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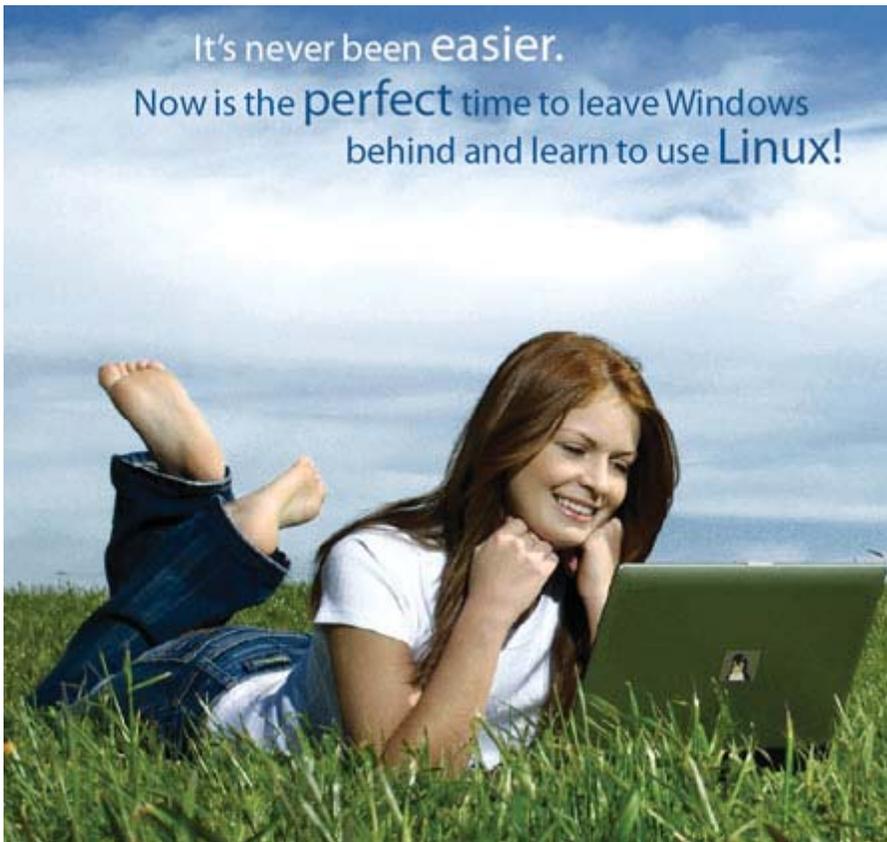
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The Easy Way to Switch to Linux

by Will Smith and Robert Strohmeyer



Back in May, we published a [step-by-step guide to switching from Windows to Ubuntu Linux](#). A few weeks ago, in keeping with its regular release schedule, [Ubuntu](#) released an update to its popular and friendly Linux distribution. Known as Gutsy Gibbon, Ubuntu Linux 7.10 makes the install process easier and more streamlined than before, and adds some new features that you'll need to know about. So here's our updated guide to installing Ubuntu on your PC.

We've written about Linux in Maximum PC quite a bit over the last few years, but it's only been in the past year that we've really seen this open source OS come into its own as a truly desktop-worthy contender. Apart from high-end gaming, there's little Linux can't do well. And since most major distributions come preloaded with all the software typical users are likely to need (as well as instant-download repositories to find any extras), getting up and running with Linux can actually take less time than installing all your apps in Windows.

While the number of choices in Linux distributions is staggeringly large - there are nearly 200 English-language distros that we know of—we recommend only one for the new user. Ubuntu is the most user-friendly distribution we've tested, with the most hardware support, the most intuitive menu interface, and the most widespread support from the PC industry of any other free distribution. So popular has it become, that even Dell now offers pre-installed Ubuntu systems to its customers.

Writing a comprehensive Linux guide is a daunting process - and largely unnecessary. The Linux community does a great job of documenting most of its software, whether it's the developers actually writing docs or the end users figuring things out and sharing the acquired info with their pals. All the information you need to get running is out there, if you know what to search for on Google, that is.

And that's where we come in. Books have been written with solutions for all the potential pitfalls the Linux-switcher faces. However, those books are outdated the moment a new version of Linux is released. Instead of just telling you what to do, we're going to tell you how to do things and explain why you're doing them. We're going to focus on the things that are truly a challenge (and poorly documented), but still give you a head start on the easy stuff.

Before you get started, you need to be prepared to be your own support system. While you can usually get help with Linux problems on different message boards on the web, before you do that, you need to make the effort to solve your own problems. Linux DIYers don't have much sympathy for people who don't make an effort to help themselves.

Getting Started

With its modern installation tools, getting Linux on your hard drive is simple--at least compared to the bad old days. And Ubuntu Gutsy Gibbon's install process is about as streamlined as Linux gets.

Like a lot of people who try switching to Linux, you've probably installed a distro or two, mucked around with it for a few hours, changed the theme, and maybe browsed the web a little. Then, when it was time to work, you jumped back to Windows, and all was right with the world.

Things are much easier now than they were in the early days of Debian, Slackware, and Red Hat. Modern distros such as Ubuntu and openSUSE install with crucial applications (web browser, photo editor, email client, word processor, etc.) and support for most hardware out of the box. With Ubuntu, you can boot off the CD to determine whether or not your rig will work with the OS before you make a single change to the hard drive. You can tell if you're going to have a problem before you hose your system, which is always a good thing.

Before we get started installing Ubuntu Gutsy Gibbon, you'll need to download the appropriate ISO file from the [Ubuntu downloads page](#) and burn it to disc. For neophytes, we generally recommend starting with the x86 versions, even if your CPU supports AMD64 extensions. The proper file name for most people will be `ubuntu-7.10-desktop-i386.iso`.

To burn the disc, you can use commercial burning software (like [Nero](#)) or download and install the free [ISO Recorder](#) software. It's also a good idea to run a backup before you get started (or anytime you muck around with your partitions, for that matter).

There are three ways to make space for your Linux install: You can delete an unused partition, install another hard drive, or let the Linux installer resize an existing partition. If you have an unused partition on your

hard drive that you want to use for Linux, it's a good idea to remove that partition before you start the install process, since Linux can't install to an NTFS partition. We recommend dedicating at least 20GB of space for your Linux install. To get rid of the partition, open the Computer Management tool in Windows and delete that partition. In Linux, you'll have a tough time telling which partition is which, so to avoid heartbreak, do your deleting in Windows. If you don't have an unused partition, we'll talk about resizing your existing partition during the Linux install portion of this story.

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The First Boot

Once you've burned the ISO, you'll need to boot your PC from the Ubuntu CD, which will involve either manually selecting the optical drive or changing the boot order in your BIOS. After several minutes, you should see the basic Ubuntu desktop. You should already have access to most of your hardware, including network, sound, and graphics. Some typical gaming components simply don't have good Linux support—notably the X-Fi series of soundcards and brand-new videocards. We'll talk about them in a bit.

Install!

Assuming you booted into the live desktop properly, starting the install process is as simple as double-clicking the Install icon on the desktop. The install program will prompt you for your language, location, and keyboard layout before you get to the hard-disk partitioning section.

Partitioning your hard disk is the only step of the install process where a mistake will do serious harm. If you install to the wrong partition, you could accidentally nuke your Windows drive and all of its contents (that's why we recommend running a full backup before you start the installer). The safest way to install is to add a new hard drive or just create free space on the disk - however, that's not always an option.



If you want to resize your existing partition, select the “Guided - resize” option. Then use the slider to decide how to divide the drive and press OK. We suggest giving your Linux partition a minimum of 20GB; more if you plan to use it as your primary OS.

If you have free space for a new partition, or have already created an empty partition on your drive, select Manual and then choose the partition to use. If you've installed a second hard drive to install Ubuntu on, choose “Guided - use entire disk” and select the appropriate disk from the list.

Now you'll be prompted to import data from your Windows partition. The Ubuntu installer will pull your Gaim settings, Firefox bookmarks, music, photos, and documents over from your Windows install if you select these options. We had mixed results with this tool in Feisty—it crashed the installer on a few Vista machines that we tested—but your mileage may vary. After you import files, you'll be prompted to create a user account. You're almost done!

The final step is to confirm your installer's settings and press Install to finish the process. You'll need to wait about half an hour while the install completes and then finish by rebooting your PC and selecting the Ubuntu entry from the boot manager that was installed for you.

Using the Alternate Installer

If your machine won't boot from the graphical install CD, either because you have a new videocard that's not properly supported or you have an older unsupported chipset, you'll need to use the nongraphical installer,

which is called the alternate installer, for your architecture. Download the correct alternate CD for your CPU (again from Ubuntu's download page) and follow the prompts.

Connect to the Network

Getting your machine on the network is simple with Ubuntu, whether you use a wired connection or Wi-Fi. When you first boot, the only icon in your system tray at the top of the screen should be for networking. Simply click it, enter your SSID and WPA or WEP key (if necessary), and you'll be on the network.

Finding and Installing Software. Some Wi-Fi cards, particularly ones with Broadcom chipsets, aren't natively supported in Linux because the companies have foolishly refused to open source their firmware. Fortunately, Ubuntu now includes a utility that will walk you through downloading and installing the closed-source firmware for most of these cards once you run a software update.

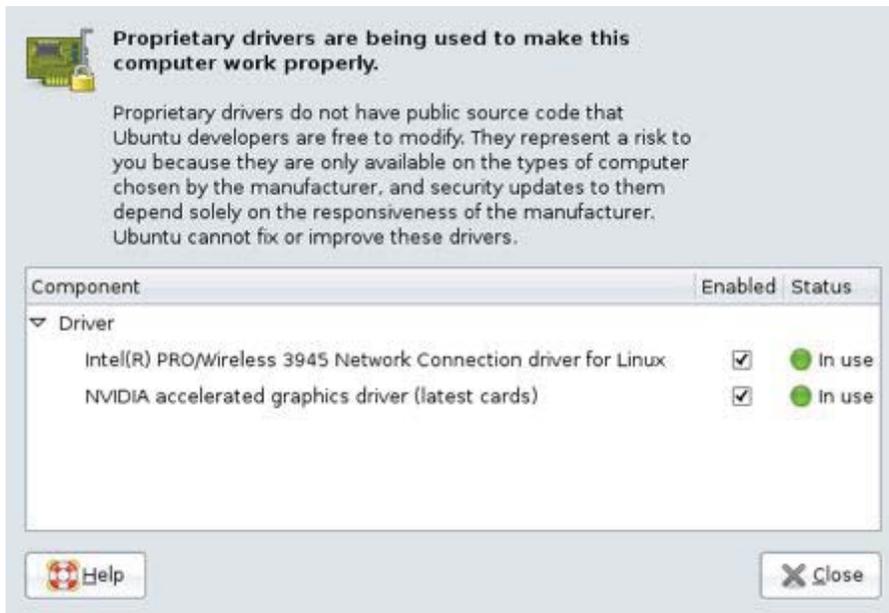
There are two ways to install programs on your new Ubuntu machine. The simplest is to use the Add/Remove panel, which lets you see all the software available to you from Ubuntu software repositories on the Internet. Most apps include a useful description, so if you search for Photo Manager, you're sure to find some worthy candidates.

Sometimes you'll need to fire up the more powerful Synaptic Package Manager, which you'll find in System > Administration. After entering your password, click the Reload button to make sure the list of available apps is up to date. Synaptic provides a powerful search and easy filters that will help you find all the details of the applications installed on your system. You can see what apps are installed and which have updates available. If you want to update a single program to the latest available version, Synaptic is the easiest way to do that—just search for the software package, right-click it, and select “Mark for upgrade.”

You'll occasionally need to add a new repository to your Linux install. A repository is just a server that contains software that's configured and ready to run on your machine. If you want to install apps that aren't included by default with Ubuntu, you'll need to enable other repositories. To add a repository, you'll need its apt line, which gives the software manager all the info it needs to access the repository (we'll include some throughout this article). Open Synaptic and click Settings > Repositories. Go to the Third-Party tab and click Add; then type the apt line, exactly as it appears, in the window. Click Add Source, then click Close.

3D-Accelerated Videocard Drivers

There's a lot of controversy surrounding the use of closed-source drivers for graphics hardware, but they're the only real option for 3D acceleration in Linux right now. The procedure for Nvidia and ATI hardware is a little different.



Install Nvidia GPU Drivers

Installing Nvidia's closed-source 3D-accelerated drivers is easy with Gutsy Gibbon. Go to System > Administration > Restricted Drivers Manager. Right-click the selection and select "Mark for installation." You'll be prompted with a list of dependencies, which you'll need to approve for the application to work. Click Apply to download and install the app. Then open a new terminal (Applications > Accessories > Terminal) and run this command: `sudo nvidia-xconfig - add-argb-glx-visuals`; follow the prompts and reboot.

Install ATI GPU Drivers

Installing ATI drivers is a little more complex. First, you'll need to disable the Composite option in your `xorg.conf`. Open a terminal and type `sudo gedit /etc/X11/xorg.conf`. In the gedit window, scroll to the section labeled Extensions and change the Option "Composite" line from "Enabled" to "Disabled". Then in your already opened terminal window, type the following six commands:

```
sudo apt-get update
sudo apt-get install linux-restricted-modules-$(uname -r)
sudo apt-get install xorg-driver-fglrx
sudo depmod -a
sudo aticonfig -initial
sudo aticonfig -overlay-type=Xv
```

You'll need to reboot your system to enable the driver.

ATI has recently released updated drivers to the open source community, but at press time these drivers are largely experimental on Ubuntu, and we don't recommend them for use on production machines yet.

Adjust your Monitor's Resolution

Even in Ubuntu Feisty Fawn, getting your monitor to display its native resolution was frequently frustrating and cumbersome. But with Gutsy Gibbon comes improved support for LCD displays, including the latest

and greatest GeForce 8800 cards from Nvidia. So in most cases, your system should boot into its native resolution right away. But if you're using newer ATI card, you may still have to tweak the resolution manually.

To set the resolution manually, you'll need to edit the X configuration file at `/etc/X11/xorg.conf`. The easiest way to launch and edit it is to open up a terminal window by clicking Applications > Accessories > Terminal and type `sudo gedit /etc/X11/xorg.conf` at the prompt. You'll be prompted for your password, and then the editor will open.

Look for a line labeled Section "Screen" or Section "Monitor" and find the line labeled Modes. It should include a few screen resolutions. If your display's native resolution isn't listed, add it to the end of each Modes line in the section in this format: "1920x1200" (including quotes).

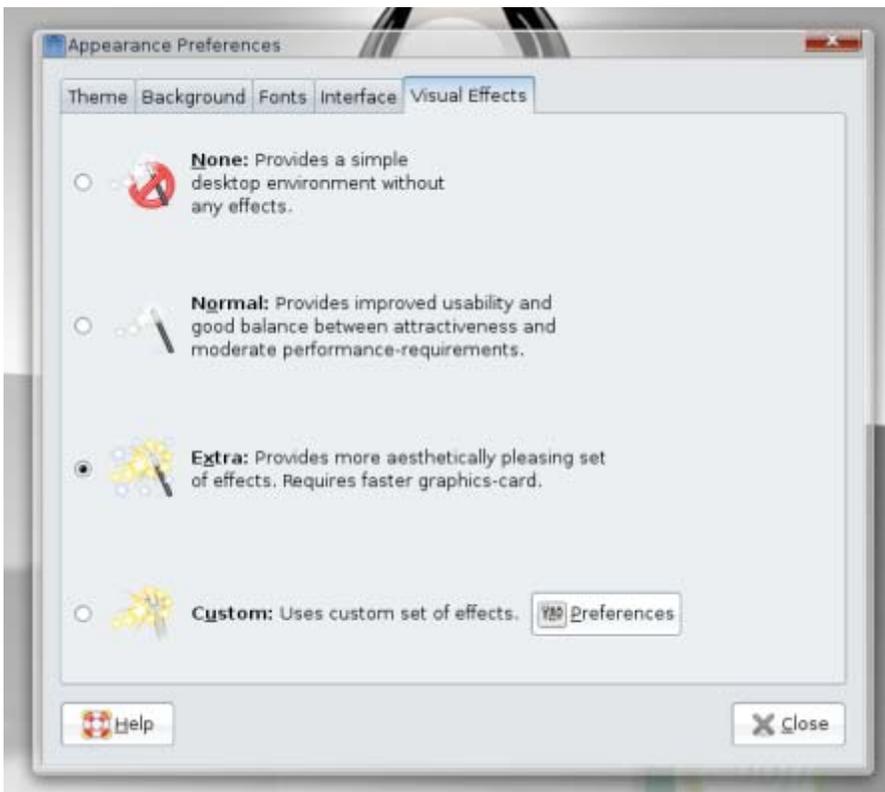
Install Restricted Software

This one's pretty simple: All you have to do is open the Applications menu, click Add/Remove, then change the Show: dropdown to read "All available applications." Search for "Restricted" and check the box next to the package called "Ubuntu restricted extras." This will install support for Flash, Java, some closed audio and video codecs, and TrueType fonts. On older versions of Linux, installing this stuff was an absolute nightmare that could take several hours, and you weren't guaranteed success even after you spent that time!

Using Linux

If you've tried other distributions in the past, you've probably spent more time installing Linux than actually using it. Here's what you need to know to get started on a permanent switch to the penguin.

The good news about Linux is that there's an unbelievable amount of information available on the Internet to help you learn to use the open-source operating system. The bad news is that it can be crushingly difficult to find said information. There are a multitude of reasons for the search problems, but most of the time the problem is that you're not searching for the right thing. A normal person wouldn't know that you need to edit the `fstab` to mount new drives or edit `xorg.conf` to adjust your resolution. (Fortunately, most Gutsy Gibbon users won't have to do these things anymore, but some might.) Here's the info you'll need to get started.



Enable Desktop Effects

Forget Windows Aero. Linux has pioneered some of the most amazing special effects you're bound to see on any operating system. Wobbly that wobble when you move them, workspaces that turn into a three-dimensional cube that you can rotate at will, painting fire on your screen (for whatever that's worth), and more are possible in Linux - as long as you've got a supported graphics card.

Until Gutsy Gibbon came along, getting these effects on your Linux PC was usually an arduous process. But now you can simply turn them on in the Appearance menu by clicking System > Preferences > Appearance and choosing the Visual Effects tab. Then you can select the level of effects you like. Try 'em all.

Choosing Extra will give you window wobble and transparency, but you'll have to go a little further if you want the full complement of Desktop Effects. To get them all, you'll need to install a couple of things from the Synaptic Package Manager. So click System > Administration > Synaptic Package Manager, and search for "emerald." Install it, and then search for "compizconfig-settings-manager." Install this one, too.

Now you'll have Emerald Theme Manager and Advanced Desktop Effects Settings listed in your Accounts > Preferences menu. Use Emerald to install a variety of desktop themes for Compiz. (Be sure to follow the instructions at the bottom of the Repositories panel to get the Non-GPL themes. There are no GPL themes available.) The Advanced Desktop Effects Settings control panel is your one-stop shop for configuring all of the features in Compiz, such as the desktop cube, painting fire on the screen, and other useless but entertaining bits of visual flair.

Managing Your Photos

By default, Ubuntu installs the F-Spot photo manager, which is fine if you only have a few images. But Google's Picasa is available for Linux users now, so you can share and edit your photos with ease.

The best photo manager for Linux is the beta version of Google's Picasa. [Download it here](#), and then install it using the instructions provided. From that point on, Picasa works just the same as it does in Windows—it's the same application!

Managing Your Music

Rhythmbox is Ubuntu's default music jukebox. It includes much of the same functionality as iTunes or Windows Media Player. It will even mount and manage music on most MP3 players - including the iPod. If you're familiar with any jukebox-style software, you won't have any problems playing music once you've finished the initial import. While there are other, more advanced MP3 playback utilities available - we especially like the advanced library management features that Amarok delivers - Rhythmbox is the easiest to use and most reliable.

As part of the install process, Ubuntu should have mounted your NTFS partitions. You'll find them in the Places menu, listed by the partition's label in Windows. To import your music into Rhythmbox, just find it in your Windows partition. Click Music > Import Folder > and then browse to Documents and Settings/<your username>/My Documents/My Music. After the import is complete, you'll be able to search and play at will.

If you plan to rip music in Linux, you'll want to make sure the MP3 codecs are installed. If you installed the restricted-extras package earlier (see Install Restricted Software, page 48), you should be good to go. To rip your CDs, you'll use the Sound Juicer app. If you want to rip in MP3 instead of Ogg, you need to click Edit > Preferences > Library > and change Preferred Format to "CD Quality, (MP3 audio)." Then drop an audio CD into your optical drive and click the Extract button in Sound Juicer. If you set Sound Juicer's preferences to save your music to the same folder that Rhythmbox is using for the library, Rhythmbox will automatically see new music that appears when you rip it.

Bring Your Email Over

Getting your email to Linux seems like a tricky proposition, but it's actually not that hard. First, you'll need an IMAP email account - if you don't have one already, you can sign up for a free one at www.aim.com. While you're still in Windows, you need to configure your existing email client to use the IMAP account (for AIM, just point the IMTP server setting to imap.aol.com), then copy your mail to folders on that account. Once you've installed Linux, open Thunderbird (you'll need to install it via Applications, then Add/Remove) and point it to the same IMAP account (see image below)—all your mail will be there waiting for you. You can drag the mail back down to the desktop and reconfigure your client to use your normal servers.

Playing Video on Linux

The default app for playing video on Ubuntu is Totem. However, like Windows Media Player, it's just a front end that relies on external codecs to play properly. Remember those restricted packages you installed earlier? They included a whole bunch of codecs designed to work with Totem; you should have good support for most MPEG-4-based codecs, including Xvid and Divx. If you plan to watch movies encoded with AC3 audio, you'll also need to install the ffmpeg gstreamer plugin; search Synaptic for it. And since Totem 9

won't play DVDs, you should search Synaptic for Gstreamer0.8-DVD and Gstreamer0.8-MPEG2dec for that purpose.

About Printing

Here at *Maximum PC*, we're firm believers in the paperless office. Not because we particularly love the environment, but because we really, strongly dislike printers. They're always running out of ink at the most inopportune times, and most of them (at least the consumer-friendly inkjets that everyone uses) don't work very well in Linux. We could easily double the size of this article by listing all the printers that are incompatible with Linux, but instead of doing that, we'll point you to the Linux Foundation's [guide to printing](#) on Linux.

Keeping OpenOffice.org Compatible

As much as it pains us to choose a proprietary format over an open one, the secret to keeping OpenOffice and Word working happily together is for OpenOffice to always save documents using the Microsoft formats.

There's a trick to using OpenOffice.org, and that is to use the proper default file format. If you use OO.o's native file format, whether it's for a text document, a spreadsheet, or anything else, Microsoft Office users will be unable to open it. You need to go into the options for each OO.o program you use and under Load/Save, in the General section, set the default file format to the most recent Microsoft option (for the word processor, it's Microsoft Word 97/2000/XP; for the spreadsheet it's Microsoft Excel 97/2000/XP).

When Linux Apps Don't Cut It

Using CrossOver Linux, we were able to get Steam running. Only a few games worked, but Steam, man... Steam!

Sometimes, there just isn't a Linux alternative to the Windows application that you need. When you need to fire up InDesign or Microsoft Project, you've got two options - you can try to trick your app into running in Linux using WINE or CrossOver Linux, or you can install a fully functional version of Windows inside a virtual machine by using Parallels.

WINE (free, www.winehq.com), which stands for WINE Is Not an Emulator, serves as a wrapper for typical Windows function calls. When a Windows app makes a call, WINE converts that request into a Linux-compatible format. It works reasonably well for apps it supports, but if your app isn't fully supported, you could have problems. CrossOver Linux (\$40, www.codeweavers.com) is a supercharged version of WINE with support for more apps. Still, it has its own problems with many common apps, and it costs money.

Parallels (\$50, www.parallels.com) certainly isn't free either, but there's a substantial difference. Parallels lets you run Windows (and any apps you need) inside a virtual machine. You don't even have to reboot to run Windows applications. The hitch is that you'll need a licensed version of Windows to keep things nice and legal - if you switch all your rigs to Linux, you'll have plenty of licenses to spare! Parallels delivers full compatibility with virtually every Windows app, but it does require managing a full Windows install inside the VM.

What about Games?

Games have always been and still are the Achilles' heel of Linux. There are two ways to play games on Linux: Play a limited number of native Linux games or emulate Windows using Transgaming's Cedega sub-

scription service, which supports high-profile titles like World of Warcraft and Battlefield 2 but lacks support for many newer titles. For the games it supports, it works. However, we noticed significant performance hits as well as serious image-quality degradation. For our money, it makes more sense to boot back to Windows to play games. We didn't shell out big bucks for a GeForce 8800 GTX to get our game on at 1280x1024 in DirectX 8 mode in Linux.

Configuring the Boot Menu

In order to change the default OS your machine boots, you'll need to edit a text file. Be careful though, any missteps here could render your PC unbootable!

You've installed Ubuntu, but you don't want it to be the default option in the boot loader. That's not unusual. To set your Windows install as the default, open a terminal and type `sudo gedit /boot/grub/menu.lst`. Look for the default entry - it should read 0. To determine what the new default should be, count the number of title lines from the start of the file to the title line for Windows, starting with zero. Title lines that begin with a # don't count! If your Windows install is on the fourth title line, you'll set the default to 3. Save the file, and the next time you reboot, your machine will automatically start Windows.

What About Antivirus and Antispyware Applications?

It would be foolish to claim that any operating system is completely secure against spyware and viruses (we're looking at you, Apple), but it is actually safe to run an Ubuntu install without any kind of malware-fighting utilities running in the background. However, you do need to pay attention to the updates. It's a good idea to get in the habit of updating whenever Ubuntu prompts you to install any kind of security update. As a general rule, it takes just a second or two, and it will save you a huge hassle in the long term.

[Note: If you're planning to use this machine in a business environment, due diligence suggests running an antivirus even though the risk is very low. Even though your Linux machine is relatively immune to viruses, it can still act as a carrier for Windows infections. See [this article](#) for more information on Linux antivirus-es.]

Where to Go Next?

By now, you should have a pretty good idea how to get started using Linux. When you encounter technical problems, start with Google. Type the exact text of the error message you receive, along with the version of Linux you're using (in your case, Feisty should be enough). Usually, you'll find your answer on the first page or two of results. If you don't, check the Ubuntu forums and don't hesitate to politely request help if your searches are fruitless. We also have a great Linux board filled with knowledgeable, helpful people at the Maximum PC Forums. Be prepared for an occasional disaster, but also be prepared to learn and have a lot of fun. Becoming an expert at a new operating system isn't an overnight process, but if you take the time to master the penguin, you will be rewarded!



The Next Regular Meeting will be at
The Severn River Middle School

Wednesday
January 9th, 2008

Meeting will be held in the large meeting room.
It starts at 7:00 P.M. with club business
and a short discussion period.

Michael Young
presents
**Wireless
Networking**

How to Find: Severn River Middle School

SRMS is close to the Arnold, MD campus of the Anne Arundel Community College. From Annapolis and parts south, take Rte 2 (Ritchie Highway) north about 3 miles from the intersection of Rt. 50, **turn right on College Parkway**. At the first light, turn left on Peninsula Farm Road. (Of course, if you are coming from points North, you would turn left on to College Parkway) about a half-mile down the road the large SRMS school building, set back off a large two level parking lot, will be visible on your right. Park here and go to the main entrance. Signs will be posted to direct you to the **Large Group Room** where we will be meeting.

**How to find: The Technology SIG, A ChPCUG
Special Interest Group****

The meetings are held at the SRMS in the Library.



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FIRST CLASS

INSIDE THIS VERY ISSUE!

The Easy Way to Switch to Linux

... and nothing more!

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