Tracks*, *Rip*, *Config*, *Help* and *About*. You click on the *Config* tab in order to configure the program for use. Pictures of the `grip` configuration menus are given in the box on the left, and in the boxes on the following page.

Click on the *CD* tab **(a)**. This gives you the general controls for the program – such as starting to play a CD when it is inserted (this

can be disabled as, if you only want to rip disks, it can be very annoying). The first box in this menu is the most important – it sets the device name of the CD drive that you want to rip CDs from. By default it's set to the primary CD drive on the system – `/dev/cdrom`. If you have more than one CD drive installed, and want to rip from a different drive to the primary, you'll have to enter the device name of the drive here. Apart from this there's nothing critical in this menu and so you generally ignore it.

Click on the *Rip* tab **(b)**. `grip` is pre-configured to work with the standard CD reading program, `cdrecord` – and as `cdrecord` is included with all major Linux distributions this should give you no problem. Unless you've a good reason to change the settings leave it as it is. The only thing you may wish to change is the location where `cdrecord` stores its files. By default `grip` will create a directory called `mp3` in your home directory. If you'd prefer something else, change `mp3` to whatever name you'd like – in the example on the previous page, `cdrecord` stores files in a directory called `ogg`.

The standard output for `cdrecord` is *.wav* files – it is these files that are encoded by the selected encoding program. Click on the *Encode* tab **(c)**. If you click on the *Encoder* button you'll get a list of the encoder programs that `grip` can use. You can also select *other*, but in this case you'll have to learn how to pass commands from `grip` to the encoding program to make it work.

If you are encoding as MP3 **(c)**, you must first install an MP3 encoder – the popular ones that `grip` works with are `lame`, `bladeenc` and `mp3encode`. When you select the encoder that you have installed you will notice that the content of the three boxes below the *Encoder* button will change – this reflects the different settings for that program.

If you are encoding as Ogg Vorbis **(d)**, just select `oggenc`. However, it might not be installed if your distribution doesn't install it by default (although most do). If so, you'll get an error when you try and encode – in which case you'll have to install the `oggenc` program and start again.

The thing to remember is that when you change the location of where `cdrecord` stores its files, the encoder must also have the path line

changed to point to this location (as an example see the common directory names used in examples **b**, **c** and **d**).

For all encoders you also have a set of standard *Options* **(e)**. The essential one to check here is *delete .wav files after encoding* – if you don't then you'll eat disk space very quickly, and you'll have to manually delete all the .wav files.

Click on the *ID3* tab **(f)**. ID3 tags are information added to the file that describe the content – track name, artist name, album name, etc. If you check to add ID3 tags you can edit these after encoding (see *Editing ID3 Tags* later) so that the information will be displayed when you play the track. You should check the first option, *add ID3 tags*. But don't check the next option to add *only to files ending in .mp3* or you won't add them to Ogg files. By default `grip` will add the comment, *created by grip* – delete this or you'll have to edit it out when you edit your ID3 tags.

DiscDB **(g)** and *Proxy* **(h)** are options that allow you to look-up over the Internet to see if someone has already ripped the disc – so that you can copy their ID3 tags when you rip the disc. Although this makes life easier, in practice it's a liability. This is because the recording industry might use the information from the server to track down who has been ripping CDs and legally hassle them. So disable the options in these two boxes, and get rid of the liability.

The last configuration tab is Misc **(i)**. This has some options relating to how file names are stored. If you leave all these unchecked, it should be OK. If you check the *keep application minimum size* option then it may slow encoding a little, but it will save memory and allow you to do other things whilst you are ripping CDs.
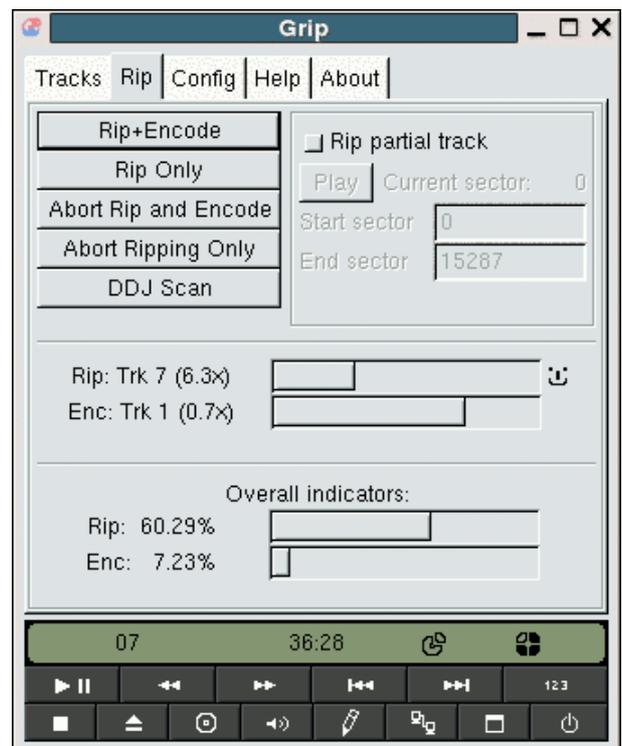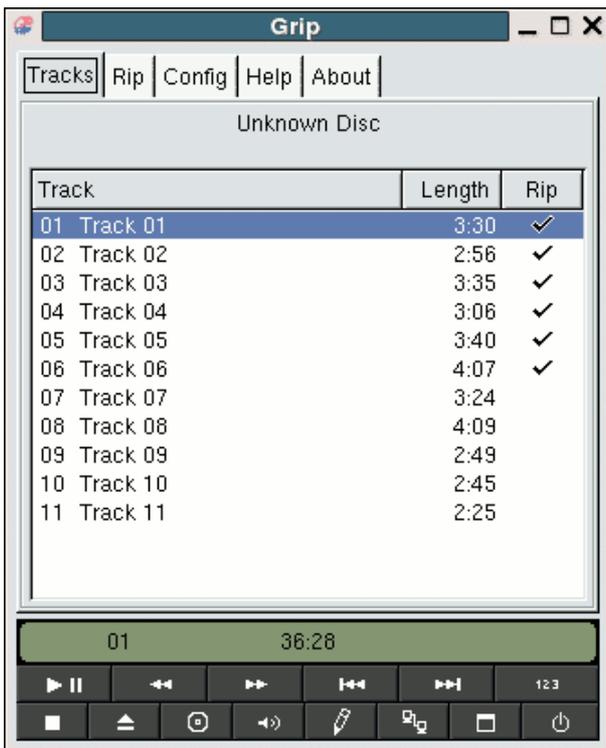
Ripping CDs

To begin, click on the *Tracks* tab to go to the tracks window. If you run `grip` without a CD in the drive, the tracks window is blank. If you insert a CD you will see that the window displays the details of each track on the CD. You can also play CDs with `grip` – that's what the buttons at the bottom of the main window are there for. But usually you'll just want to rip the whole CD, or just one or two tracks. If you click on the track name a small tick will appear on the right side of

(g) DiscDB Config

(h) Proxy Config

(i) Misc Config
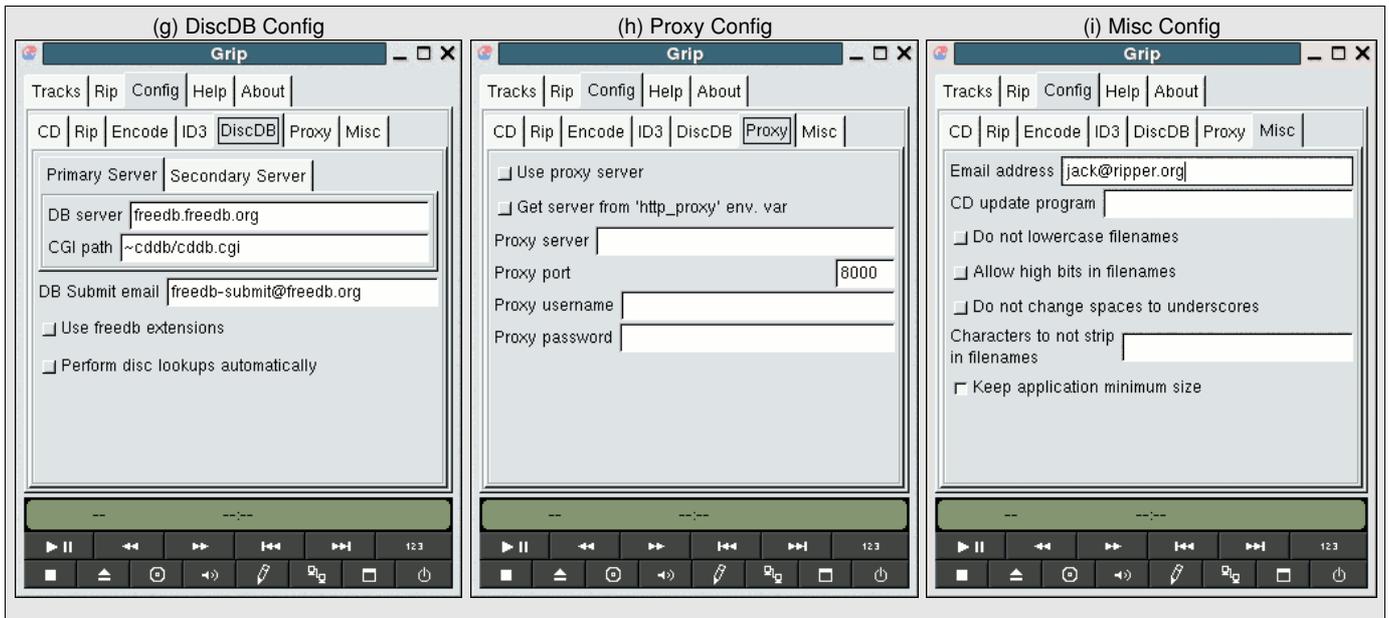
the window, indicating that you've selected it for ripping. Carry on doing this, selecting just the tracks you wish to rip, or all the tracks on the CD.

When you've selected the tracks you want to rip click on the *Rip* tab. The buttons in the top-left of the window provide you with various options. *Rip Only* will just produce the .wav files – useful if you want to use the files to burn another music CD, or sample them. But .wav files are not much good for anything else as are not compressed, and so are very large. *Rip+Encode* is the button

you usually click on because this rips the .wav files, and then automatically encodes them to either MP3 or Ogg files. Click on *Rip+Encode* and `grip` will begin to rip the CD – displaying is progress as it goes (see below).

After each track is ripped, it is encoded. At the same time the next track is ripped... and so on. Usually you find that `grip` will rip faster than it can encode. When the process has finished both the *Rip* and *Enc* bars will read *Idle*.

If you look at the directory where `cdrecord` stores its files, you can see the rip and encode process working.

The example on the right takes place in the a directory called `ogg`. Most CDs don' t have the ID3 information encoded on them. For this reason `grip` stores the files under default directory names. From the default directory you selected in the *Rip* and *Encode* configuration menus, `grip` creates a directory called `noartist,` and a sub-directory called `unknown_disc`. You can see from the example that `grip` is ripping the tracks into .wav files, and then encoding them as Ogg (.ogg) files. Normally Ogg/MP3 files are 10% of the size of the .wav file they are created from.

One thing to be careful about is that if you rip one CD, and then rip another, you will overwrite the files created from the first CD. This is because `grip` just overwrites the contents of the `noartist/unknown_disc` directory. So after ripping each CD remember to change the name of the directory to something else, or move the contents to another directory.

Editing ID3 tags

ID3 tags contain information about the music in the file. They are used by MP3/Ogg players – such as `XMMS` (shown below) – to display information about the files in the play list, or the selected directory.
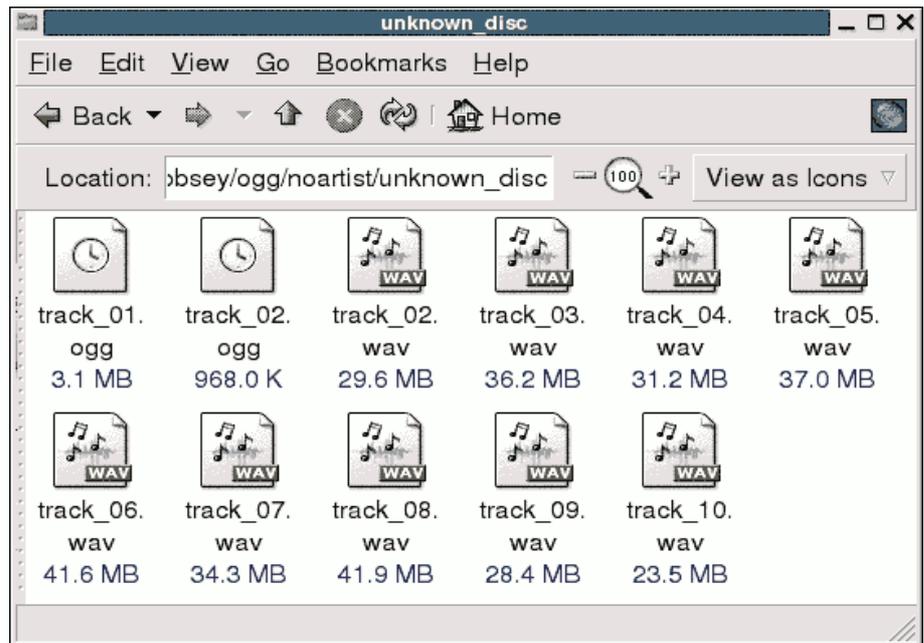
`XMMS` is a useful player because it allows you to edit the ID3 tags. If you select a track in the play list window and then press the *Control* and *3* keys you can edit the file information. In the example below you can see the ID3 information from the Miles Davis track, *Pharoah' sDance*. After editing the information you click the *Save* button and the ID3 data is saved back to the file.
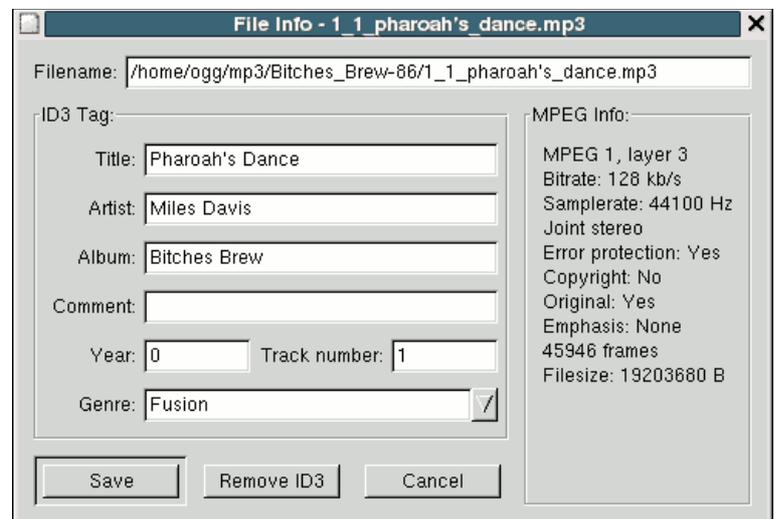
Playing your files... and *DRM*

There are a number of ways to play the files you create with `grip`.

The ultimate in geekery is to set up your own *streaming server* and listen to them over a local network – but apart from the practical difficulties for novice Linux users to set up such a system, if other people use the network you could fall foul of copyright law because other people could listen to your music, and it is also possible more than one copy might be played at the same time.

This really just leaves you with two options – either a *software* or a *hardware* player.

There are a lot of software players that you can run on your computer. `XMMS`, shown on the previous page, is good because it can handle both MP3 and Ogg files. Some players only handle MP3. There are also players that, rather than using a graphical interface, run from the console – such as `mp3blaster`, or the Ogg equivalent, `ogg123`.

For those of you that wish (God forbid) to play files on a *Windows* system, a good option is `freeamp`. This is available for both Linux and Windows, and it will play both MP3 and Ogg formats.

Hardware players – the portable devices that you plug in your ear – nearly always require standard MP3 files – although some are now being designed that also play Ogg files. The process of getting your files from the computer to the player varies from player to player. Some require special program – which of course means running Windows. Some of the more useful players are configured as *mass storage devices* (see *CLTC Building Block Briefing 1*). This means that you plug them into your USB port, and you can drag and drop the files from your computer's desktop to the player's memory.

The dark cloud on the horizon in relation to the use of music file is *digital rights management* – or DRM. This is a new system being introduced by manufacturers of digital equipment to protect copyrighted content. What happens is that the MP3 files you will download from the web, or buy in a shop, will be *digitally signed* to verify their authenticity. They will also contain a *copyright flag* to indicate whether the file is copyrighted material or not. It' snot possible to change the copyright flag because doing so will violate the digital signature.

What this means is that all computers and digital devices will refuse to copy files that have the copyright flag set. It also means that if the file' s digital signature does not verify properly then the device won' t play the file. In this way the developers of DRM hope to eradicate the piracy of copyright material. But such a system could also restrict the rights of computer users to record their own music, or speech, using a digital system, and then freely publish that recording.

It is not clear yet how DRM will affect Linux users. It' spossible that it could severely restrict the freedom of Linux users. We won' tknow until the first DRM-enabled hardware system begin to be introduced onto the market around 2005. But in some states, like the USA, DRM could curtail the rights of individual to convert their CDs into music files, and then play them on their computer or hardware player.

How it will work in Europe will depend on the pressures put upon European law makers to repeal, or strengthen, the fair dealing rules which currently give people the right to copy copyrighted content under certain conditions. Currently the EU law on copyright and DRM is a bit of a fudge – it allows the creation of back-ups for security, but not the cracking of DRM systems to allow you to make those back-ups.