



Home entertainment

Linux is just as sophisticated as Windows when it comes to multimedia. Here's how to play music with *Rhythmbox* and *Amarok*, while on page 42 you'll find a guide to watching movies on your PC.



AVAILABLE TO you through Gnome is an application called *Rhythmbox*, Gnome's default music player. It's a comprehensive tool whose design and feature set take a lot of inspiration from Apple's *iTunes* software. From a single window, you can manage your entire music collection, creating playlists and even listening to audio streams directly from the internet, such as internet radio broadcasts.

Many of the audio files you'll come across will be MP3 or OGG files, and *Rhythmbox* can work with both, as well as many other formats. MP3 and OGG files are compressed – much smaller but lower in quality than uncompressed audio formats such as

WAV. Music stored on disc takes up a lot of space. If you consider that the average amount of data you can fit on a CD-ROM is about 700MB, each track on a 12-track compact disc would be roughly 60MB. By using MP3, you can compress a whole album into 60MB with only a marginal loss in quality. This compression is achieved by removing the part of the music that is ignored by the human ear, dramatically reducing the amount of space required to store the data.

But with a default installation of Ubuntu, there is a problem. Despite MP3 being the most widely used music format, support isn't included by default. That's because MP3 is a patented technology, and

there may be certain territorial restrictions on how it may be used. This illustrates one of the problems with proprietary software, and Ubuntu plays it safe by only supporting open standards. You can only play MP3 files if you go to the trouble of adding support to your system manually.

DOWNLOADS

Most people are familiar with *iTunes*, an Apple application that turns your computer into a music library. From within *iTunes*, you can copy your personal CD collection on to your computer, buy new music from Apple's own online music store and synchronise your collection with an MP3 player.

All of this is possible with Linux, but there's one important difference. Due to Linux's open nature you can't download music from some of the more popular online retailers. Most, such as Napster or *iTunes'* Music Store, lock their music using what's known as digital rights management, or DRM, which means you need a secret key to be able to play their music.

This ensures that the copyright holders can exercise a degree of control over their music, effectively restricting the number of copies you can make. DRM conflicts with the open ethos of Linux: if it were open, we would all be able to see the secret key and, as such, a DRM format is yet to be officially supported. Still, you will come across MP3

WHAT ARE MP3 AND OGG VORBIS?

There's nothing to compete with MP3 compression for its ubiquity, but it's neither an open standard nor the best quality. The name for this useful format stems from its original purpose, which was to store the sound component for MPEG movies. Its official title is actually MPEG, Audio Layer 3, which is from where the rather incongruous MP3 extension has been derived. The

popularity of the internet meant that MP3, with a compression ratio of around 10:1, became the perfect way of swapping and sharing music.

But most Linux applications default to what are known as OGG files (short for *Ogg Vorbis*). *Ogg Vorbis* is just another way compressing audio data, and many people believe it sounds much better than MP3 (but this is, of

course, subjective). It takes up less space than MP3, and still manages to sound superior. The big caveat is that most portable MP3 players, including the iPod, don't support the OGG format, so if you're going to spend a couple of weeks copying your entire music collection to your computer, it's worth considering all the ways in which you may want to listen to it.



files frequently – on free music websites, for example, but also at some online music stores like bleep.com. OGG files are rarer but most people agree that they sound better (see *What Are MP3 And Ogg Vorbis?* box, below left).

Rhythmbox is found in Ubuntu under the Applications > Sound & Video menu, under the generic name of Music Player. When first started, the application asks you for the location of your music files. It's a good idea to keep all your music in one place, such as a directory called 'music' in your home directory. Even if you don't have any files at the moment, it's still worth pointing *Rhythmbox* to the right place.

straightforward as selecting music from your collection, dragging it into the playlist and clicking Play. The Radio source lists some popular online radio stations, and you can also add your own as and when you come across them. Gnome renames *Rhythmbox* as 'Music Player' on the desktop, because the developers believe that ease of use is more important than jazzy names.

THE AMAROK ALTERNATIVE

KDE's default music player is called *Amarok*, named after a Mike Oldfield album. It's probably the most powerful music player for Linux, but it wasn't included in the release of Ubuntu. It needs to be

When you first start *Amarok*, you need to answer a couple of questions about where your music collection is located, after which the program will take a few moments to scan your collection. It works in a similar way to *Rhythmbox*: there are five tabbed windows on the left-hand side, and the one labelled Collection is functionally almost identical to the Library tab in *Rhythmbox*. As in *Rhythmbox*, albums are sorted by artist, and can be dragged into the playlist, which appears to the right.

What makes *Amarok* stand out from other media players is that it keeps a comprehensive database of your music collection. Using a database like this has several advantages: you can easily search your collection, for example, and *Amarok* can also keep statistics of your favourite and least favoured tracks.

You can view your music collection by clicking on the Collection tab on the left-hand border of *Amarok*'s main window (it should be the second one down, and represented by a filing cabinet icon). It's from here that you can choose which songs you would like to select from your collection to add to the playlist on the right.

If your collection is large, the most useful part of the Collection panel will be the Filter, which is just above your collection list where it says Filter Here.... Just type in a word you'd like to search for, and the contents of your collection will be automatically filtered to show only those that match your criteria. The other important part of this panel is the Configure Folders button, which appears as a

"It really is as straightforward as selecting music from your collection, dragging it into the playlist and clicking Play."

If you have any music files stored elsewhere, on a Windows partition, external drive or even a remote directory over a network, you can add them to your collection by using the Import Folder or Import Location options from the Music menu. Once you've added your music you'll find each album listed by artist by clicking on the Library source, listed in the panel on the left. You can also find specific artists by using the Search box. Using *Rhythmbox* really is as

installed via the Synaptic utility (see *Universe box on page 43*). Once you have configured Synaptic to load packages from the Universe and Multiverse repositories, you should be able to search for and install the "amarok" and "amarok-xine" packages. These will **probably have many extra dependencies to download, so this may take a while!** After installation, *Amarok* will appear as an option in the Sound & Video menu.

RHYTHMBOX AT A GLANCE

Transport controls for playing, pausing and skipping to tracks in the playlist.

This slider represents the playback position within a track. Moving it left or right will skip through the music.

The source list lets you skip between internet radio streams and your personal music collection.

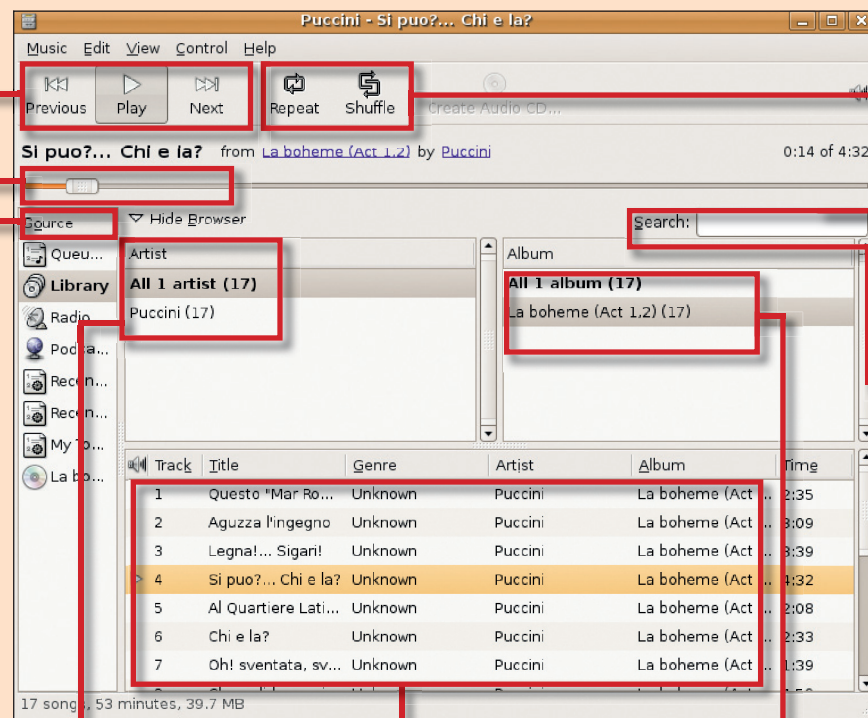
Your collection is sorted by artist. When an artist is selected, each of their albums in your collection is listed in the album list.

The Playlist is where files are queued for playback. They can be dragged from the desktop, or added from your collection.

The artist's albums are listed here, from where they can be dragged into the Playlist.

Playback mode can be switched to a random sequence, or Shuffle, and the Repeat switch will play the playlist continuously.

You can filter the albums listed in your collection by searching for a word or title.





HOWTO... GET MUSIC ON TO YOUR COMPUTER

1 To get music into *Rhythmbox*, you need to 'rip' the music off your CDs and on to your machine. First, insert an audio CD. A CD icon should then appear on your desktop. You could double-click on the CD to listen to the music, but for copying it on to your computer you need a different application.

2 The default application for ripping music off compact discs is called *SoundJuicer*. This can be launched either from the Applications > Sound & Video menu or directly from *Rhythmbox* itself by selecting Import Audio CD from the Music menu.

3 The first thing *SoundJuicer* does is examine the disc in the drive. It reads the length of each audio track and checks them against an online database. These lengths are almost certainly unique to each CD, and the result is that *SoundJuicer* is able to

identify the CD and download the album name, artist and track titles automatically.

4 Once the title information for each track has been downloaded, *SoundJuicer* will automatically select each one for extraction. This means it will be copied from the disc, encoded into a compressed format and stored in your home directory. You can also specify the genre of the music.

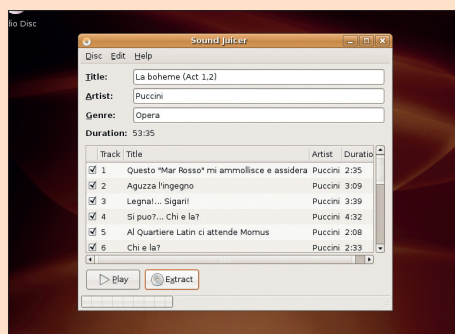
5 Audio files are saved to your home directory, which isn't the best place if you plan on converting your entire music collection. It's better to create a dedicated folder for music files within the home directory, and save your albums into that.

6 Another option in the preferences dialog is the output format. This uses the open *Ogg Vorbis*

format by default, but can be changed to **FLAC**, which is also compressed but not at the cost of any audio detail (as with both **OGG** and **MP3**). The trade-off is that files take up more room. If you've got **MP3** compatibility installed, this will also be available.

7 After selecting which tracks to copy, click on the Extract button to start the process. Because of the processor-intensive nature of reading the disc and re-encoding the audio, it can take some time for each disc. Expect to wait anything from ten minutes to an hour, depending on the speed of your machine.

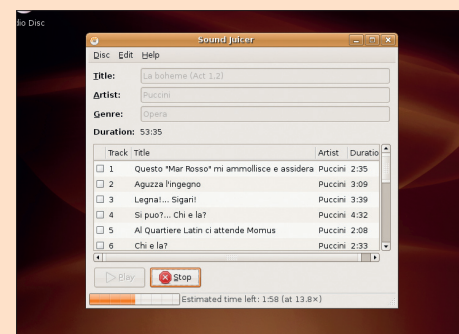
8 When the process has finished you will find the audio files in the destination directory. For *Rhythmbox* to be able to use them, they should be added to the collection, or saved in a directory that will automatically be used.



The green tick-boxes down the left-hand side show which tracks are selected to 'rip'.



Set the file destination from Preferences (the default destination is the home directory).



It depends on the speed of your machine, but the process typically takes about 20 minutes.

→ spanner icon. This can be used to add or modify the folders that contain your music collection.

When you've found the album you'd like to play, add it to the playlist by simply dragging the folder into the window, or by right-clicking and selecting

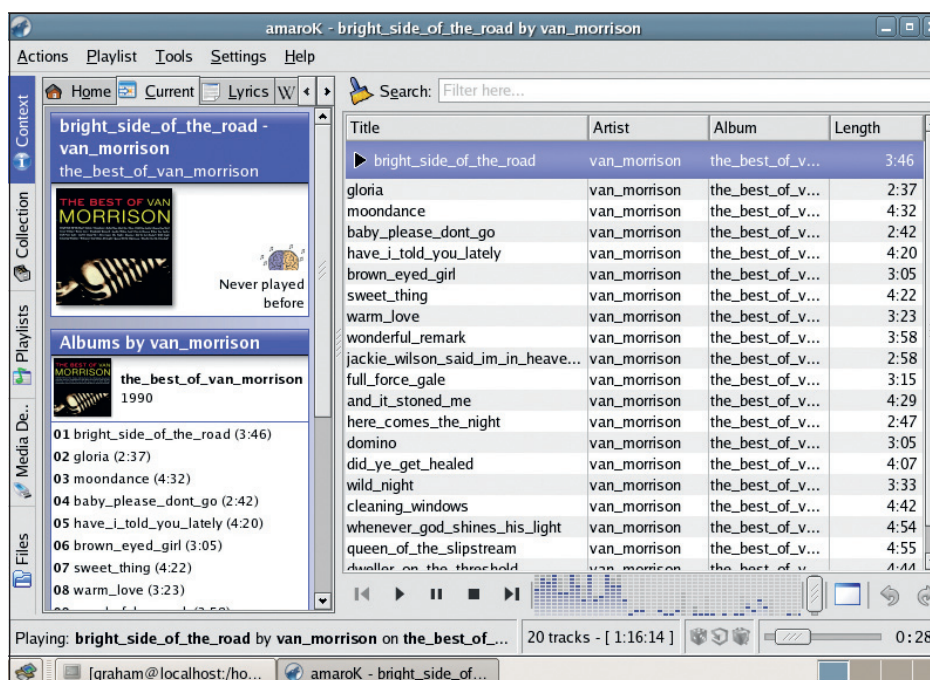
Append To Playlist. It's worth remembering that you can add whole folders to the playlist, or even just a single song, depending on what you've selected in the Collection window. The playlist is updated to reflect any changes, and also shows some useful

information such as track length, title and artist. When you're ready to hear your selection, just click on the Play icon. As soon as you hear music, the user interface changes: *Amarok* automatically switches to the Context panel, as shown by the change of tab on the left.

The Context panel is where *Amarok* shows all kinds of information about the music you've decided to play. Top of the panel is the currently playing track. The large question mark is where you can display the cover of the album associated with the music. To get the album cover, right-click on the question mark and select Fetch From Amazon.com. If you're connected to the internet, *Amarok* will usually download a variety of covers that match the song, leaving you to select your favourite.

IN CONTEXT

The context panel also provides some interesting statistics based on the number of times you've played or selected a track, such as when you last played it, or your favourite tracks by the same artist. The small 'brain' icon links the current track to an online music database called MusicBrainz, and can display where a track is from, or other titles by the same artist. If you need to change any of the meta-information for tracks in your collection, you just need to right-click on the track from the playlist, and a window will open where you can modify things like the title and genre and even provide a comment if you wish.



Amarok can download album covers and keep statistics on your music preferences.



The two other panels you can access from the context panel are called Lyrics and Home:

■ **Lyrics** This panel attempts to download the words to the song you're playing. The results can vary between excellent and mediocre, depending on the popularity of the track and the skill of the volunteers who have entered the details.

■ **Home** This panel provides some basic context information for your collection, such as your newest addition, or your favourite tracks.

Amarok also uses data for a free online service called Last.fm (www.last.fm). It goes like this: a plugin called Audioscrobbler monitors your music that you listen to, so that *Amarok* can upload all of your playing habits to the Last.fm site. Your taste in music is compared with that of other users, and Last.fm is then able to make suggestions of music you might be interested in, based on the playlists of users with similar tastes. While this may sound a little like spyware, it's another open source project, and the only information transmitted is your musical meandering, nothing else.

To get it to work, the first stage is to create an account at the Last.fm website. You need to enter those login details into *Amarok* (Settings > Amarok > Last.FM). A record of whatever you listen to using *Amarok* is then uploaded to Last.fm, and after you've listened to around 100 tracks, Last.fm is able to make some informed recommendations. *Amarok* places the data for its Song Recommendations section in the Context panel.

You've already seen how you can download individual album covers, but *Amarok* also features a cover manager for downloading groups of covers at a time. This can be opened from the Tools > Cover Manager menu. The main display shows your current collection of covers (each cover is stored as a small image within each album's folder). You can select all of your albums from the list on the left, or you can select groups in the same way as from the Collection panel. Press Fetch Missing Covers and *Amarok* will try to download the whole lot from Amazon. ➔

UBUNTU UNIVERSE

Rhythmbox and *Amarok* are far from being the only music players. In fact, *Rhythmbox* is a relatively recent development and works best when used from a Gnome environment. The classic music player for Linux has to be the venerable *XMMS*, or *X Multimedia System*. *XMMS* has been around for a long time, and is considered one of the old-school applications. It features a skinnable interface, with hundreds of zany designs, and dockable EQ and Playlist windows.

The best thing about *XMMS* is that because it's been around for so long, it works on nearly every system you can think of. There are also dozens of plugins for extending its functionality. For instance, you can stream the output to another machine across a network, or program your music from a remote control. It also comes with some great visualisation plugins that bounce around in time with the music. *XMMS* isn't part of the default Ubuntu installation, but there is an easy way to get hold of it: Ubuntu Universe.

You've probably come across Ubuntu Universe already. It's the place for all the packages that don't quite meet fit into the super-slim default Ubuntu configuration. This could be that they're a little old, perhaps a little unstable, or that licensing issues may be holding their inclusion back. The good thing is that Ubuntu Universe features thousands of packages not



It may look dated, but nothing can compete with *XMMS* for features or performance.

included in the core distribution, and as long as you're connected to the internet, they're easy to install, using the Ubuntu package manager, *Synaptic*.

By default, Ubuntu ships with Universe repositories configured but disabled. All we have to do to get access to the extra software is to re-enable those repositories. From your desktop, click the System menu, then selection Administration > Software Properties. You may be asked to enter your user account password, as proof that you're a legitimate user.

In the Software Preferences window that appears, you'll see that Ubuntu has a list of predefined "channels", which are our internet repositories. Scroll down that list and look for "Ubuntu 6.06 LTS (Binary) Community maintained (Universe)". Select this, and also the equivalent option for security updates lower down.

Although Ubuntu Universe includes a lot of software, it doesn't include MP3 codecs. For this, you need to download EasyUbuntu from <http://easyubuntu.freecontrib.org>, which can also add lots of other software that Ubuntu doesn't include.

The reason why MP3 files are so problematic, and why they're not included in the majority of Linux distributions by default, is that the algorithm behind it is privately owned. To many advocates of free software this situation is unacceptable, because there's no guarantee that the owner won't turn around at some point in the future and demand money. This happened previously with the GIF image format, and MP3 may well go the same way some day.



Here we're using *Synaptic* to install *XMMS* from Ubuntu Universe, but the technique can be applied to anything that you want to add to your system – and all for free!

INTERNET RADIO

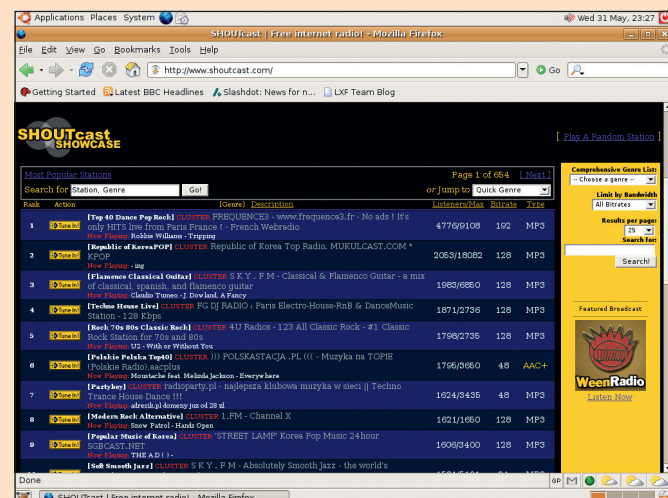
Listening to music piped directly to your computer through the internet is broadening possibilities for PC users the world over, and is deservedly becoming a common alternative to regular radios. In the UK, for example, the BBC provides streams for all of its radio content and often archives significant broadcasts for those that may miss the initial transmission. To listen to the BBC, you need to use a program called *RealPlayer*, available to download for free at www.real.com/linux. BBC internet radio channels can be found at www.bbc.co.uk/radio.

There are plenty of other internet radio broadcasters, and one of the most popular is called Shoutcast (www.shoutcast.com). Rather than being a single broadcaster, Shoutcast is actually composed of thousands of

separate streams, usually run by individuals or small groups interested in a certain genre of music.

If you visit the main website, you'll see a list of the most popular stations. The clever part is that you can find a station you may like by entering some of your favourite music into the search panel, hopefully finding an internet radio broadcast that may be playing it at that moment. To listen to the streams, you just need to click on the Tune In button on the main Shoutcast website. Gnome will then ask how you want to listen to the stream, and you should select Open With Music Player, opening the stream directly into *Rhythmbox*.

With traditional radio broadcasts, it could never be economical to have so many channels, but with open source, things suddenly become possible!



Shoutcast can often have as many as 350,000 listeners tuning in to nearly 15,000 broadcasts, from Swiss yodelling to urban jazz.



⇒ Play films with Totem

Now you know how to use your PC for playing music, it's time to explore other media possibilities.

Unlike on other operating systems, watching films from Linux, be they from a DVD or from the internet, is usually quite simple. You tend to find that if your system recognises the movie file when you click on it, the appropriate piece of software to play it will be loaded automatically. This wasn't the case a few years ago, but a lot of effort has gone into making movie watching, and multimedia in general, as easy as possible. There's a lot going on behind the scenes, but most distributions handle all this automatically.

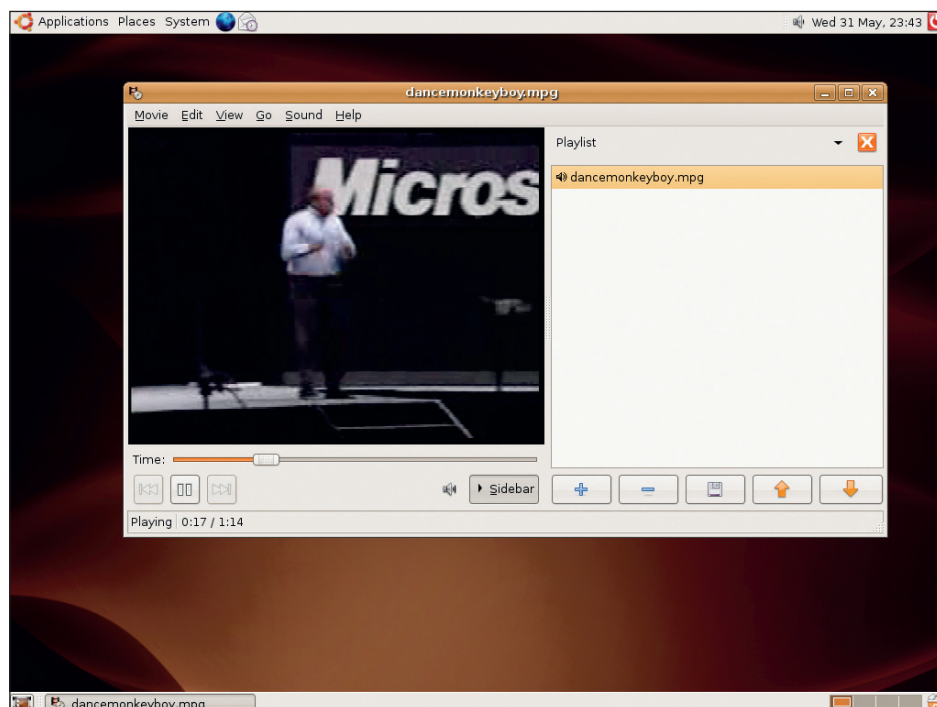
DVD playback is something of a contentious issue though, because all movies rely on a secret key to be decoded off the disc before the media player can make any sense of the video files stored on it. This key has been decoded, or reverse engineered, but the technique involved has become tied up with patent legislation. This affects you as a user only in certain territories, such as Germany for example, where the required extensions might not be installed by default for fear of summoning the wrath of the patent lawyers.

There are two main contenders for the title of best Linux movie player: *Xine* and *MPlayer*. Both applications are capable of playing everything from DVDs to the video streams you can download from the internet, and they both feature a bewildering variety of add-ons and plugins. They manage all this using libraries, which are extensions you can plug into your system to add functionality. All but the most minimal distribution already come pre-packaged with everything you need.

BEST OF BOTH

Totem is Gnome's default movie player. It's built on *Xine* and is capable of playing back files using the engine from the *Xine* movie player. Like *Rhythmbox*, *Totem* uses the *GStreamer* plugin system, so anything *GStreamer* can play, so too can *Totem*, which gives you the best of both worlds.

Totem is the player that will open when you click on a compatible file from the local filesystem or web browser, and you can also open it from Sound & Video in the Applications menu. Movies can be



Despite having a rather spare user interface, *Totem* offers all the features you could ask for.

opened from within the application by clicking on the Movie menu item. *Totem* can play DVDs (with menus), Video CDs (VCD) and audio CDs: just select Play Disc or open files directly using the usual Open file requester. You will find that you won't be able to play many of the commercial DVDs you may own, because the process required to decode them for playback is based on secret proprietary code, and as such can't be included in an open-source

can open from the Edit window. There are three tabbed windows for configuration: General, Display and Audio. On the General tab, you can select which optical drive to use for DVDs, VCDs and audio discs, as well as the speed of your internet connection, which is useful for when you're playing a movie off a network. You can also use your computer's TV output, which you often find on laptops in particular, by selecting your graphics hardware.

“The Display tab has controls that you typically find on a television set, such as contrast and saturation.”

distribution such as Ubuntu. As a result, you are restricted to playing un-encrypted DVDs (very rare), home DVDs, or VCDs from your internal drive.

You can add files to the playlist, just as you can in *Rhythmbox*, by selecting Show/Hide Playlist from the View menu. This allows you to order movies, music and radio streams for playback one after another. This is especially useful if you're watching your own digital video files and don't want to keep skipping back to the desktop. Pressing F will toggle between full-screen mode (best for watching movies) and the window view.

As with most Gnome applications, configuring *Totem* is relatively easy. All of the options are available from the Preferences window, which you

The Display tab is mainly used for brightening up playback that's too dark, and also has other controls you typically find on a television set, such as contrast and saturation. You can also use this tab to define visual effects for when you're using *Totem* to listen to music – this draws psychedelic patterns on the screen in time with the music. 'Goom' is the default option.

The final tab is Audio, which simply lets you define the number of outputs available on your soundcard. It defaults to two (stereo) but you can set it to as many as six (5.1 surround), or digital pass-through. This last option will pass the digital audio signal, unhindered by processing, to your digital surround decoding equipment. ●

AVI EXPLAINED

Audio Video Interleave is a video file format that was originally developed for the Windows platform. What surprises most people is that having an AVI player doesn't necessarily mean they will be able to play their AVI files. That's because AVI is just a container for the data – it's a way of describing the contents and packaging them up for use over the internet or reading from a disc. The actual video and audio data is encoded using one of literally hundreds of so-called codecs, which is why a certain AVI may not play with your AVI player: you'll still need the corresponding codec.