First Steps Beginner-level tutorials for users dipping their toes into Linux

System: An easy

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Backups are like dock leaves, lying unnoticed until you get stung. **Andy Channelle** shows you here how to ensure you always have a backup when you need one.





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Our expert

Andy Channelle Andy has been taking his first steps in Linux software for the past six years and has been interested in technology since the advent of the Dragon 32. In the beginning the universe was created. This was widely regarded as a bad move, as there was a gap of almost 15 billion years before the home PC evolved to make 'life' more productive. It was 15 billion years and one day after the big bang that Andy Channelle finally got around to backing up **/home/ Documents/Work**, which was unfortunate, because three hours earlier many of the documents he regarded as vital had disappeared into the dark matter of cyberspace, never to return. Of course, he would not know of this tragedy until six months later, when he attempted to resurrect a number of these files at the request of a colleague.

Everybody who uses computers regularly has had a backup scare, and it's often tragedy that makes us decide to actually create and implement a backup policy. This tutorial will help you build a sensible (and achievable) policy before that happens. I'll cover what to back up at both system and document level, how to use the tools available in a couple of popular applications to make proper copies of your important documents, and how to ensure that you actually back up what you intend to – and that you can get it back in the future.

There are some excellent backup applications available for Linux, such as *Amanda* and *Mondo*, but these are overkill for the kind of backups that we are after (they're written with system administrators in mind). For this reason, we're going to use an application called *Simple Linux Backup*, which is distro-agnostic – because it's made with Java – and, as the name suggests, simple to use. We'll come back to *Simple Linux Backup* in the How To Do It section on page 84. But first we need to look at the bits of your system that need to be backed up.

Vital signs

Some things on a PC are more important than others, and for the average home user it's the data that's important. This will include everything from photos and videos to *OpenOffice.org* documents, emails and sound files. The handy thing about prioritising data is that although these files may be large – or very large, in the case of videos – they all tend to congregate in the same place, ie your home directory, which makes them pretty easy to back up. Of course, you may have things dotted all over the place, so you might want to make devising a sane file structure (and pledging to stick to it) the first task in building a backup policy.

Most distros will give you a **Documents** folder within **/home/ username**, and to this I would add a quartet of new folders: **Photos**, **Videos**, **Music** and **Downloads** – note the consistent capitalisation and obviousness of the categories. These not only are useful for backups, but make day-to-day navigation and management easier too, because it's easy to remember that stuff downloaded from the internet goes in **Downloads**, pictures from your camera go in **Photos** and so on. It also makes sense when configuring the default file locations for applications such as *Amarok* or *F-Spot* because you won't have to hunt around for some obscure folder name that seemed cute after seven mugs of Thunderbird wine.

These folders will need backing up with differing frequencies. For example, there's no point running a weekly backup on the files ripped from your CD collection; not only is this the kind of folder that doesn't change an awful lot, but you also have decent

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> Starting with a sensible and well-named set of folders will mean less searching through your backups later on.

>>> **Last month** The security and practical benefits of permissions and passwords.

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backup policy

backups alphabetised on your CD rack and, if you have one, on your MP3 player. As a rule I have one backup of my Music folder saved across a number of DVDs, and it's also duplicated on a second machine and a 40GB iPod.

Similarly, Photos and Videos will only need regular backups if you add to the folders on a regular basis. However, these multimedia items are often the kinds of thing that are impossible to retrieve should the worst happen, so they do deserve some paranoia. Video isn't too much of a problem because it's coming (usually) from a DV tape, which is not wiped by the capture process, and will usually be destined for a DVD, so often you'll end up with a pair of physical backups which can be tested and verified before the captured files are backed up normally and removed.

Photos can be a bit more problematic for a number of reasons. Firstly, most people take more photos than videos, which means this folder will be added to more frequently; secondly, memory cards in cameras are wiped fairly quickly, sometimes during the import process, so there's no backup that way; and finally, it's inefficient to burn CDs every time you make an addition to your collection - you may only add 10MB of pictures.

Because of this I have a staged backup process for photos. From the camera, pictures are imported into F-Spot and wiped from the camera card. Copies of these are then copied into a specific folder on a different machine (a flash drive would be just as useful). When this folder reaches 600MB, I check through the files to make sure everything is present and correct and then burn it to CD labelled with the dates of the first and last photos. Then because I'm really paranoid - I store this CD at a relative's address. If my house burns down, I'll still have my photos. And then - because I'm really, really paranoid - I upload the most important ones to Flickr with a Private tag. Now if some a hurricane ruins my house and also my in-laws', I'll still have at least some of those precious memories left. Which is perhaps taking things too far..

This kind of backup - dragging stuff into a folder and then burning it to a CD - is competent but unsophisticated, and it isn't really suited to high frequency backups, which might include the contents of your **Documents** folder and personal system settings such as your email, OpenOffice.org settings and web data. Before we move on to the automated backup process itself, it's worthwhile looking at the pros and cons of various backup media.

Where does it go?

Backups are only as safe as the medium you store them on, so it's really important to make sure you choose the right destination for your data. The most obvious choice is a writable optical medium such as CD or DVD. The consumables for these devices are extremely cheap and portable and, in the case of DVD, can hold a lot of stuff. The technology is also mature and is therefore well supported under Linux.

Storing on a disc is not a problem-free method, though. The biggest difficulty is that DVDs are not rewritable (yes, DVD-RW is, but only a madwoman would use that for backups!), which makes them great for all or nothing backups, but not for the incremental kind that we're interested in. They also won't work directly with the software we're using here - although there are backup applications such as KDar that are happy to work with both CDs and DVDs

One method where this is not a problem is backing up to either a flash drive or an external disk drive, both of which will read and write until the cows come home - and do it faster than a CD However, it's a more expensive method in the short term (over time you'll buy a lot fewer blank DVDs) and there are also issues of portability, especially with the external hard disk option.

A variation on this theme is backing up to a network drive. The problem for home users is that this second machine is likely to be in the same location as their PC, so is at a similar risk from flood, fire or theft.

The last method is an online backup, which you email to yourself. This can be inexpensive and secure, at least in terms of the server not being in the same building as your original files. There are potential problems, though, of data theft. If you're using an online backup, it's a good idea to encrypt and password-protect

Auto backups with OpenOffice.org

It's likely that, as the software becomes more sophisticated and reliable, more people will use online applications such as Zoho Writer, ThinkFree Office or Google Docs to do a lot of their work. In this situation, backups are rather redundant as the software is saved and backed up every couple of seconds. For the time

being, though, OpenOffice.org is where it's at, so it's wise to know how to set up the suite to automatically back up your letters, spreadsheets and presentations to a particular location. As with the method outlined in this tutorial, this could be on to a specific directory for burning or emailing or into an external drive.

You can set the backup options for the whole of OOo via any of its applications. I'll show you how to do it with Writer. With the application open, go into Tool > Options and click on the little disclosure icon (a plus sign) next to the OpenOffice.org entry. From the resulting list, choose Paths to open the paths dialog. At the top of this list

OOo stores your backups. is the Backups entry, so select this and hit

> Use the Path section to define where

the Edit button. Now simply navigate using the file browser to the location where you'd like to store your backups. This can be any mountable drive

Once this is done, go into the Load/Save section and look under the General entry for the Always Create Backup Copy option. Select this and then do OK. Now when you save your document, a backup of it will also be saved to the location you specified in the first step. Magic! Similar options are available in KOffice and AbiWord; just hunt them out in the preferences menus.

Set up a calendar event to remind you of 'backup time' on Friday afternoon. Set it to recur forever

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» If you missed last issue Call 0870 837 4773 or +44 1858 438795.

Tutorial First Steps

» any archives you're sending across the net. Also the email method is restrictive in that most email services have a cap on the size of attachments that can be sent or received. This is usually 10MB, which is enough for a few hundred text documents, but wouldn't be very useful if you wanted to secure 3,000 photos.

If you need more space, one underused resource is the free web space that often comes as part of a dial or broadband ISP account, but be wary when using this - it should be regarded as a public space and even if you encrypt and password-protect any backups, I would be careful to not put any sensitive or very important data on there. It's pretty cool for storing photos, though, and you should be able to access it using an FTP client such as Filezilla, GFTP or even Konqueror. The FTP address and password should be available from your ISP. A slightly more secure version of this is to go for a commercial web hosting package, which may cost as little as £4.99 a month in the UK. Most packages include options for restricting access to particular directories, which would be ideal for backups. And, of course, you'll be able to get at your files from any net connected computer.

Don't back up on to CD- or DVDrewritable media. It won't work properly.

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For the sake of simplicity I'm going to do a backup to a local directory (on the desktop). This will be suitable for burning to a disc or firing off (via email or FTP) to a remote location. If you're backing up to a network drive, external disk or flash drive, simply substitute its mount point for the local one I have selected.

How to do it

Simple Linux Backup (http://simplelinuxbkup.sourceforge.net)

was written by Stephen Rosen and released under the GPL. It is a collection of scripts held together by Java and presented in a clean graphical user interface, which uses GTK. The dependency list - which almost

all distros should satisfy – looks like this: *Bash, tar, gzip, Java, GTK* and cron. This last item is optional but is used to set up automatic, timed backups, so it can be quite useful, I'm using Xandros, but the method will be exactly the same regardless of your distro.

The first job is to acquire the software. Download the latest version from the website and save it to your /home folder. Now

Location, location, location

Unlike your key documents and media files, email and web browser data can be tricky to find. Here is a list of the locations you will need to back up to save your emails if your PC has a catastrophic crash.

In most cases, the following files will be in your /home/username directory (in geekspeak, this would usually be written with ~/ at the front). Those that begin with a leading period are hidden, so you'll need to select the Show Hidden Files option from the view menu in order to check whether they're there. Thunderbird:

».mozilla-thunderbird/xxx.default/ Mail/Local Folders

(where the **xxx** is a series of characters) Evolution:

- ».evolution
- ».gconf/apps/evolution
- ».gnome2_private/Evolution
- Kmail.
- ».Mail (or it may be ~/.mail)

».kde/share/apps/kmail ».kde/share/config/kmailrc

If you need to back up your browser bookmarks and web history from Firefox, the best bet is Google's Browser Sync extension available from http://labs. google.com. This will clone your whole Firefox system, store it on Google's server (encrypted, naturally) and then restore it to any web browser you log into with the extension installed.

the Backup folder."

Using Browser Sync is an excellent backup solution if you're either dualbooting or running more than one PC (regardless of the OS); however, some people are a bit wary of providing the allpowerful search company with so much personal information. In this case there are a number of very useful online bookmarking tools including the ubiquitous Delicious, Sitejot and Yahoo Bookmarks, and all of them integrate pretty well with Firefox.



> The Simple Linux Backup package that we're using doesn't even need installing. Just decompress and run.

open a terminal (it will be under either an Accessories or System menu and will be called Terminal, Konsole or Console) and type tar xzf simplelinuxbkup-x.x.x-i386.tar.gz

This line will simply decompress the file and leave a new folder in the directory called SimpleBackup. The x.x.x section of the above command should correspond to the version number of the software that you have downloaded.

Now open up Konqueror or Nautilus, find this folder and open it

by double-clicking. The Simple *Linux Backup* application itself is "The script will grab the situated among a collection of files and deposit them in Java files (with the .jar extension) and is called simplebackupconfig. Double-click on this to launch. If

> you're presented with an option of running or running in a terminal (something Ubuntu likes to do), choose to run in a terminal. This will now open the main configuration utility, which is where we can now define what's going to be backed up, where the final file is going and when the backup should be performed.

The user interface for the configuration utility is really straightforward. On the left pane is a blank space, ready to be populated with the items you want to back up. Selections can be made on a file or directory basis using the two top options and they can be taken out with the Remove button. The right pane is where we can define elements of the folders already chosen that we want to remove from the backup process. For example, if you're backing up a whole directory of music but decide that you could well do without the mind-bending lunacy of Throbbing Gristle, you could select the Music directory for backup and then hit the appropriate button, navigate to the file or folder that you'd like to exclude and select it in the usual way. Once you're satisfied with your selections hit the Next button.

In the next section you have the option of setting the software to automount the backup medium (or at least try to) or wait for you to mount it manually. This can be quite important, because if you're making regular backups to an external location, you need to ensure that location is available at the right time. This is also where you set the final destination for the backup. If you're intending to back up locally (as I am) and then burn the data to a CD you should make a directory within the home or desktop directories (called something sensible like **backup**) and choose that. Obviously, if you're backing up to a flash drive, removable disk or network drive you should put that path in here. The Select... button will launch a standard file selector for this purpose.

Once you hit the Next button, you'll move on to a couple of management and scheduling options. The former is quite

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important if you're backing up some system folders such as /etc that might contain passwords and so forth. By default, the application backs up as the currently 'active' user, but if you want it to access these important system files, it will need to be run as root. As we're only backing up documents, though, we can leave that option blank, which means anyone will be able to start the backup. I'm also going to select Silent Mode, which means the script will run in the background and won't offer up any information about how the process is going.

Finally, we need to set a schedule so that the backup script runs at a particular time. There are two options here. The first is to use an application such as KCron or Gnome-Schedule to run the script, but the simpler option is to allow the configuration utility to do the whole thing itself. This means that the entire backup process is self-contained and you can reset things later by rerunning through this configuration utility rather than remembering two applications. So, hit Schedule With SBCP and enter a time when you'd like the backup performed in 24-hourclock format. It will pick up the current clock time. Now hit Finish to finalise the process.

When Monday comes around

What happens next is that when the time defined for the backup comes, the script will launch itself (thanks to the Linux chrontab system), grab the files and folder specified, and deposit them into the Backup folder on my desktop as a tar archive. To save space the software will also compress the archive using gzip. So we'll end up with a file named **Backup.[day].tar.gz**, where **[day]** is the day when the script was last run. But that's not all; Rosen has set it so that on Monday the script will run a full backup - that is, it will take a copy of everything in the specified directories - and then on subsequent days it will only copy across files that have changed. This is good to remember because you could quite easily grab this archive on Friday afternoon, burn it to a CD or send it to your email account, and have a complete backup of that week's work. And of course, as the system is now handling this, you don't need to do anything but burn the CD, email the file or whatever, and you could set up a calendar to remind you to do that.

Imagine now that catastrophe has happened, and you need to restore the last backup made with Simple Linux Backup. This follows the same procedure we used to decompress the

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> Choose a location for incremental backups, and then burn this folder to a disk at the end of the week. Backup problem solved!

application itself after downloading it. Save or copy the backup file from your CD, USB drive or online space into /home/username and then, in a terminal, type

tar xzf Backup.[day].tar.gz

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This will decompress the file and resurrect all the data, complete with the proper file structure set earlier, and the world will be fine once more.

By doing all this (which is about ten minutes' work a week!) you'll ensure that next time your PC goes up in smoke or down the pan, you'll lose a maximum of one week's work - or one day's if you're diligent – rather than 15 billion years'.

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> Simple Linux Backup combines scripts with an intuitive GUI.

The application can be set to perform a backup at any given time of the day.

>>> Next month Where's C:? We'll explore the mysteries of the Linux filesystem.

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