

Migrating from Windows to Linux:part1

Please find the check list for hardware and migration at the end of the document

Introduction

Crashes, viruses and headaches. You have had it with Windows and you want to switch to Linux. Where to begin? How do you save your documents? Will my hardware work?

Slow down... take a deep breath, because you have a lot of work ahead of you. Millions of people have made the same switch before you, so it's not impossible. We are going to take you step-by-step through a whole migration from Windows to Linux, covering everything from picking the right Linux distribution to installing Linux applications.

At the end of the article, we will provide printable checklists to make sure that you don't miss anything during your migration.

Linux Distributions

For the longtime Windows user, choosing a Linux distribution can be confusing. Microsoft, to their credit, makes choosing Windows very simple. It usually comes with the computer you buy, already installed.

Linux, on the other hand, is fragmented into numerous "distributions". Most modern operating systems, which include Linux, are composed of two parts: a small central piece called the "kernel" and a larger piece that has the applications and drivers. Linux distributions have pretty much the same kernel, but differ in the applications they offer.

Most distributions such as Red Hat Fedora, Gentoo and Debian are free. Others, such as SUSE and Lindows, cost money.

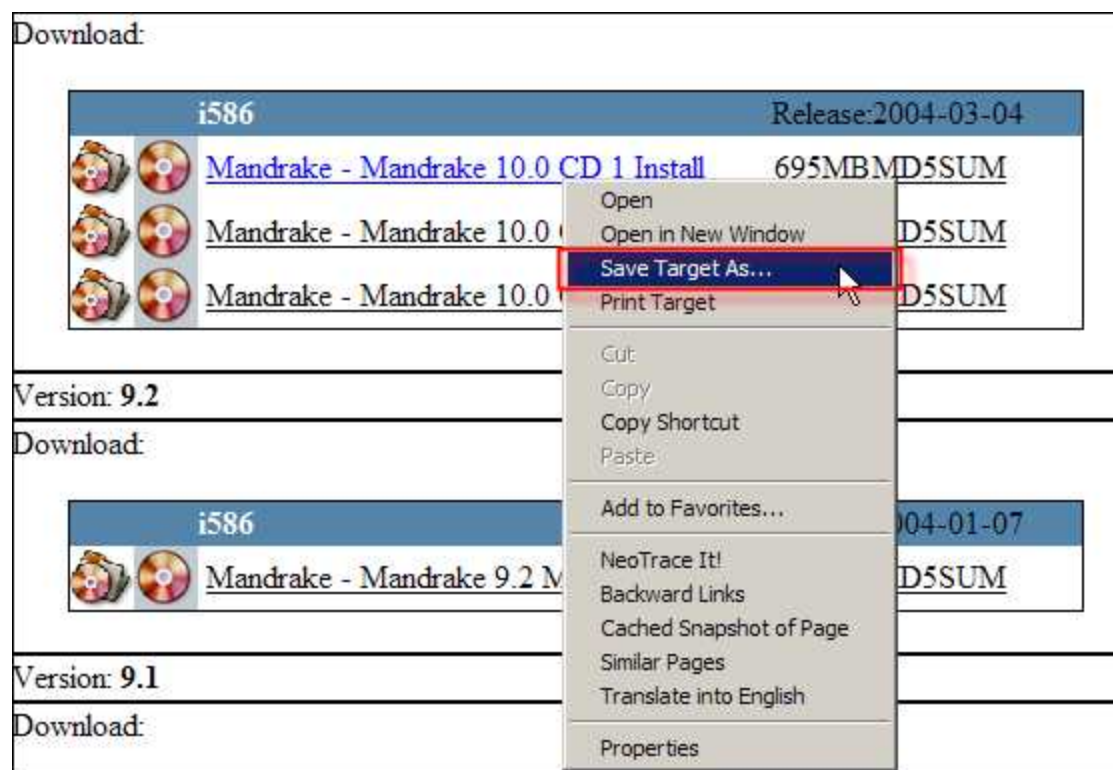
There are plenty of good Linux distributions. You can find reviews of Linux distributions on sites such as distrowatch.com , osnews.com , or THG (of course). Some distributions have a large and almost fanatical following. You could argue that the Linux movement itself is fanatical, but that is another article!

We recommend Red Hat Fedora, Mandrake Linux or SUSE for the first time switchers. These three distributions are easy to install, have good hardware compatibility and come with boatloads of software. As you gain Linux experience, you can try more difficult distributions such as Debian or Gentoo.

Downloading And Burning Linux

There are many ways to obtain Linux. One obvious way is to go directly to the distribution's website. So if you want to download Mandrake, you would go to mandrake.org . These websites can be slow, as thousands of people may be downloading at once. One website (linuxiso.org)

puts all the distributions on a single site. How is that for one stop shopping! Remember that the majority of Linux distributions don't cost money, so you are free to download and copy all you want.



Download from Linuxiso.org

When you download Linux, the files are usually in ISO format. ISO files are "exact" images of a CD, and you will use a CD burning program to burn them. ISO files are large, usually in the neighborhood of 600 to 700 MegaBytes. Most distributions have three to four CDs, so make sure you have enough space on your hard drive to save all of these images.

After downloading the files, you will need to burn these images to CD. Any CD burning program will work, but we used Ahead's Nero 6 Ultra Edition. After burning the images, test them by booting up with the CD in the drive. You should see an install screen. Power off after verifying that the CD works, because we are not going to be installing Linux just yet.



Burning an image with Ahead Nero Ultra Edition. Since you already have the ISO images downloaded, select "Burn Image to Disc"



Since the files end in .iso, Nero won't automatically see them. In order to see the ISO files, you need to select "Image Files (.nrg *.iso *.cue)"*

If you are not blessed with a fast Internet connection and don't want to spend 1000 hours downloading, you can buy pre-burned copies from Internet websites. Two such websites are cheaplinuxcds.com and cheapiso.com . Both will burn and mail Linux CDs to your house. This is done for a small fee of \$2-\$4 per CD.

Hardware Compatibility

Is your hardware compatible with Linux? If the graphics card or network card doesn't work with Linux, then you probably shouldn't migrate. Before checking to see if your hardware is compatible, you need to figure out what hardware you have. We have provided a printable hardware checklist at the end of the article.

One easy way to check if your hardware is compatible is to download Knoppix Linux, which is an "On-The-Fly" Linux distribution. It will boot Linux into memory and won't disturb the contents of your hard drive. You can read our review of it [here](#) . If your hardware works with Knoppix, then it should work with the other Linux distributions.

Modern Linux distributions automatically detect most hardware. Hardware drivers may be needed for newer or rare hardware. The Linux community is well-known for writing their own drivers when the manufacturers refuse to release one (can you say Intel Centrino?). Hardware drivers allow communication between hardware (network cards, graphics cards, etc) and the operating system.

Another good starting point for checking hardware compatibility is the [Linux Documentation Project](#) How-to on Hardware Compatibility.

There are two tricks that network administrators use to get hardware information quickly and easily. One is to open up Device Manager, which will list your hardware, and take a screenshot (Hold down the Alt and the Print Screen keys). Then, paste the screenshot into the Microsoft Paint program.

The other trick is to use a program called Balarc Advisor to print out a list of all your hardware. You can obtain this great program [here](#) .

Our checklist at the end of this article can also help you list your hardware. After finding out what hardware you have, you should find all the Linux drivers for your system and burn them to CD or DVD. The most important driver is the network card driver. If you can't connect to other computers or, more importantly, the Internet, then you cannot search for answers.

In the following section, we'll take a look at hardware that might give you difficulties.

nForce Chipsets



Selecting the nForce Linux drivers on NVIDIA's website

People with NVIDIA nforce chipset-based motherboards will need to download the nForce drivers [here](#) . The nForce drivers have support for on-board audio and networking. You also might want to download and print out the instructions.

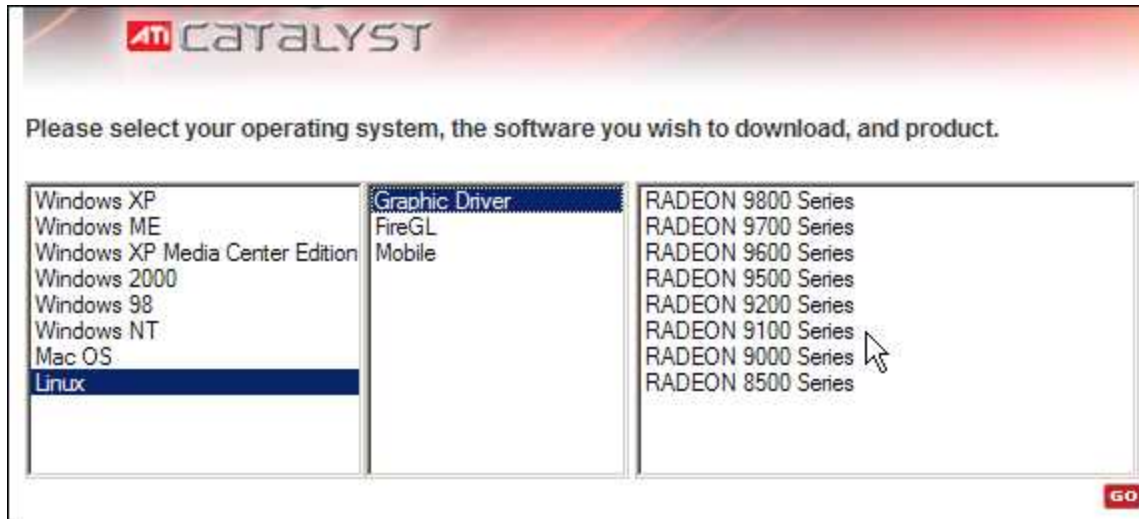
Laptops

Getting Linux to work with laptops used to be a chore, but no longer. You can check other people's Linux laptop experiences by going to this informative website (linux-laptop.net). Step-by-step instructions are given for most laptops.

Printing

Printing has gotten much easier in Linux. HP has released Linux drivers for most of their printers (hpinkjet.sourceforge.net). Other printer drivers can be found at this website (linuxprinting.org)

Graphics Cards



Selecting Linux ATI drivers from the ATI website



Selecting Linux NVIDIA drivers from NVIDIA's website

Your graphics card should be automatically detected by Linux, but to get the most performance, you should download the Linux drivers from the manufacturer. ATI has their Linux drivers [here](#) and NVIDIA has their drivers [here](#) .

Sound Cards

Check the [ALSA Project](#) page to see if your sound card is supported.

Wireless

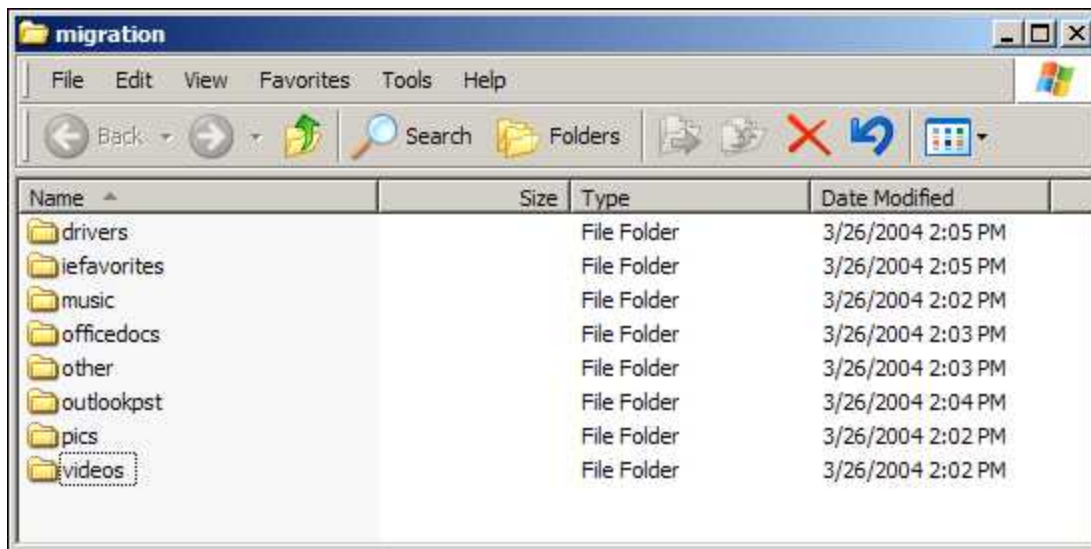
Getting wireless cards to work with Linux can be tricky as some manufacturers refuse to release Linux drivers. You can get around this by using a "wrapper" found [here](#) , which allows you to use the Windows driver. The wrapper tricks the driver into thinking it is on a Windows machine.

For those who have Centrino Wireless technology, you can obtain a "wrapper" [here](#) . Intel has not released a Linux driver for it. If you use a "wrapper", you will also need to download the appropriate Windows wireless card driver.

Backing Up

After you have all the drivers burned on a CD/DVD, you need to backup your files. Most people underestimate this task. Over time, the average person collects thousands of Microsoft Office documents, pictures, videos, etc. Finding ALL of these documents and backing them up is ESSENTIAL.

While burning a CD or DVD may be the easiest way to backup your files, today's large and inexpensive hard drives make installing a second hard drive a viable alternative.



Suggested layout for the migration folder. Notice that the folder names are all lower case. This will make your life MUCH easier later, as Linux is case sensitive with folder and file names.

Let's start by making a folder called Migration. You will be dumping all of your old documents and files into this folder. When you finish, you will either burn the whole folder to CD/DVD or drag it to the second hard-drive (if you picked that option).

Document Migration

Hopefully you have been saving your Office documents in one place, like the My Documents folder. If you haven't (shame on you!), then you will have to search for them using the Windows Find feature (Windows key and F). Here are the extensions to look for.

Office Application File Extension

| | |
|------------|------------------|
| Access | .mdb |
| Excel | .xls |
| PowerPoint | .ppt |
| Word | .doc, .rtf, .txt |

OpenOffice, an open-source office suite, will read most Microsoft Office documents. Currently, no native Linux application will read the Access (.mdb) format.

Outlook

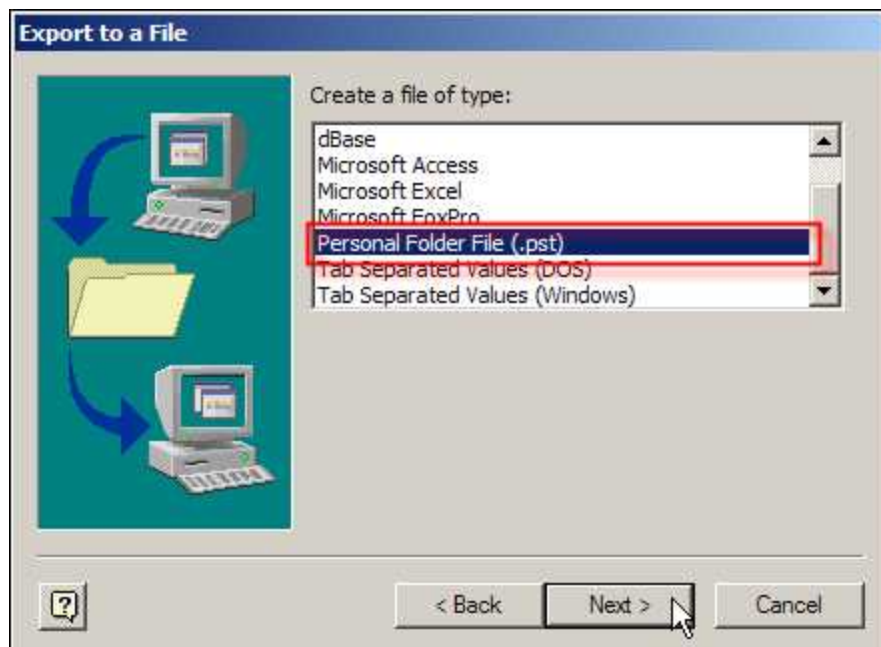
Outlook is a special case, as you have to export your mail and save your mail settings.



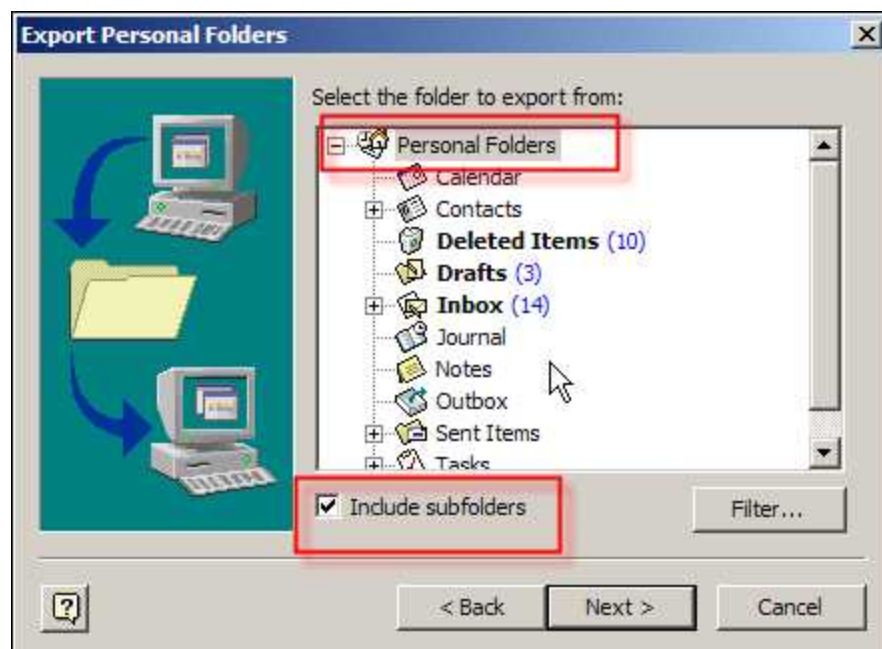
Exporting your PST file step 1. Initial menu under File. Select "Import and Export"



Exporting your PST file step 2. Select "Export to File"



Exporting your PST file step 3. Select "Personal Folder File"



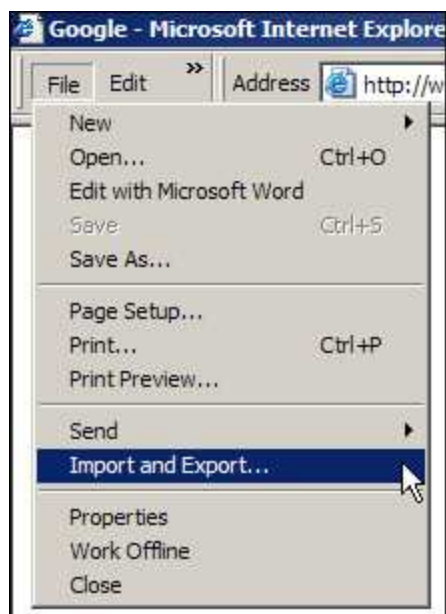
Exporting your PST file step 4. VERY IMPORTANT!!! Select "Personal Folders" at top and check "Include Subfolders"



Exporting your PST file step 5. Save your PST file to the migration folder

Your mail and contacts can be exported into a PST file. After the Linux installation, the PST will be imported into mail program called Evolution. A free program called [Outport](#) will do the translation.

Internet Favorites/Bookmarks



Exporting your favorites in Internet Explorer

Some people have gathered hundreds of Favorites/Bookmarks/Cookie in their Internet browser. All of these can be exported with the built-in Import/Export feature of Internet Explorer.

File Migration

Search for all of your pictures, mp3s, and videos. If you are like me, you probably have duplicates of files. You don't want to migrate over these duplicates because it will just take up space and extend the migration time. Use a program such as [Duplic8](#) to easily find your duplicated files and delete them.

File Type Extensions

Audio .wav, .aiff, .mp3, .ogg

Pictures .jpg, .bmp, .gif, .png, .tiff

Videos .wmv, .mpeg, .mpg, .mov, .avi

Final Check

I know you are itching to install Linux by now, but you have to make sure that you have checked everything. THG has made things easier for you by providing two checklists in Adobe PDF format. The first is a hardware inventory checklist, which you will use to find drivers. The second checklist walks you through migration preparations.

Have a friend look over what you have done as they might catch something that you missed. Remember - four eyes are better than two.

Finally, you need to verify that you have a good backup, so take your backup CDs/DVDs to another computer and see if the files open. Do the office documents work? Do the videos play?

Download The Migration Checklists

The checklists are in Adobe PDF format. You can obtain the Adobe Reader [here](#) .

- Checklist 1 - [Hardware Checklist](#)
- Checklist 2 - [Migration Checklist](#)

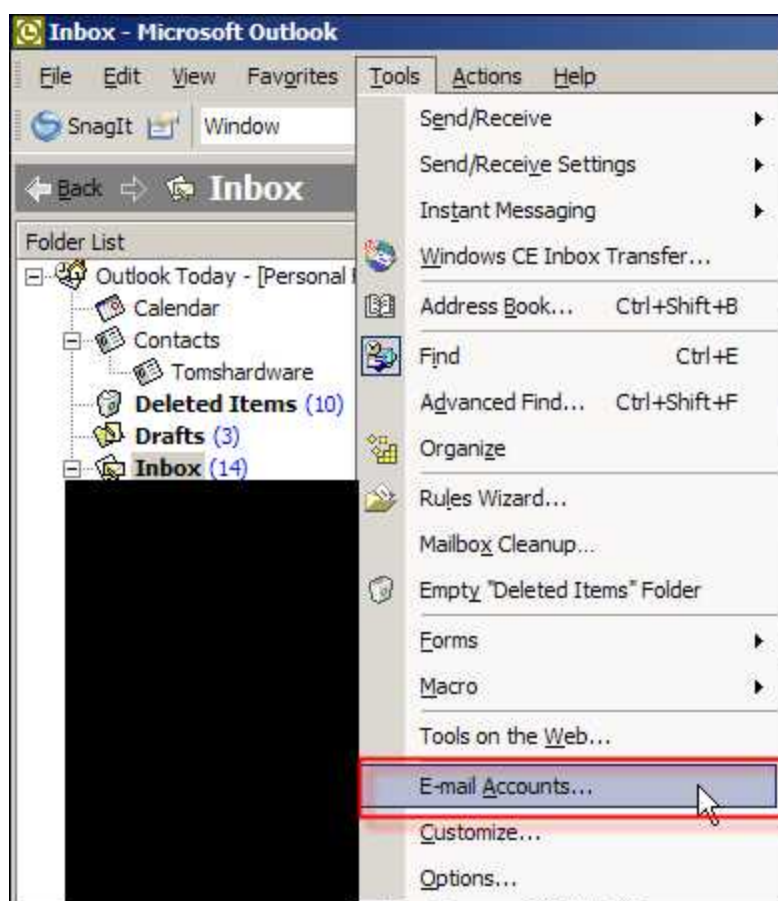
Conclusion

You can make your migration as painless as possible with thorough planning and preparation. Too often, I have seen people jump on the Linux bandwagon and format their computers, only to

find out that they accidentally erased some of their important documents. Don't let that happen to you!

In part II of our Migration from Windows to Linux article, we will cover installation of Linux, Open Office and the various music/video players in Linux. Until then, say goodbye to your Windows OS, because its doom is approaching.

Please continue with part II [Migrating From Windows To Linux, Part 2: Installation](#) .



Let's find your Outlook settings. The blacked out area contains secret THG information.

You will need to record all your mail settings such as your POP/SMTP servers, username, and passwords. Of course Microsoft doesn't give you the option to export these into a text file, so you will have to use pen and paper.

Migrating From Windows To Linux, Part 2: Installation

Introduction

You've prepared yourself for your Linux migration, now its time to make the jump. After reading [Part 1](#) , you should have the following items: Linux installation CDs (1-7 CDs depending on the distribution you picked), CD of drivers, a CD/DVD of your migrated files and a hard-drive with your files (if you chose this route).

We will help you make it through the installation and the initial bootup. Then, we will transfer all your old documents into Linux. Your Internet Explorer favorites and your Outlook PST will be converted into Linux compatible formats. After that, we will run through a couple software installations with binary and source code packages. Screenshots and six downloadable training videos will guide you every step of the way.

Installation

All Linux distributions have similar installation procedures, but they look very different from each other. We will run through an entire installation of Redhat Linux 9. Don't worry if the installation screens are vastly different than what you see here, as the concepts are the same. All installs have these steps.

1. Hardware detection;
2. Partitioning;
3. Package Installation;
4. Final Configuration.



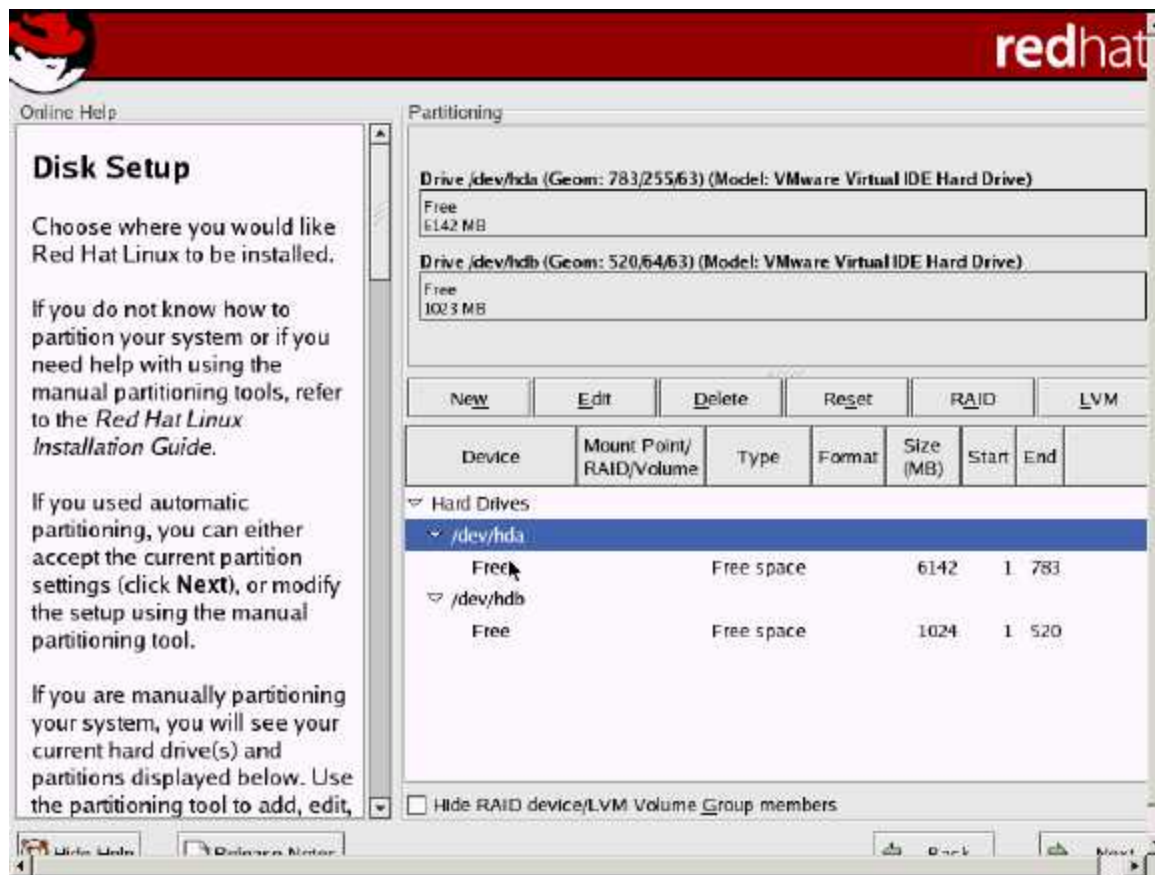
Setting your CD to boot

First we have to boot with the first CD of your Linux distribution. You will need to enter your motherboard BIOS (Basic Input/Output System) and set your CD to be the first boot device. Usually this is accomplished by hitting delete as the computer starts. Afterwards, the Linux CD should automatically start and go into install mode.

Linux will do some basic hardware detection, such as recognizing the mouse and keyboard, and then ask you how you want to partition your hard-drive(s). Since you are wiping out Windows, it's fairly simple. Most distributions give you the option between automatic or manual partitioning. The automatic partitioning is recommended for the beginner. Manual partition is better if you are a veteran or are building a server.

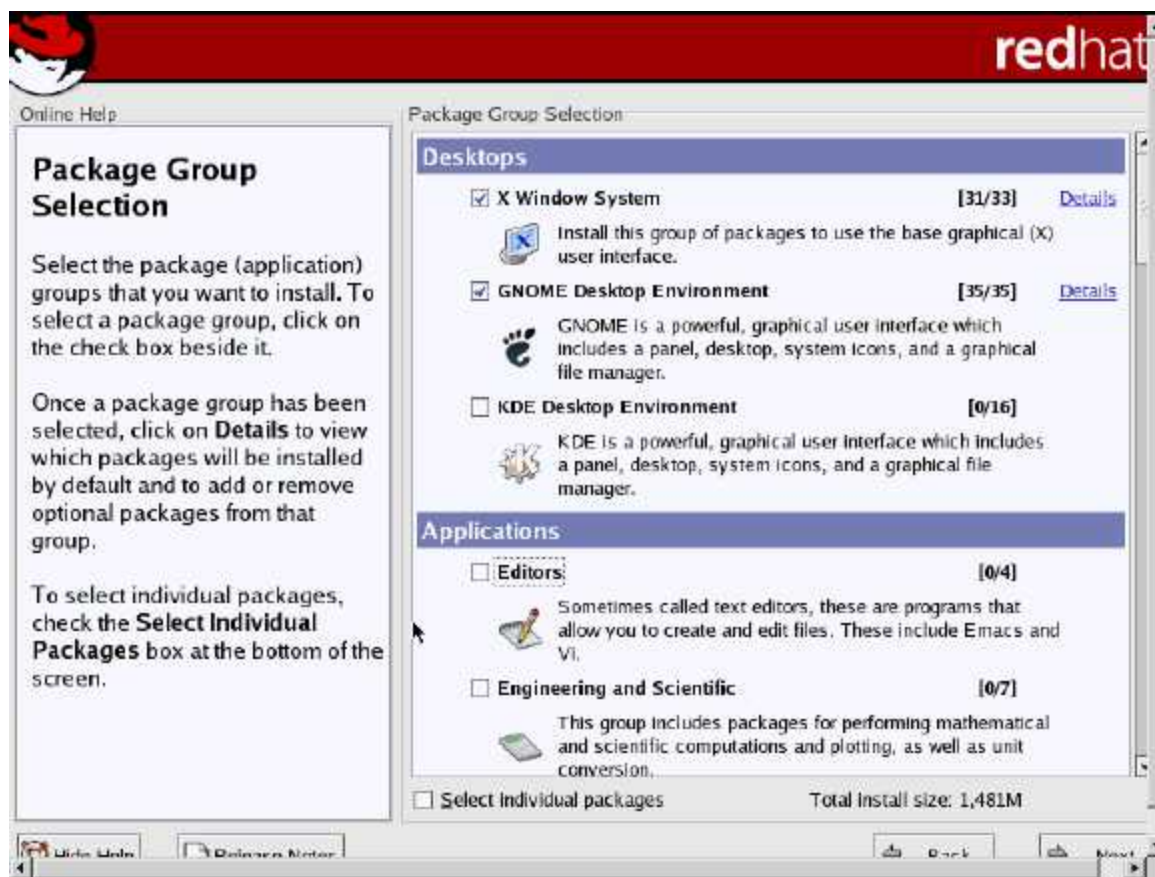
Every Linux installation must have at least two partitions. The first is called the root partition or the / partition. This is like the C: in Windows. The second partition is called the SWAP partition, which holds the SWAP file. The SWAP file is an overload area that tricks your computer into thinking it has lots of RAM. In Windows the swap file is usually embedded inside of a regular partition (generally the C: drive).

Installation, Continued



After the partitioning stage, you will be asked to pick what packages you want to install. Think of packages as groups of applications. Since this is your first time installing Linux, it is best to select every package. As you gain more experience, you will figure out what you need and what you don't need. Obviously, installing more packages will increase the size and time of the installation.

If you choose not to install everything, I highly suggest that you at least install the kernel sources (maybe called kernel development in some distributions) and GTK development libraries. This will make your life much easier later on. When the package installation starts, you will be asked to swap CDs often, as the packages are spread over all the CDs.

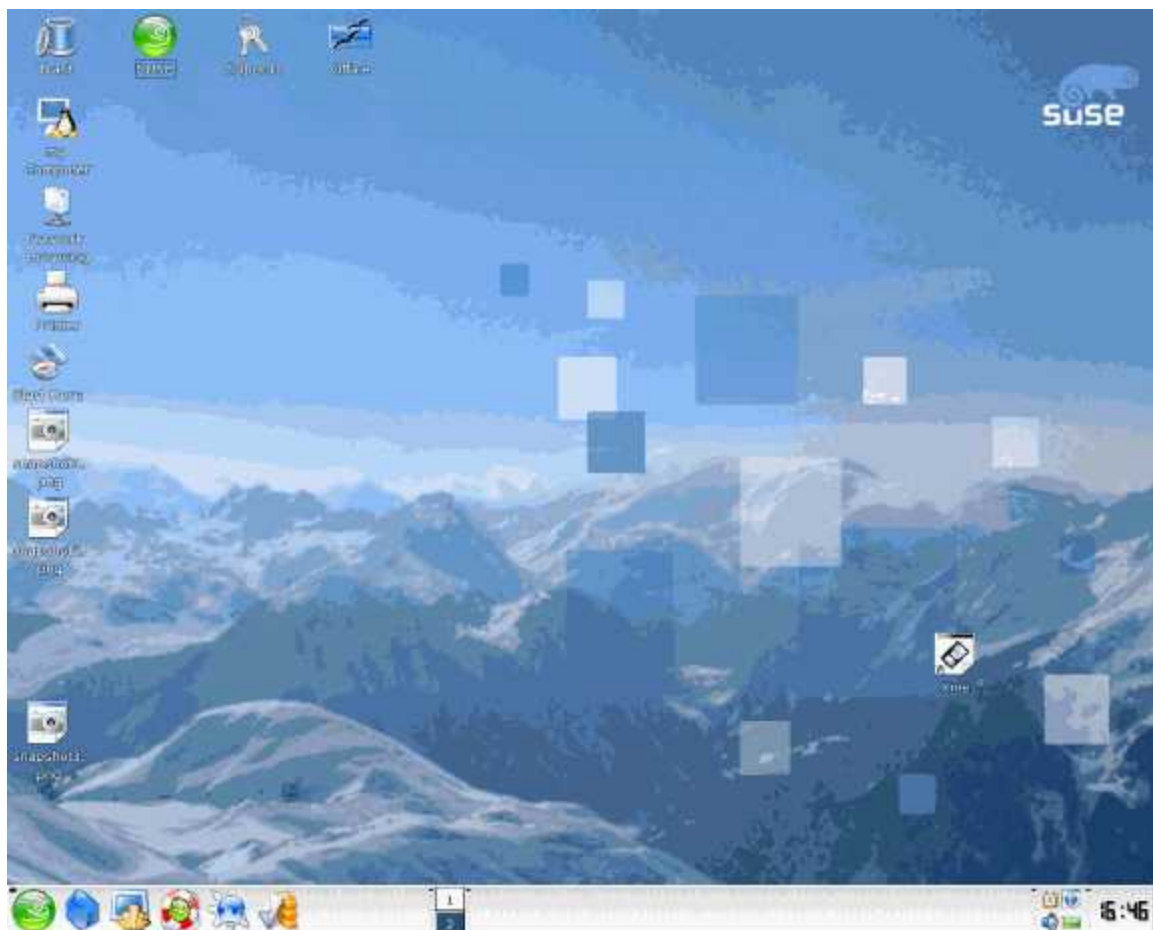


After the package installation, you will be asked to do a final configuration of your display card, network card and other devices. If you use a different keyboard format (DVORAK or German for example), you probably will be asked to choose at this stage. Finally, you will also be asked if you want a graphical or text login. This time, choose graphical login.

Desktop Usability

After the installation process, Linux may or may not look that much different than Windows. If you picked a graphical login, you will see a nice colorful window asking for your username and password. If you picked a text login, then you will be dumped into the text-based "shell". A blinking cursor and some text will ask you to enter a user and password. As a beginner, you don't want to stay in the shell too long, so type `startx` and then enter to start the Graphical desktop. Some veterans dislike the Graphical desktop, and prefer to stay in the shell.

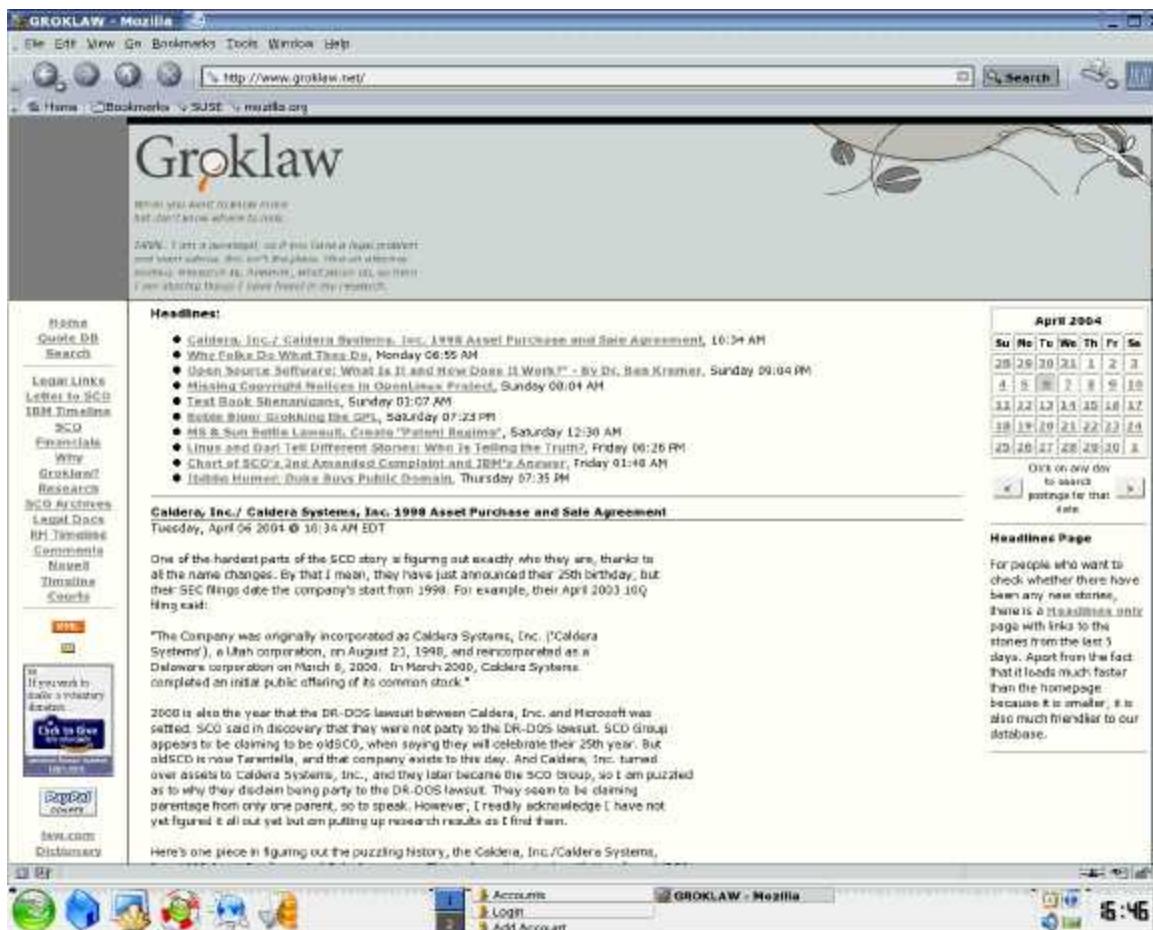
The layout of the Linux desktop is similar to Windows. You have a "taskbar" on the bottom of your screen, with program icons. On the desktop are some icons (different depending on your distribution) and probably a recycle bin icon.



Linux handles partitions and external media much differently than Windows. Almost everything has to be "mounted", before it can be accessed. In Windows, you magically see all your drives, so you don't have to think about mounting. In Linux, you have to issue the mount command to "attach" the drive/partition to Linux. After you are done, you type unmount to unattach the drive.

Internet Browsing

Multiple Internet browsers are included with most distributions. They function similar to Internet Explorer. You basically type in a web address, and the browser takes you to the page. In Windows, you don't have much of a choice with browsers, as you probably used Internet Explorer. In Linux you can pick from Konqueror, Opera or Mozilla. Mozilla looks very much like Netscape since it is an open source version of Netscape.



Remember those Internet Explorer favorites you saved? Let's import them into Mozilla. You can use a free program called Goem to convert the favorites. Or the latest version of Mozilla will import the exported favorites file.

Installing Applications

People love Linux for its flexibility. If the program you want isn't included with your distribution, then simply find it, download it and install it. Downloading is easy enough, but installing is a different matter.

Installing programs on Linux is much different than installing programs on Windows. On Windows, you usually click on an .EXE file and keep clicking next until you are done. Generally the install files are self-contained, meaning that you don't need extra programs to help you along the way. The notable exception to this is the .NET framework that some programs require.

With Linux, it's much different. If the application isn't installed with your distribution, you must either install it as source code or by using a binary format. You are also required to download other programs/packages to make your program work. For example, the GTK+ Development package www.gtk.org is required to compile many programs. If you didn't install it, you will be in big trouble later on.

As stated earlier, Linux software comes in two versions. The first is called binaries, and may be easier for the beginner. Binaries are similar the familiar .EXE in Windows. You run them and usually the program installs. Binaries usually have the ending of .RPM, which stands for Redhat Package Manager.

Source code is the second format in which Linux is distributed. Source code is composed of raw C++ in text files. The text can be viewed and changed. In essence, you get to see what is under the "hood of your car," as compared to Windows, where the hood is welded shut. Source code must be compiled, which turns the text into binary files. If you play with Linux long enough, you must get used to compiling source code, because some programs only come in source code. Don't worry as we have a downloadable training video that shows you how to compile. In no time, you will be a master compiler.

One gotcha that happens often when you compile a program is insufficient permission to access a folder or file. Becoming the root user, which is similar to the Administrator in Windows, usually solves this. From the command-line, you simply type su root and then ENTER. You will be prompted for the root password. When you are done with the installation, type exit and then ENTER. This will turn you back into a normal user.

If you simply must run your Windows programs, chances are you can make them work with [WINE](#). WINE is a free Linux program that will trick Windows programs into thinking they are running inside of Windows and not Linux.

Email

Remember that Outlook PST file that we copied over? That file contains your contacts and old emails. You probably want to transfer that information to a Linux email program, but which one? The choice is easy. Evolution by [Ximian](#) is arguably the best email program. It looks and feel like Outlook. In fact, it can even connect to Microsoft's Exchange Server, if you buy the plug-in. Evolution is included with most Linux distributions. If it wasn't included with your distribution, you can easily install it with the easy Red Carpet program from Ximian.

Since every email received is indexed, searches are lightning fast. Try sorting through 15,000 emails in Outlook, and you will feel the pain. With Evolution it is no problem.

A nice program called [Outport](#) will migrate your PST file into Evolution format.

Instant Messaging

Instant messaging has exploded in the recent years. Most Windows users use Instant Messaging programs such as AIM, ICQ, Yahoo or MSN Messenger. In addition, they probably have multiple chat programs running at the same time. I used to have AIM, MSN Messenger and Yahoo Messenger running at once, all filling up my precious desktop with windows. Your switch to Linux doesn't mean you have to give up the convenience of Instant Messaging, nor will you have to deal with multiple windows again.

Gaim is a free chat program that is included with most Linux distributions. You can download the latest version [here](#) . Gaim simplifies chatting by combining all the above chat services into one program. So you can talk to all your friends, without having to open multiple windows.



Amazingly enough, American Online has an official Linux version of AOL Instant Messenger [here](#) . With all the functionality of Gaim, however, you probably won't need to deal with AOL's Linux AIM.

Audio Playback

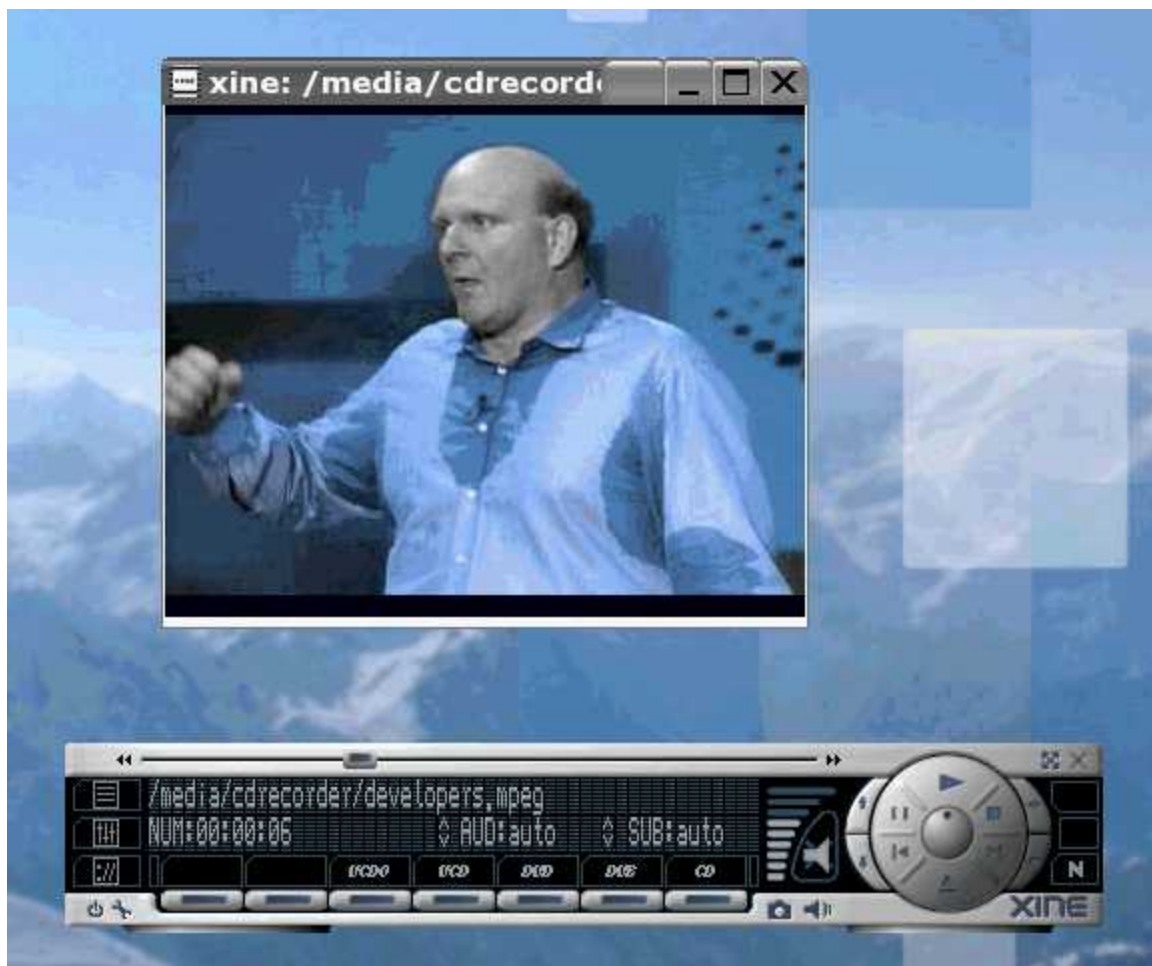
If Linux has detected your sound card, you should have no problems playing your MP3s and other audio files. Most distributions install X Multimedia System (XMMS). You can always get the latest version [here](#) .

XMMS has excellent functionality as it can play back most audio formats, and make play lists. Changing the skin and installing audio effects plug-in can customize it.

Video Playback

Things get interesting here. Proprietary formats like QuickTime and Windows Media are difficult, but not impossible to view on Linux. Viewing DVDs is easy in some distributions, but may require some tinkering in other distributions, like SUSE 9.1.

Your two main choices for playing back video files are [Xine](#) and [MPlayer](#) . On both players, you can install codecs that will playback QuickTime, RealPlayer, and Windows Media formats. KDE desktops usually include a player called Kaffeine, which is basically Xine with a cleaner looking interface.



If you are having trouble playing your DVDs, it's probably because a Content Scrambling System (CSS) decoder wasn't included with your distribution. Most commercial DVDs use CSS to discourage piracy. Windows users have always had it easy playing back DVDs, because the decoder was always included with the player.

This is not so with Linux, while Xine and MPlayer can play back most videos, as long as they have a codec. Luckily, installing [libdvdcss](#) will help you play those pesky CSS encrypted DVDs. Remember when I said that you often have to download many things to get a program to work.

Graphical Programs

If you are looking for a Photoshop type program in Linux, [Cinepaint](#) or [GIMP](#) will both do a fine job. Usually, GIMP is installed with most Linux distributions. While Cinepaint or Gimp don't have as many options as Photoshop, they will get the job done. In fact, Cinepaint is used in many some big movie studios such as ILM, Sony and DreamWorks. If it's good enough for them, it should be good enough for you. Most importantly, both Cinepaint and GIMP are free.

Video Editing

Windows has dozens of expensive video editing programs such as Adobe Premiere, Sony Vegas 4 and Pinnacle. Movie Maker, Microsoft's free video editing program, is included with [WindowsXP](#).

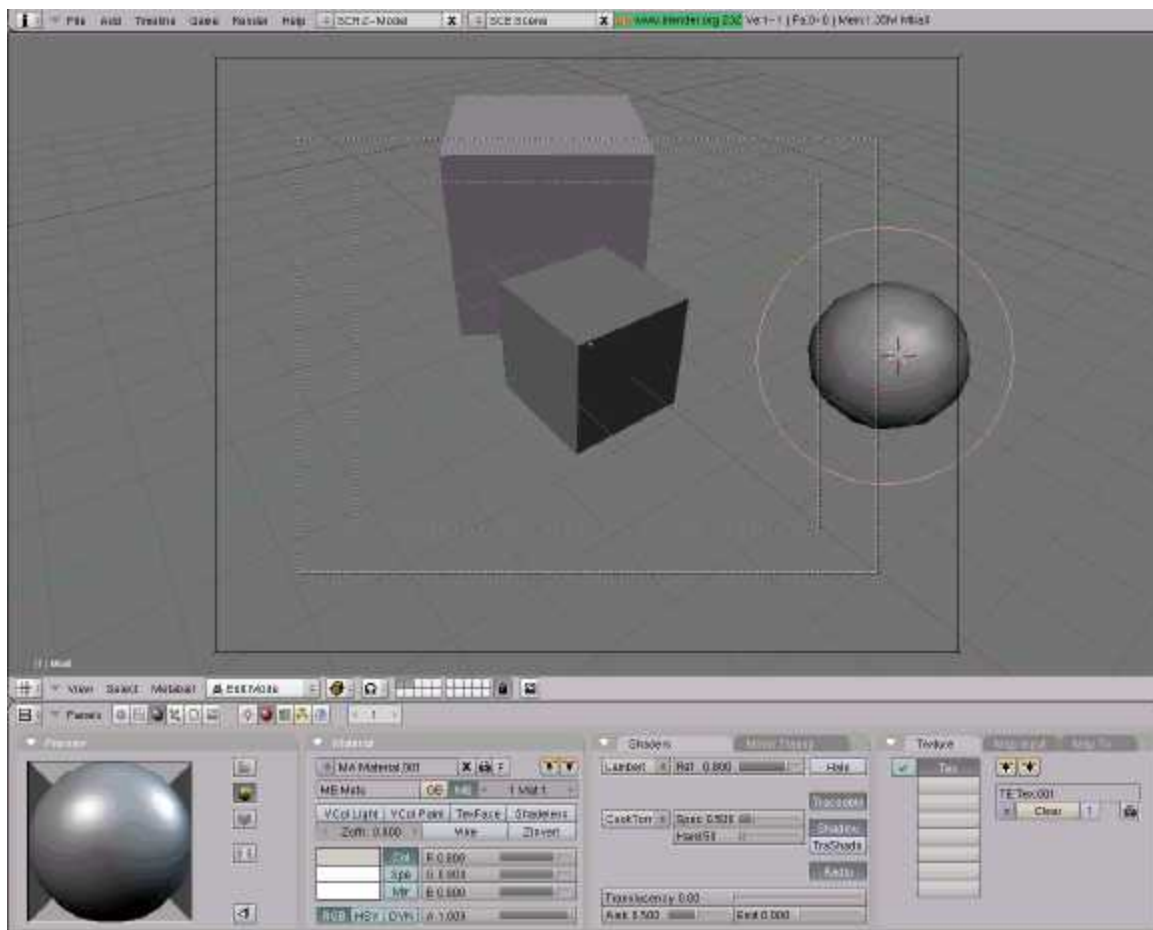
Cinerella and [Kino](#) are free Linux alternatives. Both have similar features as the commercial Windows video editing programs.

Special Effects And Rendering

For the last several years, movie studios have been using Linux for special effects rendering. Remember those great battle scenes in the Lord of the Rings? A cluster of hundreds of Linux boxes were used to render the massive fight scenes and the excellent special effects.

Alias has ported their popular Maya 3D animation and special effects software to Linux. Another company Sidefx, has made their famous and very expensive Houdini software available for Linux. Don't be fooled though, both programs still cost money.

If you are looking for free programs, SUSE 9.1 comes with [Blender 2.32](#) , which is a free 3D modeling, animation, and rendering program. [POV-Ray](#) is another free modeling/rendering program, which is included with some Linux distributions.



Games

Perhaps the biggest gripe about Linux is the lack of games. Linux has a much smaller share of the desktop market when compared to Windows. For most game companies, it is not profitable to make native Linux versions. Don't despair, there is hope.

With a nifty program called [WineX](#) , you can run some Windows games inside of Linux. A complete list of compatible games is [here](#) . Be advised, that WineX requires a modest "subscription" fee to download.

A few games have been made available in native Linux format, meaning they don't require WineX or any other emulator to run. Two recent examples are Unreal Tournament 2004 and Neverwinter Nights: Hordes of the Underdark. If you like flight simulators, [FlightGear](#) is an excellent and FREE simulator.

For further Linux gaming information you can visit [LinuxGames.com](#) , [linuX-gamers.net](#) , and of course tomshardware.com. In fact, we will have a comprehensive Linux gaming article soon.

Conclusion

Switching operating systems is a monumental task, and not everything will work correctly on the first try. Linux offers you complete control, but that control can be confusing and downright alien to Windows users. It takes a while for people to adjust to their new found freedom, but I hope you will find Linux to be a very flexible and promising operating system.

Hardware Inventory Checklist

| Hardware Type | Manufacturer | Model | Website |
|---------------------|--------------|-------|---------|
| CPU | | | |
| Memory | | | |
| Motherboard | | | |
| Motherboard Chipset | | | |
| Hard-Drive 1 | | | |
| Hard-Drive 2 | | | |
| Hard-Drive 3 | | | |
| CD/DVD Drive | | | |
| Graphics Card | | | |
| Sound Card | | | |
| Network Card | | | |
| Wireless Card | | | |
| Printers | | | |
| USB Devices | | | |
| Other Devices | | | |

1. Fill in sheet with your hardware information
2. Find the manufacturer's website
3. Download all Linux drivers
4. Burn drivers to CD/DVD

Windows to Linux Migration Checklist

Did you complete the hardware checklist?

Pick your Linux distribution

1. If you have a fast Internet connection download the .ISO files
2. Burn ISOs
3. Test the burned CDs by booting up with the CD in the tray.

- a. You should get an install screen.

Drivers

1. Using the Hardware Checklist, find all the Linux drivers for your hardware.
2. Burn the drivers to CD/DVD

Migration folder

1. Make a folder to hold all of your files to be migrated.
 - a. Make subfolders
 - b. Use all lower-case names
 - c. No spaces

Document and File Migration

1. Find all Office Documents and move them into the Migration folder

- a. Access
- b. Excel
- c. Powerpoint
- d. Word
- e. txt

2. Find all your pictures

- a. Jpgs**
- b. Gifs**
- c. Tiffs**

3. Find all your videos

- a. WMV
- b. Quicktime - MOV
- c. MPG/MPEG
- d. AVI

4. Find all your music

- a. WAV
- b. MP3
- c. OGG
- d. AIFF

Settings Migration

1. Internet Explorer
 - a. Homepage
 - b. Export Bookmarks
 - c. Export Cookies
2. Outlook
 - a. Export PST
 - b. Export Filter Rules
 - c. Export Account Settings

- i. Username
 - ii. Password
 - iii. POP/SMTP servers
- 3. Instant Messaging
 - a. Copy down all your usernames and passwords

Final Check

- 1. Have a friend look over what you did
- 2. Does your backup CD/DVD work on another computer?
 - a. Do the files open?

