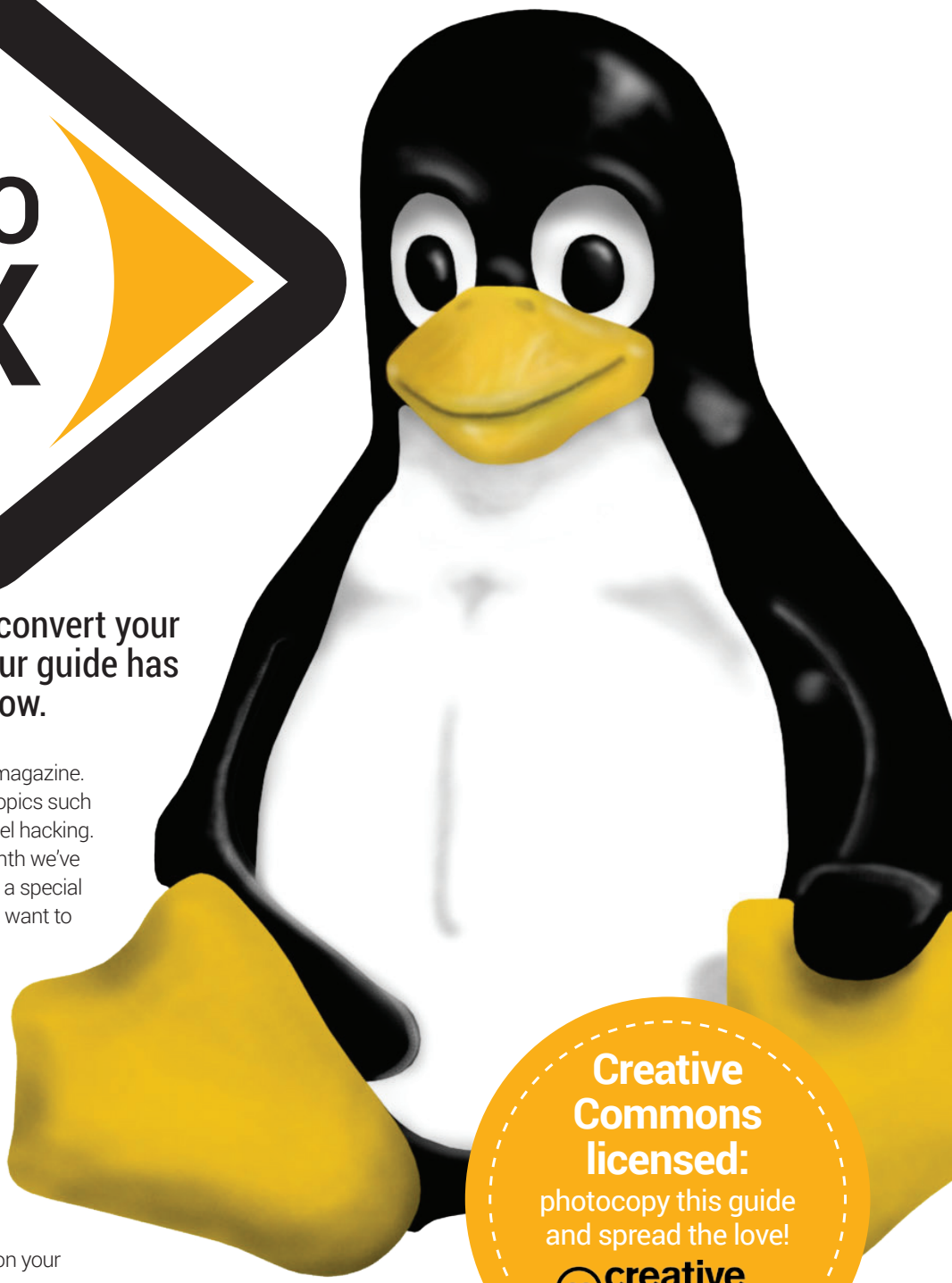
SWITCH TO LINUX



New to Linux? Or want to convert your friends and colleagues? Our guide has everything you need to know.

Linux Voice is unashamedly a geeky magazine. We don't shy away from advanced topics such as assembly programming and kernel hacking. But we were all beginners once, so this month we've decided to help newbies get into Linux with a special guide. If you've never used Linux before but want to dip your toes into its glistening waters, we'll get you started over the next six pages. Or if you're a regular Linux Voice reader who already knows his or her way around the operating system, cut out this guide and give it to friends, family and colleagues – or make photocopies and convert everyone you know!

Before we get started, though, what exactly is Linux? Where did it come from? Well, Linux is an operating system, much like Windows and Mac OS X. It runs on your computer, acting as a middleman between your hardware and your applications. It manages your computer's memory, helps different programs to run together, and has drivers for your hardware.

Linux has many strengths, such as security and performance, as we'll see in a moment. It runs its own software, although it can also run a selection of Windows programs. Linux is great as a secure and reliable desktop operating system, but it also powers the internet: Google runs Linux on tens of thousands of servers, for instance. And you might not know it, but Linux forms the basis of Android, the operating system that totally dominates smartphones and tablets.

"Linux is a secure, reliable desktop operating system, and it also powers the internet."

What we call "Linux" today is the work of multiple projects that have been running since the 1980s, all of which have worked together to create a free, open and shareable computing platform. The GNU project played a huge role in this, which is why you sometimes see Linux referred to as GNU/Linux, and today the operating system has hundreds of thousands of developers around the globe.

Why use Linux?

The four big reasons why you should make the switch.

1 It's free

Linux is free (as in zero-cost). That's right, you don't have to pay a penny to use it. But how on earth is such a large body of software completely free – who pays for its development?

Much of the work on Linux is done by volunteers around the world, working over the internet. But an increasing number of contributions come from large companies such as IBM, Intel, Red Hat and Canonical. They don't make money from selling the operating system itself, but they generate revenue by offering support contracts, services, documentation etc.

So if you just want to use Linux on your home computers, you can download and use it for free. If you want to deploy it across 5,000 PCs in an enterprise, and need someone on the end of the phone who will fix any potential problems, you can pay IBM, Red Hat or other companies to provide support. Many volunteer Linux developers and projects also raise money via donations or selling merchandise such as T-shirts and mugs.

While many Linux developers are volunteers, the system is also backed by some of the biggest companies in IT.

2 It's open and secure

This is hugely important. Linux is open source, which means anyone can study its inner workings. You can download the source code (the original human-readable recipe) of Linux, change it, and recompile it to run on your computer. Now, few people have the technical nous to do this, but it's essential nonetheless: you have full control over your computer.

With Windows, Mac OS X or iOS, you can never be sure what the software is doing – you can't get the source code, and you can't fix it yourself. It's like buying a car with the bonnet welded shut.

With Linux, anyone can look inside and improve it. The knowledge encapsulated in its millions of lines of source code is there for the whole world to benefit from. And because its code is in the open, it's almost impossible for government agencies or other nefarious types to sneak in back-doors or other ways to monitor you. With many thousands of people studying new code as it's added to Linux, security holes are usually spotted very quickly. Who knows what's lurking inside Windows and Mac OS? You can't find out. In short: with Windows and Mac OS X, someone else is in charge of your computer. With Linux, you have total control.

3 It's reliable

Linux is well known for its reliability and general crash-proofness. Its overall design is based on that of Unix, a family of operating systems that goes back to the 1970s, so it's built on mature and well-established foundations. With developers all over the world working on its codebase, bugs are found very quickly, and because it's open source, anyone can fix a bug. Even if you're not a programmer yourself, you can pay someone to fix an issue or add a feature you need. With Microsoft? Good luck, unless you have tens of thousands of pounds to wave around...

A properly set up Linux system simply won't crash unless something is wrong with your hardware. We know people who've been running Linux servers for several years without a single reboot. Linux is designed in such a way that its various components are well isolated from one another, so if there's an issue with one part of the operating system (such as the graphical user interface), the rest of it carries on chugging away.

4 It's compatible

Linux may be a different operating system to Windows and Mac OS, and doesn't run all of the same programs, but it's the most compatible OS in existence. You can open your *Microsoft Office* documents in *LibreOffice*, you can play all your videos and music in the *VLC* media player, and there are Linux equivalents for pretty much every application in the Windows and Mac OS worlds – we'll explore the best software later on. Whereas paid-for software often tries to lock you in to closed file formats, Linux applications respect that we all like freedom of choice. And Linux happily co-exists with Windows or Mac OS X, so you can have both on your computer and choose when you power it on.

Which distribution?

Linux comes in many flavours – here are the biggest names.

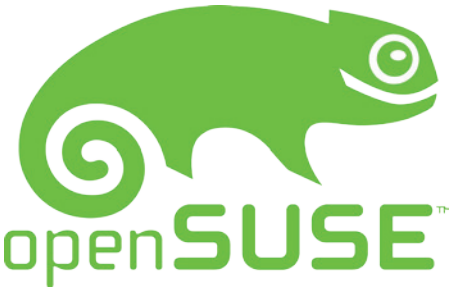
Because the Linux source code is free and open for everyone to share, anyone can also package it together and make their own "distribution" (aka "distro"), which is an installable version of the operating system. There are hundreds of distributions out there, some made by big companies and some made by small groups of volunteers, but they're all Linux at the core and compatible with each other. Some distributions are geared towards new users, others for servers and software development workstations – everyone has their favourite. Here are the main ones you need to know about.

Ubuntu www.ubuntu.com

This is by far the best-known distribution, and is a great all-round operating system. Ubuntu is primarily geared towards desktops and laptops, although it's making gains on tablets and phones as well. With Ubuntu, you can get a modern, shiny and well-tested version of Linux on your PC within just a few mouse clicks.

Fedora www.getfedora.org

This is from Red Hat, the makers of Red Hat Enterprise Linux, a distribution focused on servers and business usage. Fedora is a community-supported distribution known for incorporating cutting-edge technologies, and makes new releases every six months. Like Ubuntu, Fedora focuses on having an attractive and versatile interface.



OpenSUSE www.opensuse.org

Developed in Germany, OpenSUSE is one of the longest-running Linux distributions, having started life in the mid 90s. It's popular among intermediate Linux users, sporting an excellent configuration tool called *Yast* that lets you tweak all aspects of your system from within a single program. Great for control freaks.

Debian www.debian.org

Debian is released rather slowly (once every two years), but is well known for its stability and is therefore used on tens of millions of servers around the world. Debian is compatible with many kinds of computer hardware, and provides the basis for many other distributions, such as Ubuntu.

Arch Linux www.archlinux.org

Arch can be complicated to install but it teaches you a huge amount about how Linux works under the hood. Arch Linux is a rolling release distro, so instead of having big updates every six months like most other distros, it's constantly changing with the latest software.

Linux Mint www.linuxmint.com

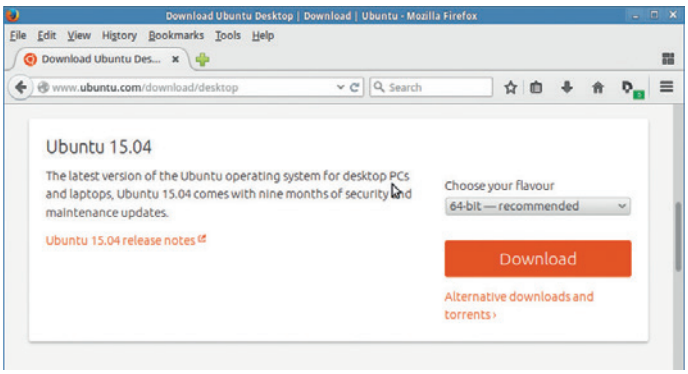
Mint is based on Ubuntu, but provides a different interface and set of default software. It's popular among new users and has a very helpful, supportive community. Various versions of Mint exist with different interfaces – the most popular at the moment is the traditional *Mate* version.

So which one should I choose?

We'll make this simple: Ubuntu. You'll see people recommending other distributions as well, but Ubuntu is the best known, is very polished, and has a huge supporting community on the web (eg **www.askubuntu.com**). The Ubuntu team puts a lot of effort into its interface and makes sure that the operating system works well out of the box, so we think it's the best way to start. After a few months with Ubuntu, you'll be confident enough in Linux to try other distributions and expand your horizons.

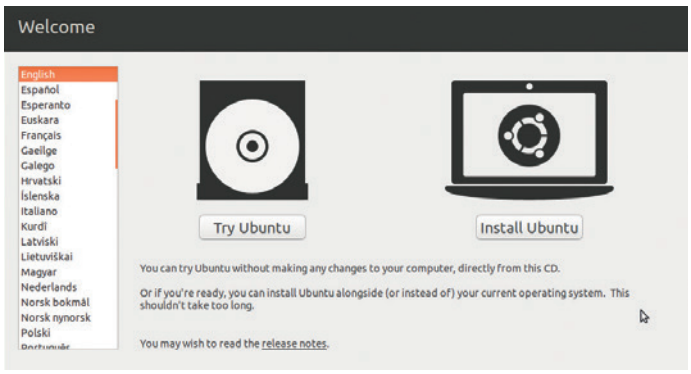
Install Linux! Follow our step-by-step guide and get Ubuntu onto your PC.

Requirements: 1GHz Intel/AMD CPU, 2GB RAM, 10GB drive space



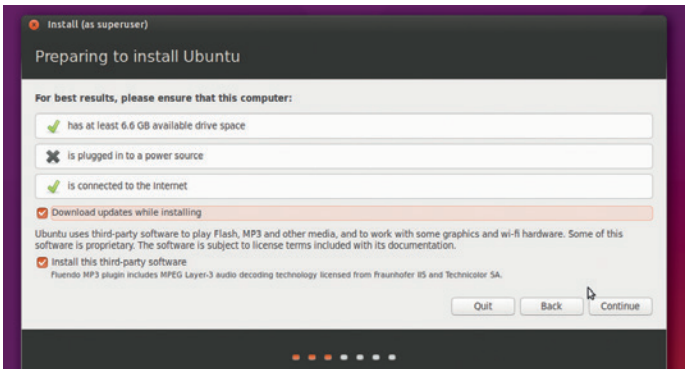
1 Download

Go to **www.ubuntu.com/download/desktop** and get the latest version (15.04 at the time of writing). You'll download a **.iso** file, which is a disc image that can be burned to a DVD-R using your regular disc burning software. If you want to use a USB key to install Linux, follow the instructions at **http://tinyurl.com/ubuntukey**.



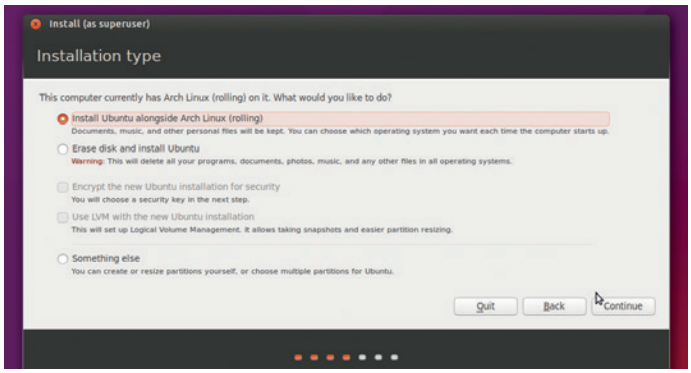
2 Boot

Boot your PC from the DVD-R or USB key; you normally need to press a key on your keyboard when your computer starts to do this, so consult your PC's documentation to find out how. After a few moments, Linux will run from the DVD and this screen will appear – click Install Ubuntu to begin the installation process.



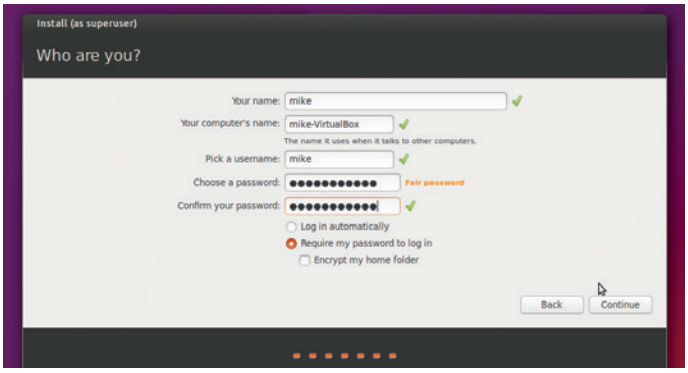
3 Settings

The Ubuntu installer will check that your machine has sufficient hard drive space to install Linux. If you're connected to the internet, you can download updates and extra drivers and media file codecs (recommended) during installation; click on the network icon in the top-right to set up a Wi-Fi connection if necessary.



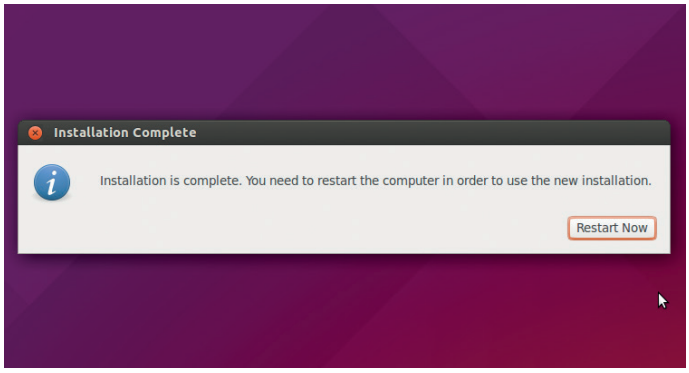
4 Partition

Now choose where to install Linux on your PC's hard drive. You can install it alongside Windows, and have a menu when you start your PC to choose your operating system, or you can dedicate the whole hard drive to it. Choose "Something else" if you're experienced with partitioning and want full control of where the systems end up.



5 User account

Now the Linux files will be copied to your hard drive, and you'll be asked to set your location and keyboard layout. You will also be prompted to set up a user account so that you can identify yourself to the operating system and log in – don't forget your password! You can also choose to encrypt your personal files here.



6 And you're done!

Once all the files have been copied over (depending on your PC, this can take a few minutes), the installer will prompt you to reboot the machine, so click on Restart Now and remove the DVD or USB key once the PC restarts. Then you can choose Ubuntu from the boot menu that appears, and turn over the page to start exploring.

Explore Linux

Discover your new operating system and its included software.

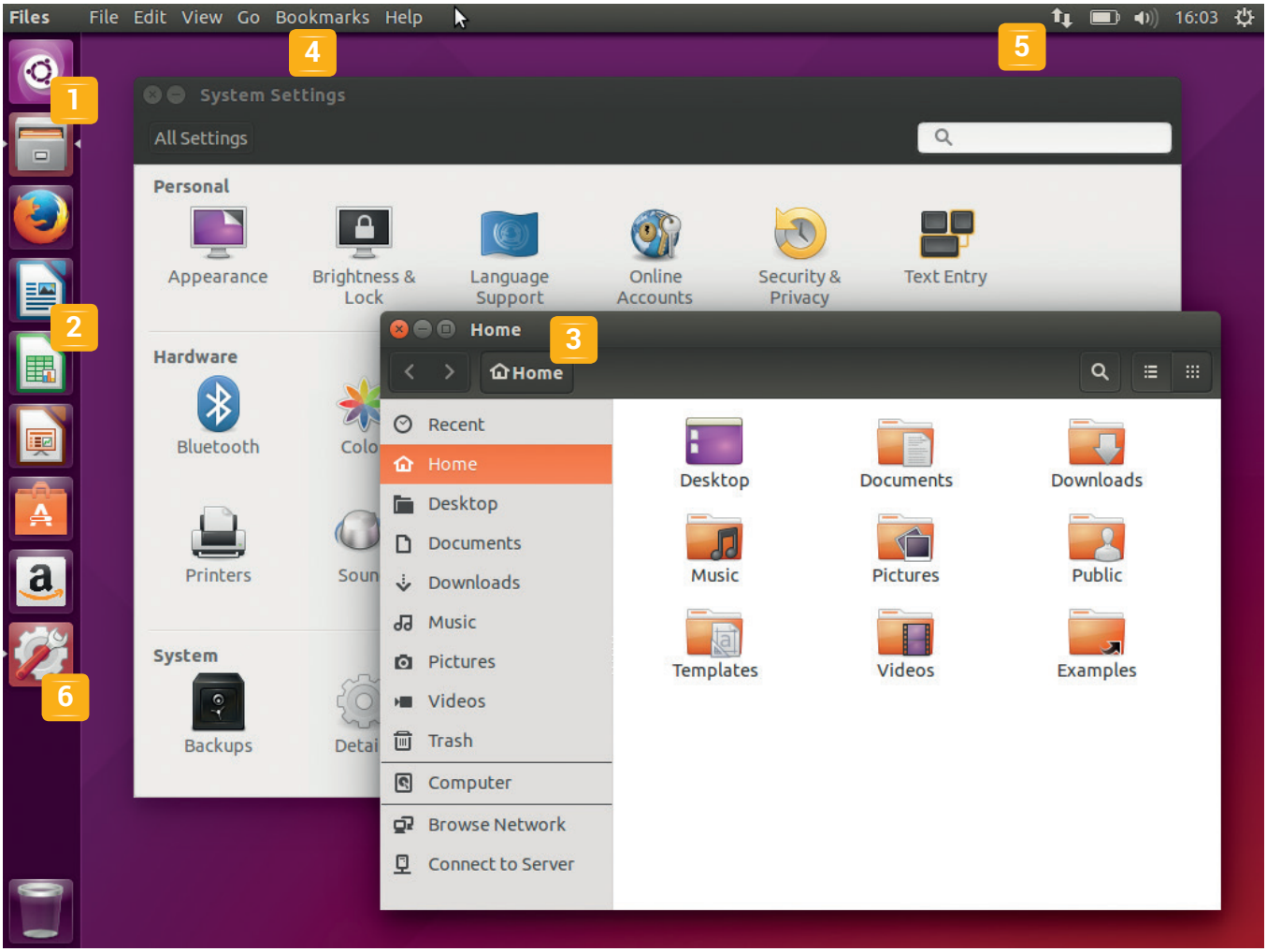
Congratulations – you now have Linux installed! Log in with the username and password that you specified during the installation, and the Unity desktop will appear. You'll notice that it looks quite different to Windows and Mac OS X – but it's also very easy to pick up.

To access your personal files, click the drawer button underneath the Ubuntu button on the left-hand panel. Your "home" directory is like My Documents in Windows – it's where your personal files are stored. If you insert a DVD or plug in a USB key, a window will pop up showing its contents, and on the left-hand panel of the file manager, you can also access resources on the network.

Underneath the drawer button you'll see an icon for *Firefox*, a web browser you're probably familiar with from Windows or Mac OS X. *Firefox* is arguably the best browser out there, combining good performance and thousands of extensions with excellent privacy settings. And underneath *Firefox* you'll see three icons for *LibreOffice*, opening the word processor, spreadsheet and presentation tool respectively.

LibreOffice is the flagship office suite on Linux, and is tremendously capable, having seen decades of development in its

Exploring the Ubuntu desktop



1 Ubuntu button This is similar to the Start button in Windows. Click on it to browse included software (go to the Applications button at the bottom of the window after clicking it, and then Installed to see what's included by default). You can also type to search and run programs.

2 Applications These buttons are shortcuts to useful programs. When you start a new program, its icon will appear on this bar; right-click it and choose "Lock to Launcher" to keep it there after closing the app.

3 Windows Click and drag the title bars to move them, and use the edges to resize them. The red button on the top bar closes windows, while the other buttons minimise and maximise respectively.

4 Menu bar Ubuntu has a global menu bar, like in Mac OS X; when using an application, move your mouse pointer to the top bar to show menu entries.

5 System tray This is where you'll find icons for audio levels, power management and networking. Click on the cog icon on the far right to log out or shut down the machine.

6 Settings Click this cog-and-spanner icon to open up the Systems Settings window, from which you can configure your installation, manage your hardware, and add new user accounts, if more than one person will be using the PC.

previous incarnations as *OpenOffice* and *StarOffice*. *LibreOffice* does a great job of opening *Microsoft Office* documents – although there can be slight formatting issues with some very complicated documents. Still, if you open an *Office* doc from one version of the suite in a different version, you'll likely experience the same thing, so this is something even Microsoft gets wrong!

For email, click on the Ubuntu button and search for *Thunderbird*. This is an email client from the makers of *Firefox*, and is mature and very stable. Other pre-installed software worth exploring is *Rhythmbox* (a music player), *Empathy* (for instant messaging) and *Shotwell* (a photo manager). Of course, you'll find plenty of small tools such as a calculator and text editor as well.

Command line basics

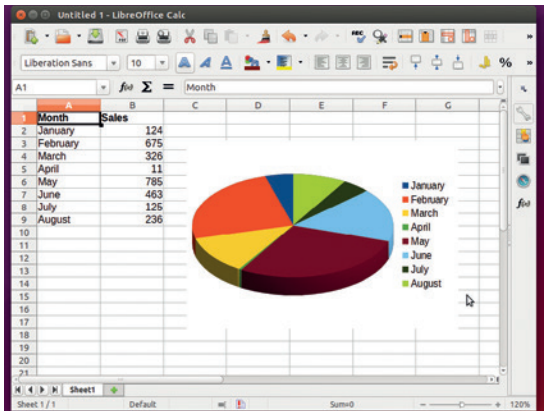
While it's perfectly possible to use Linux without the command line, many advanced features and shortcuts are accessible through it. So it's worth learning the basics, even if you spend 99% of your time doing things via the graphical user interface. In Ubuntu, you can open up a command line by clicking the Ubuntu button and searching for Terminal. Click this, and a window with a prompt will appear.

By default, this starts in your home directory (aka home folder), which as mentioned is akin to My Documents on Windows. This is in **/home/<username>**, where **<username>** is replaced by the name you gave during the installation. Enter **ls** (list files) to see files and directories (coloured in blue) in the current directory. To switch into a directory, use **cd**, eg **cd Downloads**. To switch back into the previous directory, use **cd ..** (note the two full stops).

To get a detailed list of files, use **ls -lh**, while to delete a file use **rm filename** (or **rm -r dirname** for a directory). You can copy files with **cp file1 file2**, and rename with **mv oldname newname**. To see the disk space usage in a directory, enter **du -h**, while the contents of text files can be read with **less filename** (press Q to quit).

The Linux command line has many shortcuts to save you time. You can use the up and down cursor keys to cycle through previously entered commands, for instance, while the Tab key auto-completes file or directory names. Say you have a directory called **MyPhotosFrom2007**, and you want to switch into it with **cd**. Instead of having to type the full directory name, enter **cd My** and hit Tab – it will auto-complete the directory so you can just hit Enter.

In guides and tutorials on the web (and in this magazine), you'll often see commands beginning with **sudo**. This performs the command as the "root" user, which is the administrator, so it should only be used for commands that make important system changes. After hitting Enter, you will be prompted to enter your password before the command is executed; in this way, random pieces of software can't change your operating system without your permission.



LibreOffice is compatible with Microsoft's suite, and has excellent word processing, spreadsheet and presentation tools.

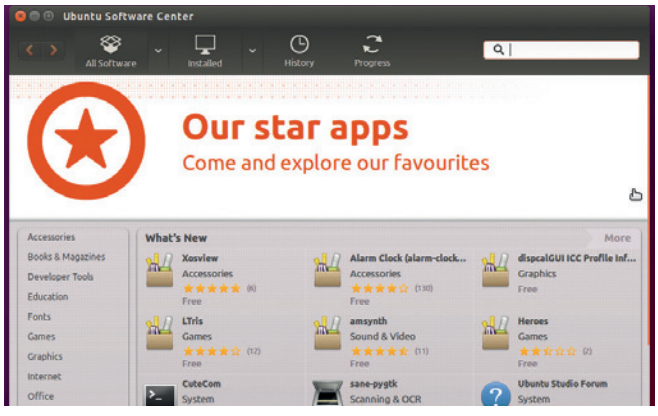
Where to go from here?

So, you have Linux installed, you've explored the desktop and supplied software, and you've learned the command line basics. Good work: you're now a Linux user! From here you'll want to add more software (see the boxout) and become more proficient with your Linux skills. Of course, we recommend a subscription to Linux Voice for this, because every subscription includes access to all back issues in DRM-free digital (PDF and ePub) formats. So from just £38 you get a mammoth compilation of over 1,500 pages of Linux tutorials and features – see **http://shop.linuxvoice.com**. And if you need any help, pop by our forums at **http://forums.linuxvoice.com**. Happy Linuxing!

Adding more software

Ubuntu comes pre-installed with many top-class applications, but thousands more are available too. Click on the Ubuntu button, type "software" and choose the *Ubuntu Software Centre* to explore programs available to download – most of them free and open source. You can browse categories down the left, and explore desktop productivity programs, multimedia apps, games, software development tools and much more.

Some of our recommendations include *Gimp* (an image editor), *Audacity* (for editing audio files), *OpenShot* (a movie maker), *VLC* (a media player that handles virtually every format under the sun) and *HomeBank* (personal finance). If you're looking for a specific type of program but can't find something suitable, ask fellow Linux Voice readers on our forums at **http://forums.linuxvoice.com**!



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