Your Friendly Guide

PCLinuxOS

User's Guide

PCLinuxOS

Radically Simple

PCLinuxOS
User's Guide

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Texstar, LexNL, Devnet, Teacher, Helios, OkiE, IKerekes, Sal, Woob, and everybody who helped out.

Visit PCLinuxOS on the web at http://www.pclinuxos.com

PCLinuxOS help forums are available at http://www.pclinuxos.com/forum/

This guide is also accessible on-line via http://www.pclinuxonline.com/wiki/

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Disclaimer: When you use any information, hints or tips from this User's Guide, you acknowledge having read, understood and agreed the following. This User's Guide is designed to be a helpful resource for people new to PCLinuxOS. The information here has been created by experienced contributors and normal users of PCLinuxOS alike. We do not take any blame or responsibility for installation errors or changing of setting that you may do to your computer. The information in these pages may have errors, typographical or others.

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Introduction

The development team of PCLinuxOS would like to take a moment and truly welcome you to the world of Linux. Within the pages of this guide, you will find information you need to use and learn PCLinuxOS presented in easy to understand terms and without a lot of geek-speak. You may even find some of it rather humorous.

PCLinuxOS is what's called an operating system. When you start your computer, some software must start working otherwise nothing would happen. Your mouse and keyboard should be enabled; you most likely would want to have access to your personal files, and start other programs. All these activities are done by software called an operating system. Most likely you are already familiar with the operating system called Windows.

Everything you need for day to day home desktop or small business computing is available in PCLinuxOS. From a complete replacement of Microsoft Office to chat and multimedia applications, PCLinuxOS either meets or exceeds a Windows XP system. The software choices alone are staggering and are probably more than anyone could ask for. We think you will find that PCLinuxOS not only exceeds your computing needs, but it also makes using your computer fun again... and that in itself justifies the little bit of effort you may have to expend to learn Linux.

Linux puts enjoyment back into computing without the constant worries of catching a virus or Trojan and preventing spyware from infecting your PC.

PCLinuxOS is the only Linux Distribution written from bottom to top with you, the new Linux User in mind. Who better to help you along your way than someone who is fresh from the journey themselves? Some of our users have been around Linux for a long time, but found PCLinuxOS so complete and friendly; that they began using it as their primary operating system.

Our New Users become proficient at using this distribution in short order simply because our help forums and documentation gives them the opportunity to learn quickly. Now that you have made the decision to use and learn Linux, your choice of PCLinuxOS will prove not only to be an easy move, but a smart one as well. We want your experience with PCLinuxOS to be not only positive but productive and fun... yes fun. All of us at PCLinuxOS welcome you to our family of users.

If you have a suggestion or find something we have left out, you are welcome to submit your idea or contribution via the help forums. We all make a difference at PCLinuxOS, each and everyone of us. All of us at PCLinuxOS welcome you to our family of users.

Getting Familiar With Your Desktop

You have fired up PCLinuxOS and are looking at the desktop. This section of the guide will show you how to get started using it. You will find you too can be productive immediately with PCLinuxOS.
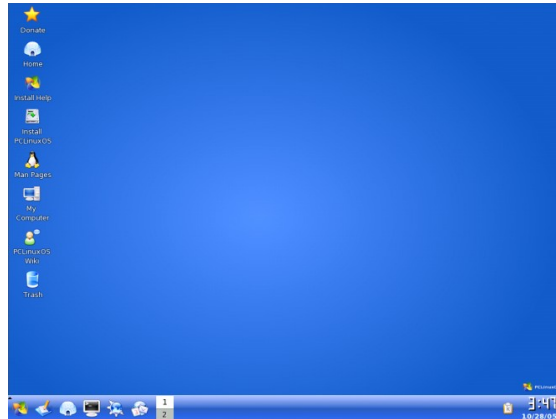
You will have noticed all the icons that are on display on the desktop. Everything you need is right there.

My Computer – Opens a file manager for working with... your computer.

Home – Takes you directly to your personal files. You'll use this icon very often!

Trash – Just put all files you want removed here. Holds the removed files until you empty the trash bin.

IRC Help Channel – Takes you to a friendly chat (if you are connected to the web that is) where you can ask questions about PCLinuxOS. Try it out, click it!

PCLinuxOS Wiki – The On-line New User Guide. All kinds of information in easy to understand writing about using PCLinuxOS. The document you are reading now is a spin-off from this online version.

Donate - PCLinuxOS comes to you as free software. We did however put in a lot of time and effort to create and distribute it. If you enjoy our efforts, a donation is more than welcome.

Install PCLinuxOS – Click this if you want to install this operating system on your computer. If you plan on installing PCLinuxOS to your hard drive, we have extensive installation help in our PCLinuxOS Installation Guide.

Install Help – Some more hints and tips on installing this operating system to your computer.

Man Pages – detailed information about some more difficult Unix/Linux programs. You'll certainly not be interested in this if you're just starting out with Linux, as this information is geared towards system administrators.

The Panel

At the bottom of the screen you'll see these icons:

The Start-menu a.k.a. KMenu - If you want to start another application, click this icon. Go on, try it out. You know you want to!

Show the desktop - This is quite handy. If you want to open "My Computer" for example, but you can't see your desktop, click this icon, you'll see your desktop again.

Your personal folder - The igloo is a reference to "home" which is the place holding your personal files. Read more about your Home folder.

You don't actually need this icon. It opens a console or terminal, which is like a command prompt or DOS-prompt. You won't need this for a good while.

The Web Browser - This works just like the browsers you're familiar with. If you are reading this, you probably are already using it!

Kontact - This is your personal information manager, it's called Kontact. It does e-mail, calender, to-do list, notes, etc.

PCLinuxOS has everything you need delivered to you! Add to that a user friendly interface, extensive multimedia support, a versatile personal information manager and you'd have to agree with us: We didn't lie when we said you'd be productive immediately!

Managing the shortcuts on your desktop

You may want to add or remove shortcuts for programs you use often to your desktop. It's very easy to do. Click on your start button and work through the menus until you see the entry for the program you want. I'll pick the PCLinuxOS Control Center as it's something I use a lot.

Creating desktop icons

Click start, select "Configuration" and in this menu you will see the entry for the "PCLinuxOS Control Center". Move your mouse pointer over the entry and right click. You will now see a context menu displayed with four options listed. The top one should be self explanatory: "Add Item to Desktop".
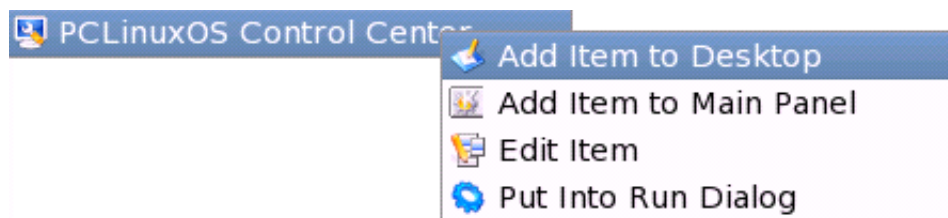
Move the pointer over this to highlight it and click either mouse button. An icon will appear on the desktop which will allow you to open the program without having to use the menu.

Renaming desktop icons

It is also very easy to rename desktop icons. Simply right click on it (as you would with Windows) and select "rename".
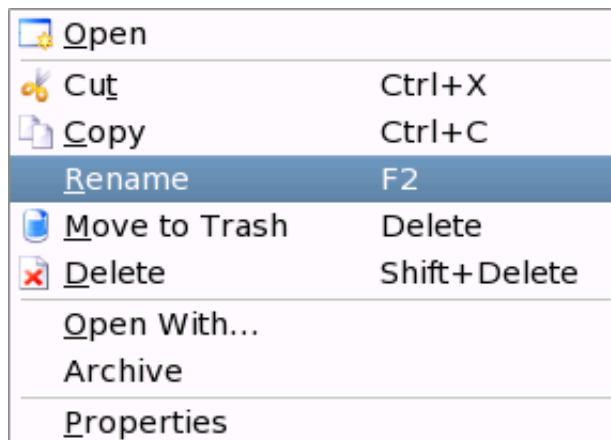
The icon's name is now highlighted so you can change it. When you've changed the name, press enter.

Changing desktop icons

Another good feature is that you can change the icon itself if you aren't happy with the default. Again, right click on the icon and select the bottom option, "Properties". In the new window that opens, you'll see a picture of the application icon at the top and just to the left of the name.
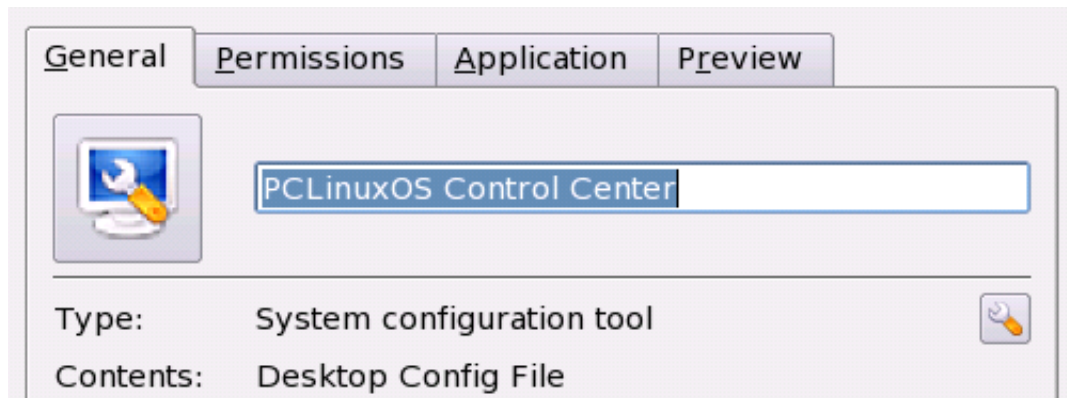
Click on this picture and a new window will open showing a long list of icons to choose from.
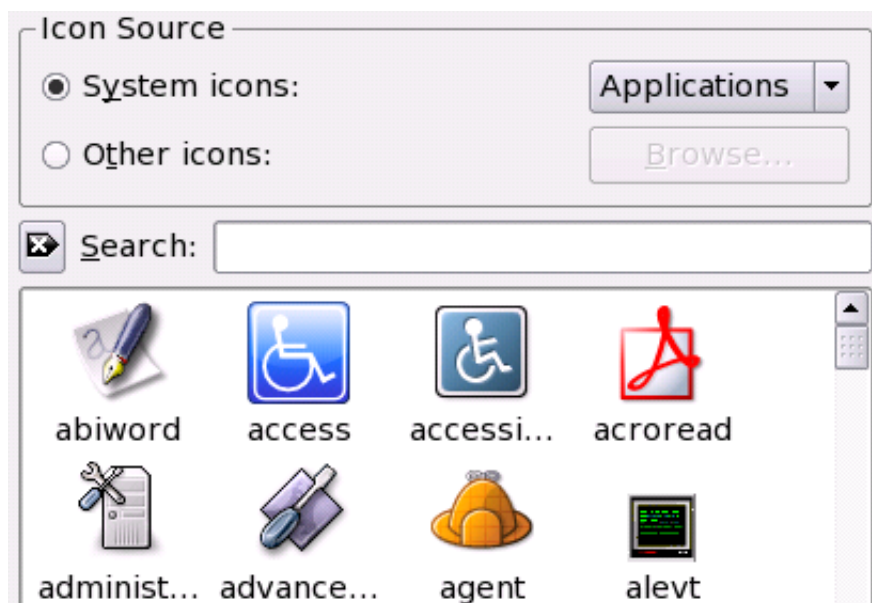
Select the one you want by clicking on it and you'll be instantly taken back to the first window. Notice the picture has changed to the icon you selected. Click "Ok" and that's it.

Removing desktop icons

Removing desktop icons is probably the easiest. Right click on the icon you want to remove and select: Delete.

Surfing the Web

Let's start by surfing the web? This is easy. First of all, open the web browser by clicking on the blue globe icon.

This opens up the web browser, looking like:
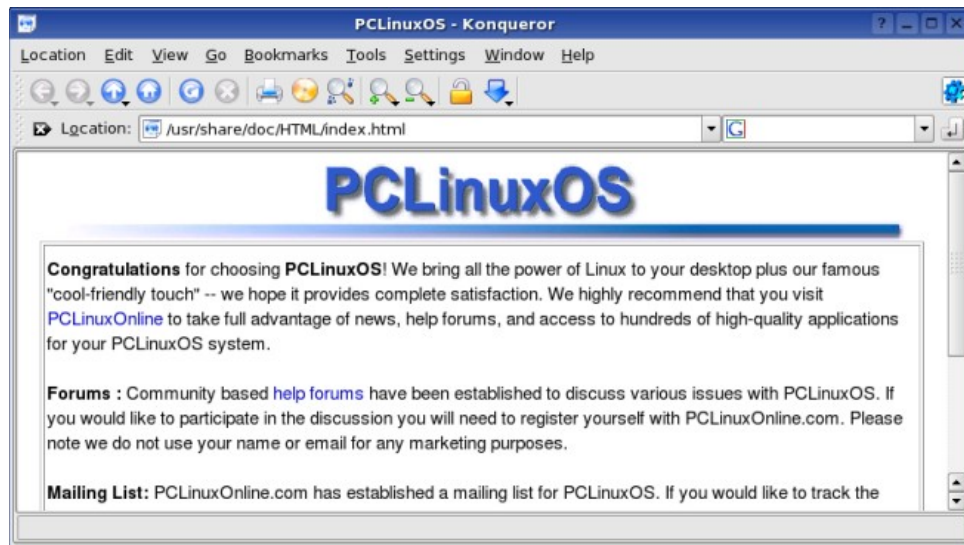
Want to surf to an actual web page? Click on the black and white X next to the word "Location:". This clears the "/usr/share...." line so you can enter an address. For example, enter "www.pclinuxos.com" and press enter. In a few seconds, you'll see a web page about PCLinuxOS. You can get back to the previous page, pressing the blue and white arrow pointing to the left.

Maximizing a window

You might have found that when you double-click the title of a window, it doesn't maximize to full screen. Instead the window seems to almost disappear. This is called rolling up or shading. If you come from a Unix background this is the normal behavior

If you have a Windows background, you are used to double-clicking the title of the window to maximize it. You can set this up quite easily. Right-click on the title of the window and select "Configure Window Behavior". On the left side of the window that pops up, click the Actions icon. At the top you'll now see "Title bar double-click: Shade". Change the "Shade" to "Maximize". Click OK.

Searching the web

Just surf to your favorite search-engine, like: www.google.com and in the text field that'll show type in the words you want to search for. The default browser (named Konqueror, by the way) has some impressive search features. Next to the familiar looking blue **G**, enter for example the word PCLinuxOS and press enter. You'll see something like this:
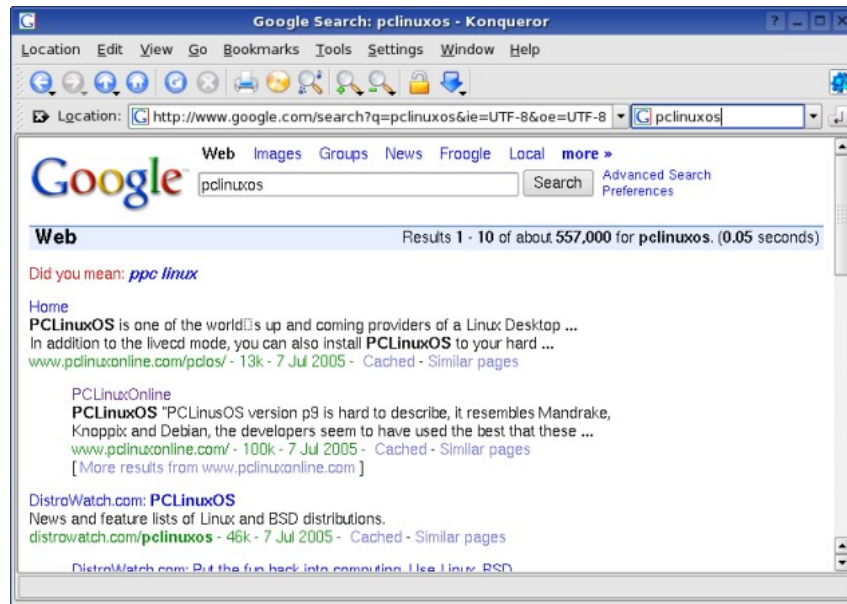
Setting Up An Internet Connection

For most setups, the network/Internet detection routines will make it all work for you. But PCLinuxOS most certainly can't perform miracles. If Internet doesn't work, you'll have to set up yourself. For more information about setting up a dial-up Internet connection or a networked Internet connection, please read Appendix II – Setting up an Internet Connection on page 69.

Working With Files

If you'll do one thing quite a lot, it is working with your files and folders. You'll find that most of it is exactly the same as you are already familiar with on Windows.

Your Home folder

All your personal files and folder are located in one place. As you can imagine, you will be using that folder pretty frequently. We'll introduce you to this folder here.

First of all, let's open your home folder. Near the bottom of the screen is an igloo-icon. As we all know, all penguins (the Linux mascot, hence all the penguins) live in igloo's, so it stands to reason that you can access your personal stuff via the igloo-button.

You can find this icon both on your desktop and on the panel at the bottom of the screen. In fact, you'll find icons and buttons directing you to this folder all over the place. Don't be shy, click the igloo! You now have access to your personal files. Your home folder is located in /home/yourname. Like /home/alice or /home/andrew. The normal user can *only* write and remove files from their home-folder. This might seem unusual and restricting, to have only one place to store your files, but it really is a good thing - security and safety! It's just like the My Documents folder.

In the grand scheme of things, all files (and folders, and even drives) are stored in one big folder-structure. The starting-point of that big folder-structure is called "the root folder" or "/". Unlike other popular operating systems, the folder separator is a "/" and not a "\" - it's just like on the Internet. The root-folder holds a folder called /home, which holds a folder with your name on it, literally.

If you have some computing experience, you'll feel right at home. You have the right mouse click pop-up menu where you can access some file specific actions and where you can create things like files and folders. If you left mouse click on a file, it'll open the file in an good program for it. Like a graphics viewer, music player or a word processing application. You can also select (Ctrl + left mouse click) and copy & paste files just as you're familiar with already.

Your home-folder is also referred to as "~". Try it out, click on the igloo, go to another folder, now type "~" in the location bar. The "~" key is located next to the 1/!-key near the top-left of your (US) keyboard. For the UK keyboards it's near the return key. You can safely forget the ~ bit of trivia for now though.

That's it. You're now familiar with your home-folder and you know how to access and store your personal files. We'll save the secret-home-folder-insiders-handshake for another day though.

My Computer

On the desktop there is an icon called "My Computer"

When you click on this (go on, be adventurous, do it with me!) you'll see the window shown beneath. Don't worry, you can't do anything wrong here.
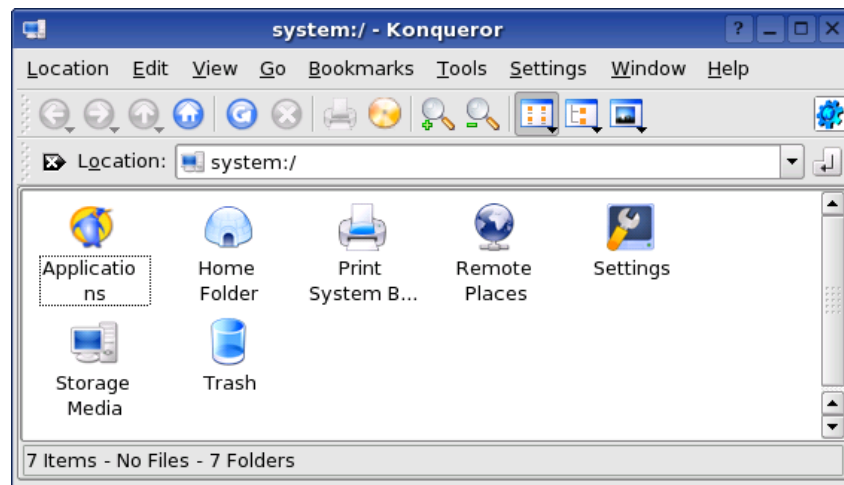
You probably are used to immediately seeing your drives. Click on the "Storage Media" icon. This opens the media:/ window, which has links to all your drives.
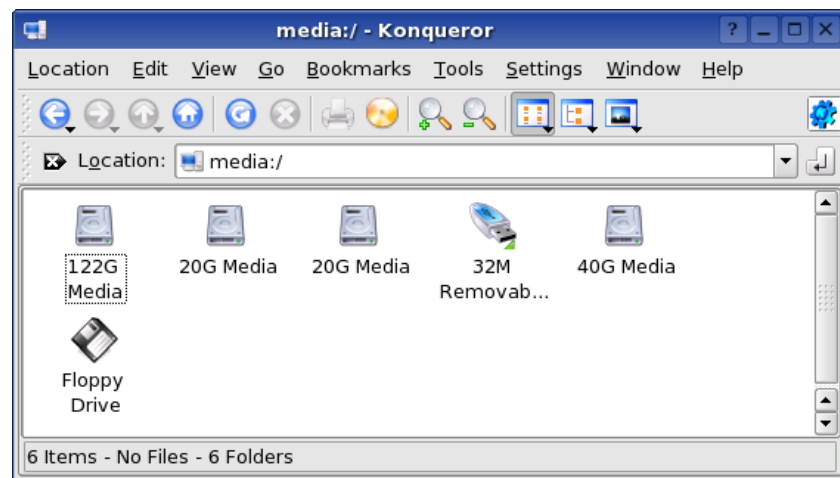
Pick one icon and click on it. I'd suggest clicking on a hard drive-icon (one of the gray square looking icons). It'll now look at your hard drive and display what it finds, perhaps something like:
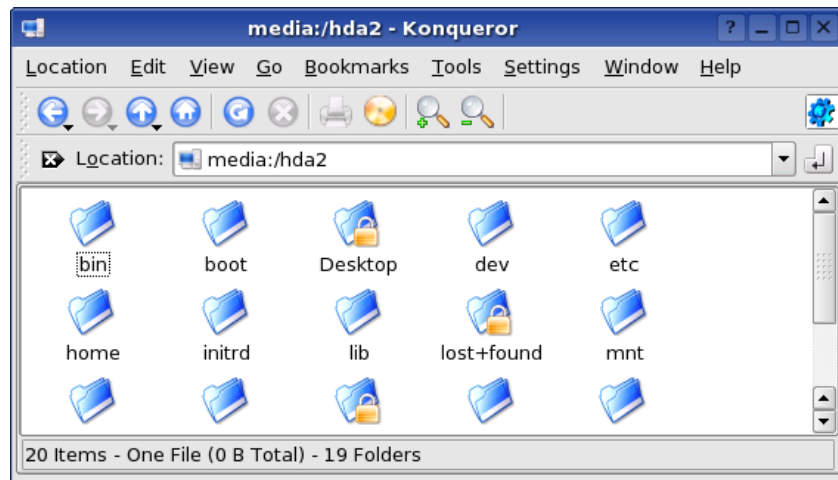
This should look familiar as you are looking at your own hard drive. You can now open files and such, and just work with it like you're familiar with already. It works just like the Explorer works on Windows.

Drives and Folders

The folder structure and names of drives in Linux are quite different from how things work on other operating systems. We'll explain how it works here. It isn't difficult, it's just different then you're used to.

Drive Naming

Once you go browsing around things might look a little bit different then you're familiar with. First of all, you see the "location:"-bar saying things like "media:/hda2". The way PCLinuxOS works with drives is quite different from how Windows works.

You're probably used to the "C:, D:, E:" notation for your drive. Normal hard drives in Linux are called hda1, hda2, hdb1, hdb2, etc. It's made up of "hd"; implying a drive, then an "a, b, c, d" which says which hard drive you are referring to. The "a" would be the first drive, then comes "b", then "c", then "d". It's not actually counting hard drives you have, but how you hook them up to your computer. So if you have one hard drive and one CD-ROM, quite likely they'll be called hda and hdc.

What's the 1 in hda1 you are wondering? You can split up one hard drive in smaller parts. These parts are called "logical drives" or "partitions". This is exactly the same as it is with other operating systems, they just call the second partition on the first hard drive "D:", instead of hda2.

The Folders

The folders you'll see when you go exploring your PCLinuxOS are likely different then you know.

bin	boot	dev	etc	home	initrd
lib	mnt	opt	proc	root	sbin
swap	sys	tmp	usr	var	

The upper-most folder on your system is the / folder, this is called the root-folder. You see the contents of that folder in the image.

The most important folder for you is the /home-folder. This is the folder that holds the personal files of the users of the system, like the My Documents folder.

The /root folder stores the personal files of the root user or administrator. This is the person who administers the computer. Chances are that is you as well. Don't log in as root though, that's just not done. You'll see the lock on the folder-icon. This means that you aren't allowed access to this folder. In your home-folder you can read and write files, most folders you can only read and some folders you aren't allowed access to at all. This is all for your privacy and protection, just remember that this is a good thing.

The /mnt folder is special as well. As we wrote above drives aren't called C: and D: but hda1 and hda2 and such. You'll browse to those drives using the "My Computer" or "Storage Media" icons at first. In some programs you won't find a link to "Storage Media" and such, and you'll have to find them for yourself. In /mnt there will be links to your drives, like for example: /mnt/hda2, /mnt/hdc1 (the CD drive) and /mnt/removable or /mnt/sda1 for a USB key or removable drive.

For now it is far easier to use the "My Computer" icon to access your drives.

Understanding The File Structure

Folder	Contents
/bin	Most of the binary programs constituting your operating system
/boot	The Linux files used to boot up your machine.
/dev	Some really funky files representing all your hardware devices. Lets hope you never have to find out in which way.
/etc	Most of your system's configuration files
/home	The home directories for the different user accounts. Every user has his/her own directory structure underneath the home directory
/initrd	An empty placeholder the operating system needs it during the boot. Please don't delete or modify this directory
/lib	Library routines, modules and drivers needed
/lost+found	If this directory contains anything you are in trouble. If you accidentally lose power, the OS automatically checks your partition for data integrity. If it can't fix something it puts the corrupted file in the lost+found directory
/mnt	The starting point for all the mounted file systems. for example your windows c: drive is accessible on /mnt/win_c
/opt	Contains the optional packages, not normally part of the OS.
/proc	Contains a view how the OS sees your machine. You shouldn't touch anything in it.
/root	The home directory for the root account
/sbin	Contains binary programs normally needed to boot up your machine.
/swap	This directory is not needed, you can safely delete it
/sys	Contains some special files which required or created during the boot process, a so called pseudo file system. you should not touch it.
/tmp	Contains temporary files that the different programs create during their work.
/usr	This directory contains most of the binary programs, default configuration files, documentations, just way too much to even cover with a high level list. It is by far the biggest directory in your file structure
/var	Contains variable information, system logs, error messages, & caches.

Working with the Floppy Drive

You might wonder where A: is then? Well, the A-drive works more like USB keys work in Windows than it works like hard drives. Click on "My Computer" on the desktop, then click on "Storage Media". You'll see the "Floppy Drive"-icon. Make sure you've put a disk in the floppy drive and click on the icon. You'll see a pop-up window saying "Mounting /dev/fd0". FD0 is the name of the floppy drive, where 0 implies the first floppy drive. It now prepares the floppy drive and disk for work.

It then shows the content of the disk, perhaps like:
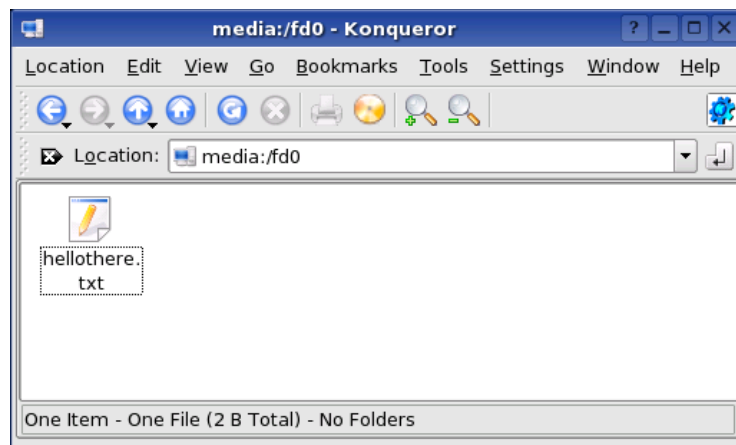
You can now work with the disk as any other folder/directory on your computer, just as you are familiar with on other operating systems.

Removing the floppy disk

When you're done, you can't just remove the disk from the drive. Well, you can, obviously, but you shouldn't. You have to remove it safely. Just as you would with your USB key. Go to the "My Computer -> Storage Media" window again.
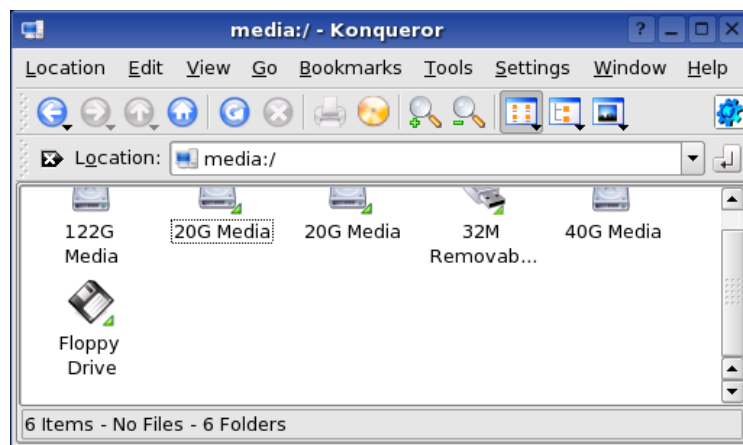
You'll see a small green triangle on "Floppy Drive"-icon. This means you're using it. Right mouse click on the "Floppy Drive" icon once. A pop-up will show, where you can select "Unmount":
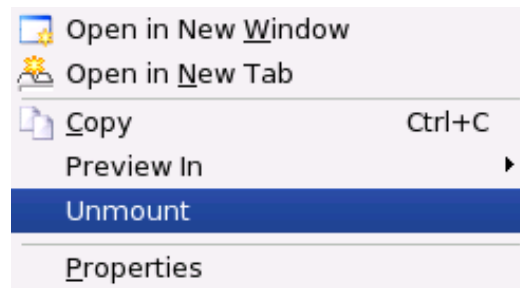
This will unmount the disk. Unmounting writes the files to disk that weren't written to disk yet but where changed – it doesn't always to that immediately. When it is done writing all changes to disk, it 'frees' the disk for removal. Once the green triangle disappears you can safely remove the disk from the drive.

Working with the USB key

You want to store some information on your USB key? Click on the "My Computer" icon on the desktop and click "Storage Media". Now plug your USB key into your computer. Once you plug in your USB key, a nice new icon appears in the "media:/" window. It also appears on your desktop, should you want an easier way to find and work with it.
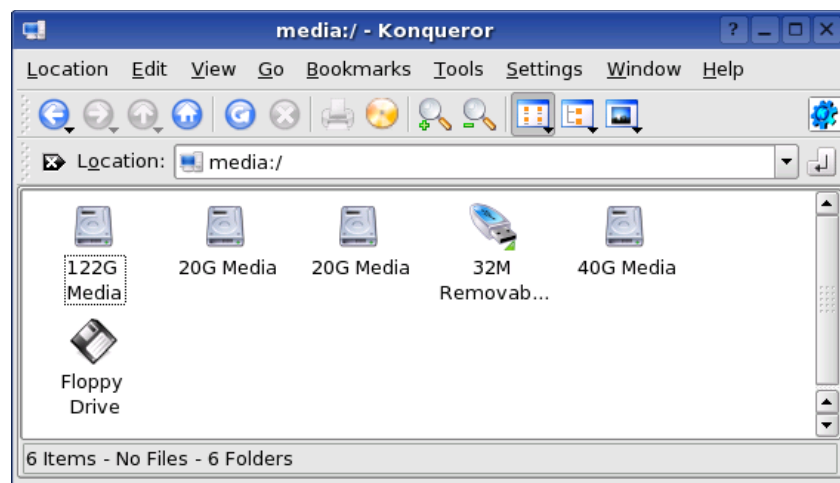
If you look at your desktop, it might look like this:
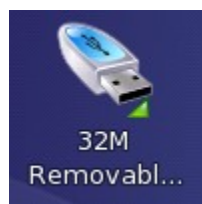
I have plugged in a 32M "Removable medium" as it's called, yours will likely be larger or smaller. You'll notice the green triangle showing on the icon. This means it's ready for business. Fancy looking at the files that are stored on it? Just click on the USB key icon you're seeing! Go ahead, open files. It now works just like any other folder on your system.

Removing the USB key

When you are done with working with your USB key, you'll want to unplug it safely. Don't just yank out the USB key, you might lose some of the data you were storing on the key that way. Go to the window you see in the picture above and right mouse click on the USB key icon. You'll see a pop-up appear:
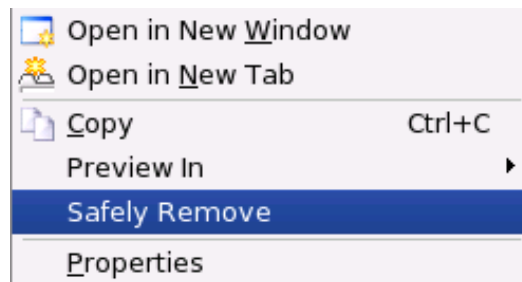
After you've clicked "Safely Remove", the green triangle will disappear from the USB key-icon and you can then safely unplug the USB key from the computer.

File Associations

For many files you can use different programs to read or display the contents of the file. PCLinuxOS does come with more then one program to edit text, more then one program to display an image. Which leads to the question of which applications are associated to which file types, and how to edit these associations? We will see how to choose the application of your choice and make the system use your choice by default for a certain types of files.

Displaying the associated applications
To display the associated programs, we first have to find a file. Open the Konqueror file manager by clicking the "home" icon, and find a text document somewhere. You can also create a new one with: right mouse click -> Create New -> Text File... Give it a good name and save it. Right mouse click on the text document. Select "Open With" from the pop-up menu.
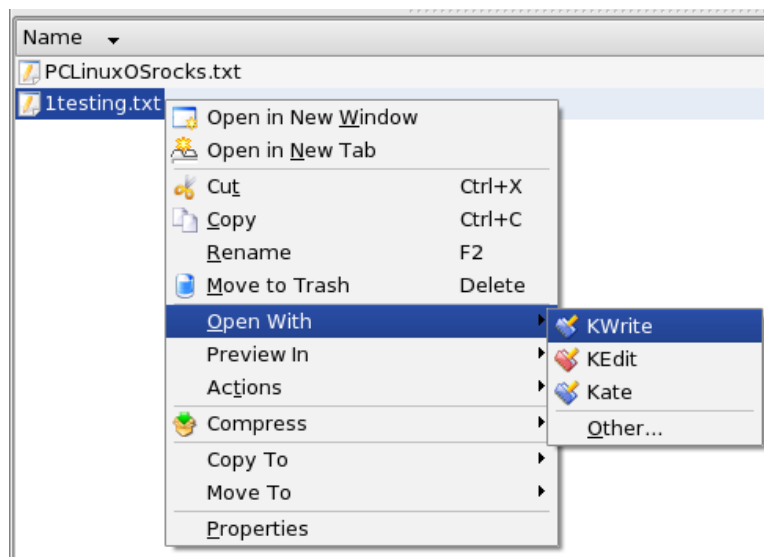
By default we have three different applications we can use to open the text document. If we had double-clicked the file, the application at the top of the menu (KWrite) would have opened that file. So KWrite is the default program used for the file type ".txt". These relations are called "file associations".

Changing file associations
You can add, remove or change the default file associations for the file types. In Konqueror, select from the menu: Settings -> Configure Konqueror... From the left pane, choose "File Associations". In the right "Configure file associations" pane, you have a text box "Find filename pattern". Type: ".txt". In the "Known types" box, you should now only have the category "text" available. Click on it and choose "plain". You should now see the image as displayed.
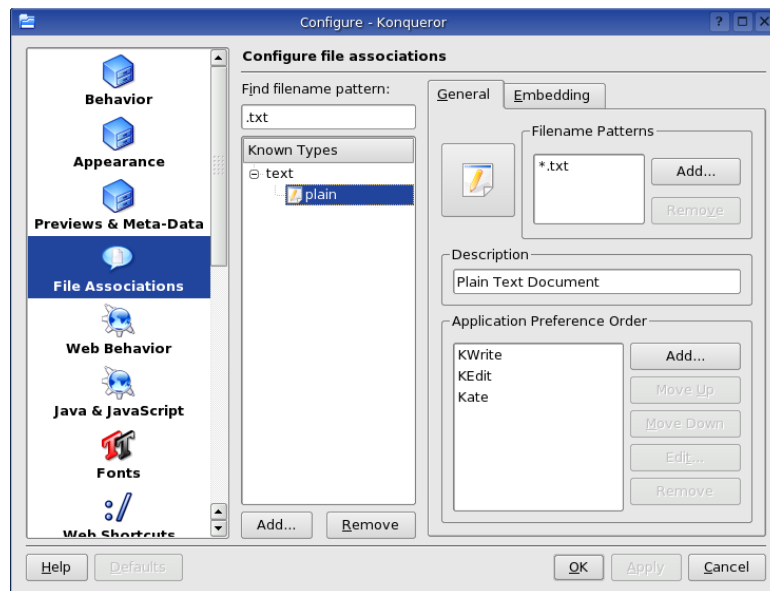
By selecting one of them, e.g. the "KWrite", you can either move it up or down the list, remove or edit it.

Creating new file associations
For adding a new option to the list of application, press the button "add", a dialog called "Choose Application for text/plain" will appear. Browse to Applications -> Editors and select the program you would like to add. In this example, pick KhexEdit.

Press "OK". Now you are back in the previous dialog and you should have the KHexEdit at the top of the list. From now on KHexEdit will be used as the default application for plain text files. We leave you with an homework assignment to figure out how to undo the changes.

Okay, we won't. This is what you do: You probably want to continue to use Kate or KWrite. Remove the KHexEdit all together, or move it down using the "Move Up" and "Move Down" buttons. Make sure either Kate or KWrite is at the top of the list again.
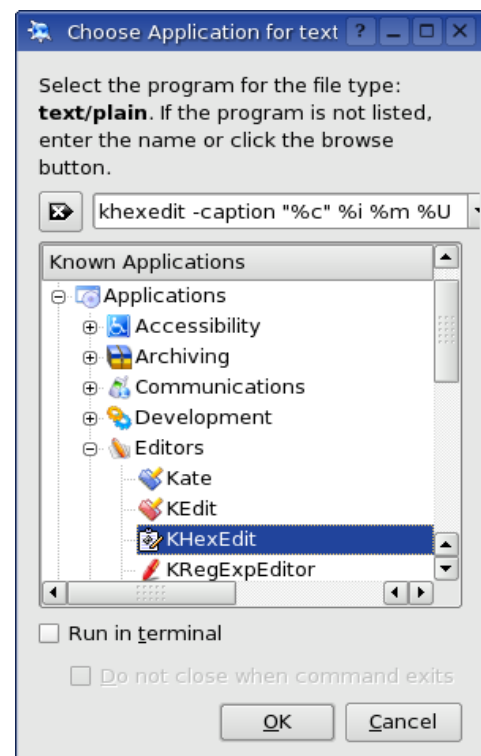
Chatting & Emailing

PCLinuxOS comes with a complete set of chatting and emailing tools.

Instant Messaging

There are two programs with PCLinuxOS that are generally applicable for Instant Messaging. Like Trillian on Windows, we have Gaim and Kopete. Both can handle almost all IM formats, so try them out, see which you like more. You'll have no trouble messaging with MSN, ICQ, AIM, Yahoo, Jabber, GoogleTalk, etc. The latest version of Kopete (comes with KDE 3.5) now also supports web cams for MSN and Yahoo.

Using web mail

Obviously you don't need any specific software for this. Just open up your web browser and surf to Hotmail, Yahoo, Gmail, or your employer's web mail url. PCLinuxOS and the Linux community have been blessed with some excellent browsers. You'll not be disappointed.

Setting up Kontact

If you'd like to do some real emailing, with an actual e-mailer called Kontact, to which we'll introduce you later in this guide. This is the default e-mailer. If you are looking for something more like Outlook, give Evolution a try!

Chatting with the IRC

We have quite a few good Internet Relay Chat (IRC) clients. KSirc is the default chat-client. You can connect to other PCLinuxOS users using the link on your desktop. You can also start it yourself. You can find the chat program in the K-menu -> Networking -> IRC -> IRC Client (KSirc). Once KSirc is started, press F2. In the window that opens, set the server to "irc.efnet.net" and port to "6667" and press "Connect". After a few seconds, it'll ask for a nickname. Enter a name. Wait a few seconds and when the scrolling stops, type "/join #pclinuxos" follow by pressing Enter. Or use the menu, select Join, and type "#pclinuxos". Then: Start Chatting! Besides KSirc we also have Konversation and XChat.

Calling with your friends over the Internet

PCLinuxOS has some excellent Voice over IP software as well. Skype is available for PCLinuxOS. Some other programs that support SIP, are kphone and linphone.

Some of these programs aren't yet installed and available for you to try out. We'll explain how to install these programs in the chapter Installing and Updating Software on page 33.

Playing Audio & Video

Multimedia is actually one of the strong points of PCLinuxOS compared to some of the other Linux OS's. Let's get you playing some music and movies quickly!

Playing CD's

Get your music CD ready. Open the free CD-ROM drive. Put it in. Close it.

You'll see this icon showing up on your desktop:

If you don't see this icon on your desktop, click on the "My Computer" icon on your desktop, followed by clicking on "Storage Media". You'll now see the Audio Disc icon. Right mouse click on the Audio Disc icon and select "Play", just like this:
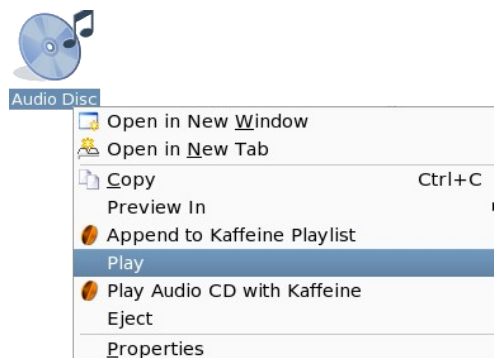
The CD-player will load (it might ask you to confirm if the CD you have is the CD he thinks it is) and it'll start playing the CD for you.

Want to listen to another CD? Just eject the CD you are playing (with the button on the CD-drive) and put in another. It should start playing after a second or so.

Playing with your CD

Depending a bit of how the CD player is set up, you might (or not, just try) have to stop playing the CD now. You'll have noticed we right mouse click on the icon to select play. What would happen if we left mouse clicked?

You now see the contents of you audio CD in files. You can see which audio tracks are on the CD, if you are connected to Internet it'll even show the names of the tracks.
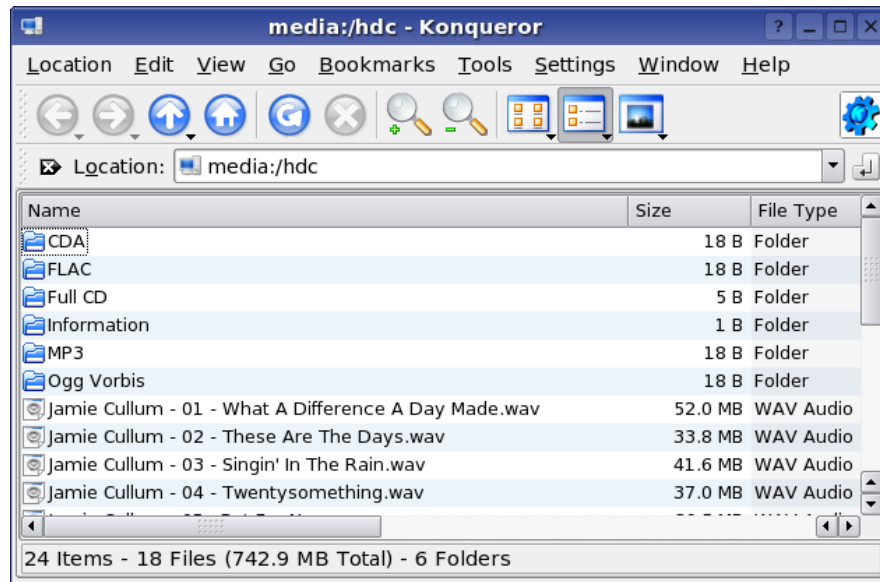
Want to copy the tracks to your computer for easy playing later on? (You can play the CD, without the CD being in your drive) Just copy the folder MP3 (or selected files from it) to your hard drive! Now, this isn't the fastest way to do it, but it sure is the easiest. Mind you, however you do it, this will take a while depending on your computer's hardware! As a side note, you might have to install the "lame" package if you want to encode mp3 files. How to install this package is explained on page 33.in the section called "Installing and Updating Software"

If you value your freedom, instead of using the folder MP3, you could go with "Ogg Vorbis" instead. Quite a few hardware MP3 players (hence their name) will not play Ogg Vorbis files though. The software MP3 players - applications you'll find on Linux - will play these just fine and it's an open source audio format.

If you have a whole load of free disk space and very limited time, you could copy the wav-files you see directly (without going into folders) This will not compress (make smaller) the audio files, so it'll take about 40-50 MB per track, instead of the 4 or 5 MB with Ogg Vorbis and MP3.

Troubleshooting

Perhaps nothing happened? If you see the CD player playing, but you aren't hearing anything, perhaps you haven't turned on your speakers?

Now if the CD player isn't doing anything, it might be a settings thing. In the CD player (KsCD) click on the Extra button, then click on "Configure KsCD". At the "CD Drive" part of the window,

check it says "/dev/hdc" (if it is the first CD-ROM you're trying to work with) If it says "media:/...." change it to saying "/dev/...." with the .... being the same as KsCD said - most likely "/dev/hdc" or "/dev/cdrom".

If things still won't play, check (or un-check, whatever is the current situation) the "Use direct digital playback" you find in the "Configure KsCD" window as well. I find I get the best sound quality not using "direct digital playback" but this doesn't work on all CD drives... If you want to multi-task your CD drive by both listening to your CD and playing with the files on it, you'll have to use digital playback.

Playing DVD's

Get your DVD ready. Open the DVD drive. Put the DVD in. Close the DVD drive.

The DVD and video player (called Kaffeine) automatically loads and starts playing your DVD.

To go fullscreen, double-click on the playing movie. To get back to non-fullscreen viewing, double-click on the movie again. You can also use the keyboard-shortcut Ctrl+Shift+F.

If you've inserted the DVD and nothing happened, you'll find an icon on your desktop. Right-mouseclick on this and select "Play DVD with Kaffeine". If the DVD-icon doesn't show on your desktop, click on "My Computer" and then on "Storage Media". Still nothing? Open the Media Player Kaffeine from the Startmenu -> Multimedia -> Video menu. Now, open the tab saying "Go" and click on the "Open DVD" icon.

Troubleshooting

DVDs you have purchased are generally encrypted with a Content Scrambling System (CSS). Actually watching your DVD may, strange enough, have certain legal restrictions depending on where you live, as this requires unscrambling the contents on the DVD. So if DVDs don't work, and after checking you aren't breaking local law, just install the needed software (this can all be done point and click) and it'll work.

1. *Install libdvdcss2 so your applications can read the DVDs.*
    With PCLinuxOS you can install this by opening the Synaptic Package Manager, you will have to be online though. Open Synaptic via Startmenu -> Configuration -> Packaging -> Synaptic. Enter the administrator/root password (on the livecd this is "root") and wait until it gets loaded. It then says "Your package information is out of date". Click on the Reload-button and wait. Once done, click on "Search" and enter "css". If there is a green square in front of "libdvdcss2" then you're good. If not, if it is gray, then right-mouseclick and select "Mark for Installation". Then click on "Apply".

2. *Start a video player.*
    Kaffine is easy to use and comes preinstalled. There are others like xine-ui, totem, mplayer and ogle if you prefer.

For more information about troubleshooting DVD playback, please see our <u>**online knowledge base**</u>[1]

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1   http://www.pclinuxonline.com/wiki/PlayDVDs

Listening to Music & Watching Videos

You just discovered a multimedia file on your hard drive. It really came completely (and completely legally) out of nowhere. Now, you wonder, how do I play it?

This is how: click on the file and wait a second until it starts playing.

Like Windows, Linux also uses a file association system. It recognizes what kind of file you click, and then opens the (usually) correct program for it. It can look at the file extension (.doc, .txt, .mp3, etc) but it also looks at the contents of the file itself. It'll correctly see the difference between a Word Perfect .doc, Microsoft Office.doc and a text document .doc.

Audio

For music files, clicking on the file will open a program called Amarok. This is an excellent program for managing your audio collection and playing your music files. It'll be worth your while to find out how that program works and what it can do for you. You can, just to name a few functions: easily download the lyrics of the MP3 you're listening to with just a button-click, easily upload files to your iPod, easily search your entire music collection, get music recommendations, and so on. Another program to play your music is called XMMS. The XMMS program offers some excellent quality MP3 playback.

Video

For video files, it'll open a program called Kaffeine. It'll play almost any video-file thrown at it. Once configured correctly, that is. It also has some great remote control functionality, together with lirc and irkick you can use a remote to control playback.

Codecs

Some multimedia files are stored in a way that by default PCLinuxOS won't understand. For example: Windows Media Video and Audio (wmv and wma) obviously don't really have native Linux drivers to load and play them. Luckily for us, there is still a way to play all your media files, without any trouble.

However, just like with playing DVDs, whether or not you can do this, depends on where exactly you live. So before you continue, check to see if this is OK with local law.

Still here? Congratulations. Open Synaptic. K-menu -> Configuration -> Packaging -> Synaptic Software Manager. It'll ask for the root (administrator) password. Then Synaptic loads. Most likely it will ask about reloading. Reload, and wait until done.

Click the Search button, and enter "codec". You'll see a list which holds (among others) win32-codecs. Make sure the square in front of it is green. If it is not, right-mouseclick on it and select Mark for Installation. Now locate the button "Apply" and press it. It'll download for a while. Once done, you can play almost anything.

Still no luck with your specific media-file? Do a search in Synaptic!

Listening to Internet Radio Stations

Listening to Internet radio stations (i.e. streaming audio) with PCLinuxOS is easy, here are the steps for the shoutcast.com service. Browse with your web browser to http://shoutcast.com/ Click one of the yellow "tune in" logos on the left. An open dialog opens. It suggests you to open the file with /usr/local/realplay, which is the default program for the file type .pls.

For the first time you can simply press the button "OK". Now you should start hearing the radio broadcast in a few seconds! It's that simple. Just remember to turn on your speakers.
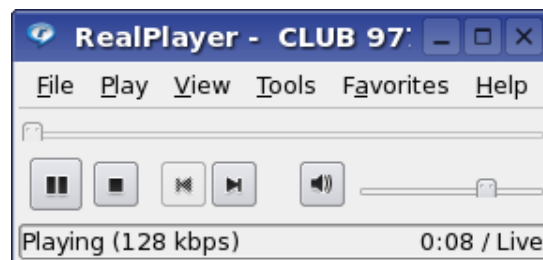
Next time, if you like, you can also choose other programs for listening the radio stations, such as e.g., Xmms or Amarok. Do it like this:
1. In the open dialog, click the menu for "open with" and select "Other...".
2. Then double-click the "file system" on the left.
3. Browse with double-clicks to "usr" -> "bin" (means path /usr/bin) and select the program of your choice, e.g. the Xmms.
4. Click "open" and then "OK". Now you should hear the audio with your favorite program.

When you have found the program you like the best, just select in the open dialog the "Do this automatically for files like this from now on" and you can change the radio stations just by clicking those yellow logos, without any pop-up dialogs showing up.

Changing Volume Levels

Everything seems to be working, yet you just don't hear a thing? You hear some things, but not everything? Are your neighbors banging on your door about the noise coming from your PC? If you still hear your neighbors banging on your door, you probably haven't quite found the right volume yet. We'll explain a few things here.

A short checklist before we get started
- Did you plug in the power cord of your speakers?
- Are your speakers turned on?
- Did you hook up your speakers to your computer?
- Did you hook up your speakers to the correct output?

Changing the Volume

You can change the volume of the sound card in your computer. You use a program for this called an audio mixer to change the sound levels. The audio mixer is a blue speaker-icon near the clock.

The blue speaker-icon not showing? Open the audio mixer by pressing Alt+F2 and typing "kmix" and pressing enter. This opens the audio mixer. If you click the blue speaker once, a pop-up shows with the Master Volume Slider.
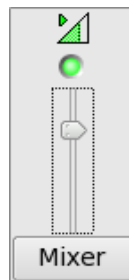
This volume slider manages the over-all volume. You can easily increase or decrease the volume of the audio here using your mouse. Close this volume slider by clicking somewhere else on the tool-bar, like the clock for example.

There is, however, quite a bit more to kmix then just this master volume slider. Click the Mixer button and a complete audio settings panel shows. Depending on your sound card, it could show the following image.
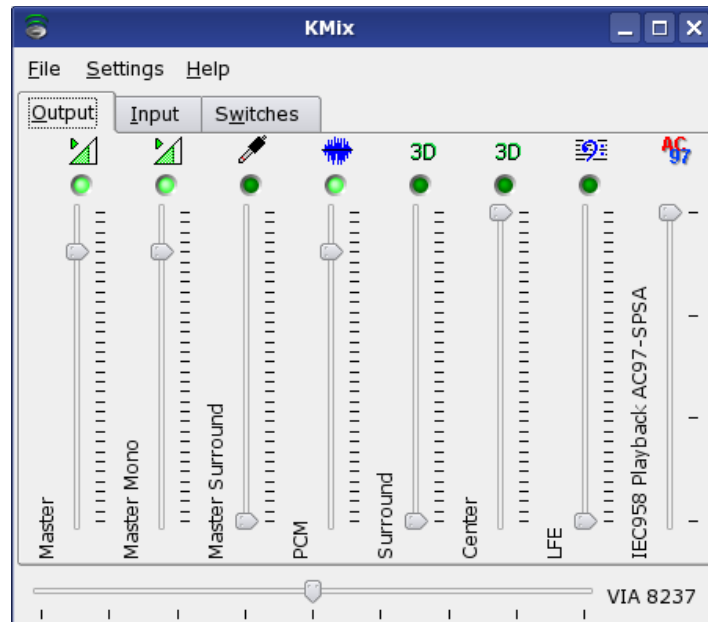
Make sure both Master and PCM (or your computer's equivalent, just look at the logo above the slider) are 75% or 80% up. The PCM is the normal sound coming from your software.

You can also switch on/off the audio. The bright-green circles show which sound is playing, the darker green circles means sounds is muted. So in this case Surround Sound is turned off. You can turn it on by clicking on the dark green circle.

Using Office Productivity Suites

The Linux world actually has three free Office Suites for you: KOffice, OpenOffice.org and Gnome Office. If you own a copy, you can even continue to run Microsoft Office as well. To read more about using <u>Microsoft Office</u>[2] on PCLinuxOS however, please see the on-line New User Guide.

KOffice

PCLinuxOS comes with <u>KOffice</u>[3] by default. It features word processing, spreadsheets, presentations and a database application. It will probably not read all your Word, PowerPoint and Excel documents but give it a go and see how you fare. If you need better Microsoft-compatibility continue reading the OpenOffice.org section below.

KOffice is a perfectly fine Office suite to get you started working. You'll find it is nicely integrated into the desktop environment, integrated with the other KOffice components and is pretty feature rich. Add to that, things like writing a simple letter or document really is user-friendly!

How do you start processing words?
> Start menu -> Office -> Word processors -> Word Processing
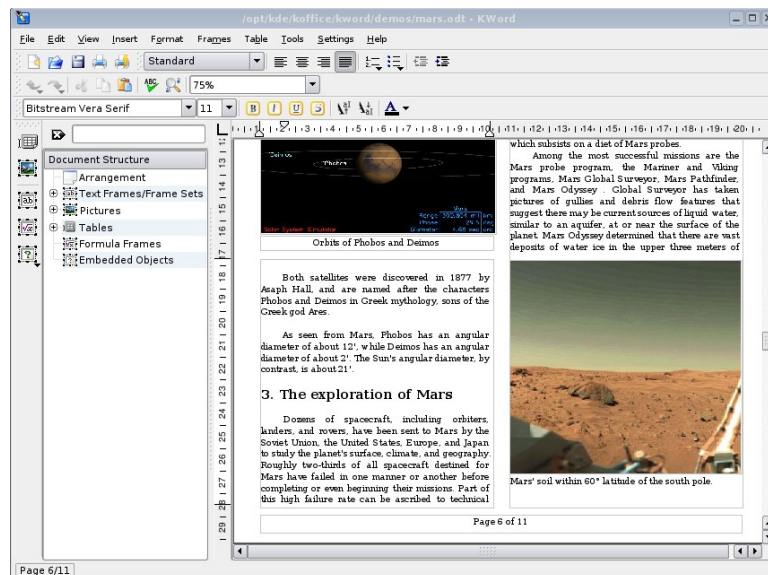
When you start working with KWord, you might want to start working with the more familiar Text Oriented templates. When you open up KWord it'll give you a few options. Create Document, Open Existing Document or Open Recent Document. Take your pick! Let's say you want to create a new document, you are looking at that "tab" already. Make sure you've selected "Text Oriented" which - most likely - is already selected by default. Take your pick, A4 or US Letter... Press OK. Need help? There is plenty of it! Just press F1.

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2   http://www.pclinuxonline.com/wiki/QuickStartOffice#cross
3   http://www.koffice.org/

OpenOffice.org

PCLinuxOS doesn't ship with OpenOffice.org by default. It is very easily installed. OpenOffice.org features word processing, spreadsheets, presentations and a database application. It'll read most Word, Excel and PowerPoint documents and display them just fine. However, OpenOffice.org isn't made by Microsoft and through the fact that MS-Office file-formats aren't shared and aren't pretty, it isn't 100% perfect. You'll find it's pretty good as is though and improving still. That said, it won't read your Access database files.

Once installed you can start using OpenOffice.org Writer from:
        Start menu -> Office -> Word processors -> OpenOffice.org Writer.
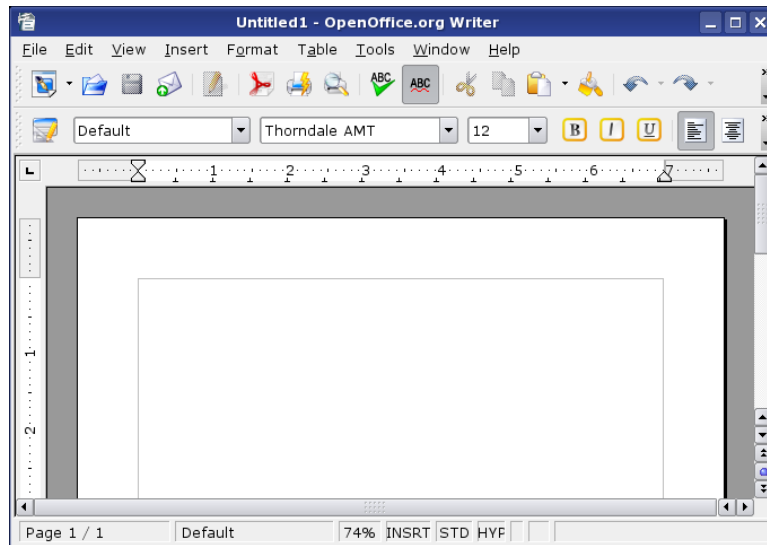
If you know your way around Word, you'll not have to look long to find the same features in Writer. It really is some excellent software, and it is even brought to you for free!

You can install OpenOffice.org with the Synaptic Software Manager. You'll want to install the package aptly called "OpenOffice". It's rather big, it'll will take a while to download and install. How to install software is explained in the chapter Installing and Updating Software on page 33.

Gnome Office

The Gnome Office[4] Suite holds some excellent software as well. Including AbiWord, Gnumeric, Planner, GnuCash for personal accounting, and Evolution the personal information manager.

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4 http://www.gnome.org/gnome-office/

Applications Available for PCLinuxOS

Your PCLinuxOS system comes complete with a comprehensive selection of free software. Most times, all you need to do is go to your start menu to find what you want. You might however be unfamiliar to the names of the programs. We'll list some important programs here. Every application we mention is either already installed on your computer or is available via easy Point & Click from the Synaptic Software Manager. There is no need to manually download, compile or install any of these programs!

Linux is gaining new software almost daily so it pays to keep an eye on kde.org or gnome.org and see what's coming down the pike. Just because there is not a program you need today does not mean there will not be one there tomorrow...and isn't that what it's all about? Choice.

Office

Default PCLinuxOS Office Suite: Koffice
Microsoft® Office compatible: OpenOffice.org
Personal information manager (e-mail, contacts, agenda, etc.): Kontact, Evolution
Personal finance: KMyMoney

Internet

Web browser: Konqueror, Firefox
Instant messaging (ICQ®, AIM®, MSN®, Yahoo!® compatible): Kopete
File transfer: Konqueror, Kasablanca
Web site editing: NVU
E-Mail: Kontact, Thunderbird
File sharing: aMule, LimeWire, Azureus

Multimedia

Media player: Kaffeine
Audio player: Amarok
CD/DVD Burning: K3B
Image manipulation: DigiKam, The Gimp, Krita, Kolourpaint
Scanning: Kooka

Administration

Control Panels: PCLinuxOS Control Panel, KDE Control Center

Looking for another application?

A more complete list of software offerings can be found on <u>http://LinuxAppFinder.com</u> Alternatively you can also see a Windows/Linux side-by-side listing of applications in the <u>table of equivalents</u>[5].

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5 http://www.linuxrsp.ru/win-lin-soft/table-eng.html

Installing and Updating Software

One of the Big Selling Points of PCLinuxOS is the way you can easily install new software. In the past this was quite a big problem with Linux, as it involved figuring out all depended software and installing those as well. With PCLinuxOS software installation got easy!

PCLinuxOS uses a program called the Synaptic Software Manager (and behind the scenes: apt-get) to search the available software catalog, download selected programs, install them and even update all your installed software.

Starting the Synaptic Software Manager
You will have to be on the Internet to use this program. Make sure you are connected. To start, you'll have to launch the PCLinuxOS software installer called Synaptic. You can find it in the start menu -> Configuration -> Packaging -> Synaptic Software Manager. After starting it by clicking in the start menu, it'll ask for a root-password (a.k.a. administrator password.)
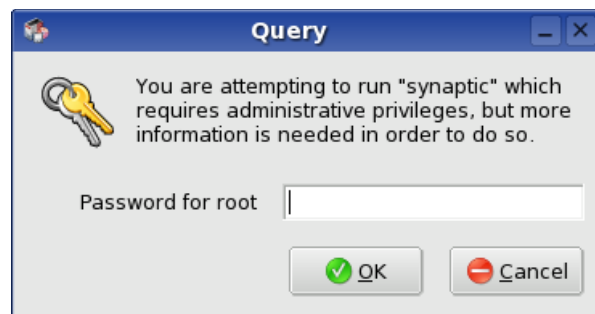
After entering the root password, it starts loading the information about available software packages. It'll probably say at this point that the information found has not been updated the past 48 hours.
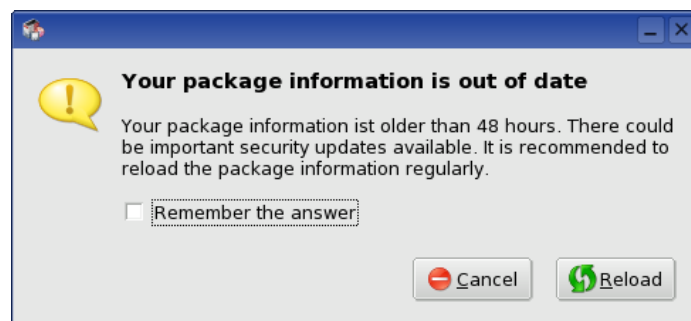
If Synaptic shows the "Your package information is out of date" window, press "Reload" and wait while it downloads the latest software offerings from the Internet. Depending on your Internet speed, this takes a while. Just wait. Synaptic works best when you regularly update.

When everything is done, you will now see the Synaptic Software Manager main window, ready for action!
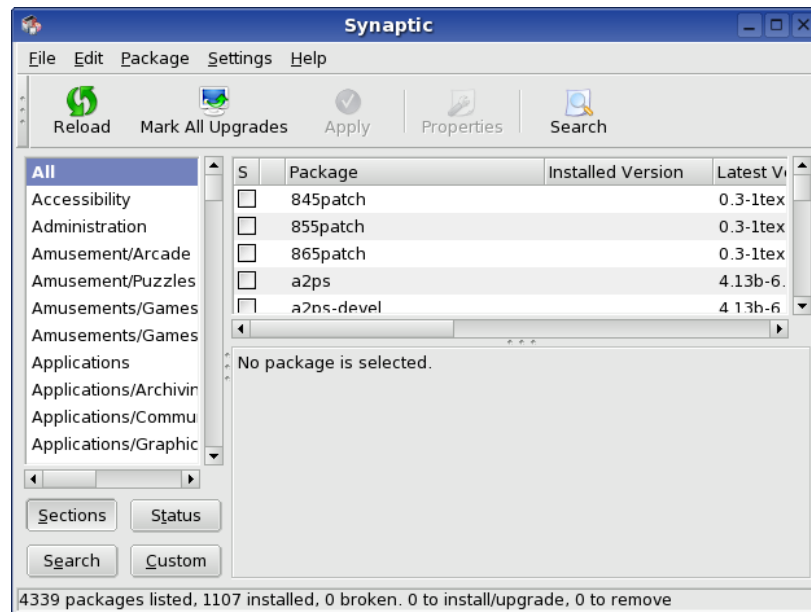
Search for software
Once the Update has taken place, you have on your PC a fully updated list of software available to you. Depending on your setup, you can download and install over 4000 software packages. All these packages have been put in different sections. You can find a section for Games, Multimedia, Office, etc. You can browse the complete catalog this way. If you are new to Linux, this might not be the easiest way to find interesting software though.

Let's for example try to download the Microsoft Fonts that are still so regularly used in Word documents that get sent to you, and websites you surf to. These Microsoft Fonts aren't free, so you can use these only if you have a Microsoft Windows license. Start by clicking the "Search" button.
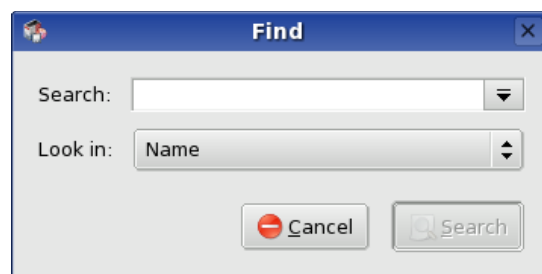
Enter "msfonts" in the pop-up. You can select whether you want to search only in the package-names or in their description as well. For now, just leave it as it is.

After entering "msfonts", press Search. It'll probably show two packages now: "msfonts" and "msfonts-style".

You can see whether or not you have installed them already, by the color of the square in front of the name of the package. If they are gray, this means they aren't yet installed.

Installing software

To install both "msfonts" packages, right mouse click on the gray square and select "Mark for Installation". The gray square icon in front of the package-name now has an orange arrow on it. It means you've correctly marked it for installation.

Now press the big "Apply" button. A Summary window will pop up.
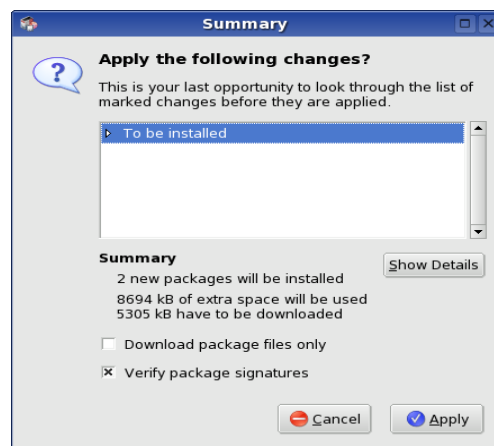
In the Summary window you see a white triangle in front of the "To be installed" line. If you click on the triangle it will fold out and you get a list of everything you are about to download and install. You might notice more software packages named there then you've manually selected. Once you select a package that depends on other packages, it'll add it to the download. It will ask you about it first. When it does, just confirm the question.

To install the packages, click the "Apply" here. It'll now download the packages.
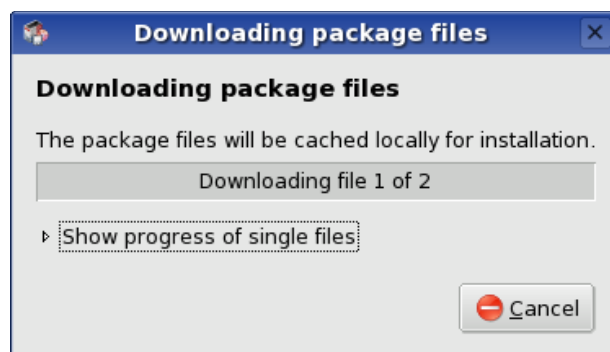
Once the download is complete, and everything was downloaded successfully. If the download didn't go right it will ask whether to ignore the failed download or to continue. If you say no to this dialog box, it goes back and downloads the files flagged as failed and completes the update. When the downloads have been completed it will automatically continue to install the downloaded software packages.
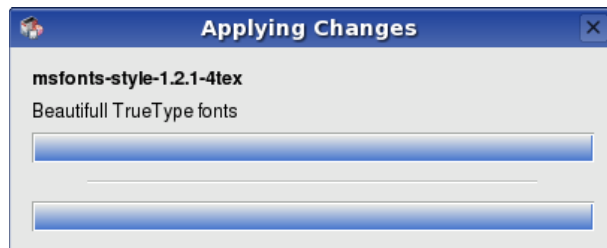
When it is done, it'll show you the installation feedback, you can close that by clicking Close.
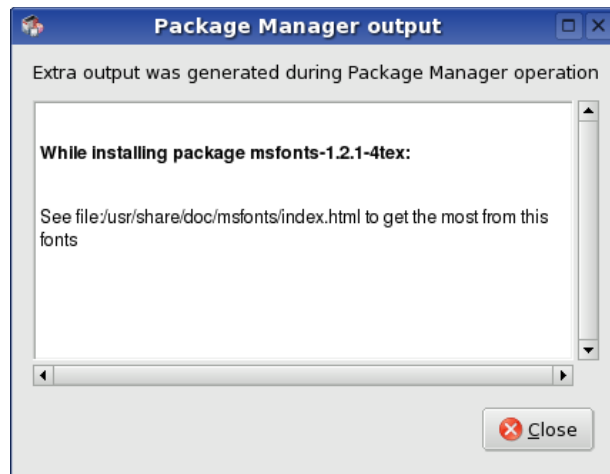
You can then close the Synaptic program and the new software is installed! Remember: don't immediately reboot your computer after adding software. Just give it a few minutes to relax and have everything handled and up-to-date before rebooting your computer.

Updating all your software

There is another neat trick you can do with Synaptic. You can update the software that is installed. You can manually search for updates and install those, or you can update your complete system. If you have an older version of PCLinuxOS installed and want to be up to date with the latest Live CD release, you can do the upgrade from Synaptic and be up to date with (or even more up to date than) the latest live CD. It really does automatically update all your installed software packages to the latest versions available in the software repository, without even breaking a sweat.

Upgrading a PCLinuxOS installation

If you have an older version of PCLinuxOS installed and want to be up to date with the latest live CD release, you don't have to install PCLinuxOS from the live CD again. You don't have to download and install the latest live CD. You don't have to change anything.

Upgrading with Synaptic
You can start Synaptic using: Start menu -> Configuration -> Packaging -> Synaptic Software Manager. If you want to do the upgrade, you better make sure you either have a fast Internet connection or plenty of time.
1. Start by getting the latest information about available software packages by clicking the Reload button.
2. When the reload is done click the "Mark All Upgrades" button. It'll now look at what you have installed and which updates are available. If it asks about a Smart Update, select that.
3. Now you can press the big "Apply" button next to the "Mark All Upgrades". It now shows a Summary Window showing the changes it will make. Click Apply to continue, and it'll download and install all available software updates there are.

When you are done, your PCLinuxOS will be as up to date (or more up to date even) then the latest live CD. If you installed a new kernel, you might want to restart your computer. If you didn't install a new kernel, just log out and back in.

Caution
From time to time some pretty big updates are made available. Like the recent OpenOffice.org update, the Xorg update and the KDE update. These updates will have a pretty big effect on your setup. The packagers do their utmost best to make sure everything goes smoothly - and most of it goes very smoothly indeed. They have a whole system to make sure nothing goes wrong - but every now and again, with big Upgrades - things might not work 100% like they did before.

Often when things might break doing an upgrade they get discussed on the forums and on the Mailing list[6]. So, keep an eye on those. You can also check out the IRC chat channel for help and information. Keep in mind you always have the PCLinuxOS live CD to boot your system IF things really go wrong. You won't have much trouble doing them - I certainly don't, it's just to be safe.

Requesting extra software

If you want to install some special or less known Linux software package, it might not be available via Synaptic. You can put in a request on the package request forum[7]. Texstar really does do great work handling software requests and packaging software. Remember to mention the url where Texstar can download the program. If you need something that isn't available yet it might help if you grease the wheels a little bit, make a donation. It is not a requirement to get the package you need and it is not a guarantee to get your specific request handled either. But it sure helps the development of PCLinuxOS.

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6 http://pclinuxonline.com/mailman/listinfo/pclinuxos_pclinuxonline.com
7 http://www.pclinuxos.com/forum/index.php?board=21.0

Removing software

Removing software is slightly - just slightly - more tricky. Some packages are of vital importance to your setup. You can't just go and remove KDE (K Desktop Environment) for example. Now, let's say for example you want to remove the "msfonts" again. Not sure why you want to do that, but go with me for a second. Open up Synaptic again, and do a search for msfonts.

All		S	Package	Installed Version	Latest Vers
msfonts		▢	msfonts	1.2.1-4tex	1.2.1-4tex
		▢	msfonts-style	1.2.1-4tex	1.2.1-4tex

It'll show both packages again, both with green squares in front of it. Right mouse click on the first green square, and select "Mark for Removal". You'll see the green square icon change into a green square with a red X.

All		S	Package	Installed Version	Latest Vers
msfonts		☒	msfonts	1.2.1-4tex	1.2.1-4tex
		☒	msfonts-style	1.2.1-4tex	1.2.1-4tex

◄   ►

Collection of minimum High Quality TrueType fonts

Collection of high quality TrueType fonts, default in any MS Windows installation. These are also the main webfonts as specified in microsoft.com/typography

Click the big "Apply" button. Now watch carefully! You see a pop-up with the word "To be removed" in the white big square in the pop-up. In front of it you'll see a triangle. If you click that, it'll open up (or close if pressed again) a list of software that is to be removed. If it only gives the package(s) you've manually selected you are good to go. If it gives a list of more packages, better not continue. It might remove some software packages you still want to use.

In this case - the msfonts - it'll only say "To be removed": msfonts. If you want to do this (you can reinstall it quite easily) you can press Apply. After a while it is done and the packages have been removed. You'll notice a white square in front of the package names again.

Creating CD's

Making Backups

Anyone who has been using a computer for any amount of time will tell you its not a matter of if your hard drive is going to fail just when. Even with an incredibly stable OS such as Linux running your computer the hardware fails at times, and it is always the worst time for it to happen. Take it from computer experts and people using computers for ages, that backups really are important - and also almost always forgotten about - right up until the point you need one and you wish you made it.

The most important thing is to save *your work* regularly. Installed software, changed settings and even most of the downloads you did, can probably be restored quite easily even without backups, you therefore don't really have to back these up. It is the documents you wrote, pictures you took and email you received that are probably most valuable to you.

Backing up files to a USB memory key

The easiest way of making back ups is probably using USB memory sticks. It's really easy; plug in your USB key and drag the data from Konqueror into the USB key folder.

USB memories, as easy as they might be, have some limitations: they can't hold very much data. Although the sizes of the memories grow all the time, using USB memories is not the cheapest way of doing big back ups. There is however something you can do to get more data to fit into the memory; compress the data to be backed up.

Backing up files to a CD

If you want to do something a little more thorough you might want to create backup CD's. On a monthly basis, depending on your usage obviously, burn your valuable files to a CD-RW or DVD+/-RW. You can rotate a few of these CD-RW so you can re-use a CD-RW you used a few months ago. Don't use just one CD-RW or DVD+/-RW and reuse that every month, use a few of them.

If you go for the CD backup option, you can use K3B. When you start K3B, it'll show big purple buttons named "New Data CD Project" or "New Data DVD Project".

Click which you prefer. If you have more then 700 MB to backup and you have a DVD-burner on your computer, go with DVD - otherwise go with CD.

In the top part of the K3B window, you'll see a file browser with tiny blue back, forward and home buttons.
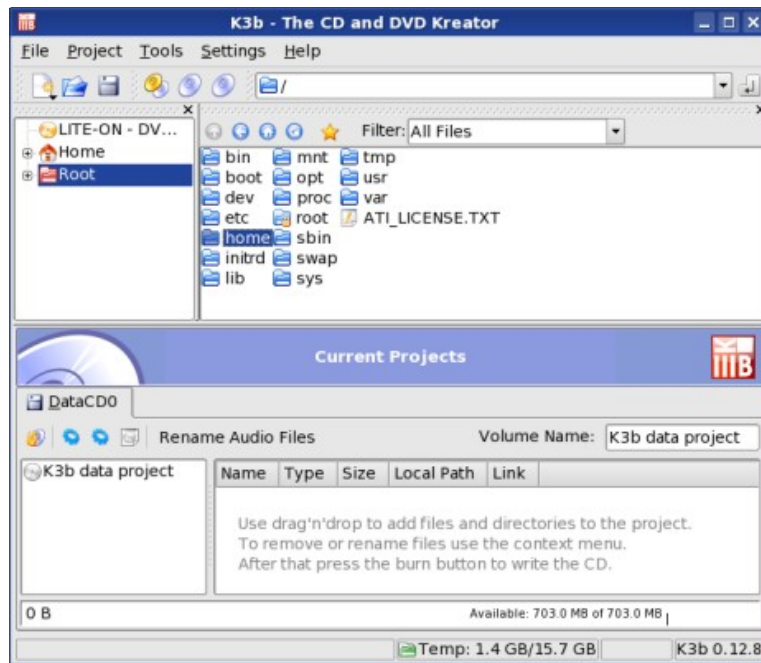
In the top window locate the files you want to save, and drag-and-drop them to big white square that says "Use drag' n' drop to add files...".Remember: don't go over the 700 MB for a CD or the 4.4GB for a DVD! You'll see this indicator showing how much is still left.

Backing up email and bookmarks

Your home-folder stores your personal files. So make sure to check at least your /home/user name (replace username with the name you use to log in) folder for files and folders you want to backup to CD. You are now wondering where you can find your Kontact/Kmail email and your Konqueror or Firefox bookmarks so you can back them up.

Email
- Kmail/Kontact stores email in the folder: /home/username/.kde/share/apps/kmail/
- You'll want to backup /home/username/.kde/share/config/kmailrc as well

Bookmarks
- Konqueror bookmarks are stored in the file:
  /home/username/.kde/share/apps/konqueror/bookmarks.xml
- Mozilla Firefox bookmarks are stored in the file:
  /home/username/.mozilla/firefox/-aNumberHere-.default/bookmarks.html

You might not see the .kde folder (it is a hidden folder) but it is there. Just enter it manually in the location bar.

Creating the CD

Once you've gathered all the files you want to save, give the CD a good name.

Volume Name: Backup yyyy mm

Enter a name for the backup including the date you made the backup. You are now ready to burn the CD to disk. Press the burn button.

DataCD0

A dialog will show, just as below. Put in the CD-RW or DVD RW and click the "Burn" button at the top-right.
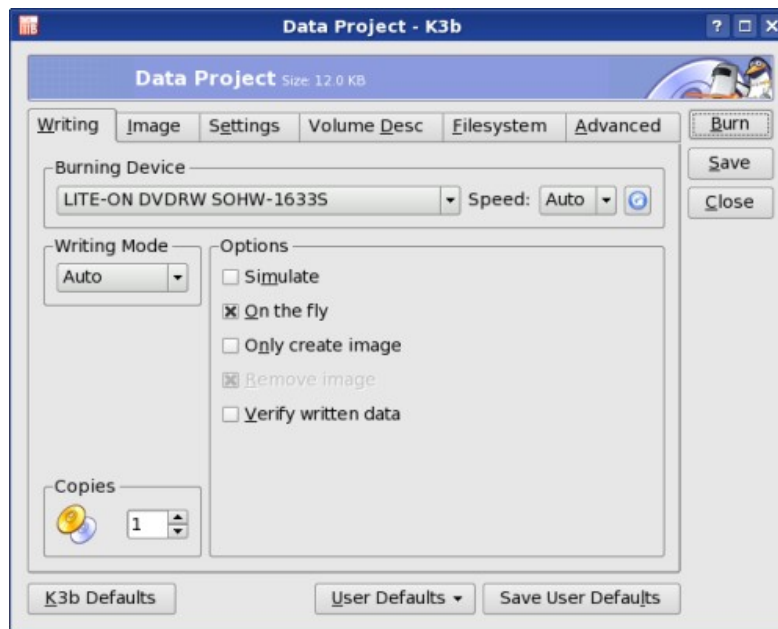
K3B will now create the CD. When done, you have finished making your backup!

Burning an ISO image to disc using K3B

You sometimes see files named .iso or read about ISO images. For example: when you have downloaded a copy of PCLinuxOS it is as an .iso file. The ISO image file holds the data of your CD to be created. To create an actual CD with the .iso file, youcopy the data *in* the ISO image to a CD. You should *not,* however, create a normal data CD holding the .iso file With the data in the .iso file you can create a CD on a CD-R or CD-RW medium.

Bring K3b up and look to the top of the program. If image burning is not an option along with audio and data file burning, go to "Tools" and then choose "Burn CD Image" to burn a CD. If you want to burn to a DVD disc, please make sure to pick "Burn DVD ISO Image."
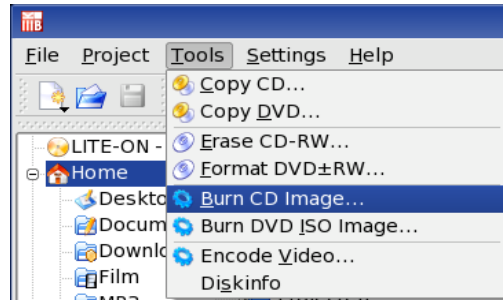
Once you click "Burn CD Image", your dialog box will open with many of the same options you are probably already familiar with.
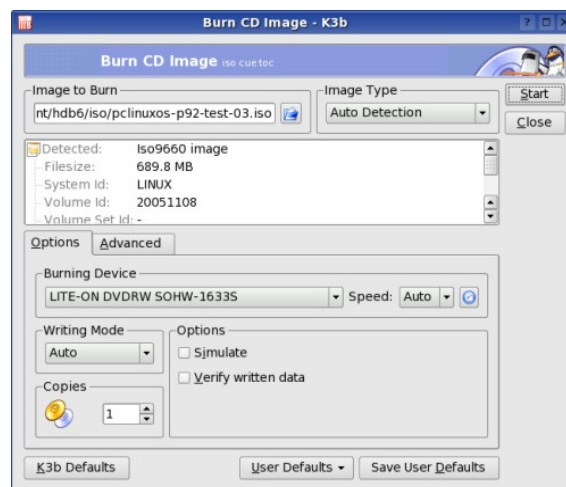
The first item you need to pay attention to is the field at the very top titled "Image to Burn." If this is the first time you have used the ISO burn feature, the field is probably blank. Click on the small folder to the right of the blank field and it will open your file manager. Navigate through the folders until you find the ISO you want to burn.

One of those little things that's good to know

Once you have used the burn ISO feature in K3b, the "Image to Burn" field will hold the last iso file you burned. When you start a new ISO project, you may get a red error message under the field saying "file not found". Don't panic. That will go away when you put the new ISO file into the "Image to Burn" field.

And another thing: As you navigate to find your ISO file, you may be wondering, "What the heck, I KNOW I downloaded that file to this folder...where is it?" Don't worry, it's there. Look at the bottom of your file manager and at the very bottom there is a field with "filter" to the left of it. Drop the arrow down and choose "iso9660 image files. Then try again and your ISO's will show up nicely.

Back to the Image Burning

The next field to the right of "image to burn" is "image type" it should be set at "auto detection". Leave it just like that and you will have no problems.

The Checksum

You will notice that when you chose an ISO What you saw happening was K3b calculating the "checksum" data.
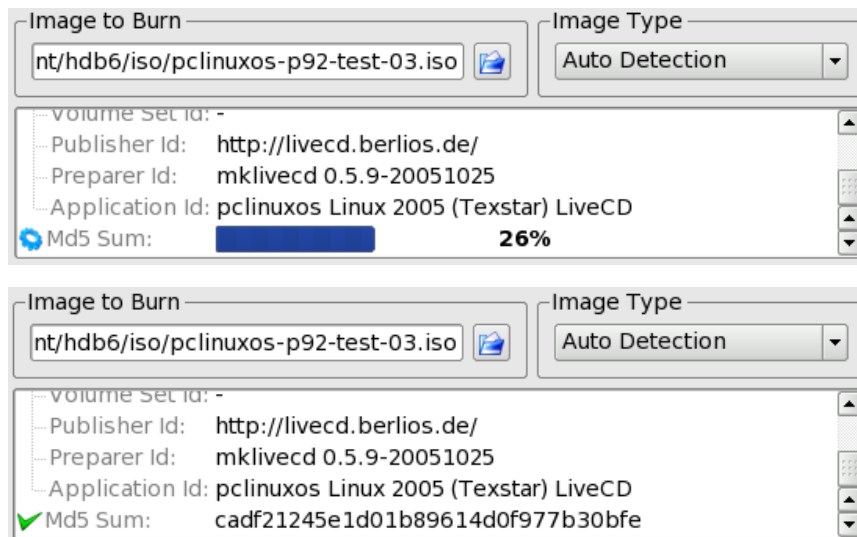
When someone creates an ISO file from data, a checksum algorithm begins and assigns a number to the file. Sometimes when we download data from the Internet, the files can become corrupted for one reason or another.

The MD5 sum or checksum is calculated and assigned to a particular ISO file so when you burn it, K3b will calculate the checksum as well and you can compare the two sums. If there is a single digit difference between the checksum you got with your ISO download and the one K3b calculates, it means you have a corrupted iso file and it is worthless.

Usually, re-downloading the file will fix the problem. If you receive conflicting checksums on the second attempt, then find another source to download the file because it is probably corrupt.

MD5 checksums are usually available for download as a separate file in the download directory where your ISO file is located. In the case of PCLinuxOS, they are the .asc files with the same filename as the .iso files. They are small and only take seconds to download. The checksum shown in the screen shot is just as an example. Verify the checksum you get with the one in the .asc file by comparing them and seeing if they match.

Ladies and Gentlemen, Start Your Burning!

Once you've verified the checksum and thus know the iso is correct, it is time to start the burning.
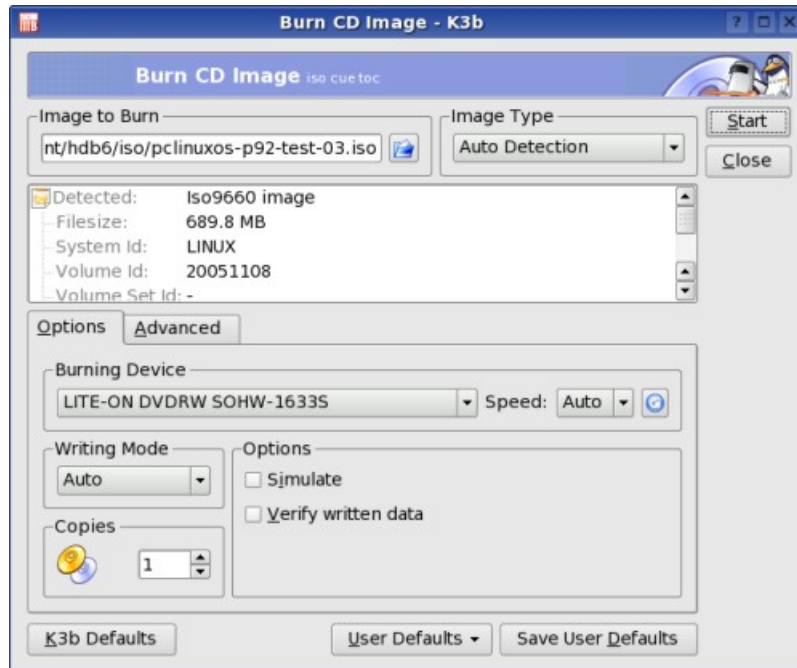
You might want to tune down the burning speed a little bit at this point. Using a speed of 8x - 12x is usually a good speed for burning, as it'll generally have a higher chance of success. Put in an empty CD-R, CD-RW or even DVD+/-R or RW and press the "Start" button at the top-right of the "Burn CD Image"-window.

It will now open a new window showing the image burning status and progress. The data in the iso file is now copied to the CD. Once it is done, it'll pop open the CD-tray automatically and your brand new PCLinuxOS Live CD is done! Literally hot off the press.

Personalizing Your Desktop

The Linux Desktop can be customized to not only be ultra-functional but distinctive and beautiful as well.

> *"I own a business where there are several computers visible to my customers when they walk into my offices. I cannot tell you how many people have commented on the desktops. Comments such as 'Wow, that's different.' to 'How did you get it to look like that?' to even 'Man, is that legal?' OK, only kidding about one of those remarks, I'll let you figure out which one."*

Change Your Wallpaper

When you want to make your desktop look different, start with your wallpaper. PCLinuxOS comes with quite a few wallpapers for you to work with. You can quite easily change to another one of the wallpapers. First, move your mouse to an unused part of your desktop. Right mouse click there once and a pop-up will show up.
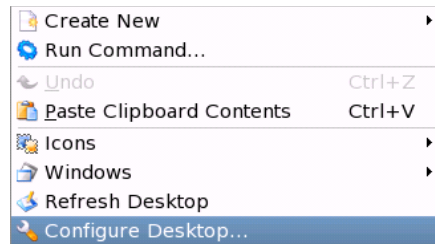
Left-click once on the "Configure Desktop" line. Another window will open. Use this window to configure your preferred desktop wallpaper!
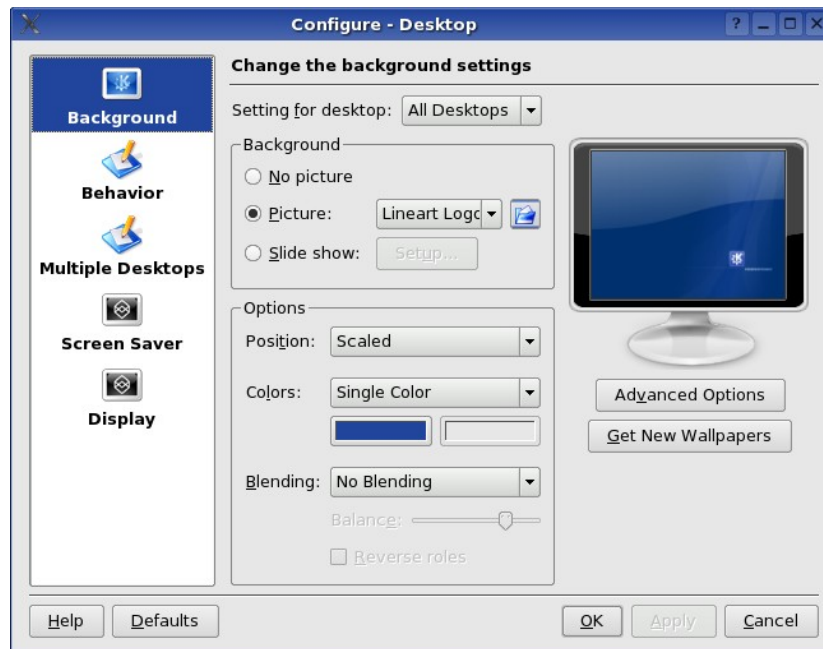
Changing The Look & Feel Of Your Desktop

Linux and the KDE Desktop are very configurable. You can change the way it looks and how it reacts to you (the feel) via the KDE Control Center. Starting the KDE Control Center: Start menu -> Configuration -> KDE Control Center. Click on LookNFeel. With the options displayed you can fine-tune the look and feel of your complete desktop!
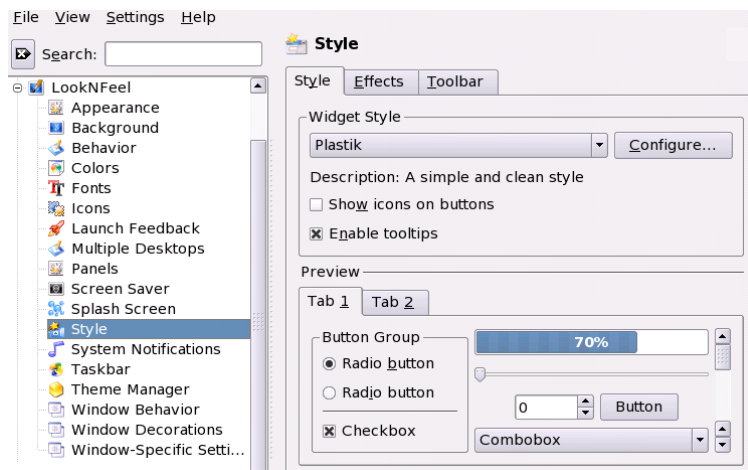
To learn what all the components on your desktop are called, we've added a schematic below.
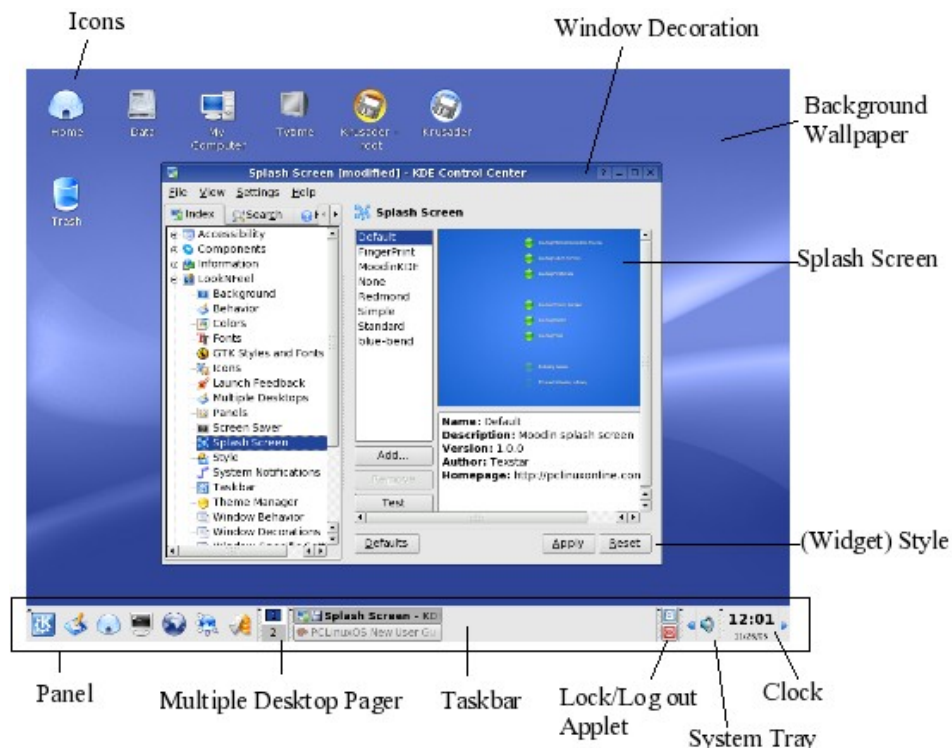
Getting to Know Kontact

Kontact is a personal information organizer, it allows you to manage your email, date-book, memos, news feeds, rss feeds, and hand-held organizer all from one simple interface. Kontact doesn't do all these things by itself, instead it is just a convenient front end to all the other applications that do all the real work.

The first time that Kontact is started it will ask for some basic user information so that it will meet your needs. All of the basic components can be configured from this screen or if you don't know what needs to go in a certain field you can wait and fill them out later. The configuration screen can be reached from the Settings menu in Kontact.
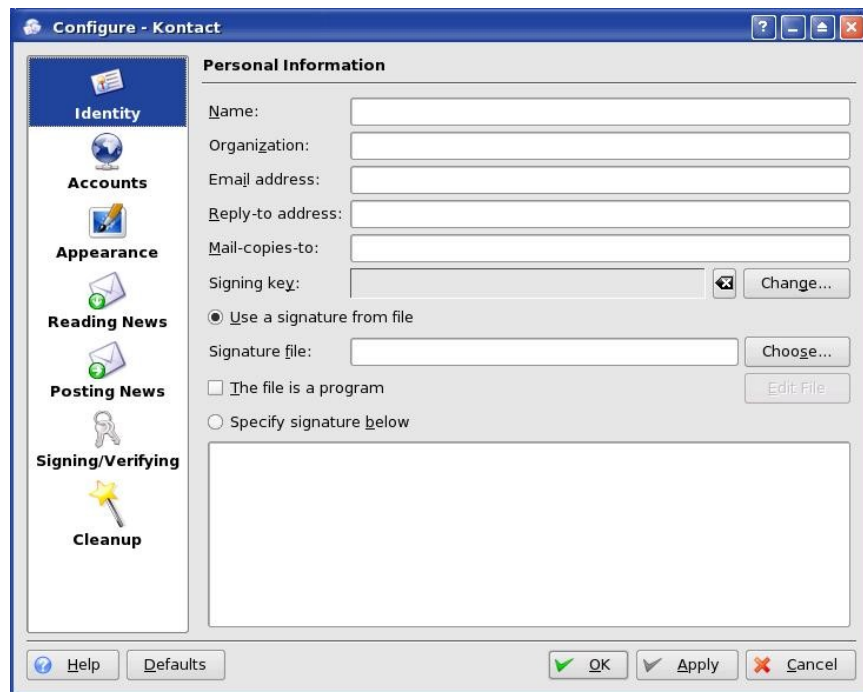
You also have a chance to view the Kontact manual or visit the Kontact website from the first screen that Kontact shows. The manual is a good thing to browse through as the features that Kontact offers will be only touched upon lightly in this short introduction. This is a very powerful information management system, very feature rich while being simple to use.

The Summary screen is where you can check on all of your information with a single glance. From unread mail to pending appointments, birthdays, breaking news or a reminder that you need to pick up a half gallon of milk today.
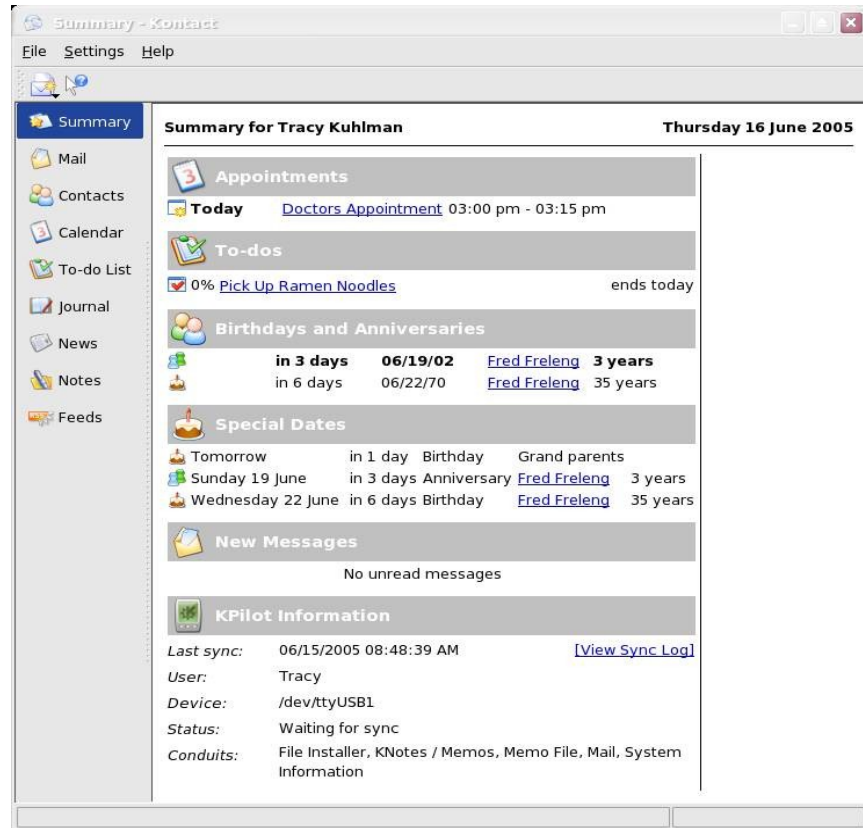
A click on any of the sections will take you to that pending information. Click on the image for more information on the Summary Screen.

Setting up Kontact Mail

The mail portion of Kontact is a front end to Kmail. With this application you can set up and manage multiple email accounts, and going through Kontact you also have tight integration with the other pim applications.

The first thing that is usually set up is the email accounts. Choose the Settings menu from the top of the window then choose Configure Kmail. As mentioned before kontact is just a front end for several other applications. Any changes to their configurations uses that applications own configuration tools. In this case it is Kmail

 When the Kmail configuration window is opened it will show the Identities windows, choose accounts from the left side of the window to configure your email accounts.
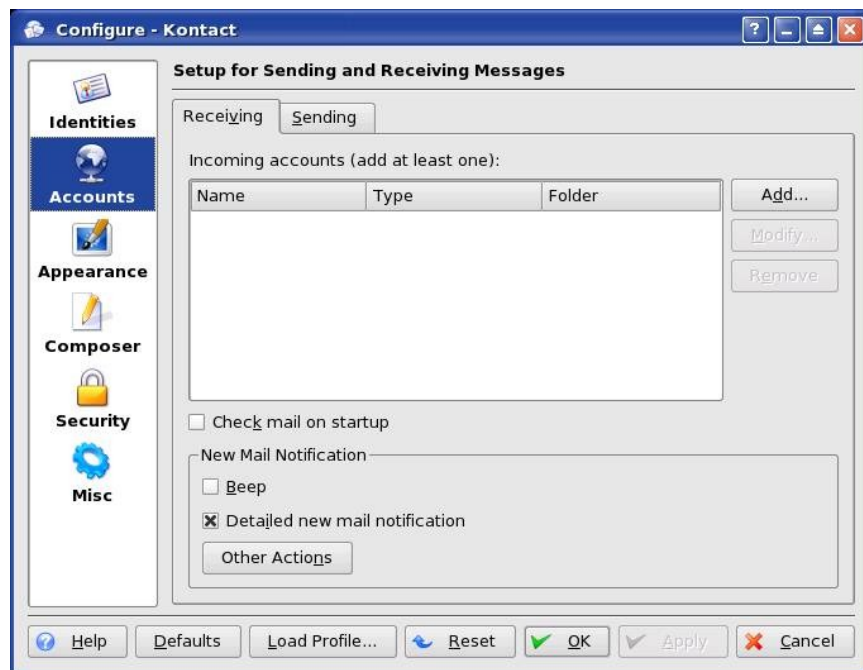
Then click the Add Account button on the right side of the window. In most cases you will choose POP3 in the small window that opens with a list of mail account types.

Fill in your account information in the window that opens. Most email providers will have instructions on how to set up mail clients. Probably not for Kmail but all of the needed information can be found in the setup instructions for either outlook or Netscape mail which most providers do support. Its easiest to get the needed information from there. To begin with you will need your user name and password for the mail account. You will also need the pop server and the SMTP server that you will be using. In most cases this is enough information to get Kmail to fetch your mail for you.

Basic Administration

When most people think of something basic with a computer they think of something along the lines of email or surfing the Internet. For the purposes of this guide however basic administration will be considered something that is done that in some way configures the users computer system. Things such as adding a new user to the system, or configuring a printer. With that in mind I would like to present one of the strongest features of PCLinuxOS. The PCLinuxOS Control Center, or PCC for short.

The PCC makes the upkeep of your computer truly a simple and basic task. To start the PCC click on the start menu and select Configuration. From the sub-menu select PCLinuxOS Control Center. You will be asked to enter your root password because PCC makes changes to files that only root has access to.

The first window that the PCC presents after it has been started.

Boot
From the boot management screen you can configure how PCLinuxOS starts. Whether it should automatically log you in, what is shown on your screen while PCLinuxOS is booting and setting up and configuring the boot loader Lilo.

Hardware Management
From the hardware management screen you can configure the different hardware components of your system. For example your keyboard, mouse, monitor and screen resolution, scanner, printer and sound-card. Click on the icon for what needs to be configured. A configuration tool will open where you can make the changes.

Mount Points
Mount points are where Linux can find your external data storage devices. This includes hard drives, floppies, CD/DVD drives, tape drives, memory cards and sticks, and just about anything else that you can connect to your computer that stores data. You can even set up how to access Windows PCs on your home network.

Networking
Setting up your network and Internet. You can also set up the sharing of your Internet connection.

Security
From here you can setup the personal firewall included with PCLinuxOS.

System
The system tab is one of the more important components of the PCLinuxOS Control Center. You can manage user-accounts, adjust date and time, configure which software (called system services) starts during boot, set up fonts, etc.

Configure Your Monitor

In most cases your monitor will have been detected successfully during installation. In this case you can leave the Plug n Play selection marked and don't need to change any settings here. There are times though when the monitor may not have been detected correctly installation.
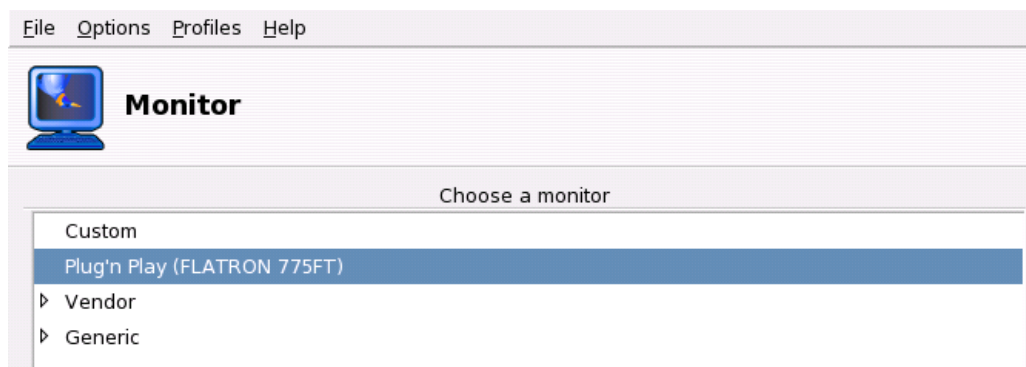
This window allows you to manually select the monitor brand and type. This will change the graphics server settings to utilize all of the possible settings that your monitor is capable of handling. If your monitor is not in the list you can pick from a list of generic settings the one that most closely matches your monitor.

Changing Your Screen Resolution

We all have different screens, we don't all want the same screen resolutions! Click the Hardware tab in the PCLinuxOS Control Center. On the left side of the screen (second option from the top). You now see the Hardware page of the Control Center. Click the option called "Change the desktop screen resolution".
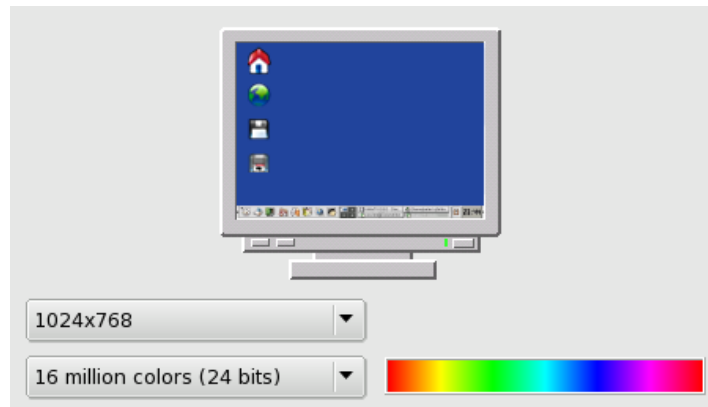
After you changed your resolution, you will be asked to log out. After logging out, press Ctrl+Alt+Backspace. The graphical routines will restart and you'll see your new resolution. Log in again. Worked pretty decent, didn't it? Well, it actually gets easier now.

Using KRandRTray
Once you've set your maximum available resolution with the PCLinuxOS Control Center, you can easily switch between resolutions, without logging out and in. Start the program "Screen Resize and Rotate" tool from the Start menu:
Start menu -> Configuration -> Hardware -> KRandRTray

You'll now get a new icon in your system tray, the dark blue icon next to the clock.

If you click on it, you get a menu showing different resolutions and refresh rates available for your PC. Pick a resolution and refresh rate you like, and it'll change immediately.
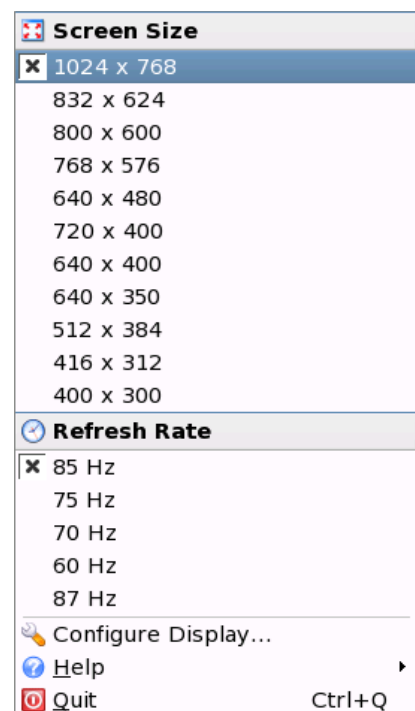
Setting Up Your Printer

This section explains how to add and configure your printer. It will also explain how some programs need to be set up different to correctly work with the printer settings.

Initial Printer Set-up

Open PCLinuxOS Control Center from Start -> Configuration -> PCLinuxOS Control Center. Enter your root password. When the control center is opened, click the hardware button. Next, click "Configure printers".

Clicking "Configure Printers" opens up the Printer Control Panel.
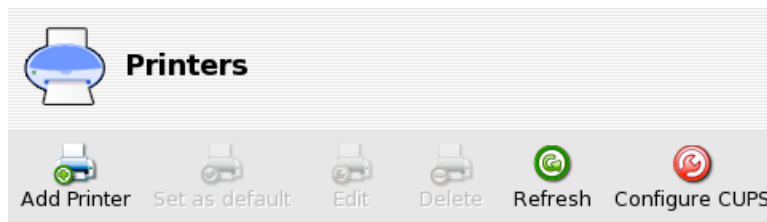
If you click on "Add Printer", you will be given the options where to look for it, local, on a network, and so on.
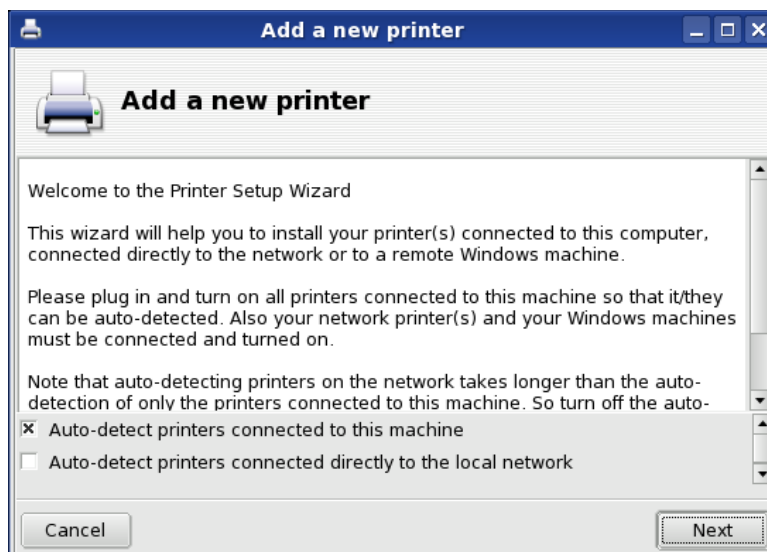
Check the places to look and click Next.

You may get an information box and you may be offered the chance to start up CUPS (the PCLinuxOS printer software)or it may just be started anyway.

Next thing you should get a box telling you what printer has been detected.
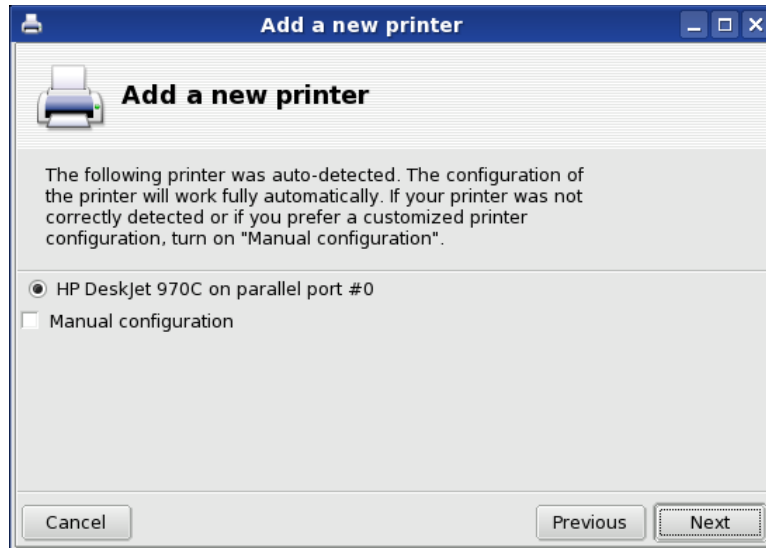
Ifit correct, click Next. Otherwise check "Manual configuration" and click Next.

Selecting your model manually
When you check "Selecting your model manually", this leads to a list of printers. If you are lucky, your printer will be highlighted, otherwise you will have to scroll through lists until you find it. When you have found your printer, click on it, click OK.
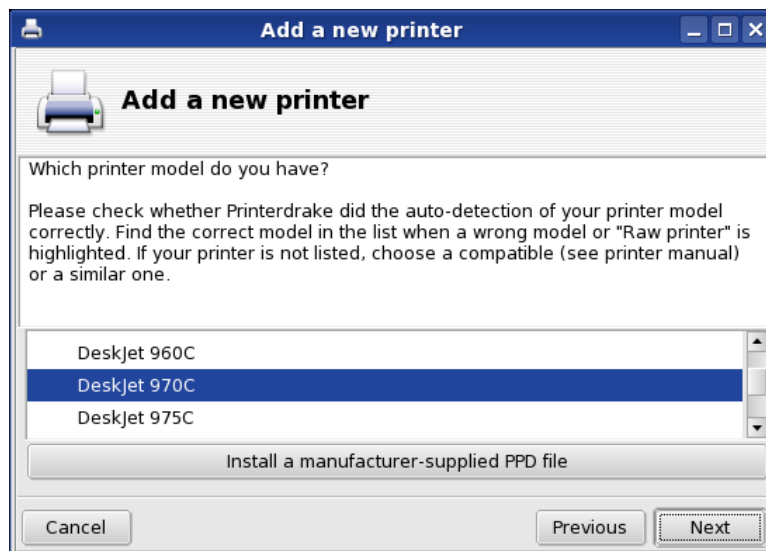
Printing a test page

When you've selected your printer, you are given an opportunity to test whether or not it works.
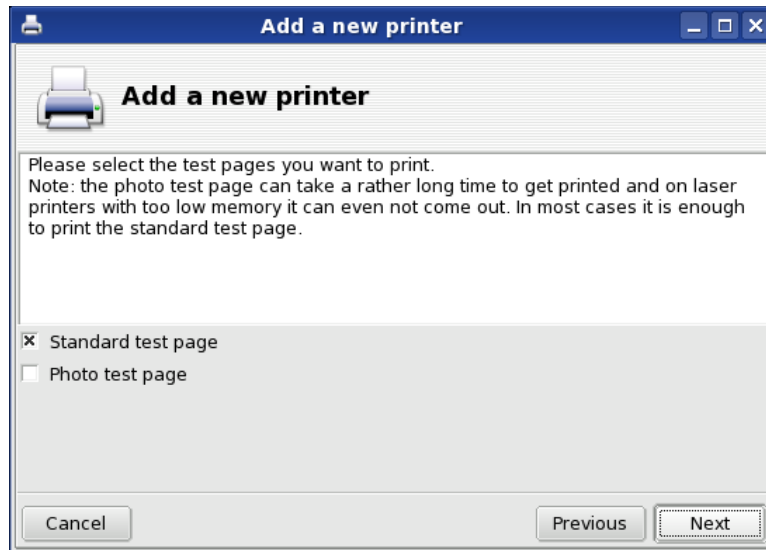
Select what you want to test. When you click next, you'll see a Congratulations page.
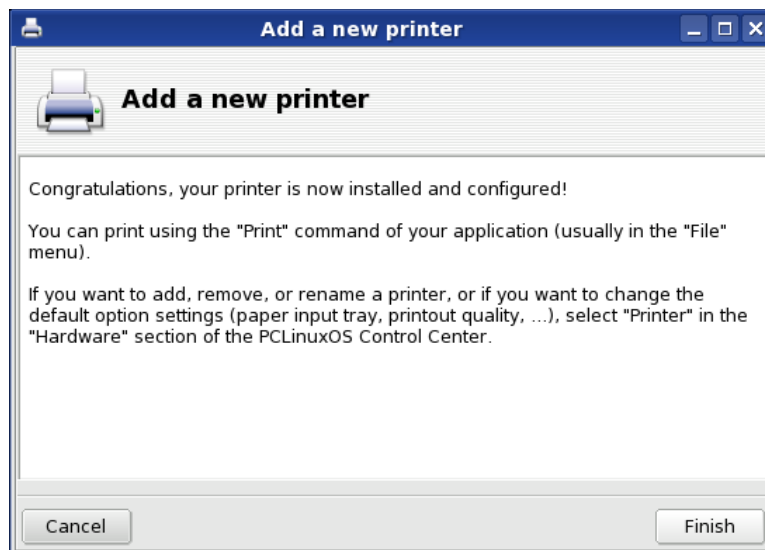
Other things done for you

My printer is a modern HP printer, PhotoSmart 7760. Still in the PCLinuxOS Control Center, I noticed that in "System > Services" that another daemon, "hplip", which provides extra functions on modern HP printers, had also been started. Now how easy was that?

Editing Printer Options

Whichever way you go about it, the printer will be installed with a default set of options. You may wish to change them. Open PCLinuxOS Control Center from Start -> Configuration -> PCLinuxOS Control Center. Enter your root password. When the control center is opened, click the hardware button. Next, click "Configure printers" as displayed beneath.

Clicking "Configure Printers" opens up the Printer Control Panel.
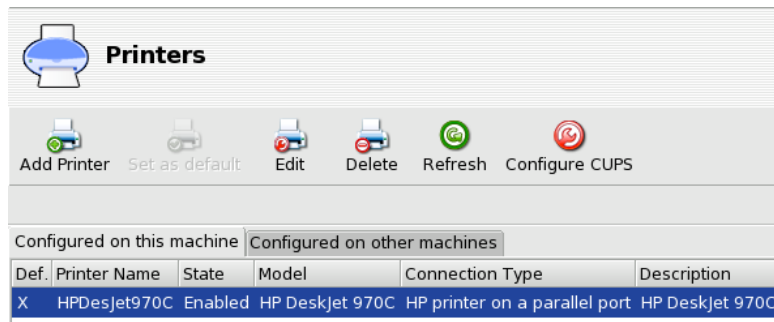
Make sure the printer's line in the list is highlighted, and click on Edit Printer. This will fetch up a list of options, you have to select one then click "Do it".
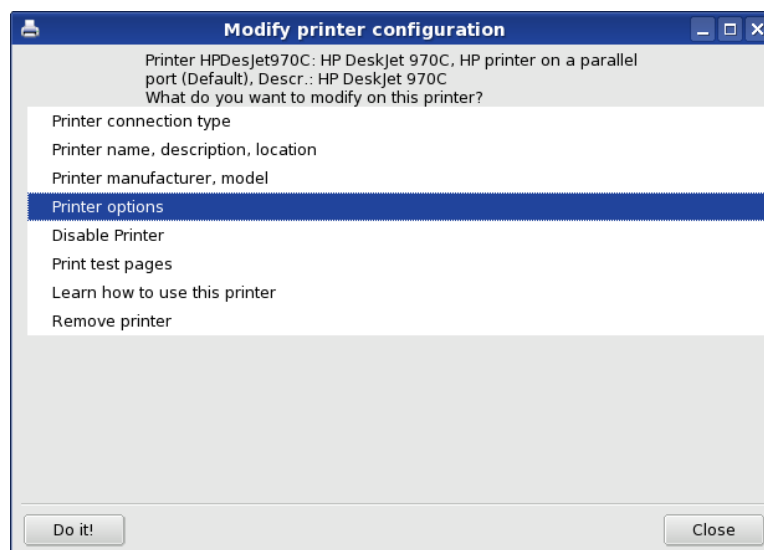
To change the Printer's name, you click on "Printer Name, Description and Location".

If you accidentally selected the wrong driver, or you want to use a manufacturer's PPD file instead of the default one, use "Printer Manufacturer, Model...". Of the options for locating the PPD file, "Other Place" really means your local hard drive!

"Printer Options" can be used to change the Paper Size (for Europe=A4), and with the "Advanced" button, printout resolution can be "enforced". So if you only ever use your printer for Photos, you can set: Printout Mode="Photo" and the Resolution="1200dpi Photo Full Bleed" (if your printer supports these settings).

Setting up an HP Printer/Scanner

For PCLinuxOS you have to re-install hplip with Synaptic. Then, reboot.

When you login, a window will pop up and ask if you want to autoconfig the printer/scanner. Say yes. It'll take about 1-2 minutes, and then use kooka (Start menu -> Multimedia -> Graphics -> Scan and OCR program) to do the scanning. It is assumed that your printer/scanner is connected via USB.

Compatible Printers

The LinuxPrinting.org website gives information about your printer and its compatibility with Linux. If you haven't yet bought a printer, it can help you make your choice. It may give advice on the printer you have. If your printer is correctly detected or found as explained in this section, fine. If not, this is the Oracle that you consult!

For printers known to work, or not work, for PCLinuxOS specifically, see our The Compatible Printer List[8]

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8 http://www.pclinuxonline.com/wiki/CompatiblePrinters

Security

The Security Shortlist

To effectively use the security of PCLinuxOS, you should implement these 5 keys to success:
- Use a good password
- Don't use the root account for normal work: do not log in as root!
- Make regular backups
- Make sure you have a personal firewall running
- Keep your software up-to-date

Using a Good Password

Using strong passwords is essential for your PC security. A strong password is a password that is hard to break. No one can guess them and they can not be "cracked" with password cracking algorithms.

Choosing a strong password

The password should have as many of these features as possible:
- be at least 7 letters long
- use both; upper and lower-case letters
- use both; letters and numbers
- have special letters (e.g. %#¤@£$)
- not be a dictionary word, user name, family member name, etc.
- be still easy to remember

The password must be used only in one single service. Don't reuse password. Create a new password for each service you use! You can check your password strength in Security Stats.com Inc's service[9].

Changing your password

You can change your password by using the Change Password Tool. Start-menu -> Configuration -> Other -> Change Password.

First you'll have to enter your current password, then your new password. It'll ask you for your new password twice, to make sure you didn't make a typo. Next it'll inform you your password is changed.

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9 http://www.securitystats.com/tools/password.php

Good Password Tips

A few tips to get you creating strong passwords!
- Use a password which is somehow **remotely** related to the service you are using it in, this helps you to remember it.
- Create a pass phrase, e.g. a phrase: "PCLinuxOS gets the whole 10 points from me!" --> becomes password "Pgtw10pfm!"
- When you type your password, make sure no one is watching behind your back.
- Do not use the well-known logic of replacing 'e' with '3', 'l' with '1', 'o' with '0' etc. - at least as an only method!
- Do not use words written backwards

Frequently Asked Linux Security Questions

Is there spyware in Linux?
Spyware really isn't as big an issue with Linux as it is with Windows. Depending on your definition of spyware someone could create spyware and distribute it for Linux. Seeing as we carefully check software before we make it available from Synaptic, chances are very small this will ever become an issue.

Are there viruses in Linux?
Viruses on Linux really are a non-issue. Most people think there aren't any viruses on Linux. There <u>are</u>, but only very <u>few</u>, and they are very ineffective.

Why are Linux viruses ineffective?
Here is why:
- Unlike with other popular operating systems, a normal user account on Linux has only very few privileges, this means that if something does go wrong, not a whole lot can go wrong.
- With Linux you don't usually download software from websites and then install it
- Linux users all use very different software for their email and surfing. There isn't any target software on Linux like Outlook and Internet Explorer.
- The browsers that are used usually are more secure, the bugs/vulnerabilities that are found are usually less dangerous.
- Software usually isn't shared in binary/executable form, but in source-code form. Viruses don't like programs in source-code form.

Are there anti-virus tools on Linux?
Yes there are! Linux servers are regularly used in networks with Windows PCs. You can use a Linux based virus scanner on email-servers to scan email and file-servers to scan files. You could - if you so like - also use these virus scanners to scan your own files if you regularly share files with Windows PCs. Linux isn't susceptible to viruses from Windows.

About Spyware

Spyware is a common problem for the users of Microsoft Windows. The word "spyware" is very hard to define, as its creators are financially motivated to keep the description as vagues as possible. Usually spyware programs observe, collect or send your data (called usage data) back to a server where it is analyzed. Some of the more honorable reasons for collecting this data is for marketing purposes or for a creation of differential pricing.

Less noble (calling the first two honorable is relative to the more sinister motives) reasons include identity theft, credit card theft, fraud, and launching Denial of Service attacks. There are very few spyware programs (malicious cookies) capable of infecting Linux. Given that the motives of their creators to spread spyware to as many PCs as possible, Microsoft will remain the main target for the foreseeable future. Even if Linux was a target, given the way Linux works it would be very hard to do much harm.

Anti-Virus Clients

Although really not as necessary as with Windows, there are anti-virus tools available for Linux. You can very easily install these anti-virus tools on PCLinuxOS. You can install these tools very easily using Synaptic

- Clam[10] - Has Samba (Windows Network) and KDE plug-ins available in Synaptic. Search for and install: klamav.
- F-Prot[11] - With Synaptic, search for and install: qtfprot.

Using a Firewall

Software with the task of controlling Internet (and other network) traffic coming in and going out of your computer or home network is called a firewall. Your firewall is your first line of defense against all the bad-intentioned people on the Internet. Fear not, however, good PCLinuxOS user, because the Wiki is here to save the day! The PCLinuxOS firewall is based on the "shorewall" firewall configuration tool.

How do you know your firewall is running?
Open the PCLinuxOS Control Center. Click on the Security icon on the left, and you'll see the security options for PCLinuxOS. You can clearly see the "Set up a Personal Firewall" icon here. Click on it. You will now see if your shorewall firewall is running. (If you have other firewalls installed, like GuardDog or Firestarter, the shorewall firewall will be disabled).

If your firewall is running, you'll see there **isn't** an x in front of the "Everything (no firewall)" option. If your firewall isn't running, make sure to **Un-check** the "Everything (no firewall)" option. You can fine-tune which Internet traffic is still allowed to your computer. You can very safely clear all the check boxes for normal desktop systems. That said, if you want to use BitTorrent clients you might want your firewall to allow it.

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10 http://www.clamav.net
11 http://www.f-secure.com

There is another thing you have to check to see if your firewall is active. In the PCLinuxOS Control Center, click on the System tab. You'll now see the System options. Click the "Configure system services" icon. You will now see an alphabetized list of software services that are running on your computer. Check that "shorewall" is listed by scrolling down to shorewall. It should say "running". You can also see if it starts "on boot", which it should. You can manually start and stop the service here as well.

Interestedin seeing how well your firewall does?
Steve Gibson has a very nice firewall "scanner", called <u>Shields UP!!</u>[12] Go to the Shields Up site and look for the button called "Proceed" and click on it. Now locate the link called "Common Ports" and click it. It will now scan your firewall for most common problems.

Chances are big it will say it was Failed. You can check which things could be improved. Chances are you will see it complain about "ICMP Echo Requests" or Pings. Make sure you have *unchecked* the check box in front of "ICMP Echo (Ping) Request". It might also say that "113 IDENT" was closed. This also isn't really a problem. More information about the "113 IDENT" can be found on a <u>Setting your Firewall for 100% Stealth Mode</u>[13] forum posting.

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12 https://www.grc.com/x/ne.dll?bh0bkyd2
13 http://www.geektimelinux.com/forums/viewtopic.php?t=12

PCLinuxOS in a Windows Network

Chances are that if you have a small network, it'll be a Windows based network. As Linux isn't Windows getting access to your Windows network requires some work. Luckily, it's all point-and-click.

This section will explain how to setup PCLinuxOS to see the Windows Network Neighborhood and how to setup PCLinuxOS to be seen and accessed from the network neighborhood.

First of all, you can use the Smb4K client to browse the Network Neighborhood:
        Start menu -> Networking -> Remote Access -> The SMB/CIFS Share Browser (Smb4K)

For a Windows PC to "see" PCLinuxOS, you must install samba server.
Note: To make this process go relatively easy, Login to PCLinuxOS as root.

1. First you must install Samba-Server. You can download and install **Samba-Server 3.0.21-1tex** (or newer) using Synaptic. After Samba-Server is installed, set it up as follows:

2. Go to APPLICATIONS .. CONFIGURATION.. KDE CONTROL CENTER
    a. Once in KDE CONTROL CENTER, click on SAMBA

3. There are a couple TABS that we will need to configure here:
    a. Under the **Base Settings** Tab, "SERVER IDENTIFICATION"
        1. Workgroup - Type the name of your existing Windows Workgroup
        2. NetBIOS - Type the name you wish to call you're PCLinuxOS computer
        3. Server String - Type a description of your PCLinuxOS computer (ex. Livingroom computer)
        4.   "Security Level" - You can leave it set to "Share"

4. Now move on to the **Shares** Tab and correct the following:

5. The Default folder is called homes and it has a mistake in its setup
    a. Click on the homes folder, then click on "Edit Share..."
    b. Un-check the "Share all home directories" box. This will allow you to use the browse folder to find your /home directory (not /homes)
    c. Select your /home directory, then check the "Share all home directories" box
    d. Under MAIN PROPERTIES check the appropriate levels of access for: Read Only, Public, Browse-able, Available - Then click OK

6. Now click Apply and OK at the bottom of the Main page, then close the KDE CONTROL CENTER

7. Now, in order to have access to your /home folders and sub folders, you will have to change Permissions for each of the users that have folders under the home folder.
    a. Click on MY COMPUTER - STORAGE MEDIA and choose the **hda(x)** drive where your /home folder is located.
    b. Open the /home folder, then Right-Click on the user's folder (ex. /home/me)
    c. Select PROPERTIES, then click on the PERMISSIONS Tab. You must change the ACCESS PERMISSIONS for **Group** and **Others** to "Can View Content" or "Can View and Modify Content"

        d. Also check the "Apply to all sub folders" box, then click on "OK"
                NOTE You can go back later and set individual sub folder permissions to limit access to those particular folders.
        e. Do steps b, c & d for each **user folder** that you want to have access to.

8. Reboot your PCLinuxOS computer and you should now be able to access your computer from any of the other computers in your network.

9. Repeat this entire procedure for any other PCLinuxOS computers that you may have in your network.

Be **careful**, this procedure **assumes** you want to allow complete access. You can always give less "Permissions" than I have given in this example.

Where To Go Next

When you've reached this part of the guide you are Ready to Rock 'n' Roll with the PCLinuxOS Desktop. We hope you have enjoyed our introduction. There are still plenty of things to learn about PCLinuxOS and KDE to maximize your Desktop Experience! Here is how you too can master your desktop.

First of all, continue reading our on-line [New User Guide Wiki](#)[14]. In the pages of this guide you will find plenty of information to help you be more productive (and have more fun) with your computer! As we did, you too will find getting to know more about your PCLinuxOS desktop will make your computing experience more fun.

The KDE Help Center

Another excellent starting point for more help about the PCLinuxOS desktop is the KDE Help Center. If you are new to Linux or new to KDE and you've read this New User Guide Wiki, you might want to continue reading the KDE Quick start Guide.

Open the kmenu (by clicking on the start menu button, left-bottom of the screen) and move your mouse to "Documentation", then click on "Help". You'll see a big menu now, a good way to start is clicking "Welcome to KDE". Of particular interest is "A Quick Start Guide to the Desktop". This will explain how to use your PCLinuxOS user interface (called KDE) to its maximum potential.

You can also access this "Welcome to KDE" information by opening Konqueror (either the browser or the file manager) and entering as location: help:/khelpcenter/welcome-to-kde.html

The Forums

There is a wealth of information on the PCLinuxOS forums. Chances are that if you have a question about PCLinuxOS someone else has had that question as well and has already asked about it on the forum. Just enter a key word or two in the Search box at the top of the page and you will get a list of threads with info relating to your question.

The address is: http://www.pclinuxos.com/forum/

The Mailing list

There is also a mailing list for discussions relating to using and the development of PCLinuxOS. You can register for it, receiving all the emails in your inbox, or browse the PCLinuxOS archives.

The address is: http://pclinuxonline.com/mailman/listinfo/pclinuxos_pclinuxonline.com

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14 http://www.pclinuxonline.com/wiki

Reporting A Problem

Before you report a problem, make sure your problem isn't reported already. Chances are pretty big that somebody already solved the problem. There is a search field to search the forums on the forum main page. If your problem isn't reported, start by reading the **Usage Rules**[15] of the Forum and mailing list.

Gathering Information

The most important rule is actually rule Number 16: "Include as much information as you can when seeking help. This may include logs and command line output. Nobody can help you if you refuse to give sufficient detail."

Starting with preview 92, PCLinuxOS includes a handy utility called pclos-info which gathers most of the information about your system required to troubleshoot your system. If you have an earlier preview, you can search for "pclos-info" in Synaptic and install it. The program can be run from Start-menu -> Configuration -> Hardware -> PCLinuxOS Info Tool, but in order to take full advantage of it you should run it as root. Press Alt+F2, type: "kdesu pclos-info" and it will execute the same program but it will gather a lot more hardware related information.

When the PCLinuxOS Info Tool is done gathering information it will bring up the text file in the editor, and you can cut and paste all the relevant information in your mailing list e-mail or forum post.

The IRC

Another way to get more help is on the #pclinuxos chat-channel. Quite a few knowledgeable PCLinuxOS users join this chat regularly, so if you have any question, chances are it'll be answered there. First off, make sure you are connected to the web. On your desktop you'll find an icon called "IRC Chat #pclinuxos", looking just like:

Click it. After a while, it'll ask for a name. Enter your name or think up a nice pseudonym, and press OK. After a few seconds, you'll be logged into the "irc.efnet.net"-server and connected to the other PCLinuxOS chatters in the chat-channel named #pclinuxos. A few rules of the road. Be careful with capitals, don't use all-cap words. Don't use colors (if you are new to IRC, you automatically won't use this) And generally, just don't annoy people. :) Now go ahead, join the chat and ask that question!

---

15 http://www.pclinuxos.com/forum/index.php?board=28.0

Interesting Links

As final words, we'd like to close with a few interesting links that may be of help getting to know your Linux and experiencing fun again in using your computer. This is intentionally *not* a complete listing of Linux sites, these links are Linux sites that are of help specifically to new Linux users.

On-line PCLinuxOS New User Guide Wiki – http://www.pclinuxonline.com/wiki/
> The on-line version of this document. More extensive and more up-to-date. Also includes some more Frequently Asked Questionspages.

Tux Magazine - http://www.tuxmagazine.com
> A free (as in cost) magazine in PDF-format you can subscribe to, specifically created for the new linux user!

The Ultimate Linux Newbie Guide http://www.linuxnewbieguide.org/
> A introduction to Linux, operating systems, distributions, installation, etc, for the new Linux user. Not focused on PCLinuxOS

Linux Help, Beginner Help Page - http://www.reallylinux.com/docs/consult.shtml
> An interesting set of generic Linux articles: Starting out, Essential Commands, Why Linux, etc.

Distrowatch - http://www.distrowatch.com
> Although you have found one of the most user friendly and easy to use Linux's already, all Linux distribution news can be found on Distrowatch.

TuxFiles - http://www.tuxfiles.org
> Generic Linux newbie help files, including: working with files and file systems, system administration, etc.

Tips for Linux Explorers - Forum Thread on ScotsNewsletter.com
> All kinds of hints and tips not specifically for PCLinuxOS but general Linux use.
> http://www.geektimelinux.com/forums/viewtopic.php?t=12

Linux Command - http://www.linuxcommand.org
> If you want to learn about the command line: "Your one-stop command line shop."

Appendix I - A Brief History of PCLinuxOS

PCLinuxOS is an operating system created and maintained by Texstar and a small group of enthusiasts. PCLinuxOS is, arguably, the most user-friendly Linux operating system currently on the market. PCLinuxOS was however based upon work by Mandrake/Mandriva, who in their turn were unhappy with RedHat and based Mandrake Linux on RedHat. But RedHat didn't invent or create Linux either.

Linux was created by a Finnish guy named Linux Torvalds. His initial usenet newsgroup posting on Linux, (partly) reads:

```
"Hello everybody out there using minix –
I'm doing a (free) operating system (just a hobby, won't be big and professional
like gnu) for 386(486) AT clones. This has been brewing since April, and is
starting to get ready. I'd like any feedback on things people like/dislike in
minix, as my OS resembles it somewhat"
```

Dated August 25, 1991. Torvalds was about 22 at the time.

Linux was a Finnish creation originally from 1991? Yes, but the operating system we now know as Linux... not so much. As you can clearly see he is referring to minix. And he was using the minix OS at the time. He had just bought a 386 computer - or rather had just started paying off his 386 computer - and wanted something resembling the operating system he used at the university he was attending. He also wanted to be able to dial-in to his university (the Helsinki University of Technology) to do his e-mail.

Minix
So what is minix? Minix is another operating system. As a working example for his classes, Andrew Tanenbaum created Minix. Minix originally came with his book "Operating Systems: Design and Implementation." It contains the minix source on CD. If you are up for a nice discussion about kernels and whether or not Linus would have gotten good grades if he were to have attended Tanenbaum's classes, do a little search on the newsgroups!

You could then trace back the creation of Linux to Minix and Andrew Tanenbaum's book? Yes. But to be able to actually create something you can call an operating system, you have to have quite a few pieces of software all together. Linus created a small (but very important) part, called the kernel. You can compare the kernel to the engine of a car. Your car won't go anywhere without its engine, but an engine alone doesn't make a car. Where does the car come from?

The GNU Project
Large parts of the Operating System we know now as PCLinuxOS actually comes from another man altogether. Richard Stallman working at the MIT AI-lab - during the time he studied for his BA in Physics from Harvard - became part of a programming group at the AI-lab. These guys were all working and sharing in a very friendly way. The arrival of the world of commercial software development, and things like non-disclosure agreements, basically meant the end of that era.

That is, if it wasn't for Richard Stallman. A non-working laser printer (and a few other setbacks) in the 1980s had triggered a one-man coding spree and the creation of a completely free operating system. Free to use and copy. Sounds familiar? It should. You are using it!

GNU

The one-man coding spree quickly turned into a project known as GNU pronounced as guh-noo. Richard Stallman basically wrote a complete operating system from scratch, a free Unix operating system. Luckily he has gotten quite a bit of help in his endeavors. But if it wasn't for Richard Stallman, there wouldn't be a GNU/Linux and we'd all be using Windows now. In the process of creating the GNU project, he also made a software license allowing you access to source code (the original files) and the right to copy its software and share it with your friends. This copyright license is called GPL, the GNU General Public License.

During the late 1980s and early 1990s, the GNU project set out for a kernel (the car's engine) for the operating system. The decisions that were made for this kernel were the correct ones at the time. This state-of-the-art kernel, called GNU Hurd, however proved tricky to build. So the GNU OS wasn't quite completed when Linus stepped in and created his kernel which was designed somewhat easier. And there you have it. The creation of GNU/Linux.

Many people however don't call GNU/Linux GNU/Linux. They call it Linux, totally ignoring the fact that it couldn't have been made without the GNU tools and it couldn't do anything without the GNU operating system around it. Sounds a bit unfair doesn't it? It is. To make matters worse, at one point Richard Stallman and his Free Software Foundation actually received an award for his work, and rightly so. But the award was called "The Linus Torvalds Award". Which is not only ironic, but somewhat insulting. The Brief History of Linux: Linus created the kernel, Richard and his Free Software Foundation created GNU.

Unix

But not quite. We said RMS (Stallman) created a free Unix. In the 1970s two guys started working on an operating system as well. At the AT&T Bell Labs, Ken Thompson and Dennis Ritchie started working on the OS called Unix. Dennis Ritchie created the programming language C. The language C was used to create GNU and Linux. But C itself was also based on... you'll get the drift. While creating C, Ken Thompson and Dennis Ritchie used C to create Unix. Unix however was somewhat based on the Multics project initiated by General Electric, MIT, and Bell Labs. And Multics...

The Unix Ken Thompson and Dennis Ritchie created can however be considered the earliest beginning current day PCLinuxOS can be traced back to. At least it is for this Brief History of PCLinuxOS. Most of the goals and design decisions for the Unix project are still with us today in GNU/Linux and PCLinuxOS.

Appendix II – Setting up an Internet Connection

This section will guide you to set up your Internet connection. The first part of this section explains how to set up a dial up Internet connection. The second part explains how to set up a networked Internet connection.

Setting Up Dial Up Internet

To use your dial-up, you need to setup two things:

- Your modem (might have already been done automatically)
- Your dial-up account

Modems
Keep in mind that most Winmodems or Softmodems won't work with Linux. They were designed to work with Windows only, and you get just that. Finding a Linux driver for your specific Winmodem/Softmodem is not easy.

There are a few places to consult if you do have a Winmodem:
- http://www.Linmodems.organd http://wallbran.org/sean/linux/linmodem-howto.html
- If you have a Conexant based modem:http://www.linuxant.com/company .

If you find yourself having a Winmodem that won't go, you might be interested in buying a new modem. One option that will work is an external modem which hooks up to your computer's serial port. You'll then have no problem setting up dial-up as explained beneath.

In most cases you'll be all set to go, just needing to set up the KPPP program.

Open: Start Menu -> Networking -> Remote access -> KPPP.
1. Click Configure, then open the Modems tab.
2. Click New, give the beast a name, select /dev/ttyS0 as device, leave flow control and line termination as they are, and select a connection speed of 57 or 115 kbps.
3. Now open the Modem tab and click Query modem. If you get an error message that no lock file could be created, return to the previous window and uncheck Use lock file. If the output screen is blank, return to the previous window and select /dev/ttyS1, then query again.
4. When the modem responds to query, return to the initial KPPP window and from there configure your dial-up settings. Unless you're in Europe, you'll have to use Manual Setup. Enter an account name (your choice) and access number, leave the defaults for everything else, and see if you can connect.

You have to have a few pieces of information about your Internet provider ready:
- The phone-number of your Internet provider
- A user name and password. (This could be the user name and password for your e-mail address)
- Probably you need DNS server information

Earthlink Example
In this example, we'll see about setting up an Earthlink dial up account. Just change what is different for you. We will setup the dial-up connection with KPPP, the KDE Internet Dial-Up Tool. You can start KPPP by pressing Alt+F2, enter "kppp" and press enter. Or via Start menu -> Networking -> Remote Access -> KPPP (Internet Dial-Up Tool).

Click "Configure..." to set up an account. You need to configure two things, your modem and your dial-up account.

Modems
In the Modems tab, click "New...", think up a really good and imaginative name like "modem", and select the device that is your modem. Try /dev/modem first, or if you've hooked it up to serial port 1 (/dev/ttyS0) or serial port 2 (/dev/ttyS1). Change the connection speed to 115200 for a 56k modem. To test if you selected your modem, go to the modem tab and click "Query Modem". It should go to Modem Ready if the modem is at that address, or an error message if not. If not try the next ttys address and click OK each time before QUERY, until you find one that works. If none can be made to work, you probably have a Winmodem. Go Google for your modem and how to get it running under Linux, or try the forums.

When you found one that works, click OK to close the modem configuration window. Make sure your modem name (the one we chose above) is now listed in the window under the Modems tab. (where we clicked New... before)

Accounts
The Accounts tab is where you need to create a new account, click "New...". The wizard will probably not work for you, so click "Manual Setup".

For connection name, enter for example "Earthlink". As phone-number, click the "Add..." button and enter the phone number. Click OK. You can even enter a second one, which will be used when the first one is in use.

Go to the IP tab. Usually on dial-ups you don't have a static IP address, which means you wont have to change anything here. If you do get a static IP address, your provider will have said so clearly in the documentation they sent you. If so, enter it on the IP tab. The subnet mask will also have been mentioned in the documentation you got, but is probably 255.255.255.0. Again, most likely you get a dynamic IP address.

Go to the Gateway tab. Go with the default gateway. Someone suggested you might have to select a gateway of 0.0.0.0, so try that if it won't work with the default gateway.

Go to the DNS tab. The domain name probably is "earthlink.net" (for earthlink, change this for your provider), and as DNS you can probably use Automatic configuration, if that doesn't work (you dial-up, log in, but can't actually get any traffic going, no websites and such) then set up one or two DNS (Domain Name Server) IPS. For Earthlink, at the time of writing, that happens to be: 207.217.120.83 and 207.217.77.82 and click OK when done.

You are done configuring kppp now, click OK. You are back in the main kppp window now. You can now dial-up to earthlink, using kppp and the "Connect" button. As user name for the dial up, use your earthlink email-address and as password use the password for the same.

From now on, to connect to the Internet using the dial-up connection, start kppp and press "Connect". After connecting, the KPPP tool will disappear to the system tray. (next to the clock) To disconnect from the Internet, bring up the KPPP tool again from the system tray, and disconnect!

Troubleshooting
You may have problems if there is no Linux driver available for your modem. Specially with regards to so-called Winmodems and Softmodems, they are usually cheap but rely heavily on Windows software for performing actual modem functions. Without that software, they basically are useless. A few Winmodems can be made to work on Linux though, but it usually isn't easy. Nearly all external (stand-alone) modems that plug in via the computer's external serial port will work. And if you dual-boot with Windows they will work better there too!

For more information about KPPP, press the Help button in KPPP and open the KPPP Handbook. You can also open the KPPP handbook by starting konqueror the file manager (click on the igloo) and going to location: "help:/kppp".

Setting Up A Network Internet Connection

For most setups, the network/Internet detection routines will make it all work for you. But the live CD most certainly doesn't perform miracles. For this tutorial we'll presume the following: You have a modem, either DSL or Cable, attached to a router which is connected to your Ethernet port on your PC. Your PC has an on-board network card (nic). Your modem or router are handling the authentication to your ISP (login and Password) Your router is assigning an internal IP address via DHCP. Unlike how it reads, this is a pretty typical setup.

For setting up a new network Internet connection start the PCLinuxOS Control Center. Click on the Startmenu -> Configuration -> PCLinuxOS Control Center. It'll now ask (in a rather cryptic way) for the administrator password. If you run PCLinuxOS from the live CD, enter "root" and press enter. The PCLinuxOS Control Center now loads. Click on the big icon saying "Networking."

The live CD probably set up something that didn't work - otherwise you wouldn't be reading this page. First thing to do is to remove your existing interface eth0. Then I would click on "Create a New Interface" of the LAN type. You should have your device listed on the second screen, along with an option to manually configure a driver. Select the default device. It should list the driver as for example forcedeth or nvnet. Just take what it gives you at this point and click next.

Select Automatic IP, then next.

Check the boxes for "Assign Host name from DHCP address", "Network Hotplugging, and "Start at boot." You should be able to leave the DHCP Host name blank. Or you could try 192.168.0.1., but try it blank first.

On the next screen, at the bottom where it says host name, you can leave that blank as well.

On the next screen, zeroconfhostname can also be left blank. Click yes for allowing users to start the interface and finish. That is it. If the system likes the default driver, then the interface should come up without any further intervention from you. Test it with a browser, or by running ifconfig in a term. ifconfig will report an IP address similar to the one you get in windows if it is working.

If you were able to plug your machine into the router and get on the Internet with windows, without entering any login info, then it should work the same way with PCLinuxOS. Unless there is a driver issue. If this is true and you still cant connect , we can manually try and force it to use the other driver, but it will take some additional steps.

Troubleshooting
Some cable-modems, or adsl-modems, or -routers, might need a reset after you switch from Windows to Linux, or vice versa. So if you don't get your connection working, try turning off your modem/router, wait for a minute or so, and turning it on again. Reboot your computer and you should be fine. This switching between OS's might sometimes cause trouble with routers/modems not being able to detect the changes.

You can also manually restart the networking. This is a bit difficult though, and you don't have to do it like this. You can type the command "service network restart", and the networking routines are restarted. To be able to do this, start the Terminal Program - Super User Mode. (Startmenu -> Terminals -> Terminal Program - Super User Mode. It will ask for the root password.) This would work instead of rebooting your computer as explained above. It also sometimes just might help to get your network going, if things don't automatically go right.

Appendix III – Using Firewire Devices

One of the problems with Firewire is that currently nothing gets automatically detected. You basically have to manually set this up. And when you force one thing sometimes something else gets thrown in whether you want it or not. Though this isn't always a bad thing, you sometimes start getting Ethernet-over-Firewire cards detected and set up that you don't even have!

These are the firewire modules (a.k.a. drivers) and what they do:
- ieee1394 - Firewire Support
- pcilynx - Support for a particular Texas Instruments Firewire Card
- ohci1394 - Firewire Support using ohci protocol
- video1394 - ochi video protocol, often used for sending back edited video to DV camera for recording on tape.
- sbp2 - hard drive support
- eth1394 - Ethernet over Firewire
- dv1394 - ohci DV support (for DV Cameras)
- raw1394 - Raw Firewire device support
- cmp - Connection Management Procedures - Input & Output over Firewire
- amdtp - Audio and Music Data Transmission Protocol, depends on cmp. Sending Music Data over Firewire.

If you are trying to accomplish a task via something connected over firewire, the above list should give an idea of what drivers to load. You also tend to find that some drivers force others.

Setting Up A Firewire Hard Drive

To use your firewire hard drive with PCLinuxOS you'll have to load the drivers manually. Using Startmenu -> Applications -> File Tools -> File Manager Super User Mode, open the /etc/modprobe.preload file in KWrite and add these two lines to it:
```
sbp2
ohci1394
```

Save the file and then open the /etc/modprobe.conf file and add this line to it,
```
alias eth1394 off
```

Save the file and close it. Then reboot your computer with your drive attached. The firewire drive should now mount during boot up and show an icon on your desktop.

Setting Up A Firewire Digital Video Camera

The program you will need to use to capture and edit Digital Video is kino. This is not installed on the live CD, so you will need to install it with Synaptic. Once installed, connect your DV camera via the Firewire port, and switch it on for playback (but do not start playing). Run kino. From the column of buttons down the right, select Capture. Next, from the menus, do Edit > Preferences and click on the tab IEEE 1394. Under "Driver" try to select raw1394. Chances are you can't, or if you do, it has no effect. To confirm this, when you press OK, if the buttons below the black rectangle (AV/C Capture Stop Still and Mute) are grayed out.

Run a terminal as root. You do this by clicking on the bottom left Start icon, then Terminals, then Konsole. To make it as "root", type "su" (without the quotes, then the return key, then your root password, then the return key again.

Now type in the following two commands:
```
modprobe raw1394
modprobe dv1394
```

Now in Kino, try Edit > Preferences > IEEE1394 and select raw1394 again. This time when pressing OK, the AV/C Capture etc buttons should now spring into life.

If it now works, you need to make sure these modules are automatically loaded during boot up. Open the /etc/rc.local file for editing as explained above. At the end of this file, add the following three lines:
```
modprobe raw1394
modprobe dv1394
rmmod eth1394
```

Reboot.

Troubleshooting
If the AV/C Capture buttons do NOT start working, continue reading.

In your terminal, type lsmod again. At or near the top of the list, you may see "eth1394". Unless you have a firewire Ethernet card, you don't want this, it can cause serious delays on boot up whilst the system tries to find such a card. It might just try to use this non-existent card for the Internet connection! So the method here is designed to stop that from happening.

Now type in these three commands:
```
rm -f /dev/raw1394
mknod -m 0666 /dev/raw1394 c 171 0
mknod -m 0666 /dev/video1394 c 172 0
```

Hopefully now it will work!

If you needed the above three lines, you also need to add these to the /etc/rclocal file. Add these ones only if you needed them before:
```
rm -f /dev/raw1394
mknod -m 0666 /dev/raw1394 c 171 0
mknod -m 0666 /dev/video1394 c 172 0
```

Appendix IV - Exploring Linux/Windows Differences

You've been playing with PCLinuxOS for a while now, and perhaps you are wondering about the differences between Windows and Linux. For example, where can you buy a virus scanner for Linux? Or where is the defrag/speed-disk tool? We'll handle a few of the differences between Windows and Linux in this appendix.

Please be aware that we are not trying to put down Windows here, we're trying to objectively compare Windows with Linux and PCLinuxOS. Please try to contain any flaming you feel necessary after reading this section!

The User Interface

Obviously you've seen a different user interface. With Windows you get one desktop environment, and it is the one Windows ships. In the Linux world, you get more diversity. And choice is good! You can for example pick a light-weight desktop environment for older computers. Or pick an environment that works more like the Mac, or one that has really fancy graphics. The default desktop environment for PCLinuxOS is KDE. Another popular environment is called Gnome. Desktop environments typically hold a whole suite of software, including window managers, office productivity applications, educational programs, file managers, browsers, CD burners, and so on.

Once you pick a desktop environment, you can then theme it to look like anything you please, just like Windows XP and Window Blinds works. You can alter the complete look-and-feel. You can easily change the wallpaper, the way the title-bar looks, icon-sets, colors, the mouse-cursor looks, change the look of text fields and buttons and such, all done via easy point-and-click from the KDE Control Center! You can even download popular look-and-feel components from the web via these control panels as well. All your choice! Pick your favorites.

Security and Viruses

One of the big issues you probably have with Windows, is viruses and spyware. Obviously when you are the most used operating system, you are the biggest target for the bad guys. That said, sadly, in the past Microsoft made Windows very easy to exploit. To their credit, the past few years Microsoft has been working hard at closing those gaps. And additional software like personal firewalls, anti-virus and anti-spyware software work pretty decent in preventing past design-decisions from affecting your computer today. In fact, a whole industry has been formed around solving security issues.

Remember we said that normal Linux users didn't have much change/write permissions outside of their personal home-folder? That really helps security! You can and should limit user-rights for Windows security as well. However, this often isn't done. Most people don't even know about it. And as you have to log in as administrator for administrative tasks, it is considered less user-friendly. This results in the fact that home users use Windows as administrator, which will cause security problems. If you don't know whether or not you run Windows as administrator, you do. Windows Vista will now adopt the Unix style permissions.

Linux comes with everything you need for security, and free of charge even! And Linux isn't susceptible to Windows viruses and spyware! We do have scanners to scan for viruses because Linux can be used as server in a Windows network. There are only very very few Linux specific viruses and the ones that exist are very unsuccessful and can't usually do a whole lot of damage. Spyware? Not an issue with Linux either. PCLinuxOS also comes pre-installed with a personal firewall, just like Windows XP does since Service Pack 2.

Installing Software

There are quite a few myths circulating about the difficulty of installing software on Linux. And some even partly true. You often hear about rpm-dependency hell (the Linux land equivalent of DLL hell) and the fact that you have to compile your own software.

Unlike a default Windows installation, the default installation of PCLinuxOS comes with lots of free software for you to use and enjoy already. Once you have PCLinuxOS installed you immediately have an office productivity suite, CD-burning software, PDF-readers and PDF-writers, all kinds of video, audio and graphics applications, Internet and networking programs, security software, educational software, quite a few addicting games, and so on! No need to invest in additional software, no need to download and install any of those programs separately. You can be productive with PCLinuxOS right from the start.

Installing Additional Software
Installation of additional software is an area in which PCLinuxOS really shines. The way PCLinuxOS delivers software to your desktop is really easy. You don't have dependency problems. You don't have to compile your own software with PCLinuxOS. (Though you can, if you want.) You don't have to hunt for downloads all over the web. You don't have to keep an eye on all those individual websites for updates. Installed software is almost automatically updated for you. And these updates are usually very smooth.

For installing additional software, PCLinuxOS works with a system called Synaptic and apt-get. Texstar, our main developer, creates and stores software packages on a central server. All these packages can easily be installed on your computer. Just point and click. How this works is explained in Installing and Updating Software on page 33. The fun thing is, Linux development is going very quickly indeed and updating your installed software with PCLinuxOS is as easy as point and click. The latest versions and updates then automatically find their way to your desktop! Now that is easy.

The Windows way of installing software does exist on Linux as well. Take, for example, installing CrossOver Office. You can download an installer of CrossOver Office and install it. And there is also the Auto package initiative. And like auto package, there are other initiatives just like it. But these always involve more steps then using the Synaptic way.

Sharp Edges
There are some sharp edges though. Almost all software you can buy in your software shop on the high street is for Windows only. Most applications have Linux equivalents that will work just as well. But if you need a specific Windows program, you are out of luck with Linux. Or are you? You might want to read about CrossOver Office.

Another sharp edge is the way the different Linux's work differently. This means you can't install a software package made specifically for Red Hat or Mandriva (for example) on PCLinuxOS. And installing some proprietary 3D video drivers really isn't all that easy either. Luckily, the Linux community is working hard on these issues. You'll find things improve constantly and quickly.

If you want to install some specific or less known Linux software package, it might not be available via Synaptic. You can put in a request on the package request forum. Texstar really does do great work with packaging software and handling software requests. If you need something that isn't available yet it might help if you grease the wheels a little bit. Make a donation. It is not a requirement to get the package you need and it is not a guarantee to get your specific request handled either. But it sure helps the development of PCLinuxOS.

You can also compile the software package yourself. While we certainly discourage doing so, PCLinuxOS comes with everything you need for compiling software yourself. Depending on the developers of the program you need, this can sometimes be tricky.

Configuring Software
You often read that with Linux you have to edit files manually and use the command line for all kinds of things. This is partly true, but you'll find you'll have to do so only very rarely, if ever. In fact, the PCLinuxOS Control Center makes configuration as easy as point and click. PCLinuxOS has good hardware detection, which makes most things just work automatically. And most software you get with a PCLinuxOS come pre configured with very sensible settings already. An example: the browsers on PCLinuxOS come with a complete set of plug-ins enabled by default. No need to download and install the extra flash plug-ins or any such things.

Windows has that configuration thing well covered. Their control panel holds all configuration tools and other developers integrate their configuration tools in it as well. With PCLinuxOS we have two control panels. The first is called PCLinuxOS Control Center. This is for configuring networking, setting up graphics, configuring hardware, setting up security and firewalls, and quite a bit more. We also have a KDE Control Center, for setting up the user interface specifically.

You might find solutions and hints and tips from the forums, Wikis or mailing lists, where people direct you to the command line. Sometimes issues are just easier to solve by explaining how to do things from the command line, then it is to explain how to point-and-click your way to a solution. It's easier to say: "type <this>, then type <this>" then it is to say: "click here, then click there, make sure you check this, and push that, now enter <this> in the text field, and open that window and type <this> there".

Some advanced issues don't have easy solutions. There are exceptions where you really do have to edit text files manually. You'll find it is not all that difficult to do once you know how. In these situations we try to explain clearly what it is you need to do and how to do it. It certainly is quite a bit easier to manually edit configuration files - they usually come with quite a bit of explanation - than it is to edit the Windows registry. For most things you will not have to use the command line and do not have to edit text files. But if you do take the time to get familiar with the command line and some of the configuration files, you might just find that it is a very powerful tool indeed.

Hardware Support

You often hear that Windows has better hardware support. Well, hardware suppliers don't usually ship Linux drivers with their hardware. Getting the latest hardware to work can sometimes be tricky. Some things really are made only for Windows, like for example soft modems; they rely heavily on Windows software and hardware manufacturers often don't supply Linux drivers. Even though the installation of PCLinuxOS itself usually is very easy, some people do experience difficulties getting everything to work. More often then not, though, everything will be plug-and-play with PCLinuxOS as well.

With Windows you do usually get driver disks with your hardware, and that obviously helps with its hardware support. It is my experience though, that out-of-the-box (immediately after a fresh installation) more hardware works with Linux then with Windows. Depending on your choice of Linux, the quality of hardware detection differs. PCLinuxOS has pretty good hardware detection.

One of the areas in which installing Linux is somewhat more difficult, is with laptops and Wifi. Because of the specific issues that come with laptops (such as specific hardware, hibernation) and the specific drivers for Wifi hardware, installing Linux on laptops can be tricky.

Handling Crashes

Linux is generally seen as the more stable operating system. And if you compare Linux to Windows 95/98/ME, it certainly is more stable. Windows XP - if you correctly follow the guidelines - is pretty stable these days. And just as with Windows, you will unfortunately experience some lock ups with Linux and PCLinuxOS as well. Less often, but it does happen. Software programs will crash every now and then. That's just a fact of life.

There are a few differences between Windows and Linux though. Unix and Linux have a background of being multi-user. Linux does run applications differently than Windows. When an application locks up, you can just kill that one application (or process, as it is called.) You can bring up a tool to do that by pressing Ctrl + ESC. You can now pick your process to be killed, just like with Windows. When things do go wrong in Linux they tend to be compartmentalized somewhat better. This means it is unlikely to actually bring down Linux as a whole and you don't need a reboot.

When the graphical system locks up, you might be able to switch to a command-prompt (pressing Ctrl+Alt+F1) and kill software processes manually. You can also opt to restart just the desktop itself by pressing Ctrl+Alt+Backspace. Be careful with this. It won't ask if you want to save changes!

The file systems (specially ReiserFS and Ext3) deal with lockups and software crashes really well. You'll find it cleans up after itself pretty neatly. Hardware crashes however do happen as well, and hard drives do crash. And no Linux in the world can get a really broken hard drives going. Make backups!

Using the live CD construction, Linux does allow access to your computer in the case a hard drive fails. You certainly wouldn't be the first to rescue files from a failing hard drive with a Linux live CD!

Using Hard drives and Defragmentation

Linux doesn't use the C: notation for drives. All drives are hooked up in one big filing system, instead of individual systems for each drive. There are still different physical drives in your computer, however, and you have to have a way to access them.

Hooking up drives to the file system is an activity called mounting. This used to be pretty difficult and annoying with Unix/Linux, but the system made very much sense from a server point of view. You couldn't however just put in a floppy disk, type A: and see your files. You had to mount your floppy disk first. And when you were done with the floppy disk, unmount it again! Depending on situations, in the past you could have been faced with a CD-ROM that wouldn't eject, because it didn't unmount correctly, etc.

These days however, KDE makes this easy using the My Computer -> Storage Media system, and adding icons to your desktop for it. Most issues have been corrected over the past few years. KDE automatically hooks up your drives to your file system for you. USB keys and such are all automatically mounted, just like with Windows. You can read more about this in Working With Files on page 12.

Other Differences
Linux uses the generally accepted way of separating folders using the "/" instead of the DOS/Windows only way of "\". Linux is also case-sensitive. The file "Hello.txt" is a different file from "hello.txt". Linux also cares a lot less about file extensions. If you rename the "Hello.txt" file to just "Hello", Linux still knows it is a text-file. And when you click on the "Hello" file, it still automatically opens up the text-editor. Some programs on Linux do still look at extensions, so it does work better overall if you correctly name your files.

You might have found out already, that as normal user you can't write files just everywhere on your drive. In fact, normal users only have write-permission in their home-folder! We've looked at the home-folder before. Because of the multi-user background of Unix, Linux really is multi-user and the system is protected in a way that the normal user can't do things it shouldn't do. As normal user, you can't for example alter the actual software programs or have write/change access to important parts of your system. This might seem restricting, but this is a good thing.

Defragmentation
You don't have to defragment Linux hard drives! The file systems basically handle that themselves. Now isn't that the way it should be! Obviously, when your hard drive is filled up to 99% you will get speed issues, just like with Windows. Make sure you have enough room for the operating system to handle itself, and you'll never have any issues with defragmentation.

File systems
Windows has basically two ways to store files to a drive. FAT (from the DOS and Windows 9x days) and NTFS (from the Windows NT/2000/XP days). FAT is really compatible, but as file systems go - it isn't all that good. NTFS on the other hand, incorporates the lessons learned from FAT and file systems in the Unix-world, and makes for a significantly better system then FAT. NTFS only has read-only supported with PCLinuxOS, but there are ways to also write to NTFS drives. You probably never had to pick which system to use, as Windows probably came pre-installed - and the choice was made for you.

Linux doesn't come pre-installed, so you will have a choice as to which way to install. There are some pretty fault tolerant and resilient ways to store files these days. Take the ReiserFS or Ext3 file systems, for example. They are at least as good as NTFS, and probably even better in certain areas as they more thoroughly implement a technique called journaling. It keeps a record of everything it is about to do and only then does it. Your Linux system could crash right in the middle of big file-writing activity, and after rebooting it finishes it's journal activities and all the files on your hard drive would still be completely correct!