FOSSpicks

Sparkling gems and new releases from the world of Free and Open Source Software

Hunting snarks is for amateurs – **Ben Everard** spends his time in the long grass, stalking the hottest, free-est Linux software around.

Web-based database management

PHPMyAdmin

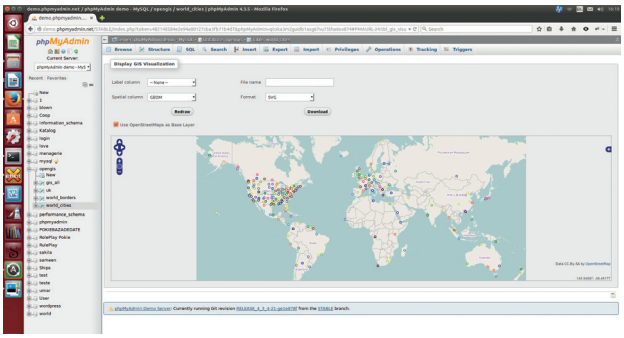
PHPMyAdmin may sound like a tool for administering PHP, but it's not. It's a front-end for *MySQL* and *MariaDB* written in PHP. From creating databases and tables, to backups, to finding particular pieces of data in the tables, *PHPMyAdmin* really can perform just about everything you need to do on a database, but for anything that's not directly supported, there's an SQL interface on the web page.

Unsurprisingly given the name, *PHPMyAdmin* runs on top of a LAMP stack, so if you've already got this installed, then getting *PHPMyAdmin* is just a case of downloading it and unzipping it somewhere in the webroot.

Configuring *PHPMyAdmin* can be a little more awkward. This is either done by hand, or by moving **config.inc.php** into a config folder and using the web-based script. Full details are on the project's website at **http://docs.phpmyadmin.net/en/latest/setup.html**. Alternatively, most distros have a package for *PHPMyAdmin*, though this might not always be the latest version.

One of the big advantages of *PHPMyAdmin* is that it makes it easy for non-experts to manage databases. Backing up and querying are probably the most basic tasks, and these are easily performed provided you know a bit about databases. The search tool works as an SQL query builder, so it helps you learn SQL as you use it. In fact, the whole *PHPMyAdmin* interface is closely tied to SQL, so it's easy to transfer your skills both ways. If you learn in *PHPMyAdmin*, it can be easy to pick up SQL, and if you already know SQL, you should find it easy to get started with *PHPMyAdmin*.

"PHPMyAdmin really can perform just about everything you need to do on a database."

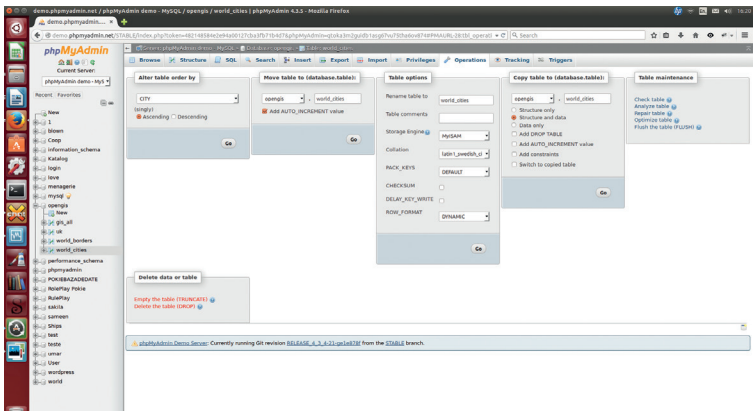


The cities of the world displayed in *PHPMyAdmin*'s GIS data view on top of an OpenStreetMap outline.

As well as general database tools, there's a range of tools to help you visualise data including GIS (geographical) data map overlays, various chart-drawing tools, and image viewers.

There are also plenty of features for advanced users. The profiling options can help you optimise the performance of queries, and just about everything can be tweaked so it works the way you want it. There's even an advisor that tries to highlight potential performance problems and solutions. The server monitoring tools can then help you tell how effective any optimisations have been.

If you're building your database from scratch, there's also a relational designer tool to help you create or amend a schema, and see how the keys are set up. We can't recommend this tool highly enough. You can try out a live demo of *PHPMyAdmin* without installing at **http://demo.phpmyadmin.net**.



PHPMyAdmin isn't the best-looking HTML interface, but it is themeable if you prefer a different colour scheme.

PROJECT WEBSITE
www.phpmyadmin.net

Online collaborative text editor

Etherpad

Etherpad is an online notepad for real-time collaboration. That means you can work with people on a single text document and see what each other is doing as you're doing it. Originally, *Etherpad* was closed source, and Google bought the company producing the software with the aim of including it in the ill-fated Google Wave. Now *Etherpad* is open source, and is hosted in thousands of places both public and private.

Etherpad is based around what it calls 'pads', which is just another name for text documents. These can be quickly created, and shared between users using just the URL.

Slightly confusingly, there were once two pieces of software, one called *Etherpad* and another called *Etherpad-lite*. The original *Etherpad* is now defunct, and *Etherpad-lite* is commonly known as *Etherpad* (though you may still see the -lite suffix in some filenames).

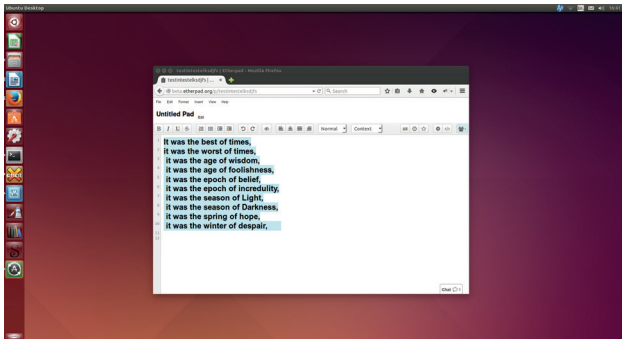
The main focus of the app is on collaboration rather than word processing, so the stylistic options are quite limited. You can use bold, italic, lists, alignments and a few other basic functions, but not much. In some ways, you can think of it a bit like a stripped down, open-source version of Google Docs, or perhaps a real-time wiki.

It's this collaboration focus that makes it an invaluable tool for many open source projects.

You can view a time-slider of how the document has developed, and the contributions by different people show up in different colours. There's also an in-built chat function to help you communicate with the other people editing the document.

Collaboration tool

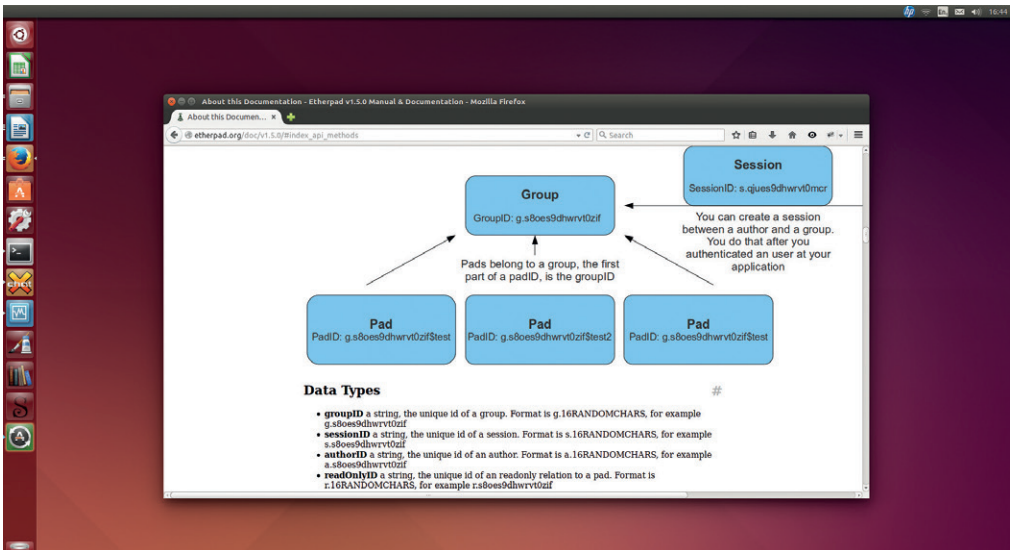
If you need more features, there are plenty of plugins to provide everything from spellchecking to printing to turning the pad into a collaborative development environment. You can see a full list of available options at **https://github.com/ether/etherpad-lite/wiki/Plugin,-a-list**.



The minimalist interface forces you to focus on the content, not the application.

> **"The main focus of Etherpad is on collaboration rather than word processing."**

JavaScript is used both for the interface and the back-end (via Node.js).Keeping everything in one language is useful for development, but does mean that it won't run on a normal LAMP stack. If you don't want to install Node, you can always use one of the many public *Etherpad* instances that are available, such as Wikimedia's (**https://etherpad.wikimedia.org/**), or Mozilla's (**https://etherpad.mozilla.org**). There's even a public pad hosted as a *Tor* hidden service at **https://5jp7xtmox6jyoqd5.onion/**. You'll find a list of public pads on the *Etherpad* site at **https://github.com/ether/etherpad-lite/wiki/Sites-that-run-Etherpad-Lite**. Each site has different terms of use, and some delete pads after a certain amount of time, so always take a look at the terms and conditions before hosting important work anywhere.



The *Etherpad* API is well documented, so interacting with it should be straightforward.

If you already run a site based on a popular CMS such as *WordPress* or *Drupal*, you should be able to find a plugin to integrate *Etherpad* into your website. There's also an HTTP API so you can interact with it from almost any software.

Along with the usual bugfixes and UI improvements, the big improvements in the latest version (1.5 aka Turkey Slayer) are full import and export support (including to word processor formats such as Microsoft's DOC and the open source ODF), and support for sharding to help scaling to large numbers of users.

The new export functions alone are enough for 1.5 to be a worthy upgrade for anyone already running *Etherpad*, and make it even more attractive to new users.

PROJECT WEBSITE
http://etherpad.org

Shell script paralleliser

Gnu Parallel 20141122

Modern computers have many CPU cores, but quite a lot of command line utilities were designed back when most machines had only a single core. This means that, by default, they don't fully utilise your hardware. There is a solution: *Gnu Parallel*. This isn't a panacea that makes single-threaded programs multi-threaded, but it load-balances command line programs across multiple CPU cores.

Imagine, for example, you have a directory with many gzipped files that you want to unzip. The simplest way of decompressing them is with a simple **for** loop:

```
for file in *.gz; do gunzip $file; done
```

However, this would run the entire operation on a single CPU core, which could be quite slow if you have a lot of zipped files. Instead of running them on a single thread, you could launch new threads for each unzipping. This would run across many CPU cores, but wouldn't do so very intelligently:

```
for file in *.gz; do gunzip $file & done
```

A more efficient option is to use *Gnu Parallel*. This intelligently spreads the load over all available CPUs, and should run faster than either of the previous examples. Unzipping the files is done with:

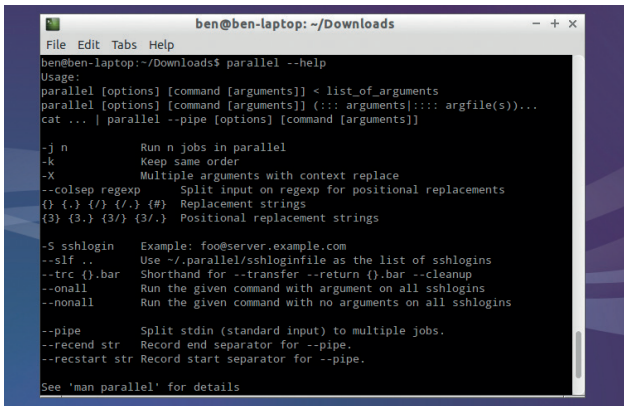
```
parallel gunzip ::: *.gz
```

Unleach the power!

This is the simplest form of the command, and is an easy substitute for a **for** loop on files when there's quite a bit of processing to do. The three colons simply split the command to run from the selector of the files.

Gnu Parallel has far more power than this, and there's a thorough tutorial on the Gnu website at **www.gnu.org/software/parallel/parallel_tutorial.html**

Perhaps one of the most powerful features is the ability to split-run across multiple machines. This may be the simplest method of utilising the processing power of a cluster of machines – perhaps a bunch of EC2 machines you've just split up, or an office full of PCs that are unused overnight.



If you have a multi-core CPU, your commands should take full advantage of it.

PROJECT WEBSITE
www.gnu.org/software/parallel

Source code management

Git 2.2

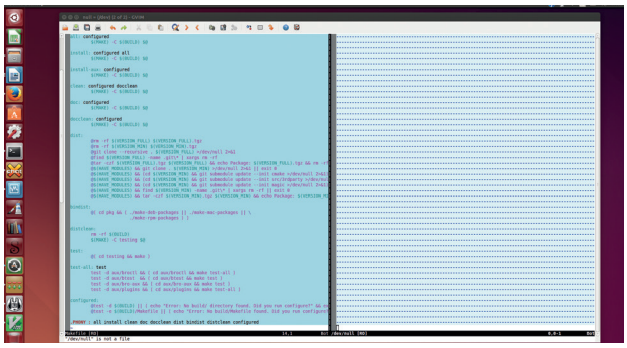
Source code management may not be an exciting subject to most people, but it can be a real hassle when it goes badly, like when you can't locate a change that broke something, or get into a mess when two people have changed the same file. *Git* not only solves all the normal problems of source code management wonderfully, it was also designed from the ground up to work for open source projects (specifically the Linux kernel).

The most powerful feature of *Git* is the forking and merging options. Forking in *Git* doesn't mean the same thing as forking software in general. It creates a new copy of the code that can be worked on independently, and the idea is that it will eventually be merged back into the main branch.

This enables different people to develop on different trees simultaneously, then combine their changes with minimal fuss, which is perfect when developers are working on different features. Understanding how these branches work is key to using *Git* effectively.

While *Git* is amazingly useful, it's not always the easiest software to get started with. GitHub (a website that hosts *Git* repositories) have put together a web-based tutorial to help you get started. You'll find an easy introduction to the world of *Git* at **https://try.github.io/levels/1/challenges/1.** By the time you've completed challenge 25, you should be well versed in source code management.

As well as the command line tools, there are graphical clients, and web-based interfaces.



There are graphical clients, such as *Git-cola* shown here, for anyone who wants the power of *Git* but prefers not to use the command line.

However, unless you've got a good understanding of how the software works, you'll struggle to get the most out of them.

Despite being a relatively recent option when compared to the likes of *CVS* and *Subversion*, *Git* is already the most popular source code management tool in the open source world, and is becoming increasingly popular in the commercial world as well.

PROJECT WEBSITE
http://git-scm.com

Music streaming software

mps-youtube

YouTube hosts millions of videos that anyone with a web browser can play, and a large number of these videos include music. This essentially makes it a massive, free (zero cost) music library. The only downside to this is that the web interface isn't ideal for music playing. *Mps-youtube* is a terminal application for searching videos and playing music without getting bogged down with the graphics.

You can install it with a simple:

```
sudo pip install mps-youtube
```

Then start it with **mpsyt**. You'll be dropped into a command prompt that you can search. For example:

```
search big buck bunny
```

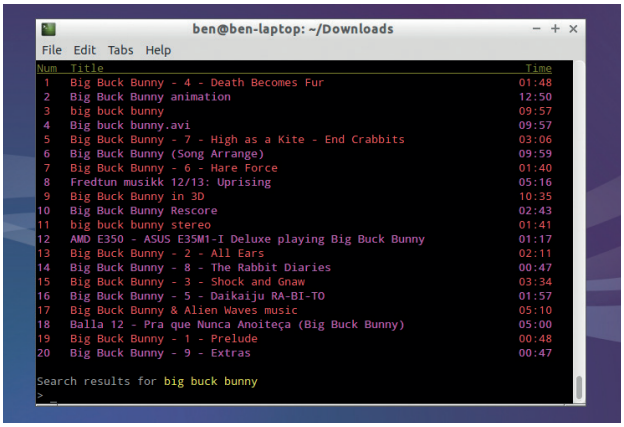
will bring back all the audio from the free (as in speech) film *Big Buck Bunny* made by the Blender Foundation. This uses YouTube's search feature – which is powered by Google – so it does a good job of finding the most popular response to queries, even if they're incomplete or not spelled perfectly.

To play a song, just enter the number of the result and hit Enter. This will stream the song straight from Google's website. Playlists and other more advanced features are supported, and altogether it's quite a powerful music player. You can add items to a playlist with:

```
add <number>
```

The **vp** command displays the current playlist. There are other options to save playlists to your local machine, and open ones that you created earlier. The help system is comprehensive, so you shouldn't have much difficulty working out how to use it. Entering help tips at the command prompt is the best way of discovering all the features.

YouTube isn't known for its high audio fidelity, so this isn't a tool for replacing a high-end stereo, but a nice way of finding new songs.



It's just good old YouTube, but without all that annoying video that just gets in the way of the audio.

"Mps-youtube is a terminal app for searching videos and playing music."

PROJECT WEBSITE
https://github.com/np1/mps-youtube

Graphical maths tool

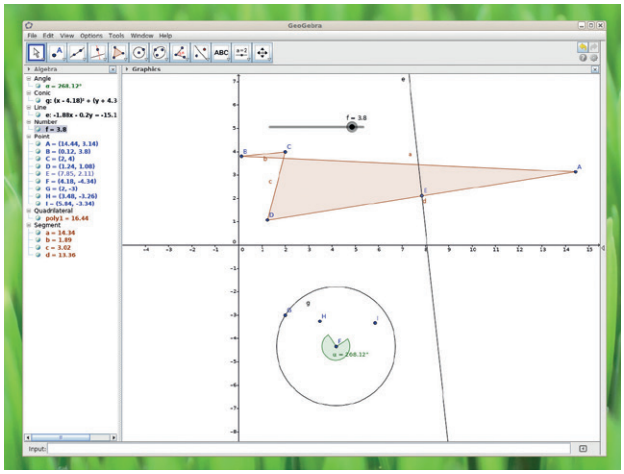
GeoGebra

Back when I were a lad you could buy a Mars bar for 25p and still have change for the bus ride home, and all this were fields, and when it came to maths class, you drew equations using graphical calculators.

Now, mobile computers – from laptops to smart phones – are seemingly everywhere, and it might be time to replace these ageing calculators. There are many plotting tools available, but *GeoGebra* stands out because it's designed for interactive exploration. That means that it's not just good for displaying data, but learning about the mathematical properties of the graphs. You can think of it less like a plotting tool and more like a mathematical play pen.

Objects are dragged-and-dropped onto the canvas, then you can manipulate the properties either by entering absolute values, or linking them through a simple language. In some ways, you could view *GeoGebra* as a mathematical graphical programming language rather than a charting tool. That said, it's almost entirely mouse-driven, so you don't get bogged down in code

GeoGebra is structured to help teachers, and this means you can create work sheets for export to other users. There's a website – **tube.geogebra.org** – that hosts them as HTML pages so viewers only need a web browser and internet access to use them. You don't have to be a student to find useful things on the website though. Drivers can find a mathematical examination parallel parking (**http://tube.geogebra.org/student/m3022**), or take a light hearted look through a kaleidoscope (**http://tube.geogebra.org/student/m27651**). True to the earlier graphical calculators, there are even some games available, like billiards (**http://tube.geogebra.org/student/m167309**).



As well as mathematics, you can also use *GeoGebra* for idle time-wasting, as shown here.

PROJECT WEBSITE
www.geogebra.org

Low-latency voice chat

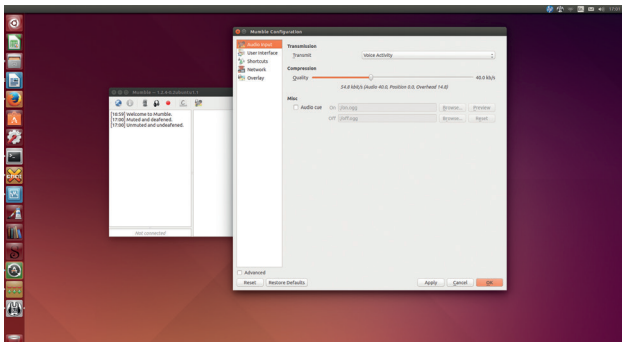
Mumble

Mumble is a bit like IRC for voice. It's built on a client-server model, so once a server's running, many people can connect to this and share their audio. Like IRC, it features channels so a single server can host many conversations. The *Mumble* project includes a client and a server (known as *Murmer*), so has everything you need to host your own chat sessions – provided, that is, you have a server to host it on. It's fairly low-resource, so should run on a low-spec VPS, though you may need more power if you're planning on hosting a lot of users.

Mumble is built for low-latency, so chatting works well, and quality is good, though this can depend on the available bandwidth. You don't need to worry about who's listening in as all communications are secure by default.

It was originally designed for gamers and does have some special features to support this (such as overlays and positional audio). However, it's also useful in other areas, for example, many podcasts use it for recording.

Perhaps the most powerful part of *Mumble* isn't in the software itself, but in the ecosystem that's built around it. There's everything from web interfaces to command line clients and bots for almost every available task. There are even other servers for the *Mumble* protocol that are optimised in different ways. For a more complete list of *Mumble*-related software, check out the project wiki at **http://wiki.mumble.info/wiki/3rd_Party_Applications.**



The Mumble configurations mean you can tune the setup to your particular internet connection to maximise quality and minimise latency.

There are clients for all major platforms, so you don't need to limit your chats to just your FOSS-loving friends. This includes iOS and Android so you can also stay chatting on the go.

You can try out *Mumble* without running your own server by finding a public server at **www.mumble.com/serverlist**.

"Mumble has everything you need to host your own chat sessions."

PROJECT WEBSITE
www.mumble.com

Android photo enhancer

Effects Pro

These days, photos need to have a filter, or it's just not cool enough. We're all for jazzing up pictures, but too often it's done through proprietary web apps. Sure, *Gimp* has some great options, but if you've only got your phone with you, that's not much help.

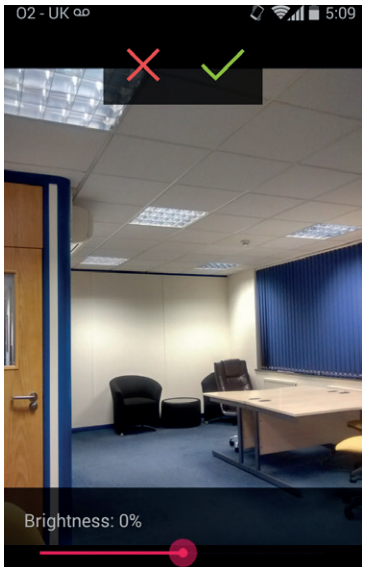
In steps *Effects Pro*. It's a simple Android app that lets you manipulate images (either new photos or ones stored on your phone). You don't need to know much about image processing – just select the effect you wish to add, adjust the amount, and *Effects Pro* does everything else.

Version 1.1 did seem to have a few stability issues on our test device (a Moto G), so we'd recommend taking the photo first, saving it, and then opening it in *Effects Pro*. This way you'll still have a copy of the image should there be a problem. Performance was also a little slower than we would like, but hopefully these minor issues will be ironed out in future releases.

There are 19 effects available, ranging from colour changes to classic photo manipulations like sepia and vignette. It's designed to be simple on a touchscreen, so doesn't have anywhere near the range of options as powerful desktop software (like *Gimp*), but with a few clicks, you can liven up most pictures.

You can get the source code from **https://github.com/yaa110/Effects-Pro** if you want to tinker with it, or the compiled software is in the F-Droid repository, so you can get it through that app store (**https://f-droid.org/repository/browse/?fdid=org.appsroid.fxpro**).

Effects Pro is simple to use, and open source: two qualities that are rare in Android apps.



This isn't the same as *Photo Effects Pro* on the Google Play Store, so if you want the free software app, make sure you get it through the F-Droid store.

PROJECT WEBSITE
https://github.com/yaa110/Effects-Pro

FOSSPICKS Brain Relaxers

Terminal-based robot deathmatch

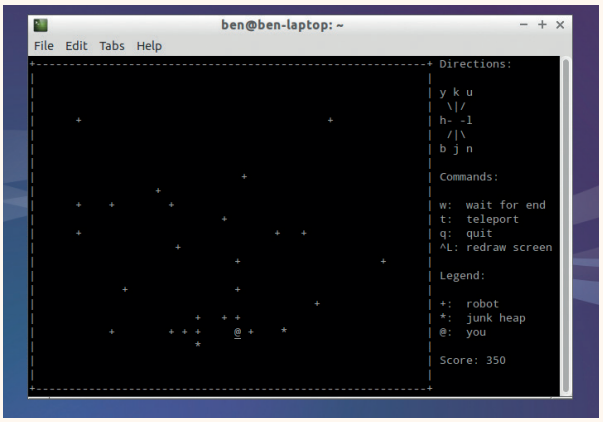
BSD Robots

What *Minesweeper* is to Windows, *Robots* is to BSD. It's the classic game perfect for wasting hours of otherwise productive time (or to run while you're waiting for something to compile). The game play is simple: you're an @ symbol surrounded by robots. Each turn you move, then the robots move. The robots don't have any collision prevention, so they're prone to colliding with each other. The aim of the game is to make all the robots collide with each other so there are none left. It gets easier, because dead robots leave scrap metal that other robots can then crash into.

If you get completely stuck and can't move anywhere (this can happen quite a lot as you're starting out), you can teleport. This moves you to another place on the screen, but it can land you in the path of a robot, so there's a chance any teleport could be fatal. Some clones have the option to safe teleport, but this corruption of the game's ideals is anathema to true *BSD Robots* aficionados.

There are other versions of the game where the protagonist is escaping zombies or Daleks, but the mechanics are the same.

As with all classic games, there are plenty of clones that are more graphically impressive – *Gnome Robots*, for instance – but for us, the classic black and white terminal version can't be beaten. If you want the full retro experience, you could run it through *Cool Old Term* to simulate a CRT display.



You can teleport to a random place if you're really stuck, but beware, this could take you directly into the path of a robot.

GNU Robots is a completely different game, so make sure you get the right one (it's often in a package called **bsd-games**). Alternatively, you can play it in a web browser without installing anything at **http://ctho.org/games/robots**.

PROJECT WEBSITE
none

Dungeon game

Angband

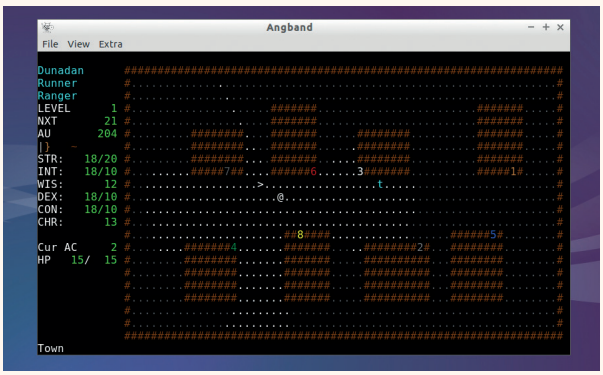
In issue 5, we posed the question: is *Nethack* the greatest game of all time? A lot of you said yes. Among the dissenters, the most popular alternative put forward wasn't some AAA game with fancy graphics, but another text-based dungeon crawler: *Angband*.

The aim of *Angband* is to delve deeper and deeper into a world of dungeons until you reach level 100 where you come face to face with Morgoth. Tolkien fans will recognise that name, and *Angband* is set in Middle Earth, though a knowledge of this isn't necessary to enjoy the game.

Levels are randomly generated, so no two games are the same. This means that you have to constantly adapt, even if you've played the level before. Carefully managing your inventory (so you're ready for any eventuality) is key to progressing in the game.

Like *Nethack*, *Angband* is turn-based, so you have time to think through your decisions. Make no mistake though, *Angband* is hard. There's a very real chance that even if you keep playing for 20 years, you still won't complete it (if you don't believe us, check out the forums on the project website). However, the counterpoint to this difficulty is that each little victory (like descending to another level) brings a huge amount of satisfaction.

So, the question remains, which is better: *Nethack* or *Angband*? Both are mind-numbingly difficult and can drive you mad at times and make you ecstatic at others. The terminal-nature of *Nethack* makes it a bit easier to run on a server, but *Angband* gets the edge from this author because the level generator seems just a little more brilliantly malevolent.



You can't see round corners in *Angband*, so there's always a chance of a monster waiting to attack.

PROJECT WEBSITE
http://rephial.org