Starter Guide

Mandrake Linux 9.2

http://www.MandrakeSoft.com

Starter Guide: Mandrake Linux 9.2
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Legal Notice

Tools Used in The Making of This Manual

This manual was written in XML *DocBook*. The set of files involved were managed using Borges (`http://linux-mandrake.com/en/doc/project/Borges/`). The XML source files were processed by *xsltproc*, `openjade` and `jadetex` using a customized version of Norman Walsh's stylesheets. Screen shots were taken using `xwd` or *GIMP* and converted with `convert`. All these software are available on your **Mandrake Linux** distribution, and they are all free software.

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Preface

1. About Mandrake Linux

Mandrake Linux is a *GNU/Linux* distribution supported by **MandrakeSoft** S.A. which was born on the Internet in 1998. Its main goal was and still is to provide an easy-to-use and friendly *GNU/Linux* system. **MandrakeSoft**'s two pillars are open source and collaborative work.

1.1. Contact Mandrake Community

Following are various Internet links pointing you to various **Mandrake Linux** related sources. If you wish to know more about the **MandrakeSoft** company, connect onto its web site (`http://www.mandrakesoft.com/`). You can also check out the **Mandrake Linux** distribution web site (`http://www.mandrakelinux.com/`) and all its derivatives.

MandrakeExpert (`http://www.mandrakeexpert.com/`) is **MandrakeSoft**'s help platform. It offers a new experience based on trust and the pleasure of rewarding others for their contributions. It is **not** yet another web site where people help others with their computer problems in exchange for up-front fees, payable regardless of the quality of the service received.

We also invite you to subscribe to the various mailing lists (`http://www.mandrakelinux.com/en/flists.php3`), where the **Mandrake Linux** community demonstrates its vivacity and keenness.

Please remember to connect to MandrakeSecure (`http://www.mandrakesecure.net/`). It gathers all security-related material about **Mandrake Linux** distributions. You will notably find security and bug advisories, as well as security and privacy-related articles. A must for any server administrator or user concerned about security.

1.2. Join the Club

MandrakeSoft is proud to offer its users a wide range of advantages though its Mandrake Users Club (`http://www.mandrakelinux.com/en/club/`):

- download commercial software normally only available in retail packs, such as special hardware drivers, commercial applications, freeware, and demo versions;
- vote and propose new software through a volunteer-run RPM voting system;
- access more than 50,000 RPM packages for all **Mandrake Linux** distributions;
- obtain discounts for products and services on MandrakeStore (`http://www.mandrakestore.com`);
- access a better mirror list, exclusive to Club members;
- read multilingual forums and articles.

At MandrakeClub, your voice will be heard!

By financing **MandrakeSoft** through the MandrakeClub you will directly enhance the **Mandrake Linux** distribution and help us provide the best possible *GNU/Linux* desktop to our users.

1.3. Purchasing Mandrake Products

Mandrake Linux users wishing to purchase products on-line may do so simply by accessing our MandrakeStore (`http://www.mandrakestore.com/`) e-commerce platform. You will not only find **Mandrake Linux** software, operating systems and network tools (like the *Multi Network Firewall*), but also special subscription offers, support, third-party software and licenses, documentation, *GNU/Linux*-related books, as well as other **MandrakeSoft** goodies.

1.4. Contribute to Mandrake Linux

The skills of the many talented folks who use **Mandrake Linux** can be very useful in the making of the **Mandrake Linux** system:

- **Packaging.** A *GNU/Linux* system is mainly made of programs picked up on the Internet. They have to be packaged in order to work together.
- **Programming.** There are many, many projects directly supported by **MandrakeSoft**: find the one that most appeals to you and offer your help to the main developer(s).
- **Internationalization.** You can help us in the translation of web pages, programs and their respective documentation.
- **Documentation.** Last but not least, the manual you are currently reading requires a lot of work to stay up-to-date in regards with the rapid evolution of the system.

Consult the contributors page (`http://www.mandrakesoft.com/labs/`) to learn more about how you can contribute to the evolution of **Mandrake Linux**.

2. About this User Guide

This book is divided into four parts. Part II in *Starter Guide* is an introduction to *Linux* basics. We wrote "*Linux for Beginners*", page **??** especially to help out new users. In it we describe the first steps a new user must master and we explain concepts such as "logging in/out", security tips, and more.

Then "*Where to Get Documentation*", page **??** will guide you through a fairly exhaustive list of documentation sources which you can consult in order to attain a better *Linux* knowledge. A **Mandrake Linux**-specific section points to numerous in-house resources which you can find on the Net. We also discuss the popular *KDE* graphical environment (see "*Using KDE*", page **??**).

Part III in *Starter Guide* will show you how to use two of *Mozilla*'s embedded applications: the browser ("*Surfing with Mozilla*", page **??**) and the mail client ("*Mail Client: Mozilla*", page **??**).

Part IV in *Starter Guide* gives a short description of everyday applications such as the *OpenOffice* suite (see *Word Processors*, page **??**, *Spreadsheets*, page **??** and *Presentations*, page **??**), file managers (*File Managers: Konqueror and Nautilus*, page **??**), printers (*Printing and Faxing from Applications*, page **??**), digital cameras (*Digital Photo Cameras*, page **??**), scanners (*Installing and Using Scanners*, page **??**), CD burning (*CD Burning*, page **??**), webcam and video conferencing applications (*Webcams And Video Conferencing*, page **??**), and more.

Part V in *Starter Guide* goes through more technical aspects of a **Mandrake Linux** system:

- the *Mandrake Control Center* (*What's in DrakConf*, page **??**), which is your main graphical configuration tool;
- package management through the **Mandrake Linux** Software Manager ("*RpmDrake: Package Management*", page **??**);
- as well as a much needed "*Troubleshooting*", page **??**, where you will find tips and tricks if something goes wrong: needless to say, this chapter can not be exhaustive.

Finally, an appendix discussing the *Linux* paradigm by comparing it to other OSes in "*Migrating to Linux from Windows®/Mac OS X®*", page **??**.

Thank you for choosing **Mandrake Linux** and have fun!

3. Note from the Editor

As you may notice as you go from one chapter to another, this book is a composite document written by various authors. Even though much care has been taken in insuring technical and vocabulary consistency, the style of each author is somewhat preserved.

Some of the authors write in English even though it is not their native language. Therefore you may notice strange sentence constructions. Do not hesitate to let us know if something is not clear to you.

In the open-source philosophy, contributors are always welcome! You may provide help to this documentation project by many different ways. If you have a lot of time, you can write a whole chapter. If you speak a foreign language, you can help with the internationalization of this book. If you have ideas on how to improve the content, let us know. You can event alert us if you find typos!

For any information about the **Mandrake Linux** documentation project, please contact the documentation administrator (`mailto:documentation@mandrakesoft.com`) or visit the Mandrake Linux Documentation Project (`http://linux-mandrake.com/en/doc/project/`) web page.

4. Conventions Used in this Book

4.1. Typing Conventions

In order to clearly differentiate special words from the text flow, we use different renderings. The following table shows examples of each special word or group of words with its actual rendering, as well as its signification.

Formatted Example	Meaning
inode	Used to stress a technical term.
`ls -lta`	Used for commands and their arguments. Also used for options and file names (see the section about *Commands Synopsis*, page **??**).
ls(1)	Reference to a `man` page. To read the page in a *`shell`* (or command line), simply type `man 1 ls`.
`$ ls *.pid`	Formatting employed for text snapshots of what you may see on your screen including computer interactions, program listings, etc.
`localhost`	Literal data which does not generally fit in any of the previously defined categories. For example, a key word taken from a configuration file.
`Apache`	Defines application names. The example used ("Apache") is not a command name. However, in some contexts, the application and command name may be the same but formatted differently.
F iles	Indicates menu entries or graphical interface labels. The underlined letter informs you of a keyboard shortcut, if applicable.
`SCSI-Bus`	Denotes a computer part or a computer itself.
Le petit chaperon rouge	Identifies foreign language words.
Warning!	Reserved for special warnings in order to stress the importance of words. Read out loud **:-)**

Highlights a note. Generally, it is a remark which gives additional information about a specific context.

Represents a tip. It can be a general advice on how to perform a particular action, or a nice feature which could make your life easier.

Be very careful when you see this icon. It always means that very important information about a specific subject will be dealt with.

4.2. General Conventions

4.2.1. Commands Synopsis

The example below shows the symbols you will see when the writer describes the arguments of a command:

```
command <non literal argument> [--option={arg1,arg2,arg3}]
[optional arg. ...]
```

These conventions are standard and you may find them elsewhere such as in the `man` pages.

The "<" (less than) and ">" (greater than) symbols denote a **mandatory** argument not to be copied verbatim, which should be replaced according to your needs. For example, `<filename>` refers to the actual name of a file. If this name is `foo.txt`, you should type `foo.txt`, not `<foo.txt>` or `<filename>`.

The square brackets ("[ ]") denote optional arguments, which you may or may not include in the command.

The ellipsis ("...") means an arbitrary number of items can be included.

The curly brackets ("{ }") contain the arguments authorized at this specific place. One of them is to be placed here.

4.2.2. Special Notations

From time to time, you will be asked to press, for example, the keys Ctrl+R, which means you need to press and hold the Ctrl key and tap the R character as well. The same applies for the Alt and Shift keys.

Also about menus, going to menu item File→Reload user config (**Ctrl+R**) means: click on the File text displayed on the menu (generally located in the upper-left of the window). Then in the pull-down menu, click on the Reload user config item. Furthermore you are informed that you can use the Ctrl+R key combination (as described above) to get the same result.

4.2.3. System-Generic Users

Whenever possible, we use two generic users in our examples:

Queen Pingusa	This user is created at installation time.
Peter Pingus	This user is created afterwards by the system administrator.

Chapter 1. Installation Warning

This installation guide only covers the most common steps of the installation. If you plan on using *Windows* as well as *GNU/Linux* in dual-boot (meaning being able to access either OS on the same computer), please note that it is easier to install *Windows* **before** *GNU/Linux*. If *Windows* is already set up on your system, and you have never installed *GNU/Linux* before, *DrakX* — **Mandrake Linux**'s installation program — will have to resize your *Windows* partition. This operation can be harmful to your data. Therefore, you **must** perform the following steps before proceeding:

- you must run `scandisk` on your *Windows* computer. The resizing program can detect some obvious errors, but `scandisk` is better suited for this task;

Before using `scandisk` (or `defrag`) make sure your screen saver and any other program that might write to the hard disk is turned off. To obtain even better results, run `scandisk` in *Windows*'s "Safe Mode".

- for maximum data security, you should also run `defrag` on your partition. This further reduces the risk of data loss. This is not mandatory, but it is highly recommended. Doing so will make the resizing process much faster and easier.
- the ultimate insurance against problems is to always **back up your data**! Of course, back up your data on **another** computer, upload your back-ups on the web, on a friend's computer, etc. **Do not** back it up on the computer on which you want to install *GNU/Linux*.

If neither `scandisk` nor `defrag` are installed within *Windows*, please refer to the *Windows* documentation for instructions on installing them.

NTFS Partitions. *Windows 2000*, *NT* or *XP* users should be careful: even though it is possible to resize NTFS partitions with *GNU/Linux*, it is highly recommended to back up your data before starting installation. Use partition resizing **at your own risk**.

Chapter 2. Before Installation

This chapter covers issues which should be addressed **before** you start your new **Mandrake Linux** installation. Make sure you read it completely since it will save you a lot of time. Also back up your data (on a different disk to the one you will install the system into) and plug in and turn on all your external devices (keyboard, mouse, printer, scanner, etc.).

2.1. Configuring your BIOS

The *BIOS* (*Basic Input/Output System*) is used to find the device on which the operating system is located and starts it up. It is also used for the initial hardware configuration and hardware low-level access.

The appearance of *plug'n'play* devices and their widespread use means that all modern *BIOS*es can initialize these devices. In order for *Linux* to recognize *plug'n'play* devices, your *BIOS* must be configured to initialize them.

Changing your *BIOS*' settings is usually performed by holding down the **Del** key (some *BIOS*es use the **F2**, **F10** or **Esc** keys instead of the **Del** one) right after the computer is switched on. Unfortunately, there are many types of *BIOS*es. Therefore you will have to look for the appropriate option by yourself. It is often called PNP OS installed (or Plug'n'Play OS installed). Set this option to No and the *BIOS* will then initialize any *plug'n'play* devices. That can help *Linux* recognize some devices in your machine, which it would not be able to initialize otherwise.

All recent systems can boot from a CD-ROM. Look for Boot sequence in the *BIOS*' features setup, and set the CD-ROM as the first boot device. If your system cannot boot from a CD-ROM you will have to use a floppy.

If you want to use a parallel printer connected locally to your machine, make sure that the parallel port mode is set to ECP+EPP (or at least to one of ECP or EPP) and not to SPP, unless you have a **really** old printer. If the parallel port is not set this way you might still be able to print, but your printer will not be detected automatically and you will have to configure it by hand. Also make sure the printer is properly connected to your machine and powered on beforehand.

2.2. Creating a Floppy Boot Disk

If your system cannot boot from the CD-ROM you will need to create a **floppy boot disk**. The CD-ROM contains all of the image files and utility programs needed to do so.

The floppy boot disk images are in the CD-ROM's `images/` directory.

Following is a list of different images and their respective installation methods:

`cdrom.img`

To install from a local IDE or SCSI CD-ROM drive. This image must be used in cases where you cannot boot your computer directly from the CD-ROM.

`network.img`

To install from an NFS, FTP, HTTP repository on your local LAN or via a PPPoE (DSL line) network connection. The network configuration of the machine on which you wish to install may be manual or automatic.

`pcmcia.img`

Use this image if the installation medium is reached through a PCMCIA card (network, CD-ROM, etc.).

Some PCMCIA devices now use common network drivers. If the PCMCIA device does not work, try again with `network.img`.

`hd.img`

Use this image if you want to perform the installation from a hard disk. You need to copy the contents of the CD onto the hard drive (either on a FAT ext2FS, ext3FS or ReiserFS partition).

`hdcdrom_usb.img`

This image allows you to perform an installation through a USB storage device, such as an external CD-ROM or hard drive.

`network_gigabit_usb.img`

This installation image allows you to install from an NFS, FTP, HTTP repository using a Gigabit network adapter (GbE) or a USB one.

The `images/alternatives/*` directory provides more or less the same boot images, but with a different (older) kernel. Actually it provides a 2.2 kernel (**Mandrake Linux** 8.2 onwards uses kernel 2.4) which might help you to get started on older systems.

2.2.1. Creating a Boot Disk Under Windows

In order to do so, you need to use the `rawwrite` program. You will find it in the CD-ROM's `dosutils/` directory.

You may have noticed that there is a *DOS* version of the same program called `rawrite`. It is, in fact, the original version of the program. `rawwrite` is a graphical front-end to it.

Start the program, as shown in figure 2-1.

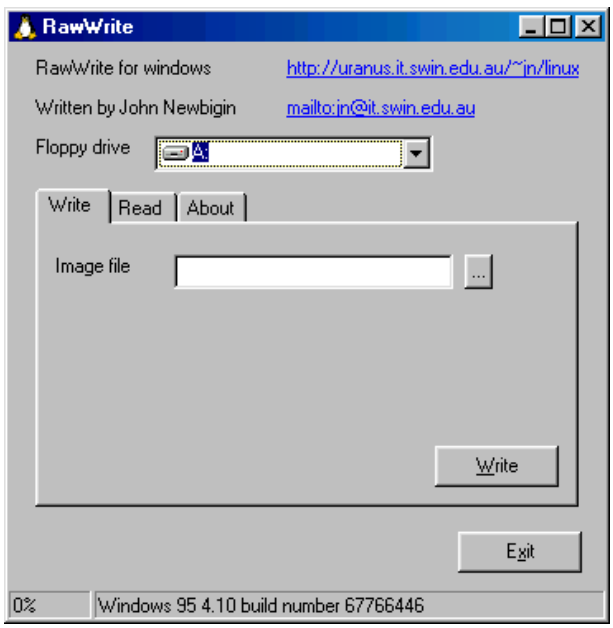


Figure 2-1. The Rawrite Program

Select the boot image to be copied and the target device. In almost every case, the target device is the `A:` drive (that is, the first floppy disk drive).

Then if you haven't already done so, insert an empty disk into your chosen floppy drive and click on the Write button. When completed click on the Exit button: now you have a floppy boot disk to install your **Mandrake Linux** distribution.

2.2.2. Creating a Floppy Boot Disk Under GNU/Linux

If you already have *GNU/Linux* installed (another version, or on another machine, etc.), then carry out the following steps:

1. mount the CD-ROM. Let us suppose that the mount point is `/mnt/cdrom`;
2. log in as `root` (to do so, open a terminal window, run the `su` command and enter your `root` password);
3. insert an empty diskette into the floppy drive and type:

```
$ dd if=/mnt/cdrom/images/cdrom.img of=/dev/fd0 bs=512
```

Replace `/dev/fd0` by `/dev/fd1` if you are using the second floppy drive and, of course, the name of the image with the one you want. When this operation is completed, your floppy boot disk will be ready to use on your floppy disk drive.

2.3. Supported Hardware

Mandrake Linux can handle a large number of hardware devices, and the list is far too long to be quoted in its entirety. Nevertheless some of the steps we will describe will help you to find out if your hardware is compatible. It will also guide you in configuring some problematic devices.

You may also consult an up-to-date list of supported hardware on our web site (`http://www.mandrakelinux.com/en/hardware.php3`).

USB devices: support for USB 1.0 and USB 2.0 is now extensive. Most peripherals are fully supported. You can obtain the list of supported hardware on the Linux-USB Device (`http://www.qbik.ch/usb/devices/`) site.

Legal disclaimer: the **Mandrake Linux** *Supported Hardware List* contains information about hardware devices that have been tested and/or have been reported to function properly with **Mandrake Linux**. Due to the wide variety of system configurations, **MandrakeSoft** cannot guarantee that a specific device will work properly on your system.

2.3.1. What Is Not Supported

Some types of hardware cannot presently be handled by *GNU/Linux*, either because the support is still at an experimental stage; nobody has written a driver for the device in question; or because it has been decided, for valid reasons, that they cannot be supported. For example:

- *winmodems*, also called controller-less modems or software modems. Support for these peripherals is currently very sparse. Drivers do exist, but are in binary form and available only for a limited range of kernel versions.

  If you have a PCI modem, look at the output of `cat /proc/pci` run as the `root` user. This will tell you the I/O port and the IRQ of the device. Then use the `setserial` command (for our example, the I/O address is `0xb400`, the IRQ is `10` and the modem will be the 4th serial device) as follows:

  ```
  setserial /dev/ttyS3 port 0xb400 irq 10 UART 16550A
  ```

  Then try to query your modem using `minicom` or *kppp*. If it does not work, you may have a software modem. If it does work, create the file `/etc/rc.d/rc.setserial` and place the appropriate `setserial` command line in it.

  A recent project is trying to make software modems work under *GNU/Linux*. If you happen to have this type of hardware in your machine, you may have a look at the linmodems (`http://linmodems.org/`) and the Winmodems are not modems; Linux information page (`http://www.idir.net/~gromitkc/winmodem.html`) web sites.

Chapter 3. Installation with DrakX

3.1. The Mandrake Linux Installer

DrakX is **Mandrake Linux**'s installation program. With *DrakX*, it does not matter whether you are a newbie or a **Mandrake Linux** guru — *DrakX*'s job is to provide you with a smooth installation and an easy transition into **Mandrake Linux**'s latest version.

DrakX will work best if all of your hardware is connected to the computer and powered on during the installation. Printers, modems, scanners and joysticks are just a few examples of peripherals which *DrakX* can automatically detect and configure as **Mandrake Linux** is being installed.

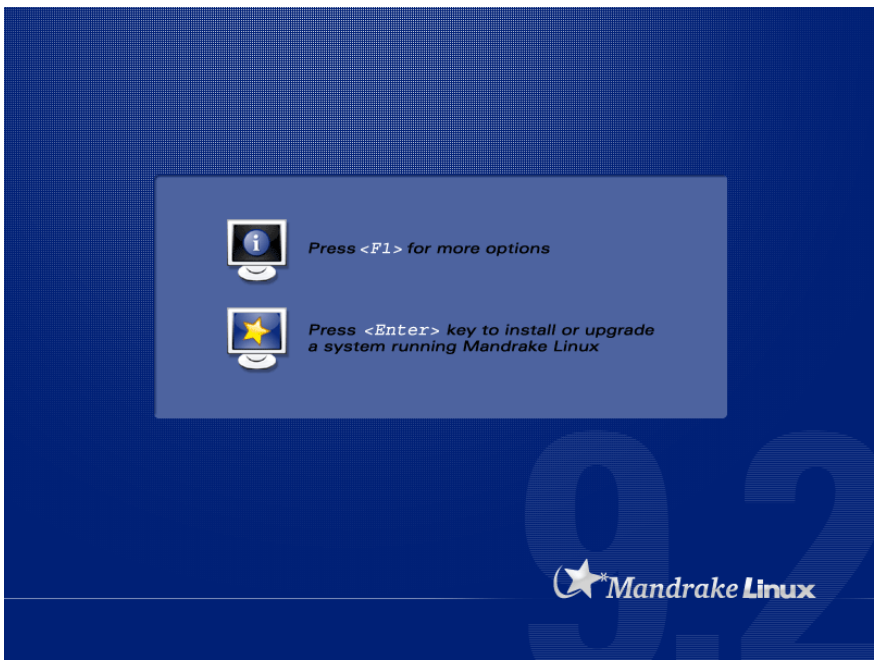


Figure 3-1. Very First Installation Welcome Screen

The first screen you will see will present you with some information and give you installation options (figure 3-1). Letting the installation go on will simply begin the installation in normal or "linux" mode. Next we will go over some options and parameters which you can pass to the installation program if you run into problems.

Pressing **F1** will open a help screen (figure 3-2). Here are some useful options to choose from:

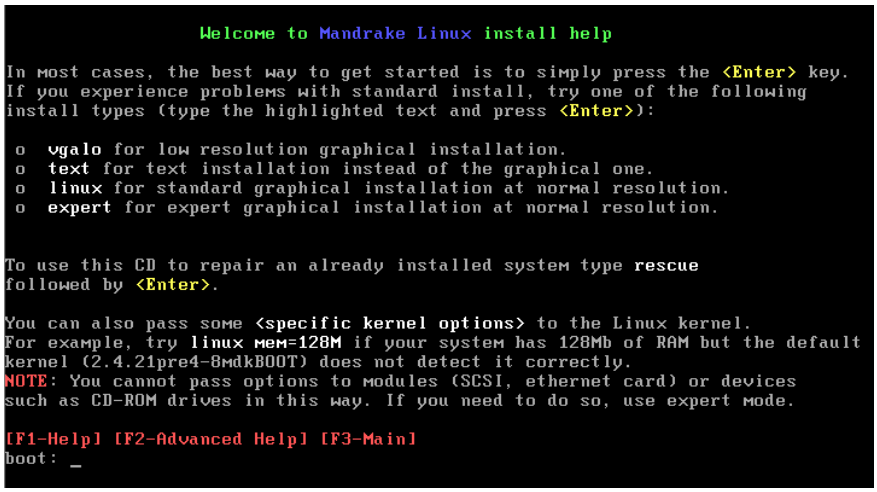


Figure 3-2. Available Installation Options

- `vgalo`: if you have tried a default installation and did not see the graphical interface as shown in figure 3-3, you can try to run the installation in low resolution mode. This happens with certain types of graphics cards. With **Mandrake Linux** we give you a number of options to work around problems related to older hardware. To try the installation in low resolution mode, type `vgalo` at the prompt.
- `text`: if your video card is very old and graphical installation does not work at all, you can always choose the text mode installation. Since all video cards can display text, this is the "last resort installation". However do not worry though: it is not likely that you will need to use the text installation mode.
- `noauto`: in some rare cases, your *PC* may appear to freeze or lock up during the hardware detection phase. If that happens, adding the word `noauto` as a parameter will tell the installation program to bypass hardware detection. With that option *DrakX* will not scan for hardware. Hence you will need to manually specify hardware parameters later in the installation process. The `noauto` parameter can be added to the previous modes, hence it is possible you may have to specify:

  ```
  boot: vgalo noauto
  ```

  to perform a low resolution graphical installation without *DrakX* performing a hardware scan.
- `kernel options`: most machines do not require specific kernel options. Due to bugs in the design or in the *BIOS*, there have been a few cases of motherboards incorrectly reporting the amount of memory installed. If you need to manually specify the amount of DRAM installed in your PC, use the `mem= xxxM` parameter. For example, to start the installation in normal mode with a computer containing 256 MB of memory, your command line would look like this:

  ```
  boot: linux mem=256M
  ```

Now that we have gone over what **might** go wrong, let's move on to the actual installation process. When the installer starts, you will see a nice graphical interface (figure 3-3). On the left will be the various installation steps. You will notice that installation will occur in two distinct main steps: installation, then configuration. The list on the left shows all the steps. The current step is marked with a highlighted bullet.

Each step may present various screens. Surfing between those screens is made through the Next -> and <- Previous buttons. Additionally an Advanced button may be available to show more advanced configuration options.

The Help button will show explanations concerning the current step.

3.2. Choosing Your Language

The first step is to choose your preferred language.

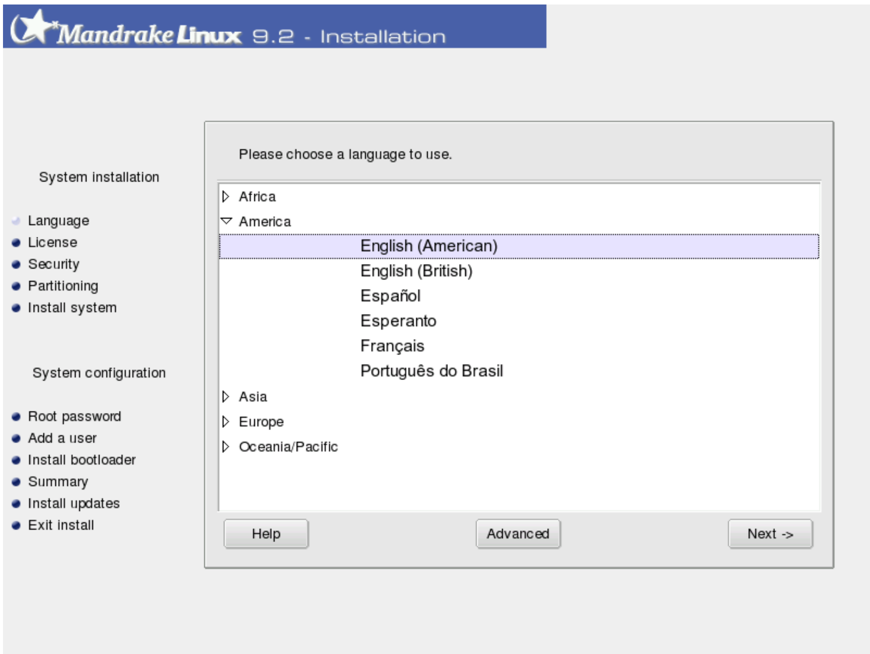


Figure 3-3. Choosing the Default Language

Your choice of preferred language will affect the language of the documentation, the installer and the system in general. Select first the region you are located in, and then the language you speak.

Clicking on the Advanced button will allow you to select other languages to be installed on your workstation, thereby installing the language-specific files for system documentation and applications. For example, if you will host users from Spain on your machine, select English as the default language in the tree view and Español in the Advanced section.

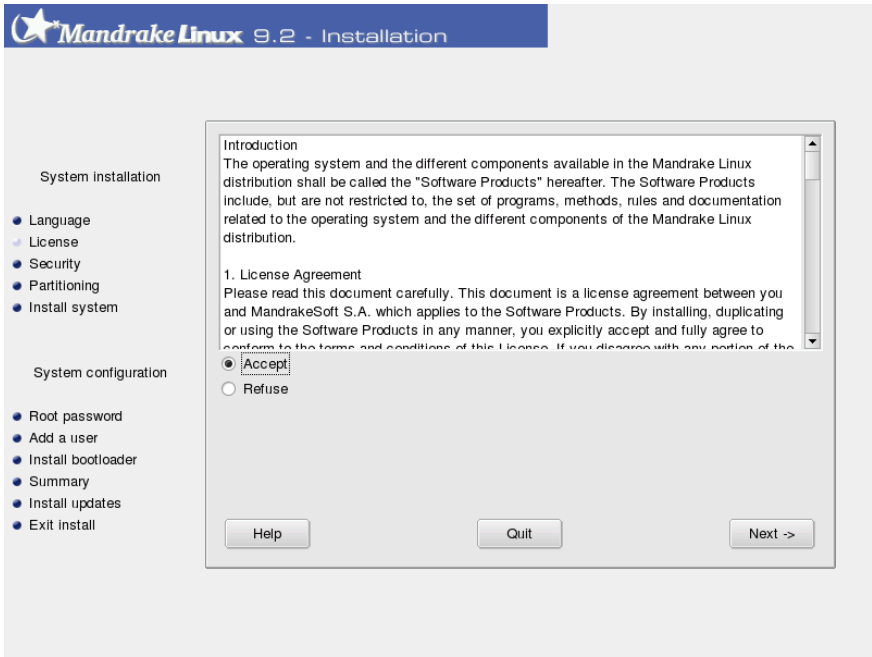
About UTF-8 (unicode) support: Unicode is a new character encoding meant to cover all existing languages. Though full support for it in *GNU/Linux* is still under development. For that reason, **Mandrake Linux** will be using it or not depending on the user choices:

1. If you choose a languages with a strong legacy encoding (latin1 languages, Russian, Japanese, Chinese, Korean, Thaï, Greek, Turkish, most iso-8859-2 languages), the legacy encoding will be used by default;
2. Other languages will use unicode by default;
3. If two or more languages are required, and those languages are not using the same encoding, then unicode will be used for the whole system;
4. Finally, unicode can also be forced for the system at user request by selecting option Use Unicode by default independently of which language(s) have been chosen.

Note that you're not limited to choosing a single additional language. You may choose several ones, or even install them all by selecting the All languages box. Selecting support for a language means translations, fonts, spell checkers, etc. for that language will also be installed.

To switch between the various languages installed on the system, you can launch the `/usr/sbin/localedrake` command as `root` to change the language used by the entire system. Running the command as a regular user will only change the language settings for that particular user.

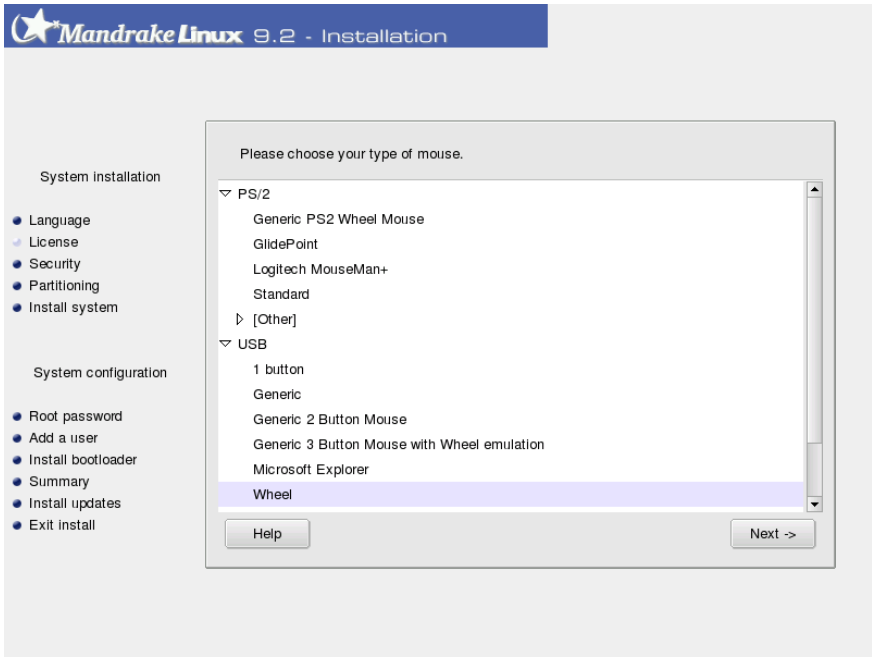
3.3. License Terms of the Distribution



Before continuing, you should carefully read the terms of the license. It covers the entire **Mandrake Linux** distribution. If you do agree with all the terms in it, check the Accept box. If not, clicking on the Quit button will reboot your computer.

3.4. Configuring your Mouse

This step is generally ignored for `Recommended` mode.



Usually, *DrakX* has no problems detecting the number of buttons on your mouse. If it does, it assumes you have a two-button mouse and will configure it for third-button emulation. The third-button mouse button of a two-button mouse can be "pressed" by simultaneously clicking the left and right mouse buttons. *DrakX* will automatically know whether your mouse uses a PS/2, serial or USB interface.

In case you have a 3 buttons mouse without wheel, you can choose the mouse that says with Wheel emulation. *DrakX* will then configure your mouse so that you can simulate the wheel with it: to do so, press the middle button and move your mouse up and down.

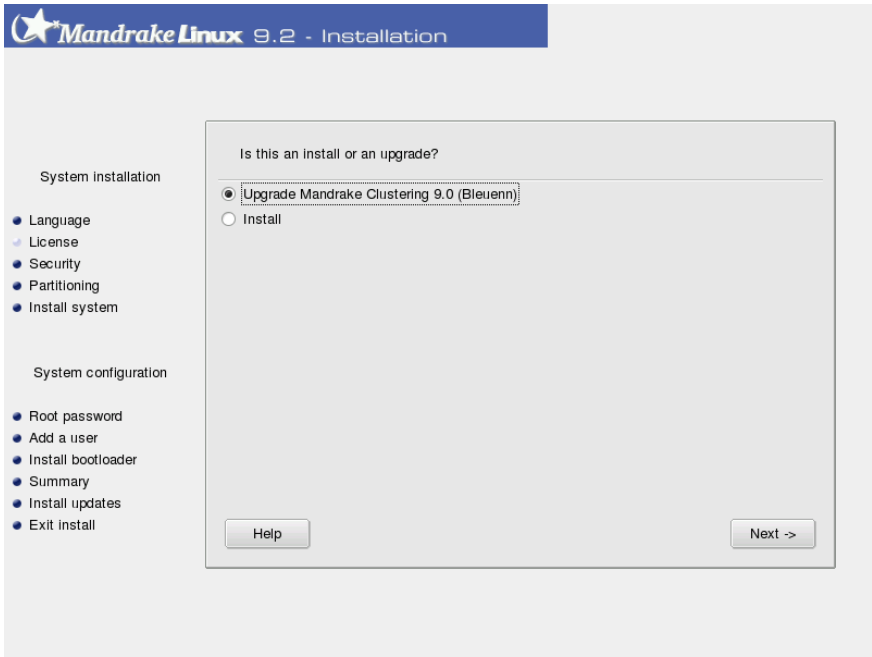
If for some reason you wish to specify a different type of mouse, select it from the list provided.

If you choose a mouse other than the default, a test screen will be displayed. Use the buttons and wheel to verify that the settings are correct and that the mouse is working correctly. If the mouse is not working well, press the space bar or **Return** key to cancel the test and to go back to the list of choices.

Wheel mice are occasionally not detected automatically, so you will need to select your mouse from a list. Be sure to select the one corresponding to the port that your mouse is attached to. After selecting a mouse and pressing the Next -> button, a mouse image is displayed on-screen. Scroll the mouse wheel to ensure that it is activated correctly. Once you see the on-screen scroll wheel moving as you scroll your mouse wheel, test the buttons and check that the mouse pointer moves on-screen as you move your mouse.

3.5. Installation Class

This step is activated only if an existing *GNU/Linux* partition has been found on your machine.



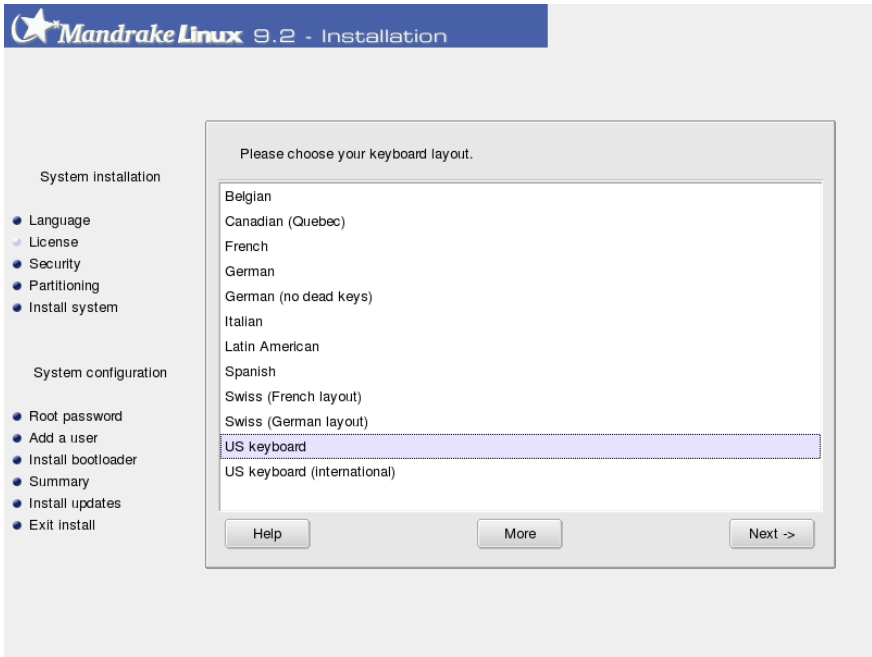
DrakX now needs to know if you want to perform a new install or an upgrade of an existing **Mandrake Linux** system:

- Install: For the most part, this completely wipes out the old system. If you wish to change how your hard drives are partitioned, or change the file system, you should use this option. However, depending on your partitioning scheme, you can prevent some of your existing data from being over-written.
- Upgrade: this installation class allows you to update the packages currently installed on your **Mandrake Linux** system. Your current partitioning scheme and user data is not altered. Most of other configuration steps remain available, similar to a standard installation.

Using the "Upgrade" option should work fine on **Mandrake Linux** systems running version 8.1 or later. Performing an Upgrade on versions prior to **Mandrake Linux** version 8.1 is not recommended.

3.6. Configuring the Keyboard

This step is generally ignored for Recommended mode.



Depending on the language you chose in section *Choosing Your Language*, page **??**, *DrakX* will automatically select a particular type of keyboard configuration. Check that the selection suits you or choose another keyboard layout.

Also, you may not have a keyboard that corresponds exactly to your language: for example, if you are an English-speaking Swiss native, you may have a Swiss keyboard. Or if you speak English and are located in Québec, you may find yourself in the same situation where your native language and country-set keyboard do not match. In either case, this installation step will allow you to select an appropriate keyboard from a list.

Click on the More button to be presented with the complete list of supported keyboards.

If you choose a keyboard layout based on a non-Latin alphabet, the next dialog will allow you to choose the key binding that will switch the keyboard between the Latin and non-Latin layouts.

3.7. Security Level

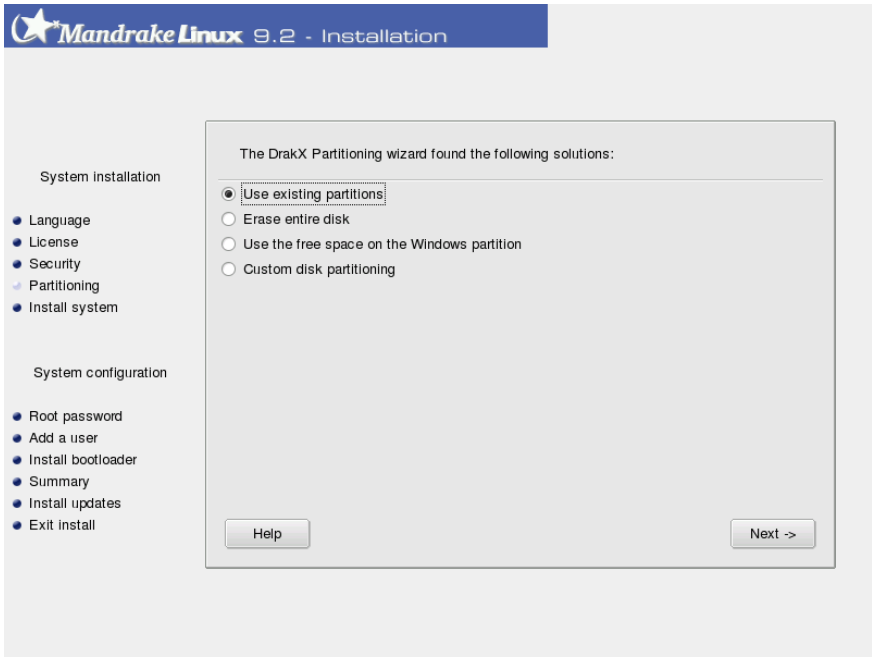
At this point, *DrakX* will allow you to choose the security level desired for the machine. As a rule of thumb, the security level should be set higher if the machine will contain crucial data, or if it will be a machine directly

exposed to the Internet. The trade-off of a higher security level is generally obtained at the expense of ease of use.

If you do not know what to choose, stay with the default option. You will be able to change that security level later with tool *draksec* from the *Mandrake Control Center*.

The Security Administrator field can inform the system of the user on this computer who will be responsible for security. Security messages will be sent to that address.

3.8. Selecting the Mount Points



At this point, you need to decide where you want to install the **Mandrake Linux** operating system on your hard drive. If your hard drive is empty or if an existing operating system is using all the available space you will have to partition the drive. Basically, partitioning a hard drive consists of logically dividing it to create the space needed to install your new **Mandrake Linux** system.

Because the process of partitioning a hard drive is usually irreversible and can lead to lost data if there is an existing operating system already installed on the drive, partitioning can be intimidating and stressful if you are an inexperienced user. Fortunately, *DrakX* includes a wizard which simplifies this process. Before continuing with this step, read through the rest of this section and above all, take your time.

Depending on your hard drive configuration, several options are available:

- Use free space: this option will perform an automatic partitioning of your blank drive(s). If you use this option there will be no further prompts.
- Use existing partition: the wizard has detected one or more existing Linux partitions on your hard drive. If you want to use them, choose this option. You will then be asked to choose the mount points associated with each of the partitions. The legacy mount points are selected by default, and for the most part it's a good idea to keep them.
- Use the free space on the Windows partition: if **Microsoft** *Windows* is installed on your hard drive and takes all the space available on it, you will have to create free space for *GNU/Linux*. To do so, you can delete your **Microsoft** *Windows* partition and data (see "Erase entire disk" solution) or resize your **Microsoft** *Windows* FAT or NTFS partition. Resizing can be performed without the loss of any data, **provided you have previously defragmented the** Windows **partition. Backing up your data is strongly recommended.**. Using this option is recommended if you want to use both **Mandrake Linux** and **Microsoft** *Windows* on the same computer.

  Before choosing this option, please understand that after this procedure, the size of your **Microsoft** *Windows* partition will be smaller then when you started. You will have less free space under **Microsoft** *Windows* to store your data or to install new software.

- Erase entire disk: if you want to delete all data and all partitions present on your hard drive and replace them with your new **Mandrake Linux** system, choose this option. Be careful, because you will not be able to undo your choice after you confirm.

If you choose this option, **all** data on your disk will be deleted.

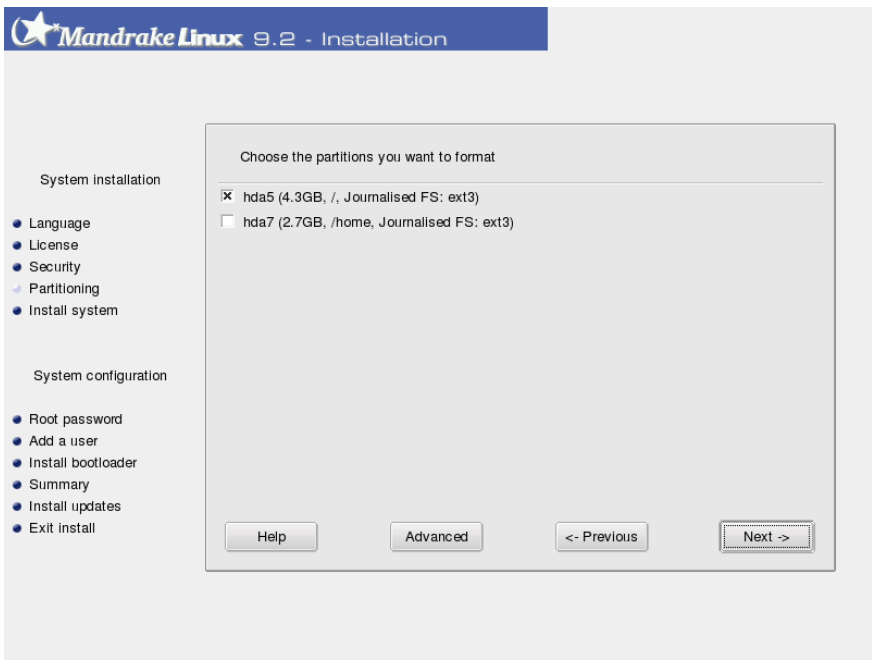
- Remove Windows: this will simply erase everything on the drive and begin fresh, partitioning everything from scratch. **All** data on your disk will be lost.

If you choose this option, **all** data on your disk will be lost.

- Custom disk partitioning: choose this option if you want to manually partition your hard drive. Be careful — it is a powerful but dangerous choice and you can very easily lose all your data. That's why this option is really only recommended if you have done something like this before and have some experience. For more instructions on how to use the *DiskDrake* utility, refer to the *Managing Your Partitions* section in the *Starter Guide*.

3.9. Choose Partitions to Be Formatted

This step is generally ignored for `Recommended` mode.



Any partitions that have been newly defined must be formatted for use (formatting means creating a file system).

At this time, you may wish to reformat some already existing partitions to erase any data they contain. If you wish to do that, please select those partitions as well.

Please note that it is not necessary to reformat all pre-existing partitions. You must reformat the partitions containing the operating system (such as `/`, `/usr` or `/var`) but you do not have to reformat partitions containing data that you wish to keep (typically `/home`).

Please be careful when selecting partitions. After formatting, all data on the selected partitions will be deleted and you will not be able to recover it.

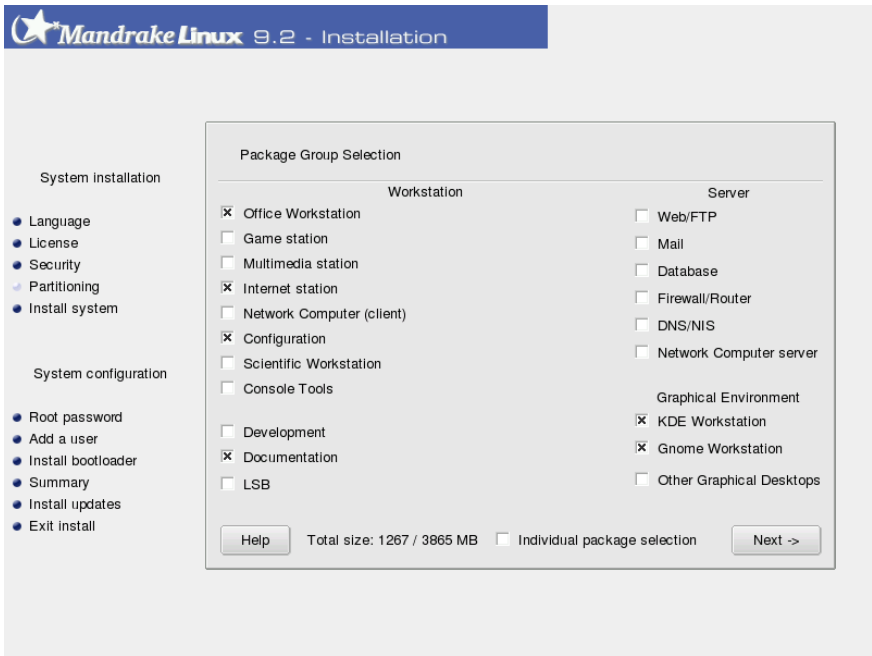
Click on Next -> when you are ready to format the partitions.

Click on <- Previous if you want to choose another partition for your new **Mandrake Linux** operating system installation.

Click on Advanced if you wish to select partitions that will be checked for bad blocks on the disk.

3.10. Choose Packages to Install

3.10.1. Choose Package Groups to Install



It is now time to specify which programs you wish to install on your system. There are thousands of packages available for **Mandrake Linux**, and to make it simpler to manage the packages have been placed into groups of similar applications.

Packages are sorted into groups corresponding to a particular use of your machine. **Mandrake Linux** sorts packages groups in four categories. You can mix and match applications from the various categories, so a "Workstation" installation can still have applications from the "Development" category installed.

1. Workstation: if you plan to use your machine as a workstation, select one or more of the groups that are in the workstation category.
2. Development: if you plan on using your machine for programming, select the appropriate groups from that category.
3. Server: if your machine is intended to be a server, select which of the more common services you wish to install on your machine.
4. Graphical Environment: this is where you will choose your preferred graphical environment. At least one must be selected if you want to have a graphical interface available.

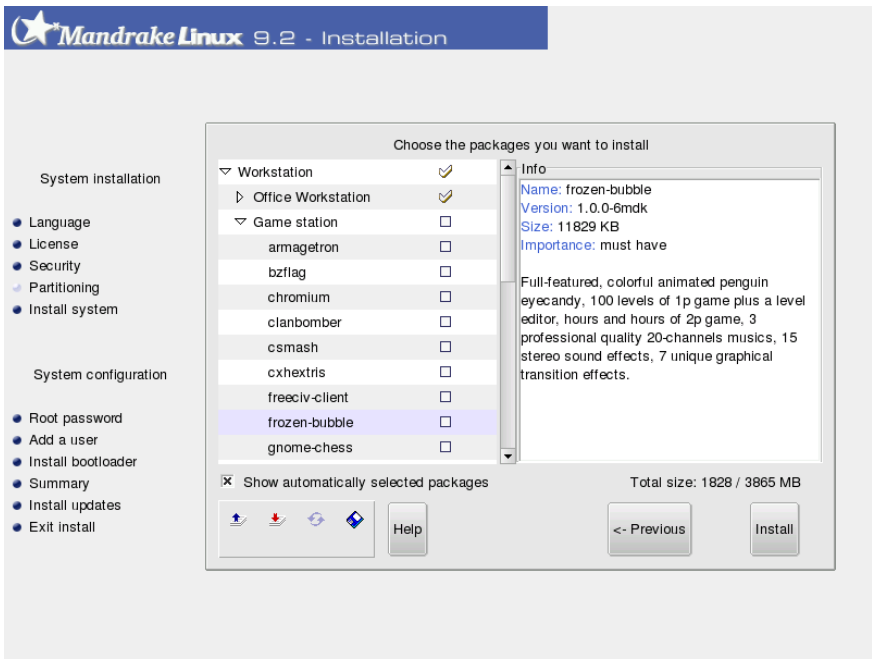
Moving the mouse cursor over a group name will display a short explanatory text about that group. If you unselect all groups when performing a regular installation (as opposed to an upgrade), a dialog will pop up proposing different options for a minimal installation:

- With X: install the minimum number of packages possible to have a working graphical desktop.
- With basic documentation: installs the base system plus basic utilities and their documentation. This installation is suitable for setting up a server.
- Truly minimal install: will install the absolute minimum number of packages necessary to get a working Linux system. With this installation you will only have a command line interface. The total size of this installation is about 65 megabytes.

You can check the Individual package selection box, which is useful if you are familiar with the packages being offered or if you want to have total control over what will be installed.

If you started the installation in Upgrade mode, you can unselect all groups to avoid installing any new package. This is useful for repairing or updating an existing system.

3.10.2. Choose Individual Packages to Install



If you told the installer that you wanted to individually select packages, it will present a tree containing all packages classified by groups and subgroups. While browsing the tree, you can select entire groups, subgroups, or individual packages.

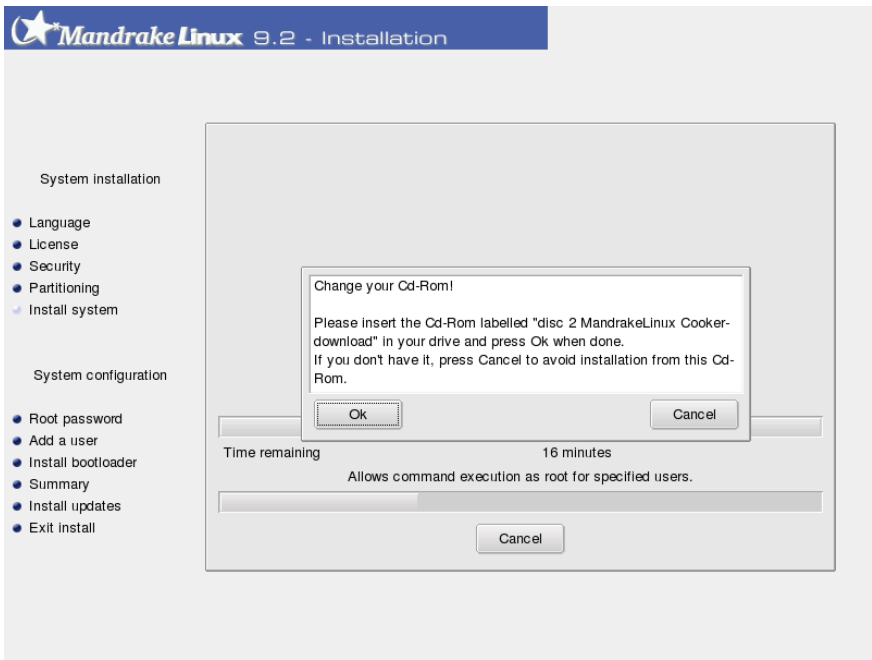
Whenever you select a package on the tree, a description appears on the right to let you know the purpose of the package.

If a server package has been selected, either because you specifically chose the individual package or because it was part of a group of packages, you will be asked to confirm that you really want those servers to be installed. By default **Mandrake Linux** will automatically start any installed services at boot time. Even if they are safe and have no known issues at the time the distribution was shipped, it is entirely possible that that security holes were discovered after this version of **Mandrake Linux** was finalized. If you do not know what a particular service is supposed to do or why it is being installed, then click No. Clicking Yes will install the listed services and they will be started automatically by default during boot.

The Automatic dependencies option is used to disable the warning dialog which appears whenever the installer automatically selects a package to resolve a dependency issue. Some packages have relationships between each them such that installation of one package requires that some other program is also required to be installed. The installer can determine which packages are required to satisfy a dependency to successfully complete the installation.

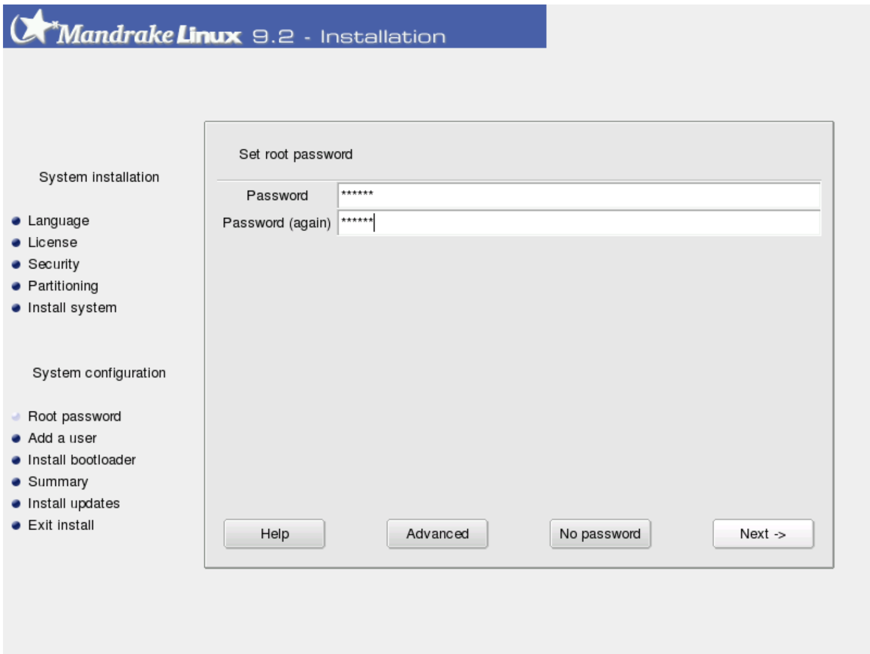
The tiny floppy disk icon at the bottom of the list allows you to load a package list created during a previous installation. This is useful if you have a number of machines that you wish to configure identically. Clicking on this icon will ask you to insert a floppy disk previously created at the end of another installation. See the second tip of last step on how to create such a floppy.

3.11. Multiple CD-ROM Installation



The **Mandrake Linux** installation is distributed on several CD-ROMs. If a selected package is located on another CD-ROM, *DrakX* will eject the current CD and ask you to insert the correct CD as required.

3.12. Root Password



This is the most crucial decision point for the security of your *GNU/Linux* system: you have to enter the `root` password. `Root` is the system administrator and is the only user authorized to make updates, add users, change the overall system configuration, and so on. In short, `root` can do everything! That is why you must choose a password that is difficult to guess – *DrakX* will tell you if the password you chose is too easy. As you can see, you are not forced to enter a password, but we strongly advise you against this. *GNU/Linux* is just as prone to operator error as any other operating system. Since `root` can overcome all limitations and unintentionally erase all data on partitions by carelessly accessing the partitions themselves, it is important that it be difficult to become `root`.

The password should be a mixture of alphanumeric characters and at least 8 characters long. Never write down the `root` password — it makes it far too easy to compromise a system.

One caveat — do not make the password too long or complicated because you must be able to remember it!

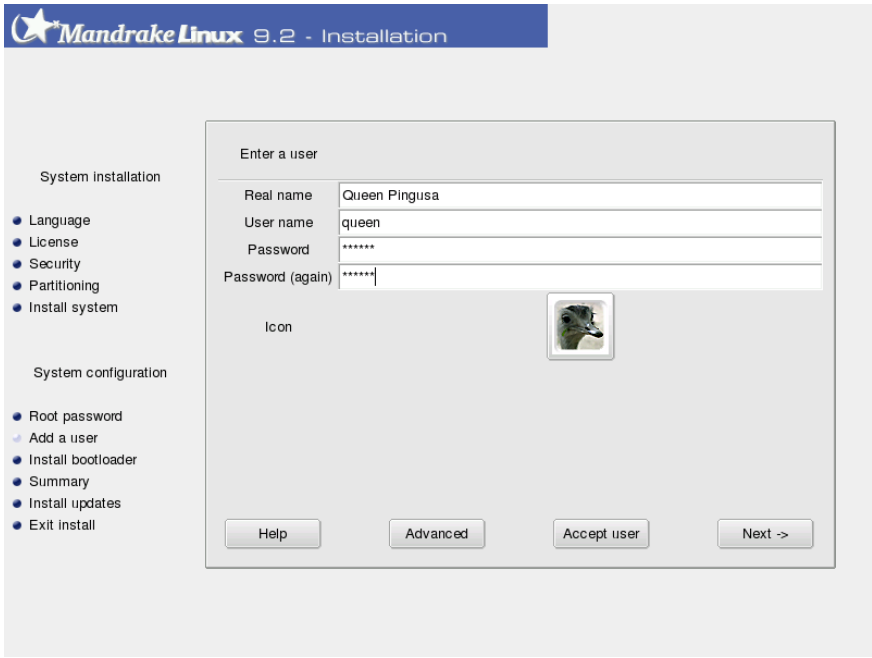
The password will not be displayed on screen as you type it in. To reduce the chance of a blind typing error you will need to enter the password twice. If you do happen to make the same typing error twice, this "incorrect" password will be the one you will have use the first time you connect.

If you wish access to this computer to be controlled by an authentication server, click the Advanced button.

If your network uses either LDAP, NIS, or PDC Windows Domain authentication services, select the appropriate one for authentication. If you do not know which one to use, you should ask your network administrator.

> If you happen to have problems with remembering passwords, if your computer will never be connected to the Internet and you absolutely trust everybody who uses your computer, you can choose to have No password.

3.13. Adding a User

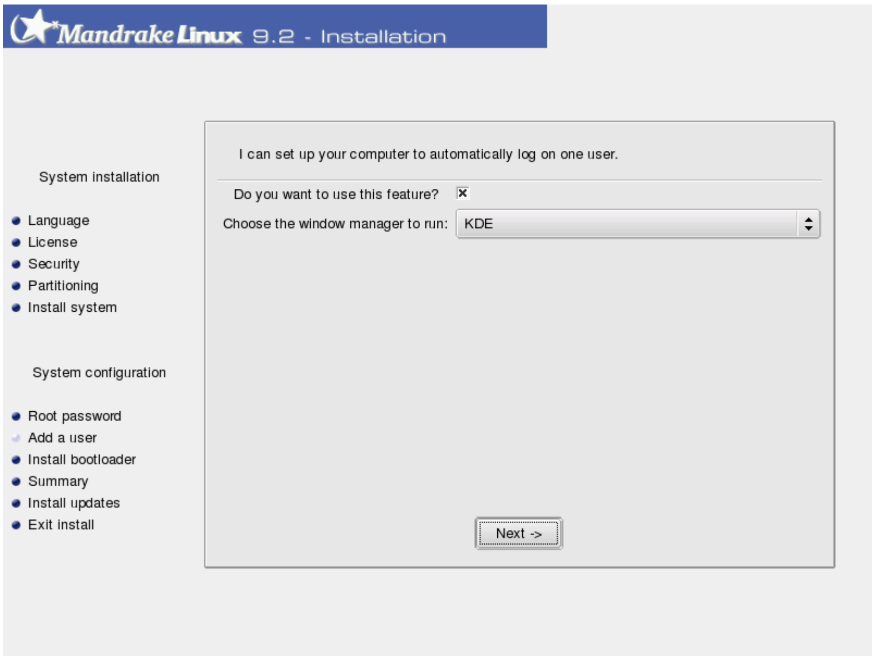


GNU/Linux is a multi-user system, meaning each user may have their own preferences, their own files and so on. You can read the *Starter Guide* to learn more about multi-user systems. But unlike `root`, who is the system administrator, the users you add at this point will not be authorized to change anything except their own files and their own configurations, protecting the system from unintentional or malicious changes that impact on the system as a whole. You will have to create at least one regular user for yourself — this is the account which you should use for routine, day-to-day use. Although it is very easy to log in as `root` to do anything and everything, it may also be very dangerous! A very simple mistake could mean that your system will not work any more. If you make a serious mistake as a regular user, the worst that will happen is that you will lose some information, but not affect the entire system.

The first field asks you for a real name. Of course, this is not mandatory — you can actually enter whatever you like. *DrakX* will use the first word you typed in this field and copy it to the User name field, which is the name this user will enter to log onto the system. If you like, you may override the default and change the user name. The next step is to enter a password. From a security point of view, a non-privileged (regular) user password is not as crucial as the `root` password, but that is no reason to neglect it by making it blank or too simple: after all, **your** files could be the ones at risk.

Once you click on Accept user, you can add other users. Add a user for each one of your friends: your father or your sister, for example. Click Next -> when you have finished adding users.

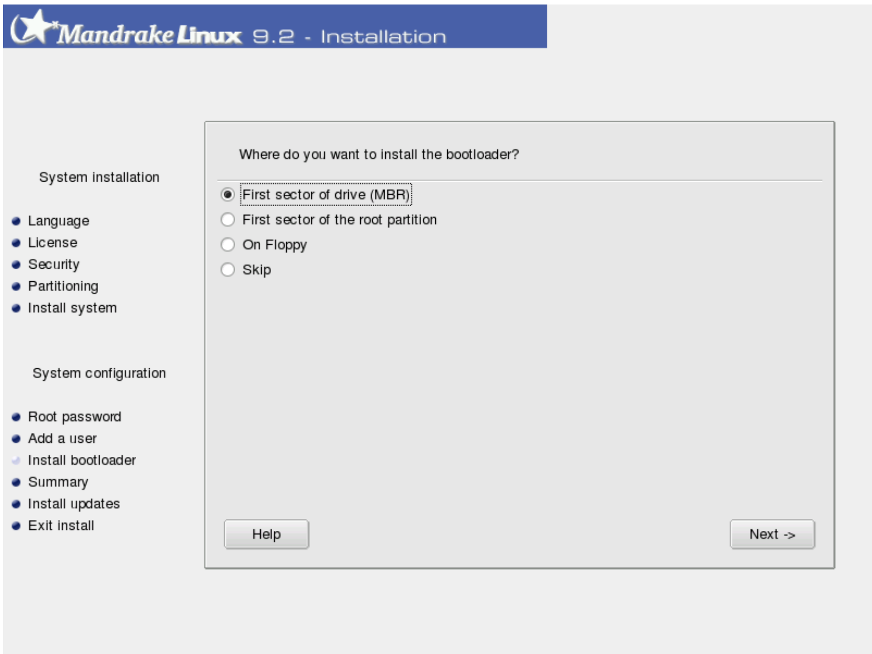
Clicking the Advanced button allows you to change the default `shell` for that user (*bash* by default).



When you have finished adding users, you will be asked to choose a user who can automatically log into the system when the computer boots up. If you are interested in that feature (and do not care much about local security), choose the desired user and window manager, then click Next ->. If you are not interested in this feature, uncheck the Do you want to use this feature? box.

3.14. Installing a Bootloader

This step is generally ignored for `Recommended` mode.



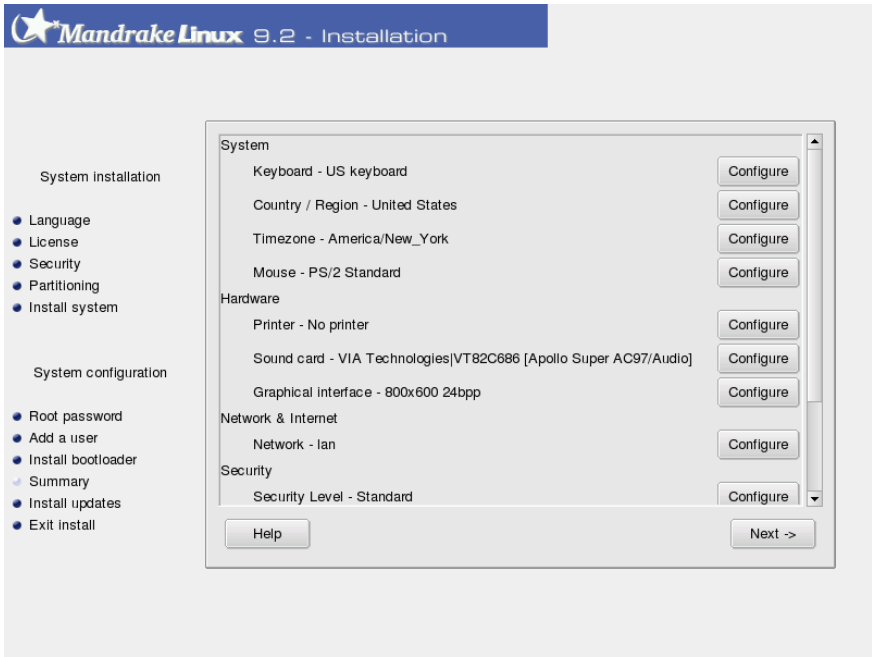
LILO and *GRUB* are *GNU/Linux* bootloaders. Normally, this stage is totally automated. *DrakX* will analyze the disk boot sector and act according to what it finds there:

- if a *Windows* boot sector is found, it will replace it with a *GRUB* / *LILO* boot sector. This way you will be able to load either *GNU/Linux* or any other OS installed on your machine.
- if a *GRUB* or *LILO* boot sector is found, it will replace it with a new one.

If it cannot make a determination, *DrakX* will ask you where to place the bootloader. Generally, the First sector of drive (MBR) is the safest place. Choosing Skip won't install any bootloader. Use it only if you know what you are doing.

3.15. Check Miscellaneous Parameters

3.15.1. Summary

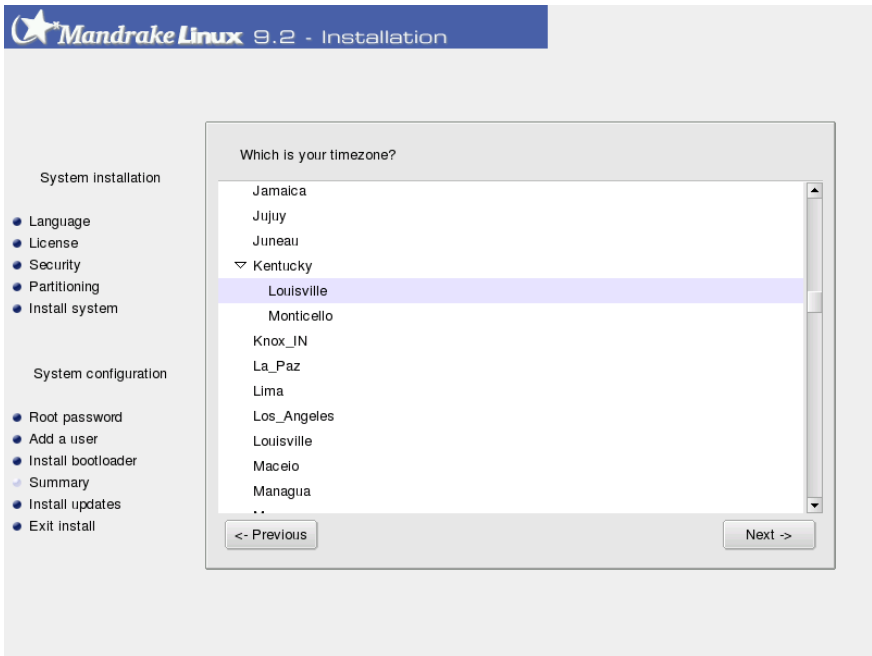


As a review, *DrakX* will present a summary of information it has about your system. Depending on your installed hardware, you may have some or all of the following entries. Each entry is made up of the configuration item to be configured, followed by a quick summary of the current configuration. Click on the corresponding Configure button to change that.

- Keyboard: check the current keyboard map configuration and change it if necessary.
- Country / Region: check the current country selection. If you are not in this country, click on the Configure button and choose another one. If your country is not in the first list shown, click the More button to get the complete country list.
- Timezone: By default, *DrakX* deduces your time zone based on the country you have chosen. You can click on the Configure button here if this is not correct.
- Mouse: check the current mouse configuration and click on the button to change it if necessary.
- Printer: clicking on the Configure button will open the printer configuration wizard. Consult the corresponding chapter of the *Starter Guide* for more information on how to setup a new printer. The interface presented there is similar to the one used during installation.
- Sound card: if a sound card is detected on your system, it is displayed here. If you notice the sound card displayed is not the one that is actually present on your system, you can click on the button and choose another driver.
- Graphical Interface: by default, *DrakX* configures your graphical interface in `800x600` or `1024x768` resolution. If that does not suit you, click on Configure to reconfigure your graphical interface.
- TV card: if a TV card is detected on your system, it is displayed here. If you have a TV card and it is not detected, click on Configure to try to configure it manually.
- ISDN card: if an ISDN card is detected on your system, it will be displayed here. You can click on Configure to change the parameters associated with the card.
- Network: If you wish to configure your Internet or local network access now.

- Security Level: this entry allows you to redefine the security level as set in a previous step (*Security Level*, page **??**).
- Firewall: if you plan to connect your machine to the Internet, it's a good idea to protect yourself from intrusions by setting up a firewall. Consult the corresponding section of the *Starter Guide* for details about firewall settings.
- Bootloader: if you wish to change your bootloader configuration, click that button. This should be reserved to advanced users.
- Services: here you'll be able to fine control which services will be run on your machine. If you plan to use this machine as a server it's a good idea to review this setup.

3.15.2. Time Zone Options

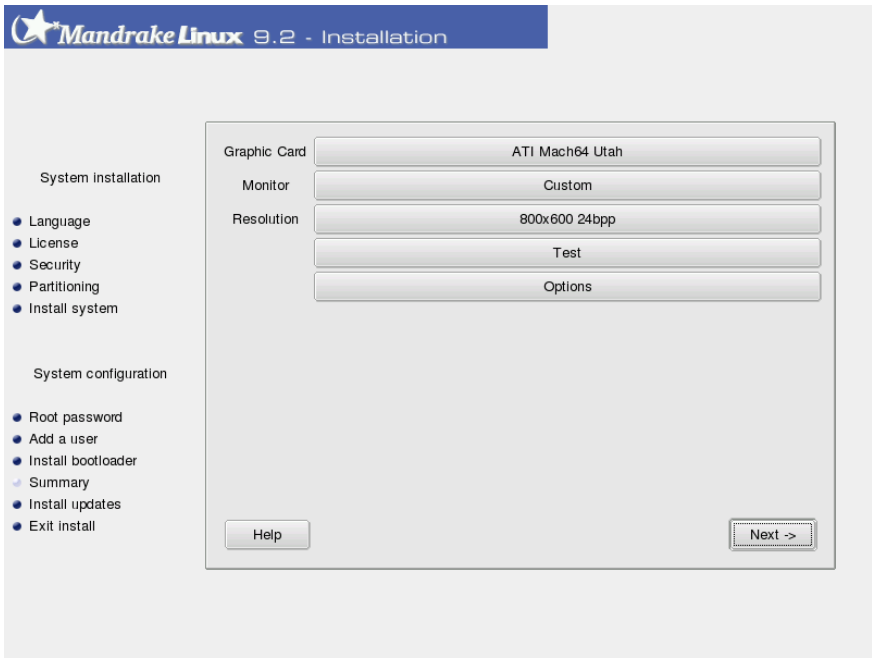


This dialog appears after selecting a new time zone in the time zones list. After you have chosen the place nearest to you in your time zone, two more options are shown.

GNU/Linux manages time in GMT (Greenwich Mean Time) and translates it to local time according to the time zone you selected. If the clock on your motherboard is set to local time, you may deactivate this by unselecting Hardware clock set to GMT, which will let *GNU/Linux* know that the system clock and the hardware clock are in the same time zone. This is useful when the machine also hosts another operating system like *Windows*.

The Automatic time synchronization option will automatically regulate the clock by connecting to a remote time server on the Internet. For this feature to work, you must have a working Internet connection. It is best to choose a time server located near you. This option actually installs a time server that can be used by other machines on your local network as well.

3.15.3. Configuring X, the Graphical Server



X (for X Window System) is the heart of the *GNU/Linux* graphical interface on which all the graphical environments (*KDE*, *GNOME*, *AfterStep*, *WindowMaker*, etc.) bundled with **Mandrake Linux** rely upon.

You will be presented with a list of different parameters to change to get an optimal graphical display:

Graphic Card

The installer will normally automatically detect and configure the graphic card installed on your machine. If it is not the case, you can choose from this list the card you actually have installed.

In the situation where different servers are available for your card, with or without 3D acceleration, you are asked to choose the server that best suits your needs.

Monitor

The installer will normally automatically detect and configure the monitor connected to your machine. If it is incorrect, you can choose from this list the monitor you actually have connected to your computer.

Resolution

Here you can choose the resolutions and color depths available for your hardware. Choose the one that best suits your needs (you will be able to change that after installation though). A sample of the chosen configuration is shown in the monitor picture.

Test

Depending on your hardware, this entry might not appear.

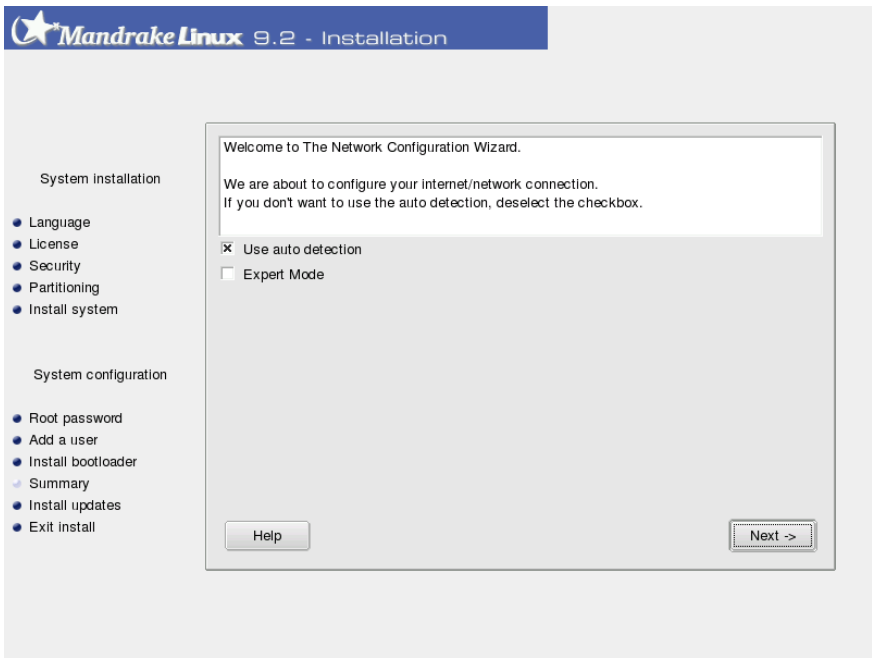
the system will try to open a graphical screen at the desired resolution. If you can see the message during the test and answer Yes, then *DrakX* will proceed to the next step. If you cannot see the message, it means that some part of the auto-detected configuration was incorrect and the test will automatically end after 12 seconds, bringing you back to the menu. Change settings until you get a correct graphical display.

Options

Here you can choose whether you want to have your machine automatically switch to a graphical interface at boot. Obviously, you want to check No if your machine is to act as a server, or if you were not successful in getting the display configured.

3.15.4. Configure your Network

This step is generally ignored for `Recommended` mode.



You will now set up your Internet/network connection. If you wish to connect your computer to the Internet or to a local network, click Next ->. **Mandrake Linux** will attempt to auto-detect network devices and modems. If this detection fails, uncheck the Use auto detection box. You may also choose not to configure the network, or to do it later, in which case clicking the Cancel button will take you to the next step.

When configuring your network, the available connections options are: Normal modem connection, Winmodem connection, ISDN modem, ADSL connection, cable modem, and finally a simple LAN connection (Ethernet).

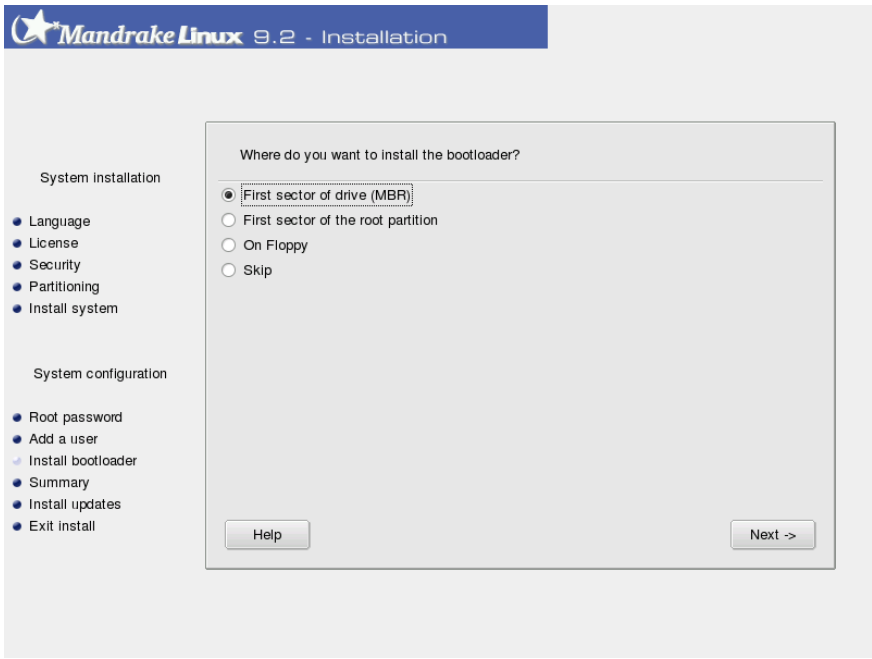
We will not detail each configuration option – just make sure that you have all the parameters, such as IP address, default gateway, DNS servers, etc. from your Internet Service Provider or system administrator.

About Winmodem Connection. Winmodems are special integrated low-end modems that require additional software to work compared to Normal modems. Some of those modems actually work under **Mandrake Linux**, some others do not. You can consult the list of supported modems at LinModems (`http://www.linmodems.org`).

You can consult the *Starter Guide* chapter about Internet connections for details about the configuration, or simply wait until your system is installed and use the program described there to configure your connection.

3.15.5. Installing a Bootloader

This step is generally ignored for `Recommended` mode.



This dialog allows you to fine tune your bootloader:

- Bootloader to use: there are three choices for your bootloader:
  1. GRUB: if you prefer *GRUB* (text menu).
  2. LILO with text menu: if you prefer *LILO* with its text menu interface.
  3. LILO with graphical menu: if you prefer *LILO* with its graphical interface.
- Boot device: in most cases, you will not change the default (/dev/hda), but if you prefer, the bootloader can be installed on the second hard drive (/dev/hdb), or even on a floppy disk (/dev/fd0);
- Delay before booting the default image: after a boot or a reboot of the computer, this is the delay given to the user at the console to select a boot entry other than the default.
- Enable ACPI: ACPI is a new standard (appeared during year 2002) for power management, notably for laptops. If you know your hardware supports it and you need it, check this box.
- Force no APIC: If you noticed hardware problems on your machine (IRQ conflicts, instabilities, machine freeze, ...) you should try disabling APIC by checking this box.

Be aware that if you choose not to install a bootloader (by selecting Skip), you must ensure that you have a way to boot your **Mandrake Linux** system! Be sure you know what you are doing before changing any of the options.

Clicking the Advanced button in this dialog will offer advanced options which are normally reserved for the expert user.

3.15.6. Setup of The Bootloader Entries

This step is generally ignored for `Recommended` mode.

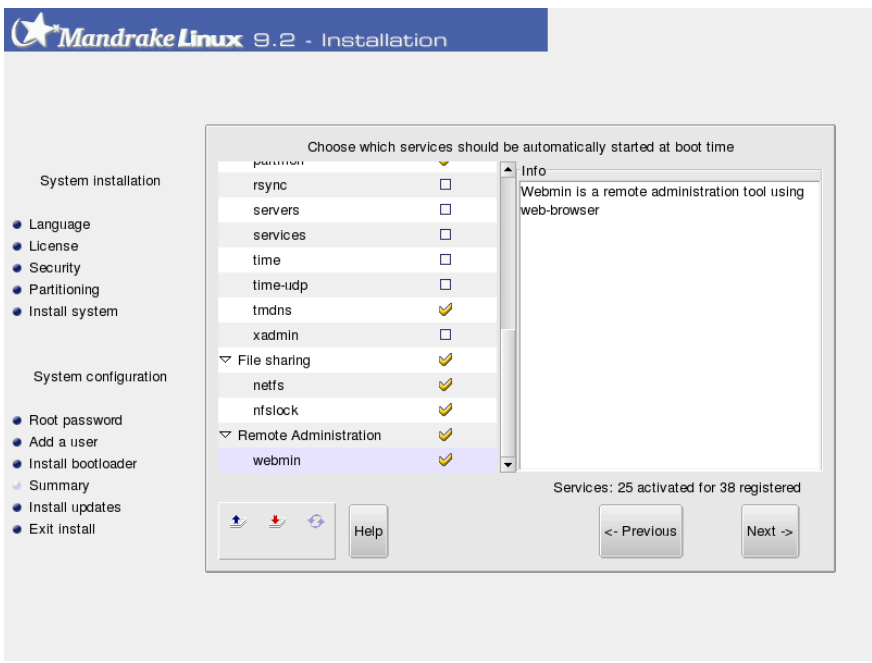
After you have configured the general bootloader parameters, the list of boot options that will be available at boot time will be displayed.

If there are other operating systems installed on your machine they will automatically be added to the boot menu. You can fine-tune the existing options by clicking Add to create a new entry; selecting an entry and clicking Modify or Remove to modify or remove it. Next-> validates your changes.

You may also **not** want to give access to these other operating systems to anyone who goes to the console and reboots the machine. You can delete the corresponding entries for the operating systems to remove them from the bootloader menu, but you will need a boot disk in order to boot those other operating systems!

3.15.7. Selecting Available Services at Boot Time

This step is generally ignored for `Recommended` mode.



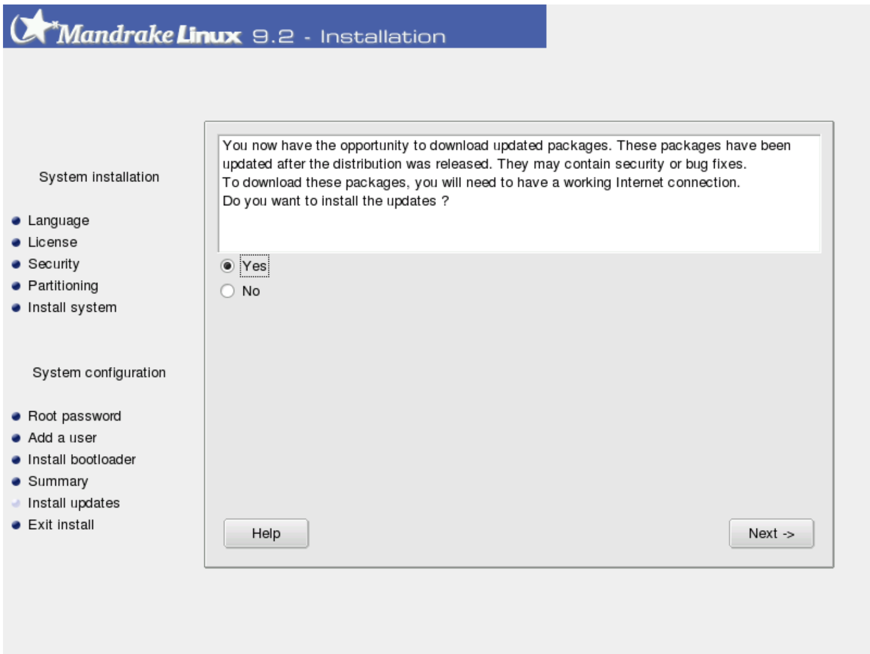
This dialog is used to choose which services you wish to start at boot time.

DrakX will list all the services available on the current installation. Review each one carefully and uncheck those which are not needed at boot time.

A short explanatory text will be displayed about a service when it is selected. However, if you are not sure whether a service is useful or not, it is safer to leave the default behavior.

At this stage, be very careful if you intend to use your machine as a server: you will probably not want to start any services that you do not need. Please remember that several services can be dangerous if they are enabled on a server. In general, select only the services you **really** need.

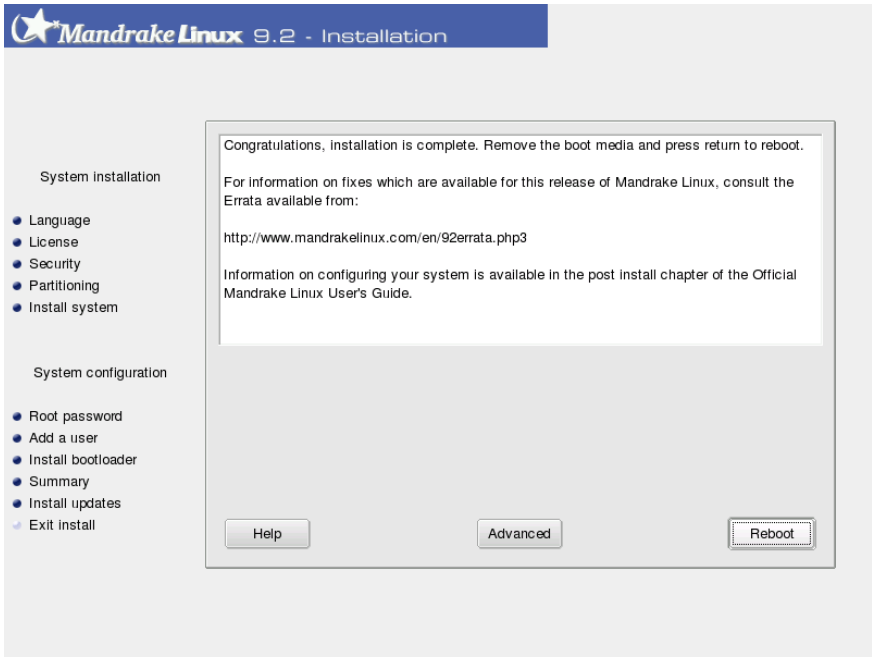
3.16. Installing Updates from the Internet



At the time you are installing **Mandrake Linux**, it is likely that some packages will have been updated since the initial release. Bugs may have been fixed, security issues resolved. To allow you to benefit from these updates, you are now able to download them from the Internet. Check Yes if you have a working Internet connection, or No if you prefer to install updated packages later.

Choosing Yes will display a list of places from which updates can be retrieved. You should choose one near to you. A package-selection tree will appear: review the selection, and press Install to retrieve and install the selected package(s), or Cancel to abort.

3.17. It's Finished!



There you are. Installation is now complete and your *GNU/Linux* system is ready to use. Just click Reboot to reboot the system. Don't forget to remove the installation media (CD-ROM or floppy). The first thing you should see after your computer has finished doing its hardware tests is the bootloader menu, giving you the choice of which operating system to start.

The Advanced button shows two more buttons to:

1. Generate auto-install floppy: to create an installation floppy disk that will automatically perform a whole installation without the help of an operator, similar to the installation you just configured.

   Note that two different options are available after clicking the button:

   - Replay. This is a partially automated installation. The partitioning step is the only interactive procedure.
   - Automated. Fully automated installation: **the hard disk is completely rewritten, all data is lost**.

   This feature is very handy when installing a number of similar machines. See the Auto install (`http://www.mandrakelinux.com/drakx/auto_inst.html`) section on our web site for more information.

2. Save packages selection: saves a list of the packages selected in this installation. To use this selection with another installation, insert the floppy and start the installation. At the prompt, press the **F1** key and type `linux defcfg="floppy"` .

3.18. How to Uninstall Linux

Operating systems generally do not offer the possibility to uninstall themselves. If for any reason you want to uninstall **Mandrake Linux**, you can do so.

The uninstallation process consists of two steps:

1. Delete all partitions related to **Mandrake Linux** on your hard drive (usually partitions hosting ext3 file systems and the swap partition) and — optionally — replace them by a single FAT partition using *DiskDrake*.

Removing partitions on your hard drive will inevitably result in a loss of data stored on them. Please make sure you have backed up all the data you want to keep **before** proceeding with this step.

2. Uninstall the boot loader (generally *LILO*) from the Master Boot Record (MBR). To do so, boot under *DOS* and run the `fdisk /mbr` command.

   If you have another OS, please refer to its documentation to determine how to regenerate the master boot record with it.

Goodbye, and thank you for using **Mandrake Linux**!

Chapter 4. Migrating to Linux from Windows®/Mac OS X®

This chapter is aimed at users migrating from *Windows* or *MacOS X*. Instead of presenting the various applications in depth, it tries to answer most common questions and/or issues former *Windows* or *MacOS X* users might ask themselves.

4.1. Where's my...?

Experienced *Windows* and *MacOS X* users are normally accustomed to certain functions and/or concepts that are obviously treated differently in *GNU/Linux*.

4.1.1. Start Menu

This concept remains more or less the same, except it's now called the main menu: using *KDE* a large "K" will sit on the bottom left of your screen. However if you are using *GNOME* you will see a big pod representing the letter "G".

For *MacOS X* users may be accustomed to something a little different. The Apple menu (located at the far left of the menu bar) does not contain applications, but offers different services. Typically your applications are located in the `Applications` folder in the "Finder".

4.1.2. Applications

The wide variety of applications is one large differentiator between *GNU/Linux* and *Windows*. **Mandrake Linux** installs many more applications onto your system, and clicking on the main menu will give you a wide range of choices depending on what you would like to do. There are many fully-fledged applications available to accomplish many common tasks such as word processing, e-mail handling, web browsing, etc.

For *MacOS X* users, a number of applications are similar between *MacOS X* and *GNU/Linux*. Because *MacOS X* is based on *BSD*, a large number of applications are similar, and other applications designed for the desktop have been ported or are available under the X11 implementation available for *MacOS X*, so a number of applications that are used will be the same on *GNU/Linux* as it is in *MacOS X*.

You may also install a large number of applications through the *RpmDrake* utility (please refer to the "*RpmDrake: Package Management*", page **??**).

4.1.3. Control Panel/System Preferences

The *Control Panel* in *Windows* and the *System Preferences* utility in *MacOS X* are replaced by the *Mandrake Control Center* under **Mandrake Linux**. It can be found on the main menu, in Configuration→Configure your computer. Through this interface, you will have the ability to modify most of your system's settings with graphical tools.

4.1.4. DOS Shell

GNU/Linux is still very fond of its shell environments. Unlike *Windows* the popularity of the shell is not fading away as is evident by the availability of the shell in *MacOS X*. By default, **Mandrake Linux** installs *bash*, a truly powerful shell environment. You can access it by opening the main menu and choosing Terminals→ Konsole.

None of your *DOS* commands/functions will work in a *Linux* shell. Take a look at *Introduction to the Command Line* of the *Reference Guide* to discover their equivalence and much, much more. Have fun, you now have a real *shell* at hand!

4.1.5. Network Neighborhood

GNU/Linux uses TCP/IP by default, not SMB (the *Windows* network protocol), so there is nothing like a network neighborhood icon to give you a view of the network you are in. However, you may use the *LinNeighborhood* application to give you similar functionality.

Konqueror or *Nautilus* can also accomplish the same task. In the location bar, just type: `lan:/`, and all the shared *Windows* resources on the network will appear. Please remember that for this to work, the `samba-client` package must be installed.

See *File Sharing*, page **??** for more information.

4.1.6. C: Drive

The "lettered drive" is a concept exclusive to *Windows*. On *UNIX* systems, the drive notion (`C:`, `D:`, ..., `Z:`) is replaced by "mount points". From a user perspective, you are always accessing directories. Your system will use configuration files to instruct the file system how to "load" all relevant disks, disk partitions and remote systems, and then assign them to a specified directory, generally under the `/mnt/` directory. While this concept is similar to that found in *MacOS X*, it is slightly different. What is mounted under `/mnt` with *GNU/Linux* is mounted under `/Volumes` in *MacOS X* but is made available as a "root filesystem" in the *Finder*.

These settings are what allow *GNU/Linux* to be able to read any other file system you have configured, even a *Windows* directory.

4.1.7. CD-ROM Drive

The same concept as for `C:` applies here. CD-ROMs are "mounted" in `/mnt/cdrom/`. To access the CD-ROM, just click on the desktop icon. If you have *Konqueror* running, the CD-ROM will appear in a new window.

Unfortunately this does not work for an audio CD yet. However you can still access your music. Please see *Audio Applications*, page **??**.

4.1.8. Floppy Disk Drive

Like CD-ROMs and disk partitions, floppy disks are mounted and will appear on `/mnt/floppy/`. This feature directly supports reading *Windows* diskettes.

You will have icons in your desktop to access all your removable media drives: floppy, CD-ROM, *ZIP*, etc.

4.1.9. My Documents

Under **Mandrake Linux** every user has a directory called `Documents/` located in their home directory.

The "home directory" concept is equivalent to the `\winnt\Profiles\user_name\` or `\Documents and Settings\user_name\` directories in *Windows NT*, *Windows 2000*, *Windows XP*, and is explained in "*Using KDE*", page **??**.

Under *MacOS X* this is very similar. The "home directory" is located as `/Users/user_name` and it also contains a directory called `Documents`.

You may also have many files in proprietary formats such as *Excel* or *Word* documents. These are usually not a problem to convert. *OpenOffice.org* is just one application which can import many popular formats for office applications.

We are specifically mentioning office documents because office applications are important. Due to space constraints we cannot enumerate every single *Windows* application and its *GNU/Linux* equivalent. However, there is a high probability that you will find *GNU/Linux* equivalents for all the programs you use under *Windows* or *MacOS X*. To get an idea of *GNU/Linux* equivalents of *Windows* applications, you can consult this table of equivalents (`http://linuxshop.ru/linuxbegin/win-lin-soft-en/`).

4.2. A Brave New World!

Now that you have found your way around *GNU/Linux*, here is a brief presentation of the features which are excellent reasons to migrate to *GNU/Linux*.

4.2.1. A Multi-User Environment

GNU/Linux, like *MacOS X*, is based on *UNIX*. This basically implies a shift in the structure of your environment, from a single workstation to a multi-user architecture and implies very thorough user management. Each file, service and application is exclusively allocated to a user or a group of users, according to its nature. For example, every user has their own "personal" directory, inaccessible (even invisible) to other users, containing personal data and personal configuration files.

GNU/Linux also offers advanced server functionality, such as the ability to host mail or web page servers.

4.2.2. Multiple Tasking

GNU/Linux has always been a very strong operating system for multi-tasking (running many applications concurrently). Although other OSes have made great progress, *GNU/Linux* remains a leader in that domain.

4.2.3. Multiple Desktops

With *GNU/Linux*, *KDE* and *GNOME* give you as many desktops as necessary to work with, instead of just a single desktop. Users who like to have numerous applications running at the same time will greatly appreciate this feature since it makes for a much cleaner working environment.

4.2.4. Full Desktop Customization

Regarding aesthetics, *GNU/Linux* truly rocks! Not only can you choose between *KDE* or *GNOME* and many other window management programs, but you can also highly customize their appearances with "themes". Themes go beyond just the initial look and feel: actually, everything you see can be modified, from the background image to the behavior of applications when they are closed, which is truly unique.

See www.themes.org (`http://www.themes.org/`) for available designs.

4.2.5. Thousands of Free Applications

By far, the *GNU/Linux* community is a most generous one. Given a specific problem, you will most likely find a script or an application to answer your needs, for free! Also, **Mandrake Linux** includes hundreds of applications not documented in this book, so do not be shy, and try them out. You will most probably be surprised by the extent of the possibilities *GNU/Linux* offers.

4.2.6. No More Reboots!

Windows and older *MacOS* (although this has largely been addressed in *MacOS X*) users know the level of frustration generated by crashing systems. Even though *GNU/Linux* is not perfect, its stability is one of its strongest points. Sometimes, applications crash, but rarely do they take the operating system with it.

We hope this rapid tour will help you truly appreciate *GNU/Linux*'s strengths. Do not be afraid to explore further!

Chapter 5. Linux for Beginners

5.1. Introduction

This chapter was written for inexperienced users. If you know how to create an icon on the desktop, or how to put a window on all workspaces, skip ahead to the next chapter. If not, read on! You will learn how to access your desktop environment, launch programs and shut down the computer. After reading this chapter, all subsequent ones will make much more sense to you.

If you are an experienced *Windows* or *MacOS* user, refer to "*Migrating to Linux from Windows®/Mac OS X®*", page **??** which will ease the transition between the two OSes and *GNU/Linux*.

We assume that you are sitting in front of a running **Mandrake Linux** computer which, when turned on, automatically displays the graphical login screen. If this is not the case and you are facing black screen with something like:

```
Mandrake Linux release 9.2 (CodeName) for i586
Kernel 2.4.22-9mdk on an i686 / tty 1
machine_name login:
```

with a flashing cursor, type your user name (usually your first name or your nickname), then your secret password. You should now be "logged in". Then type `startx` and the graphical interface will be launched.

GNU/Linux offers many graphical interfaces. In this manual we will discuss the popular *KDE* (see "*Using KDE*", page **??**) and *GNOME* (see "*Using GNOME*", page **??**).

5.2. The Bootloader Menu

When you reboot your computer after completing your **Mandrake Linux** installation, you will first see a menu containing three or more items. This is called the "bootloader menu". It allows you to boot your *GNU/Linux* system, or any other operating systems you might have already installed, as well as some special options.

The number of items and their names can vary depending on your particular configuration. The one we are interested in, at the moment, is obviously the one named linux, which will start your **Mandrake Linux** system. It is the default item if you have not manually configured it differently. All you need to do is to wait a few seconds — you will see a countdown at the bottom of the screen — or press **Enter**, and **Mandrake Linux** will start loading. You can select a different item by using the cursor keys on your keyboard and pressing the **Enter** key.

5.3. Getting Ready for your Session

While your **Mandrake Linux** system loads and shows you some technical information, we will introduce a fundamental concept of multiuser systems: the session.

GNU/Linux is a multiuser system. This means that more than one user can access the same machine, each one with the ability to keep his own data and configuration files private and protected from other users. To be able to do this, different user accounts must be created on the system by the system administrator. The administrator is the user named `root`, whose password has been set during system installation, and who has no restrictions at all on the system.

It is also important to understand the terms "to log in" and "to log out". To log in means: to identify yourself to the computer. Think of it as a security officer validating who you are before letting you in. After logging in, the system takes a number of actions in order to give you access to the system's resources. By logging in, you start a so-called "session".

When you log out you are telling the system you no longer need to use its resources. Your personal session is closed, you exit the graphical interface and the login screen appears once more.

Although these definitions are valid within the scope of this chapter, they are oversimplified. As you read the following chapters, you will better understand these concepts, their advantages and options.

5.4. Beginning your Session

5.4.1. Identifying Yourself

To log in the system, you need to know and supply both your login name and your password. The former identifies you while the latter protects your data stored on the computer. If you did your own installation, you already have your login name and password. If not, you must ask the person who installed your computer to help you out urgently!

You are currently in front of the following display (figure 5-1). Of course, it appears slightly different as the user names displayed next to the image ***icon***s are probably different.

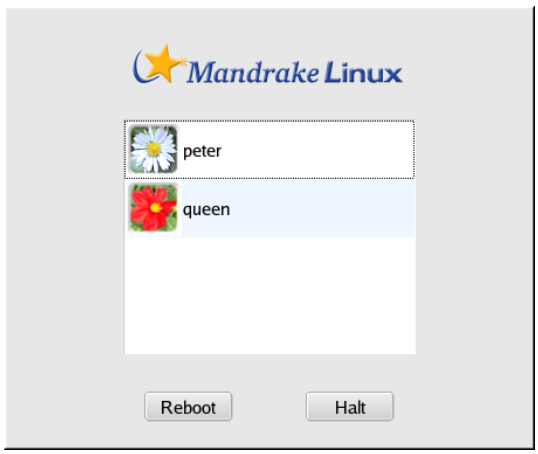


Figure 5-1. The Login Window

The login procedure takes place in four simple steps:

1. Click on the icon corresponding to your login name.
2. Type your secret password once that field is displayed.

You will notice that the letters do not appear while you type them in the password field. They are replaced by little stars (*), in order to avoid any other person from seeing your secret password. This is a common computer behavior whenever you enter a password. Because of this, make sure you type the correct keys since you can not check them visually. Remember: passwords under *GNU/Linux* are case sensitive, which means that if your password is `Very_Secret` and you type `Very_secret`, access will be denied!

3. As you can see in the Session Type field, the default environment is the last one you used. You can change it by simply choosing another one from the ***pull-down menu***. If this is the first time that you have logged in, e.g. immediately after the installation, no default environment has yet been defined and the *Mandrake First Time Wizard* wizard will pop up. Please refer to *The First Time Wizard*, page **??** for more information.

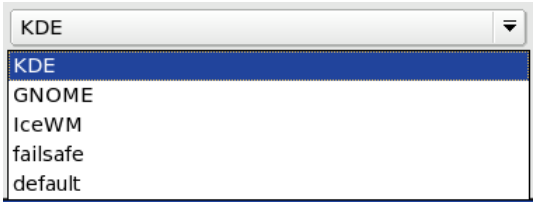


Figure 5-2. The Pull-Down Session Type List

This step is optional and allows you to choose a specific graphical environment. While we encourage you to try various graphical environments so you can find the one you prefer, we strongly suggest you start with either *KDE* or *GNOME*.

4. Finally click on the Login button to begin your session. Be patient! It may take a few seconds before your desktop is ready to be used.

If you are the only user of your new **Mandrake Linux** system, and you are annoyed by having to type your login name and password every time you start a new session, there is a way to avoid this step: booting directly in your favorite desktop environment. This feature is known as **auto-login** and can be activated as follows:

- Launch the *Mandrake Control Center* choosing Configuration→Configure your computer from the main menu or clicking on the *Mandrake Control Center* icon on your desktop.
- Click on the first section (Boot) then on the Drakboot icon.
- Select the Yes I want autologin with this (user, desktop) option. You must select the user name and the default desktop environment to be used by choosing from the corresponding pull-down menus in the lower part of the window.

Be careful with this option as no password will be asked for, hence **anybody** can access your system. We suggest that you use this option only if no one but you can access your computer, or if only non-sensitive data is stored in it.

5.4.2. The First Time Wizard

If this is the first time you have accessed your **Mandrake Linux** system, you will encounter the *Mandrake First Time Wizard* (figure 5-3). It will help you to set up the most basic configuration options. We recommend that you complete all its steps. This will possibly save you some tedious work in the future.

First of all, you will be asked to choose an appearance for your working environment. The different choices will affect the way files, objects and windows are displayed on the screen, and the way you will interact with them, but it is important to know that they all share the same functionalities. Hence you will be able to do the same operations and use the same programs whatever graphic environment you choose: preferring one over another is just a matter of personal taste. The default choice is *KDE*, but please don't be afraid to try out the other choices once you feel more confident with the system. You will be able to change your graphical environment later by using the Session type pull-down menu in the login window.

Figure 5-3. The First Time Wizard

Click on the arrow button beside the Choose desktop field to see the available choices. Some of them also offer more than one variation. Besides *KDE*, another very popular choice is *GNOME*.

In the next step, you can correctly configure your e-mail and newsgroup applications. You should fill in the text input fields with the data provided by your Internet Service Provider (ISP).

Finally you can create a personal **MandrakeClub** account, which will give you instant access to many valuable online services offered by **MandrakeSoft**, such as special commercial software downloads (complete with automatic download and install procedures), dedicated multilingual forums, the possibility to vote for your favorite software packages to be included in the **Mandrake Linux** distribution, special discounts, and more. Your **Mandrake Linux** package includes a one-month trial **MandrakeClub** account, so that you can evaluate the many available services and then later extend your account if you like their features (and we are sure you will!).

Moreover, if you already have a **MandrakeClub** account, *Mandrake First Time Wizard* will also help you configure your system to allow easy download and installation of special updates from the **MandrakeClub** web site, directly using our user-friendly *Software Manager*. Please remember that e-mail addresses and user names are unique on **MandrakeClub**, so you will not be able to open a trial account if you already are a subscriber. Once you have made your choices click on the Next button.

Once the *Mandrake First Time Wizard* introduction is completed, your new working environment will be displayed.

5.4.3. Some Notes About Security

It is important to assimilate a few security notions in regards with your **Mandrake Linux** box:

- Do not write down your password on any piece of paper (a post-it for example) that can be seen by anyone.
- Always make sure your password is complex enough to keep people from guessing it, but simple enough for you to remember it! Try to use a mix of numbers and letters with mixed case for your passwords.

It is a good idea to think of a sentence or phrase you can remember easily. Then, take the first letters and/or numbers of every word in the sentence to form a password. For example, the sentence: "I was born on September 10th 1973" would make up the password: `IwboS101973`, which is easy to remember (it is your birth date after all...) and fairly hard to guess.

- If you have a permanent connection to the Internet, and you do not want to use your computer for some time, it is better to close it completely, as crackers could be able to use your machine. That is, do not just log out of it, but shut it down (power off). This can be done using the Halt button in the login window.

The list above is not extensive at all. There are **many** things you can do in order to make your system more secure. You should particularly read *DrakSec: Securing Your Machine*, page **??** in the *Starter Guide*.

5.5. Using your Graphical Environment

This section will introduce a few basic concepts and skills for using your computer. You may choose to use *KDE* or *GNOME* during the login process explained before.

5.5.1. The Mandrake Linux Desktop

All modern graphical environments share a common set of features: a main menu, a desktop area with some icons, a panel, etc. In the following paragraphs we will describe the elements which compose the desktop environment.

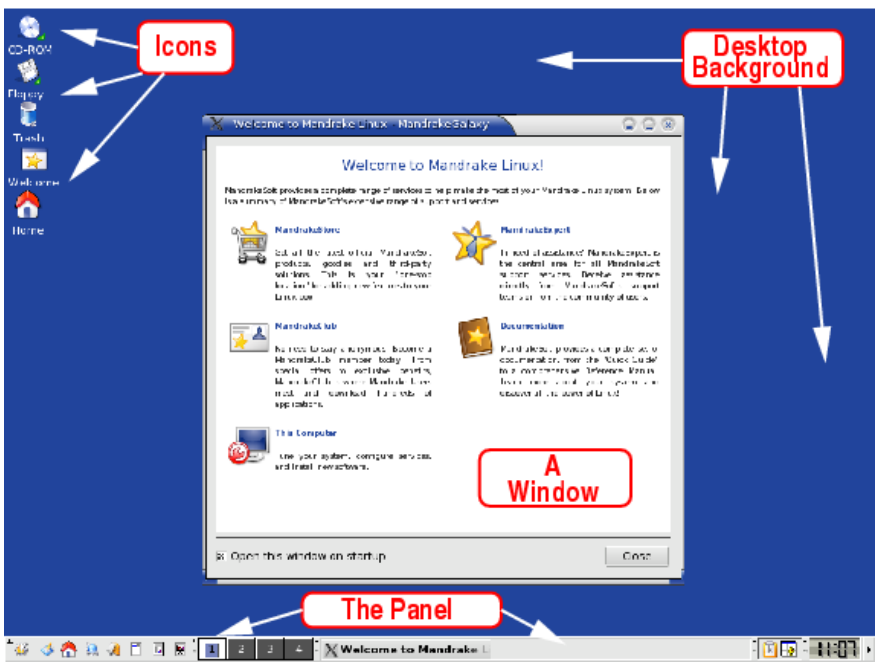


Figure 5-4. The KDE Desktop

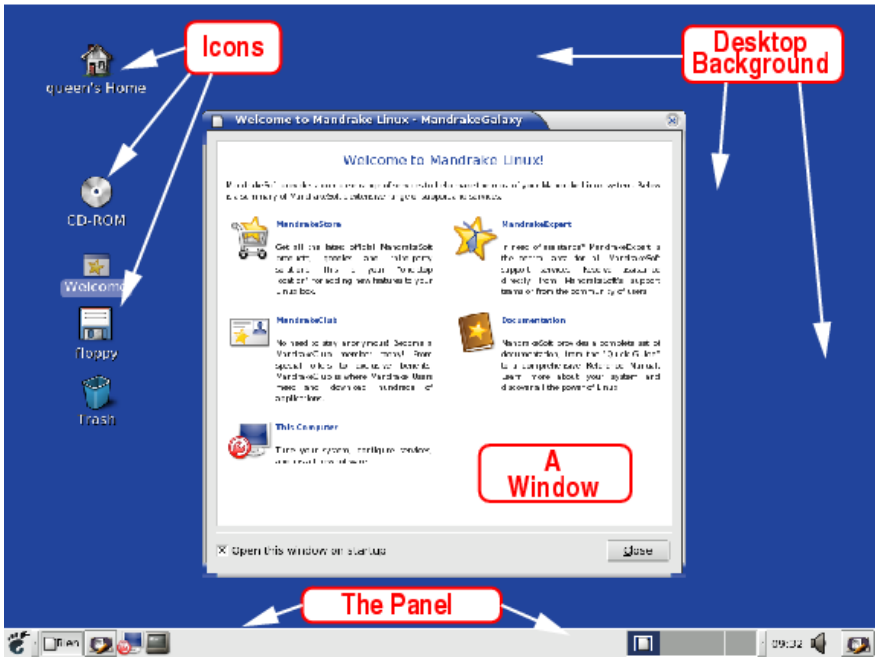


Figure 5-5. The GNOME Desktop

1. On the left of the screen and in the bar at the bottom of the screen are icons. They are usually enhanced by a short description beneath them (the icon's title or name). Clicking on an icon either launches a program or opens a folder. In both cases a window will appear on the desktop.
2. In the lower part of the screen is the **panel**. It provides a quick access to useful tools such as a *Terminal*, the help system, etc. Each icon symbolizes an application (or program). Just move your mouse cursor over one of them and leave it there for a few seconds. A yellow help balloon will appear to describe the icon's function.
3. The icons and the panel do not float on the screen: they are "stuck" on something called the ***desktop***, also called the background. In a sense, the desktop is where everything you see or use lives. Bring your mouse cursor on a free place on the desktop (i.e. where there is nothing) and right-click: a pull-down menu will appear which gives you access to several functions.

5.5.2. Accessing Programs

Since there are not lots of icons on the desktop or in the panel, you may be wondering how to access all the software you installed during the installation process. To do so, access the first icon on the left-side of the panel (also called the main menu):

Figure 5-6. Application Menu for KDE and GNOME

Click on this icon and a pull-up menu listing the programs you can run will be displayed. They are organized by tasks, so finding the program you are looking for is easy.

To launch an application or a tool, click on the main menu icon, navigate through the menu's tree until you find the desired item and click on it. If you are uncertain about the function corresponding to a specific menu item, leave the mouse cursor over it for a second or two and a help message will pop up.

5.5.3. Opening a Window on the Desktop

If you click on the icon on the desktop labelled as Home, or Home of [your login name], you will hear your hard drive work a bit. Then one of those windows will appear:

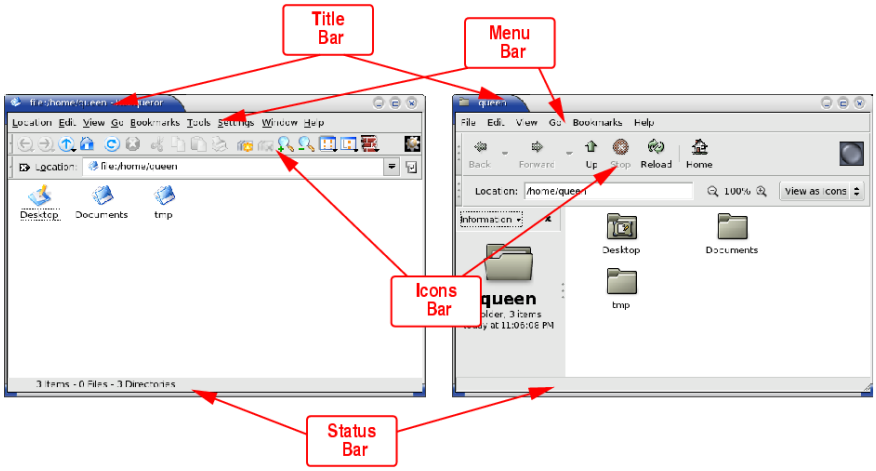


Figure 5-7. KDE and GNOME File Managers

You just launched a program (a file manager) which has opened a window showing the content of your Home directory. This is where all of your personal documents and files are stored: only you can access them. If you start saving a lot of files in it (e.g. text documents, MP3 files, etc.) we suggest that you create some sub-directories (for instance Documents, Music, etc.).

A window is composed of several parts. On the top is the **title bar**. It shows the name or title of the program you launched and possibly, the name of the document you are working on. It can be in two different states:

- **active**, which means you are currently using it, or
- **inactive**: the program is still running, but you are not currently interacting with it.

Usually, the active title bar is full-colored, whereas the inactive one is shaded or grey.

Just under the title bar is the **menu bar**. In our example, it says (from left to right) File, Edit, and so on. Click on File. A list of items will appear in a drop-down menu, each item giving you access to one of the program's functions.

Under the menu bar is the application's **tool bar**. It consists of one or more rows of icons, each one equivalent to an item in a drop-down menu: you can view them as a short-hand access to frequently-accessed program features which can be found elsewhere in the menu bar.

The **status bar** usually sits at the bottom of the window. There you will find information about what the program is doing. Not all programs offer this feature, but if the one you are using does, remember to check it from time to time.

5.5.4. Managing Windows and Desktops

We introduced the word ***desktop*** to point out the area of the screen where all objects (panel, icons, windows) are placed. Now, look at the panel at the bottom of the screen. You can see a group of **four buttons**:

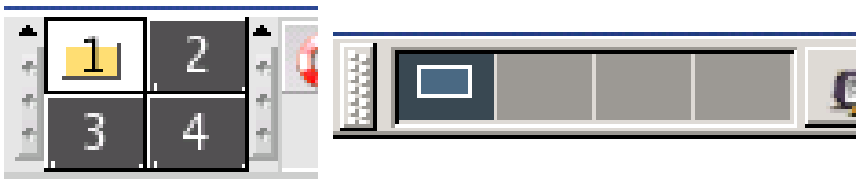


Figure 5-8. Buttons for Virtual Desktops

These buttons give you access to ***virtual desktops***, which are identical copies of the desktop you see after you have logged in. You will find more information about virtual desktop handling and usage in "*Using KDE*", page **??** and "*Using GNOME*", page **??**.

Click on the button labeled 2: as you can see, the window you opened before disappears. Don't worry, you did not close the window, you simply switched desktops, just as if you went from one desk to another.

Click on the button labeled 1. The previous desktop will be displayed.

This feature called virtual desktops (also known as ***workspace switcher***) is very handy. It allows you to open several windows and to organize them as you desire.

You can also change the virtual desktop a window is currently in. This may be handy to logically organize your work by desktop, for instance moving all network related windows in desktop 2, all multimedia applications in desktop 3, and so on.

For this exercise you will need to use your mouse. With *KDE*, right-click on the window's title bar and a pull-down menu will appear containing an item named To Desktop. Just point to this item and a list of your virtual desktops will appear. Simply choose the virtual desktop towards which you want to move it.

With *GNOME*, right-clicking on the window's title bar gives you a pull-down menu in which you will see some Move to items, as shown in figure 5-9.

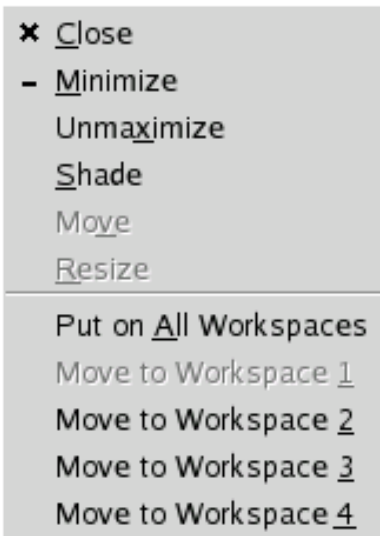


Figure 5-9. Moving a Window to Another Desktop

Note that the workspace you are in will be grey-shaded, which obviously means you cannot move your window to that workspace since you are already in it **:-)**

You will often find your window is in the right place, but it is too small or too big. Click on this button in the title bar:

Figure 5-10. Maximizing Windows

This operation is called **maximizing** a window. Click again on the same button to bring the window back to its original size.

On the contrary, if you want to hide your window but keep the program running, click on this button:

Figure 5-11. Minimizing Windows

The window seems to disappear. In fact, you resized it to its minimal possible size: an icon. This is called **minimizing** a window. You cleared the screen space it was using, but the program is still running. You can still see it there in the panel, on the **task bar** for *KDE*, **tasklist** for *GNOME*:

Figure 5-12. The Task Bar under KDE and Tasklist under GNOME

To view the window on your desktop once more, just click on the icon associated with it.

In most cases you do not want to maximize nor minimize the window. You just want some sort of middle range where you can adjust the window's size according to your needs. You can achieve this with your mouse and the boundary borders of the window.

Bring the mouse cursor to the right edge between the desktop and the running program. Your cursor will change to a double-arrow. Now act like you did when you moved the window, pressing the left mouse button and keeping it pressed while moving. The window resizes and its contents rearranges. When the new size satisfies you, just release the mouse button.

We did this using the right-hand border of the window. You can do the same thing with the bottom, top or left-hand borders. You can even do it with the window's corners, in which case you can resize the window in two directions simultaneously.

Not all windows can resize this way, and sometimes minimum and maximum sizes are predefined.

As a final note about the buttons in the window's title bar, consider this one:

Figure 5-13. Closing a Window

Clicking on this button (the **close button**) you simply stop the running program: you terminate it, you quit it.

5.5.5. Personalizing your Desktop

You can fully personalize your working environment to suit your personal tastes, such as the background, the windows and background colors, the "themes", the way windows and icons behave, and so on. Please refer to *Personalizing your Desktop*, page **??** and *Personalizing GNOME*, page **??**.

5.6. Closing your Session

When you are finally done exploring your graphical environment, or working with your favorite applications, do not forget to tell the system you are leaving, that is remember to **log out** in a proper manner.

Logging out can be carried out in many ways. You can use the main menu, log-out icons, right-click on pop-up menus. Let's look at the different procedures:

Under *KDE*

- **Using the K Menu**

  Click on the **K** menu and select the Logout [your_user_name]... item. A window like the one shown in figure 5-14 will appear, asking you for confirmation.

Figure 5-14. KDE Log-Out Confirmation

- **Right-Clicking on the Desktop**

  You can right-click on the desktop in an "empty" area and a pop-up menu will be displayed.

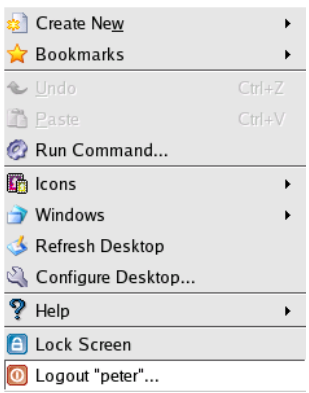


Figure 5-15. Logging Out Using the Pop-Up Menu under KDE

Just click on Logout [your_user_name]... and the confirmation window will appear.

Under *GNOME*

- **Using GNOME's Main Menu**

  Click on the *GNOME* main menu (the one with a foot icon) and select Log Out. A window will pop up asking you for confirmation before logging out.

Whichever method you use, the screen will shade and a little box will pop up with options. If you click on the OK button the default action will be performed: you will quit the current session and, after all of your windows and the desktop itself have closed, you will be brought back to the login screen.

As you might have noticed, however, there are two other options available in the confirmation window: you can choose to shutdown the system and power off the computer (Turn off computer under *KDE*, Shut down under *GNOME*), or to reboot your system (Restart computer under *KDE*, Restart the computer under *GNOME*). Again, just click on the OK button after you have selected the desired option.

Whatever you choose, this is the correct and safe way to shut down or reboot your system. You should **never** push your computer's power button because this could lead to serious problems such as file-system corruption or the loss of data.

Chapter 6. Where to Get Documentation

Apart from the manuals included with **Mandrake Linux**, documentation is available from many sources. The next few pages contain suggestions which you might find useful.

6.1. The Documentation Included with Mandrake Linux

6.1.1. MandrakeSoft's Own Documentation

This section lists all the documentation which **MandrakeSoft** produced for the current release:

- You may also consult our on-line updated versions at: the doc pages (`http://www.mandrakelinux.com/en/fdoc.php3`).

  If you chose the documentation group during installation, selecting Documentation from the main menu will display all the documentation for the languages you selected during the installation process.

- *Starter Guide*;

  This manual is intended to get you going with **Mandrake Linux**. It includes basic topics which should be of interest to new *GNU/Linux* users, as well as configuration procedures for the most important elements of **Mandrake Linux**.

- *Reference Guide*;

  Available on-line and in the Mandrake Linux — PowerPack ProSuite Edition, this document covers advanced *GNU/Linux* operations and system administration.

6.1.2. The Man Pages

This should be your primary source of information on a day-to-day basis. Almost all commands have a manual page. Other items, such as certain configuration files, library functions for programmers and others system aspects also have their own man pages.

man page contents are arranged in different sections. References to these are made in the following manner: for example, open(2), fstab(5) will respectively refer to the `open` page in section 2 and the `fstab` page in section 5.

To display a manual page, type `man`. The syntax for obtaining a man page is:

```
man [options] [section] <manual page>
```

`man` also has documentation, which can be obtained by typing: `man man`. Manual pages are formatted and then displayed using the `less` ***pager***.

The names of the manual pages and their relevant sections appear at the top of each page. At the bottom are given references to other pages with related subjects (in general in the **SEE ALSO** section).

You can start by consulting the pages related to the different commands covered in this manual: ls(1), chmod(1), etc.

If you cannot find the right manual page — for example, you want to use the `mknod` function in one of your programs but you end up on the `mknod` command page — make sure you spell out the section explicitly. In our example: mknod(2). If you forgot the exact section, `man -a mknod` will read through all the sections looking for pages named `mknod`.

6.1.3. Info Pages

`info` pages complete the documentation included in the manual pages. The command for accessing `info` pages is `info`.

Info pages are organized using a tree structure, the top of which is called `dir`. From there, you can access all `info` pages.

`info` may be called up in two ways: either by omitting any argument, thereby placing you at the very top of the tree structure, or by adding a command or a package name, which (if it exists) will open the relevant page. For example:

```
info emacs
```

In the `info` pages:

```
* Buffers::
```

will indicate a link. Moving the cursor to this link (using the arrow keys) and pressing `Enter` will take you to the corresponding `info` page.

You may use the following keyboard shortcuts:

- **u**: for *Up*, takes you up one level;
- **n**: for *Next*, takes you to the next `info` page on the same tree-structure level;
- **p**: for *Prev*, takes you back to the previous `info` page.
- **q**: for *Quit*, will exit the `info` page viewer.

A great number of commands may be listed by typing "?".

6.1.4. HOWTOs

HOWTOs published by the TLDP (The Linux Documentation Project) and available in many languages, will help you configure many aspects of your system. As long as the proper packages are installed (the `howto-html-en` package for the English edition), *HOWTOs* will provide you with an answer to a specific question or a solution to a problem. The documentation is located in the `/usr/share/doc/HOWTO/HTML/en/` directory. These are HTML files readable and printable with any web browser.

The list is quite long. To get an idea of its length, consult the index from the main menu: Documentation→ HOWTOs English. When you encounter a complex problem, start by reading the corresponding *HOWTO* (if it exists, of course!). Not only will you be given a solution to your problem but you will also learn a great deal at the same time. Examples of what is covered range from networking (`NET-3-HOWTO`), sound card configuration (`Sound-HOWTO`), the writing of CD media (`CD-Writing-HOWTO`) as well as NIS and NFS configuration and much much more.

An important step is to check the modification dates of the *HOWTO* documents — i.e. the publication date located at the beginning of the document — to make sure they are up-to-date, otherwise, the information may be invalid. Watch out for old *HOWTOs* relating to hardware configuration: *Linux* evolves very quickly in the hardware area. Something else to keep in mind: in the free software world the term "old" carries even more weight than in IT in general: free software may be considered old after being around for fifteen days!

HOWTOs are available on-line on the TLDP (`http://www.tldp.org/`) web site and likely to be slightly more up-to-date there. Have a look at the following as well: *HOWTOs* classified by categories (`http://www.tldp.org/HOWTO/HOWTO-INDEX/categories.html`), and FAQs (`http://www.tldp.org/docs.html##faq`).

6.1.5. The /usr/share/doc Directory

Some packages include their own documentation in one of `/usr/share/doc`'s sub-directories, which will be named after the specific package.

6.2. Internet

Internet information sources are widespread and web sites devoted to *GNU/Linux* and its use or configuration are abundant. However, some sources of information are better than others.

Your preferred source of information should be the Mandrake Linux (`http://mandrakelinux.com/`) official web site. In particular, check out the support (`http://mandrakeexpert.com`) section.

6.2.1. Web Sites Devoted to GNU/Linux

6.2.1.1. MandrakeClub

If you are familiar with **Mandrake Linux**'s web sites, you probably know Mandrake Club (`http://mandrakeclub.com/`). It is the meeting point for all **Mandrake Linux** users. On the site you will find questions, suggestions and news related to **Mandrake Linux** and *GNU/Linux*; you will be able to express your opinion and influence future development of **Mandrake Linux**. If you are not yet a member, you are encouraged to join.

6.2.1.2. Demos and Tutorials

A specific section of the **Mandrake Linux** web site is devoted to numerous demos and tutorials (`http://www.mandrakelinux.com/en/demos/`). They discuss, among other topics, installation and graphical environments, many aspects of your system's configuration such as network, package maintenance, server configuration, etc. Some of the tutorials are also accessible from the installation CD in the `tutorial/` directory.

6.2.1.3. Security-Related Web Sites

MandrakeSecure (`http://www.mandrakesecure.net/`)

> **MandrakeSoft**'s very own security site which covers package vulnerabilities, but most of all lengthy articles which treat a vast array of topics such as the use of *GnuPG*, `ssh` and more.

Security Focus (`http://www.securityfocus.com/`)

> A very well organized site which reviews current attacks and gives out vulnerability advisories for a great number of products, including **Mandrake Linux**'s.

Linux Security (`http://www.linuxsecurity.com/`)

> This site is entirely devoted to Linux and includes news, advisories, newsletters, and many resources such as documentation, forums, tools, etc. Check out the site's documentation page (`http://www.linuxsecurity.com/docs`).

Linux dot com (`http://www.linux.com/index.pl?section=documentation`)

> An excellent site regularly fed with articles on present security issues. Linux dot com's (`http://www.linux.com`) main page also features articles about desktop, sound, etc.

6.2.1.4. Other Linux Web Sites

Out of many existing web sites, here are some with the most information:

Linux dot org (`http://www.linux.org/`)

One of the very first sites devoted to Linux, containing a whole slew of links to other useful sites.

Freshmeat (`http://freshmeat.net/`)

This is the place to visit to get the latest applications available in the Linux world.

Linux Weekly News (`http://www.lwn.net/`)

One of the most exhaustive Linux publications available. It covers everything from latest security alerts to new distributions, info about the current and past kernels, books, and a weekly newsletter.

And, of course, remember your favorite search engines. Generally speaking, they are the most practical information seeking tools. A few carefully chosen keywords in a search engine will often produce the needed answers to your specific problem. In Google, you can even make a *GNU/Linux*-oriented search by visiting Google dot com slash linux (`http://www.google.com/linux`).

6.2.2. Mailing Lists

Mailing lists still remain very popular in spite of the multiplication of other means of communication. Almost every piece of *GNU/Linux* software has its own mailing list geared towards users, developers, announcers, etc.

You can also consult **Mandrake Linux** project's own mailing lists (`http://www.mandrakelinux.com/en/flists.php3`).

We can not give out a list of addresses but bear in mind that it is quite often the best means to get in touch with the top experts on a particular subject. Some advice, however:

- do not post questions which are off topic. Carefully read the guidelines which are often sent when you first subscribed or where you found the address of the list. We also recommend that you read the E-mail Etiquette (`http://www.iwillfollow.com/email.htm`) also known as the **Netiquette**, which will give you a few hints on getting started. If you have spare time, you may also consider reading the corresponding RFCs (`http://www.rfc-editor.org/`).

IMPORTANT: remember to always keep the first e-mail you receive from a mailing list since it normally tells you how to unsubscribe if you end up needing to leave the list;

- respect the general rules applicable to e-mail: in particular, do **not** send HTML messages: text only;
- mailing lists usually have archives: check them out! Your question may have been debated just before you subscribed to the list;

6.2.3. Newsgroups

Before asking for help on newsgroups, it is advisable to find out if your problem has already been covered (or solved) on Dejanews (`http://groups.google.com/googlegroups/deja_announcement.html`), which has been acquired by Google. If nothing is relevant to your question, then go to a newsgroup entirely devoted to **Mandrake Linux** (`news:alt.os.linux.mandrake`). You may also join many other groups in the `comp.os.linux.*` "hierarchy":

- comp.os.linux.setup (`news:comp.os.linux.setup`): questions about Linux configuration (devices, configuration of applications) and resolution of miscellaneous problems.
- comp.os.linux.misc (`news:comp.os.linux.misc`): whatever does not fit in any other group.
- and others...

Before posting to one of these groups, make sure you did your homework and read the available documentation on your specific issue. If you have not, you will most likely get the following answer: RTFM. And nothing more!

6.3. General Guidelines for Solving a Problem under Mandrake Linux

Here are the different means available to you in your problem-solving quest. Try the first option and only then, if that does not work, try the second, and so on.

6.3.1. Search the Internet

The various Internet sites previously mentioned are excellent starting points. They deal with general **and** very specific aspects of your potential problems. Finally, try a general search engine such as Google (`http://www.google.com`) or, as mentioned above, the Linux-specific (`http://www.google.com/linux`) Google search engine. And do not hesitate to use the Advanced search (`http://www.google.com/advanced_search`) option with very detailed questions, such as the error message you are receiving.

6.3.2. Mailing Lists and Newsgroups Archives

The previous searches may lead you to general answers which hide the results of your specific question amongst many other answers. To refine your search, you can try the following.

First, try to find a list which seems specifically geared to your problem, then perform a search in its archive pages.

Example

You've noticed some strange behavior while trying to use *GRUB* with a *minix* partition.

A search using "grub mailing list" keywords in Google has as one of its results a link to an archive's message of the GRUB mailing-list archive (`http://mail.gnu.org/pipermail/bug-grub/1999-July/003129.html`). Once there, you get the URL for the archive's root: GRUB mailing list archive (`http://mail.gnu.org/archive/html/bug-grub/`). It even suggests a search engine, which when searched for "Minix" leads you directly to a patch.

Note that not all archives have an embedded search engine. However, using Google as an example, you can easily use the advanced field `domain` to limit your search to the specific site hosting the archive. This strategy may also be used to exclude sites which keep returning garbage.

For a newsgroups search, Dejanews (`http://groups.google.com/googlegroups/deja_announcement.html`) has maintained an archive of an amazingly large number of newsgroup channels.

6.3.3. Questions to Mailing Lists and Newsgroups

See the related sections above: *Mailing Lists*, page **??** and *Newsgroups*, page **??**. Reading How To Ask Questions The Smart Way (`http://www.catb.org/~esr/faqs/smart-questions.html`) may be of great help.

6.3.4. Directly Contacting the Person in Charge

Use this option as a very last resort and in really extreme situations — unless you want to offer your collaboration! Software developers generally receive mountains of e-mails, so your anguished question on the use of the `cd` command will most likely... be ignored!

The addresses will be found either on the home page of a project's site or in the software documentation.

A last word: do not underestimate your neighbors' skills or those of your local LUG (Linux Users Group). And please, do not throw your computer through the window. If your problem is not fixed today, it may be tomorrow...

6.3.5. Mandrake Business Services

Finally, when facing a really challenging situation, corporate users (especially) might consider hiring one of **MandrakeSoft**'s consultants to address their specific needs.

This is one of the strong suits of open-source products: we have the source, we have the power! Therefore, almost any problem, no matter how complex, specific or high level, may be solved right in the heart of the software.

You might also want to customize your *Linux* environment to meet very precise goals. For example, you could use **Mandrake Linux** as a custom routing application on special devices. Know that **MandrakeSoft** consulting services (`http://www.mandrakesoft.com/products/business`) can help you.

Chapter 7. Using KDE

7.1. Discovering the K Desktop Environment

This chapter will introduce the K Desktop Environment (*KDE*) and its panel. It will also talk about the concept of virtual desktops, how to navigate through and manage them, the *KDE* help system and session support. The range of features *KDE* offers as well as its personalization degree are huge and you are encouraged to consult *KDE Help System*, page **??** to learn more about this great desktop environment.

7.1.1. The Desktop

Figure 7-1. The KDE Desktop

KDE follows the modern desktop paradigm. In the above figure you see the desktop itself with some icons on it, while the panel sits at the bottom. However, it introduces something new if you come from the *Windows* world: virtual desktops (see *Virtual Desktops*, page **??**)

Virtual desktops are **not** an exclusive *KDE* concept. *GNOME* also uses them (see "*Using GNOME*", page **??**). Other *GNU/Linux* desktop environments and window managers also make use of them.

The icons on the desktop represent files, directories, applications, devices, web pages (actually, the page's URL), etc. Almost "everything" can be placed on it. Different actions are associated to icons. For example: clicking on a text file opens it into a text editor, clicking on a web page opens the URL inside *Konqueror* (see *File Managers: Konqueror and Nautilus*, page **??**), and so on.

Here are some of your desktop's default icons, along with a brief explanation for each of them.

Home. Gives access to all your personal files. Under *UNIX*-like operating systems (**Mandrake Linux** is one of them), every user has a personal directory usually named `/home/user_name` where `user_name` is the user's login name.

Trash. Gives access to all deleted files (the equivalent of *Windows*' Recycle Bin). Please bear in mind that files can be deleted without being thrown into the trash can ("direct" file deletion) so some deleted files might not be accessible through the trash can.

Dynamic Icons for Removable Media. There will be one icon for each removable device on your system (CD-ROM drive, floppy disk drive, ZIP/JAZ drives, etc.). Clicking on a device icon opens the medium inside that device. An error message may also be shown if there is no medium present or if the medium can not be read for some reason.

7.1.2. The Panel

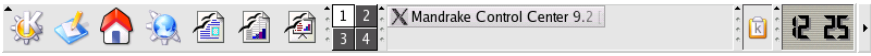


Figure 7-2. The KDE Panel

The panel is the bar which sits at the bottom of your desktop[1] which contains the following main components:

The Main Menu. Allows you to access the software installed on your system. It is the equivalent of *Windows*'s Start menu. Programs are arranged into convenient categories so you can quickly and easily find the application you want to run.

Show Desktop. Use this to minimize all currently opened windows. Pressing it again will restore the windows to the state they were previously in. Handy when you your desktop is so full of opened windows and that you want to access, for example, a folder on your desktop.

Home Directory. This icon has the same function as the home icon on the desktop. It opens *Konqueror* on your home directory so that you can browse and manage your personal folders and documents.

Desktop Switching Applet. Makes switching among virtual desktops as easy as one, two, three. See *Virtual Desktops*, page **??** for more information.

Klipper. Allows you to access the clipboard. The latter is a temporary storage place for all objects (text, pictures, etc.) you copy on applications (using the application's Edit->Copy function). Using *Klipper* you can browse and manipulate all objects copied onto the clipboard.

7.1.3. Virtual Desktops

Virtual desktops give you more room to place your windows; they also allow you to better organize your windows by task.

Think of virtual desktops as having several screens available but with only one monitor. By default, there are four virtual desktops. To add or remove virtual desktops right-click on the desktop switching applet and select Configure Virtual Desktops from the pop-up menu. Using the slider at the top of the configuration dialog will allow you to select up to 16 virtual desktops. Press OK once you are satisfied with your settings.

By default, virtual desktops are named `DesktopN`, where `N` is the desktop number. To give more meaningful names to your virtual desktops (like `Work`, `Play`, `Internet`...), right-click on the desktop switching bar and select Configure Virtual Desktops from the pop-up menu. Click in the input field of the desktop for which you wish to change the name and type in the new one. Pressing Apply will make the changes effective immediately. Press OK once you are satisfied with your settings.

The first virtual desktop is the one opened by default when you log in into *KDE*. To switch among virtual desktops just click on the desktop name in the desktop switching applet *et voilà !*

1. By default the panel is at the bottom, but it can be placed on any border of the desktop.

7.2. Personalizing your Desktop

7.2.1. Changing your Desktop's Appearance

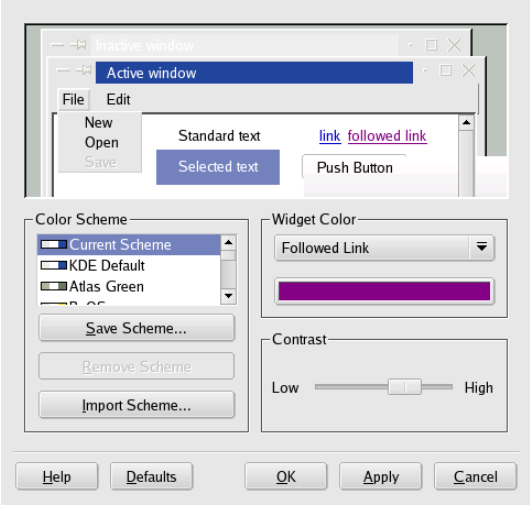


Figure 7-3. Changing KDE's Color Scheme

To change the desktop color scheme choose Configuration+KDE+LookNFeel→Colors from the main menu. In the Color Scheme list are predefined color schemes. Select the one you like and click on Apply.

You can also define your custom color scheme by clicking on the element you want to change (for example, Active Window to change the active window colors) or selecting it in the Widget Color pull-down list. Once the element (widget) is selected, click on the color bar to open *KDE*'s color selection dialog, choose the color you like and click on OK to apply it.

Clicking on Save Scheme... will let you save the color scheme for later use; you will be prompted for the scheme name, fill it and click on OK. Clicking on Remove Scheme will remove the currently selected color scheme.

You are **not** asked for confirmation before removing a color scheme. Hence use the Remove Scheme button carefully.

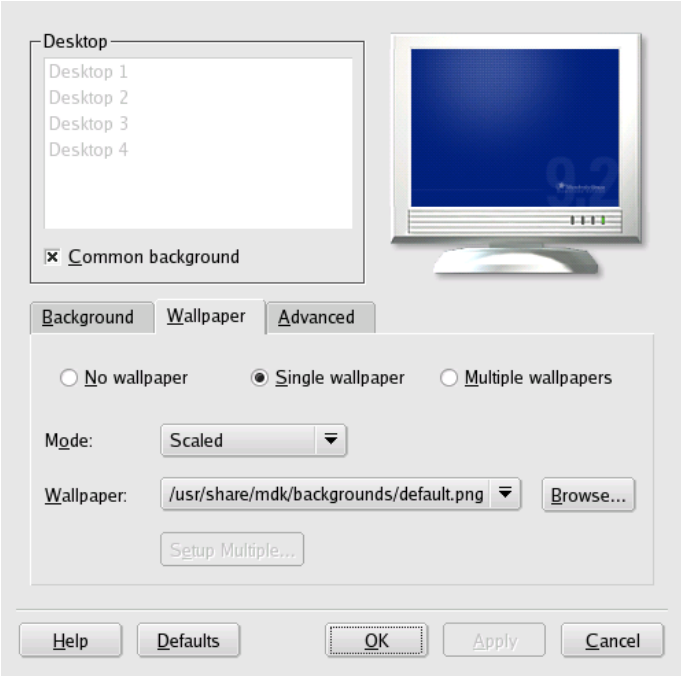


Figure 7-4. Changing KDE's Background Wallpaper

To change the desktop background, choose Configuration+KDE+LookNFeel→Background from the main menu. The Background tab is used to change background color(s): in the Mode pull-down list select among background color options ranging from Flat ("plain", one-color background) to different kinds of gradients ("mixed" colored background).

The Wallpaper tab is used to put an image as the background: the Mode pull-down list selects whether the image will be scaled, tiled, centered, etc. The Wallpaper pull-down list lets you select among predefined background images. Click on the Browse button to select an image file of your own and a standard *KDE* file selection dialog will open up.

Finally, the Advanced tab is used to adjust settings such as the blending mode, the cache size for images, etc.

All desktop background settings can be applied on a per-desktop basis. Remove the check-mark from the Common Background check box and select the desktop on which you wish to apply the settings. Please note that doing so consumes more memory.

7.2.2. Managing Desktop Icons

Adding Icons. To add an icon on the desktop simply right-click on the desktop's background. A pull-down menu will appear in which you must choose Create New. Another menu will appear in which you must select the type of object to create on your desktop:

- Directory... creates a new folder on your desktop where you can store files.
- Link to Application... creates an application launcher. When you click on it, the application will run as if you called it from a menu or the command line. Use it to have quick access to the applications you use most.
- Link to Location (URL)... creates an icon giving you direct access to an URL (typically a web page or a web site). Use it to add icons the sites you visit the most on your desktop.

The above list is **not** extensive. Actually, the choices you have in the menu will depend on the software you installed on your system.

Please keep in mind that the forms you will have to fill to complete the icon adding operation are different for each kind of object being created. However, their options are fairly simple.

Modifying Icons. Right-click on the icon you want to modify and select Properties from the menu. You will then be able change the title (the string displayed under the icon), the icon picture itself, and other properties of that type of object (folder, application, URL, etc.). Once you are satisfied with your settings, click on the OK.

Removing Icons. To remove an icon, right-click on it and select Delete from the menu that pops up to delete it permanently, or Move to Trash (from where you can restore it later on). In either case, you will be asked to confirm before proceeding.

7.3. KDE Help System

You can have access to all *KDE* and other system wide documentation resources through the *KDE* help center. You can open it going to Documentation→Help in the main menu.

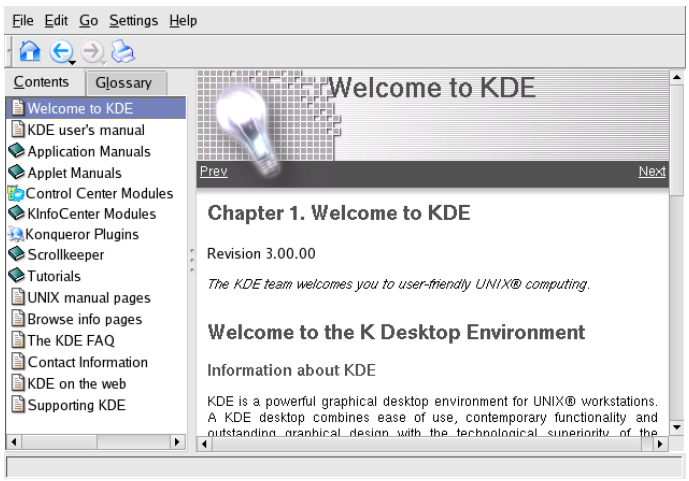


Figure 7-5. KDE Help Center Main Window

KDE Help Center is the integrated help system. It can display HTML help pages, *UNIX* Man pages, Info pages and Scrollkeeper catalogs[2]. It is organized like a two-frames web page, the left frame containing the category menus organized as a tree, while the right frame displays the contents of the category currently selected.

Navigation buttons are like *Konqueror*'s browser ones:


Home. Returns to the page which opens when the Help Center is launched, that is the "index" page. Keyboard shortcut: **Ctrl-Home**.


Back. Goes "back" to the previously visited help topic. Keyboard shortcut: **Alt-Left_arrow**.


Forward. Goes "forward" in *KDE*'s Help Center's site and topic history. Keyboard shortcut: **Alt-Right_arrow**.


Print. Prints the currently displayed help topic. Keyboard shortcut: **Ctrl-P**


You should also consult the KDE Web site (`http://kde.org/documentation/`) where you will find many documents to help you discover and master the K Desktop Environment.

2. Scrollkeeper is an Open Documentation Cataloging Project (`http://scrollkeeper.sourceforge.net`)

7.4. KDE Sessions

KDE and its applications support sessions. This very nice feature allows the system to restore all applications that were in use when the user logged out of the desktop environment.

Please keep in mind that non-*KDE* applications, and even some *KDE* ones, might have limited session support. The degree of session recovery is up to the application, ranging from just opening the application again, to opening it along with all the files that were open inside that application.

By default, *KDE* automatically saves sessions whenever you log out of the desktop environment. To change the default behavior, open the Session Manager (Configuration+KDE+Components→Session Manager from the main menu.), make your choices and click on the OK button once you are satisfied with your settings. They will be effective the next time you log into *KDE*.

Chapter 8. Using GNOME

This chapter is dedicated to *GNOME*, another favorite graphical user interface. Although its features resemble many of those in *KDE*, the user interface is a bit different to what you might be accustomed to. Both *GNOME* and *KDE* provide roughly equivalent functionalities (even though each one of them have their own die-hard fans who would argue otherwise). Moreover, you can use *GNOME* applications in *KDE* and vice versa. Let's start looking at the desktop.

8.1. GNOME Overview

When you log into a *GNOME* session, you will see a desktop similar to the one shown in figure 8-1.

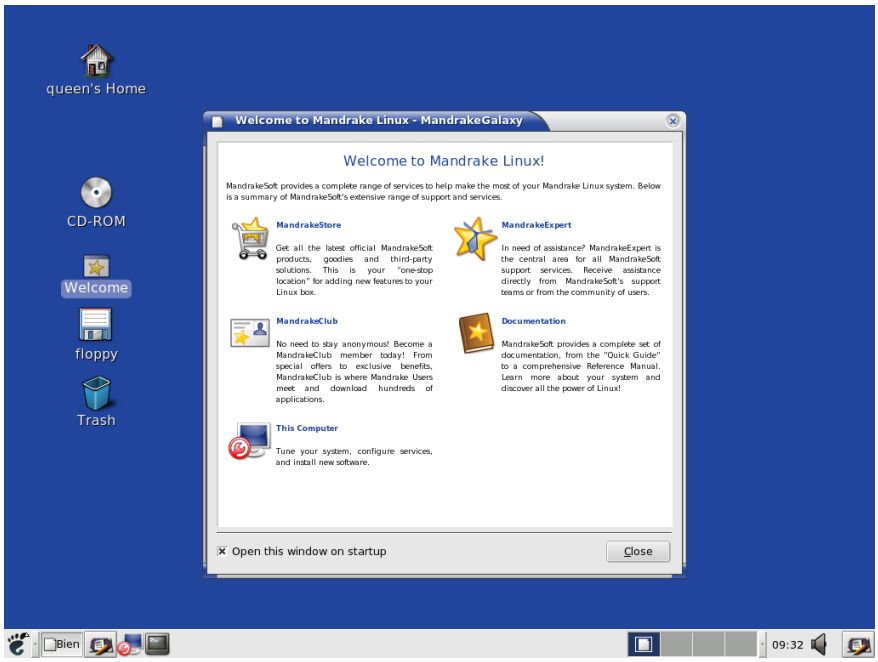


Figure 8-1. GNOME Desktop

The desktop itself is where the icons lay (in the upper-left corner). In the following table, we explain what they represent.

Icon	Meaning
	**Home Folder**. Opens up the *Nautilus* file manager in your personal files directory (`/home/queen`).
	**CD-ROM**. Launches *Nautilus* and displays the CD-ROM's contents if the CD-ROM contains data.
	**Floppy Disk**. Opens *Nautilus* showing the contents of the floppy disk, if any.
	**Welcome**. Launches the welcome screen with links to **Mandrake Linux**-related web sites, access to the documentation and to the *Mandrake Control Center*.

Icon	Meaning
	**Trash**. Contains all the files which have been deleted. Note that the trash can **only** contains the files you deleted through *Nautilus*. If you were to delete files through a command line (such as the *GNOME terminal*), those files will have been deleted forever, hence they are not accessible through the trash-can icon.

Table 8-1. GNOME Desktop Icons

The icons on your desktop are all linked to different types of files, directories, web sites or applications. Here are the actions which will be undertaken according to the item.

- If the item is a program, that program will start.
- If it's a data file, the appropriate program will start up with that data loaded. If no program has been associated to such a data file, you will be asked to choose which application to use.
- If it is a directory, the file manager will be launched and show the contents of that directory.
- If it is a web address, *GNOME* will start *Mozilla* (the default web browser).

You can also right-click on any of these icons to produce a pop-up menu, which contains a list of actions. This list contains options such as Open, Open With, Rename and Properties (the latter also allows you to change some of the parameters of that icon).

8.1.1. GNOME Panel

At the bottom of the desktop sits the panel which contains a few default components.

Objects	Meaning
	The *GNOME* Main Menu, which contains all your applications, from text editors to office applications to configuration tools (and games, too!).
	The Help icon gives you access to general *GNOME* help.
	*Galeon* is one of the fastest and most complete web browsers around. It is based on the *Mozilla* rendering engine.
	The *Mandrake Control Center* which allows you to easily configure all aspects of your **Mandrake Linux** system.
	Clicking on this icon will launch the *GNOME terminal*, a terminal emulator. For more information about the command line please consult the Introduction to the Command Line chapter of the *Reference Guide*.
	The *Evolution* suite consists of an e-mail client, a contact management tool, as well as appointment and task scheduling.
	A clock which you can personalize by right-clicking on it. Clicking on the icon also produces a calendar.

Table 8-2. GNOME Panel Objects

On the left of the clock is the workspace switcher (*Workspace Switcher*, page **??**). To its right you will find the Volume Control. The last one has only one function: click on it to minimize or restore all windows on your desktop.

Figure 8-2. GNOME Window List

In our example we see, from left to right, *The GIMP*, a powerful raster graphics application, and the *GNOME terminal*. At the extreme-right are the 4 workspaces. As you can see, the first on the left is in blue, while the

three others are in grey. The blue one is the "active" workspace, that is the one in which you are presently. We will speak more about workspaces in *Workspace Switcher*, page **??**.

8.1.2. Desktop Menu

Finally, there is a "hidden" menu which can be very useful: the Desktop Background menu. By right-clicking anywhere on the desktop (away from the icons, application windows, and panels), you will be able to access your CD-ROM, floppy disk, and other removable drives. This menu also allows you to Open New Windows (which opens *Nautilus*), Create Folders (which creates a new folder on your desktop), Open a Terminal (*GNOME Panel*, page **??**, see the *GNOME terminal* description). It also enables you to change the desktop background image, place new icons on the desktop, and more.

8.2. Personalizing GNOME

8.2.1. Configuring your Desktop

Now that you know a bit more about how to get around *GNOME*, you will surely want to make it look the way you want it to, that is add (or remove) icons, change the background, and so on. First, let's start by adding an icon linking a directory to our desktop.

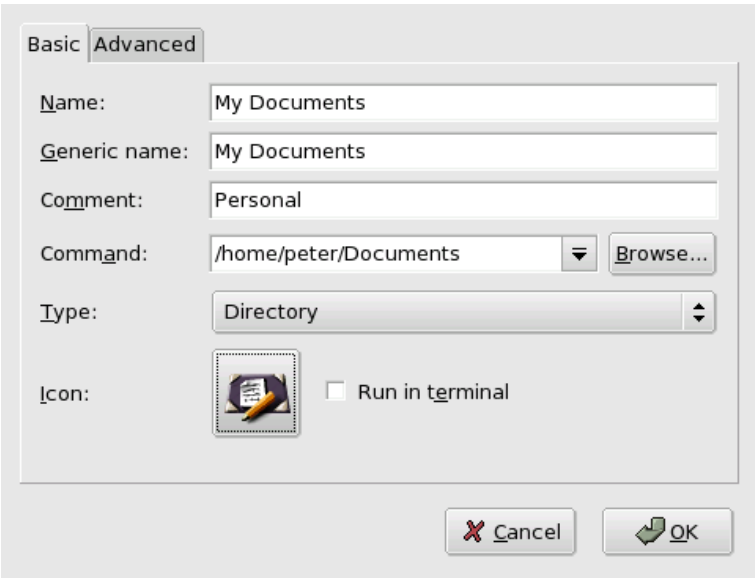


Figure 8-3. Adding a Launcher Icon to your Desktop

To add such a launcher to your desktop, use the Desktop Background menu, that is, right-click anywhere on the desktop away from icons or panels and select the Create Launcher option. A window will pop up in which you must fill in the relevant information. For a directory, as in our example, remember to select the Directory type. Also, choose an icon by clicking on the box next to the Icon label.

The same principle applies to creating a new folder:

1. Right-click on the desktop.
2. Choose Create Folder.
3. Enter the relevant information in the window which has popped up.

8.2.2. Configuring the Panel

You can fully configure your panel: add or remove objects, change the panel size, color, or button appearance, and more. For a comprehensive description of these options, we refer you to the *Working With Panels* guide (which you can access by right-clicking on the panel and choosing the Help option).

Here are some of the most useful operations:

- To remove an object from the panel, right-click on it and choose Remove From Panel.
- To add an application launcher button to the panel, right-click on the panel and browse through the many sub-sections of the Add to Panel section. When you find the applet you wish to add, simply click on it.
- To add an applet, logout button, or other object to the panel, proceed as described above.
- To move a panel object, drag it to the new location with the middle mouse button.
- To move the whole panel to a different side of the screen, drag it with the left mouse button.

To customize your panel, right-click on it and choose Properties[1]. This window will pop up:

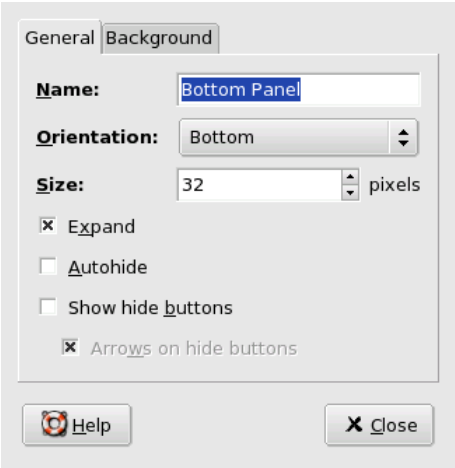


Figure 8-4. Panel Properties

You will be able to select the panel's position and size, enable Autohide and Show hide buttons options, as well as add arrows to your panel. They enable to hide the panel on one side or the other by retracting it. The Background tab essentially allows you to choose a different background type, by letting you change its color or even adding a background image.

8.2.2.1. Other Useful Panel Buttons and Applets

To show some of the most useful buttons and applets you can place on the *GNOME Panel*, we list below the ones we feel will most interest you. You can easily add these and other buttons to your panel, or remove unneeded objects as described in *Configuring the Panel*, page **??**.

The Log Out button allows you to quit your session, either because you are leaving work, to let other users use the computer, etc. Clicking on it will prompt you for confirmation and ask you if you want to save the changes you have made to your session. Selecting this option will save the current state of your session (i.e. the list of applications you currently have running and their state) so that next time you log in, *GNOME* will start the same applications for you and you can continue your work. After you click on OK, *GNOME* will close all your applications and the computer will return to the log-in screen.

1. You might be unable to right-click on the panel since the Window List takes up the whole space... Simply click on the Window List's left border and drag it to the right: then, you will have enough room to right-click and access the Properties option.

The Lock Screen button allows you to lock your screen while you are away from your computer. To unlock the screen, you must enter your password. This helps to avoid the unpleasant surprise of finding someone has read your documents or messed up your files while you were away.

The *Keyboard Layout Switcher* enables you to switch your keyboard to one of many available layouts, covering languages from Azerbaijani to Vietnamese. If you are trilingual, you can easily select, for example, French, English and Spanish as your main keyboard languages. The flag (Québec in our screen shot) represents the language you are currently using. Simply click on the icon to change your keyboard's language. To add or modify it, right-click on the icon and choose Preferences.

Please note that currently, the keyboard switcher will only work correctly if the language you have chosen uses the same character set as your default language (the one you selected during installation or during login). For example, if your default language is English, you can use French or Spanish keyboards but you won't be able to use Russian or Greek ones. Thus, if you need to type in Russian, you will need not only to select the Russian keyboard but also switch your default language (`locale`) to Russian. You can do this by running `localedrake` on the command line.

The System Monitor applet indicates your processor's load state. If you see it skyrocket and get all blue, it means one or many of your applications is going crazy...

To insert this applet on your panel, right-click on the panel and choose Add to Panel+Utility→System Monitor.

8.2.3. Workspace Switcher

This enables you to separate your work as if you had many desks (in fact, workspace switchers are also called "virtual desktops", see *Virtual Desktops*, page **??**). For example, you could place all of your Internet-related applications in the first workspace, your word processor and spreadsheet in the second, your multimedia software in the third, etc. There are 4 default workspaces, but you can have as many as you like. However, this feature can be resource-intensive (that is overtax your processor and/or memory). Hence, we suggest you use a maximum of 8, which should be quite enough for most purposes.

To display the workspace properties dialog, right-click on the workspace switcher, and choose Properties in the pop-up menu.

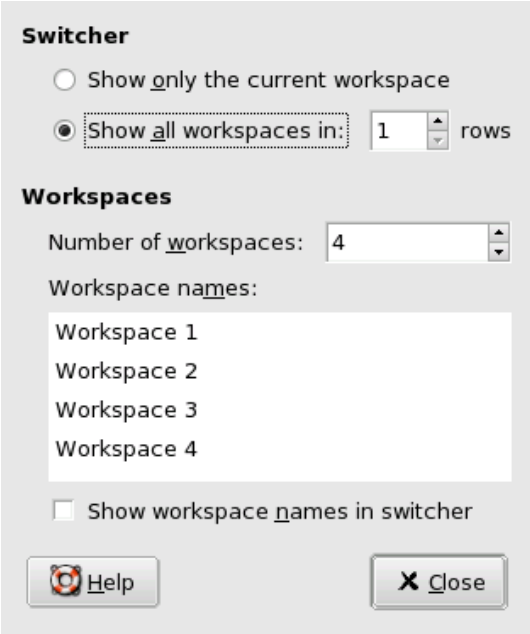


Figure 8-5. Workspace Switcher Properties

The options are pretty self-explanatory:

- Show workspace names in the switcher will display the workspace name (Workspace N by default) which you can personalize by overwriting the default name.
- Select the number of rows and workspaces you feel you need.
- If you have any questions, just click on the Help button which will launch the *GNOME Help Browser*.

8.3. Getting Help

This chapter gave you just a brief introduction to *GNOME*. Fortunately, *GNOME* comes with extensive user documentation, including a short *GNOME Desktop* manual. As previously stated, you can access general help by clicking on your panel's life buoy, or by right-clicking on the panel and choosing Help.

The *GNOME Help Browser* allows you to read documentation for non-*GNOME* applications, such as `man pages` and `info pages`. The standard documentation format for command-line applications comes in the form of `man pages`. They are usually very detailed but rather technical. `Info pages` are the documentation format used by utilities from the GNU project, such as (arguably) the most powerful text editor ever created, *Emacs*.

Finally, if your computer is connected to the Internet, you can also find a wealth of information about *GNOME* on the web. Point your web browser to the GNOME web site (`http://www.gnome.org/`) and explore!

Browsing and Surfing

Using the Internet with **Mandrake Linux** is very easy. And since it includes many mail clients and web browsers, you can choose the one really suits your needs.

Regarding mail and web browsing, we will talk about *Mozilla* for various reasons. It is easy to use (in fact, a *Windows* version exists so you might have used it already; users accustomed to *netscape* will also find it familiar). It is also very integrated, which means it encompasses many applications into one. Notwithstanding the mail ("*Mail Client: Mozilla*", page **??**) and web browser ("*Surfing with Mozilla*", page **??**), you can also read news from different forums, and use the *ChatZilla* IRC client. Hence, it is a powerful suite of applications which provides you with a unified interface.

We will go through basic configuration and utilization, as well as more advanced features of the mail and browser clients, such as the powerful encryption feature called *Enigmail* available for the mail client.

Chapter 9. Surfing with Mozilla

9.1. Mozilla Interface

You can launch the *Mozilla Navigator* by selecting Networking+WWW→Mozilla from the main menu.

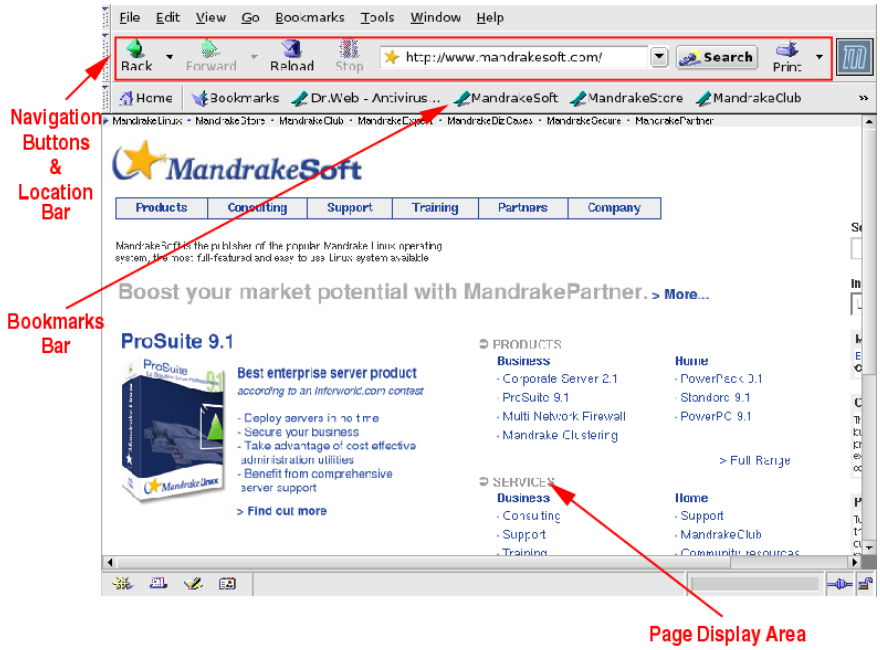


Figure 9-1. Mozilla Browser Interface

Mozilla's interface is shown in figure 9-1. It's composed of the following:

- Page Display Area. Where the contents of the web pages you browse are displayed.
- Bookmarks Bar. It contains buttons which give you quick access to your bookmarked (favorite) sites (see *Managing Bookmarks*, page **??**).
- Navigation Buttons & Location Bar. Navigation buttons are explained in *Surfing the Web*, page **??**. The location bar is where you enter a web site's URL (or a local file using `file://` as the protocol part of the URL).

9.2. Surfing the Web

The following table summarizes the most commonly used navigation buttons every web browser possesses.

Button	Keyboard Shortcut	Function
	**Alt-left_arrow**	Go back. Returns to the page visited before the current one. By clicking on it more than once, you can go back more than one page, but some pages use automatic redirection so this might not always work. Keeping this button pressed (or clicking on the little black triangle at its right) will show you a list of all the pages you can access through this feature.
	**Alt-right_arrow**	Go forward. Returns to the page visited after the current one being visited. The same back-button comments apply.

Button	Keyboard Shortcut	Function
	**Ctrl-R**	Reload. Reloads the current page. By default, *Mozilla* will first look for the page in the browser's cache (on-disk temporary storage space) and use the local copy. Press the **Shift** key while clicking on the reload button to force *Mozilla* to fetch the page from the Internet.
	**Esc**	Stop. Stops transferring the currently requested object and will therefore cancel the page currently being loaded. Notice that we use the word "object" instead of "page". This is due to the fact that web pages are not only HTML code but images and maybe other media too.

Table 9-1. Mozilla's Web Browser Toolbar Buttons

9.3. Using the Sidebar

The sidebar gives you quick access to sites related to the one currently displayed, search engines, your bookmarks, history and more if customized. You can hide/show it by selecting the View+Show/Hide→Sidebar sub-menu or by using the **F9** key.

The sidebar is arranged in tabs. We will only detail some of them, so feel free to investigate tab customization by selecting Tabs→Customize Sidebar from the sidebar's menu.

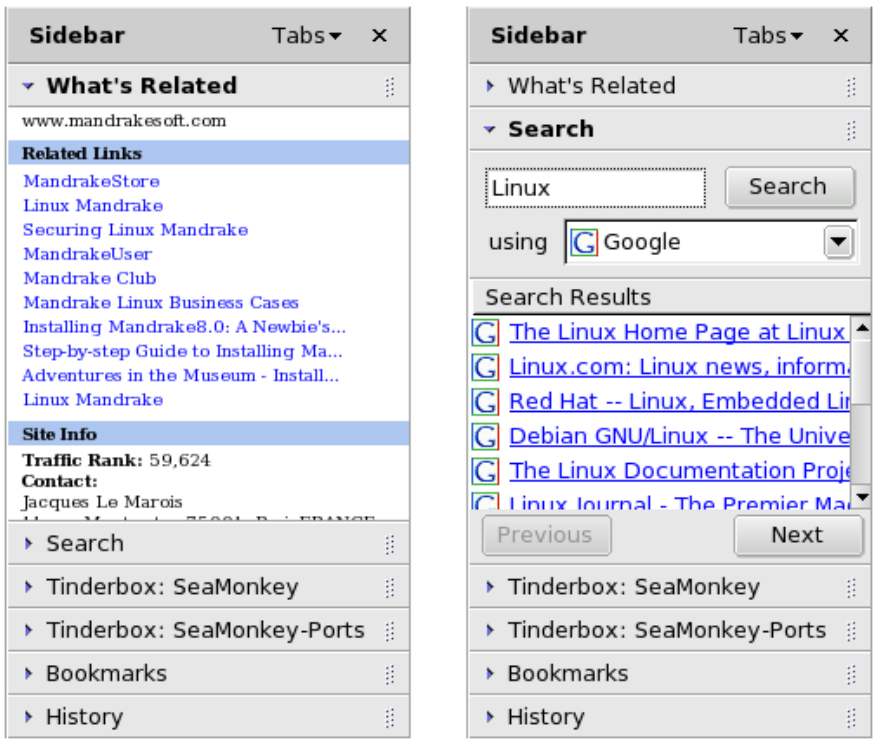


Figure 9-2. What's Related and Search Tabs

What's Related. Under Related Links is a list of the sites somehow related (for example: same subject, same keywords, etc.) to the one currently displayed. Click on the link you are interested in and the linked site will be displayed in *Mozilla*'s Page Display Area. The related sites list will be automatically updated to reflect the new site you browsed to.

Search. Enter the text to search for and click on the Search button to start it using the search engine you've selected in the Using pull-down list[1]. The Search Results field will display links to sites matching your search

1. The default search engine (which is Google) and other search options can be changed by accessing Edit→Preferences from the menu. Go to the Internet Search sub-section of the Navigator section

criteria. Only a limited number of search results are displayed, and using the Previous and Next buttons will let you access more results for the same search.

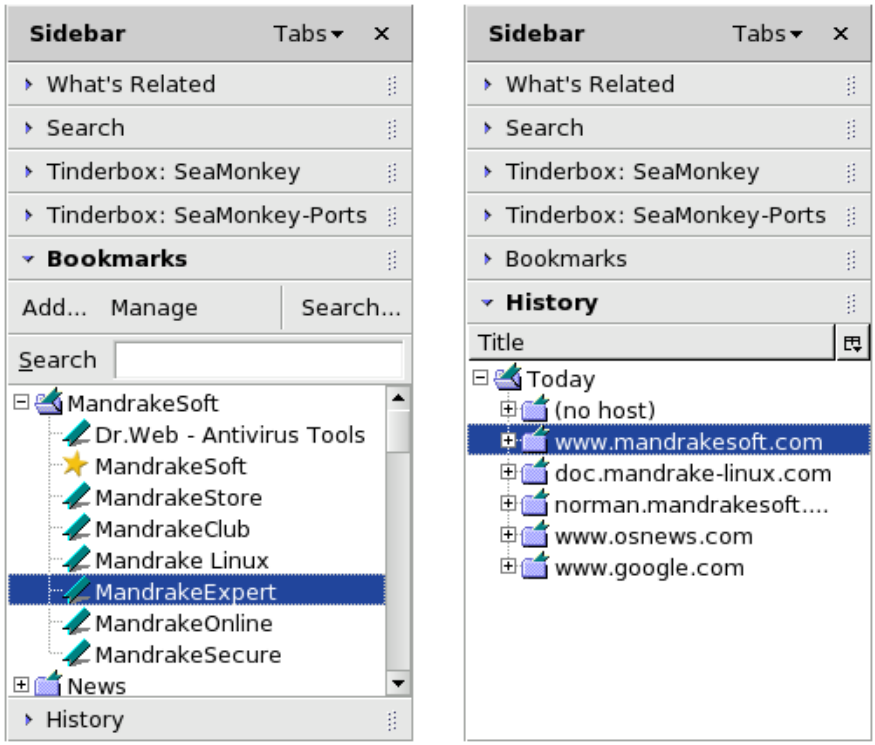


Figure 9-3. Bookmarks and History Tabs

Bookmarks. In order to conveniently access your bookmarks, it is handy to display them in the sidebar. Clicking on Add... will add a bookmark for the site currently displayed. Clicking on Manage will bring up the bookmarks manager (see *Managing Bookmarks*, page **??**) and clicking on Search... will open a window to search for bookmarks based on name, location, description or keyword.

History. *Mozilla* keeps track of the URLs you have visited in the past N days, where N is a number that can be configured (the default is set to 9 days). To change how many history days to keep, choose Preferences→ Navigator from the menu and open the History sub-section of the Navigator section. If you want to return to a site you visited a week ago, look for the 7 days ago entry, open it by clicking on the plus (+) sign and search for the URL which interests you. Clicking on it will open the site in the Page Display Area.

9.4. Managing Bookmarks

Bookmarks store the URLs of your favorite web sites so you do not have to type their address again when you want to access them. You can classify them by subject, category, etc. Your **Mandrake Linux** system already has some bookmark categories predefined which you can use as a guide to set up yours. Selecting Bookmarks→ Manage Bookmarks from the browser's menu or pressing the **Ctrl-B** keys will open the bookmarks manager shown in figure 9-4.

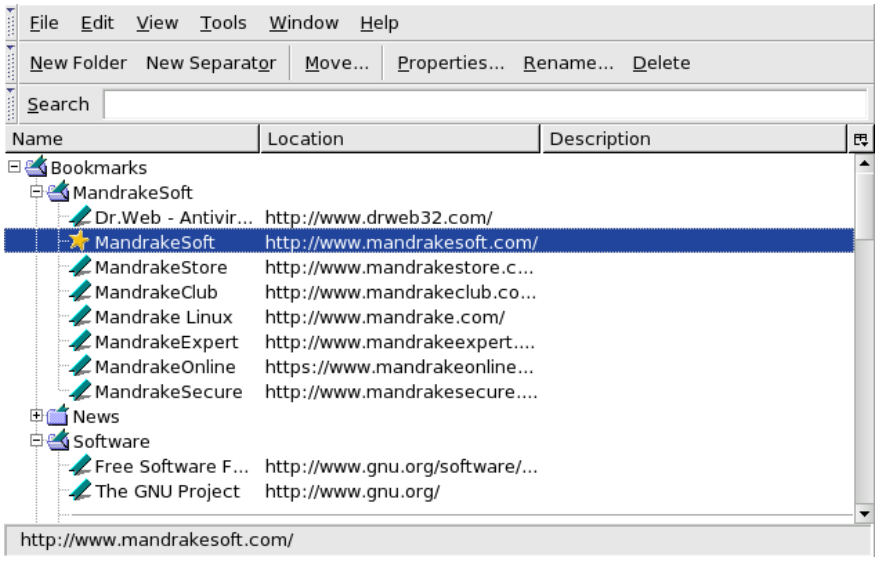


Figure 9-4. Bookmarks Manager Dialog

Bookmarks are arranged as a tree, with all operations taking place on the currently selected tree node. Click on the New Folder button to create a new folder. Use folders to group bookmarks by subject, category, etc. Click on the New Separator button to add a separating line below the current node. Click on the Properties... button to change the current bookmark's properties (name, URL, etc.). Click on the Rename... button to change the bookmark's displayed name. Click on the Delete button to remove the current bookmark.

Bookmarks can be exported to an HTML file. Choose Tools→Export from the menu, enter the file name (`bookmarks.html` by default) of the exported bookmarks file and click on the Save button.

Bookmarks can also be imported from an HTML file. Choose Tools→Import from the menu, enter the file name of the bookmarks file to import and click on the Open button.

9.5. Tabbed Browsing

Figure 9-5. Mozilla's Browser Tabs

Mozilla lets you browse many web pages at a time using a very nice feature called "tabbed browsing". Instead of opening a new browser window every time you want to view another page you can open a new tab.

Clicking on this button (at the left end of the tab list), or choosing File+New→Navigator Tab from the menu, or pressing the **Ctrl-T** keys, will open a new tab. You can now input the URL or select a bookmarked site to browse that site in the new tab.

Use this button (at the right end of the tab list) to close the currently displayed tab. Click on a tab's title to display the contents of that specific tab.

9.6. Installing Plugins

Plugins are programs that let your browser handle content other than HTML and graphics, such as animations, streaming audio, Java applets, and more. *Mozilla*'s plugins are stored under the `/usr/lib/mozilla/plugins` directory and installing plugins require `root` privileges.

We will look at the procedures to install Java, Flash and Real plugins. If you own a Mandrake Linux — PowerPack Edition, installation is greatly simplified and all the needed packages are on the CDs.

If you have a **MandrakeClub** user name and password, you may install newer version of the software mentioned herein after.

9.6.1. JAVA

Install the `jre` RPM package. See "*RpmDrake: Package Management*", page **??** for information on how to install RPM packages.

You can obtain the Java plugin on the Java Plug-in Home Page (`http://java.sun.com/products/plugin/`). Follow the links to J2SE (Java 2, Standard Edition) and download JRE for Linux. Follow the directions in the `README` file included in the downloaded "tarball" (in this case, a compressed archive of files which ends with the `.tar.gz` extension) to complete the plugin installation.

9.6.2. Flash

Install the `FlashPlayer` RPM package (see "*RpmDrake: Package Management*", page **??** for more information).

You can retrieve the Flash plugin on the Macromedia web site (`http://www.macromedia.com`). Follow the link to Macromedia Flash Player and click on the "Download Now" button to get a `tar.gz` file for *Linux*. Extract the `tar.gz` file to a temporary directory and follow the instructions on the included `readme.txt` file to complete the plugin installation. Test the plugin by opening the Flash web site (`http://www.flash.com`) URL in the browser.

9.6.3. Real

Install the `RealPlayer` RPM package (see "*RpmDrake: Package Management*", page **??** for more information).

You can get the Real plugin on the Real.com (`http://forms.real.com/real/player/unix/unix.html?src=rpbform`) site. At the time of writing, the latest Real player available for *GNU/Linux* was version 9. Complete the form and select Linux 2.x (libc6 i386) RPM, then click on the Download User Supported Player button and download the `rpm` file.

Follow the instructions on Real's web page to complete the installation. (refer to "*RpmDrake: Package Management*", page **??** for more info).

9.7. Password Management

When you surf the web, you sometimes need to provide a login and password to access certain web pages. For example: Intranet pages, web-mail pages, bank-account information pages, etc. *Mozilla*'s browser can remember login and passwords for those pages, so you do not have to type them in every time you access such pages.

Even if *Mozilla* stores passwords in a secure manner, some may feel this is a security risk. If you do not feel confident with this feature, or feel other people may access your computer, use it only for accounts that do not give access to sensitive information. You may not want to store passwords for sites such as bank accounts.

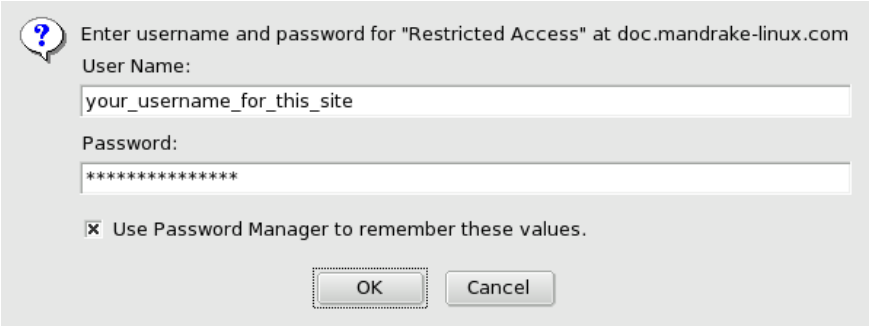


Figure 9-6. Enter your Login and Password

Whenever you access a protected web page, the dialog shown in figure 9-6 pops up. Enabling the Use Password Manager to remember these values check-box will make *Mozilla* remember the login/password for that page. Next time you browse to the same page in a different session, the same dialog will pop up, but with both fields already filled for you.

The following figure shows the Passwords sub-section located in the Privacy & Security section of your browser's preferences.

Figure 9-7. Passwords Preferences Dialog

This is where you should make sure that the Use encryption when storing sensitive data check-box has a check mark in it for increased security.

Clicking on the Manage Stored Passwords button will pop up a dialog where you can remove some or all saved passwords.

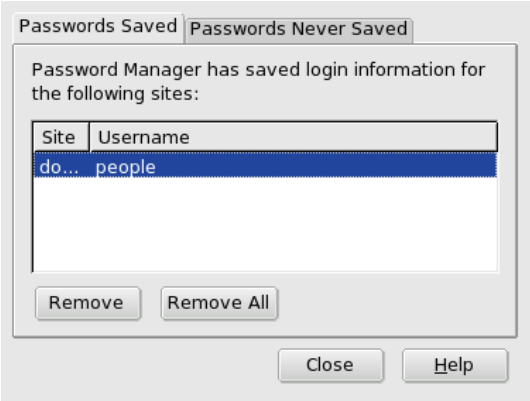


Figure 9-8. Manage Stored Passwords Dialog

You also have the opportunity to never store a password for a site. The Passwords Never Saved tab of the dialog lets you remove sites from the list, so passwords can be stored for those sites in the future.

The following figure shows the Master Passwords sub-section located in the Privacy & Security section of your browser's preferences

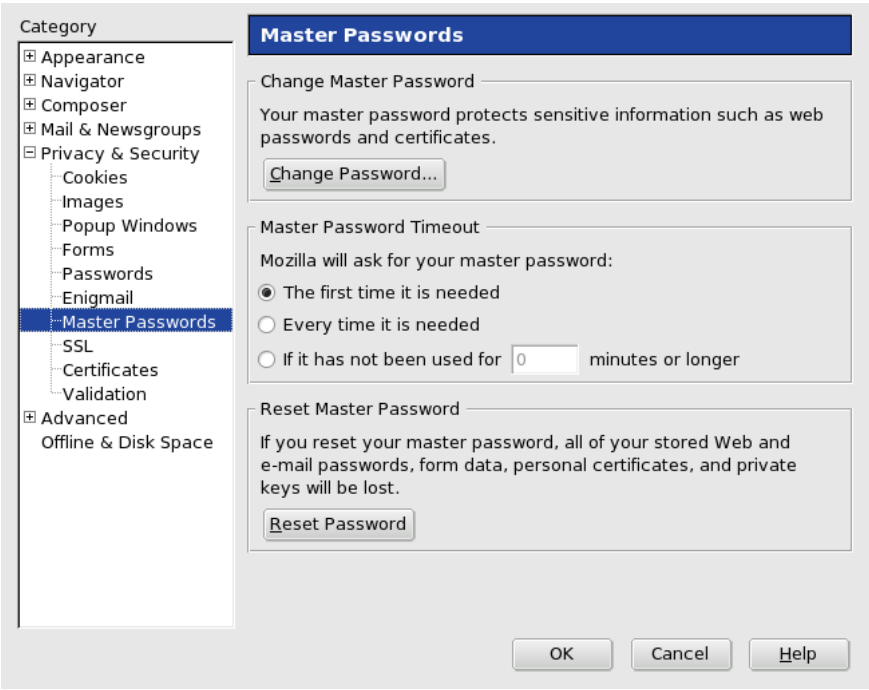


Figure 9-9. Master Passwords Preferences Dialog

You can click on the Reset Password button to clear all passwords, form data and certificates stored, or on the Change Password button to change the master password.

The master password is the one used to encrypt all sensitive information *Mozilla* stores on disk. This password should be of high quality (the change-password dialog has a quality meter) if you want a high level of security.

Chapter 10. Mail Client: Mozilla

There are many graphical mail clients for *GNU/Linux*: *Mozilla Messenger*, *KMail*, *Evolution*, etc. This section will speak about configuring and using *Mozilla Messenger* to compose, read and organize your e-mail messages.

10.1. Launching Mozilla Messenger

To start *Mozilla Messenger* you have the following options[1]:

- Select Networking+Mail→Mozilla Messenger from the main menu to do so.
- Select Window→Mail & Newsgroups from *Mozilla*'s browser window menu (or press **Ctrl-2** keys) to launch it. You can also click on the button shown in the following figure:

Figure 10-1. Launching Mozilla Messenger from the Left-Bottom Toolbar

1. You can also type `mozilla -mail` in a terminal window.

10.2. Configuring Mozilla Messenger

10.2.1. Account Type

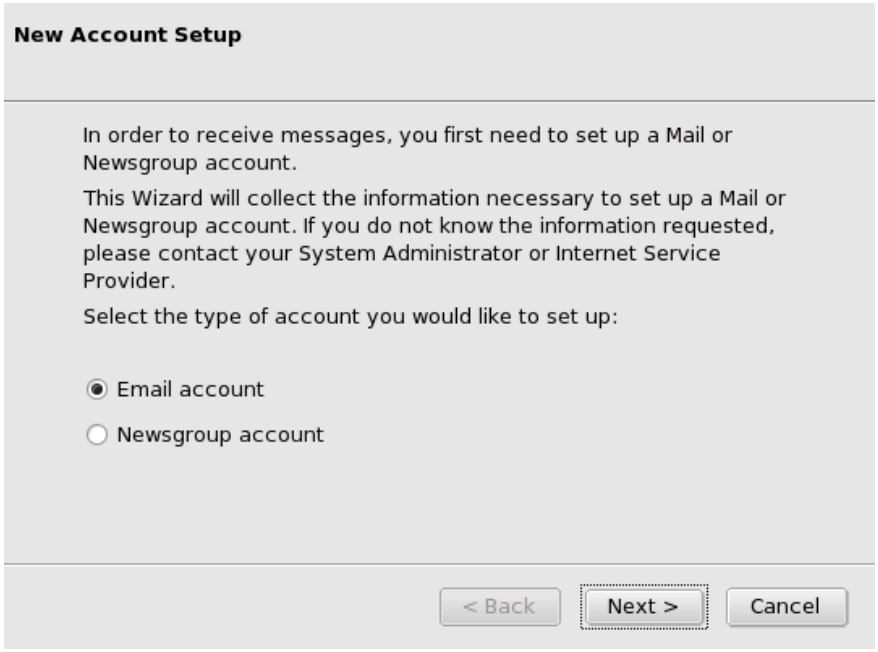


Figure 10-2. Creating an Electronic Mail Account

When *Mozilla Messenger* is run for the first time, a wizard will pop up, guiding you through the configuration process (figure 10-2). Select the E-mail account option.

If you want to change any parameter during the configuration process, just click on < Back, make your modifications and click on Next > to advance to the next step in the Setup Wizard.

10.2.2. Account Identity

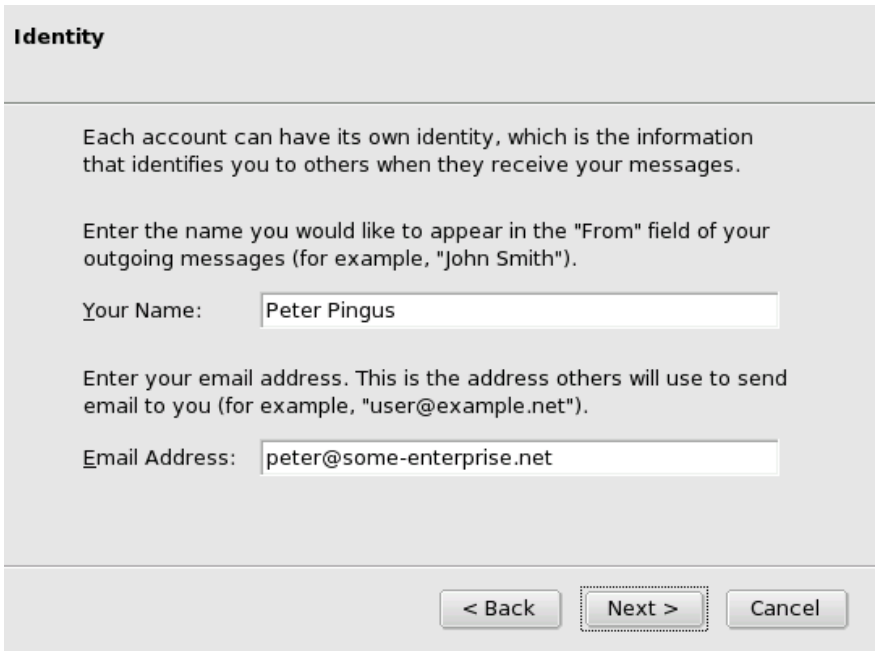


Figure 10-3. Giving Some Information About Yourself

You have to tell *Mozilla* about yourself. Fill in the Your Name field with your name (actually, you can put anything you want) and the E-mail Address field with your electronic mail address (figure 10-3).

10.2.3. Mail Servers

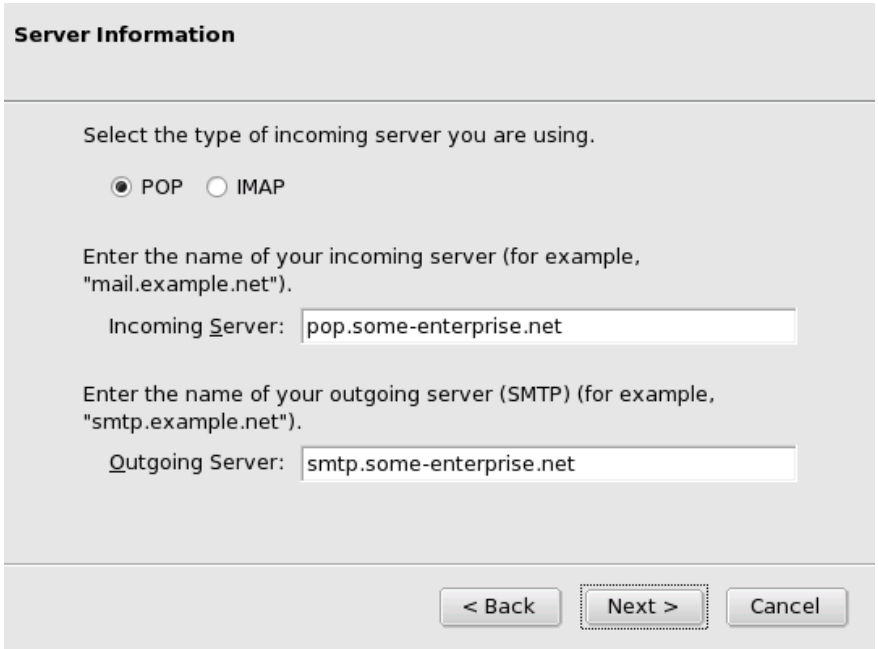


Figure 10-4. Which are Your Mail Servers?

Mozilla needs to know which servers to connect to in order to send and receive mail. The protocol for sending mail is called SMTP and there are two most commonly used ones for receiving mail: POP3 (Post Office Protocol V3) and IMAP (Internet Message Access Protocol). Since POP3 is the most popular of the two, we will configure a POP3 account. Select the POP option and fill in the Incoming Server and Outgoing Server fields with the names of your mail servers[2] (figure 10-4).

Instead of entering the Fully Qualified Domain Name (FQDN) of your mail servers, you can enter the IP address in the server fields if you want to.

2. Your ISP or your system administrator should have provided you with the mail server names.

10.2.4. Account User Name

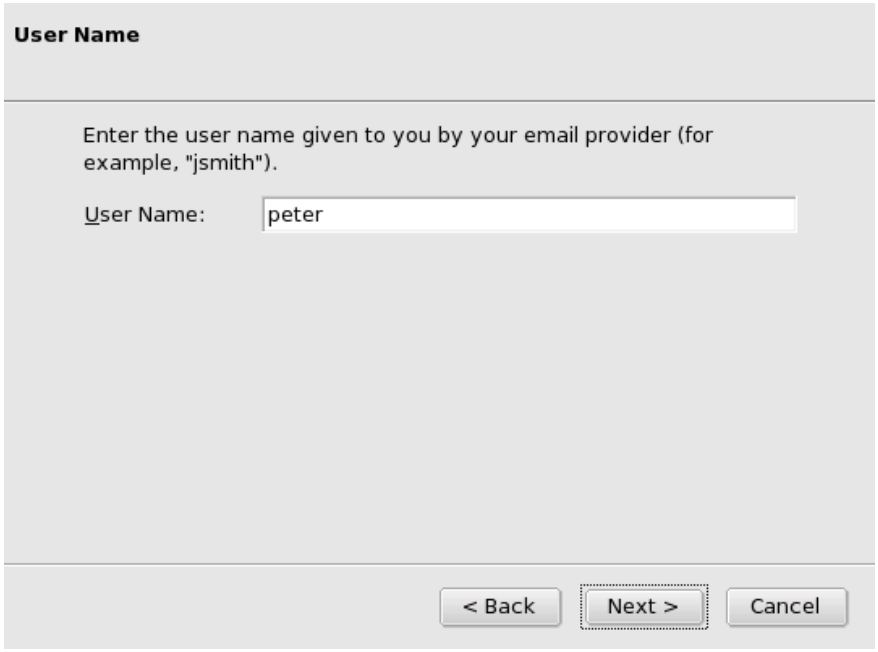


Figure 10-5. Which is Your User Name?

In most cases, your mail account's user (or login) name is simply what appears before the `@` symbol in your e-mail address. If this is not the case for you, please ask your ISP or your system administrator. Fill the User name field with your account's user name (figure 10-5).

10.2.5. Identifying the Account

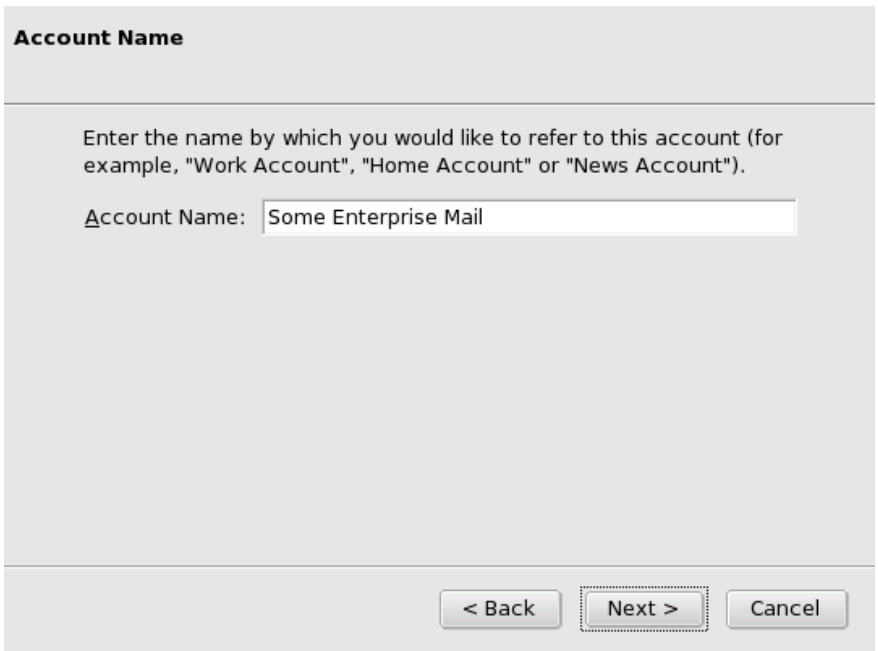


Figure 10-6. Giving the Account a Name

Mozilla Messenger can handle multiple mail accounts and each one must have a unique name. Fill in the Account Name field to name this account (figure 10-6).

10.2.6. Account Summary

Figure 10-7. Mail Account Configuration Summary

The last step of the wizard summarizes your configuration (figure 10-7), select the Download messages now option to get your messages immediately after closing the wizard. Once you are satisfied with your settings, click on the Finish button to accept them. *Mozilla Messenger* is now ready to send and receive mail.

10.3. Mozilla Messenger Interface

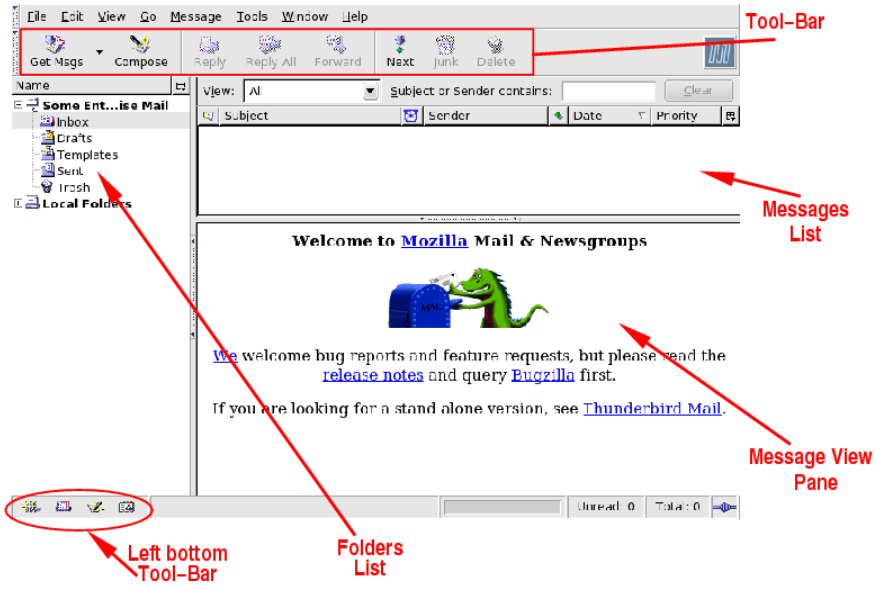


Figure 10-8. Mail Client Interface

Tool-Bar. This is where the main action buttons lie. See table 10-1

Messages List. Where details (Subject, Date, Sender, etc.) about messages stored in the currently selected folder are shown.

Message View Pane. Where the currently selected message's contents are displayed.

Folders List. Where all folders are listed. For each defined account, the default folders are `Inbox` (incoming messages), `Drafts` (messages drafts), `Templates` (messages templates), `Sent` (already sent messages) and `Trash` (deleted messages).

Left bottom Tool-Bar. It contains buttons to launch *`Mozilla`* suite applications: Navigator, Messenger, Composer and Address Book.

The following table shows the most important buttons available in *`Mozilla Messenger`*'s interface, their equivalent keyboard shortcuts and a brief explanation of the functions they provide.

Not all buttons may be enabled at all times. For example, the Reply-To buttons will not be enabled if no message is selected in the messages list.

Button	Keyboard Shortcut	Function
	**Ctrl-M**	Compose a new message. You will need to complete the To and Subject fields in the message-compose window.
	**Ctrl-T**	Get new messages for the selected account. Pressing **Ctrl-Shift-T** will retrieve mail for all defined e-mail accounts.
	**Ctrl-R**	Reply to the author of the selected message. A message-compose window will pop up with some fields already set.
	**Ctrl-Shift-R**	Reply to the author and all the original recipients of the selected message. A message-compose window will pop up with some fields already set.
	**Ctrl-L**	Forward (send to a third party) the selected message. You will need to fill in the To field in the message-compose window.
		Move the message to another folder. You can create different folders to better manage your messages. More on that later.
	**Del**	Delete the selected messages. Deleted messages are moved to the `Trash` folder. If you want to delete messages permanently, open the `Trash` folder, select the message(s) and press **Del** again (you can also use the File→ Empty Trash menu). Please note that deletion from the `Trash` folder cannot be undone! Messages in the `Trash` folder can be recovered by moving them to a different folder **before** emptying the `Trash`.

Table 10-1. Mozilla Messenger's Toolbar Buttons

10.4. Composing a Message

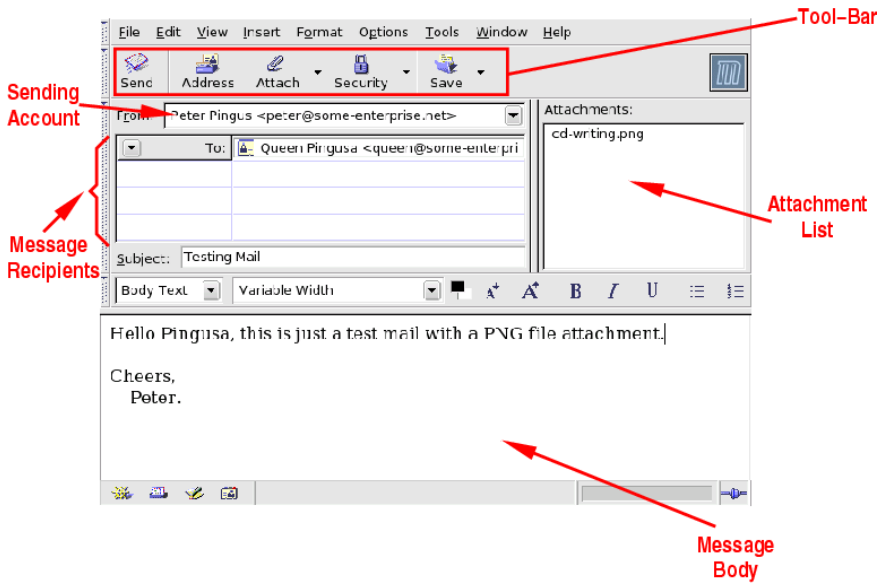


Figure 10-9. The Message-Compose Window

Tool-Bar. This is where the main message composing actions buttons lie. See table 10-2

Attachment List. Where all the message's attached files' names are shown. Empty if the message has no attachments.

Message Body. Where the message's text content is entered. Just above this area you can see the usual word processor buttons to format text (font family, size and weight, paragraph alignment).

Message Recipients. The list of all recipients of this message. The main options in the pull-down list at the left are:

- `To`: The "principal" intended recipient of this message.
- `Cc` (Carbon Copy): Not-hidden "secondary" intended recipient of this message. All recipients will have access to the mail addresses to which this message was sent.
- `Bcc` (Blind Carbon Copy): Hidden "secondary" intended recipient of this message. No recipients will have access to the mail addresses to which this message was sent.

Sending Account. The identity from which this message is sent. If you have more than one account defined, select the corresponding one using this pull-down list.

The following table shows the most used buttons available in the message-compose window, their equivalent keyboard shortcuts and a brief explanation of the functions they provide.

Button	Keyboard Shortcut	Function
	**Ctrl-Enter**	Send the message immediately (your network connection must be active); by default, a copy of the message will be kept in the `Sent` folder. Pressing **Ctrl-Shift-Enter** will queue the message in order to send it later. The message will be saved in the `Unsent Messages` folder under the `Local Folders` tree, and will be sent the next time you request mail to be sent.

Button	Keyboard Shortcut	Function
		Insert the recipients' addresses from the address book. Clicking this button will open a window where you can add recipients from *Mozilla*'s address book. Keep in mind that if you start to type a recipient's name, the address book will be checked for that name and if a match is found, the name or address of that person can be inserted automatically just by pressing the **Enter** key.
		Attach a file to the mail message. This function is also accessible by choosing File→ Attach File... from the menu. A standard file dialog will pop up. Select the file you want to attach and click on Open. Repeat for multiple files.
	**Ctrl-S**	Saves the message as a draft. This function is also accessible by choosing File→ Save from the menu. The message is stored in the `Drafts` folder.

Table 10-2. Message Compose Window's Toolbar Buttons

Enter the recipients of the message, fill the Subject field and click on the message body area to start typing the message.

10.5. Organizing Your Mail Messages

10.5.1. Folders and Filters

You can sort mail in different folders according to specified criteria (sender, subject, date, etc.) using filters. Filters are very powerful, but in this guide we will only be able to look at some simple filter rules. Feel free to explore the filters tool (Tools→Message Filters...).

Let's assume you want to filter incoming messages according to the sender and you have at least one message from that sender in your `Inbox` folder. You want all incoming e-mail from `someuser@somecompany.net` to go directly into the `SomeUser` folder.

Highlight the message from the sender you want to filter and choose Message→Create Filter From Message... from the menu. The filter creation window (figure 10-10) will appear.

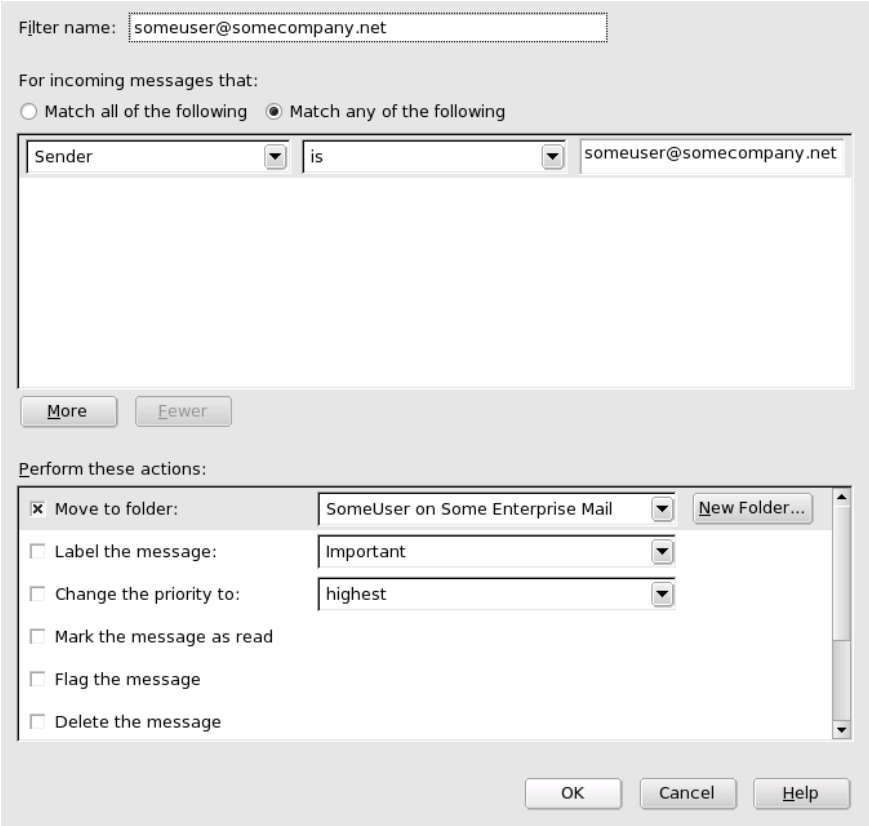


Figure 10-10. The Filter Creation Window

If the `SomeUser` folder does not exist, click on the New Folder... button. In the Name field, enter the name of the new folder (`SomeUser` in our example). The Create as a sub-folder of pull-down list specifies the parent folder for the one you are about to create. Select the desired parent folder by navigating the folder tree and selecting Choose this for the parent. Click OK to create the new folder.

The filter can also execute other actions (moving to a folder is the default one, and is preselected), for example: label the message as important, delete the message, change the message's priority, etc. More than one action can be selected.

And that's all. You can change the Filter name if you want to (by default the filter's name is sender's mail address). Use the More and Fewer buttons to add and remove filtering criteria to the rule and, once you are satisfied with your settings, click on the OK button to accept the rule. You can create as many filtering rules as you want. By moving rules up and down in the Message Filters list, you can actually create a very complex and efficient set of filtering rules.

10.5.2. Dealing With Spam

Mozilla Messenger purposes a simple way to treat unsolicited mail messages, also known as "spam": the junk mail control. Clicking on this button in the tool-bar will mark the currently selected message as "junk-mail". This way, you can train *Mozilla Mail* to have it recognize messages similar to the one selected as spam and perform actions on them. Click again on the button to mark a junk-mail message as not junk-mail.

Choose Tools→Junk Mail Controls... from the menu to display the junk control window (figure 10-11). The example configures the junk mail control to move messages determined to be junk-mail to the `Junk` folder of the defined account, automatically delete junk-mail after two weeks and immediately delete messages manually marked as junk-mail. The different options available explain themselves: feel free to explore them.

Figure 10-11. Junk Mail Control Options

The `Junk` folder will be automatically created, if needed, when the "move messages determined to be junk" option is activated.

10.6. Secure Messages Transmission

Digitally signing a message helps ensure it has not been tampered with (providing integrity) while encrypting a message helps ensure that nobody, except the intended recipient(s), will be able to "see" the message while in transit on the network (provides confidentiality).

Mozilla supports PGP/GPG with the aid of the `mozilla-enigmail` package, so make sure you install it first, along with the `gnupg` package before trying to send secure messages.

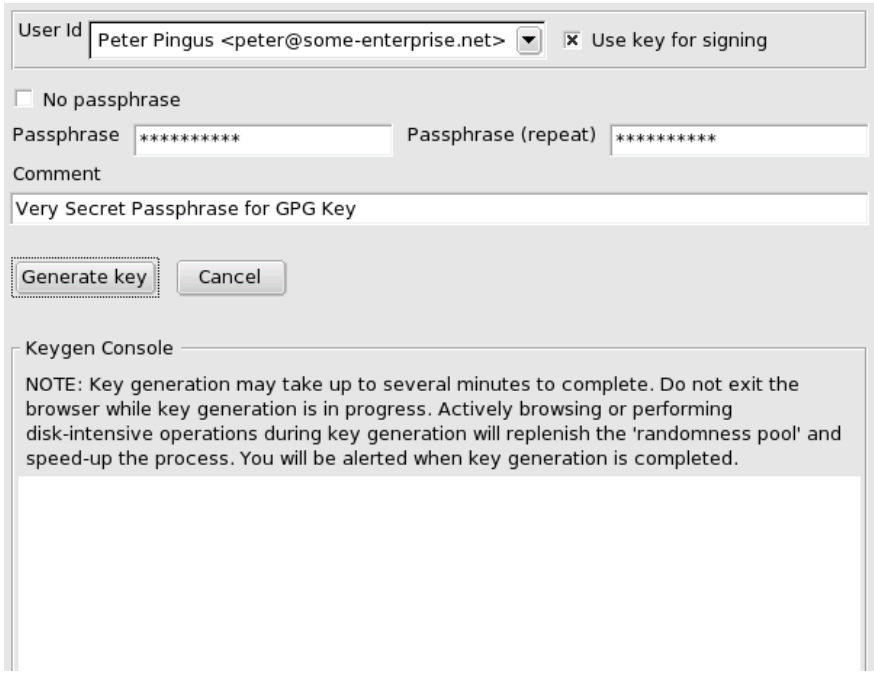


Figure 10-12. GPG Key Generation Options

GPG keys can also be generated within *Mozilla* by choosing Enigmail+Generate Key from the menu (figure 10-12). Fill in the Passphrase and Passphrase (repeat) fields with a secret pass-phrase, the Comment field with any string to identify you, and click on the Generate Key button.

After clicking on the Generate Key button, try to make your system perform disk-intensive operations (like actively browsing the web) to increase the "randomness pool" and speed-up key generation.

It is highly recommended that you publish your public key on specialized servers, for example KeyServer (`http://www.keyserver.net`). This way your friends can get your key from there and you can enjoy digital signature and message encryption features.

You can use *kgpg* (under *KDE*) or *seahorse* (under *GNOME*) to publish and manage your GPG keys.

The following table summarizes the new buttons *Enigmail* adds and a brief explanation of their functions.

Button	Function
	Encrypt and send the message immediately. By default the message will be encrypted only. If you also want it to be signed, you can change the defaults in *Enigmail*'s preferences (Edit→ Preferences) under the Privacy & Security section, Enigmail sub-section. Select Encrypt+sign if possible as the default encryption option. If you do not want to change the defaults, then select Enigmail→ Encrypt+sign send.
	Decrypts the selected message (if it is encrypted). Most of the time, you will be prompted for your passphrase in order to decrypt the message. There are two exceptions to this: when you are using an empty passphrase (**strongly discouraged**) or when the time set in the "remember password for X idle minutes" preference has not yet expired.

Table 10-3. Enigmail Toolbar Buttons

Using Mandrake Linux on a Daily Basis

This chapter is an introduction to the applications available under **Mandrake Linux** such as file managers and external devices.

First, we explore the office suite domain, starting with *OpenOffice.org*, which provides a word processor (*Word Processors*, page **??**), a spreadsheet (*Spreadsheets*, page **??**) and a presentation application (*Presentations*, page **??**).

In *File Managers: Konqueror and Nautilus*, page **??** we discuss *Konqueror*'s different uses, as a file manager, a file sharing tool and even as a web browser. Then we guide you through basic printing operations in *Printing and Faxing from Applications*, page **??**.

Multimedia applications are a must for any OS to be considered as a personal workstation. We introduce you to *XMMS* which is a multiple format audio player (*Audio Applications*, page **??** as well as the best open-source movie applications such as *Xine* and *MPlayer* (*Movie Applications*, page **??**).

You most probably use many devices with your computer everyday. The next chapter covers precisely those, digital camera software with *GTKam* (*Digital Photo Cameras*, page **??**), scanning with *ScannerDrake* (*Installing and Using Scanners*, page **??**), CD burning with *K3b* (*CD Burning*, page **??**), as well as videoconferencing with *GnomeMeeting* (*Webcams And Video Conferencing*, page **??**), which is compatible with *NetMeeting*.

Chapter 11. Office Work

11.1. Word Processors

This section will give you a brief introduction to *OpenOffice.org Writer*'s word processing functions. There are lots of options out there for WYSIWYG (What You See Is What You Get) word processors (*KWord*, *StarOffice*'s Writer, *AbiWord*, to name just a few). However this section concentrates on *OpenOffice.org Writer*.

In order to make the text a little easier to read, we will alternate between the popular OOo acronym and the very long, yet full and correct *OpenOffice.org* name.

11.1.1. What Is a Word Processor?

One of the tasks most performed with a computer nowadays is some form of word processing. Word processors are the replacement for your old typewriter machine. This software allows you to write text using many fonts, paragraph alignments, tables, images, lists, etc.

Even though word processors also offer some desktop publishing features, they are very limited ones: limited precision in measurements, limited text flow around images and tables, etc.

11.1.2. OpenOffice.org Writer

OpenOffice.org Writer is the part of the *OpenOffice.org* suite that provides the word processing functions. *OpenOffice.org Writer* "understands" popular Office formats, easing the transition from, and ensuring compatibility with, other Office suites.

11.1.2.1. Opening OpenOffice.org Writer

To launch *OpenOffice.org Writer*, select Office→Word Processors → OpenOffice.org Writer from the main menu.

You can also open it from any other OOo application screen, selecting File→New→Text Document, which will open an OOo Writer window with a blank document on it.

The first time you launch OOo, a dialog will propose that you register your software. By filling out a short questionnaire, you will help *OpenOffice.org* developers know their users better and to get feedback to enhance *OpenOffice.org*. You are encouraged to fill the poll if you have a working Internet connection but you can skip this step without any consequence on your use of *OpenOffice.org*.

11.1.2.2. OpenOffice.org Writer Interface

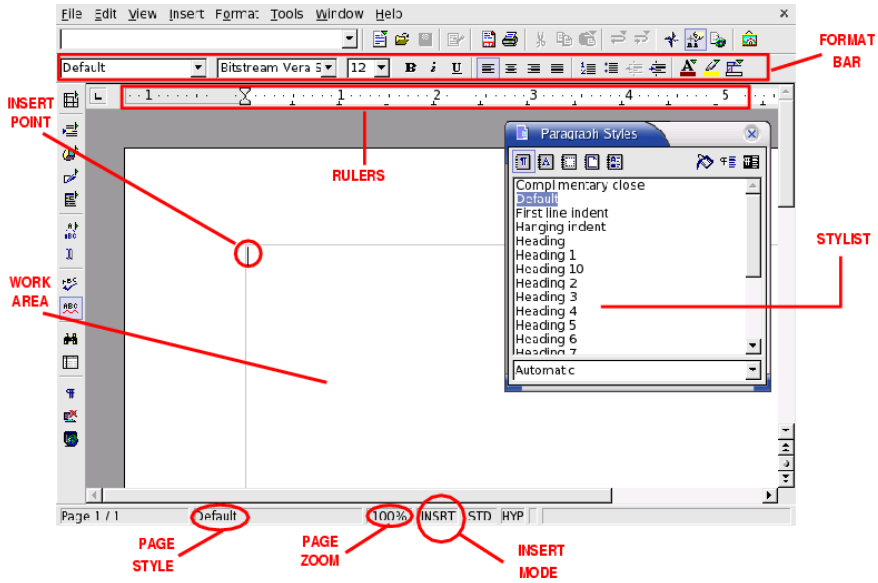


Figure 11-1. OpenOffice.org Writer's Main Window

Format Bar

This is the standard format bar for all *OpenOffice.org* applications used and is used to change fonts, colors, alignment, etc. of the application's data.

Rulers

Rulers define the "horizontal" location of the text and format elements. They are extremely useful when you want to establish tabulations and paragraphs indentation.

Work Area

Where you enter the content of your document: words, numbers, images, tables, hyperlinks, etc.

Insert Point

All characters typed on your keyboard, will be placed at the left of this point. Also called the "cursor".

Stylist

Clicking on any of the styles shown on the list will change the current selected text's style or the whole page style if no text is currently selected.

Page Style

Page size, margins, text-orientation, etc. all define the style. Page style can be changed by choosing Format→Page from the menu. You can use one of the pre-defined styles or define your own.

Page Zoom

The current zoom level at which the page is being displayed, 100% by default. You can reduce it to, say 50% to have a "quick glance" at the page's layout. However the page preview feature (more on that later) is the preferred way to do this.

Insert Mode

When this shows OVER, the characters you type will overwrite the existing ones (if any) at the Insert Point. When this shows INSRT (the default mode), existing text at the Insert Point will not be overwritten but characters you type will be "inserted".

11.1.3. Using the Word Processor

11.1.3.1. Styles

Word processor users often waste a lot of time formatting (changing paragraph alignment; font family, weight and size; etc.) their documents instead of using that time to concentrate on document structure and document content writing.

Styles provide some kind of structure-centric-view approach to writing documents with a word processor, while "normalizing" document formatting and layout and easily "automating" Table Of Contents (TOC) generation and maintenance. Under *OpenOffice.org Writer*, styles are handled using the *Stylist*.

Clicking on this icon in the tool bar will open the *Stylist*. It can also be opened by choosing Format→ Stylist from the Menu Bar, or by pressing the **F11** key.

If the *Stylist* is already open, then carrying out any of the above mentioned actions will close it.

When You Have a...	Then Apply The ... Style
Chapter Title	Heading 1
Section Title	Heading 2
Sub-Section Title	Heading 3
Sub-Subsection Title	Heading 4
Paragraph	Default, Text Body, First Line Indent
List item	Default, Text Body, Text Body Indent

Table 11-1. Suggested Styles

Use the styles listed in table 11-1 as a guide. Select the region of the document to apply the style to, and, in the *Stylist* window, double-click on the style you want to apply to that region.

The styles you use from the *Stylist* automatically become available in the styles drop-down list (the first one in the format bar), so you have the most used styles handy.

11.1.3.2. Margins

You can always adjust margins by hand with the ruler, but if you want to format a long document, this might not be the best solution. This is where the *Stylist* comes in handy.

By clicking on this icon in the *Stylist*, you will access the page formatting section of the *Stylist*. First, make a copy of the Default style:

1. Right click on the Default item in the stylist.
2. Choose New... from the menu that pops-up.
3. Assign a Name to your new style. The Next Style field will be updated accordingly when you select it. For the purposes of this example, `Default Copy` will be used as the style name.
4. Click on the OK button to insert your new style into the list of available styles.

Then, right-click on your newly created style item and choose Modify... from the pop-up menu. The Page Styles: Default Copy window will appear. Open the Page tab and modify the margins to your liking.

This is the same as choosing the Format→Page menu.

While looking at the Page Styles: Default Copy window, you probably noticed that you could modify many formatting elements such as the Background, Header, Footer, etc. For example, if 90% of your work with a word processor consists of writing business letters with a predefined format, you could set it up right now, thereby saving lots of time.

If you modify an existing style, you will overwrite the original settings for that style. If you feel you have made a mistake, simply click on the Reset button to go back to the last saved settings.

11.1.3.3. Lists

Sometimes paragraphs have lists of elements, for example to enumerate the properties of an object ("unordered" or "bullet" list), or the steps to perform in order to accomplish some task ("ordered" or "numbered" list).

Clicking on this button will "transform" the selected text into an unordered list. Selecting the list items and choosing Format→Numbering/Bullets... from the menu will let you change the type of the bullets from a predefined set, feel free to explore all the dialog's options.

Clicking on this button will "transform" the selected text into an ordered list. The same rules as for unordered lists apply regarding to the numbering format.

11.1.3.4. Laying Out Text in More Than One Column

Choosing Format→Columns in the menu will open the dialog shown in figure 11-2 allowing you to accommodate the text in the page in more than one column (the default)

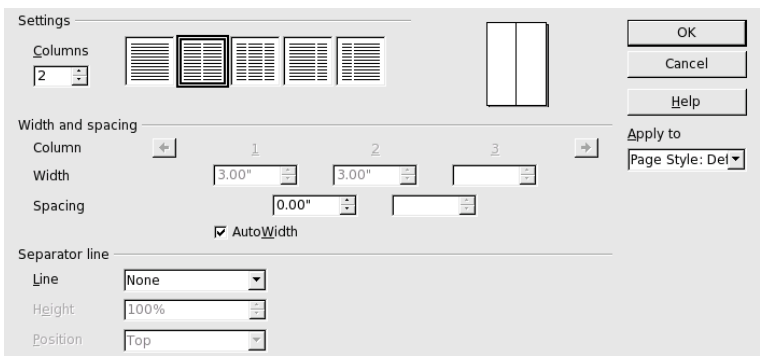


Figure 11-2. Text Columns Options Dialog

The options in the dialog explain themselves. Make your selections and click on the OK button to apply the column settings.

11.1.3.5. Table of Contents

In order to make your document look professional, you can create tables of contents, or TOC, and index parts of your document. *OpenOffice.org* lets you do this very easily.

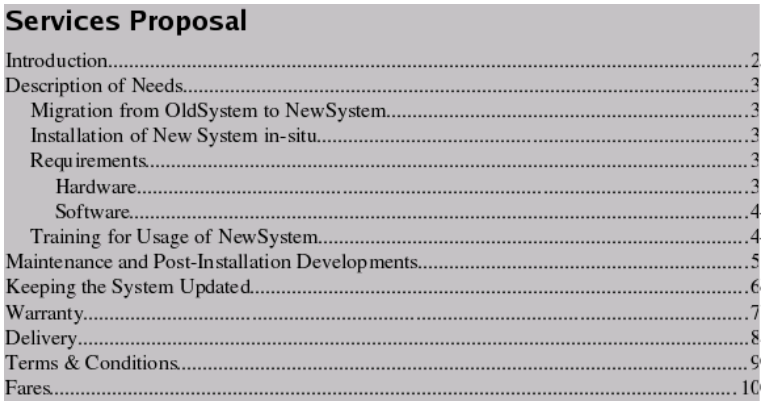


Figure 11-3. Table of Contents

The image in figure 11-3 shows how the TOC for an example document looks like.

Even if TOC items can be manually inserted and maintained, it is **highly** recommended that you use styles to make the TOC more consistent and easier to maintain.

Let's say you want to insert a TOC at the beginning of your document and you have followed the styles suggested in table 11-1. So, make the 1st page an empty one by going to the very top of your document and pressing the **Ctrl**-**Enter** keys.

Then, choosing Insert+Indexes and Tables→Indexes and Tables... from the menu will bring up the table/index options dialog. Make sure the Type field is set to Table of Contents and the Protected against manual changes check-box is checked. Fill the title and the rest of the options, and once you are satisfied with your settings, click on the OK button to insert the TOC.

If you continue to add content to your document (whether "structural" or "essential") you **must** update the table of contents for the additions and/or modifications to be taken into account. To do so, click on any part of the TOC to put the cursor "inside" of it, then right click on it and choose Update Index/Table from the menu that pops up.

11.1.3.6. Index

To index important terms in your document, proceed as follows:

1. Select the word you wish to index.
2. Access the Insert→Indexes and Tables→Entry... sub-menu.
3. In the Index field, choose Alphabetical Index.
4. When you have finished entering all the terms you wish to index, generate the index table by accessing the Insert→Indexes and Tables→Indexes and Tables... sub-menu.

Remember to choose the appropriate Title and to set the Type to Alphabetical Index and bear in mind that indexes go at the end of your document.

11.1.3.7. Page Headers and Footers

By default page headers and footers are common to **all** pages of a document. Use them to describe certain aspects about the document's content, for example: page number, total number of pages, chapter, section, document's title, etc.

Choosing Insert→Header→Default from the menu will add a page header to your document, and choosing Insert→Footer→Default will add a page footer to your document. Just type the header/footer text you want to be shown or use one or more of the Insert→Fields menu items to compose the header/footer.

11.1.4. Going Further

If you wish to learn more on the use of *OpenOffice.org Writer*, you should consult the tutorial available at OpenOffice Support (`http://www.openofficesupport.com/writertutorial.html`) Web site.

Also do not hesitate to refer to the *OpenOffice.org Writer* inline help accessible through the Help→Contents menu. You will find here answer to all your questions. Topics are accessible through a table of contents, there is an index available and even a contextual search tool.

OpenOffice.org Writer is able to export your documents in PDF format (File→Export as PDF ...). This allows you to publish your documents in the famous Adobe® Reader® format.

11.1.5. Conclusion

Word processing could be considered as one of the most performed actions with a personal computer. As you have read above, *OpenOffice.org Writer* is a tool which not only gives you everything you need for creating simple and complex documents, but also is compatible with existing Office file formats. Enjoy creating your documents with *OpenOffice.org Writer*!

11.2. Spreadsheets

This section will give you a brief introduction to *OpenOffice.org Calc*'s spreadsheet functions. Another very good option is *gnumeric*, the GNU project's spreadsheet application. However this section concentrates on *OpenOffice.org Calc*.

It takes for granted that you know why you intend to use a spreadsheet and will not delve deeply into application-specific (accounting, financial, simulation, etc.) considerations.

11.2.1. What Is a Spreadsheet?

Spreadsheets are the electronic replacements for an accountant's ledger book and calculator. This software uses columns and rows to allow math calculations to be performed on data previously entered. Nowadays, spreadsheets do a lot more as they are often used as (very) simple databases or as a charts and graphs application, even though that was not their "design" intention.

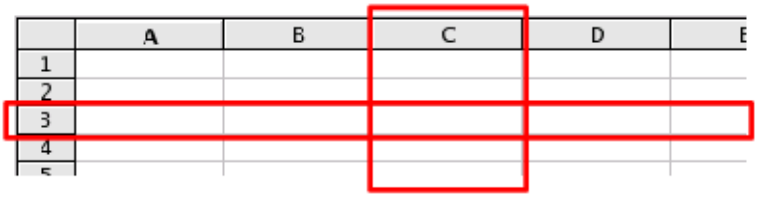


Figure 11-4. Rows, Columns and Cells

Rows are named `1`, `2`, etc. Columns are named `A`, ..., `Z`, `AA`, `AB`, etc. The intersection of a row and a column is a cell, and its name is composed of the column and row attributes, for example: `C3` (shown in figure 11-4).

Spreadsheets, as trivial as it may seem today, played a very important role in making office and home computers a reality. It was the "killer app" that justified buying a computer for many corporations.

11.2.2. OpenOffice.org Calc

OpenOffice.org (based on *StarOffice*) has been a popular office suite on *GNU/Linux* for a few years now. With the creation of *OpenOffice.org*, the authors re-engineered the foundation of *StarOffice* using open-components and introduced an XML-based file format. The potential of this office suite is now irrefutable. *OpenOffice.org Calc* is the part of that suite which provides the spreadsheet functions.

11.2.2.1. Opening OpenOffice.org Calc

To launch *OpenOffice.org Calc*, select Office→Spreadsheets→OpenOffice.org Calc from the main menu.

You can also open it from any other *OpenOffice.org* application screen, selecting File→New→Spreadsheet, which will open an *OpenOffice.org Calc* window with a blank spreadsheet on it.

11.2.2.2. OpenOffice.org Calc Interface

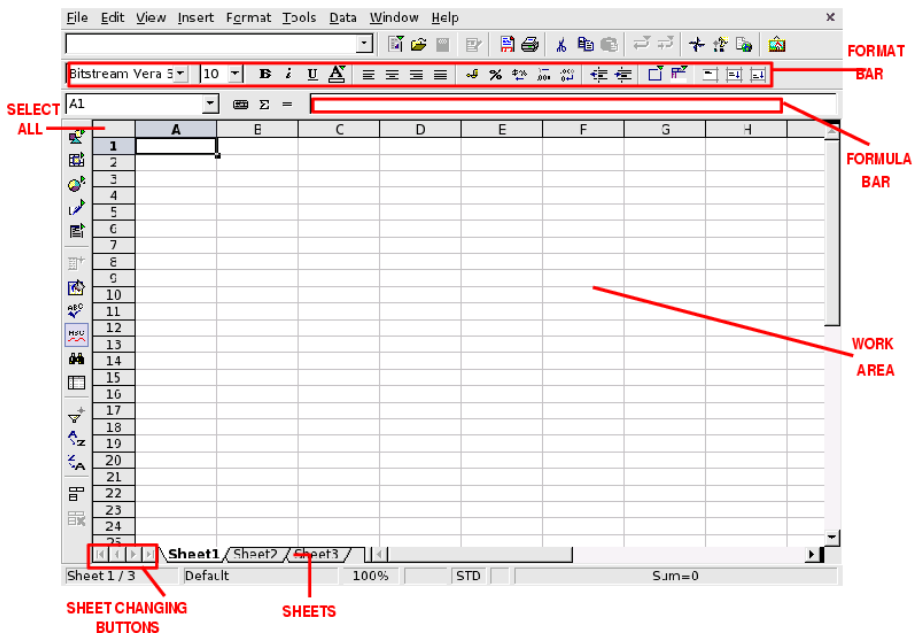


Figure 11-5. OpenOffice.org Calc's Main Window

Format Bar

This is the standard format bar for all *OpenOffice.org* applications used to change fonts, colors, alignment, etc. of the application's data.

Formula Bar

Use it to introduce, edit or eliminate formulas inside cells.

Work Area

Where you enter the data in the spreadsheet: numbers, dates, formulas, images, etc.

Select All

Clicking on this little area at the top left corner of the work area will select **all** cells at once. It is useful when you need to make changes which are "global" to the spreadsheet. For example, changing all font sizes in the cells to 10 points (pts).

Sheet Changing Buttons

A spreadsheet document can have more than one sheet. Use these buttons to easily navigate through each of the spreadsheet's sheets. From left to right they are: Go to the first sheet, Go to the previous sheet, Go to the next sheet and Go to the last sheet.

Sheets

You can also use the sheets' tabs to change between sheets.

11.2.3. Using the Spreadsheet

OpenOffice.org Calc is an enterprise-ready spreadsheet application and includes many features way beyond the scope of this document. Consult *Going Further*, page **??**, for more information on how making full use of *OpenOffice.org Calc*.

The following sections will explore basic functions like entering data and formulas in the spreadsheet and adding graphics to represent that data. An example of an imaginary company's monthly expenses and sales figures will be used.

11.2.3.1. Entering Data

To enter data into a cell (either text or numbers) use the arrow keys to navigate to that cell or click in the cell and type the data in it, pressing the **Enter** key when you finish. You can also use the **Tab** key or the **Shift-Tab** keys to move to the cell on the right or on the left, respectively.

The auto-completion feature simplifies data entry. Auto-completion "guesses" the next cell's data using the current cell's value as a base. It works not only for numeric data, but also for the days of the week, the months of the year, and others. Generally speaking, any kind of data that can be associated to a series of consecutive integral numbers can be entered using auto-completion.

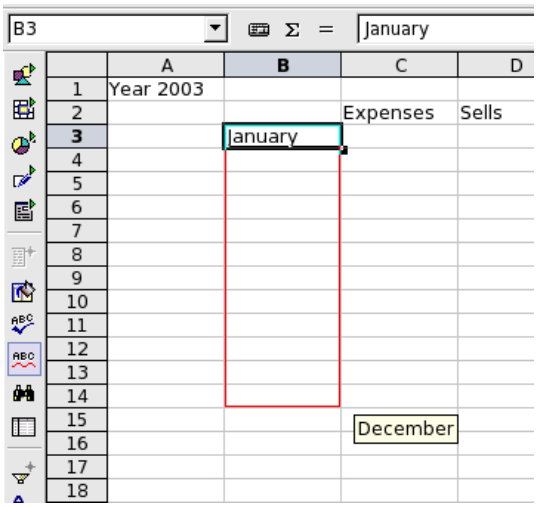


Figure 11-6. Simplifying Data Entry Using Auto-Completion

To use auto-completion put your mouse over the cell "handle" (the little black square located at the bottom right of the cell border), click on it and drag the cell. The cell values will be shown in a tool-tip (see figure 11-6). Once the desired final value is shown, release the mouse button and the cells will be completed.

Cell data can also be sorted according to different criteria (by column or row, depending on how you arrange your data). To do so, first select the cells you want to sort and then open the sort options dialog choosing Data→Sort from the menu.

Make sure you select also columns and rows that act as "headers" for the data (in our example, the column B which contains the months) in order for those to "follow" the sorting of the data.

In the Sort Criteria tab select the columns/rows to sort data by and the sort order Ascending or Descending. The Options tab contains custom sort order settings, whether to perform a case sensitive sort or not and the direction of the sorting (top to bottom sorts data disposed in columns and left to right sorts data disposed in rows), among others. Click on the OK button once you are satisfied with the options and the selected cells will be sorted.

11.2.3.2. Adding Formulas

Formulas can be used to "automate" the spreadsheet allowing you, for example, to run complex simulations. Within cells, formulas are defined by preceding all cell data with the = sign. Anything else is treated as "static" data.

Operations are expressed using conventional algebraic notation. For example `=3*A25+4*(A20+C34/B34)` divides the value in cell `C34` by the one in cell `B34`, adds the value in `A20` to the result, multiplies that by `4` and adds that with `3` times the value of cell `A25`. Thus, rather complex expression can be made using simpler ones as a base.

OpenOffice.org Calc gives you a lot of pre-defined functions that you can use in your formulas. There are date&time, mathematical, statistical, financial, logical and many other kinds of functions available. Explore them by invoking the function *AutoPilot* by choosing Insert→Function from the menu or pressing the **Ctrl-F2** keys.

Under *KDE* the **Ctrl-F2** key combination switches to desktop number two, so you might want to redefine that in order to be able to invoke *OpenOffice.org Calc*'s functions wizard using a keyboard shortcut.

figure 11-7 shows the `AVERAGE` function applied to the selected range of cells to calculate their average value. Note the use of : to specify a range of contiguous cells in the function.

	A	B	C	D	E
1	Year 2003				
2			Expenses	Sells	
3		January	6395.34	5534.95	
4		February	2013.15	2219.36	
5		March	6010.98	7333.13	
6		April	6236.23	8336.89	
7		May	7749.85	5839.97	
8		June	3170.95	7571.81	
9		July	9766.84	4334.46	
10		August	8813.35	3694.75	
11		September	6127.82	238.66	
12		October	2414.45	6064.12	
13		November	375.71	2823.66	
14		December	4828.43	12 R x 1 C	
15			=AVERAGE(C3:C14)		
16					
17					

Figure 11-7. Using a Function in a Formula

11.2.3.3. Charts: Explaining Data in a Simpler Way

When a spreadsheet contains too much information it becomes difficult to understand how data relates to other data: too many numbers and too little meaning. The best way to represent this kind of data is through a chart.

Like all data-analysis functions, you must select the region that you intend to show in the chart. So, select a range of cells and then chose Insert→Chart... from the menu to bring up the chart assistant.

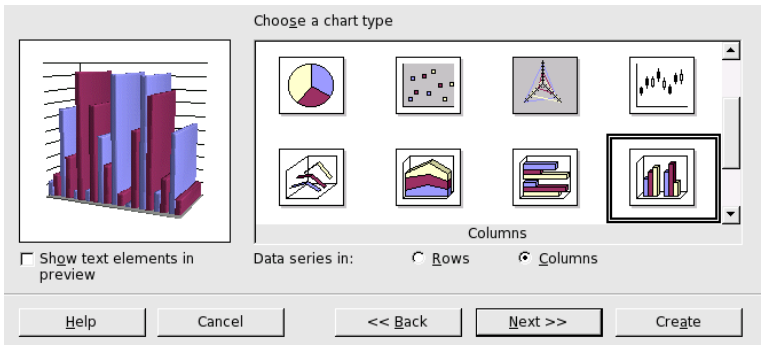


Figure 11-8. Choosing the Chart Type

After making your selections in the first page of the chart assistant and clicking on its Next >> button, you will see the chart-type selection page (in figure 11-8, a 3D side-by-side bar chart is chosen). Make your choices and click on the Next >> button to obtain variants on the type you have selected. Make your choices and click on the Next >> button to be be able to choose the final options for the chart, like chart title, axis titles, etc. Make your choices, and click on Create to create and insert the chart in the spreadsheet (see figure 11-9).

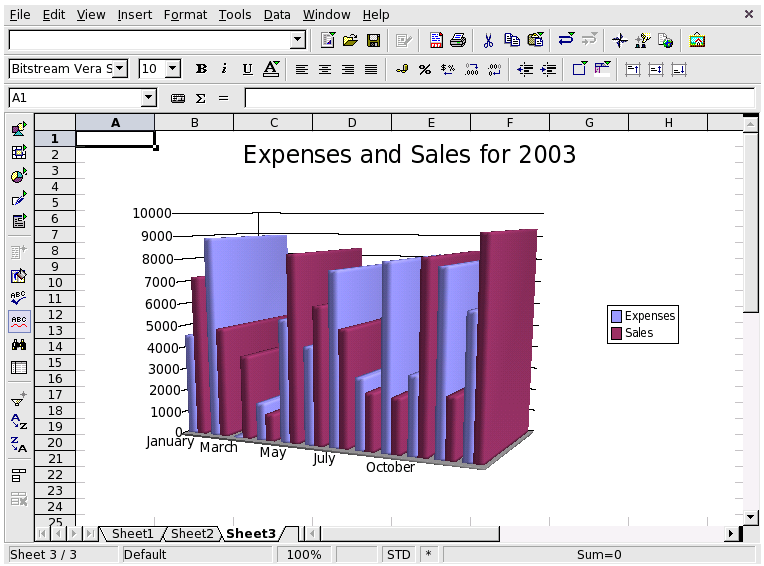


Figure 11-9. A 3D Chart Inside the Spreadsheet

Charts are "live" in the spreadsheet which means that when you change data in a cell belonging to a chart, the chart will be updated automatically.

Right-clicking on an inserted chart brings up a menu with options to change many chart parameters. Things like the chart's title can be changed by double clicking on them.

11.2.4. Going Further

If you wish to learn more on the use of *OpenOffice.org Calc*, you should consult the tutorial available at the OpenOffice Support (`http://www.openofficesupport.com/calctutorial.html`) Web site.

Also, do not hesitate to refer to the *OpenOffice.org Calc* inline help accessible through the Help→Contents menu. There you will find answers to all your questions. Topics are accessible through a table of contents, there is an index available and even a contextual search tool.

11.2.5. Conclusion

Spreadsheets simplify a lot accounting and other numeric-data-related tasks, and are used all over the world, from the corner-store manager who wants to manage schedules, to the biggest accounting firm which uses it to write extensive and consistent data reports.

OpenOffice.org Calc offers extensive features for advanced users. You can use it as a simple database, or even program complete interfaces. You can also convert formats, define templates, etc. *OpenOffice.org Calc* is a very powerful application and will surely be around for quite a while.

11.3. Presentations

This section will give you a brief introduction to *OpenOffice.org Impress'* presentation functions. Although freely available, it is a strong rival to commercial and mostly expensive presentation software. It allows you to build stunning presentations for any purpose, and its features make it an excellent choice for any number of working fields.

11.3.1. What Is Presentation Software For?

Whether you are a salesman, an engineer, an accountant or a student you need to "communicate" about your product, analysis, or work with others in a simple and succinct way.

Instead of long text with little or no graphics, you want to use images, graphs, little tables, small amounts of text and maybe even some animations to convey your idea and be able to project it on a big white screen or wall. Enter presentation software.

11.3.2. OpenOffice.org Impress

OpenOffice.org Impress is the part of the *OpenOffice.org* suite that provides the presentation software functions. Like all *OpenOffice.org*'s components it supports popular office formats.

11.3.2.1. Opening OpenOffice.org Impress

To launch *OpenOffice.org Impress* select Office→Presentation→OpenOffice.org Impress from the main menu.

You can also open it from any other *OpenOffice.org* application, by selecting File→New→Presentation, which will open an *Impress* window with the AutoPilot Presentation at the front (unless you have previously run it and disabled this wizard).

When you start *OpenOffice.org Impress*, the *AutoPilot Presentation* will open up. It offers three choices which speak for themselves: Empty presentation, From template and Open existing presentation. For the purpose of this introduction, select Empty presentation and click on the Next button on the screens numbered 2 and 3 and use the default values. Then, click on the Create button.

The slide type window will pop-up (figure 11-10) asking you to choose a slide content template. Of course, selecting a particular template does not tie all your slides to that template, just makes it the default one. Select the one you want to use for (most of) your slides, in our example we chose "Title, Text".

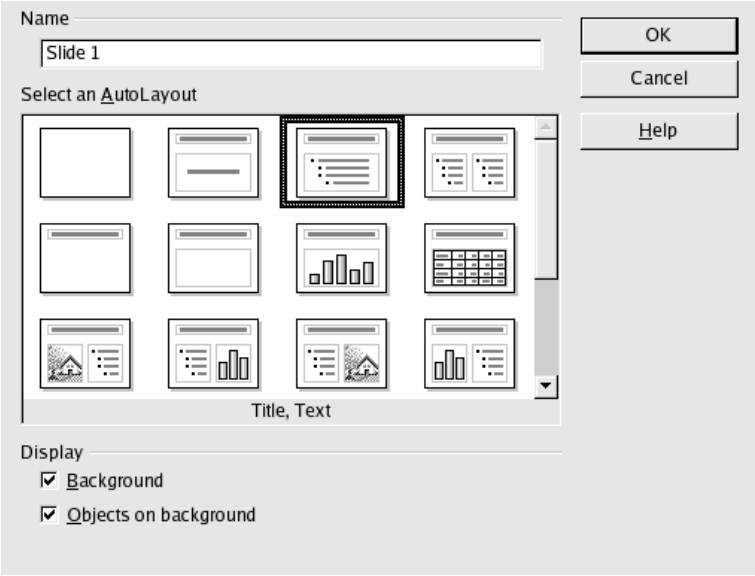


Figure 11-10. Selecting a Slide Template

Try not to "overload" your slides with lots of content because even if it might look nice on screen, it may only confuse your audience when running your presentation. Use the simplest template possible.

11.3.2.2. OpenOffice.org Impress Interface

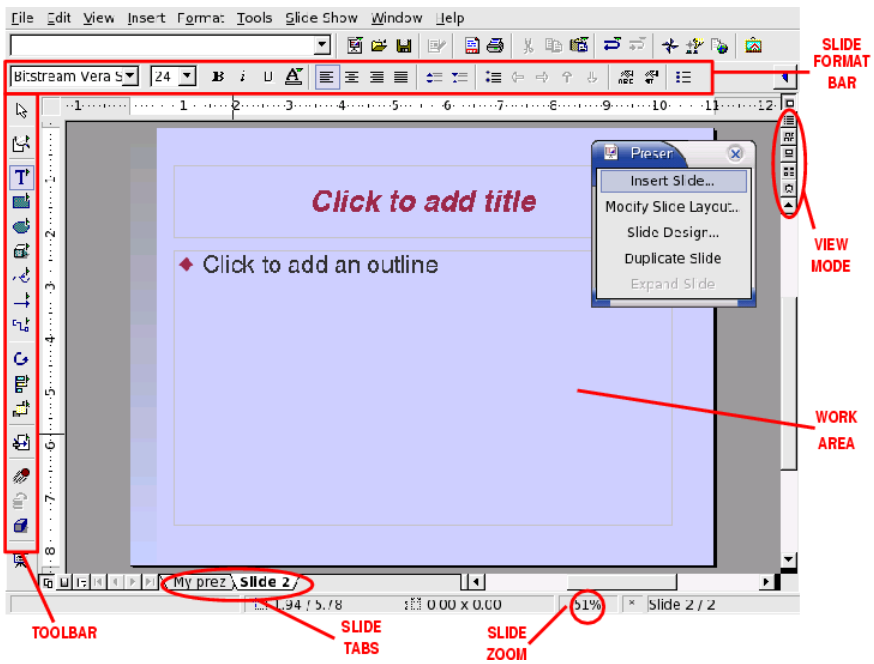


Figure 11-11. OpenOffice.org Impress' Main Window

Slide Format Bar

There are options for changing the slide shading, background color, line's thickness, etc.

View Mode

These buttons let you change between:

- Drawing View. The default. Used to compose slides.

- Outline View. Shows a numbered list of all slides at the left with the text they contain (letting you edit it, for example) and a Preview window on the right so you can have a quick-look at the slide.
- Slide View. Shows all slides at once letting you navigate through them and take a quick-look at your whole presentation.
- Notes View. You can add notes to your slides in order to aid you, your colleagues, or even your audience (if you print them) during the presentation.
- Handout View. This can be used to print several slides in one page in order to distribute printouts of your presentation to your audience, which is considered almost mandatory for professional presentations.
- Start Slide Show. Pressing this button will "run" your presentation. The same button is located at the end of the toolbar (explained below).

Work Area

Where you compose the slides that build up your presentation.

Slide Zoom

The current zoom level at which the slide is being displayed. By default, it is set to a level such that the whole slide fits in *OpenOffice.org Impress'* window. If you resize *OpenOffice.org Impress'* window the zoom level will change in order to make the slide fit into it.

Slide Tabs

Every slide which makes up your presentation possesses a tab which allows you to quickly navigate to a particular slide. At the left of the tabs are the slide navigation buttons which behave exactly like *OpenOffice.org Calc'*s sheet navigation buttons. Please refer to *Spreadsheets*, page **??** for more information on this.

Toolbar

The main tools you use to create your slides. The text, shapes, curves, lines and arrows input tools; the object rotate alignment and arrangement tools; effects tools and the view presentation button at the bottom.

Some of these buttons contain a little green triangle at their upper-right corner. Keeping these buttons pressed will open a menu of options for that tool. For example: filled or hollow rectangles, sharp or round edges, etc.

11.3.3. Building Presentations

11.3.3.1. Slide's Title

In this case, the template is fairly intuitive. Click on the box labelled Click to add title. Type your title and then click on an "empty" spot of the slide to exit edit mode. That's it.

11.3.3.2. Inserting Text

Click on the lower box to insert your text (where `Click to add an outline` is written). This will automatically format it as a bullet list. You can change these settings through the Format menu.

11.3.3.3. Adding Slides to your Presentation

Choosing Insert→Slide... from the menu will show you the familiar slide type window (figure 11-10). Proceed as explained before.

Choose Insert→Duplicate Slide instead if you want to base your new slide's content on the current one's.

You can also right-click on the current slide and select Slide→Insert Slide... from the menu that pops up, or use the toolbar's insert button (it shows a pie chart by default) to add a slide.

11.3.3.4. Simple Graphics

It is often useful to build simple diagrams to explain or show a concept. After all a picture does speak a thousand words. table 11-2 summarizes available tools to build simple graphics.

Button	Function
	Draws rectangles and squares, either filled or unfilled, with sharp or rounded edges. Right-click on the drawn object and select Edit Style from the menu that pops up to change the color, the shadowing, the transparency, etc.
	Draws ellipses and circles, either filled or unfilled; elliptical and circular pies, segments and arcs. Right-click on the drawn object and select Edit Style from the menu that pops up to change the color, the shadowing, the transparency, etc.
	Allows you to draw 3D objects such as cubes, spheres, cylinders, cones, pyramids, torus, shells, or half-spheres. Right-click on the drawn object, select 3D Effects from the menu that pops up to change the "material", illumination, etc.
	Draws curves, polygons, and free-form lines, either filled or unfilled. Right-click on the drawn object and select Edit Style from the menu that pops up to change attributes.
	Draws lines and arrows. Lines can have arrows at either end or at both. Right-click on the drawn object and select Edit Style from the menu that pops up to change attributes.
	Draws "connectors". Connectors are lines, either straight or curved, with or without arrows at either end that link objects with each other. Right-click on the drawn object and select Edit Style from the menu that pops up to change attributes.

Table 11-2. Graphics Tools

Any style changes made using the Edit Style pop-up menu become the default style for the object to be drawn next.

11.3.3.5. Simple Charts

Choose Insert→Chart from the menu to insert a chart diagram into the current slide. A "default" bar chart will be inserted, drag the border handles to adjust its size.

Use the corner handles to preserve the horizontal/vertical proportions while resizing the chart. If you use the "middle" handles, the chart could be somewhat distorted.

Double-click on the drawn chart and then right-click on it and select Chart Data. A window (figure 11-12) will pop up so you can enter the data according to the chart you want to build.

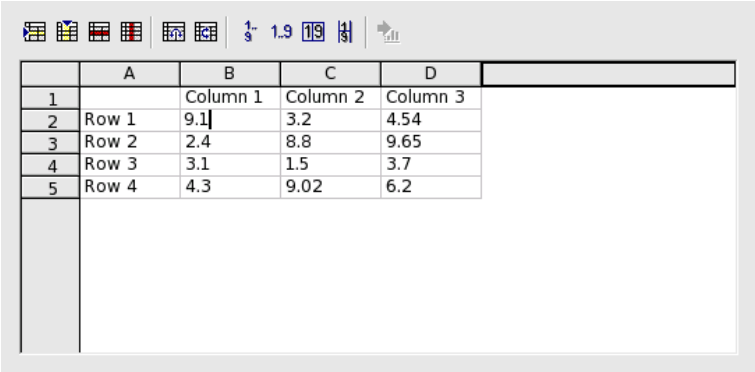


Figure 11-12. Entering Chart Data

Once you have entered the chart's data, close the data entry window and click on the Yes button to update the chart in the slide, then click on an empty spot in the slide.

Repeat the double-click and right-click sequence in order to change the chart's title, legends, axis, type (2D or 3D, bar, pie, points, lines, etc.) selecting the appropriate entries from the pop-up menu.

11.3.3.6. Slide Background

Use the Format→Page menu and click on the Background tab to define colors, gradients, patterns, or bitmaped backgrounds for the slide. Each background type has options of its own, feel free to explore them.

Using bitmaps for backgrounds increases the file's size considerably. This could lead to a performance hit, specially on older systems.

Once you have selected a background and clicked on OK, a dialog will pop up asking you whether you want to make that background the default one for new slides. Make your choice and the slide(s) background(s) will be changed.

11.3.3.7. Transitions, Animations and Effects

The Slide Show menu has slide transitions, animations and effects options/wizards which let you add "dynamism" to your presentations. Feel free to explore them.

Try not to abuse transitions, animations and effects because they could be distracting to your audience, turning their attention to the effects themselves instead of the presentation's content.

11.3.3.8. Running your Presentation

You can run your presentation choosing Slide Show→Slide Show, or pressing the **F9** key. You can also click on the corresponding button in the tool bar. The presentation will take up the entire screen. To stop the presentation, press the **Esc** key.

11.3.4. Going Further

If you wish to learn more on the use of *OpenOffice.org Impress*, you should consult the tutorial available at the OpenOffice Support (`http://www.openofficesupport.com/impresstutorial.html`) Web site.

Also, do not hesitate to refer to the *OpenOffice.org Impress* inline help accessible through the Help→Contents menu. You will find there answers to all your questions. Topics are accessible through a table of contents, there is an index available and even a contextual search tool.

11.3.5. Conclusion

Presentations are an important means to convey your ideas, whether it be to your clients, your teachers, your students, or your colleagues. By trying to respect the principle that states that "Simple is elegant" — that is, by trying not to overload your presentations with too many graphics, large tables and complex animations and transitions effects — you will keep your audience focused on what you are trying to communicate.

OpenOffice.org Impress has the tools to make your presentations great, enjoy making them!

11.4. File Managers: Konqueror and Nautilus

File managers have grown to become multi-tasking applications, which do not only take care of basic tasks such as copying and moving files around. In fact, with the file managers we will describe, you will be able to browse a LAN, play audio files such as Ogg Vorbiss, surf on the web, and more.

In this chapter, we take for granted that you have used a file manager before, and that it is not necessary to describe elementary features which are self-explanatory. We decided to talk about two file managers: *Konqueror* which is part of the *KDE* family, and *Nautilus*, *GNOME*'s file manager. Both of them have basically the same capabilities, hence we will alternate between the two of them in our examples.

11.4.1. Main Window

You access your file manager by clicking on the Home icon located on the top left of your desktop. Here are the two main windows: *Nautilus* on the left and *Konqueror* on the right.

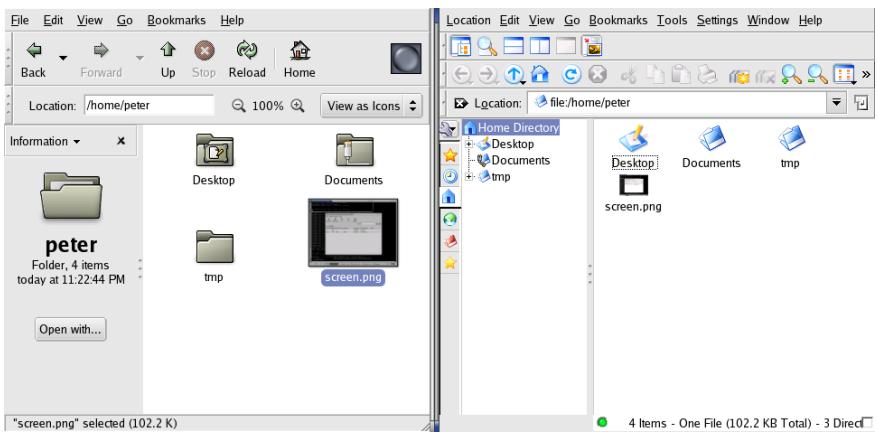


Figure 11-13. Konqueror and Nautilus

The right side of the window displays the current folder's contents (by default, what your home directory contains). On the left side of the window is the sidebar (refer to *Sidebars*, page **??**). Each file or sub-directory is represented by an icon, although you can change that view through *Nautilus*' View as Icons label, or by changing the View Mode in *Konqueror* through the View menu.

The first time you launch *Konqueror* you will not see its sidebar. To show/hide it, select Window→Show Navigation Panel. You can also show/hidde it pressing the **F9** key.

11.4.2. Sidebars

Nautilus' side pane (which used to be called a "sidebar") is now retractable: our screen shot shows the Information option. Clicking on the arrow next to the label will display a context menu which contains these features:

- Emblems: allows you to add an icon to your folders.
- History: gives you a list of the last folders you visited.
- Notes: allows you to insert reminders or notes of any kind.
- Tree: allows you to browse through the file system in order to choose a directory to display (i.e.: `/home/peter/` which could be `peter`'s home directory).

Here are short definitions of the icons in *Konqueror*'s sidebar (the Extra Toolbar which you can access through Settings+Toolbars):

Icon	Meaning
	**Show Navigation Panel**. This icon lets you change the sidebar view.
	**Bookmarks**. Where you can store your preferred web and FTP sites.
	**History**. A list of the folders and network (web, FTP, etc.) sites you have visited during the current session.
	**Home Directory**. Represents your personal folder, in which you organize your work.
	**Network**. Gives you access to FTP archives as well as Mandrake- and *KDE*-specific web sites (of course, you can add or delete some sites).
	**Root Directory**. Lets you access your whole tree structure. Usually, you do not have enough rights to manipulate files outside your home directory. Only the system administrator (`root`) possesses the rights to do so.
	**Services**. Gives you access to the Audio CD Browser, Devices, the LAN Browser and the Print System Browser.

Table 11-3. Konqueror Sidebar Icons

11.4.3. Copying, Moving, Linking and Deleting Files

Copying Files. Let's imagine you want to copy `test.png` to the `Documents` folder. With *Konqueror*, you first need to access the Window→Split View Left/Right (or press the **Ctrl-Shift-L** keys) menu or the Window→Split View Top/Bottom (or press the **Ctrl-Shift-T** keys) menu. Your window will be duplicated and you will be able to drag'n'drop the `test.png` image file to the `Documents` folder. Note that you must hold down the **Ctrl** key to copy a file. With *Nautilus*, you would need to open another *Nautilus* window to do this *à la Konqueror*. The easiest way is still the drag'n'drop technique.

There are many ways to manipulate files within your file manager. Drag'n'drop, keyboard shortcut combinations, opening two file managers, etc. Choose the one you prefer.

Moving Files. The same principle applies to moving files around. However, use the **Ctrl-X** shortcut instead of **Ctrl-C** to move your files. The drag'n'drop technique, without holding the **Ctrl** key down, is another way of achieving this.

Linking Files. Linking files allows you to access them without actually copying them all around your home directory. Let's imagine one of your files is deeply buried into the `/home/queen/Music/Artists/FavoriteArtist/` directory and you want to access it quickly. Linking files would be a good idea. In fact, linking a file is like creating a shortcut to it. Here is how to proceed. In *Nautilus*, select your file, access the

Edit→Make Link menu (or press **Ctrl-M** keys). This will seemingly duplicate the file in your folder, but notice the `link to` text. Then, move the link to the desired folder. With *Konqueror* the operation is quite tricky:

1. Drag the item you want to link to the folder where the link should appear, and hold the mouse button.
2. Hold the **Alt** key.
3. Release the mouse button and then the **Alt** key.
4. In the pop-up menu that appears, click on Link Here.

Deleting Files. Again, there are many ways to delete files. Let's resume by saying there are "safe" and "unsafe" ways. The safe way would be to move it to the Trash, while the unsafe one would be to delete it for good directly: you will be unable to recover files if you proceed that way. With *Nautilus*, it is impossible to delete for good directly. Deleting any file will automatically send it to the Trash. To delete a file, select it and press the **Del** key. To restore it, double-click on the Trash icon on your desktop and drag the file(s) back into your browser. To delete trashed files, simply Empty Trash Bin with a right click on it.

With *Konqueror*, you can delete forever right away. Simply select the file and choose Edit→Delete from the menu.

11.4.4. Browsing Web Pages

If you browse frequently through directories containing HTML files, for example your distribution's documentation, these directories generally contain a file called `index.html`.

Let's take the `/usr/share/doc/mandrake/en/` file as an example. With *Konqueror*, if you do not activate the Use index.html option, you will only get a list of files and directories contained in that folder. If you activate that option, *Konqueror* displays the contents of the `index.html` file, and you can easily browse through the documentation, as if you were on the web. To activate it, access the View→Use index.html.

Nautilus handles HTML and text files automatically.

Browsing the web with either *Konqueror* or *Nautilus* is as easy as using a "real" web browser (please see "*Surfing with Mozilla*", page **??**). Just type in the URL of the site you want to visit in the location bar and surf.

11.4.5. File Sharing

This feature allows you to share your documents with other people on the local network and access documents other people share. It also allows system administrators to provide people with common repositories where everyone can add, modify and consult files.

11.4.5.1. Sharing Files

If file sharing is activated through the *Mandrake Control Center* (please see *Partition Sharing: Allow Users to Share Directories*, page **??**) you can right-click on folders in your *Konqueror* window and choose Share. It allows you to share one or as many folders as you like through NFS [1] or *Samba* [2].

To share files with *Nautilus*, right-click on the item to share, and choose Properties→Share.

1. NFS (Network File System) allows you to share, export/import files from/to your computer in a networked environment. Although the NFS setup is easier than the *Samba* one, it can **only** be used within a *UNIX*-based system (like *GNU/Linux*). Moreover, NFS is an insecure protocol and should be used exclusively in a secure local environment.
2. SMB is a protocol by which *PC*s share resources such as files and printers. *Windows*, *GNU/Linux* (through *Samba*) and *OS/2* operating systems, among others, support the SMB protocol. It can be considered an alternative to *Netware* and *NFS*.

11.4.5.2. Browsing Shared Files with Konqueror

You can browse all available shared files on the network by opening the LAN Browser section in the Services sidebar icon. All machines proposing shared files will appear as folders under this section. Inside the host name folder appears one folder per protocol supported by this machine. Those can be:

FISH

This protocol relies on `ssh` communications. So every local machine having an `ssh` server running on it will allow you to connect to it (providing proper authentication) and browse all the folders you have access to.

NFS

Under this folder will appear shares provided by *UNIX* machines.

SMB

Under this folder will be displayed shares provided by *Windows* or *Samba* enabled machines.

11.4.5.3. Browsing Shared Files with Nautilus

You can browse the contents of *Samba* shared folders in the local network by typing `smb:/` in the location bar. If you wish to access shares from other protocols you will have to make them available system wide through the *Mandrake Control Center* (*Importing Remote NFS Directories*, page **??**).

11.5. Printing and Faxing from Applications

Once your printer is properly installed (refer to *PrinterDrake: Configuring Printers*, page **??** for instructions on printer installation) it is time to put it to use. In the past printing has been a "hard" topic under *GNU/Linux* but as you will soon discover, that has changed **a lot**. Both *KDE* and *GNOME* applications support a simple printing method based on a program called *kprinter*. *kprinter* can even be used to build PDF files and to send faxes.

11.5.1. Accessing KPrinter

From *KDE* applications, clicking on the print button or selecting File→Print will invoke *kprinter* directly. Make sure you select the page range, the printing quality, the number of copies, etc., and click on the Print button.

GNOME applications have to be set up to print with *kprinter*. In fact, every *X* application which supports the definition of its printing command (for example, *Mozilla*) can use *kprinter*. All you have to do is invoke the print options (by typing **Ctrl-P**, or by selecting File+Print) then look for an option named "Print command", "Printer" or similar, and fill it with `kprinter --stdin`. This way, *kprinter* will be invoked every time you ask that application to print. Then click on the Print button and you will see *kprinter*'s main window (no actual document will be printed at this point).

11.5.2. KPrinter's Interface

kprinter allows you to set many options[3] for printing your documents, like the output device (generally a physical, local or remote printer), the number of copies, the paper size, the printer resolution, etc.

3. The actual printing options you will be able to set will depend on the output device you select, not all devices have the same capabilities.

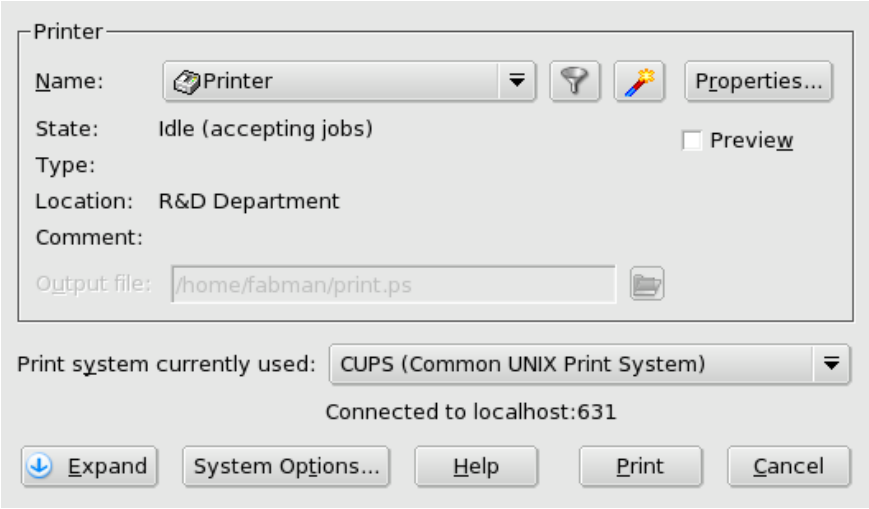


Figure 11-14. KPrinter Window

As you can see in figure 11-14, the interface is quite clean and simple[4]: in the Printer section you can choose the printer from a convenient pull-down list. Depending on which printing system you use, you can also add new printers (clicking on the magic wand icon will launch a wizard to help you to do this) and you can further configure the printer settings by clicking on the Properties... button. In the lower part of *kprinter*'s window is a pull-down list which allows you to select the printing system to use. Many printing systems are available under *GNU/Linux* but *CUPS* is the most convenient one. Hence this is the one we will refer to. Please make sure that the list value is set to CUPS (Common Unix Print System).

At the bottom of the window are buttons which allow you to Expand *kprinter*'s options. The System Options... button gives you access to global printing configuration. Then, the buttons to get Help, Print your document or Cancel that printing operation.

11.5.2.1. The Printer Section

In this section, you set the device which will receive your print job and its properties, such as page size, resolution, etc. All the available printers are listed in the Name pull-down list. Just select the one you want to print to.

Usually, your local printer, the "Print to file" printers (both PDF and Postscript) and the "Fax" printer are listed. However, if you are in a network, all printers available on the network will be listed too, so network printing becomes very simple.

Click on the Properties... button to change the device's options. Please note that the options available will depend on the chosen device.

Most options available are self-explanatory. One worth mentioning is Pages per sheet (set to 2 in the example). This lets you put up to 4 pages onto a single sheet of paper (or 8 if you can print on both sides). This is a nice feature to save paper when printing book drafts or other lengthy material which changes often.

4. For applications defined to use the `kprinter --stdin` command, the interface will open showing the expanded view by default. Click on the Collapse button to change to the simplified interface.

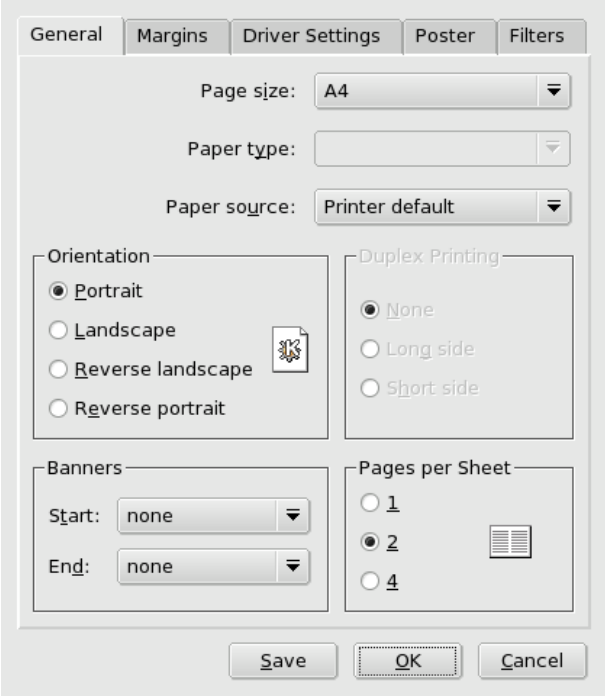


Figure 11-15. Printer Properties Window

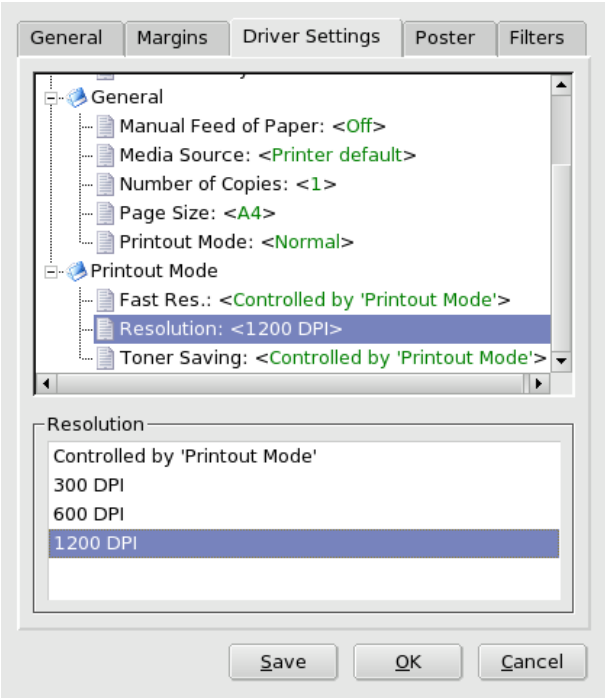


Figure 11-16. Changing Printer Resolution

If you want to change printer-specific options such as the resolution of the printing device, you have to click on the Driver Settings tab. Here you will find the Resolution option under one of the available categories. When you click on it, all available resolutions will be displayed in the bottom part of the window. Select the one you want from the list.

Other settings include printing modes which use much less toner or ink (search for something like “Economy Mode”, “Toner Density” or “Toner Saving”). However, the output is much paler. If this is not available, choosing a lower resolution often has similar effects.

You can use the Save button to save the current settings for future printing jobs. Once you are satisfied with your settings, click on the OK button.

11.5.2.2. Expanded Printing Dialog

After clicking on the Expand button, *kprinter*'s dialog changes to the one shown in figure 11-17.

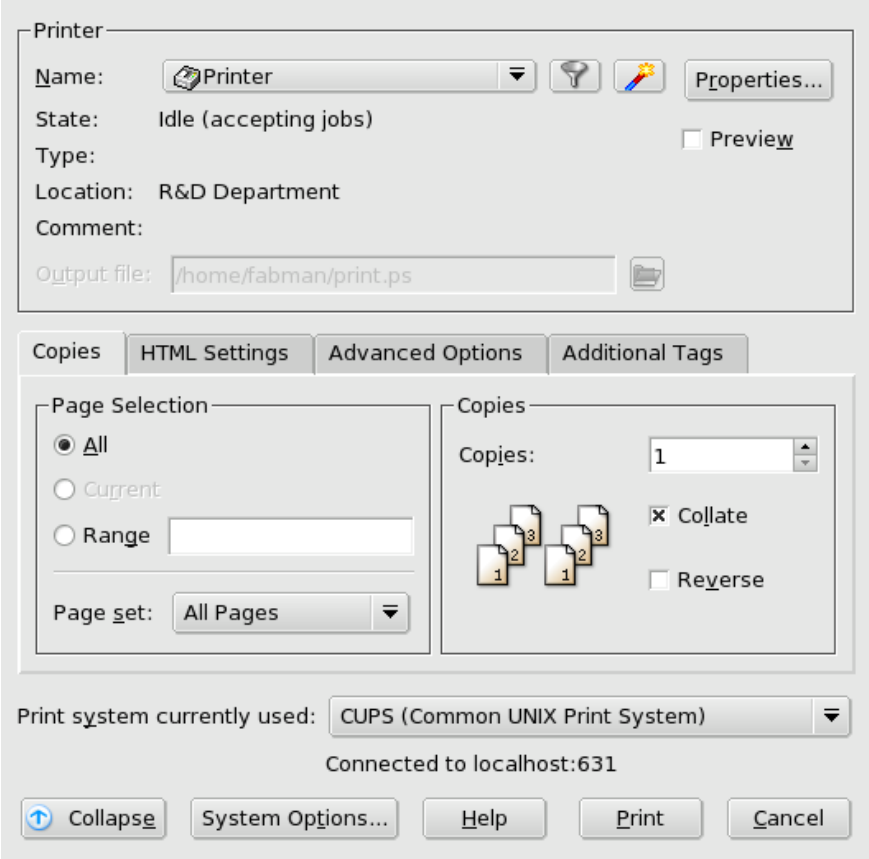


Figure 11-17. More Printing Settings

In the Copies tab you have the page range settings and the number and order of the copies. Page selection can be set to:

All

Prints all of the document's pages.

Current

Prints only the document's current page. This option might not be available at all times.

Range

Allows you to specify page ranges to print. You can specify pages or groups of pages separated by commas (`1,2,5` prints pages 1, 2 and 5; `1-3, 7-21` prints pages 1 to 3 and 7 to 21, etc.).

The Page set pull-down list lets you specify pre-defined sets of pages to print (All pages, Odd pages or Even pages). This allows you to print double-sided documents on a printer without a duplex unit: print the odd pages, turn the stack of printed pages over and put them back into the input tray, then print the even pages.

Under the Copies section, use the little arrows to increase or decrease the number of copies or just type the number of copies you want to print in the Copies field.

When you are printing multiple copies, you can check the Collate check box to print the whole document before starting to print the second copy, instead of getting all copies of page number 1, then all copies of page number 2, and so on.

The Reverse check box makes the printing start at the last page and end at the first one (the document is printed "backwards"). This option is useful if your printer leaves the paper sheets face-up in the output tray.

The HTML Settings tab lets you define options concerning HTML pages printing like: a "Printer friendly mode" which does not print the background and prints all text black to save toner or ink, and whether or not to print images and a header.

In the Advanced options tab you are able to set some options concerning printing time, priority of the print job and so on.

Click on the Collapse button to return to the "minimal" display mode of *kprinter*.

11.5.3. Building PDF Files

Creating a PDF file from your document is very easy with *kprinter*. Simply select the Print To File (PDF) special printer, enter the file name in the Output file field as shown in figure 11-18 and click on Print. A PDF file will be written (`print.pdf` in your home directory in our example).

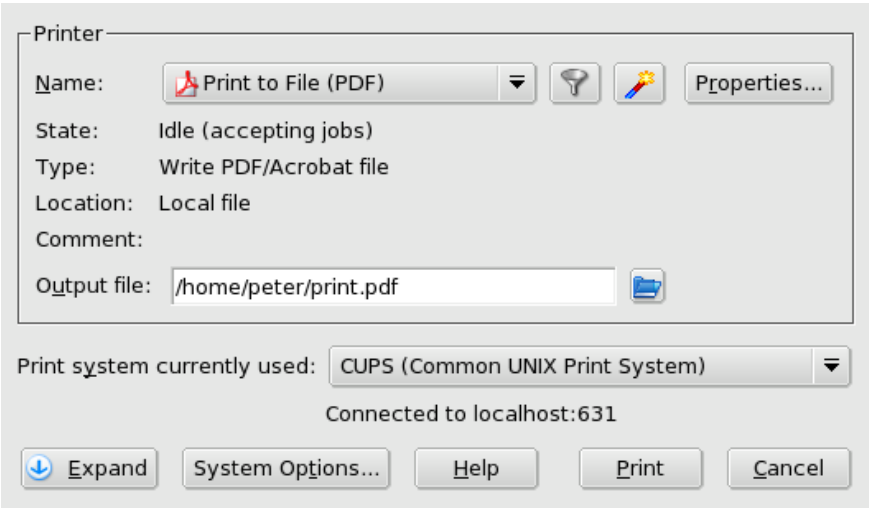


Figure 11-18. Generating a PDF File

11.5.4. Sending Faxes

The special Send To Fax printer allows you to send faxes like you do with *Windows* applications, by "printing to the fax". When you click on the Print button, a dialog like the one shown in figure 11-19 appears.

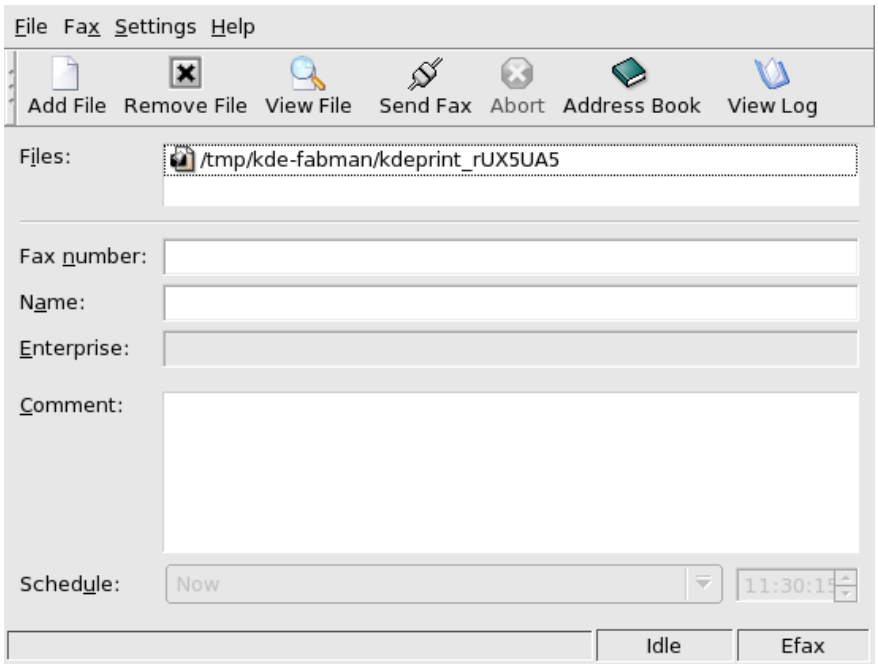


Figure 11-19. Faxing Main Window

First, you need to make sure that your fax modem is properly configured. To configure your fax modem, select Settings→Configure KdeprintFax... from the menu. Fill the information under the Personal section with your name, company and fax number. Under the Fax section make sure that the Fax/Modem device pull-down list is set to Standard Modem Port as shown in figure 11-20.

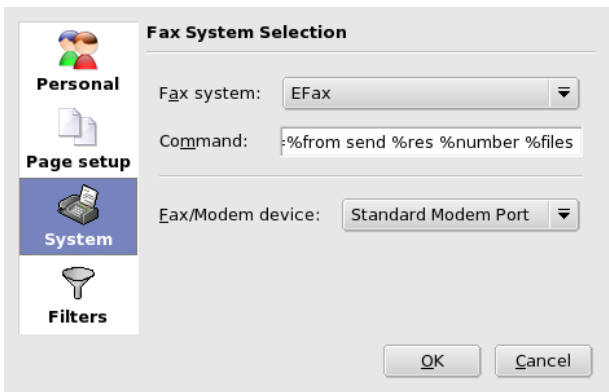


Figure 11-20. Fax Settings

Fill the Fax Number field and click on the Send Fax button, or press the **Enter** key, to send the fax immediately. The View Log button (**Ctrl-L**) will show you a window with the fax activity log (check it to make sure your fax has been sent correctly). The Address Book button (**Ctrl-A**) will open the *KDE* address book to let you select fax numbers to dial. Once your fax has been sent you can quit the fax window by selecting File→Quit from the menu or pressing **Ctrl-Q** keys.

11.5.5. Multi-Function Printers

Some printers are known as multi-function devices. This generally means that the printer can also be used as a scanner and maybe also as a fax. There are also printers that can read digital photo camera memory cards, some can even print photos directly from the memory card.

If you have a multi-function device with scanning functionality, please note that the scanner is configured with *PrinterDrake* and not with *ScannerDrake*. Please refer to *PrinterDrake: Configuring Printers*, page **??**.

In any other case, please refer to your printer documentation for information on operating the different functions or devices your multi-function printer has.

Chapter 12. Audio, Movie And Video Applications

12.1. Audio Applications

If you cannot live without your MP3 and video files, then this is the chapter for you! We have broken this chapter into three sections. The first concentrates on *XMMS* and *Aumix*, a multi-format audio player and a mixer respectively. In the second section we will list the best movie applications and how to use them, while the last section is dedicated to web cams and video-conferencing.

12.1.1. Using XMMS

First off, *XMMS* stands for *X Multimedia System*. With it you can play a variety of audio sources, such as regular music CDs, MP3s and Ogg Vorbis formats. Let us start with the basics.

To launch *XMMS*, access the main menu and choose Multimedia→Sound→XMMS.

Figure 12-1. XMMS Main Window

The upper part of the window is called the title bar. The buttons at the right-hand end of the title bar do the following:

- clicking on the leftmost button minimizes the window;
- clicking on the middle button will shrink *XMMS* so that it is composed only of the title bar, a vu-meter, the elapsed time and play controls. This puts *XMMS* into "mini" mode;
- clicking on the rightmost button closes *XMMS*.

Below the title bar is the main *XMMS* display. Clicking on the elapsed time display will toggle between the elapsed and remaining time of the song. Below the time display is the "Spectrum analyzer". Clicking on it will cycle through the spectrum analyzer, the oscilloscope and displaying no analyzer at all. To the right of the time display *XMMS* shows the name of the currently playing audio track as well as the total time of that track. The last pieces of information typically associated with a track are the bit rate[1] in Kbps (kilobits per second), the sample rate in KHz (kilohertz) and whether the track is in mono or stereo.

Now let's look at the different sliders. The one beneath the bit rate info is the volume slider. To its' right is the slider which controls left-right balance. Finally, the longest slider is used to browse through the current audio track — it's like rewind and forward functions that allow you to go directly to wherever you want to within that audio track.

To the left of the time display and the spectrum analyzer are 5 letters: you might not see them at first because by default the letters are in black, while the background skin is in dark gray. As you get more comfortable with *XMMS* you can change the appearance of the display and choose colors with better contrast. Here are the letters and what they represent:

- **O**: pops up the options menu
- **A**: means the *XMMS* window will always be on top of other windows
- **I**: pops up a file-info box
- **D**: doubles the size of the *XMMS* window

1. For digital audio `WAV` files and for audio CDs the bit rate is meaningless and *XMMS* will display `14H`. The bit rate is only significant with compressed digital audio formats like MP3 and Ogg Vorbis.

- **V**: pops up a visualization options menu

12.1.1.1. Equalizer and Playlist

Figure 12-2. XMMS Main Window with Equalizer and Playlist

In figure 12-2, you can see *XMMS*' equalizer and playlist. To access them, simply click on the EQ and PL buttons found below the MONO / STEREO indicator on the right-side of the main window.

12.1.1.1.1. Configuring the Equalizer

The equalizer window acts exactly like the one you probably have on your stereo. If you wish to change the settings, click on its ON button. You can then change the bass and treble levels to your liking. You can use the PRESETS menu items to save your settings for future use, load any previously saved ones, and more.

Use the PRESETS→Load→From WinAMP EQF file menu entry to load a WinAMP EQF file.

12.1.1.1.2. Using the Playlist

The playlist is where the tracks you wish to listen to are shown. To access the playlist, click on the PL button. The playlist has five buttons that can help you set up your playlist:

+ FILE

Clicking once on this button pops up a window which you use to select your songs. For example, if you had a directory called MP3 you would select `/home/queen/MP3/` and then start adding songs from that directory.

However, if you click **and** hold the mouse pointer on the + FILE button it will pop up two other buttons: + DIR and + URL. Release the mouse button on + DIR and choose the appropriate directory. To listen to a CD, choose the `/mnt/cdrom/` path. On the other hand, clicking on + URL allows you to enter a specific web address such as `http://205.188.209.193:80/stream/1040`, which is an example of a streaming address for high-bandwidth connections or `http://209.123.186.178:8042` for low-bandwidth (read dialup) connections.

- FILE

If you want to delete a file from the playlist, select it with your mouse by clicking on its name and click on the - FILE button. You can also use the **Delete** key on your keyboard to remove the file from the playlist. But what if you want to remove more than one file at a time? Clicking and holding the mouse over the - FILE button pops up a three-item sub-menu which contains - CROP, - ALL and - MISC. The - CROP button deletes all files from the playlist except the one(s) highlighted; the - ALL button is used to delete all files in the playlist. If you leave your mouse pointer on the - MISC sub-menu another sub-menu will pop up. You can now Remove dead files or Physically delete files.

SEL ALL

Clicking on this button will select all the files in your playlist. If you click and hold, you will have two other choices: SEL ZERO and INV SEL. The first choice selects no files, while the latter inverts the file selection, meaning any files which are currently selected will be unselected, and vice versa.

MISC OPT.

Clicking and holding this button gives you a pull-up menu which shows FILE INF and SORT LIST. FILE INF pops up a file-information window where you can edit the title, name of the artist, etc. The second choice gives sorting and randomizing options for the playlist.

LOAD LIST

Clicking once on this button will pop up a window from which you can choose the list you wish to listen to. Clicking and holding this button displays a pull-up menu with two choices: SAVE LIST and NEW LIST. The first saves the files in your playlist as a list of audio tracks (in the `.m3u` format). Note that this feature will only work with digital audio technologies (such as WAV, MP3 or Ogg Vorbis). The second menu option, like the first one, is pretty self-explanatory.

12.1.1.2. Playing Audio Tracks

To play audio tracks, simply follow the instructions given in *Using the Playlist*, page **??** to load a playlist and hit the Play button. When you press the Eject button a window will appear which will let you add files into your playlist. Select the desired files with your mouse and then either click the Add selected files or Add all files in directory button. When you have selected the tracks that you want to add, click on Close.

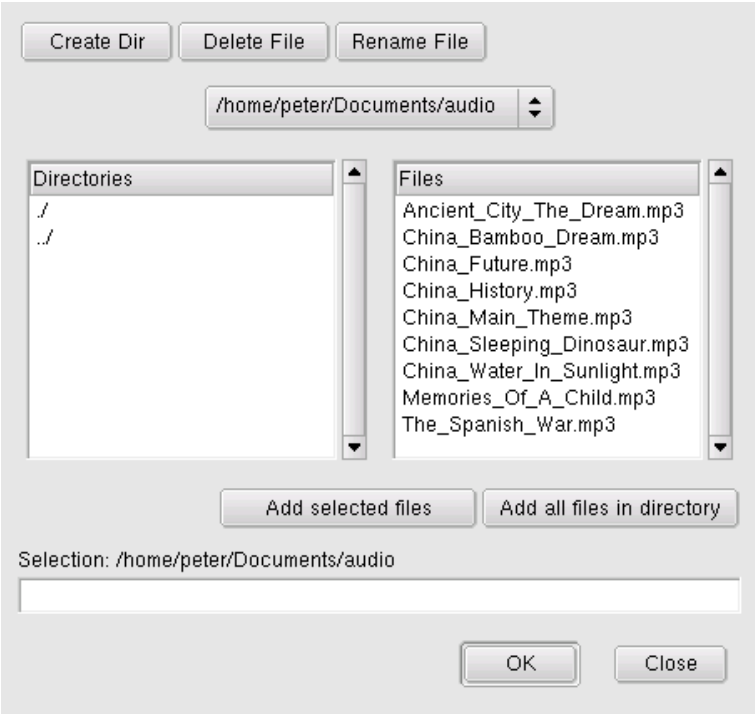


Figure 12-3. Loading Files into XMMS

Right-clicking in the Playlist will open a handy menu that includes all the play list options explained above.

12.1.1.3. Using the Options Menu

Now that we are done talking about the basics, let us explore the Options menu. To access the various options, you click on the **O** to the left of the spectrum analyzer. An options menu will pop up:

Figure 12-4. Options Menu

These functions are pretty self-explanatory, so we will let you use and discover them by yourself. Let us take a closer look at the Preferences sub-menu located at the top of the Options menu.

12.1.1.3.1. XMMS Preferences

Setting your preferences correctly is very important if you want to be able to listen to your audio tracks. To access the preferences, either click on the Preferences entry in the Options menu or press **Ctrl**+**P**. The first tab, Audio I/O Plugins, contains the input and output plugins necessary to make *XMMS* function correctly. Make sure the plugins you need (i.e. CD Audio Player to listen to an audio CD) are enabled and configured. If you see `(disabled)` next to a plugin, you will not be able to play audio tracks using that plugin.

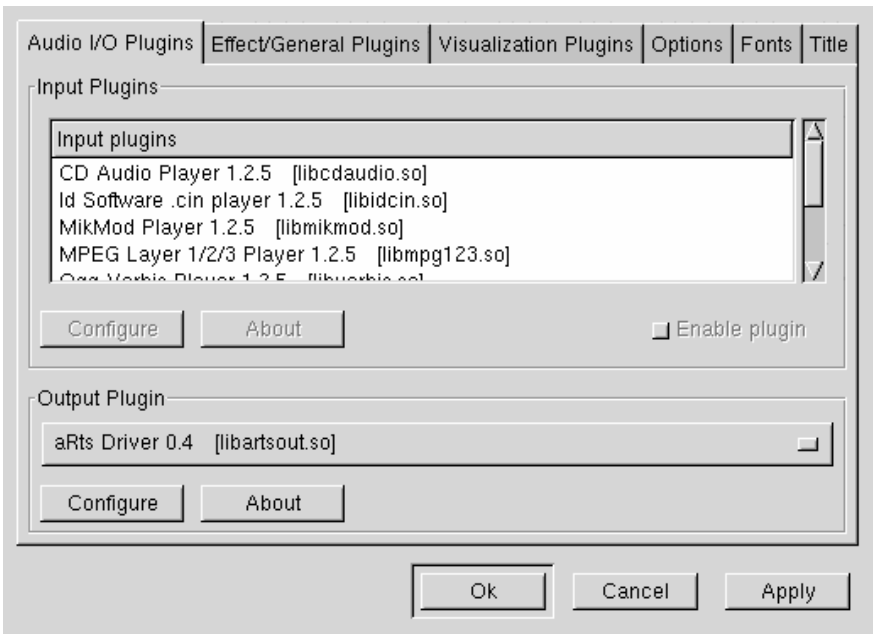


Figure 12-5. XMMS Preferences Window

Also, make sure you select the correct Output Plugin. If you use *KDE*, and you selected Start aRts soundserver on KDE startup in *KDE*'s Control Center, you should use aRts Driver 0.4 (figure 12-6).

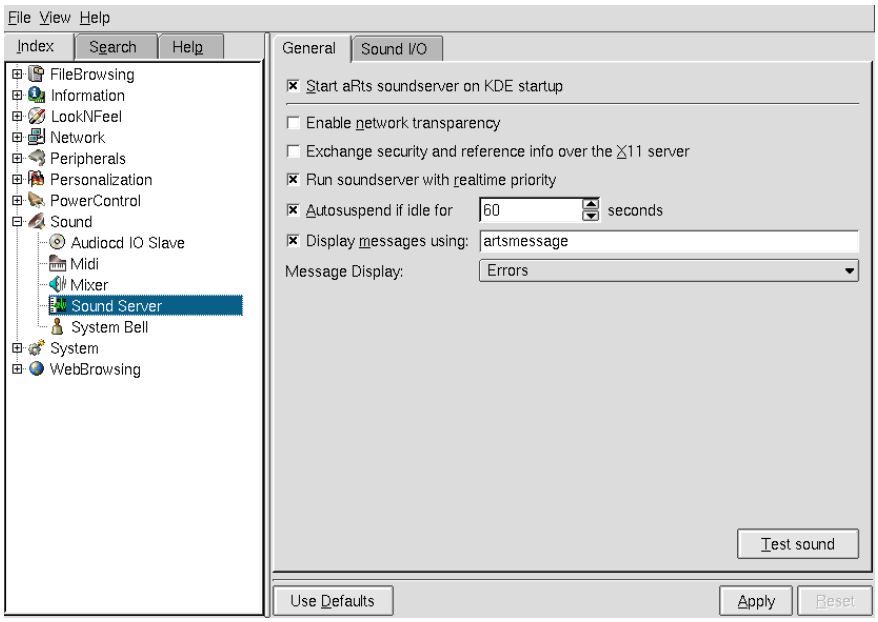


Figure 12-6. aRts Soundserver with KDE

If you use *GNOME*, chances are you will need to use either the eSound Output Plugin or the OSS Driver.

The Effect/General Plugins tab holds a set of effects plugins which range from voice removal to adding echoing. General plugins allow you to control *XMMS* with your stereo, TV or VCR remote control.

Next is the Visualization Plugins tab. You can select one or more plugins while listening to your music.

The Options tab is where you can fully personalize the way *XMMS* displays information, as well as some general features such as the number of seconds *XMMS* should (or should not) pause between songs.

The Font and Title tabs let you choose specific fonts for the text in *XMMS* and what sort of information is displayed while the audio track is playing.

12.1.1.4. Skins

Now let us discuss the aesthetics part of *XMMS*. Like other players, you can change the look of *XMMS* by altering its *skin*, or window design. To do so, open the Preferences menu and select Skin Browser. You can also press **Alt**+**S** to open the skin selector.

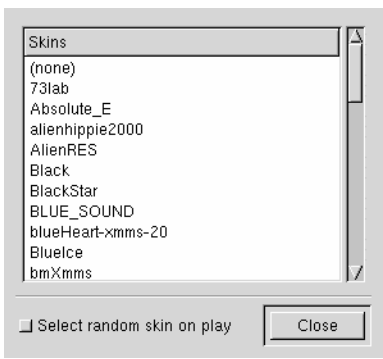


Figure 12-7. XMMS Skins Browser

As you can see, the Skin Browser has not selected a default skin. Clicking on one of the skins will give you a real-time look at how the skin will change *XMMS*' appearance. As an example, scroll down through the list of skins and click on `chaos_XMMS`.

Figure 12-8. Chaos Skin

If you wish to add skins to your Skin Browser, you can do so by visiting sites such as the XMMS site (`http://www.xmms.org/skins.html`) or the Customize site (`http://www.customize.org/`).

Once you've found a skin you like on a web site, download it into the `~/.xmms/Skins` directory. Open the Skins Browser and *XMMS* will be "wearing" that new skin.

12.1.1.4.1. Other Types of Skins

If you already use other types of audio players, you might be wondering if you can import skins from those other applications. The answer is yes... at least for *WinAMP* skins (in the `.wsz` format).

Here's an example of a skin found on the WinAMP site (`http://www.winamp.com/`) which can be added to your Skins Browser:

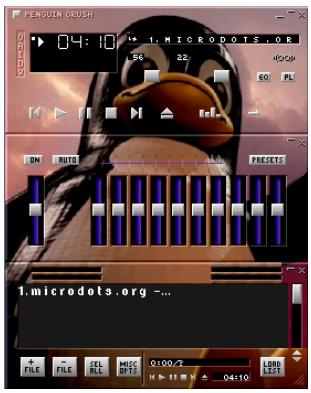


Figure 12-9. Using WinAMP Skins with XMMS

Download the skin file to your skins directory `~/.xmms/Skins`, select it in the Skins Browser and enjoy!

12.1.1.5. Streaming

With the wide popularity of streaming radio, *XMMS* now supports this type of media. With streaming media, you can listen to your favorite radio sites, whether they be from Shoutcast (`http://www.shoutcast.com/`), Icecast (`http://yp.icecast.org/index.html`) or plain radio sites such as Cool FM (`http://www.coolfm.ca/`).

When you have found a channel you like, save the `.pls` to your hard disk and then insert it into your playlist.

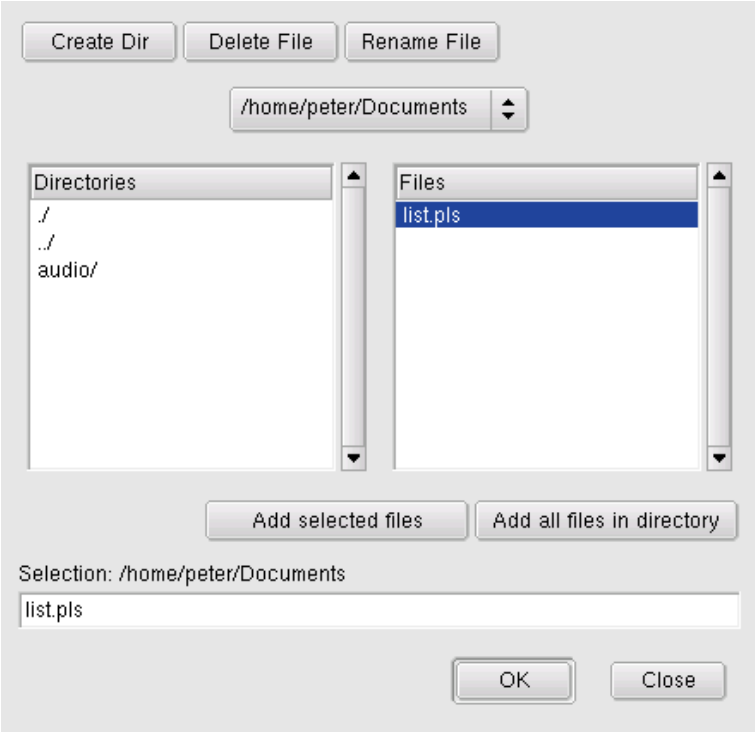


Figure 12-10. Opening the Connection Information for a Streaming Channel

12.1.2. Using Aumix

Aumix is a very small application which allows you to control your sound card's mixer. It is user-friendly and does not contain many features, but in order to listen to sound files you need to know a few things about it and how it is used.

As a matter of fact, you might not be able to hear **any** sound from *XMMS* or any CD player. Adjusting the sound mixer will usually solve that problem.

To launch the sound mixer application, open the main menu and select Multimedia→Sound→Aumix.

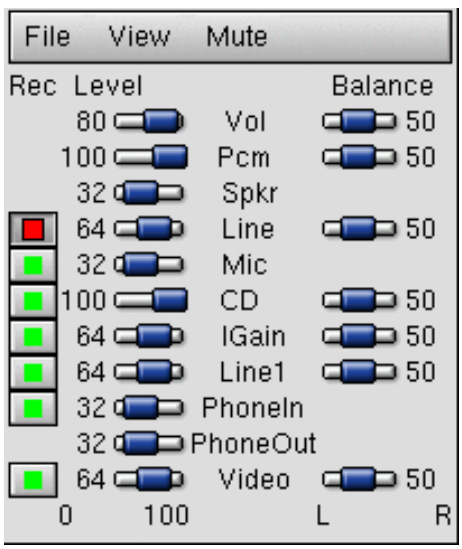


Figure 12-11. Aumix Application

First, let us take a look at the File menu.

12.1.2.1. File Menu

This menu lets you access basic functions that allow you to load or save mixer settings. The available menu items are:

Load

Loads the default mixer configuration contained in the `~/.aumixrc` file.

Save

Saves new settings to `~/.aumixrc`.

Load From

Allows you to load mixer settings from other than the default `~/.aumixrc`.

Save To

Enables you to save settings to a file that is not the default `~/.aumixrc`. For example, you might want to save different settings for work, for entertainment of a large group of people, raising or lowering the CD volume according to the place where you use your computer, etc.

Quit

Quits the application.

When you launch *Aumix*, it loads the last configuration file you used. So, if you used `~/.aumixrc2` – a file which **you** created – the last time you opened *Aumix*, this file will be used. However, if you click on the Load sub-menu, it will automatically load the `~/.aumixrc` file.

12.1.2.2. View and Mute Menus

The functions of the View and Mute menus should be simple to deduce. The View menu allows you to choose which components will be shown in the *Aumix* window. If you never use a microphone, you may choose not to view that entry. Clicking in the check-box next to Mic in the View pull-down menu would add or delete the Mic choice from the list. The Mute menu lets you completely mute the sound.

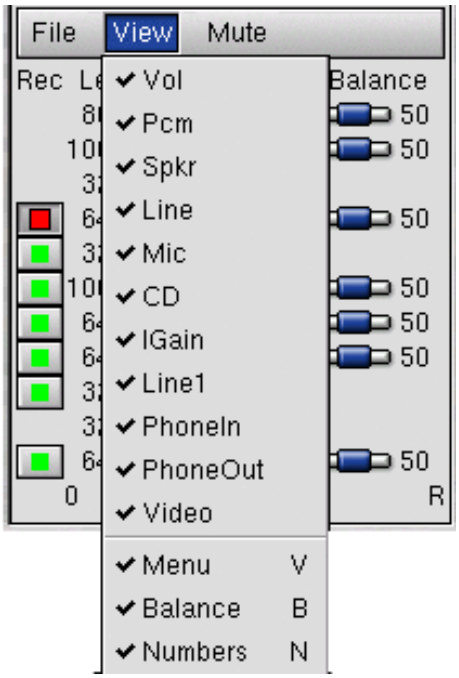


Figure 12-12. Aumix View Menu

12.2. Movie Applications

This section will discuss movie players available with **Mandrake Linux**. It will introduce the best applications, hint at the problems you could face while using them, and suggest resources to get the best out of them.

12.2.1. Introduction

The main problem with video players under *GNU/Linux* is that most popular video codecs are proprietary, and to implement them in a free software application (mainly due to the cost of licensing), the codecs have to be reverse-engineered. This is very complex and may not be legal in some countries, which limits the availability of such codecs, and thus the type of video files that can be reproduced under *GNU/Linux*.

For example, it will be virtually impossible to play *Quicktime* files or DVDs without downloading the corresponding plugins from the Internet.

In some countries, the status of the DVD playback and reverse-engineered codecs is still under review. That is why **MandrakeSoft** does not include all the plugins to use those codecs[2]. The information included here is meant to help **Mandrake Linux** users who know that, in their country, using these is legal. **MandrakeSoft does not encourage law violation and you should verify the law(s) that apply in your case, before you download these codecs and plugins**.

12.2.2. Xine

This is one of the most interesting video application for *GNU/Linux*. It supports a wide range of formats and input sources. It is fast, flexible and extensible. The last version, `0.9.22` at the time of this writing, is quite stable and able to support all popular formats.

To launch *Xine*, simply select the Multimedia+Video→Xine item of the main menu. You can also run *Xine* from a terminal. Type `xine --help` to see all available options.

The 1st time *Xine* is invoked, its configuration dialog window will be opened in the foreground and will be waiting for you to accept the suggested settings or change them to your liking. Make your choices and click on the OK button. The window that is empty apart from the application name and the URL of its web site, will be used for actual movie playing. Unless, of course, you decide to use full-screen playback mode.

The other one, is the application's main window, containing all the controls. Its interface can be modified by selecting different skins. Here we will refer to the default skin, as shown in figure 12-13.

Figure 12-13. Xine's Control Window

If the meaning of one of the buttons is not immediately clear, leave the mouse pointer over it for a second or two, and you will see a nice help balloon explaining the button's function. The interface itself is very similar to that of a CD player, so many of the controls should be self-explanatory. To watch a DVD (unencrypted only) or VCD disk, insert the medium in the drive, click on the DVD or VCD button, then on the Play button. To choose a file, click on the MRL Browser button (the one labelled ://, located at the lower left corner, just above the Quit button) to open a window which will let you navigate the directory tree and choose the desired file.

To move the control window, click on it with the left mouse button and keeping it pressed, move the mouse pointer. When in full-screen mode, you will be able to hide and recall the control window by simply clicking once with the right mouse button and removing (to hide) or adding (to show) the mark from the GUI visibility menu entry, a very handy feature when you do not want the control window to "interfere" with movie playback.

12.2.3. MPlayer

MPlayer is yet another interesting application and supports multiple output drivers, and even old video cards. It also supports DVD, *AVI*, *VideoCD*, amongst others. You will probably have to download and install *winDLLs* and proprietary codecs to make it work with many popular video formats. On one hand this might seem unfortunate, but on the other it gives you access to all formats supported under *Windows*.

Install the `mplayer-gui` package (refer to "*RpmDrake: Package Management*", page **??** for more information on package installation). Then, choose Multimedia+Video→MPlayer to launch *MPlayer*.

The interface is very similar to that of *Xine* (see figure 12-14), unless you opt for some of the more "exotic" skins. It is less user-friendly, however, lacking some of the features that are expected from modern software (such as help balloons for all the buttons), but fortunately the pop-up menu is very easy to access and use: just right click anywhere on *MPlayer*'s interface and you will be able to choose the most important options.

Figure 12-14. MPlayer's Control Window

You can easily switch to and from full-screen playback mode pressing the **F** key over *MPlayer*'s video output window. When in full-screen playback mode, the main window can be hidden by simply moving the mouse over it and then out of it; clicking on the screen will bring the main window back.

To watch a movie, either a file or a DVD/VCD disk, choose the appropriate medium in the pop-up menu, e.g. Open→Play VCD ...: it will start immediately. Use the VCR buttons to suspend, resume, fast forward or rewind the video playing.

Do not forget to check MPlayer's web site (`http://www.mplayerhq.hu/`) from time to time. You will be able to follow its progress and to download new versions, skins, plugins, etc.

12.2.4. Other Movie Applications for Linux

XMovie

This application is tailored to playback high resolution movies such as *MPEG1*, *MPEG2* and *AVI* files. It is not really made to playback compressed files such as *Quicktime*, but does support *MPEG2* streams.

Totem

Totem (available in package `totem`) is a *GNOME* 2 application based on *Xine*'s libraries. As you might imagine, its capabilities are very similar to those of its "parent", but it is better integrated in the *GNOME* environment.

KXine

KXine (that can be downloaded from its web site (`http://kxine.sourceforge.net/`)) is a *KDE* application based on *Xine*'s libraries. As you might imagine, its capabilities are very similar to those of its "parent", but it is better integrated in the *KDE* environment.

Finally, there are other video applications for *GNU/Linux* such as vlc (`http://www.videolan.org/`) (an MPEG2 files/streaming video and DVD player), Ogle (`http://www.dtek.chalmers.se/~dvd/`) (a DVD player which supports menus and navigation) and RealPlayer (`http://www.real.com/`) (which is proprietary software). We encourage you to explore them as they might answer your specific needs.

Chapter 13. Graphics Tools And Practical Devices

13.1. Digital Photo Cameras

13.1.1. Configuring a Digital Photo Camera

In this section we will assume that you have a USB camera[1]. Webcams are covered in *Webcams And Video Conferencing*, page **??**.

Please make sure that *GTKam* is installed. If you do not, please refer to "*RpmDrake: Package Management*", page **??** for instructions on package installation.

 This icon appears when you connect your digital photo camera to your computer and turn it on: click on it to launch *GTKam*. You can also choose Multimedia+Graphics→GTKam (GPhoto 2) from the main menu.

Choose Camera→Add Camera.... Connect the camera to your computer and click on Detect. The manufacturer and camera model should be detected. If it is not, select it from the Model pull-down list; do the same for the port it is connected to in the Port pull-down list, as shown in figure 13-1 and click on the Ok button when done.

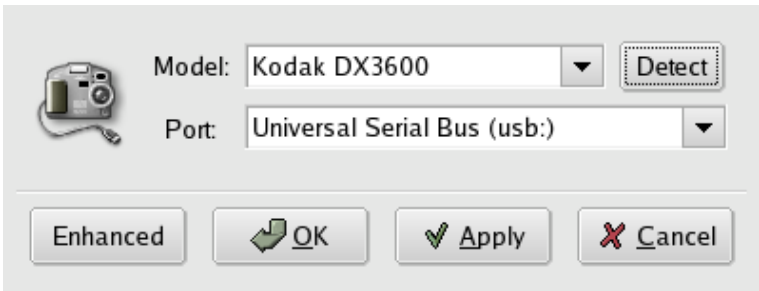


Figure 13-1. Configuring the Camera Connection

13.1.2. Manipulating and Transferring Pictures to the Computer

Each camera stores pictures on different folders, navigate through the tree in the left pane of the window to reach the folder where your pictures are stored.

Digital cameras name the picture files in different ways (`IMG_XXXX`, `PIC_XXXX`, etc.). If your camera supports it you can change those names by right-clicking on the thumbnail and selecting Info. Type the new name in the Name field and click on OK. You can also click on an image name in the thumbnail list, type the new image name and press **Enter** to change it.

To transfer a single picture to your computer, right-click on the picture's thumbnail, select Save from the pop-up menu and enter the folder name in which you want to save it to. Then click OK. The picture will be stored in the chosen folder with the file name that was displayed by the picture's thumbnail.

Choosing File+Save Photos→Selected from the main menu will save **only** the currently marked pictures. Choosing File+Save Photos→All will save **all** pictures regardless of the selection. A dialog will pop up, asking you for some save options (photos, raw data, thumbnails, EXIF data, etc.) Do not change the options and press on OK. The pictures will be transferred to your computer and saved in your home directory.

Once transferred to your computer, you can rotate or edit the pictures using *GIMP* or your favorite imaging software.

Choosing File+Delete Photos→Selected from the main menu will delete **only** the marked pictures. Choosing File+Delete Photos→All will delete **all** pictures, regardless of the selection. A dialog will pop up asking you for confirmation. Click on Delete to confirm deletion or on Cancel to quit that operation.

1. There are serial (RS-232) digital cameras. However virtually all digital cameras use USB.

The Delete option erases the pictures from the digital camera's memory. If you do not transfer those pictures to your computer first, you will lose them permanently.

Enjoy taking pictures with your digital camera and *GNU/Linux*!

13.1.3. Photographic Settings, Storage Media

13.1.3.1. EXIF: Digital Camera Photographic Settings

Most digital cameras produce EXIF (Exchangeable Image File Format) files. EXIF are JPEG files with extra tags containing information about the image such as the date, the camera model, the exposure time, the ISO speed setting, the aperture, etc.

GTKam can access additional information fields available in an EXIF file. For example, you can use that information to "remember" when you took a picture or to examine the camera settings for a picture taken in particular environmental conditions.

Right click on a picture and select EXIF from the menu that pops up. A window containing extra information about the picture will be shown. In the EXIF tab (see the example in figure 13-2) you will find information about the camera settings, when the picture was taken, etc.

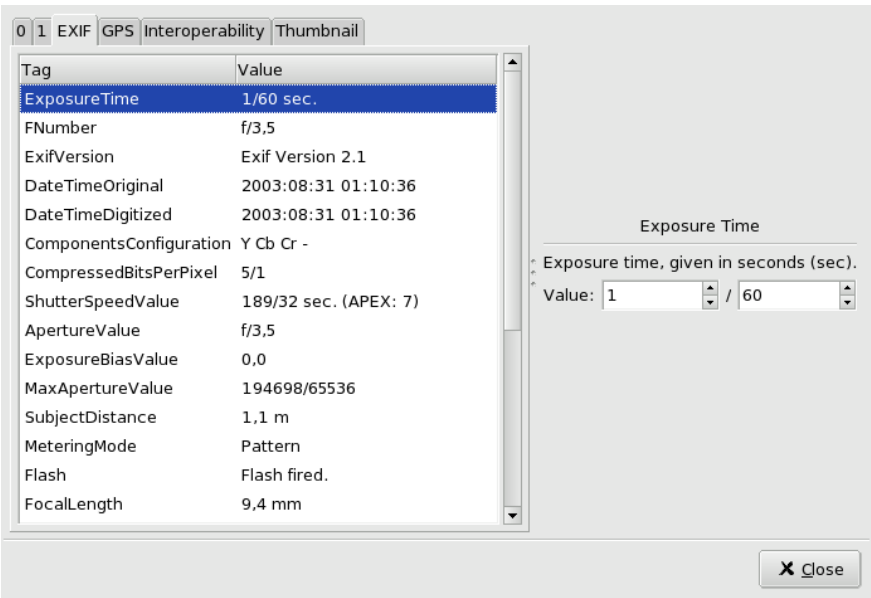


Figure 13-2. Information About a Picture

Even if some values have controls to change them, the changes will be lost as soon as you click on the Close button. There is no way (and actually not much sense) in changing those values from *GTKam*.

13.1.3.2. Handling Digital Cameras' Storage Media

GTKam (GPhoto2) may not recognize your USB digital camera. However you can still try to make your camera work using the USB mass-storage driver and accessing it like you would any other storage device.

If you have a laptop computer with a PCMCIA slot, you can use the ATA photo memory card PCMCIA adapters. They are mounted just like any other ATA device (CD-ROM, hard disk, etc.) in order to access your

pictures[2]. This is the fastest method to access photo cards. It also allows the camera's batteries to last longer. There are other devices that may be used to read the data from the memory device, for example several USB peripherals which allow a Compact Flash or Memory Stick device to be plugged into them.

13.2. Installing and Using Scanners

This section will explain how to install and use scanners by means of *ScannerDrake* (the scanner wizard), *SANE* and *XSane* (scanner interface software). It will also give a list of other scanner interface software working under *GNU/Linux*.

13.2.1. Getting Started

Using scanners under **Mandrake Linux** has never been easier. If your scanner is supported by *SANE*, which is very likely if it is a USB one, you only have to connect it to the computer, turn it on and launch your favorite image-acquisition application.

If this does not happen, don't worry: thanks to the *ScannerDrake* wizard you will have your scanner identified, configured and ready to work in just a few minutes.

Note that, while support is now very good for these kind of devices, not all scanners are supported under *GNU/Linux*: before buying new hardware, it's always a good idea to visit MandrakeSoft's Hardware Database (`http://www.linux-mandrake.com/en/hardware.php3`), the Linux Hardware Database (`http://www.linhardware.com/`) web site, and the SANE home page (`http://www.mostang.com/sane/`), to check for compatibility issues.

If your computer is connected to a LAN, you might be interested in running the *ScannerDrake* wizard to take advantage of its scanner sharing feature.

13.2.1.1. Connect, Turn on, Scan

Most modern scanners need no configuration at all: it should be possible to just connect a scanner to the computer, turn it on, and launch the image acquisition software. The scanner will be automatically recognized and you will be able to use it at once.

If you use *GNOME* or *KDE*, when a scanner is plugged in and turned on you will see an icon similar to the one shown in figure 13-3 appearing on your desktop. This icon will give you instant access to the scanning software and will disappear when the scanner is turned off or disconnected.

Figure 13-3. The Scanner Icon on the Desktop

If the icon fails to show up, or the scanning software (*XSane*) does not seem to work, the reason could be any of the following:

2. Actually, **any** file can be accessed this way, not only pictures. You can put whatever file you want on your memory card.

1. The dynamic icons feature is not working properly on your system: make sure that you installed the `hotplug` and `dynamic` packages.
2. The *SANE* software is not installed on your system. Please start *ScannerDrake* to get it installed automatically or refer to *The SANE software*, page **??**, to learn how to install all of the required packages.
3. *XSane* cannot be used because your scanner has not been automatically recognized. Please read *ScannerDrake*, page **??**, to learn how to configure your scanner with *ScannerDrake*.
4. Your scanner is not a USB one. The dynamic icons only work for USB scanners. In this case launch *XSane* by choosing Multimedia+Graphics→XSane in the main menu.

You can be confident that *SANE* will automatically recognize USB scanners. If you have a SCSI or parallel port scanner, you probably must set it up using *ScannerDrake*.

13.2.1.2. The SANE software

SANE, which stands for "Scanner Access Now Easy", is an interface for scanners and other image-acquisition devices like digital cameras and framebuffers. *SANE* sits in the middle between the device and the acquisition/image processing software, in order to allow developers to write application software without worrying about device drivers.

The *SANE* software consists of three packages: the *SANE* library (`libsane1`), the *SANE* back-ends (`sane-backends`, the modules for the scanner devices) and the *SANE* front-ends (`sane-frontends`, basic programs for scanning images). If you have not installed the *SANE* packages during the system installation, please run *ScannerDrake*: it will install all required packages automatically.

If you choose to install packages by hand, it does not matter, at this stage, if your scanner is turned on: *SANE* will happily install even if there is no physical device connected to the computer.

13.2.1.3. ScannerDrake

ScannerDrake is the **Mandrake Linux** scanner detection and configuration tool. This wizard will help you install your scanner if the automatic detection fails and, as of **Mandrake Linux** 9.1, it has some interesting new features.

At the moment of writing this manual, *ScannerDrake* supports practically all USB scanners and the majority of SCSI and parallel port scanners. Once again, refer to the SANE home page (`http://www.mostang.com/sane/`) for more information.

Before launching *ScannerDrake*, the connection interface (USB, SCSI or parallel port) must be working properly, the scanner itself must be connected to your computer and the power turned on. Refer to the manufacturer's manual to learn how to install and test your hardware.

When everything is ready, you can launch *ScannerDrake* clicking on this icon in the *Mandrake Control Center* under the Hardware section. Remember that all hardware configuration must be done as `root`.

The program will try to detect the manufacturer and model of your scanner, if it finds one which is ready to use it will show some information about it in the upper part of the wizard's main window. If, on the other hand, detection failed and no scanners were identified, you will be shown this window:

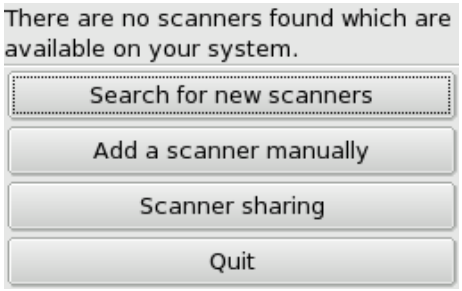


Figure 13-4. Install your Scanner with ScannerDrake

You can try to perform a new search clicking on Search for new scanners, useful if you have just plugged in a scanner. If the automatic detections fails in any case, click on Add a scanner manually and look for the specific model you own by first expanding the manufacturer's section, then browsing through the list of available models.

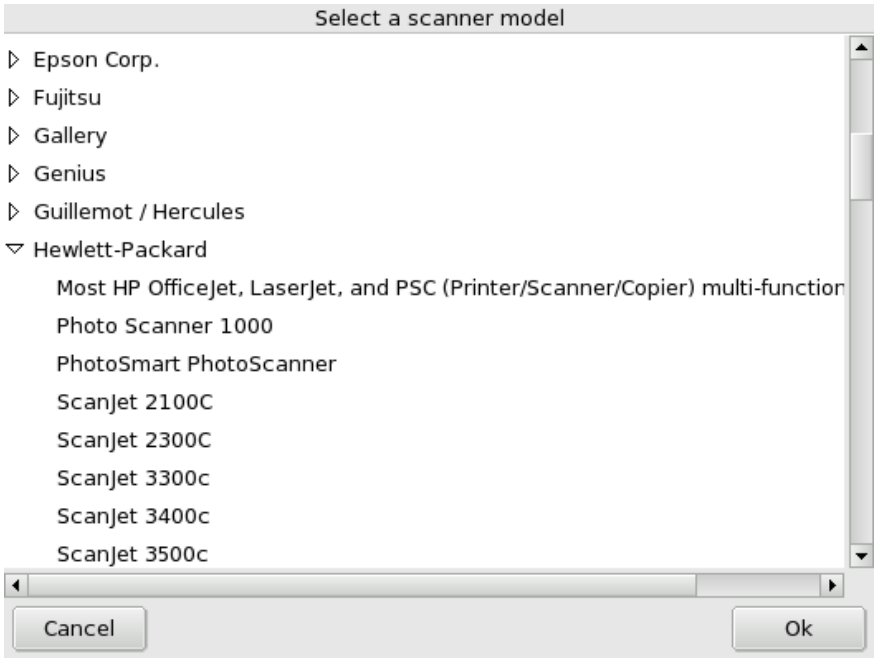


Figure 13-5. The Tree-list of All Known Scanner Models

After choosing the appropriate model, you will be asked to select the device your scanner is attached to. Unless it is a parallel port scanner, you can leave the default Auto-detect available ports option and click on Ok, as shown below. If you have a parallel port scanner, please specify the port it is connected to. Usually there is only one parallel port in a computer, so selecting `/dev/parport0` in the pull-down list should be the right choice.

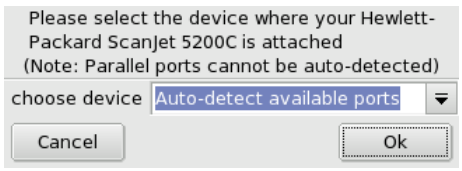


Figure 13-6. Specifying the Connection Type

Now your scanner is installed and you are ready to use the programs that come with *SANE*, *XSane* or other acquisition software.

Note that HP multi-function devices, like the OfficeJet or PSC printers, must be configured through *PrinterDrake*. Please refer to *PrinterDrake: Configuring Printers*, page **??** for more information. The scanning part of non-HP multi-function devices can be set up with *ScannerDrake* as a stand-alone scanner.

To test that everything works correctly, launch *xscanimage* from a shell and try to acquire a picture with your scanner. You can first acquire a preview of the scanned image clicking on the Preview window button, as shown in figure 13-7.

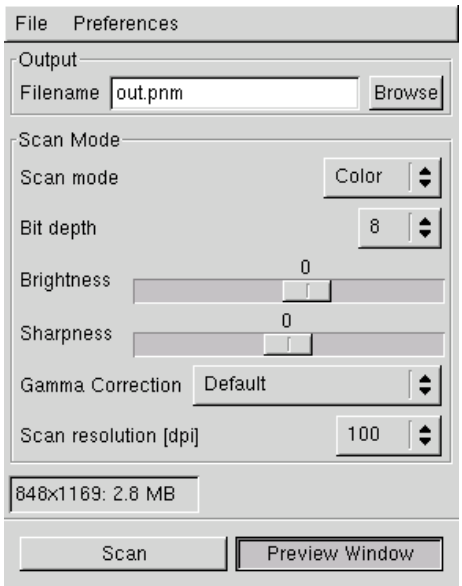


Figure 13-7. xscanimage, a Basic But Effective Acquisition Program

Note that *xscanimage* can also be invoked directly from *GIMP*, choosing File+Acquire+xscanimage→Device dialog... from the menu, or choosing directly the `[name_of_your_scanner]:[port_of_your_scanner]` entry, where `[name_of_your_scanner]` will be the manufacturer's name of your scanner; and `[port_of_your_scanner]` will be the port your scanner is connected to, e.g. `epson:/dev/usb/scanner0` for an Epson USB scanner.

Starting from the version included in **Mandrake Linux** 9.1, *ScannerDrake* allows for scanner sharing among users connected via a LAN. Installation is very easy just click on Scanner sharing and put a mark in the The scanners on this machine are available to other computers checkbox if you want to share a local scanner with other users connected on the same LAN; or on the Use scanners on remote computers checkbox if you want to connect to a scanner connected to some other computer on the network. With these buttons you can define which machines are allowed to use your scanners and to which machines the remote scanners you want to use are connected to.

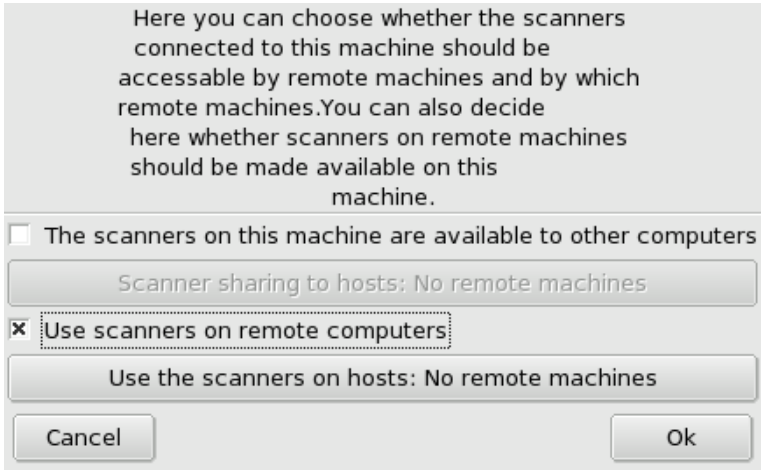


Figure 13-8. Sharing Scanners within a LAN

13.2.1.4. XSane

While *xscanimage* is more than enough for your basic scanning needs, more experienced and/or graphic-oriented users will be glad to know that **Mandrake Linux** includes a more sophisticated program, *XSane*, which offers more options and a more informative display as regards the image acquisition process.

You can launch *XSane* by clicking on the desktop icon, or choosing Multimedia+Graphics→XSane from the main menu. You will see several windows pop up on the screen, as shown in figure 13-9.

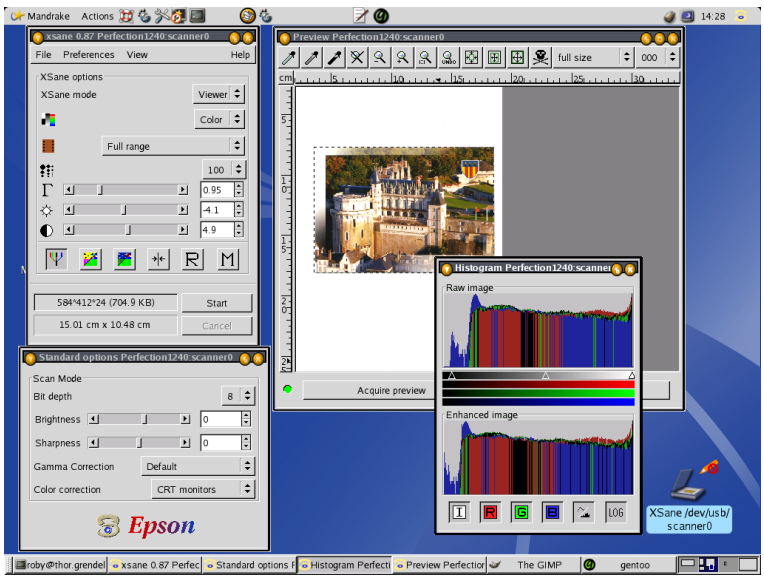


Figure 13-9. XSane Multiple Windows And ScannerDrake Icon on Desktop

If the package `xsane-gimp` is installed, you will have a *GIMP* plug-in at your disposal. This will allow you to import your images directly into *GIMP* for image retouching tasks (see the *Graphic Art and Image Manipulation* chapter from our on-line documentation). To do this, simply choose File→Acquire →XSane: device window... from the menu to launch *XSane*. You can now scan your image and have it sent directly to *GIMP*.

13.2.2. Advanced Configuration

13.2.2.1. Fine-Tuning The Resolution

Most modern scanners boast high resolutions, typically 600 DPI (Dot Per Inch) or even more, which can increase to higher values through interpolation. But it would be a mistake to perform all of your scanning at the

maximum available resolution. It could happen that there is very little, if any, quality difference between a 300 and a 600 DPI image scan, but the file size will grow exponentially at higher values, up to many MBs of disk space for a single image file.

The resolution value should be chosen according to the device on which the image will be reproduced. For images that will be shown on computer monitors, e.g. web site images, the resolution will have to be as close as possible to the monitor's one, about 80 DPI (for a 1024x768 display, could be less for 800x600); higher values will result not only in "heavier" images, but the dimensions will also increase, so that an image scanned at 160 DPI instead of 80 will be about twice as large[3].

If you intend to print your images, a resolution of 150-200 DPI should be enough for most home printers; increase this value if you have a very high quality ink jet printer or a dye-sublimation one. Keep in mind that the value commonly used in printed magazines is 300 DPI.

Higher values should be chosen only for specific uses, such as enlarged images on very high quality printers, or scans of black and white originals. You will have to experiment a little until you are satisfied with the results.

13.2.2.2. OCR Software

Unfortunately, OCR (Optical Character Recognition) software is not as common or sophisticated as the image acquisition counterpart. There is at least two programs, however, that are mature enough: *Clara OCR* (`http://www.claraocr.org/`) and *GOCR/JOCR* (`http://jocr.sourceforge.net/`). You will find all the necessary packages in the `contrib` CD.

Clara's graphic interface is very simple and does not require a specific desktop environment, but it will be necessary to train the program on the scan of a sample page. The training process can be quite tedious, and not very intuitive for the newbie [4], so be sure to read the tutorial file. More experienced users should also refer to the *Advanced User's Manual*.

GOCR/JOCR is another project which has reached an usable status, but bear in mind that it's still beta software (latest release at the moment of writing was 0.37). *GOCR/JOCR* can read images in many formats, while its output is a simple text file. It is a command-line tool, so if you want to use a graphical front-end you will need to install the `gocr-gtk` package.

13.2.3. Other Scanner Interface Software

Here is a list of other scanner interface software which is known to work under *GNU/Linux*:

- if you installed the `kdegraphics-kooka` package, you will be able to use *Kooka*, a simple graphical front-end to *SANE* which is also able to perform OCR tasks; to launch it, choose Multimedia+Graphics→Kooka from the main menu;
- users of the FLTK ("Fast Light Tool Kit") graphic user interface can try FlScan (`http://digilander.libero.it/fbradasc/FLSCAN.html`), a FLTK front-end for SANE;
- for EPSON scanners, you can download Image Scan! for Linux (`http://www.epkowa.co.jp/english/linux_e/linux.html`), a scanner utility provided free of charge to *GNU/Linux* users by EPSON KOWA Corporation. It aims at achieving the same level of user friendliness and image quality as the *Windows*/*MacOS* software bundled with the Epson scanners;
- while multi-functional HP devices are configured using *PrinterDrake*, owners of these devices should have a look at the HP OfficeJet Linux driver project (`http://hpoj.sourceforge.net/`). The developers involved in the project aim at providing *GNU/Linux* support for most Hewlett-Packard OfficeJet, PSC, LaserJet, and PhotoSmart printer multi-function peripherals (MFPs).

3. This, however, is a quick way to enlarge images taken from small originals. You could also scan at a higher resolution and then save it at half size, using graphic manipulation software like *GIMP*, to improve image quality if you are not satisfied with the result obtained at 80-90 DPI.
4. To quote the authors: "Clara OCR is not simple to use. A basic knowledge about how it works is required for using it".

13.3. CD Burning

In this section we will discuss the usage of *K3b* to burn:

- a CD from an ISO image;
- a set of files to a CD;
- an audio CD (CDDA);

as well as how to duplicate a CD and erase re-writable media.

Copyrighted Material. Please note that data/audio CD copying is often forbidden by copyright law. The examples provided here are informational only and are not intended to make a CD pirate out of you. It is assumed that if you want to duplicate copyrighted material, it is because you have the right to do so.

13.3.1. Getting Started

Under **Mandrake Linux** you can burn CDs using either a SCSI or an ATAPI CD-R(W) drive. It is assumed that your CD-R(W) drive was already configured properly at installation time, we will not speak about configuring a CD-R(W) drive under *Linux* but how to put your CD-R(W) drive to use.

Usually, you need `root` privileges to access the CD burner. With *K3b* this is not true anymore since it is automatically configured at installation time to give non-privileged users access to the CD burner. However, it is highly recommended that non-privileged users wanting to burn CDs be part of the `cdwriter` group in order to gain high priority access to the CD burner, so go ahead and add those users to the `cdwriter` group. Please refer to *UserDrake: Managing Users and Groups on Your System*, page **??**, for information on users and group management.

Choosing Applications+Archiving+Cd burning→K3b from the main menu will start *K3b* (see figure 13-10).

If you get a message stating that **cdrdao does not run with root privileges** you can safely ignore it. To prevent that message from appearing again put a mark on the Don't show again check-box and click on the Close button.

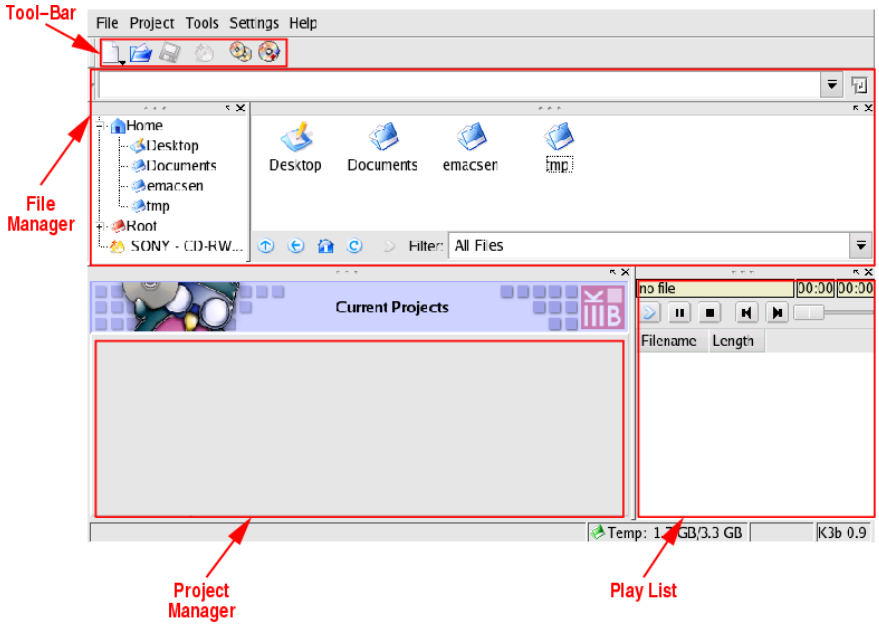


Figure 13-10. K3B's Interface

Tool-Bar. Where buttons to perform common actions lie. See table 13-1.

File Manager. To choose which files will be part of the burned CD. You can use the left-side tree to navigate your file system structure and also the browser-like buttons at the bottom. The Filter pull-down list is handy to select which file types are going to be shown in the File Manager. Drag the files you want to include in the project and drop them into the Project Manager.

Project Manager. Where all files which will be part of the burned CD are shown and handled. Files can be removed and their location (directory) on the CD can be changed here.

Audio Player. When burning an audio CD, files which are currently part of the project can be listened to. Drag the files you want to listen to from the Project Manager and drop them in the Audio Player. Above the play list you will find the usual Play, Pause, Stop, Previous and Next audio control buttons.

The following table shows the most important buttons available in *K3b*'s tool-bar, their equivalent keyboard shortcut and a brief explanation of the function they provide.

Not all buttons might be enabled at all times. For example, the Burn CD button will not be enabled if there is no active project.

Button	Keyboard Shortcut	Function
		Create a New Project. Once you click on this button a list of available project types will be shown: choose New Audio Project to create an audio CD (see *Burning Audio CDs (CDDA)*, page **??**); choose New Data Project to create a data CD (see *Burning Data CDs (CD-ROMs)*, page **??**); choose New Mixed Mode Project to create a mixed mode (data+audio) CD; choose New Video Project to create a digital compressed video CD; choose New eMovix Project to create an eMovix (`http://movix.sourceforge.net`) CD.
	Ctrl-O	Open an Existing Project. A standard file dialog will be opened from where you can choose the existing project you wish to open. By default, only *K3b*'s project files (`*.k3b`) are shown. Select the project you are interested in and click on the OK button.

Button	Keyboard Shortcut	Function
	Ctrl-S	Save the Current Project. A standard file dialog will be opened where you can enter the name under which the current project will be saved. Type the name of the project and click on the Save button.
	Ctrl-B	Burn the Current Project to a CD. It opens a window that asks for the project's burn settings. Please refer to *Burning Data CDs (CD-ROMs)*, page **??**, for more information.
		Copy a CD. To make an exact copy of a CD. It opens a window that asks for the copy settings. Please refer to *Duplicating a CD*, page **??**, for more information.
		Erase a CD-RW. To erase re-writable media. It opens a window that asks for the erase operation settings. Please refer to *Erasing CD-RW media*, page **??**, for more information.

Table 13-1. K3b's Toolbar Buttons

13.3.2. Burning Data CDs (CD-ROMs)

Where appropriate, the Audio Player component has been removed to make the example screenshots clearer. You can show/remove components by putting or removing a checkmark on "Show" entries in the Settings menu.

13.3.2.1. Burning From an ISO Image

Let's assume you downloaded a CD-ROM ISO image from the Internet and you want to burn it on a CD. The ISO image file is in the `/tmp/` directory. Navigate to it using *K3b*'s File Manager.

Choose File→New Project→New Data Project from *K3b*'s menu (or use the New Project button or keyboard shortcut shown in table 13-1). Then, drag the ISO image file (`Some_CD_Image.iso` in the example) and drop it in the Project Manager (see figure 13-11).

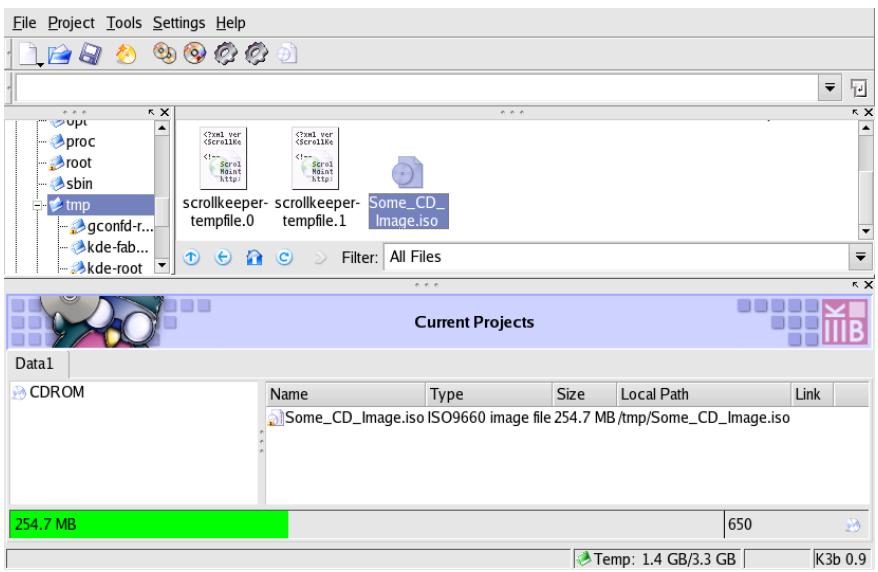


Figure 13-11. Selecting the ISO Image to Write to CD

Clicking on the Burn CD button (or choosing the Project→Burn menu entry) will display a window where you can select writing parameters (see figure 13-12). For burning an ISO image, only the recording speed should be changed, using the Speed pull-down list. Make your changes to the settings, insert a recordable medium on the CD burner and then click on the Write button to start writing the CD.

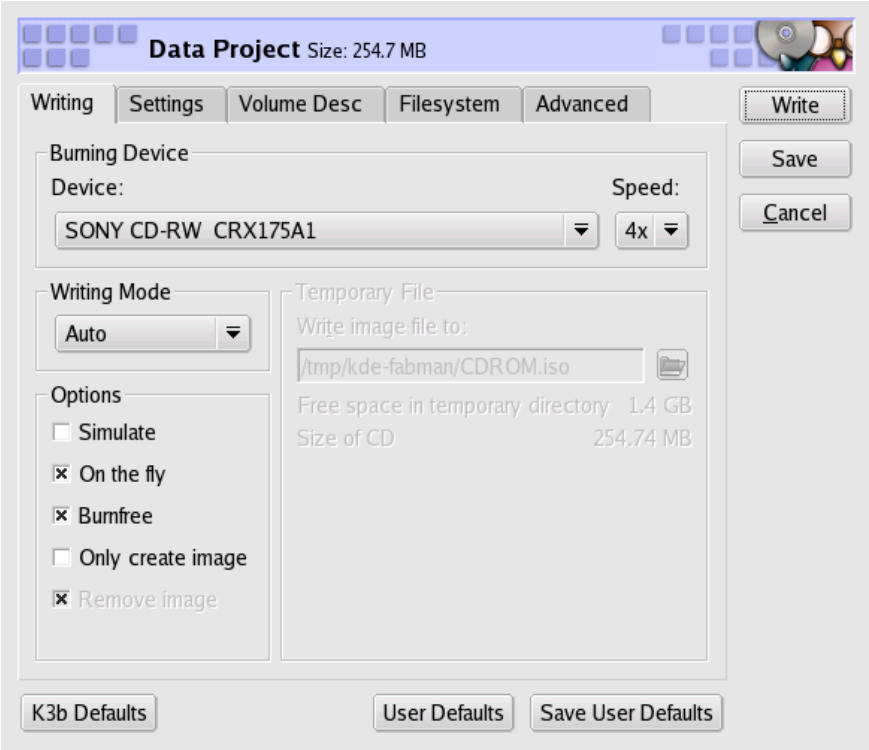


Figure 13-12. Setting Writing Parameters

If an already written re-writable medium is found in the CD burner, a dialog will pop-up asking you whether to erase it first. Click Yes and follow subsequent instructions if you want to erase it, or change the medium for a non-written one and click No.

The Speed pull-down list will only show recording speeds that are supported by the combination of your CD burner and the currently inserted recordable medium. The "slowest" of them limits the maximum recording speed available.

13.3.2.2. Burning a Set of Files or Directories

If you want to build your own CD, or to back up some files to a CD, the procedure is the same as that explained in *Burning From an ISO Image*, page **??**, except that instead of an ISO image file, you should drop, in the Project Manager, the files and/or directories to be included on the CD (see figure 13-13).

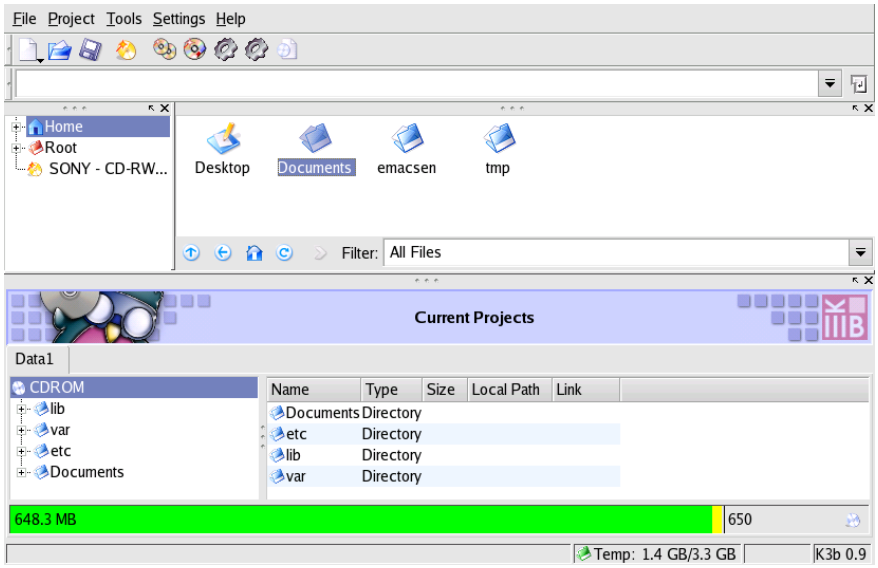


Figure 13-13. Selecting Files/Directories to Include on the CD

Adding directories containing lots of files, can take some time, please be patient and wait until the `Adding files to Project PROJECT_NAME...` message disappears from *K3b*'s status bar.

The space occupied by the selected files/directories will be shown by a color-coded bar at the bottom of the Project Manager, together with the quantity expressed in MB. The bar's color codes are as follows:

Green

The set's size is less than that of the selected medium's capacity (650 MB by default). There are no capacity-related problems.

Yellow

The set's size is nearly equal the selected medium's capacity. If it is a few MB below the medium's capacity, there will be no capacity-related problems; if it is a few MB above the medium's capacity, the CD might be written without problems, but there is little guarantee of success.

Red

The set's size exceeds the medium's capacity by lots of MB. The CD will not be recorded properly.

Right-clicking on any file/directory in the Project Manager will pop-up a contextual menu with options to remove and rename files, create new (empty) directories, etc. Files and directories can be relocated (change the directory under which they will appear) on the CD using drag-and-drop.

Renaming the top element of the left side tree in the Project Manager will change the CD's volume name (`CDROM` by default for data CDs).

13.3.3. Burning Audio CDs (CDDA)

CD recording is not limited to data CDs, you can also record audio CDs. By audio CDs, we mean CDs that you can play in your car or home stereo equipment, not data CDs with OGG, MP3 or any other digital audio format files on them.

At the time of this writing, *K3b* supports recording audio CDs from tracks digitized in the wave (`*.wav`), Ogg Vorbis (`*.ogg`) and MP3 (`*.mp3`) formats. *K3b* can create digital audio tracks starting from audio CDs: this task is known as "ripping".

The `cdparanoia` package must be installed to be able to rip audio CDs. Please refer to "*RpmDrake: Package Management*", page **??** for information on package installation. Also ensure that *K3b*'s default temporary storage directory exists and that you must have write access to it. Choose Settings→Configure K3b... from the menu and then, under the Misc section, fill the Default Temporary Directory field with a directory of your choice or keep the suggested folder, and then click on the OK button.

Insert the audio CD to rip tracks from and select the drive in *K3b*'s File Manager left side tree. The CD will be read and, by default, all tracks will be marked to be ripped. Remove the check mark from the ones you do not want to rip and click on gears button

to show a dialog and confirm ripping options (see figure 13-14).

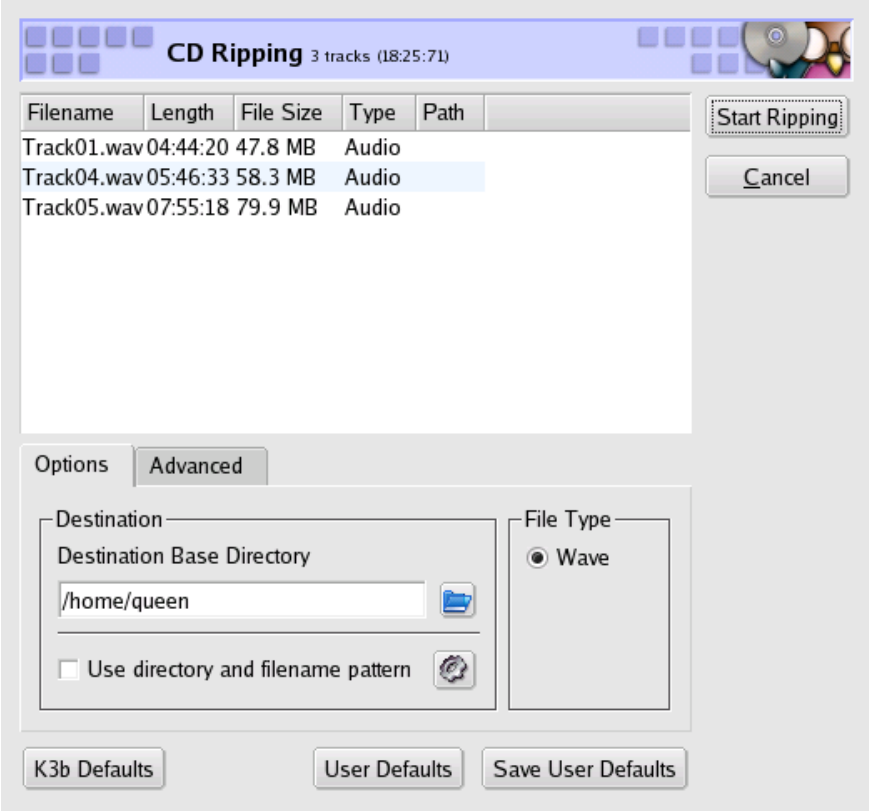


Figure 13-14. CD Ripping Options

Remove the checkmark from the Use directory and filename pattern option to have tracks named `TrackNN.wav` and stored on the directory specified in the Destination Base Directory field (your home directory, by default) and click on the Start Ripping button to start ripping.

Choose File→New Project→New Audio Project from *K3b*'s menu (or use the New Project button shown in table 13-1). Select *K3b*'s File Manager's filter to Sound Files, navigate to where the digitized audio files are and then drag the audio tracks and drop them in the Project Manager (see figure 13-15).

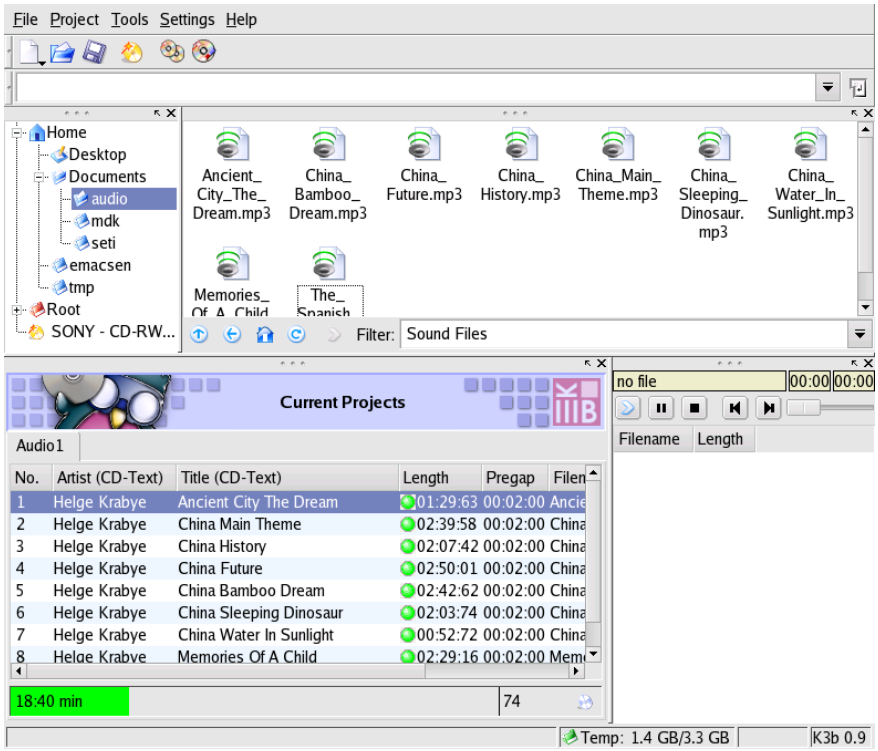


Figure 13-15. Selecting Audio Tracks to Include on the CD

Use drag and drop to move the files up and down the compilation. Once you have the tracks compiled in the order you want in the Project Manger, proceed as described in *Burning From an ISO Image*, page **??**, to write them to CD.

13.3.4. Duplicating a CD

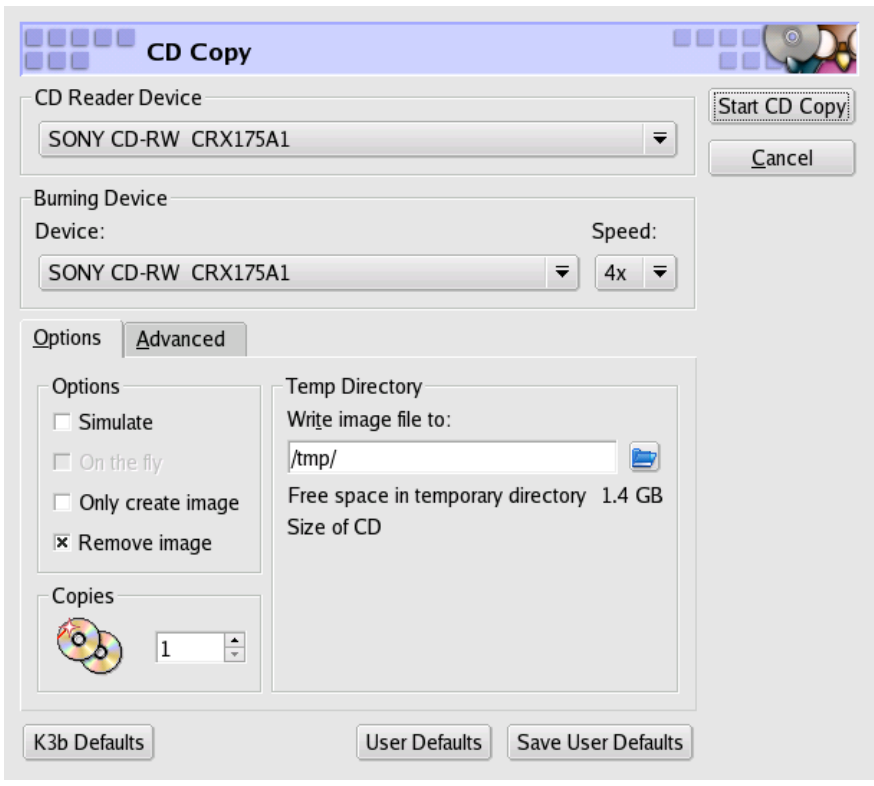


Figure 13-16. Setting Copy CD Options

Choose Tools→Copy CD from the menu (or use the button shown in table 13-1) and a dialog will pop up (figure 13-16). Select the number of copies (1 in the example), whether to remove the temporary image or not (yes in the example), the reader and burning devices (automatically set) and click on the Start Copy button to start duplicating the CD. The "source" CD will be read, an image of it will be made and then the "target" CD will be written.

13.3.5. Erasing CD-RW media

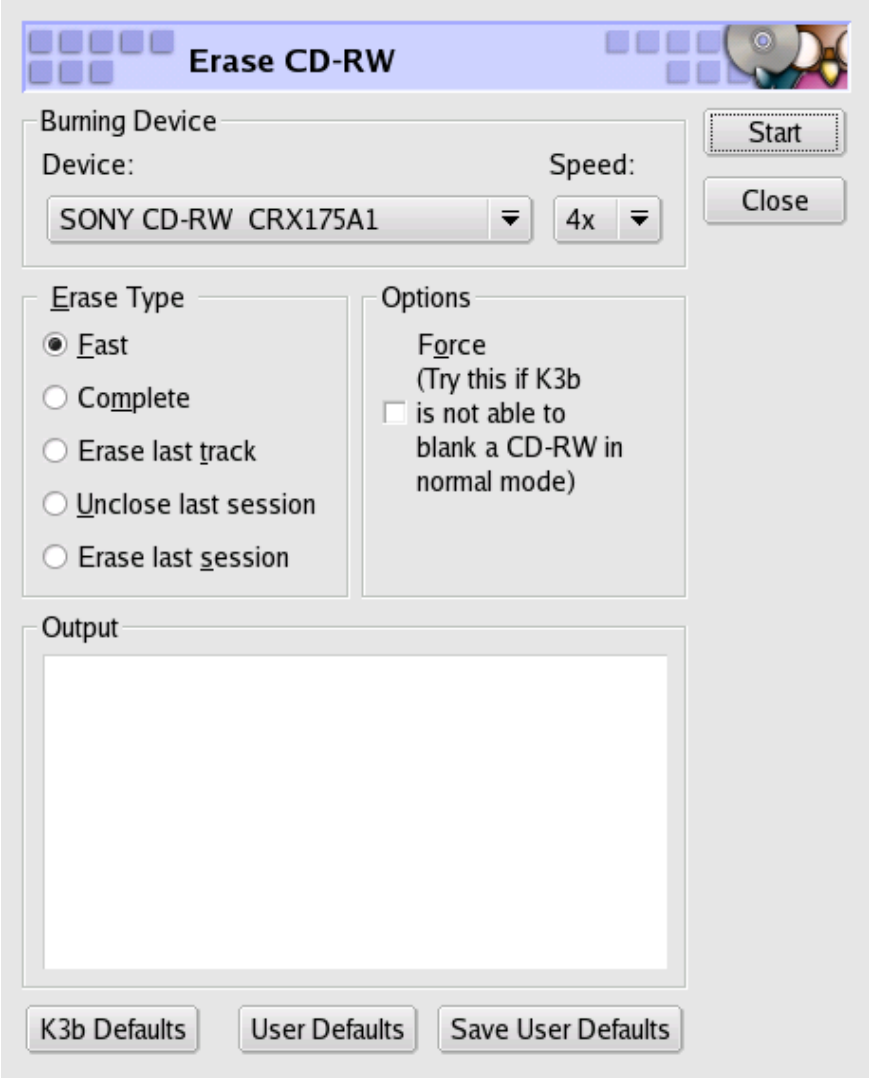


Figure 13-17. Setting CD-RW Blanking Options

You might want to format your CD-RW media in order to write it with different data. To do so, choose Tools→Erase CD-RW... from the menu (or use the button shown in table 13-1) and a dialog will pop up (figure 13-17). The Erase Type can be set to Fast (the CD-RW is quickly erased in up to 3 minutes); Complete (the CD-RW is completely erased taking up to 90 minutes); and a few options related to multi-session recording. Insert the medium on the CD burner and click on the Start button to start erasing the CD-RW.

13.3.6. Final Notes

As you can see, CD recording under **Mandrake Linux** is well supported with graphical programs. This section is a kind of mini-*HOWTO* of CD recording for the most common tasks you might want to do. However, CD recording uses are not limited to things described here. Please refer to the FAQ on the K3b web site (`http://k3b.sourceforge.net`) for more information.

13.4. Webcams And Video Conferencing

13.4.1. Getting Started

You've heard about it everywhere, but you don't have a clue how to do it with your new **Mandrake Linux** system: videoconferencing. We will show you how to do video (and audio) conferencing using your webcam and *GnomeMeeting*. We will discuss USB webcams since the parallel models are really old and do not have the image quality of USB devices.

Before buying your new webcam, it would be a good idea to see if it's supported under *GNU/Linux*. Refer to Linux USB (`http://www.linux-usb.org/devices.html`) and to the excellent Linux USB device overview (`http://www.qbik.ch/usb/devices/devices.php`) web sites for more information on USB webcams.

You need to install the `gnomemeeting` package because it is not installed by default. Please refer to "*RpmDrake: Package Management*", page **??** for more information on package installation.

The hardware setup is very easy. Just plug your webcam in an empty USB slot and it will be automatically recognized and configured. You should see this icon appear on your desktop with a legend like `GnomeMeeting /dev/v4l/video0` underneath it; if not, you can run it choosing Applications+Communications→GnomeMeeting from the main menu. Do not forget to connect your microphone and speakers to the proper place on your sound card.

When *GnomeMeeting* is run for the first time, a configuration wizard appears which will guide you through the setup process. Use the Forward and Back buttons to move through the wizard's pages.

You can access the wizard later from within *GnomeMeeting* by choosing Edit→Configuration Druid from its menu.

The configuration options of the wizard are self-explanatory, so fill in the fields, advance through it till you get to its last page and click on the Apply button to close the wizard.

To be able to communicate with your friends using *NetMeeting* (or other H.323/ILS compatible software), you will need to configure the directory settings by choosing Edit→Preferences... from the menu and opening the Directory Settings sub-section of the General settings.

The `ils.seconix.com` directory is a free service. If you want to use other directories, take a look at the Videofrog ILS Scanner web site (`http://www.videofrog.com/ils/servers.phtml`).

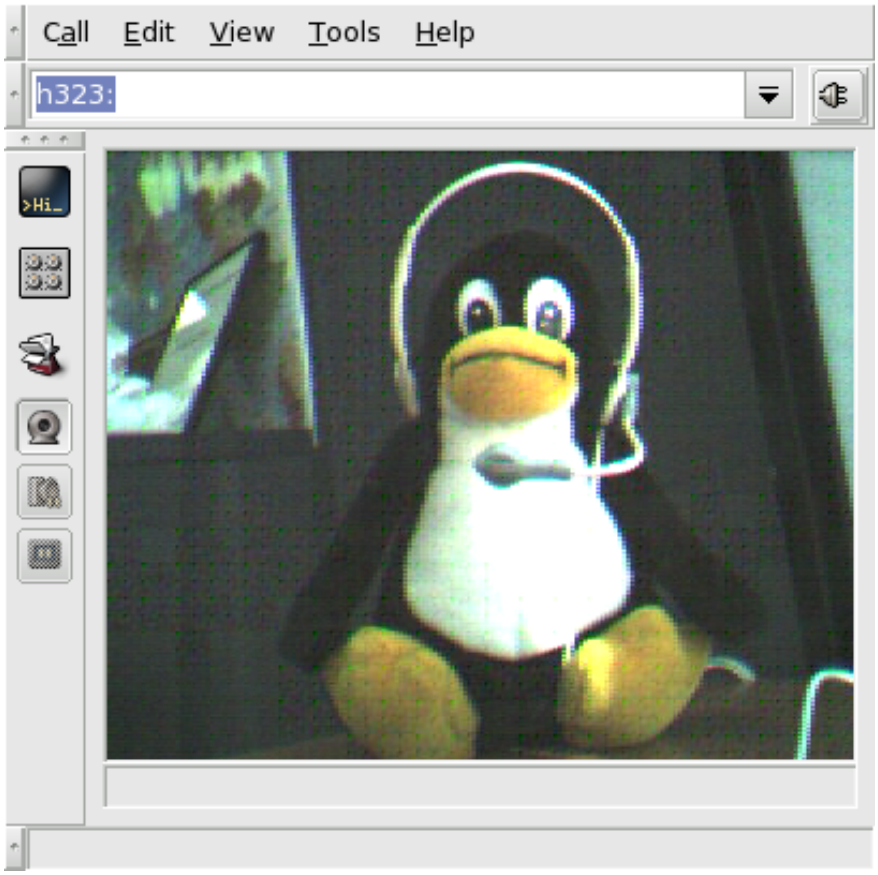


Figure 13-18. GnomeMeeting's Main Window

This icon appears in *GNOME*'s or *KDE*'s panel whenever *GnomeMeeting* is run, and can be used to control *GnomeMeeting* by right clicking on it.

On the left side of the main window you have the toolbar with a few buttons. The first three are:

	Opens/closes the ILS window to find and connect with friends registered on ILS.
	Opens/closes the text chat window on the right side of *GnomeMeeting*'s main window so you can chat with the remote party you are currently connected to. Just type the text you want in the Send Message field and press **Enter**.
	Opens/closes the control panel at the bottom of *GnomeMeeting*'s main window where you can see communications statistics (lost/late packets, delay and jitter), the "dialpad" from where you can call memorized URLs, and the audio and video settings panels.

Table 13-2. GnomeMeeting's Toolbar Buttons

In the control panel's audio tab you can use the sliders to set the speaker and microphone levels as shown in figure 13-19.

Figure 13-19. Setting Audio Levels for GnomeMeeting

In the control panel's video tab you can adjust the following video parameters (from top to bottom):

- Brightness level. The higher the value, the brighter the image will be.
- The level of white. This tells the video device which signal level should be considered "white".
- The color level. This adjusts the amount of color the image from your camera will display. It might have no effect with certain cameras/light conditions.
- The contrast level. With the lighting conditions found in a typical office the contrast is normally set to zero.

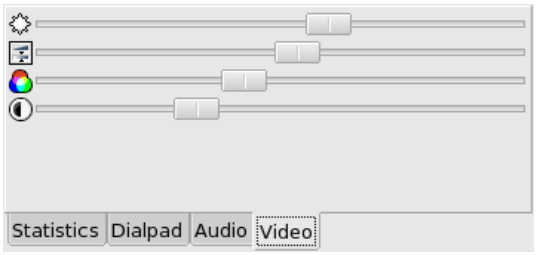


Figure 13-20. Setting Video Levels for GnomeMeeting

Example video settings are shown in figure 13-20. Please note that for the most part, these settings are automatically configured when *GnomeMeeting* starts up based on the lighting conditions of the environment and your webcam.

13.4.2. Connecting with Another User

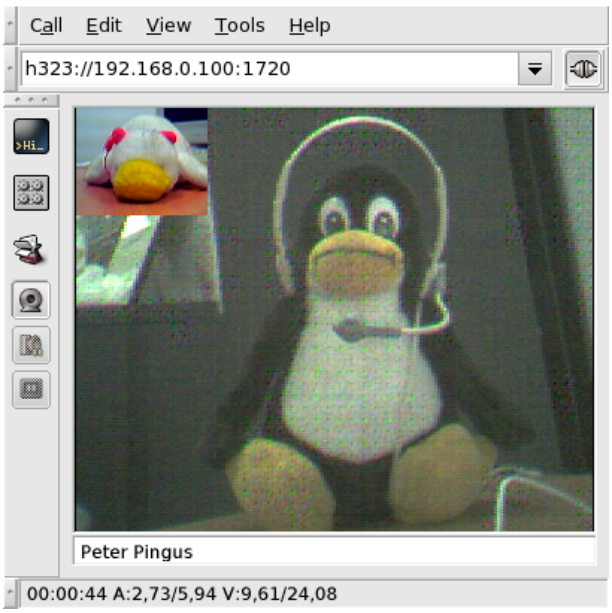


Figure 13-21. Video Conferencing with a Remote Party

To connect directly (end-to-end, no servers) to another user, you need to input a `callto://` or `h323://` URL with the remote user's host or IP address and, optionally, the port in the pull-down list at the top of *GnomeMeeting*'s main window. Then click on the button on the right (the one with the plug). If the connection succeeds and the remote party accepts your call, right-click on the video window and select Remote Video to see only the remote party, Both (Local Video Incrusted), meaning yourself and the remote party video within the same window, as shown in figure 13-21 or Both (Local Video In New Window) to have yourself and the remote party in different windows.

GnomeMeeting supports both `callto://` and `h323://` URLs. They can be used to communicate with users through a "gatekeeper" server (just input the URL in the pull-down list at the top of *GnomeMeeting*'s main window and click on the button on the right) and `callto://` URLs can also be used to make icons to call those users directly from your desktop, although this last feature was available **only** for *GNOME* at press time.

13.4.3. Connecting with ILS (NetMeeting™) Users

You can use *GnomeMeeting* to connect to an ILS server and video conference with people using *NetMeeting™* or other compatible software.

Click on this button or choose Tools→Addressbook from the menu to open the ILS directory window and click on Find to update the list of available users connected to that ILS server, as shown in figure 13-22.

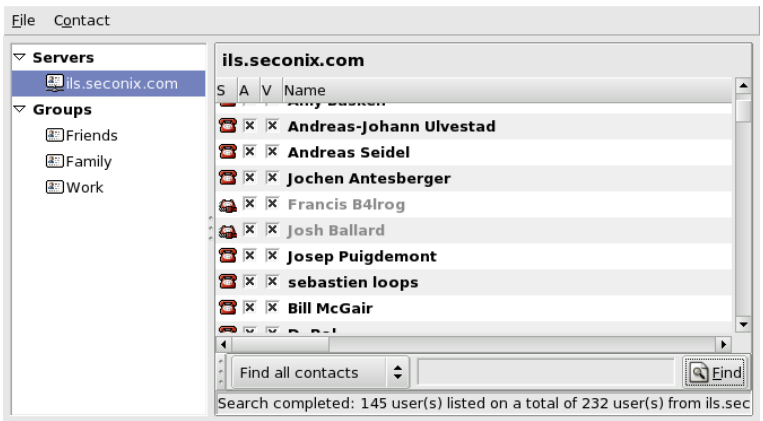


Figure 13-22. Finding People on ILS Servers

Select the search criteria in the pull-down list at the bottom and fill the field at its right, then click on the Find button. Once you have found the person you want to communicate with, double-click on them to initiate the call. You can change ILS servers in the Servers tree in the left part of the window.

Chapter 14. Introduction to the Mandrake Control Center

14.1. What's in DrakConf

Mandrake Control Center is **Mandrake Linux**'s main configuration tool. It enables the system administrator to configure the hardware and the services used for all users. The tools accessible through the *Mandrake Control Center* greatly simplify the use of the system, notably by avoiding the use of the "evil" command line.

Figure 14-1. The Control Center Icon

You will find this icon in the "Welcome" screen. *Mandrake Control Center* is also found in the main menu: Configuration→Configure your computer.

Mandrake Control Center is also available from the command line in text mode by running `drakconf`.

The following image shows you the window which pops up when you click on the icon shown in figure 14-1.

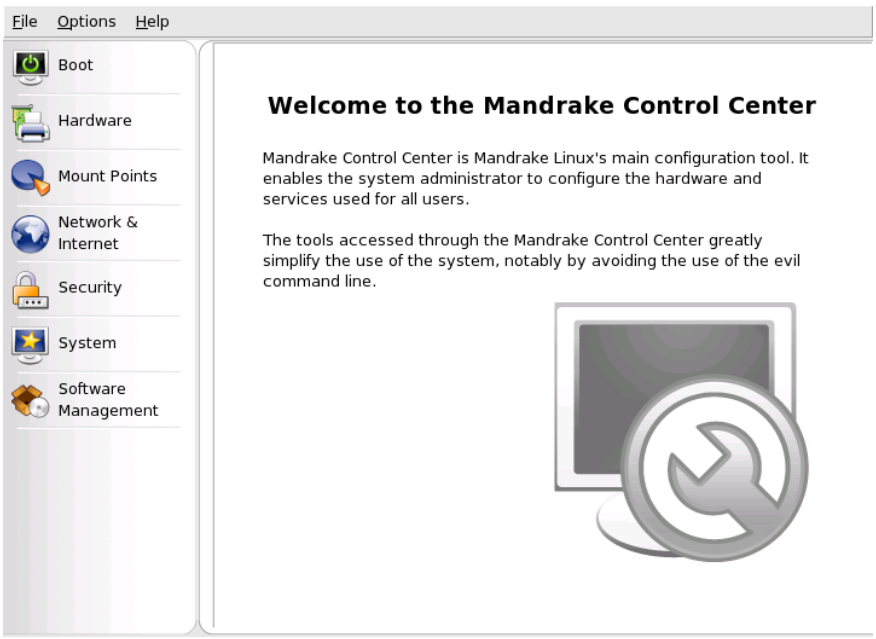


Figure 14-2. The Control Center's Main Window

We will detail four of the available menu entries:

- Options→Display Logs**.** When activated this option displays a Logs frame at the bottom of the main window. It will display all the changes made on the system by the configuration tools launched from within the *Mandrake Control Center*.
- Options→Embedded mode**.** Configuration tools launched from the *Mandrake Control Center* can be displayed in two different modes. The embedded mode will display the tool in the main frame. If you de-select this option, the tools will be displayed in their own window.

- Help→Help. This will open the help browser with help for the configuration tool.
- Help→Report Bug. This will open a dialog box to help you report a bug to the development team. See *The drakbug Bug Reporting Tool*, page **??**.

The tools are sorted into six categories (or more depending on the packages installed) on the left of the window. You can open a category by clicking on the label. Following are all the tools and references to the corresponding manual sections.

Boot	*DrakFloppy: Creating a Boot Disk*, page **??**
	DrakBoot: Changing your Boot-Up Configuration, page **??**
	DrakAutoInst: Creating a Boot Disk for a (Semi-)Automated Installation, page **??**
Hardware	*HardDrake: Configuring your Hardware*, page **??**
	Configure your monitor, page **??**
	Change your screen resolution, page **??**
	XFDrake: Full-Configuration Video Tool, page **??**
	DrakxTV: a tool to configure your TV card.
	KeyboardDrake: Changing your Keyboard Layout, page **??**
	MouseDrake: Changing Your Mouse, page **??**
	PrinterDrake: Configuring Printers, page **??**
	Installing and Using Scanners, page **??**
Mount Points	*DiskDrake: Managing your Hard Drive Partitions*, page **??**
	Managing Removable Devices, page **??**
	Importing Remote NFS Directories, page **??**
	Importing Remote SMB Directories, page **??**
	an experimental utility to mount remote *WebDAV* directories.
	Partition Sharing: Allow Users to Share Directories, page **??**
Network & Internet	*DrakConnect: Configuring Network and Internet Connections*, page **??**
	DrakProxy: a simple tool which allows you to configure possible proxies your computer may need to use to access the Internet.
	DrakGw: Configuring Your Machine as a Gateway, page **??**
Security	*DrakSec: Securing Your Machine*, page **??**
	DrakPerm: Control File Permissions, page **??**
	DrakFirewall: Securing your Internet Access, page **??**
System	*MenuDrake: Customizing your Menus*, page **??**
	Display manager chooser: *DrakeDM* enables you to choose the X11 Display Manager to be used in order to let users graphically log onto the machine. All display managers basically offer the same features, it's a question of taste.
	DrakXServices: Configuring Start-Up Services, page **??**
	DrakFont: Managing The Fonts Available on Your System, page **??**
	Set Date and Time, page **??**
	LogDrake: Searching Through The Log Files, page **??**
	UserDrake: Managing Users and Groups on Your System, page **??**
	DrakBackup: Backup and Restore your System and Personal Files, page **??**
Software Management	"*RpmDrake: Package Management*", page **??**

Table 14-1. A Fast Review of Mandrake Graphical Tools

This last category (Software management) appears only if the `rpmdrake` package is installed. An eighth category (Configuration Wizards) appears if the *wizdrake* package is installed. The documentation for those wizards is available inline or in the *Quick-Configuration Server Guide*. It contains 13 wizards for the basic configuration of common LAN services, as well as web and FTP servers.

14.2. The drakbug Bug Reporting Tool

If you find unexpected behavior in **Mandrake Linux**-specific tools, *drakbug* allows you to report that to the development team.

To be able to report bugs using *drakbug*, you will need to have a working Internet connection.

To run *drakbug*, go to the Help→report Bug menu entry of the faulty tool, or run it from *Mandrake Control Center*'s own menu. *drakbug* can also be triggered automatically by a crashed Mandrake Tool.

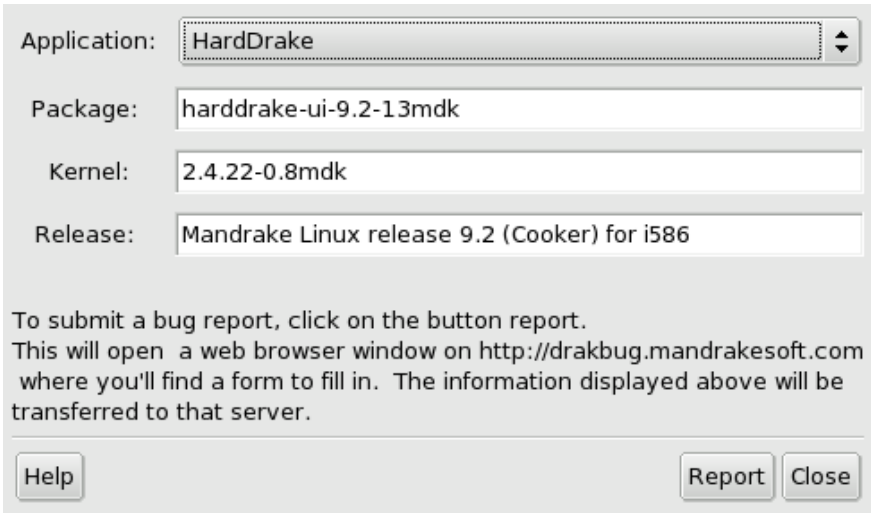


Figure 14-3. Reporting a bug With DrakBug

Check that the application is the correct one and then click on the Report button. A little dialog will appear indicating that *drakbug* is about to connect to the Web. Check that your Internet connection is activated and then click on the OK button.

Your web browser will then open with the *drakbug* wizard pre-filled with the information collected from your computer that will help the development team fix the bug. Make sure your bug has not already been reported before continuing with the wizard. Thank you for your time contributing to make **Mandrake Linux** a better distribution.

Chapter 15. Configuration: “Boot” Section

15.1. DrakFloppy: Creating a Boot Disk

If you did not create a boot disk when you installed your system, this tool allows you to do so. This is also a rescue disk which allows you to perform maintenance tasks on your system in case of failure.

15.1.1. Using DrakFloppy

If you want to create a “default” boot disk, that is, one that is based on your current kernel, all you have to do is insert a floppy disk in the appropriate floppy drive, select that drive from the Device pull-down list and press the OK button. A dialog will pop up and remind you that a diskette must be inserted in the drive. Accept it to create the disk.

If you want to customize your boot disk, you will have to hit the Preferences button and a window will pop up (see figure 15-1).

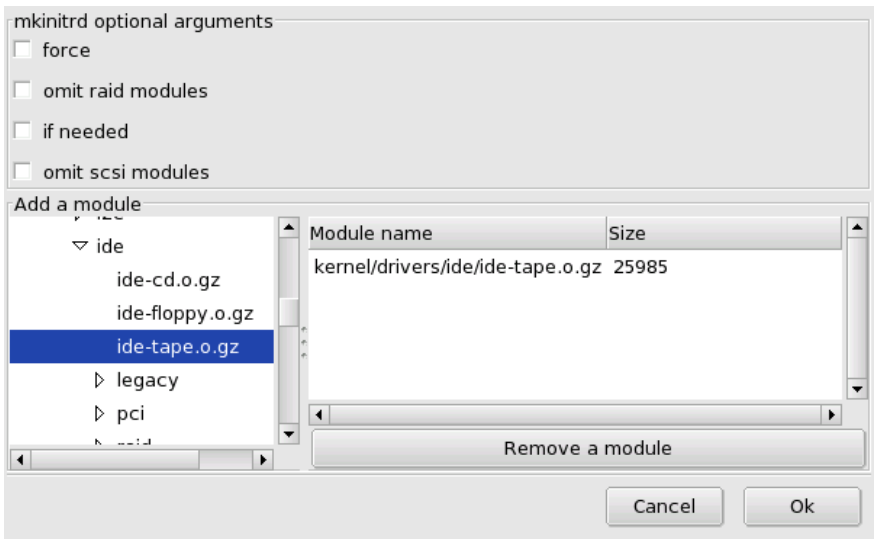


Figure 15-1. Making a Custom Boot Disk

The window has two sections: one containing check boxes with options for `mkinitrd`, and another one with the modules “tree”. Select the modules you need to be added to the floppy. In this example, we want to use the IDE tape module and pre-load it. Use the Remove a module button to remove the currently selected module. When you are done customizing the boot disk press the OK button, return to *drakfloppy*'s window and then proceed as indicated above to create the disk.

15.2. DrakBoot: Changing your Boot-Up Configuration

This tool allows you to change two aspects of the boot process: the boot menu entries and the login mode.

Figure 15-2. Choosing the Boot Mode

The main dialog is divided into two zones, each one corresponding to a special configuration step of the boot process:

15.2.1. Configuring the Bootloader

Clicking on the Configure button of the first zone launches the bootloader setup. Two dialogs will be displayed. The first one enables you to switch from one bootloader to another and to specify the device from which it should boot. It also allows you to change the time delay (0 means infinite) in seconds before the bootloader actually boots the default choice. The second step allows you to manage the different entries available through the bootloader.

Unless you really know what you are doing, it is not recommended that you change those settings as this may prevent you from booting your machine the next time you try to power it on.

15.2.2. Configuring the Login Mode

At this stage, you can control the way people log onto the machine. There are two aspects:

1. Graphical interface: if you wish to see the X-Window (graphical display) system started at boot time, check the Launch the graphical environment when your system starts box. If you leave it unchecked, the text login will be displayed.
2. Autologin: if you are the only one to use your machine and nobody else has access to it, you may choose to be automatically logged in at boot time. If you check Yes, I want autologin, just choose the user to be automatically logged in in the first combo box, and the preferred *Desktop Manager* in the second one.

15.3. DrakAutoInst: Creating a Boot Disk for a (Semi-)Automated Installation

This tool allows a system administrator to replicate an installation on many machines by not having to reconfigure all steps by hand for each machine.

The principle behind this feature is quite straight forward. Let's imagine you have 10 identical machines for a computer lab on which you want to install *GNU/Linux*. These are the steps to follow:

1. Make the installation on machine number 1;
2. Create the automatic installation boot disk by following the steps below on machine number 1;

3. Boot each of the nine machines with this boot disk so that the installation made on the first machine is replicated on all the others.

If you make the 1st machine's installation using a network packages media (NFS for example) instead of a CD-ROM, you will not need to insert all installation CD-ROMs when replicating the installation.

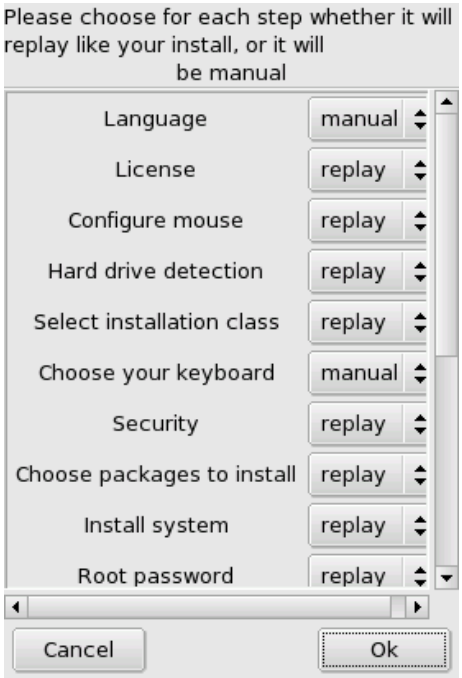


Figure 15-3. Choosing the Steps to Replay

The interface consists of a list of most of the installation steps. Each step has a two-entry menu associated:

- replay: choose this if you want the automated installation to use the same choices you made during the manual installation;
- manual: choose this if you prefer to manually reconfigure this step during the automated installation.

When you have made your choice for each installation step, click on the OK button. You will be asked to insert a blank floppy disk (if it is not blank, all data it contains will be erased).

After clicking OK again, the boot floppy disk will be created with the following characteristics:

- The installation method (from CD-ROM, via NFS, FTP, etc.) is the same as the one used during the installation of the machine you are currently working on (the 1st machine).
- All the steps marked as replay will be replayed with all choices set to the ones made during the installation of the first machine.
- All the steps marked as manual will have to be manually configured during the installation of the replicas.
- For security reasons, the partitioning and formatting steps of the replicas will have to be done manually.

Then, all you have to do is to insert the resulting floppy in the machine you want to replicate the installation on, turn it on, and configure the few remaining steps manually, thus saving a lot of time.

Chapter 16. Configuration: “Hardware” Section

16.1. HardDrake: Configuring your Hardware

16.1.1. Introduction

The *HardDrake* project has been developed to simplify hardware detection and configuration under *GNU/Linux* by providing an easy-to-use interface.

16.1.1.1. Description

HardDrake is a full GUI-based tool which ties together many of the tools already included in a *GNU/Linux* distribution. It automates and simplifies the process of installing new hardware. For the most part, *HardDrake* will be able to detect most devices.

On one hand, *HardDrake* is used to display information, and on the other hand, it can launch configuration tools. With its easy-to-use interface, you should be able to browse all the hardware your system contains.

HardDrake uses the “ldetect” engine, so if your new hardware is not detected, you may try to upgrade `ldetect` library itself and its hardware database, located in `ldetect-lst`.

16.1.1.2. Usage

To launch *HardDrake*, you can start it from:

- *Mandrake Control Center*: just click on the "HardDrake lists and helps you set up your hardware" icon.
- a terminal: type `harddrake2`. If started in a terminal, you can also pass parameters to the program.
- the desktop: go in the main menu. The *HardDrake* entry is in the Configuration+Hardware→HardDrake submenu.

After a wait screen (while device detection goes on), the main *HardDrake* window will appear (figure 16-1).

On the left, you can see the device tree showing you all the categories.

For some categories, you will notice an arrow “>” symbol. By clicking on it, the subtree will be expanded and all detected hardware of this category will be listed. figure 16-1 shows such a window.

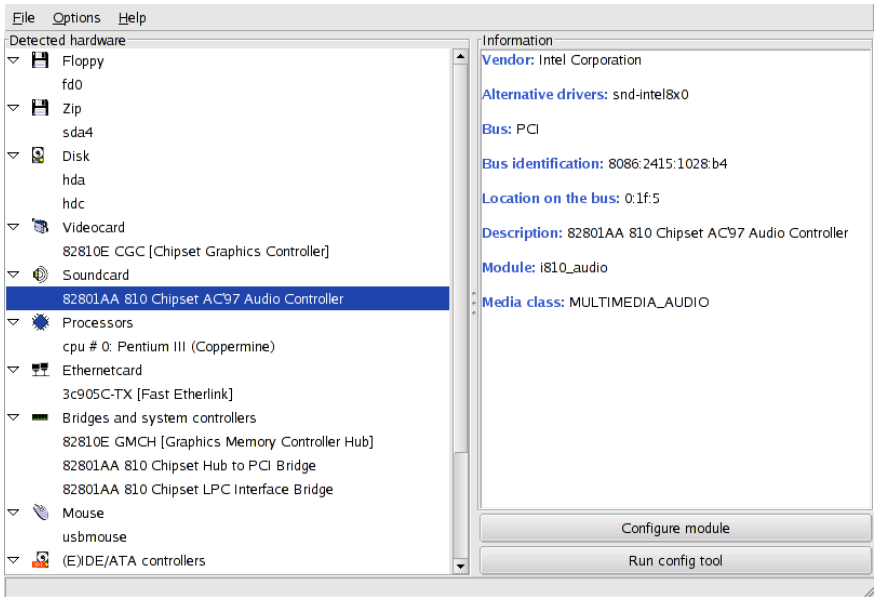


Figure 16-1. HardDrake — Selected Device

By selecting a device, you will get additional information about it in the right frame. You can consult the help page accessible in the Help→Fields description menu to understand the meaning of the information fields.

In some cases, you will see a configuration button which will allow you to configure the selected device. In figure 16-1, we expanded some parts of the tree and selected a device in one of the categories. On the right, you can see information about the selected card.

Depending on the device selected, two buttons may appear:

- Configure module**.** This pops up a window with all the module device parameters listed. **For experts only!**
- Run config tool**.** Launches the **Mandrake Linux** configuration tool associated with that device. These correspond to the tools available through the *Mandrake Control Center*.

There is a special category called `Unknown/Others` which contains all currently unknown hardware in your system as well as known hardware that does not fit in existing categories (thermal sensors, random number generators, etc.).

If your hardware is really unknown (no description or no driver even though you know a working driver exists), you may be able to see your hardware recognized in future versions! To contribute to the effort, report the displayed information to the harddrake team (`mailto:harddrake@mandrakesoft.com`) and use the subject "[Unknown_devices]" in your e-mail.

16.1.2. Problems/Troubleshooting

If your hardware is not recognized or your system freezes, contact *the harddrake team* (`mailto:harddrake@mandrakesoft.com`) and use the subject "[Detect_devices]" in your e-mail.

If you think you have found a bug related to *HardDrake* (bugs with the user interface), contact the same e-mail address but use "[harddrake::ui]" as the subject.

ISA PnP devices are not probed for by *HardDrake*. In order to configure them, run `sndconfig` or `alsaconf` on the command line. You will need to install the `sndconfig` package or the `alsa-utils` package if needed.

16.1.3. Other Information

- If you have a hard time getting your IsaPnP tools working, please check out the IsaPnPTools home page (`http://www.roestock.demon.co.uk/isapnptools`) (used by the `detect library`).

16.2. Controlling the Graphical Configuration

This set of tools allows you to configure your graphical display. When something really goes wrong or if you could not manage to configure your graphical server at installation time, there is an expert mode allowing you to configure your hardware, even in text mode.

If you cannot get the graphical environment at boot time, and only the command-line interface, log in as `root` and launch the `XFdrake` command. You will get the exact same tool as described in *XFDrake: Full-Configuration Video Tool*, page **??**, but in text mode.

If you launch the `XFdrake` command from the command line, you'll go directly to *XFDrake: Full-Configuration Video Tool*, page **??**, that is the full configuration tool. If you are in the *Mandrake Control Center*, you will have two additional tools to specifically change the monitor (*Configure your monitor*, page **??**), and the screen resolution (*Change your screen resolution*, page **??**).

16.2.1. Configure your monitor

This little tool allows you to change the monitor model currently connected to your computer. It can be useful if you happen to change it after installation.

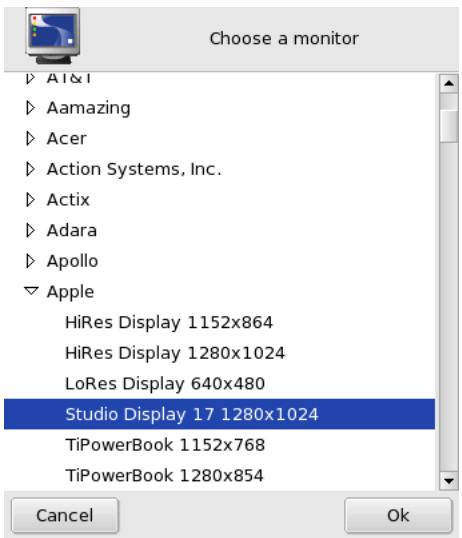


Figure 16-2. Choosing a New Monitor

The detected monitor is selected by default. If it is correct, simply click the OK button. If not, you can search for your monitor brand and model in the Vendor tree. If it is not there, choose one with parameters corresponding to your own monitor from the Generic.

16.2.2. Change your screen resolution

This little tool allows you to change the video resolution of your screen, if the one you configured at installation time does not fit your needs.

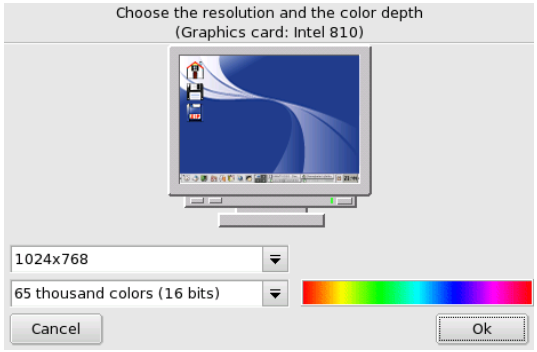


Figure 16-3. Choosing a New Video Resolution

In the figure 16-3 window, you have two choices: resolution (in pixels) and depth (number of colors) of your system. Simply choose the one you wish to use. The monitor in the window displays what the desktop will look like with the chosen configuration. If it looks good, click on the OK button.

16.2.3. XFDrake: Full-Configuration Video Tool

This tool offers the full range of configuration options to get the screen configuration at its best.

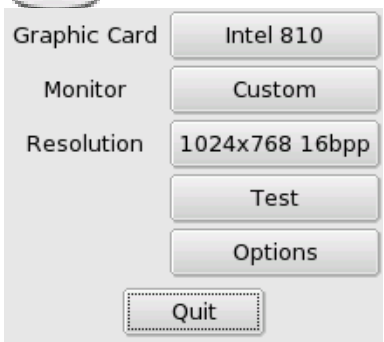


Figure 16-4. Video Configuration Menu

The first three lines allow changes to the configuration:

- **Graphic Card.** The button displays the name of the graphic card currently configured. If you wish to change it, just click on it. Depending on your card, different servers may be available, with or without 3D acceleration. You may need to try different ones until you get the best result.
- **Monitor.** Clicking on the button with the current monitor will launch the tool seen above (*Configure your monitor*, page **??**).
- **Resolution.** Clicking on this button will launch the tool seen above (*Change your screen resolution*, page **??**).

Then, there are three more buttons:

- **Test.** Click this button to check the changes made in video configuration actually work. It is highly recommended you do test it, because if it does not work, it will be harder later to recover a working graphical environment. If the test fails, or if you are not happy with the proposed settings, choose No during the test, and you will go directly to the *XFDrake: Full-Configuration Video Tool*, page **??** section.

Depending on your video card, video testing may not be available. You will then be warned of such a situation. If it happens that the settings are incorrect and your display does not work, refer to "*Troubleshooting*", page **??** to use *XFdrake*'s text version.

- **Options.** You can start the graphical server at boot time or not. Answer No if you prefer to have a text login at boot time. Selecting Yes will launch the graphical login manager.

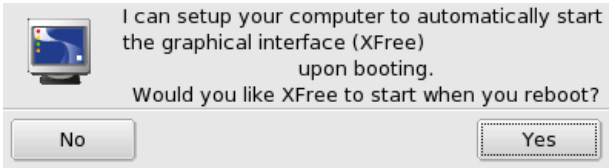


Figure 16-5. Text or Graphical Login?

- **Quit.** You will see a list showing the new configuration (if something has changed). This is your last chance to go back to the old configuration. If all seems OK, click Yes. If you wish to restore old parameters, click No.

The changes will be activated after you quit and restart your graphical environment.

16.3. KeyboardDrake: Changing your Keyboard Layout

The window in figure 16-6 allows you to define another keyboard layout. This is commonly done when the keyboard you want to use is different from the one you chose at installation time.

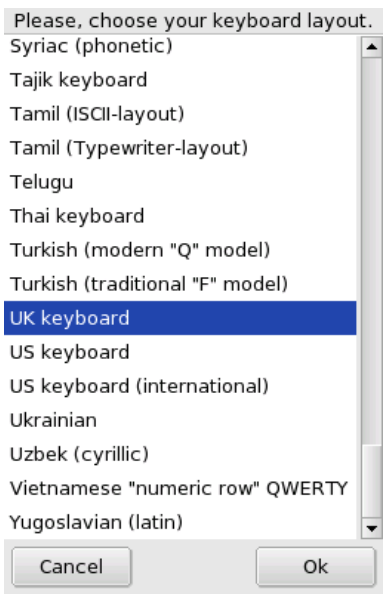


Figure 16-6. Choosing a Different Keyboard Layout

Changes are effective immediately after clicking OK.

If you choose a keyboard layout based on a non-Latin alphabet, the next dialog will ask you to choose the key binding that will switch the keyboard configuration between the Latin and non-Latin layouts.

16.4. MouseDrake: Changing Your Mouse

The dialog shown in figure 16-7 allows you to set up a different mouse, which is useful if the mouse you are currently using is not the same one you chose during installation.

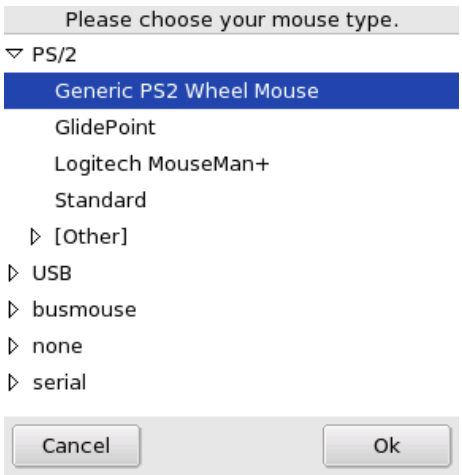


Figure 16-7. Choosing a Different Mouse

Mice are sorted into a tree according to their connection type and model. Highlight the mouse of your choice and click OK.

Changes will take effect immediately.

16.5. PrinterDrake: Configuring Printers

This tool allows you to configure a newly installed printer on your machine, or to configure your machine to act as a server for a printer that has just been connected to your local network.

If you have just installed a printer that was not available when you installed **Mandrake Linux**, make sure it is correctly connected and powered on. When launching the *PrinterDrake* tool, the new printer will be automatically installed and configured, and when complete you will see the tool described below (figure 16-8), which shows your local printer as it is configured at the present time. You can modify or correct this configuration, or configure printers which were not auto-detected. If your machine is in a local network, you can also configure network printers or printer sharing.

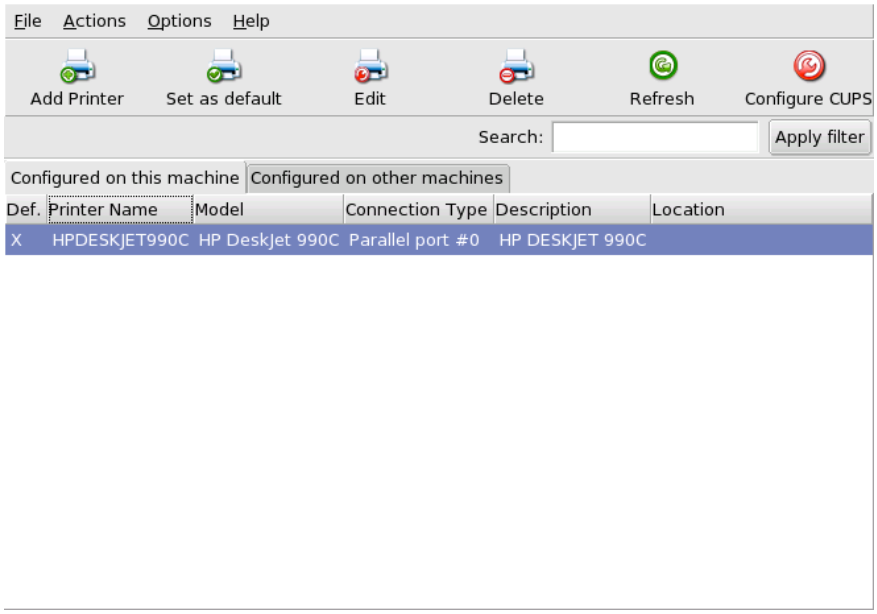


Figure 16-8. Managing Printers

If your printer has been automatically added you should now verify its configuration. Select it in the list, click the Edit button and check the Printer options.

The printer configuration tool (figure 16-8) has two tabs. The first one for locally connected printers (Configured on this machine)), the other one for printers available on the local network (Configured on other machines). Then six buttons on top of this give access to all the available maintenance tasks:

- Add printer: launches the printer configuration wizard described below.
- Set as default: sets the selected printer as the default printer when no specific printer is chosen at printing time. A cross appears in the Def. column of that printer.
- Edit: opens the printer configuration dialog (see *Reconfiguring an Existing Printer*, page **??**).
- Delete: removes the selected printer from the available printers pool.
- Refresh: updates the printers list with possible new or removed printers, notably for the networked printers.
- Configure CUPS: (if a local network exists) by default, your system will be totally open. It will use all of the network's available printers and share all of its local printers with the local network. Click this button if you do not want to access network printers, or if you want to restrict access to your local printers. This configuration dialog will also allow configuration access to servers outside the local network.

The Options→Expert mode menu check-box will add extra features to the tool. See *Expert Mode*, page **??**.

16.5.1. The Printer Configuration Wizard

Click the Add printer button and the configuration wizard will come up. To go from one step to another, click on OK or Next ->. Use Cancel to abort the installation.

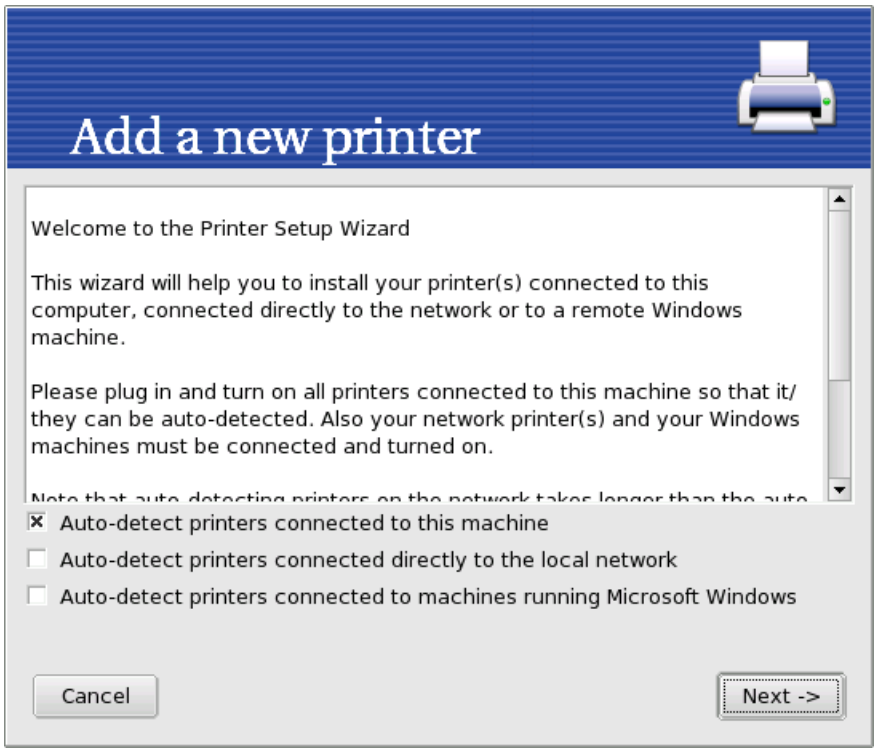


Figure 16-9. Auto-Detecting Printers

The first screen allows you to enable the auto-detection of locally connected printers, network printers, and finally printers served by SMB (*windows*) servers. First try to activate auto-detection for the printer types you are looking for. The next step presents which printer(s) was/were detected. If the one you want to set up is listed, select it, click on OK, confirm the printer model, and go to figure 16-15. If the detected printer is not the correct one check the Manual configuration box and go to figure 16-12. If auto-detection fails, remove the check mark from all check boxes, click on Next -> and follow the instructions below.

Figure 16-10. The Printer Port

First, you need determine which port your printer is connected to: either a parallel or a USB port.

Figure 16-11. Multi-Function Device

You will then be asked whether your printer is a multi-function device from HP or `Sony`. If so, additional packages will be installed on your system and you will be told how to scan and access photo memory cards with your device.

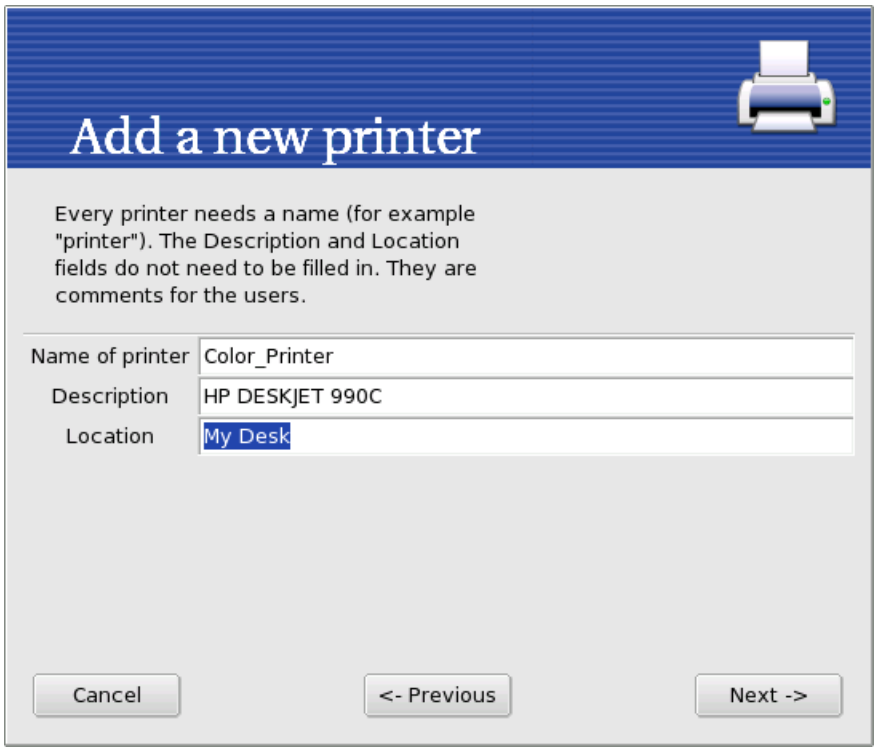


Figure 16-12. Choosing a Name for your Printer

You then need to provide a name for your printer to easily identify it. Optionally, you can also supply a Printer description and a physical Location (figure 16-12).

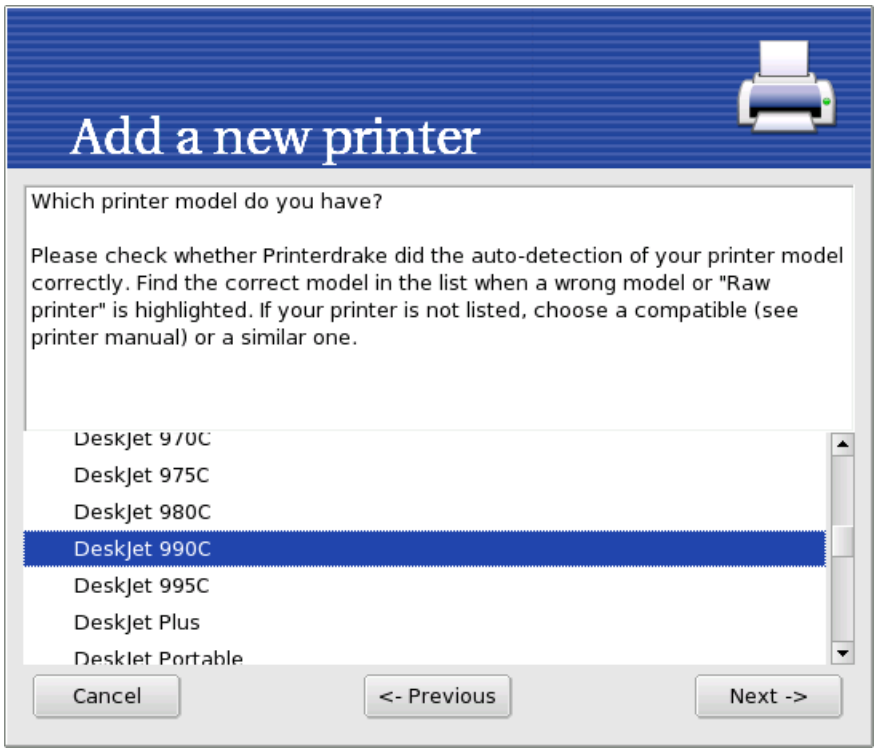


Figure 16-13. Choosing the Printer Model

In the next step you will see the list of supported printers. It is a tree view with the manufacturer's name first and then the printer's model. Select the printer you have or a compatible one (figure 16-13) if yours isn't specifically listed.

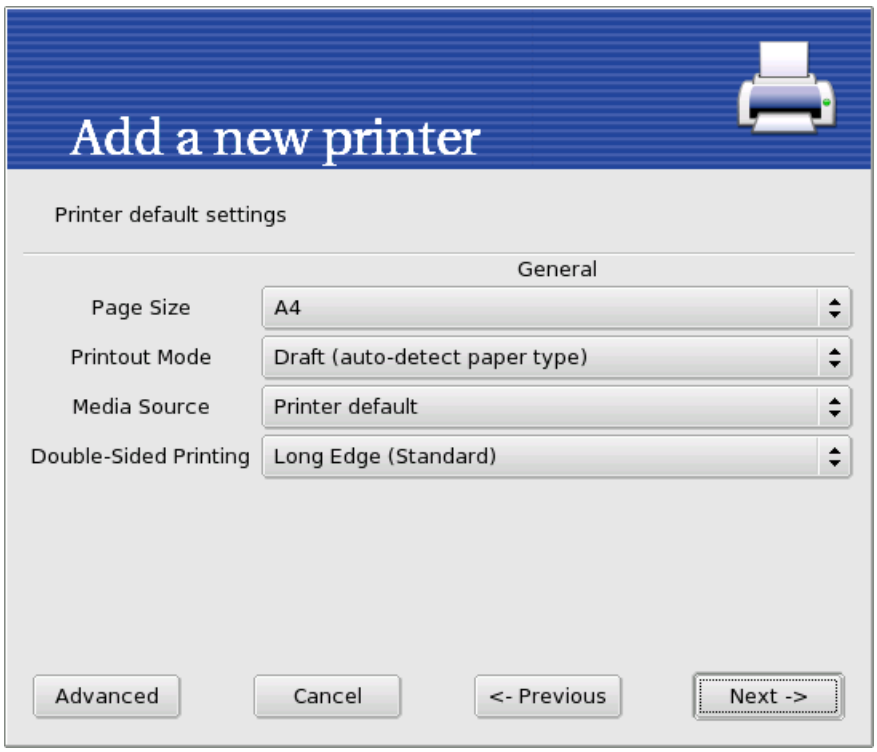


Figure 16-14. Configuring the Printer's Options

After that, the options associated with the chosen printer will be shown (figure 16-14). It is important you choose the proper paper size and the ink type which is currently installed on the printer. If the settings you choose aren't correct, printing may fail to work.

For settings regarding the printout quality, keep in mind that higher quality levels make the printer substantially slower, and consume more ink.

If you already have one or more configured printers, you will be asked whether the printer you're configuring will be the default printer for applications on your system. If you say No, the former default printer will be selected.

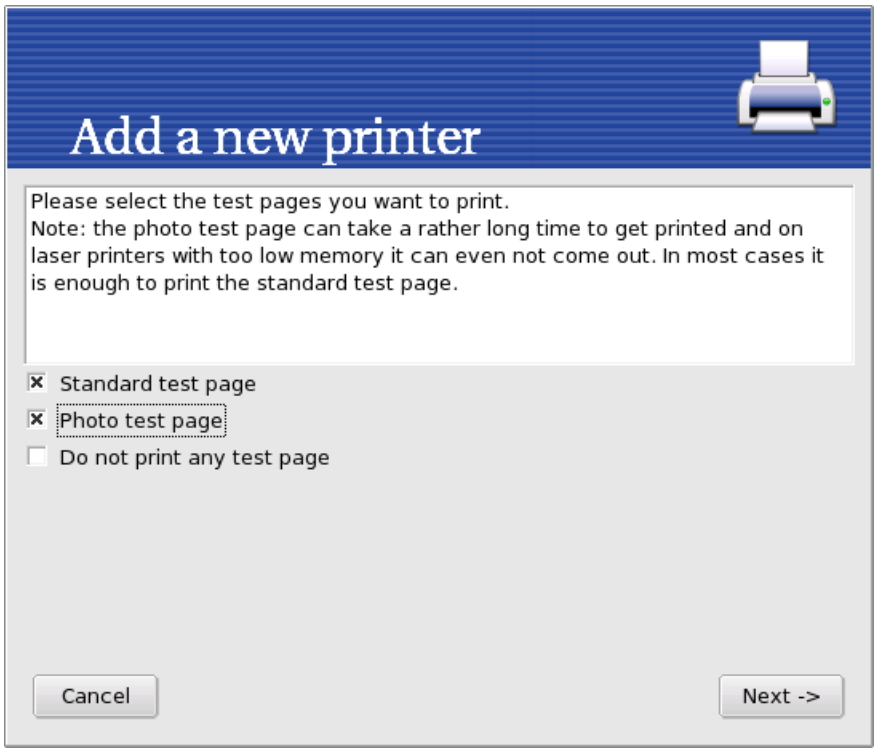


Figure 16-15. Test the Printer

Finally, you will be asked whether or not you you want to test the printer. Two test pages are available (figure 16-15) so you can adjust the parameters according to your future needs. It is advisable to print at least one test page so you can immediately correct the parameters if something goes wrong. The printer should begin to print almost immediately.

Congratulations, you are ready to print! If you're not satisfied with your test page, answer the appropriate question with No and you are lead to the printer configuration menu (figure 16-16) in order to correct the settings. See the *Reconfiguring an Existing Printer*, page **??** section.

Your printer will now appear in the list of available printers in the main window (figure 16-8).

16.5.2. Reconfiguring an Existing Printer

Double-clicking on a printer's name in the list, or clicking on the Edit button, displays a menu where you can choose actions to take on the selected printer, as shown in figure 16-16. Each option gives access to a particular step of the wizard we described above (*The Printer Configuration Wizard*, page **??**) during our example of how to configure a new printer. One difference will be that the current settings will be predefined in all fields, and you may update them where required.

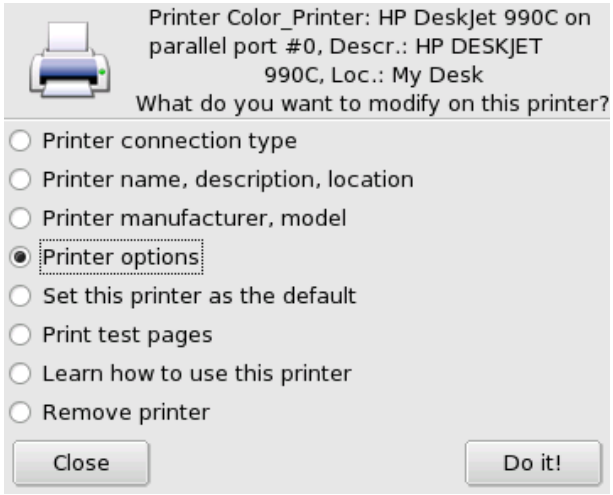


Figure 16-16. Modifying an Existing Printer

There are two additional options:

1. Learn how to use the printer. Displays a lot of information on how to use that particular model of printer. In the case of a multi-function device from HP, information about scanning and photo memory card access is also displayed.
2. Remove printer. Use this option to delete that printer's configuration from the system.

Select an option in the dialog and then click on Do it!.

16.5.3. Expert Mode

The expert mode (activated with menu Options→Expert mode) basically has three additional features:

- **Choose a Different Driver than the Default One for a Printer.** Generally speaking, there are different drivers available for the same printer. In expert mode, a third level appears in the printer model selection list (figure 16-13) allowing you to change the driver for each printer.
- **Install Many Kinds of Remote Printers.** This feature allows you to print on remote printers using the LPD protocol, printers on *Windows* servers which require a login, or other arbitrary printer types.

If *PrinterDrake* is in expert mode, it does not automatically configure new local printers on startup. Use the Add printer button to configure the printer.

If you start the new printer wizard in expert mode, there is an additional step at the beginning.

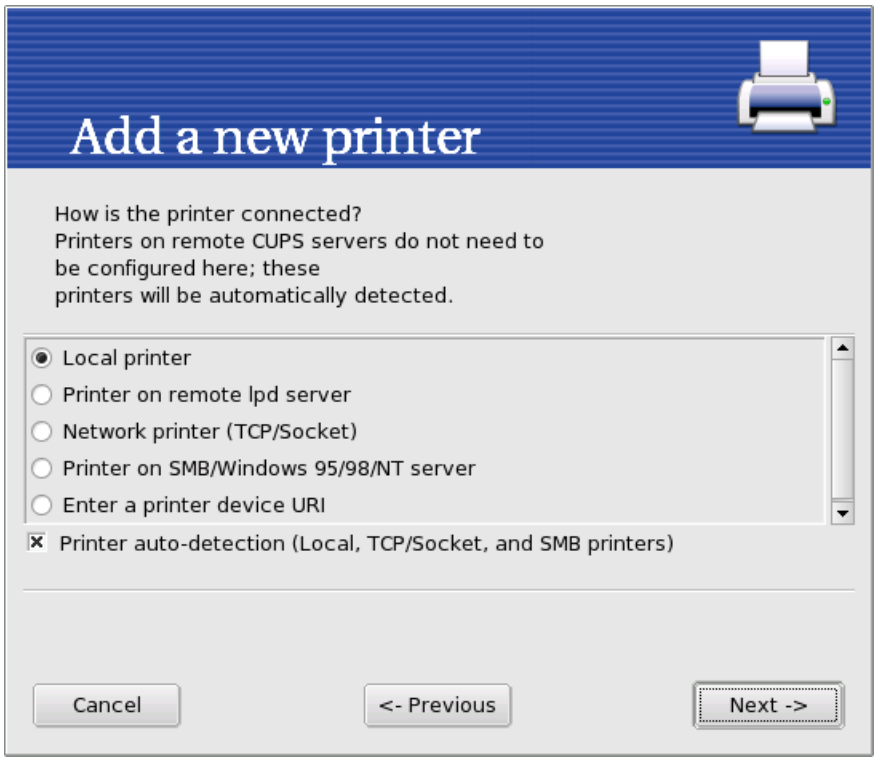


Figure 16-17. Configuring a Remote Printer

Five different connection types are available:

- Local printer. A printer directly connected to a parallel or USB port on your computer. In most cases, the printer model will be auto-detected.
- Printer on remote lpd server. A printer already served by another machine on a *lpd* server.
- Network printer (TCP/socket). A printer directly connected to your local network. The network can be scanned and printer models automatically detected provided the Printer auto detection box is checked.
- Printer on SMB/Windows 95/98/NT server. Relevant for printers already connected to a computer running an OS that serves printers with the *SMB* protocol, including *Samba* printers (the necessary *Samba* components will be automatically installed in this case). The network can be scanned provided the Printer auto detection box is checked. However, the printer model will have to be entered manually.
- Enter a printer device URI. This option allows you to directly enter the printer's Universal Resource Identifier (URI) on your network. It can be used for any of the above remote connections and more. This is useful when your system administrator provides you directly with the printer's URI.

Chapter 17. Configuration: "Mount Points" Section

17.1. DiskDrake: Managing your Hard Drive Partitions

Please refer to the *Reference Guide* to learn what partitions are used for. Partitions are initially set up during the installation process. *DiskDrake* allows you, to some extent, to resize your partitions, move them, etc. *DiskDrake* can also deal with RAID devices and supports LVM but these are advanced uses we won't talk about here.

DiskDrake is very powerful and can therefore be a dangerous tool. Misuse of it can very easily lead to data loss on your hard drive. Because of this potential loss of data, you are strongly advised to take some protective measures before using *DiskDrake*:

1. Back up your data. Transfer it to another computer, *ZIP* disks, etc.
2. Save your current partition table (the table describing the partitions held on your hard drive(s)) to a floppy disk (see *DiskDrake's action buttons*, page **??**).

17.1.1. The Interface

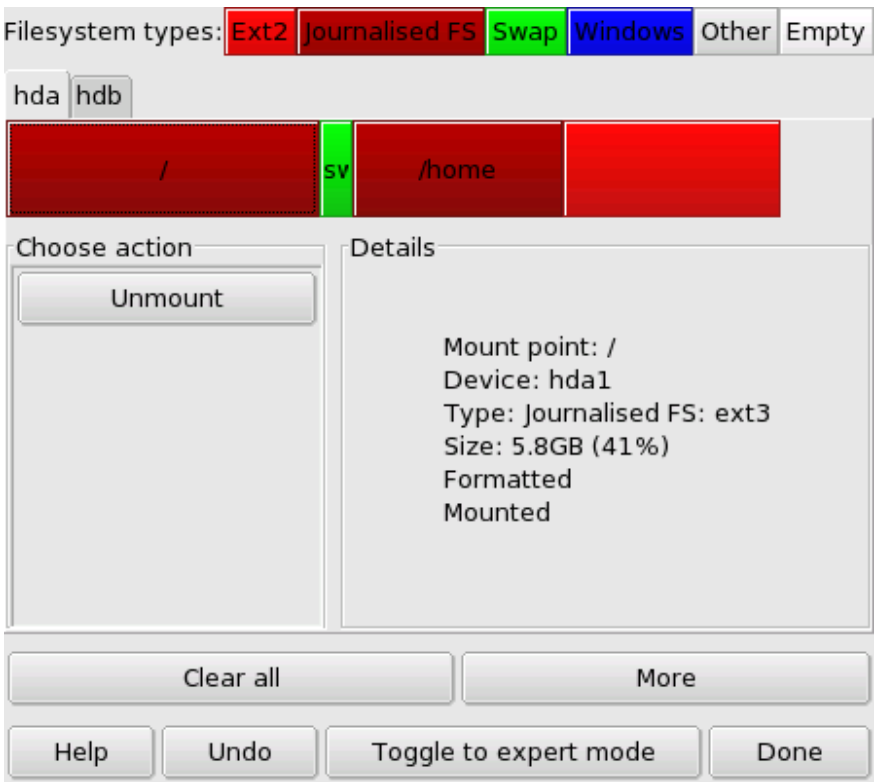


Figure 17-1. DiskDrake's Main Window

DiskDrake enables you to configure each physical hard drive on the machine. If you only have one IDE disk, you will see a single tab called `hda` below the file-system types. If there is more than one drive, then each will have its own tab and will be named according to the *Linux* name for that drive. *DiskDrake* will allow you to manage the partitioning of each drive.

The window (figure 17-1) is divided into four zones:

- Top. The structure of your hard drive. When you launch *DiskDrake* it will display the current structure of the drive. *DiskDrake* will update the display as you make changes.
- Left. A menu relevant to the partition currently selected in the above diagram.
- Right. A description of the selected partition.
- Bottom. Buttons for making general actions. See next section.

We will now review the actions available through the buttons at the bottom at the window, and then see a practical use case.

17.1.2. DiskDrake's action buttons

Clear all

Clicking on this button will clear all partitions on the current hard drive.

More

Display a three button dialog allowing you to:

Save partition table

Allows you to save the current partition table to a file on a disk (a floppy, for example). That can prove useful in case a problem arises (like an error made during drive repartitioning).

Restore partition table

Allows you to restore the partition table as previously saved with Save partition table. Restoring a partition table may recover your data as long as you do not reformat partitions, because the formatting process will overwrite all your data.

Rescue partition table

If you lose your partition table and have no backup, this function tries to scan your hard drive to reconstruct the partition table.

Help

Display this documentation in a browser's window.

Undo

Cancels last action. Most modifications done on your partitions are not made permanent until *DiskDrake* warns you it will write the partition table. This button therefore allows you to undo all of your modifications on partitions up to last write.

Toggle to expert mode

This button allows you to access the expert mode functions (which are even **more** dangerous if you are not sure what you are doing). Reserved for experts.

Done

Saves your changes and exits *DiskDrake*.

17.1.3. From Theory to Practice: Resizing an Old Partition And Creating a New One

In this section, we are going to do a little exercise to demonstrate one of the more useful features of *DiskDrake*. Let's imagine that you decide to use your machine as an FTP server and you want to create a separate `/var/ftp` partition in order to host the FTP files. **Note that doing this step by step tutorial will actually modify the structure of your hard drive.**

This is what the current `/home` partition looks like (figure 17-2), before any modification. We are going to shrink this partition in order to create free space for the new file system.

In order to perform the steps in this example, you must login directly as `root`, not as your user account.

First of all, you need to unmount the `/home` partition by clicking on it and then pressing the unmount button.

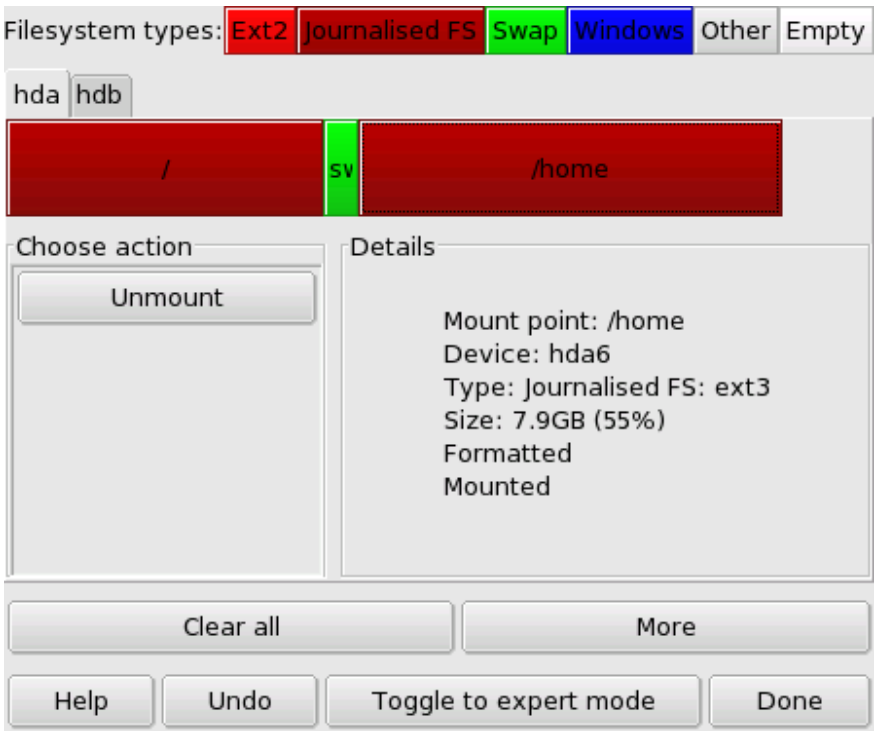


Figure 17-2. The /home Partition Before Resizing

The next step, as you may have guessed, is to click on the Resize button. A dialog will appear (figure 17-3) which will allow you to choose the new size for the `/home` partition. Move the slider, then click on OK.

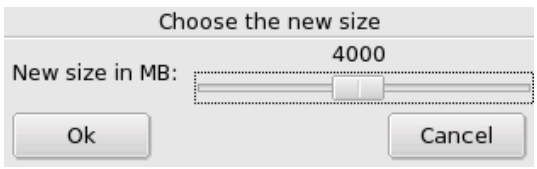


Figure 17-3. Choosing a New Size

When this is done, you will notice that the graphic representation of your hard drive has changed. The `/home` partition is smaller, and an empty space appears on the right. Click on the empty space and then on the Create button that appears. A dialog (figure 17-4) will appear to let you choose the parameters for the new partition. Change the start sector if you wish to leave a gap between the `/home` and `/var/ftp` partitions. Set

the size, choose the file-system you want (usually `Journalized FS: ext3`) and then enter the mount point for the partition, which in our example will be `/var/ftp`.

Figure 17-4. Defining The New Partition

This is what our projected partition table now looks like (figure 17-5).

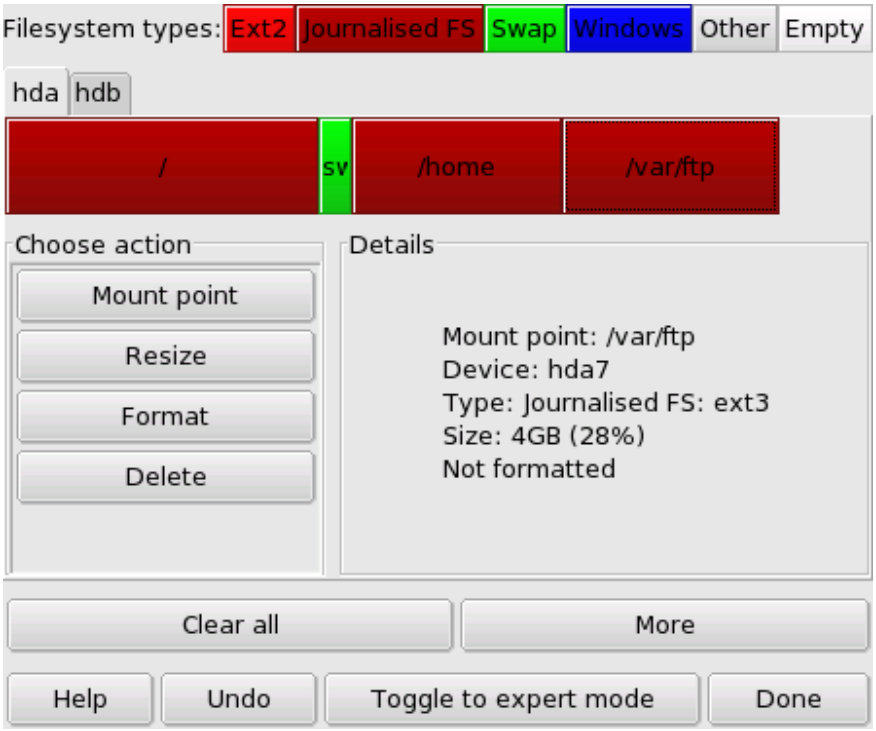


Figure 17-5. The New Partition Table

The last step is to format (prepare to host files) the newly created partition. To format the partition, click on its representation in the partitions picture, then on the Format button. Confirm the writing of the partition table to disk and the formatting of the partition. You may be asked to reboot the computer to make changes effective.

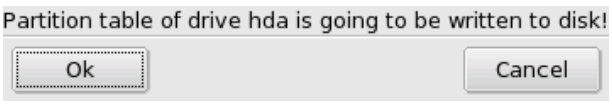


Figure 17-6. Confirming The Writing of The Partition Table

17.2. Managing Removable Devices

This tool allows the system administrator to easily control most options which affect the behavior of removable devices such as floppy and CD disks. It is available through a different icon for each removable device on your machine.

Figure 17-7. Changing a Criterion

Three properties can be changed for each device:

- **Mount point.** The directory where the device's files will be accessible. You can either choose an entry in the list or type in your own path. If the directory does not exist, it will be automatically created.
- **Options.** Controls various device options, notably whether it is mounted automatically (supermount) or not. Note that if the supermount option is selected, the two others (user and noauto) must be deselected.
- **Type.** Proposes a list of file-system types. If you have a specific media with an uncommon file system on it, this is where you can tell *Linux* how to access it.

Select the property you wish to change and click on OK. The corresponding dialog will pop up in which you can change your setting. Then click on OK again.

Whenever you make modifications to a removable device configuration, you need to unmount and remount that device, especially if it is set up as supermount.

17.3. Importing Remote SMB Directories

File sharing between various machines has been available for a long time on *UNIX* systems. The new facilities brought by recent tools make this feature easily available for all users. Sharing data between two users on two different machines is made in three simple steps:

1. Admin authorizes sharing: *Partition Sharing: Allow Users to Share Directories*, page **??**.
2. Users share directories: see *File Sharing*, page **??**.
3. Users browse remotely shared directories: see *File Sharing*, page **??**.

This tool allows the system administrator to import remote shared directories on the local machine. This tool affects shares based on the SMB protocol, used mainly by *windows* OSs.

While users can individually access remote shares through their file managers, it may be interesting in some cases to import a specific share for it to become available at once for all users. We will go through an example showing how to import a template directory from a *Windows* machine.

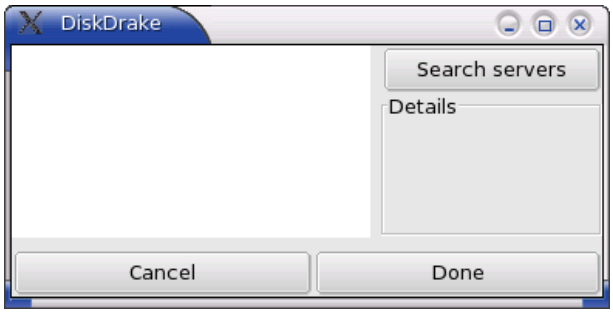


Figure 17-8. Scanning The Whole Network

When you click on the Search servers button (figure 17-8), the local network is scanned and all machines that currently share directories (including the local one) are shown. In our example, only one server is available, *server*. It is the machine that contains the templates we want to make available locally for all users.

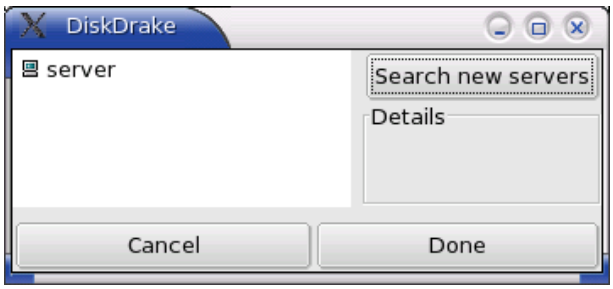


Figure 17-9. Choosing The Machine to Import Files From

Clicking on a machine's name will try to connect to it and browse available shares. If those shares are password protected, a dialog pops up asking for your authentication on that machine.

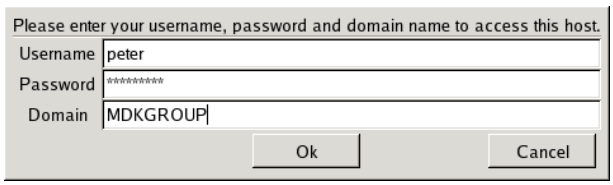


Figure 17-10. Authenticate on a remote Samba server

Enter the correct Username, Password and Domain. The available shares on that machine will then appear. Click on the little arrow on the left of the server icon to show available shares.

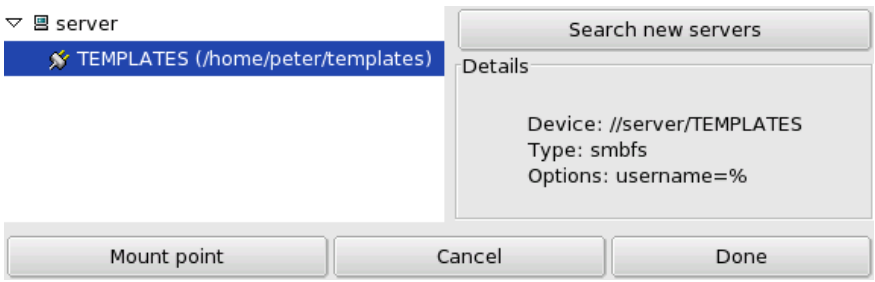


Figure 17-11. Choosing The Remote Directory to Import

Once a share is selected, a Mount point button appears. Clicking on it displays a dialog where you can type the local directory where remote files will be accessible.

Figure 17-12. Where to Make Remote Files Accessible

Once this is done, two more buttons appear:

- **Mount.** Will actually make the resource available locally. When this is done, users simply have to point their file manager to `/mnt/TEMPLATES` to get the templates hosted on machine *`server`*.
- Options**.** These are advanced options about sharing which we won't discuss here.

Also, the little icon in front of the shared directory  becomes 

You can change the user name and password to access a specific resource by clicking the Options button.

When you have finished configuring the access points for remote directories, click the Done button. A dialog box will appear asking whether you wish to save your configuration or not. Click Yes to make the shares always accessible. Click No to exit without saving your changes.

17.4. Importing Remote NFS Directories

This tool is exactly the same as the one previously mentioned, except for one thing: it controls file sharing through the NFS protocol instead of SMB. Hence, it allows local importing of shared files from NFS-friendly machines. The interface is the same as the one described in *Importing Remote SMB Directories*, page **??** and the effects are similar. Only the corresponding machines are different: *`UNIX`* for NFS and *`Windows`* for SMB.

17.5. Partition Sharing: Allow Users to Share Directories

This feature enables users to share personal files with other machines on the same network, which can be quite useful for co-workers or home users on a network to share files among heterogeneous systems such as *`GNU/Linux`* and *`Windows`*.

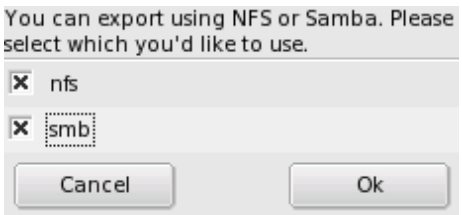


Figure 17-13. Choosing the Export Protocol

The first time you run this tool, and provided related packages are not already installed, you will be asked which protocol to use for file sharing. Check one or both of the following:

- **NFS.** If you wish your users to be able to share files with others using *UNIX* systems (like *GNU/Linux*);
- **SMB.** If you wish your users to be able to share files with others using *Windows* systems.

When you have checked the desired box(es), click OK, thereby installing the necessary packages.

By default, both protocols will be installed. If you **do not** wish for a protocol to be available, make sure the packages `nfs-utils` and/or `samba-server` are not installed.

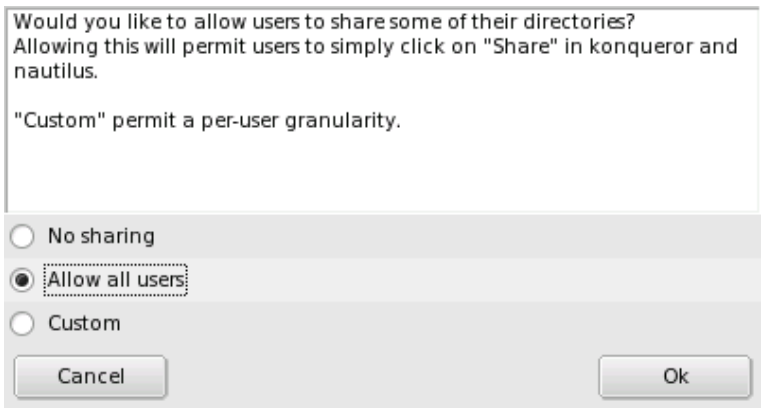


Figure 17-14. Controlling Exports

Three different options are available:

- **No sharing.** Prevents users from sharing data with others.
- **Allow all users.** All users are allowed to share data with others.
- **Custom.** By choosing this option, only users within the `fileshare` group will be allowed to share data. If you choose this option you will be prompted to run *userdrake* in order for you to immediately add allowed users to this group (see *UserDrake: Managing Users and Groups on Your System*, page **??**).

Once a user is allowed to share data, they can select the directories to be shared through their preferred file manager (see *File Sharing*, page **??**).

Chapter 18. Configuration: “Network & Internet” Section

18.1. DrakConnect: Configuring Network and Internet Connections

Before connecting to the Internet, you are encouraged to first setup a firewall on your machine to avoid bad surprises such as intrusions to your system. You can setup a very simple, yet effective, firewall using *DrakFirewall* (please refer to *DrakFirewall: Securing your Internet Access*, page **??**, for more information).

Your **Mandrake Linux** system contains a tool which allows easy ***Internet*** services configuration. It also helps you configuring your local network accesses if any. To launch *drakconnect*, first open *Mandrake Control Center* and click on Network & Internet, then on DrakConnect. A view of the main interface is shown in figure 18-1.

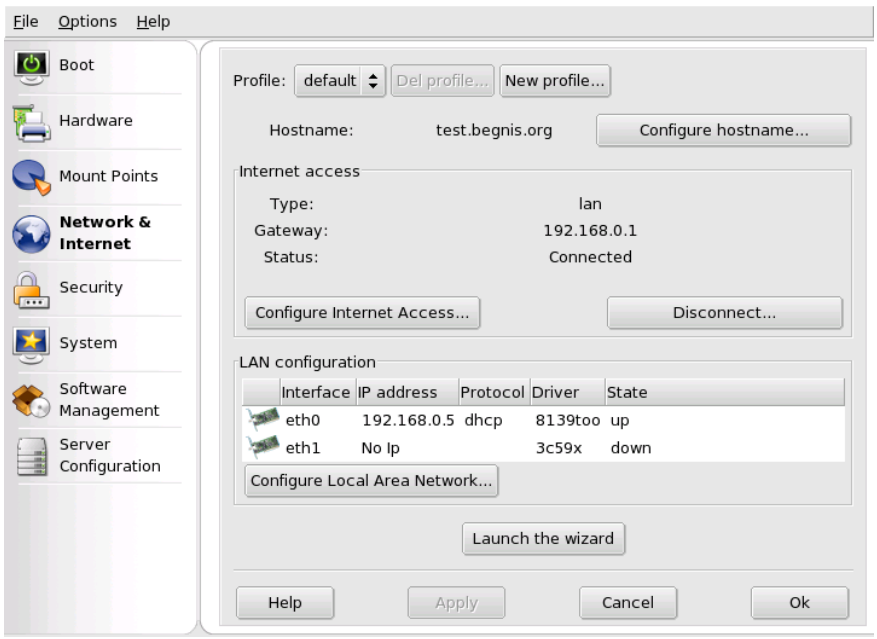


Figure 18-1. Connecting to the Internet

Let’s review the different elements available:

- Profile combo box: if your machine is likely to be connected to different environments (typically a laptop moving from a modem connection at home to a LAN at the office), you can choose the appropriate profile here.
- Del profile...: to delete the selected profile.
- New profile...: to create a new connection profile. You then have to configure it with the connection wizard.
- Hostname shows the current local full host name. You can change it by clicking on the Configure hostname... button.
- The Configure Internet Access... button allows you to quickly change your Internet access parameters, without using the wizard.
- Disconnect... or Connect... This button allows you to control your connection’s state. Useful for non-permanent network accesses (i.e.: with a traditional modem).
- Configure Local Area Network...: This button allows you to configure all the connection parameters used for each of the network cards present on your machine. Ask your network administrator about the needed parameters.
- Launch the wizard: launch the configuration wizard as described below.

- Apply: validates choices without exiting the application.
- Cancel: exits the application and discards all modifications.
- OK: validates choices and exits the application.

Once you launch the configuration wizard, you will get a screen asking you whether you wish to auto-detect the network interfaces. Click on the Yes button to proceed with auto-detection. The wizard will then perform some tests to detect the network devices available on your machine.

If you notice any problems after selecting auto-detection of the network devices, you will need to return to this screen and select No and then configure these interfaces manually.

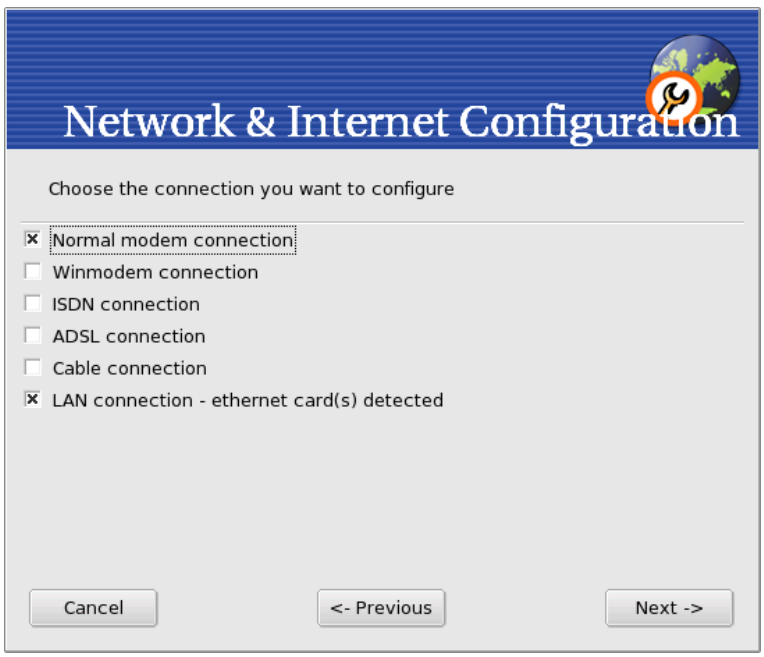


Figure 18-2. Choosing the Internet Connections to Configure

Then a list of the possible connection types (see figure 18-2) will be displayed, from which the detected devices may be selected. If you have an additional connection which has not been detected, you can now manually select it for later configuration. Then, click on Next ->, and you will be taken to the connection-specific configuration wizards.

We will now take an example with a traditional modem connection. Other connection types are not documented here but are very similar. Always make sure you have all the information provided by your ISP or network administrator at hand.

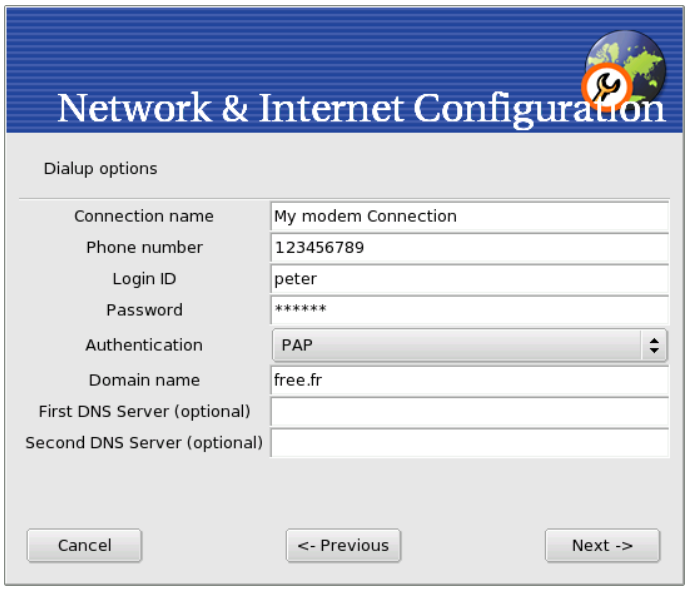


Figure 18-3. Configuring the Internet Connection

Fill all required fields with the parameters provided by your Internet Service Provider. Depending on the connection type chosen, the parameters may differ.

Then come some optional steps depending on the type of connection you are configuring. If it is a permanent connection like ADSL or cable, you will be asked whether you wish to activate it at boot time.

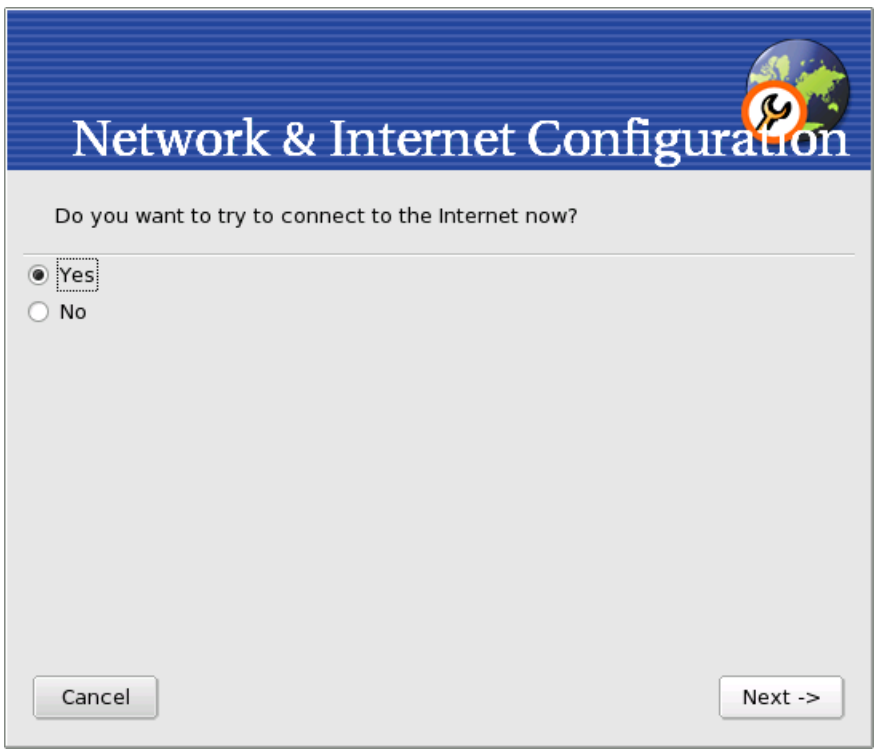


Figure 18-4. Try the Internet Connection

You can now test your Internet configuration to ensure it actually works. It is advisable to do so, so that you can correct possible errors right away.

After the configuration is done, you can bring the Internet connection up or down by using the main dialog's Connect/Disconnect button (see figure 18-1).

18.2. DrakGw: Configuring Your Machine as a Gateway

This tool configures your system so that it acts as a gateway to the Internet for other machines connected to it via a LAN. In order for your machine to do this, you will need an already configured and working connection to the Internet and a network connection to your LAN. This implies at least two interfaces, for example, a modem and an *Ethernet* card.
After you complete this wizard, all computers on the LAN will be able to access the Internet.

Figure 18-5. Choosing the Internet Interface

You first need to specify the name of the interface connected to the Internet. Make sure to select the correct one: use the examples in the online help as a guide.

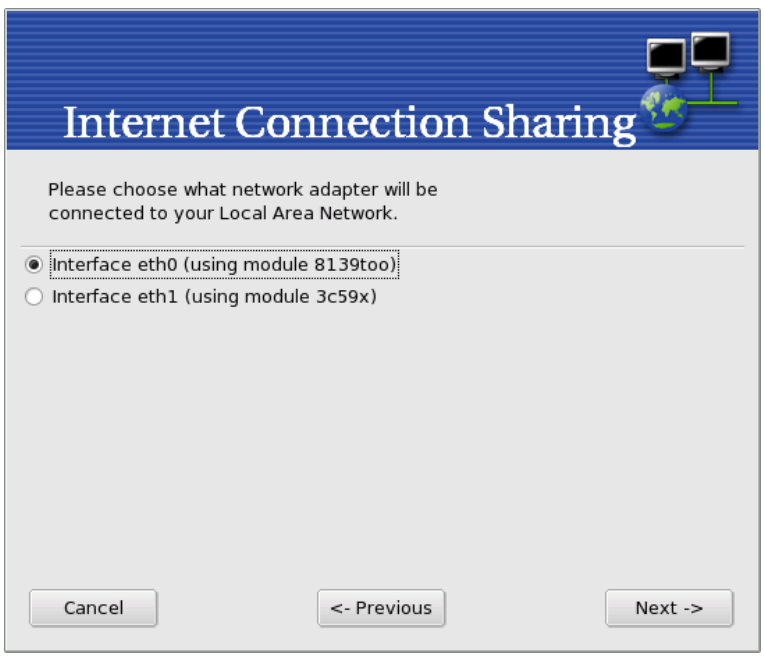


Figure 18-6. Choosing The LAN Network Adapter

If you have more than one *Ethernet* interface, the wizard will ask you to choose the one connected to your LAN. Make sure you select the correct one.

Figure 18-7. Configuring The LAN Interface

Next, and in the situation where your interface has been previously configured, the wizard will offer to reconfigure the LAN interface so that it will be compatible with the gateway services. It is recommended that you leave options at their defaults and click on the Next -> button.

Once this is done, the interface is reconfigured and any required packages are automatically installed.

A ***DHCP*** server will be installed on the machine. By configuring the clients on the local network to use DHCP, they will automatically use the **Mandrake Linux** machine as a gateway to the Internet. This works for *Windows*, *GNU/Linux* and any other OS that supports DHCP.

For example, on a **Mandrake Linux** client system, check the DHCP box when configuring the network as shown in figure 18-8.

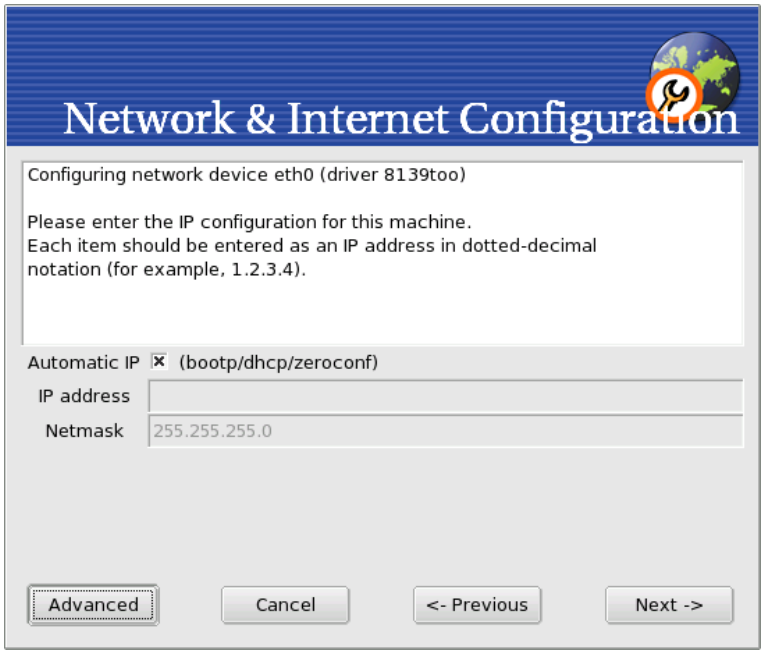


Figure 18-8. Configuring a Client To Use DHCP

Chapter 19. Configuration: “Security” Section

19.1. DrakSec: Securing Your Machine

There is a graphical interface to *MSEC* called *draksec*. You can access it through *Control Center*. It allows you to change your system's security level and to configure every option of *MSEC*'s security features.

19.1.1. Setting your Security Level

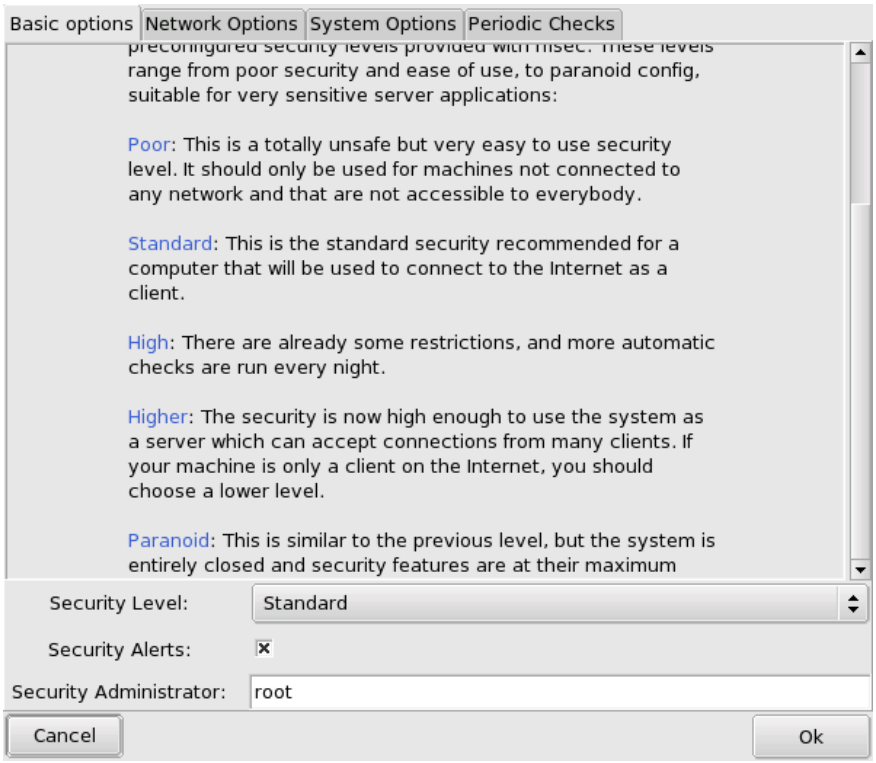


Figure 19-1. Choosing the Security Level of your System

Simply choose the security level you want from the Security Level pull-down list: it will be effective as soon as you click on the OK button. Please read the help text introducing security levels very carefully so you know what setting a specific security level implies for you and your system's users.

If you wish to check what options are activated for each security level, review the three other tabs: Network Options, System Options and Periodic Checks. For each available option, a tool-tip explains what that option does and which is the default setting for it. If some of the default options do not suit your needs, simply redefine them in each tab. See *Customizing a Security Level*, page **??** for details.

Put a check mark on the Security Alerts box to send by mail possible security issues found by *MSEC* to the local user name or e-mail address defined in the Security Administrator field.

It is highly recommended that you do activate the security alerts option so that the administrator is immediately informed of possible security issues. Otherwise, the administrator will have to regularly check the `/var/log/security.log` and `/var/log/syslog` log files.

19.1.2. Customizing a Security Level

Clicking on each of the Options tabs (and the Periodic Checks one) will lead you to *MSEC*'s list of all security options. This allows you to define your own security level based on the security level previously chosen.

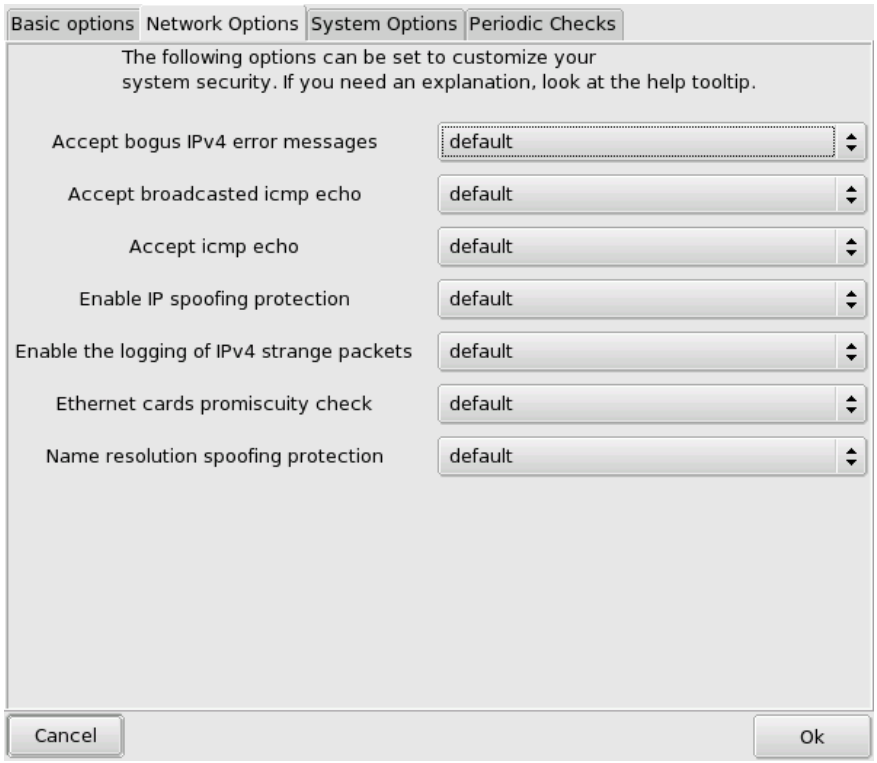


Figure 19-2. Modifying Standard MSEC Options

For each tab, there are two columns:

1. **Options List.** All available options are listed. The default security level setting will be shown between parenthesis in a tool-tip.
2. **Value.** For each option you can choose from the corresponding pull-down menu:
   - **Yes.** Activate this option no matter what the default value is.
   - **No.** Deactivate this option no matter what the default value is.
   - **Default.** Keep the default security level behavior.
   - **Ignore.** Use this option if you do not wish that test to be performed.
   - **ALL, LOCAL, NONE.** The meaning of these is option-dependent. Please see the corresponding tool-tip for more information.

The different available buttons are:

- **OK.** Accepts the current security level with custom options, applies it to the system and exits the application.
- **Cancel.** Discards changes, keeping the old security level and exits the application.

19.2. DrakPerm: Control File Permissions

In *DrakSec: Securing Your Machine*, page **??**, we have seen how to change your system's security level and customize the security checks associated to those levels.

drakperm allows you to customize the permissions that should be associated with each file and directory in the system: configuration, personal files, applications, etc. If the owners and permissions listed here do not match the actual permissions of the files in the system, then *MSEC* will change them during its hourly checks. Those modifications can help prevent possible security holes or a possible intrusion.

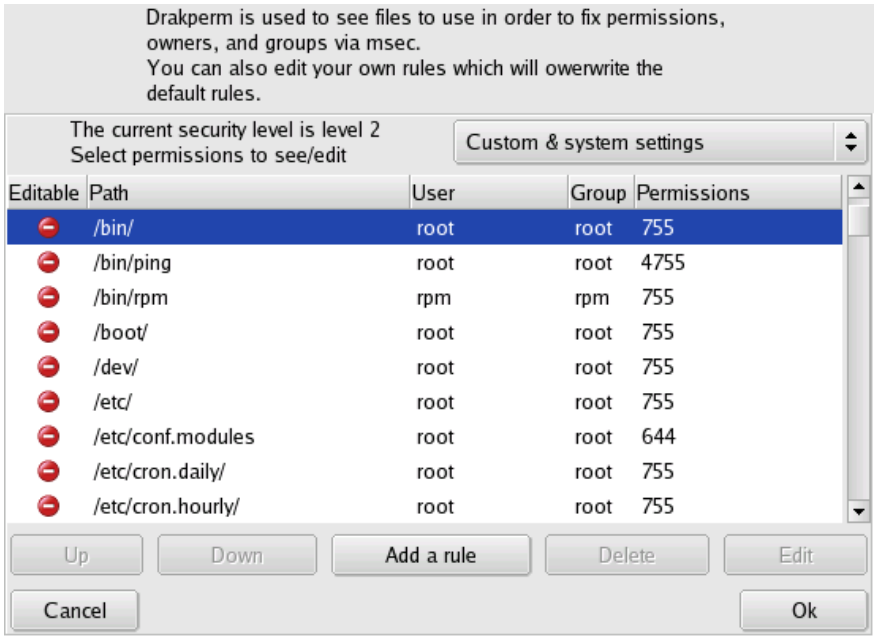


Figure 19-3. Configuring File Permission Checks

The list of files and directories that appears will depend on the current system's security level as set by *MSEC* and their expected permissions for that security level. For each entry (Path) there is the corresponding owner (User), owner group (Group) and Permissions. In the drop-down menu at the top right, you can choose to display only *MSEC* rules (System settings), your own user-defined rules (Custom settings) or both of them as in the example shown in figure 19-3.

You cannot edit system rules, as stated by the "Do not enter" sign on the left. However, you can overwrite them by adding custom rules.

If you wish to add your own rules for specific files, or modify the default behavior, display the Custom settings list, and click on the Add a rule button.

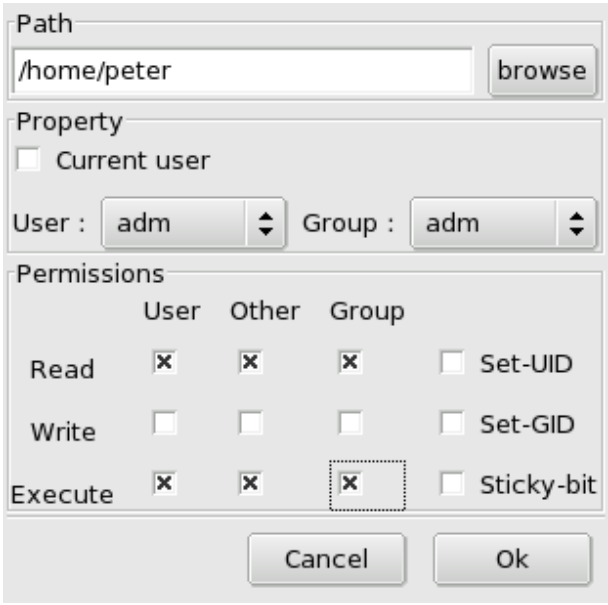


Figure 19-4. Adding a File Permissions Rule

Let's imagine your current security level is set to 3 (high). This means that only the owners of the home directories will be able to browse them. If you wish to share the content of Peter's home directory with others, you will need to modify the `/home/peter/` directory permissions.

Filling the new rule dialog as seen in figure 19-4 accomplishes this.

Remember that this tool just tells *MSEC* what the permissions and owners of system files should be. It will not actually set the permissions for the files you create the new rules for. You will have to do this by hand on the command line or with your preferred file browser.

If you create more rules, you can change their priorities by moving them up and down the rules list: use the Up and Down buttons on your custom rules to have more control over your system's permissions.

When you are satisfied with your settings, do not forget to save your changes by clicking on the OK button.

19.3. DrakFirewall: Securing your Internet Access

This little tool allows you to set up a basic firewall on your machine. It will filter connection attempts made from the outside, and block unauthorized ones. It is a good idea to run it just after installing your machine and before connecting to the Internet. This will minimize the risks of your machine being cracked.

Figure 19-5. The DrakFirewall Window

Simply un-check the Everythingbox, and then check the boxes corresponding to the services you wish to make available to the outside world. If you wish to authorize a service which is not listed here, simply click on the Advanced button to manually enter the port numbers to open.

Not checking a service in this list will not prevent you from connecting **to** it. It will only prevent people **from** the Internet connecting to your machine. If you do not plan to host any services on your machine (common case for a desktop machine) just leave all boxes unchecked.

Then, simply click on OK to activate the firewall and enjoy your secure Internet connection.

On the other hand, if you wish to disable the firewall and leave all services accessible from the outside, check Everything (no firewall).

The Advanced button will open an Other ports field where you can enter any port to be opened to the outside world.

Chapter 20. Configuration: “System” Section

20.1. MenuDrake: Customizing your Menus

In order to help you manage the main menu of your preferred graphical interface, **Mandrake Linux** provides you with a menu editor that ensures menus from all desktop environments (like *KDE* or *GNOME*) are coherent.

This tool allows system administrators to control the menus for all users (the system menu) but can also be used by users to personalize their own menus. You can launch *MenuDrake* from the *Mandrake Control Center* or from the Configuration+Other→Menudrake menu entry.

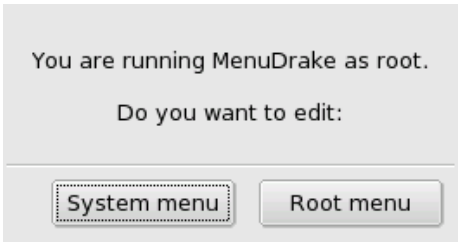


Figure 20-1. Launching MenuDrake in System or User Mode

If started by `root`, *MenuDrake* can be used in two different modes: either changing menus for all users, or customizing the menus for user `root`. Click on:

- System menu to make changes to menus available for all system users;
- Root menu to customize the menus for the `root` user only.

When you launch *MenuDrake*, it first scans your current menu structure and displays it. The main window (figure 20-2) is divided in two parts: the menu itself on the left, and on the right a form relative to the highlighted menu item.

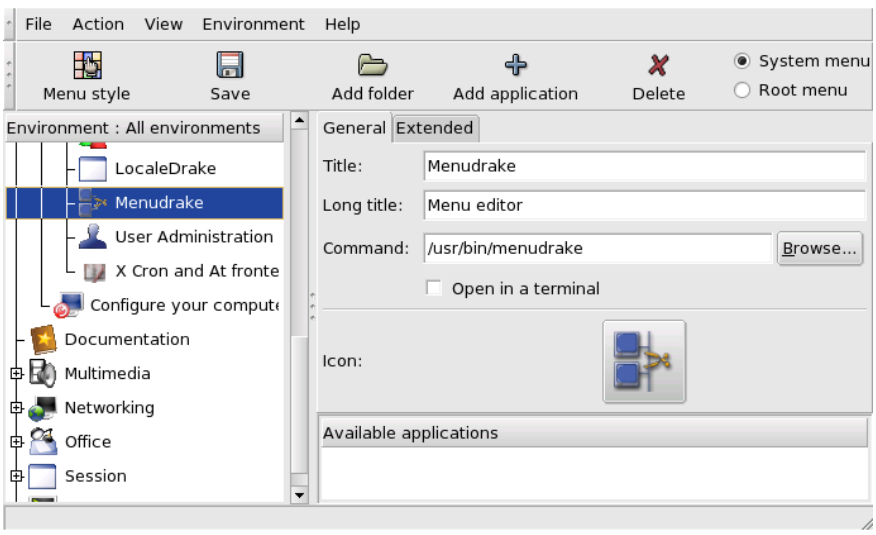


Figure 20-2. MenuDrake’s Main Window

You can click on the [+] signs of the tree to view the content of the related sub-menus, on [-] to hide it.

In your tree you may see entries which do not appear in your actual menu. These are empty directories which are not displayed but can be used for future installed applications.

20.1.1. Adding a New Menu Entry

This should seldom happen as all **Mandrake Linux** graphical applications should provide a menu entry. However if you want to add a menu entry for a package you have compiled, or for a console mode program, you may use this function. Let's suppose that you want to open a new message window directly within *Mozilla* through a menu entry in the Networking menu.

Select the Networking directory, and click on the Add entry on the toolbar. A dialog will appear asking you for the title of the menu entry and the command associated with it.

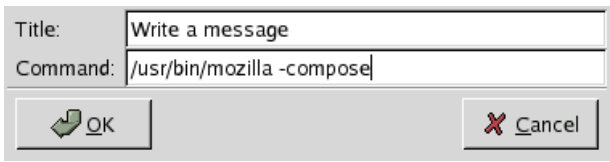


Figure 20-3. Adding a New Menu Entry

Edit the title (you could insert "`Write a new message`") and it will now appear in the menu. Then you need to provide the action to be executed by the system (Command:): `/usr/bin/mozilla -compose`. Then click on OK and the entry will be added to the menu tree.

You can also choose an icon for your entry from the list you get by clicking on the icon button itself. Please see figure 20-4.

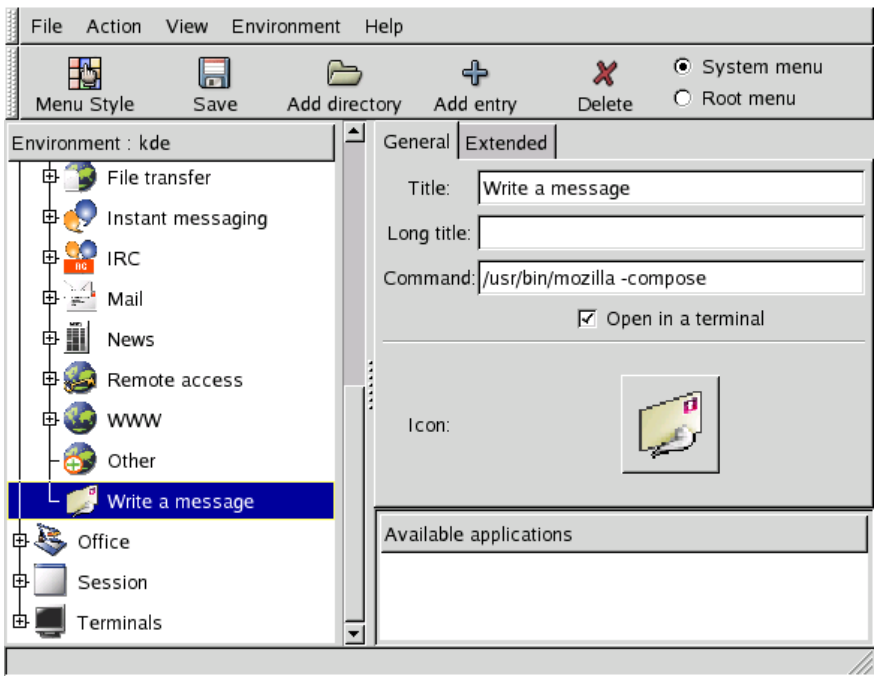


Figure 20-4. A New Menu Entry with MenuDrake

While modifying your menus, you might make a big mess out of them... Remember that you can reload the menus as you last saved them by pressing on the **Ctrl-R** (or access the File→Reload user config sub-menu). You can also revert to the default menus by accessing the File→Reload system menu sub-menu.

Finally to activate your modifications, click on the Save button and that's it. Congratulations! You can now test your new settings by accessing the real menu.

Depending on the graphical interface you are using, the changes on your menu may not be shown immediately. In some cases, you may need to log out and log in again for the changes to take effect.

20.1.2. Advanced Features

20.1.2.1. Different Menu Styles

Depending on the experience the user working with your machine has, you may want to provide them with different menu styles. **Mandrake Linux** provides three template menus which you can eventually customize. Those templates are available through the Menu Style button in the main window.

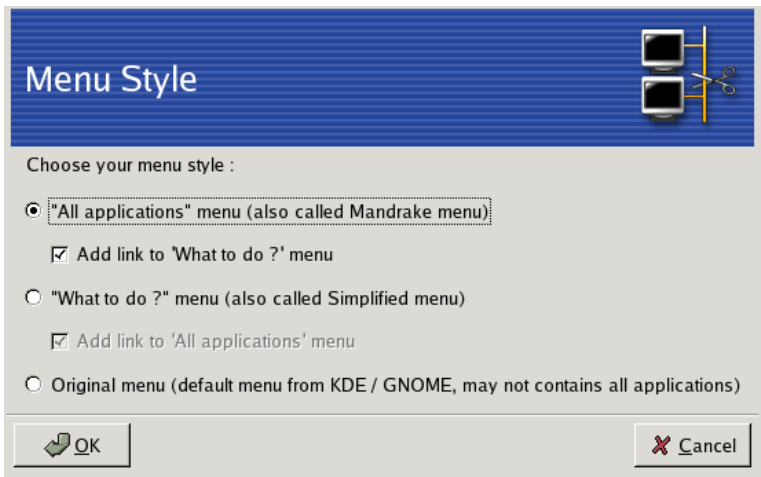


Figure 20-5. Choosing a Menu Style

Choose one of the four options available:

- Use system administrator settings**.** If you started *MenuDrake* as a simple user, you can choose to set your personal menu style to use the menus system administrator prepared.
- All applications**.** This is the traditional menu shipped with **Mandrake Linux** and it contains nearly all the available applications, sorted into functional categories.
- What to do? Specifically designed by our ergonomics team this menu provides a fast access to most common applications sorted by usage, such as Play a game, Use the Internet, etc.
- Original menu**.** These are the plain menus as provided by the *KDE* or *GNOME* desktops. This menu probably lacks some applications.

For the second and third styles, note that you can activate a sub-menu by checking the Add link to box. Hence you will be able to access the sub-menu from the main one, thus ensuring all applications remain available.

When you have chosen a menu style and possibly an option, click on OK. You will then be able to see the corresponding menu structure in the main window, and you can now customize it.

20.1.2.2. About the Environment Menu

The entry we have just added to the menu is now available in all graphical manager menus. It is also possible to make modifications to a specific menu by switching the `Environment` you are working with. For example, if you wish to add an application that should be available only in the *KDE* menu, simply switch from environment all to kde.

All entries which only apply to the active graphical environment appear in blue in the tree structure on the left.

20.1.2.3. Moving and Removing Entries

MenuDrake entries support the drag-and-drop feature. Similarly, you may have noticed that whenever you remove an application from the menu, it appears in the "attic", that is the Available applications list on the bottom right corner. If you ever wish to add them again, you simply have to drag them again to the desired directory.

20.2. DrakXServices: Configuring Start-Up Services

At boot time, a number of services (programs running in background) performing a variety of tasks are started. This tool gives the administrator control over those services. See the *The Start-Up Files: init sysv* chapter of the *Reference Manual* for more information.

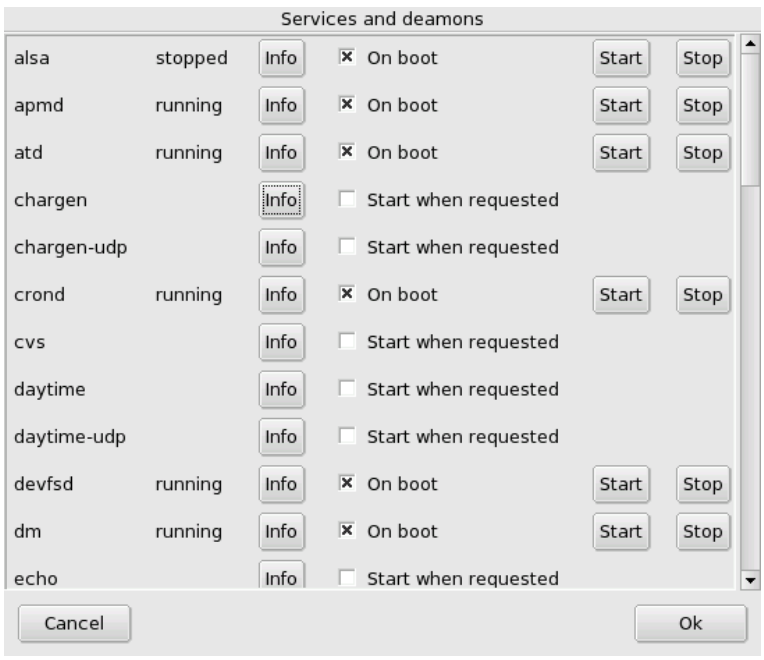


Figure 20-6. Choosing The Services Available at System Start-Up

For each service, this is the list of items found in each column:

- Service name;
- Current Status: either `running` or `stopped`;
- Info: click on that button to get a little explanatory text on that service;
- On Boot: check this box if you wish this service to be automatically brought up at boot time[1]. Alternatively,

1. Generally in ***runlevel***s 3 and 5

if the service is a *xinetd* service the label Start when requested will be displayed. Checking the box will then mean to activate that service in *xinetd*. You will also have to make sure that the *xinetd* service itself is activated.

- Start: immediately starts the service, or restarts it (stop+start) if it is already running;
- Stop: immediately stops the service.

20.3. DrakFont: Managing The Fonts Available on Your System

This tool allows you to review the different font families, styles, and sizes available on the system. It also allows the system administrator to install new fonts from a local *Windows* installation or from other sources.

The main window (see figure 20-7) shows a visual appearance of the currently selected font combination.

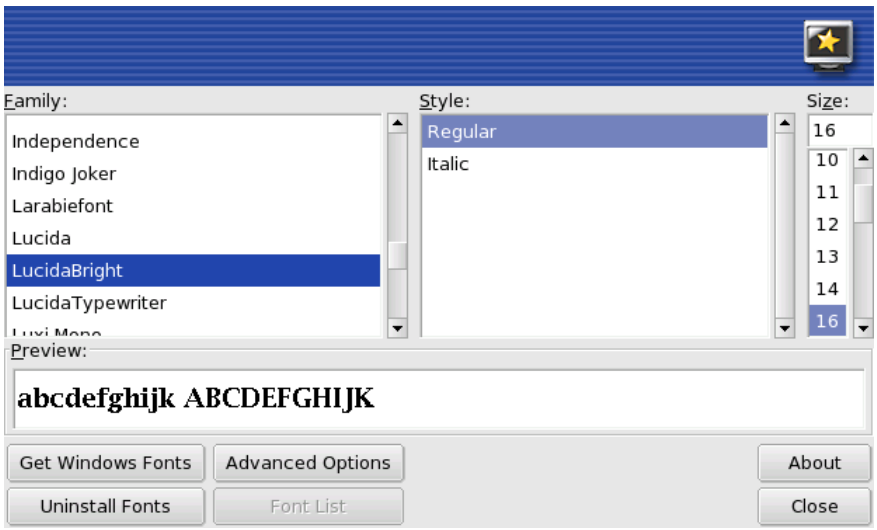


Figure 20-7. drakfont's Main Window

The window is made up of four screens that are accessible through the four buttons located at the left bottom corner.

Get Windows Fonts

Allows you to use the fonts that are available if you have *Windows* installed on the same machine.

Advanced Options

Allows to manually add fonts found outside the **Mandrake Linux** distribution, on the Internet for example. Supported font types are `ttf`, `pfa`, `pfb`, `pcf`, `pfm`, `gsf`.

Uninstall Fonts

Allows you to remove installed fonts, in order to save space for example.

Font List

The available fonts list as displayed on startup (see figure 20-7).

To select a range of fonts, click on the first font you wish to select, move to the last one to select and click on it while keeping the **Shift** key pressed. To select individual fonts, hold the **Ctrl** key down as you click on the selections.

20.4. Set Date and Time

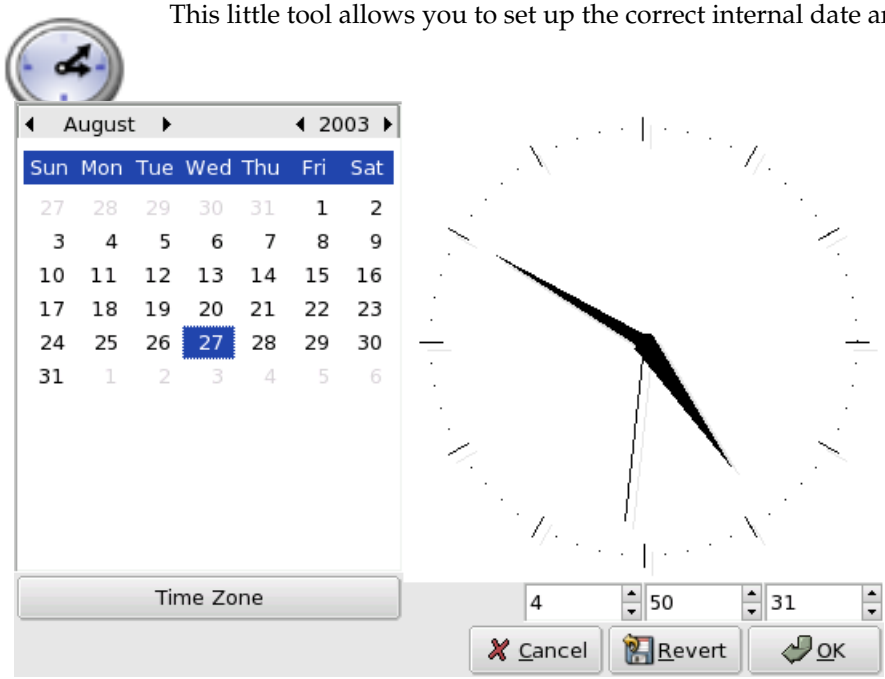


Figure 20-8. Date and Time Changing

This little tool allows you to set up the correct internal date and time for your system.

You can set the date on the left and the time on the right:

- to change the year, click on the little arrows on each side of the year;
- same procedure to change the month;
- this updates the month view where you can click on the current day in order to highlight it;
- it is recommended that you check that the time-zone settings are correct for your physical location. Click on the Time Zone button and select the correct place in the tree view.

  When you have chosen the timezone, a dialog appears asking whether your hardware clock is set to GMT. Answer Yes if only *GNU/Linux* is installed on your machine, No otherwise.

- to change the time, you can then either move the hour, minute and second hands of the analog clock, or change the numbers below it.

When you are finished, click OK to apply your settings or Cancel to close the tool, which will consequently discard your changes. If you want to return to your previous settings, click on Revert.

20.5. LogDrake: Searching Through The Log Files

This tool allows you to look for specific entries in various log files, thus facilitating the search for particular incidents or security threats.

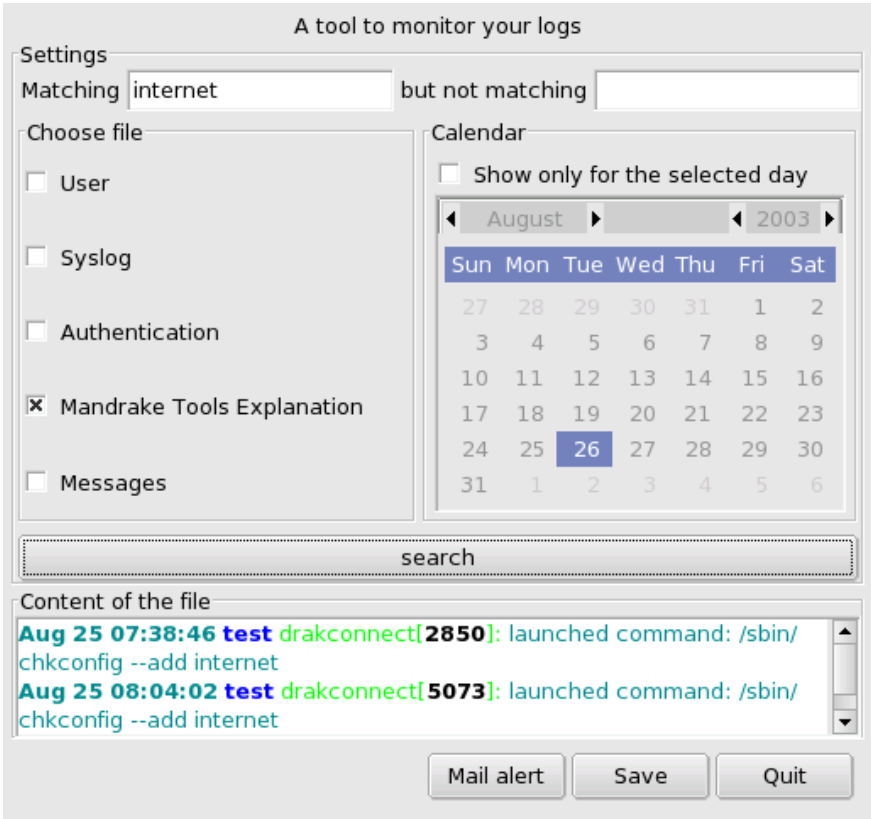


Figure 20-9. Browsing And Searching Through System Logs

These are the steps to follow in order to browse or make a specific event search into the system logs:

1. You can choose to match lines containing specific words filling the Matching field; and/or not containing others filling the but not matching field;
2. Then choose the file you want to perform the search in, in the Choose file area: simply check the corresponding box;

The Mandrake Tools Explanations log is filled by **Mandrake Linux**-specific configuration tools, like all those you find in *Control Center*. Each time those tools modify the system configuration they write a line in this log file.

3. Optionally, you can restrict the search to a specific day. In that case, choose the desired day from the calendar on the right and check the Show only for the selected day box;
4. When all is set up, click on the search button. The results will appear in the Content of the file area at the bottom.

Clicking on the Save button will open a standard file save dialog letting you save the search results into a plain text (`*.txt`) file.

20.6. Access to the Console

This menu entry will simply open a virtual terminal console for the `root` user. You can use it to issue any command, but be careful! There are no restrictions on the actions you can take on the machine as `root` and you could render your machine unusable.

20.7. UserDrake: Managing Users and Groups on Your System

userdrake is an advanced tool for **Mandrake Linux** which allows the system administrator to easily add users to the system, to remove others, to arrange users in groups, and to manage user groups in the same manner.

We will only focus on users' management here. Group management is very similar.

20.7.1. The Interface

Launching *userdrake* will display the main window (figure 20-10), which lists the users currently defined on the system. You can switch from users to groups by activating the Groups tab next to the Users tab.

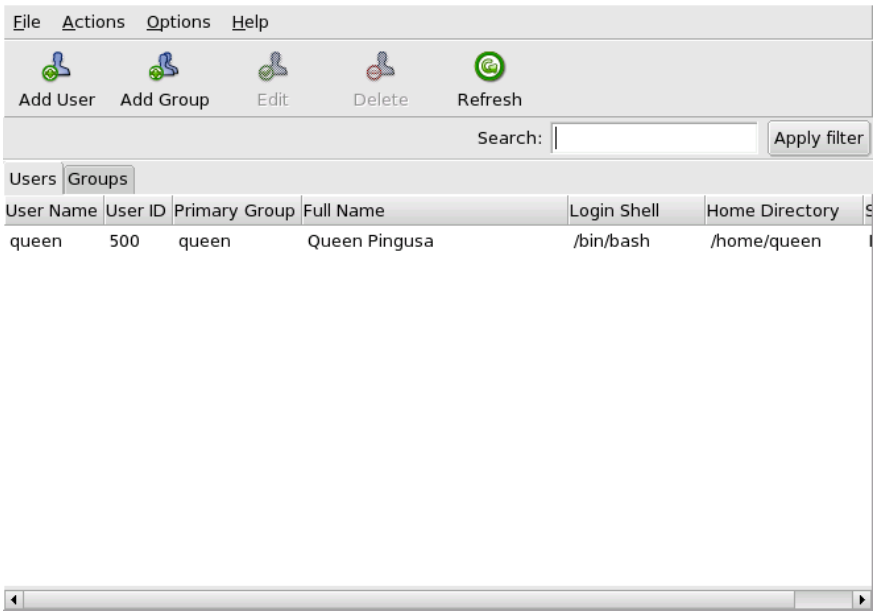


Figure 20-10. The Users List in userdrake

From top to bottom: a menu, some action buttons, a search field, and the users/groups tabs.

All changes have immediate effect on your local users database. If the users list is modified outside *userdrake*, you can refresh *userdrake*'s window by clicking on the Refresh button.

If you make changes to an already logged in user, those changes will not take effect until that user logs out and in again.

Available actions are:

Add User

Adds a new user to the system. We will detail this procedure in *Adding a New User*, page **??**

Add Group

Adds a new users group to the system.

Edit

Allows you to change the parameters of the selected user or group. We will detail editing users' parameters in figure 20-12. In the case of a group you will be able to assign users to that group.

Delete

Removes the selected user or group from the system. A confirmation dialog will be shown, and in the case of a user you will be able to also remove the user's home directory and messages.

20.7.2. Adding a New User

We created the non-privileged user Queen Pingusa at installation time, and now we want to create a new user called Peter Pingus, and then make them both members of the `cdwriter` group, so that they can use the CD burner without knowing the `root` password (for the higher security levels).

Click on the Add User button, the dialog box to add a new user will pop up (figure 20-11). The only required field is Login. You can also choose to add a comment in Full Name. Generally, this is the full name of the user, but you can put whatever you want. You will also want to set a password for this new user: fill both the Password and Confirm Password fields with it.

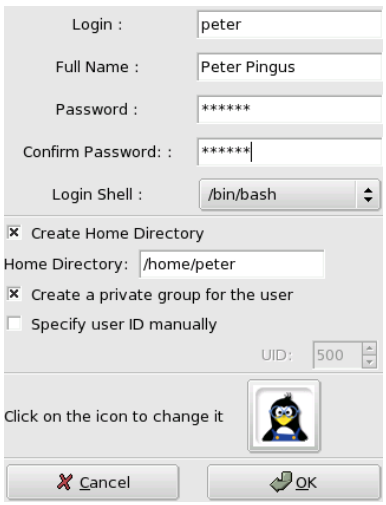


Figure 20-11. Adding a New User in The System

We now have two users in our list. Select one of them with your mouse, and click on the Edit button. The dialog box shown in figure 20-12 will pop up. It allows you to modify most available user parameters.

Figure 20-12. Affect Users to a Group

The dialog is made of four tabs:

User data

Allows you to modify information provided at user creation.

Account info

Allows you to provide an account expiration date, after which the user will not be able to connect to the system.

Password info

Allows you to provide a password expiration delay, after which a user will have to change his password.

Groups

Shows the list of available groups, where you can select the groups to which this user should belong.

So, for our users we just need to look for the `cdwriter` entry and check the box associated to it. Then click on the OK button to make the changes effective.

20.8. DrakBackup: Backup and Restore your System and Personal Files

This tool allows you to back up any data present on your computer to a backup media either on hard drive, another networked computer, CD/DVD or tape. Once you have defined the files to back up and configured the way to access the backup media, you can run the backup periodically. Then, you can forget about it until you wish to restore some files.

The backup parameters must be defined so that *drakbackup* knows what, where and when to perform the backup. We will guide you step by step with a backup and restore example using the wizard and then introduce you to automation of periodic backups.

20.8.1. A Practical Example Using the Wizard

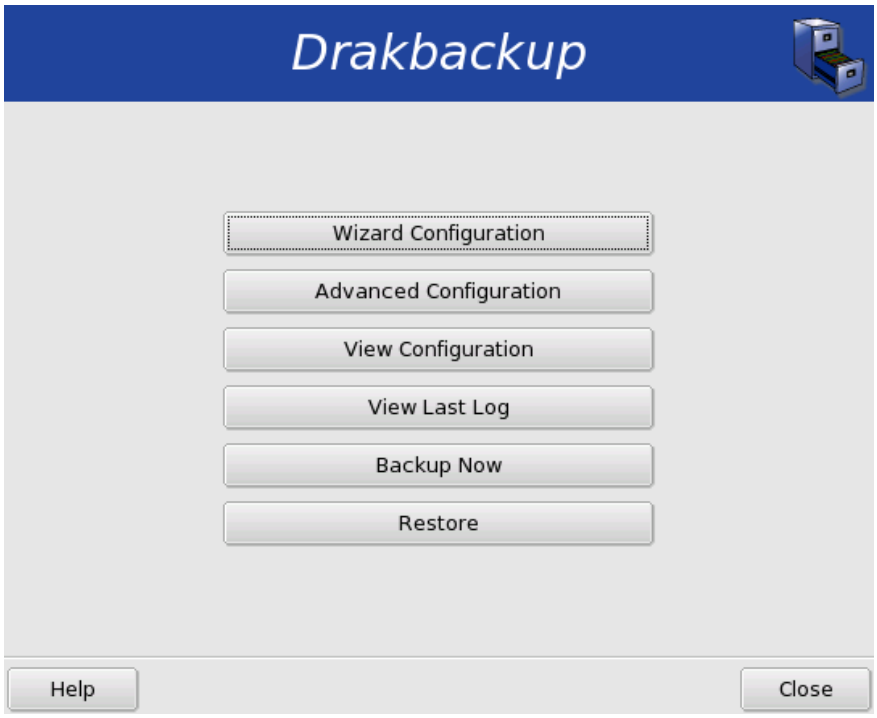


Figure 20-13. Main DrakBackup Window

Click on the Wizard Configuration button to start the wizard. After making your choices in each step click on the Next -> button to advance to the next step.

20.8.1.1. First Step: What to Backup.

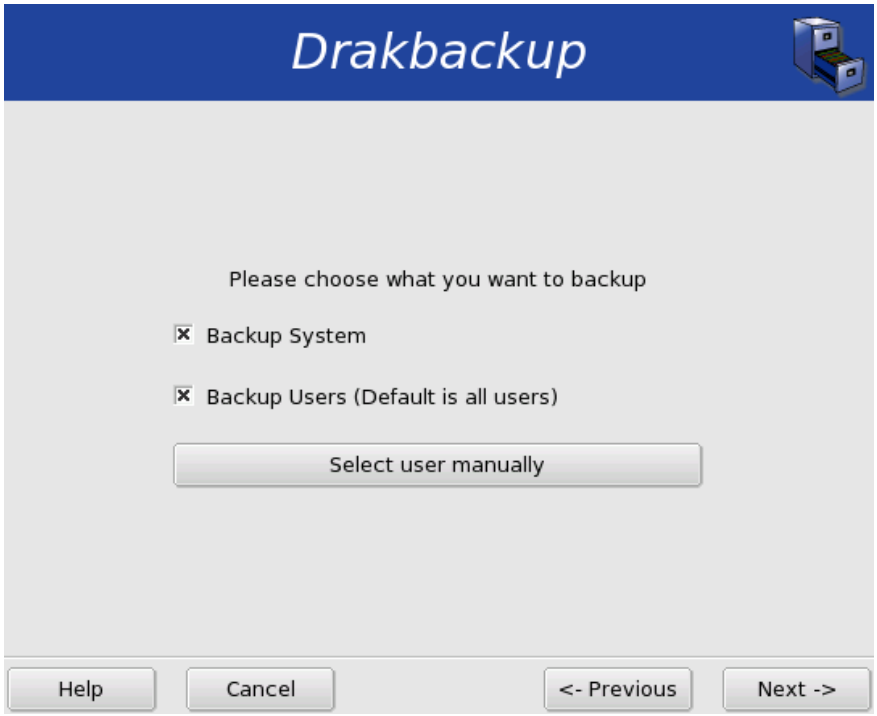


Figure 20-14. Selecting What to Backup

Select Backup system to include the `/etc/` directory where all your current system configuration files lie. This allows you to "transport" your system to a different computer with little effort: only hardware-dependent configuration will have to be revised.

The "system" backup does not include applications themselves (i.e. executables, libraries). *A priori* this makes sense because it is likely that you will have access to the system's installation media from which applications can be easily installed again on the target computer.

Select Backup Users to include all the files included in all of your users' home directories. Clicking on the Select user manually will let you select individual users and the following options:

- Do not include the browser cache. Select this to exclude the web browser's cache from the backup file set. Recommended due to the very nature of the browser's cache.
- Use Incremental/Differential Backups. Selecting this will preserve old backups. Choosing Use Incremental Backups will only save files that have been changed/added since the **last** backup operation. Choosing Use Differential Backups will only save files that have been changed/added since the **first** backup operation (also known as the "base" backup). This last option takes more space than the first one, but allows you to restore the system's state at any given point in time for which a backup operation was made.

20.8.1.2. Second Step: Where to Store the Backup

Select on Hard Drive to store the backup on the computer's hard disk or any mounted partition whether local or remote (mounted using NFS). Since *`drakbackup`* uses a mounted partition as temporary storage space, **this option cannot be unselected**. Click on the corresponding Configure button to choose the directory for storage and the limit of storage space. The default space limit is 80% of the free space on the chosen partition.

Select across Network to store the backup on a remote computer accessible using one of `ssh`, FTP, `rsync` or WebDAV methods. A machine name or IP address, a user name and password on that machine, a directory

Figure 20-15. Selecting Where to Store the Backup

on that machine, and the access method and its options (if applicable) must be specified by clicking on the corresponding Configure button.

Select on Tape Device to store the backup on a tape drive. Click on the corresponding Configure button to set the tape device and tape parameters such as whether or not to rewind, erase and eject the tape.

Select on CDROM to store the backup on optical media: (re)writable CD or DVD. This is our media of choice for the example, so click on its Configure button to set the needed parameters (figure 20-16).

Figure 20-16. Setting Optical Media Parameters

The CD/DVD device will be automatically set (`sr0`, the usual device for an IDE recorder, in our example). The

device name will be available in the Enter your CD Writer device name combo box: it usually is 0,0,0. We chose a 700 MB medium size and a re-writable medium (the CDRW media option is selected).

If the device name is not available, typing cdrecord -scanbus on an open console or terminal window might be of help. Look for the CD/DVD recorder in the output (CD-RW CRX175A1 in the example below): the device name is the three comma separated numbers at its left (0,0,0 in the example below).

```
scsibus0:
        0,0,0     0) 'SONY    ' 'CD-RW  CRX175A1 ' '5YS2' Removable CD-ROM
        0,1,0     1) *
        0,2,0     2) *
        0,3,0     3) *
        0,4,0     4) *
        0,5,0     5) *
        0,6,0     6) *
        0,7,0     7) *
```

Re-writable media will be erased before each backup is performed. If you select the Multisession CD option, only the 1st session will erase the media. Session-related information recording takes some space out (20-30 MB) for each session, so the "real data" storage space will actually be less than the medium's size.

20.8.1.3. Third Step: Review and Store the Configuration

Figure 20-17. Review Configuration Parameters

The last wizard step shows a summary of configuration parameters. Use the <- Previous button to change any parameter you are not satisfied with. Once you are satisfied with all parameters, click on the Save button to store them. *drakbackup* is ready to perform backups.

20.8.1.4. Performing the Backup

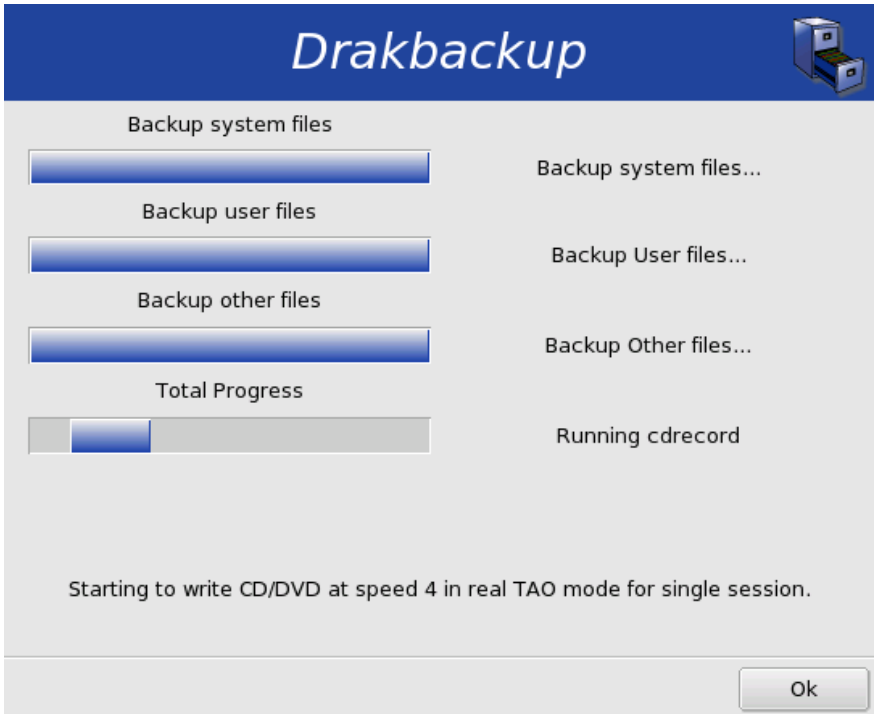


Figure 20-18. Backup Progress Dialog

Click on the Backup Now button on *drakbackup*'s main window and then on the Backup Now from configuration file button to display a confirmation dialog with *drakbackup*'s parameters: make sure the corresponding media (the CD-RW disk in our example) is ready and click on the Build Backup to start the backup operation.

A dialog (figure 20-18) will display the current progress of the operation. Please be patient: the time it takes to backup depends on many factors such as the size of the backup file set, the speed of the storage option selected, etc. Once the operation is finished a report will be shown: look for errors on it and take corrective measures if needed.

20.8.2. Restoring Backups

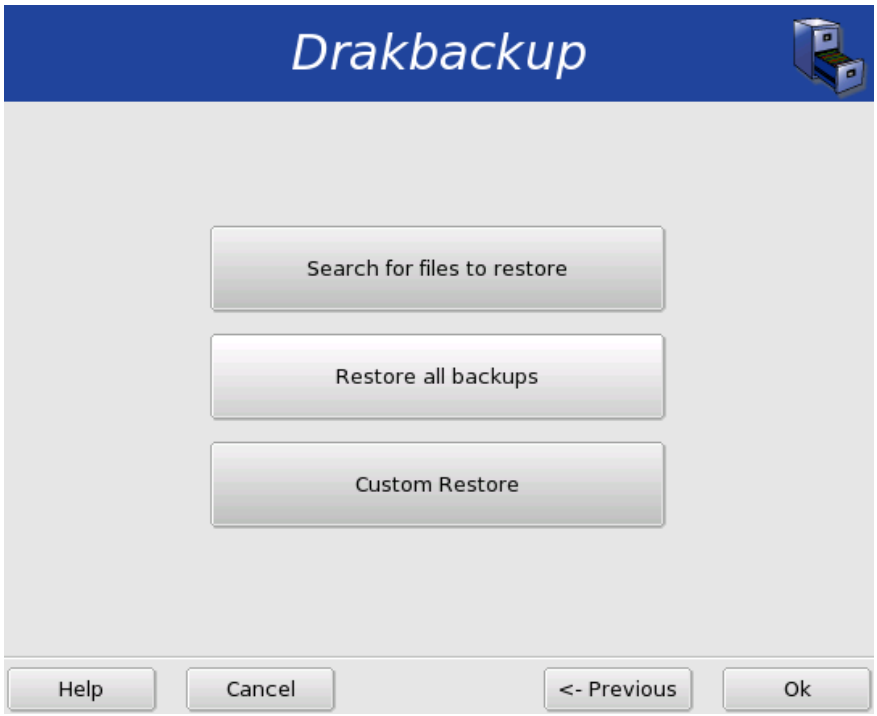


Figure 20-19. Choosing the Restore Type to Perform

Make sure the media you want to restore the backup from is accessible and ready. Then click on *drakbackup*'s Restore button. In our example we will restore the whole backup so on the restore dialog (figure 20-19) click on the Restore all backups button. A dialog will show you the current restore settings. Click on the Restore button to start the restoration process.

All existing files in the target restoration directory (same location where the backup was made from, by default) will be overwritten.

20.8.3. Automating Periodic Backups

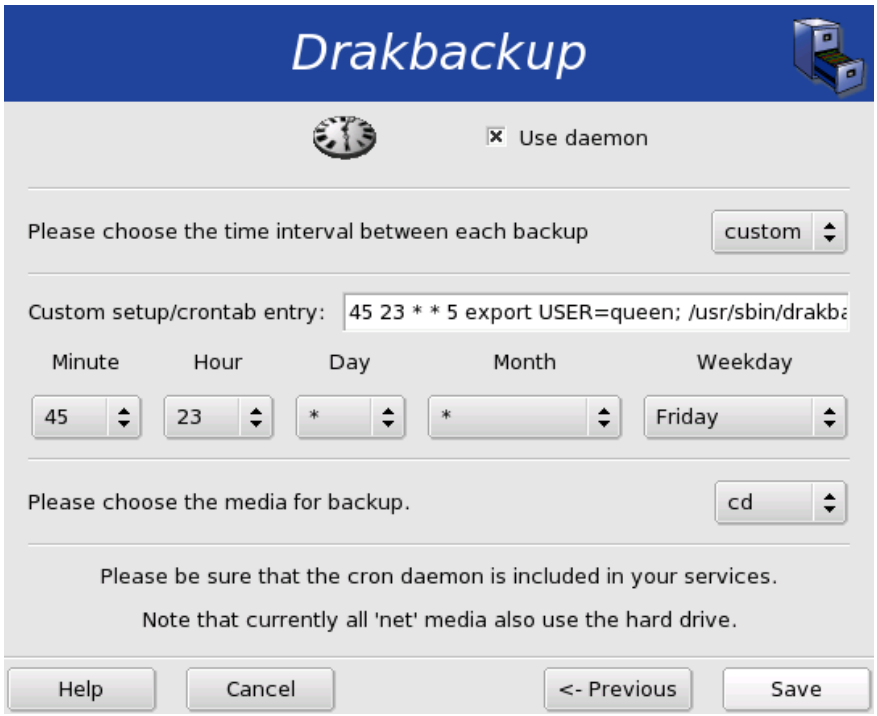


Figure 20-20. Daemon Options Window

In *drakbackup*'s main window, click on the Advanced Configuration button and then on the When button. The backup scheduling window will appear (figure 20-20). Select Use daemon to define the schedule. You will then be asked to specify the interval (or period) between each backup operation and the storage media. In our example we set up a customized calendar (custom period selected) to perform a backup every Friday at a quarter to midnight and store it on CD. You can also specify hourly (i.e.: performed 1 minute after the hour), daily (i.e.: performed at 4:02AM), weekly (performed at 4:22AM) and monthly (performed at 4:42AM) periods instead of custom.

20.8.4. Other DrakBackup Options

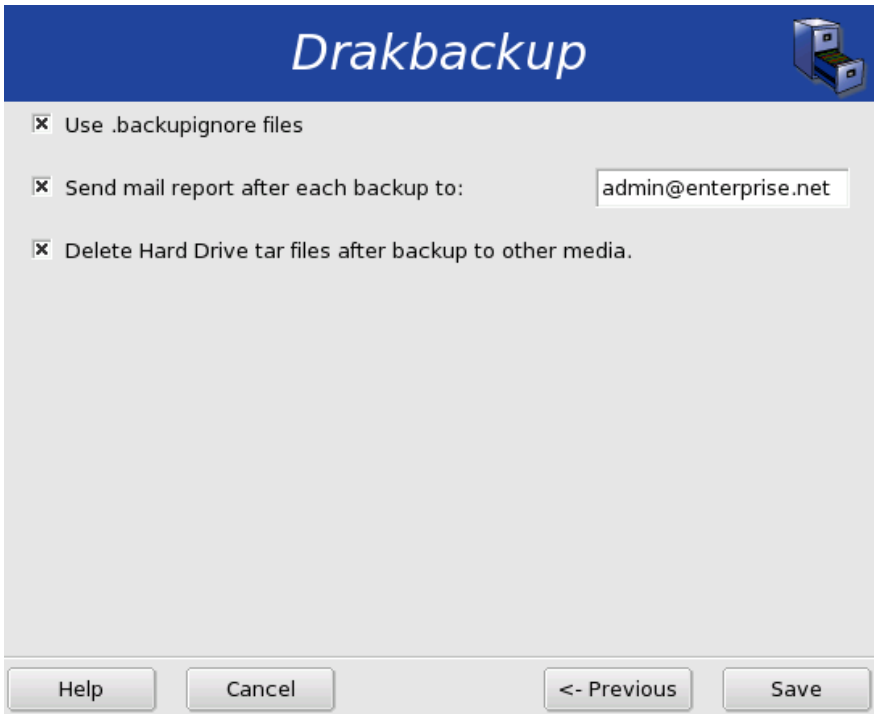


Figure 20-21. Miscellaneous Options Window

Click on the Advanced Configuration button and then on the More Options button. The miscellaneous options window will appear (figure 20-21).

Select the Use .backupignore files option to have *drakbackup* exclude certain files from the backup. The `.backupignore` file should be present in every directory of the backup file set where files are to be excluded. Its syntax is very easy: a one-file-per-line list of the names of the files to exclude.

You can use the star (* = "matches a random string") and the question mark (? = "matches one and only one character, regardless of what that character is") in the `.backupignore` file to exclude sets of files. For example, `somename*` will match all files whose names start with `somename`, and `image00?.jpg` will match files named `image001.jpg`, `image009.jpg`, `image00a.jpg`, `image00h.jpg`, etc.

Select the Send mail report after each backup to option and fill the e-mail address to have *drakbackup* mail the backup operation report to that address. Multiple addresses can be used by entering a comma-separated list. Please bear in mind that the system needs to have a working MTA (Mail Transport Agent) for this option to be effective.

All methods other than disk/NFS use the hard disk drive to store temporary files. Select the Delete Hard Drive tar files after backup to other media option to have *drakbackup* free that space after performing the backup.

Chapter 21. RpmDrake: Package Management

When coming from a *Windows* environment, you'll know the problem, that every piece of software has its own method of installation: either a MSI file, an *InstallShield* setup, a self extracting executable or maybe simply a `zip` file. When installing software you always risk ending up with some of your applications not working anymore, as the recently downloaded tool may have replaced some `.dll`-files with older versions without any warning. This is why the *GNU/Linux* community went a totally different way and created a software package management system to take care of all those problems: `rpm`. As always under *GNU/Linux* this is a command line tool, with lots of nice features, but maybe a bit overloaded for the average user. Therefore **Mandrake Linux** provides you with a graphical software installer: *RpmDrake*.

RpmDrake consists of four different tools, which you access through the Main Menu (Configuration→Packaging) or via the *Mandrake Control Center* in the section Software Management: figure 21-1

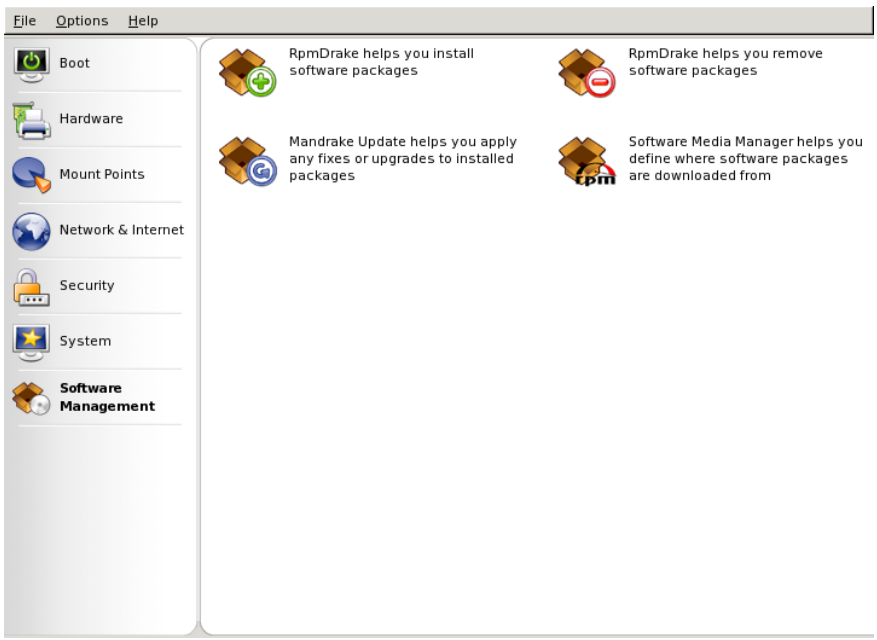


Figure 21-1. Software Management in the Mandrake Control Center

We recommend that you access *RpmDrake* via the *Mandrake Control Center*.

21.1. Install Software

When launching this tool you will have to wait a few seconds, while *RpmDrake* searches the available packages database. Then you will be presented the Software Packages Installation interface.

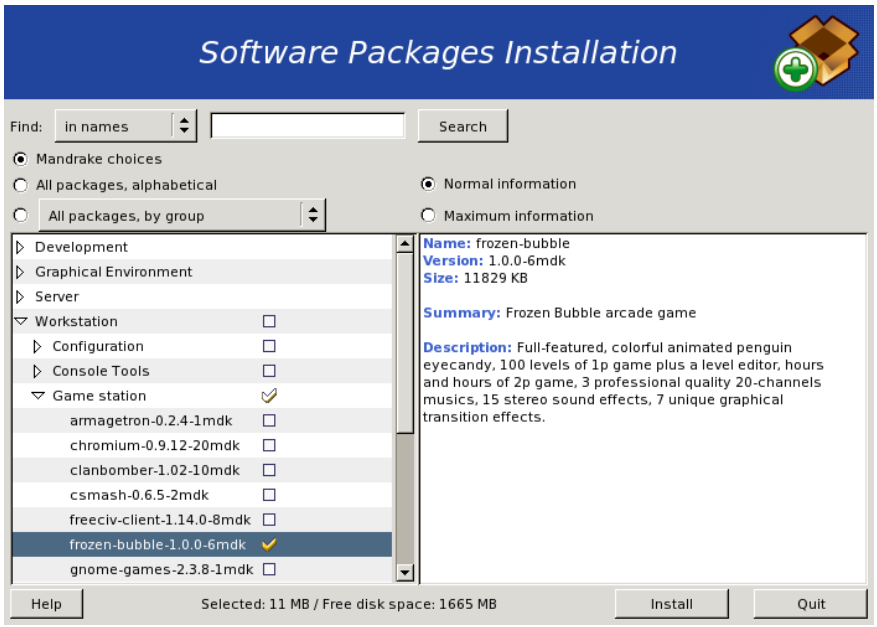


Figure 21-2. The Software Packages Installation interface

The window is divided into four parts: The upper part offers you some possibilities to manipulate the list of packages you can install. You will find this list in the middle on the left. Next to it on the right, you have an area, where you can find a description of the currently selected package. In the bottom of the window you will find a status bar with three buttons.

Let's have a closer look at the interface as shown in figure 21-2. A package named "`frozen-bubble-1.0.0-6mdk`" is selected in the tree-view and in the package description area you will find the needed disk space (11835 KB), a short summary (Frozen Bubble arcade game) and a detailed description (Full-featured, colorful animated penguin eye candy...).

You can get more information on the package by choosing the Maximum information radio button in the access-area. In addition you will see a list of the files provided by the package and the ChangeLog.

The status bar shows you, that you have selected 11 MB and you have enough free disk space left (1665 MB).

RpmDrake will show you an alert box, if you try to install more software than the free available disk space. Nevertheless you may proceed (you may e.g. be able to remove enough unneeded files, let's say some "cooker"[1]-ISOs, you were burning last week, to do the installation anyway)

Now you can launch the installation, simply by clicking on the Install button. A new window will appear, to show you with a progress bar how much of your installation is already done. If you prefer leaving without doing anything, you just need to click on the Quit button.

During the selection it may happen that you choose a package that needs some additional libraries or another tool to be installed to work correctly. In that case *RpmDrake* will present you an information box, giving you the ability to choose, if you accept to also select the dependencies, or if you forego your selection (figure 21-3).

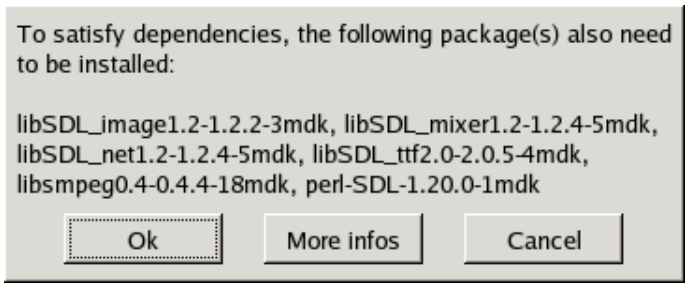


Figure 21-3. RpmDrake — dependency alert box

Another possible scenario might be: you want to install a package, and you are presented a list of alternatives providing the same feature needed by your chosen package (figure 21-4). You may read the additional information presented when clicking the Info... button to help you choose the best alternative.

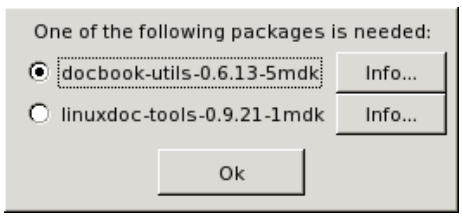


Figure 21-4. RpmDrake — package alternatives

We will now take a closer look at the search and sort functions provided to ease your job as system administrator:

21.1.1. Searching packages

Sometimes you may know about some tool you saw somewhere or you heard of at a friends place, now you wonder how to find and install them on your system.

It's really easy: just add the name in the text area next to the Search button. Then choose, where you want to look for it (either in the package name, in the description provided with the package or in the names of the files stored in the packages). A new list will appear, giving you the search results, *RpmDrake* found while scanning the databases.

Let's have a look on the different sort orders:

21.1.2. Mandrake choices

This sort order will present the list of packages in the four groups you have already seen during the installation of your **Mandrake Linux**. This is the easier sort order because it focuses on a selected part of the available packages, which are considered to be the most useful of the distribution

21.1.3. All packages, alphabetical

Instead of a tree view, you will be presented with a flat list of all available packages you can install on your system.

21.1.4. All packages, by group

Here you will be presented the packages grouped by their functions (e.g. Games, System, Video, etc.).

21.1.5. All packages, by size

Here you will get a list sorted by size (the biggest package on top, the smallest on the end of the list).

21.1.6. All packages, by selection state

If you choose this presentation, you will end up with a flat list, in which all selected packages are shown first, the other available packages below them. To make it easier for you, those two parts are sorted alphabetically. This sort order is particularly useful just before the actual package installation, when you have selected many packages because it helps seeing all the selected packages.

21.1.7. All packages, by medium repository

Once again you will find the packages sorted alphabetically, but this time they are shown under the name of the data medium they belong to.

21.1.8. All packages, by update availability

In this mode, you might get two groups of packages: a list of packages which might be added to your machine, and a second list with all packages where you have an older version already installed on your computer.

21.2. Remove Software

As this interface works like the "Install Software" one, we will not repeat its basic functions. The only difference to the installation interface is that you will deal with the already installed packages list from which to choose the one to remove, instead of searching which package might be useful to install on your computer.

21.3. Mandrake Update

Once again: If you have already worked with the software installation interface of *RpmDrake*, then you will feel really familiar with Mandrake Update. But let's look at the details.

When you launch this tool, it will first ask you to choose an Internet repository to check for updates. Choose one in a country near you.

A small difference to the "Install Software" interface is the ability to choose which kind of updates you want to install on your computer instead of grouping them in certain ways. You may select Security Updates, Bugfixes and Normal Updates.

The other difference is the new text area under the package description area. It provides you with information about why this update was made available. This may help you to decide if you want to update a certain package or not. When you have a slow Internet connection or you have to pay per MB when you are downloading, it would be wise to read it.

If you are not yet familiar with the interface, please go back to the *Install Software*, page **??** section to learn about it.

And now to something completely different:

21.4. The Software Media Manager

This part of *RpmDrake* is dedicated to the configuration of the package media repositories. As you can see in figure 21-5 there are two media configured: "Installation CD" and "Contrib CD". Thanks to this tool you can actually add more software media: a CD from a magazine containing RPMs, a Web repository, etc. The check boxes in the left column allow you to temporarily disable a medium: when unchecked, the associated packages won't appear in the "Install Software" interface.

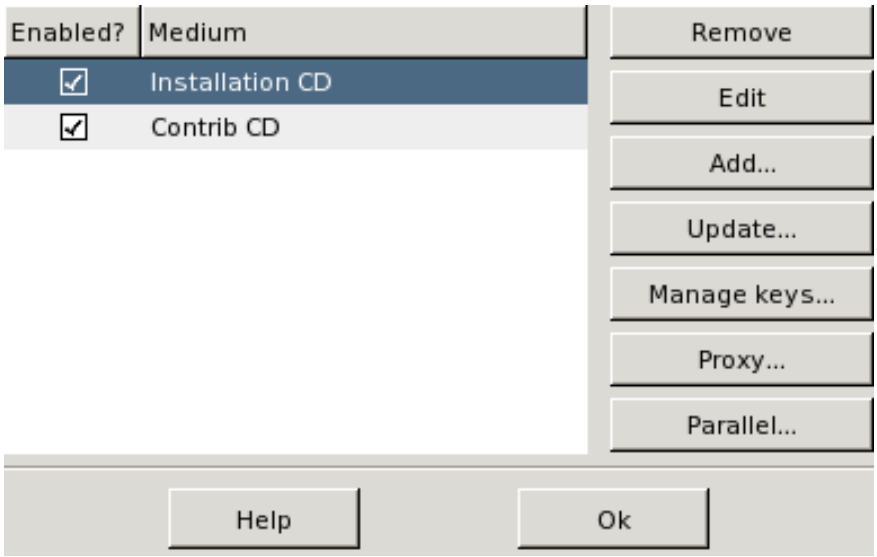


Figure 21-5. The "Software Media Manager"

You have several available choices here.

Remove

This allows you to remove media which you don't use anymore, e.g. as there is a new version of **Mandrake Linux** and you bought the new box. Simply select the media to be removed in the list and click this button.

Edit

Here you may change the URL or the relative path to the synthesis/hdlist (if you don't know what we are talking about it will be wise to leave the window via Cancel instead of Save changes).

Add...

This button provides access to a new dialog, in which you may define a new software package medium. In figure 21-6 you can see the dialog when adding a Security updates medium.

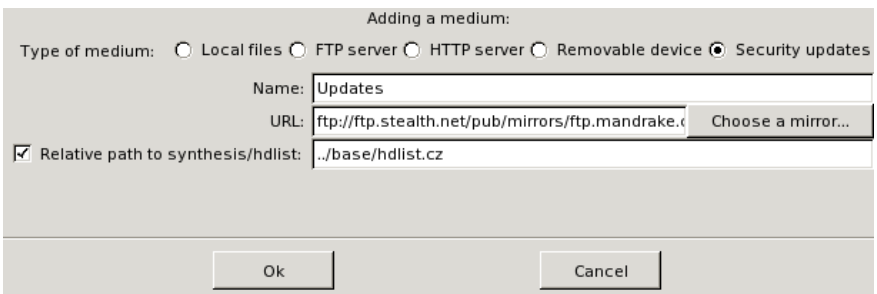


Figure 21-6. RpmDrake — adding a Media

Update...

You will be shown a list of all defined data media. You can choose the ones you want to update. Just start the process by clicking on Update.

Manage keys...

— It's important that new software packages you install are authenticated. To do so, each package can be electronically signed with a "key", and you can allow/disallow keys on a per-medium basis. On figure 21-7, you can see that **Mandrake Linux** key is allowed for medium "Installation CD". Click on Add a key... to allow another key for that medium (beware, do that with care, as with every security-related questions), and Remove key to remove a key.

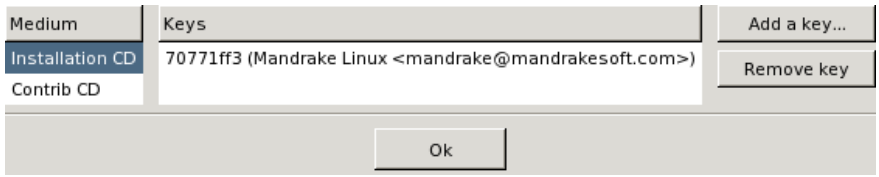


Figure 21-7. RpmDrake — managing keys

Proxy...

— If you are sitting behind a firewall and you still want to use *RpmDrake* to manage your system, you can do so, if you have a proxy server which leads to the Internet (at least in an area where you can find a package server). Normally it should be enough to fill in the Proxy hostname to get it working (figure 21-8). If you need a user / password combination to get through the proxy, you can also specify them here. Just confirm your changes by clicking on OK and you are done.

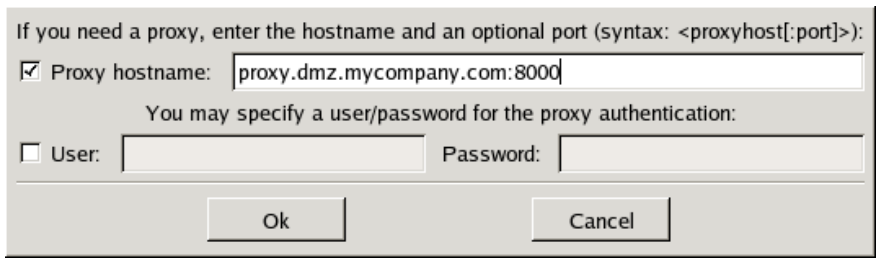


Figure 21-8. RpmDrake — configuring a proxy

Parallel...

If you are running a large network of computers, you may want to install a package on all the computers in parallel; this button will open a dialog window allowing the configuration of the "Parallel" mode. As it's rather complicated and useful to a limited range of people, this short introduction will not give more details about it.

As you have seen on our short trip through *RpmDrake*, it is easy to manage your own system, to add new applications or to remove something if you need more space on disk. Now welcome to the world of system administrators.

21.5. Package Management through the Command Line

RpmDrake applications are merely graphical interfaces to the powerful *urpmi* command line tools. For those wishing to control their packages through the command line (useful if you are working remotely, for example) we quickly present the most useful commands. Note that most commands will need root privileges.

21.5.1. Installing and Removing Packages

This is done through two simple commands:

`urpmi <package_name>`

Will install package `package_name` if it exists or the package which name contains the `package_name` string in it.

`urpme <package_name>`

Will remove the package `package_name`.

Consult the urpmi(8) and urpme(8) man pages to learn about the many options and behaviors of these two commands.

21.5.2. Media Management

Adding and removing medias is easy on the command line but the syntax must be strictly respected.

21.5.2.1. Adding a New Media

```
urpmi.addmedia <name> <url>
```

This command allows you to add a new media either from a local drive, a removable device (CD-ROM), or from the network through the HTTP, FTP, NFS, `ssh` or `rsync` protocols. The syntax varies for each of these methods so you are encouraged to consult the urpmi.addmedia(8) man page before using it.

If you are declaring a new update media, use the `--update` option on your `urpmi.addmedia` command line.

21.5.2.2. Removing Medias

```
urpmi.removemedia <name>
```

This command will simply remove the media `name`. If you cannot remember the media's name, issuing `urpmi.removemedia` alone on the command line will list all declared medias.

21.5.2.3. Updating Medias

```
urpmi.update <name>
```

This command will scan the named media and update the package list associated to it. This is useful notably for update medias. If you wish to rescan all known medias you can simply run `urpmi.update -a`

21.5.3. Tricks and Recipes

21.5.3.1. Finding the Package that Contains a Specific File

You know you need a specific file on your system but you do not know which package provides it... The `urpmf` utility will scan all medias and find it for you. Just run `urpmf <filename>` and the package(s) that contain it will be displayed.

You can even provide only a partial name. For example `urpmf salsa` will return all packages that contain a file which name contains the `salsa name in it.`

```
[root@test peter]# urpmf salsa
kaffe:/usr/lib/kaffe/lib/i386/libtritonusalsa-1.1.x-cvs.so
kaffe:/usr/lib/kaffe/lib/i386/libtritonusalsa.la
kaffe:/usr/lib/kaffe/lib/i386/libtritonusalsa.so
libncbi2-devel:/usr/include/ncbi/salsa.h
libncbi2-devel:/usr/include/ncbi/salsap.h
```

21.5.3.2. Updating Packages

This command will automatically update all the packages that need it as *`mandrakeupdate`* would do it:

```
urpmi.update -a; urpmi --update --auto-select --auto
```

Chapter 22. Troubleshooting

This chapter will guide you through some troubleshooting basics, that is: what to do when everything goes wrong or, better yet, what to do to be **prepared** if something goes wrong and how to fix it.

22.1. Introduction

Making backup copies of your data, fixing little problems, recompiling the kernel, installing software, and tweaking configuration files are not uncommon scenarios in every day *GNU/Linux* life: even if you don't do it all the time, some day you will want or need to. Those tasks can be managed without any hassle at all if you use a little common sense and follow some practices and guidelines we will introduce here. These will help you when **those** times come and you will have to solve more serious problems, like a system that hangs at boot time.

Almost all examples and tools presented in this chapter deal with the command line. Usually, restoration of a damaged system to a working state can only be done using the command line. It is assumed that you feel comfortable enough using that powerful tool.

So, on to the basic things you need to have ready...

22.2. A Boot Disk

The very first thing you will need when your system cannot boot from the hard disk, for any of the reasons we mentioned before, will be a boot disk. You should have one already, which you should have created during the installation process. A boot disk will allow you to boot your system up and, in a matter of minutes, enable you to undo the thing that has made your system unusable.

You can also use the `Rescue Mode` of **Mandrake Linux**'s installation CD-ROM to boot your machine and perform some maintenance tasks, but a boot disk might prove to be useful anyway (for example, if your machine doesn't support booting from the CD-ROM drive).

22.2.1. Creating a Boot Floppy with Drakfloppy

Please refer to *DrakFloppy: Creating a Boot Disk*, page **??** for instructions on how to create a boot diskette using our graphical *drakfloppy* tool.

22.2.2. Testing the Boot Disk

Always test your boot floppy to make sure it **actually works**. There are few things more embarrassing than finding that the floppy won't boot because of media errors. If the floppy boots OK then... You are done!

Congratulations! You already have one the most important tools in trying to recover a damaged system: a boot disk. Now on to some important considerations on another important tool: backups.

22.3. Backup

22.3.1. Why Backup?

Backing up your system is the **only** means of being able to repair it if it suffers severe damage, if you accidentally delete some important system files, or if someone breaks into your system and intentionally deletes some files. You should also back up your daily use data (compressed audio, images, office documents, e-mails, address book, etc.) to be safe.

You should make your backups using an appropriate medium and keep them in a safe place. Such a place should be outside the place you usually work in, if possible. You can even have two backups, one on-site, and one outside. Generally speaking, you should make sure that you will be able to restore those backups if you want all this to be really useful.

22.3.2. Preparing your System

You probably have everything you need already installed in your system. You should also keep a boot disk near at hand (you **created** one, didn't you?). Actually, you can make backups using only `tar` and, optionally, a compression tool such as `gzip` or `bzip2`. See an example in *Backup Example Using tar*, page **??**.

As an alternative, you can use specialized backup programs, such as *Taper*, *Time Navigator*, *Arkeia*, or **Mandrake Linux**'s own *drakbackup* (Please refer to *DrakBackup: Backup and Restore your System and Personal Files*, page **??**).

22.3.3. What to Backup?

Well, this might be the single most difficult question every system administrator asks himself when the time to back up comes. The answer depends on things such as: are you just backing up your personal data, your configuration files, or your whole system? How much time or space is it going to take? Will you be restoring your backup on the same machine/OS version, or on a different one?

Since this is a troubleshooting guide, we will try to focus on doing a backup that will allow us to quickly restore our system to the state it was before that terrible thing which rendered it unusable happened. Of course, you will need to make a backup of your personal data if you don't want to lose it, but... that's another story.

As a rule of thumb, you will need to back up the following directories: `/etc`, `/home`, `/root` and `/var`. If you do a complete backup of these directories, you will have saved not only your system configurations, but your data as well (in case you are wondering where your data is, it's located in the `/home/your_user_name/` directory). Please keep in mind that this can take a **long** time to complete, but it is the safest bet.

A more sophisticated scheme would be to back up only the configuration files which have changed, skipping the ones which haven't. This will take more planning time, but will lead to quicker backups (and quicker restores, too). They will be "easier" to port from one machine/OS version to another.

Next, you will be presented with a list of the files you should pay the most attention to. Note that these lists are not exhaustive at all, especially if you have made lots of changes to your system[1]

In the directory `/etc`:

`/etc/lilo.conf`

Contains *LILO*'s boot-loader configuration. *LILO* is the default in **Mandrake Linux**, if you happen to be using *GRUB* instead, the files to back up are the ones in the `/boot/grub` directory.

`/etc/fstab`

Contains the disks' partition table configuration and the associated mount points.

`/etc/modules.conf`

Contains the modules to load and their parameters according to your system's hardware. This might not be useful if restoring on a **very** different machine, but it might have some hints anyway.

1. If you have made lots of changes, you probably won't need these lists anyway.

`/etc/X11/XF86Config-4` and/or `/etc/X11/XF86Config`

Contains *X*'s settings. *X* is the graphical core of *GNU/Linux* and all its desktop environments, as well as window managers.

`/etc/cups`

Contains *CUPS*'s settings. *CUPS* is **Mandrake Linux**'s default printing system. If you don't use *CUPS* and you use the `lpr` printing system then back up `/etc/printcap` instead.

`/etc/bashrc`

Sets the *bash shell* system-wide configuration.

`/etc/profile`

Sets the system environment and some programs that are executed upon system startup.

`/etc/crontab`

Sets the cron jobs to be executed periodically, for system maintenance tasks for example.

`/etc/rc.d/*`

Sets the system's various run levels. Usually you won't need to back up these ones, except if you have added some personalized run levels or changed a default one.

`/etc/inittab`

Sets the default run level your system will start with.

`/etc/ssh`

Contains `ssh` settings. If you do secure remote access this file is **very** important to keep.

If you have a web server, an FTP server, or other servers, make a backup of their respective configuration files as well. Note that we cannot list them all because they are server-dependent.

In the `/root` directory and each user's home directory `/home/user_name`, the following directories:

`~/.gnome/*` and `~/.gnome2/*`

Settings for the *GNOME* desktop environment.

`~/.kde/*`

Settings for the *KDE* desktop environment.

`~/.mozilla/*`

Settings for *Mozilla*'s family of programs. The Navigator's bookmarks, Messenger's mail filters, etc. Note that if you use *Mozilla*'s Messenger, this directory also contains **all** your e-mail and newsgroups messages. You **definitely** don't want to lose these ones, do you?

`~/Mail/*`

If you use *KMail* this directory holds **all** your e-mail messages.

`~/.ssh/*`

Contains personalized `ssh` settings. If you use `ssh`, backing this one up is a must.

You may also want to keep an eye on the following files:

`~/.bash_profile` and `~/.bashrc`

Contains environment variables, aliases, and more settings for the *bash* shell.

Please note that we did not mention every single possible configuration file because we would need to write a whole book on that subject. For example, if you don't use *Mozilla* you need not back up *Mozilla* related files and directories. If you don't use `ssh` you don't need to back up `ssh` related stuff, and so on.

To summarize, back up all the configuration files of the programs you use and all of the configuration files you have changed. Also back up all your personal (and your system's users) data files. You won't regret it.

22.3.4. Where to Backup?

The other big question to answer. This depends on how much you want to back up, how fast you want to make your backups, how easy is the access to the backup media, and a large list of etceteras.

Generally speaking, you need media that is at least as large as the amount of information you want to back up, and fast enough so the whole process won't take forever to complete.

We will provide you with a brief description of available backup media options. These vary in capacity, reliability, and speed. You can combine backup medium according to your backup strategy, for example: tapes and CD-R/DVD+RW, hard disk and tapes, hard disk and CD-R/DVD+RW, etc., but bear in mind that your backup software may or may not support all of them.

This is not meant to be an exhaustive analysis of the different storage media available out there. Some things might change in the future; things such as expected media life were taken from the manufacturer's web sites and/or personal and community experience. Also, there might be many **personal** points of view on many matters such as price or speed for example.

22.3.4.1. Not Very Good/Reliable Media

Floppy, LS120 Floppy and ZIP Disks. Their capacity goes from 1.44 MB (for floppies), passing from 120 MB (for LS120 floppies), up to 750 MB (for *ZIP*s). They are easy to carry around (they fit in a shirt pocket) and generally speaking, slow but cheap media, though the price per MB ratio is not as good as that of optical media or tapes. Standard floppy disk drive in virtually every computer, LS120 and *ZIP* need special drives. Read/Write. Expected media life ranges from 4 or 5 years (for floppies) to 10 or maybe more years (for LS120 floppies and *ZIP* disks).

Removable Hard-Disk-Like Media. Other removable media exist (Castlewood's *ORB*, and IOMEGA's *JAZ* come to mind) that have good price/features balance and are suited for doing backups. Some were even publicized as "hard disk replacements" (*JAZ* for example), but when used as hard disks they might not last too long due to design constraints (they **are not** hard disk drives). Anyway, Your Mileage May Vary on these matters, just make sure you choose wisely (use common sense) according to your needs.

22.3.4.2. Suggested Media

Optical Media. By "optical media" we mean CD-R, CD-RW, DVD-R, DVD+R, DVD-RW and DVD+RW. Their capacity goes from 650 or 700 MB (for CD media[2]) up to 4.7 GB (for DVD media). Very cheap and reliable media. Both CD and DVD recordable media today have the same price per MB. Write only once for `R` media and many times for `RW` media. Read as many as you want (well, actually, as you can...). Expected media life is 15 to 20 years, maybe more if they are stored in a safe place and read not too often.

2. Even if there are the so-called "99 minutes" CD-Rs, they seem to have many compatibility and reliability problems with different CD recorders and CD-ROM drives.

Please bear in mind that the number of times optical media can be written and their life depends on many factors (like usage, storage conditions, media technology, media writing speed, etc.) which cannot be precisely stated. For example, some media cannot be reliably read if written at high speeds (like 10X for CD-RW), other media cannot be written more than 20 times, etc. Your mileage may vary.

Tape. Its capacity goes from 120 MB up to several gigabytes. Expensive and not very reliable media (they **are** magnetic tapes after all). Even so, their capacity makes them ideal to back up servers and the like; if you want to back up your whole disk drive in only one piece of media, tape might be the only way to go. Its biggest drawback is that tape access is sequential, and this has a big performance impact, but SCSI tape drives are fast enough for today's needs and they do have many gigabytes of space to store your files. Read/Write. Expected media life is up to 30 years for new tape technologies.

22.3.4.3. Other/Complementary Media

Hard Disk. Today's hard disk prices have dropped in such a way that they might be considered seriously as a backup medium, too. They are relatively cheap, have huge capacities (up to 250 GB at the time of writing this manual), are very reliable and the fastest of all media introduced in this list. If you have a laptop system this may not be an option[3], but on your desktop systems adding a spare disk drive just for backup purposes might be a good choice. Actually, you might not even need to add a new hard disk and do backups on the only hard disk you have; but this might not prove to be a good idea since it won't protect you from a hard disk crash.

Remote Directories. Well, this might not be considered strictly as "media", but we will say a little about it because it is a good backup choice provided you have enough space and bandwidth. If your ISP provides you with some space you can use it to place your files along with your web pages. On the web you can find many offerings for online remote storage services. If you have a network with two or more machines you can do backups on some "remote" machine on the network (other than the one you are trying to back up, of course...). Actually, doing "remote" backups could be a security hole, so do not keep your top secret files, nor your most important ones, on a remote directory. Remember that, in the case of a major system failure, you may not even be able to connect to that remote site to recover your files...

22.3.5. When to Back Up?

There are many policies for backup schedules. We will introduce you to a few. Please bear in mind that these are not mandatory, nor the best ones, nor the only ones. These are just guidelines you may want to follow in rolling out your own backup schedule.

The many backup strategies out there depend on the media you use, on how often your data changes, and on how critical that data is to you or your organization. For example, one strategy states that you should make a full backup each weekend, and an incremental (changed stuff only) backup every day; then make a full backup every month and store that one in at least two places. This strategy might prove useful for an enterprise, but not for a personal computer. For your personal backups you can think of something like this: make a weekly backup of your files on your disk drive and each month transfer those backups to CD-R/DVD+RW or tape.

22.3.6. Backup Example Using tar

Next, we will introduce you to a little backup script that uses `tar` for making a complete backup of your home directory.

You need read permission on the files, and read and execute permissions on directories, you are going to back up. Otherwise the backup operation will fail.

```
#!/bin/bash
```

3. If you have a relatively new laptop, you may have space to install a second hard disk. Also, using USB, parallel port and FireWire, you can attach extra external hard disk drives.

```
# Create a compressed backup of your home directory in a file named
# backup.tar.gz or backup.tar.bz2 depending on the compression scheme used.

BACKUP_DIRS=$HOME

# Uncomment the following line if you want GZipped backups
#tar cvzf backup.tar.gz $BACKUP_DIRS

# We do a BZipped backup here...
tar cvjf backup.tar.bz2 $BACKUP_DIRS
```

As you can see this is a **very** simple backup script that only does a backup of your home directory and puts the result into the very same directory. Let's enhance it a little...

```
#!/bin/bash

# Create a compressed backup of all the directories specified and put the
# resulting file in a directory of our choice.

BACKUP_DIRS="$HOME /etc /etc/rc.d"
BACKUP_FILENAME=‘date ’+%b%d%Y’‘
BACKUP_DEST_DIR="/backups"

# Uncomment the following line for GZipped backups, comment for
# BZipped backups

#tar cvzf $BACKUP_DEST_DIR/$BACKUP_FILENAME.tar.gz $BACKUP_DIRS

# We do a BZipped backup here...
# Comment the following line for GZipped backups, uncomment for
# BZipped backups

tar cvjf $BACKUP_DEST_DIR/$BACKUP_FILENAME.tar.bz2 $BACKUP_DIRS
```

As you can see in this last example, we have added some more directories to our backup, and we have used a naming scheme to add the date of the backup to the resulting filename.

Of course, you can later move the resulting `tar.bz2` or `tar.gz` file to any media you want. You can even backup directly to the media you want by mounting it and changing the variable `BACKUP_DEST_DIR` of the script accordingly. Feel free to enhance this script and make it as flexible as you want.

To restore the backups made this way, please look at *Restore Example Using tar*, page **??**.

22.4. Restore

The restoration of a backup depends on which program, media, and schedule you used to make it. We won't cover all the restore cases, but only mention that in order to recover your settings and data files, make sure that you restore the files and/or directories to the same places they were in when you made the backup.

22.4.1. Restore Example Using tar

Now, we will see a little script to restore the backup we made with `tar` using the script introduced earlier in *Backup Example Using tar*, page **??**

You need write permissions on the files and directories you are going to restore. Otherwise the restore operation will fail.

```
#!/bin/bash

# Extract a compressed backup of all the directories specified
# putting the backed up files into their original places.
```

```
BACKUP_SOURCE_DIR="/backups"
RESTORE_FILENAME=$1

# Uncomment the following line if you are restoring GZipped
# backups

#tar xvzf $BACKUP_SOURCE_DIR/$RESTORE_FILENAME

# Restore a BZipped backup here...
tar xvjf $BACKUP_SOURCE_DIR/$RESTORE_FILENAME
```

As you can see, this script is simple enough. All we have to do is to pass it the file name of the backup we want to restore as a parameter (just the file name, not the full path), and it restores the backed up files into their original locations.

22.4.2. Making a Recovery CD-ROM

There is a way to be prepared in case of "total disaster", and that is making a **full** backup of your system. Programs such as *mkCDrec* can be very useful to get you up and running in a matter of minutes.

If you are the proud owner of a Mandrake Linux — PowerPack Edition, you already have this tool in the "contribs" CD-ROM. Otherwise, you can find it, together with its documentation on the mkCDrec web site (`http://mkcdrec.ota.be`).

mkCDrec allows you to do multiple-CD-ROM volumes, disk cloning (copying the full contents of a disk or partition to another one with similar characteristics — at least the same size), and many more.

In order to restore a system with *mkCDrec* you just have to boot with the first CD-ROM of the multiple-CD-ROM volume and follow the on-screen instructions.

22.5. Problems Arising at Boot Time

It could happen that your system hangs during boot up. If so, don't panic, just keep reading.

The next sections are not introduced in any particular order.

22.5.1. System Hanging during Boot

If your system hangs during `Rebuilding RPM database` or `Finding module dependencies`, just press **Ctrl**-**C**. This will allow the system to skip this step and continue to boot. Once booted, execute `rpm --rebuilddb` as `root` if the system hang was at the `Rebuilding RPM database` phase. If the system hang was at the `Finding module dependencies` phase you have most likely been through a kernel upgrade, but haven't done it properly. Check if the files in `/boot` and the `/lib/modules` directory match the current kernel version (i.e., have the current version number attached). If they don't match, please read *Compiling And Installing New Kernels* from *Reference Guide* to find out how to fix this.

If the boot process hangs at `RAMDISK: Compressed image found at block 0` you have messed up the `initrd` image. Either try to boot another `lilo.conf` entry or boot an emergency system and remove or change the `initrd=` section in `/etc/lilo.conf`

22.5.2. File-System Check on Boot Fails

The information below only applies to ext2 and ext3 file systems. If you have another file system, please check its documentation.

If, for any reason, you haven't shutdown your box properly, the system will run a routine file-system check during the next boot. It may sometimes fail to do this on its own and will drop you to a console. Execute `e2fsck -py [device]` where `[device]` is the name of the partition on which the automatic check has failed. The `-p` switch tells `e2fsck` to do all the necessary repairs without asking, `-y` assumes you answer `yes` to all questions. When the check and repair phase is over, press **Ctrl-D** to leave the emergency console. The system will reboot.

If you get this error regularly, there might be bad blocks on your disk. Execute `e2fsck -c [device]` to find out. This command will automatically mark any bad blocks and thus prevent the file system from storing data in these blocks. `e2fsck` checks the file system automatically only if it has not been unmounted properly during the previous system shutdown; or if the `maximal mount count` has been reached. To force a check, use the `-f` option.

The check for bad blocks on a disk should only be done on unmounted file systems, and can take a tremendous amount of time to complete. It may be necessary to do it, but be warned that you will have enough time to drink several coffees.

22.5.3. X Doesn't Start

If you boot into *X* **by default** and have managed to break your *X* configuration somehow and cannot enter *X* anymore, you can login into a console and use *XFdrake* from there to re-configure *X*. You can also boot into a different run level, fix *X*'s configuration with *XFdrake* and reboot into *X*.

22.5.3.1. Booting Into a Different Run Level

The default run level *GNU/Linux* boots to is defined in the `/etc/inittab` file. Look for an entry like `id:5:initdefault:`. To boot into run level `3` (the console), you have to define that run level on the boot prompt. Under *LILO*, press the **Esc** key once and type `linux init 3`. Under *GRUB*, press the **E** key twice, add `init 3`, press the **Enter** key and then the **B** key to boot.

For a more detailed description about run levels, please refer to **Mandrake Linux**'s *Reference Guide*.

22.5.3.2. Configuring X from the Console

To re-configure *X* using *XFdrake* from the console simply type `XFdrake`, as `root`.

Using *XFdrake* is no different to the graphical environment except that you won't have have nice icons and might not be able to use the mouse pointer. To move down you have to press on the right or down arrow keys on your keyboard; to move up press on the left or up keys on your keyboard. You can also use the **Tab** key to move among the different options/buttons. The text on the currently selected button/option will be highlighted with a different color; press the **Enter** key to activate it.

Please refer to *Controlling the Graphical Configuration*, page **??** for instructions on its usage.

22.6. Boot-Loader Issues

22.6.1. Boot-Loader Reinstall

Sometimes you will make a mistake and wipe your disk's MBR (Master Boot Record), or some misbehaving program does it, or you dual boot with *Windows* and catch a virus that does it. So, you say, I won't be able to boot my system anymore, right? **Wrong!** There are many ways to recover the boot record.

To recover your boot loader you will **need** a boot disk. Without a boot disk of some kind you might be completely lost[4].

Put the diskette in the floppy drive and reboot your computer from it. What you do next varies according whether you use *LILO* or *GRUB*. No matter which boot loader you use, all the commands you must execute will need to be run as `root`.

22.6.1.1. With LILO

If you use *LILO*, you just need to issue the following at the command prompt: `/sbin/lilo`. This will re-install *LILO* in your disk's boot sector and will fix the problem.

22.6.1.2. With GRUB

If you use *GRUB* things are a little bit different than with *LILO*.

The following example will assume that you are trying to install *GRUB* in the MBR of your first IDE drive, and that the file `stage1` is in the `/boot/grub/` directory.

First, invoke *GRUB*'s shell by issuing the command: `grub`. Once there, issue the following command: `root (hd0,0)`; this will tell *GRUB* that the files it needs are in the first partition (`0`) of your first hard disk (`hd0`). Then issue the following command: `setup (hd0)`; this will install *GRUB* in the MBR of your first hard disk. That's it!

You can also try to use `grub-install /dev/hda` to install *GRUB* on your first hard drive's MBR, but the method described above is the preferred one.

22.6.1.3. Some Considerations for Dual-Booting Systems

Windows 9x, NT, 2000 and XP upgrades. If you are running a dual-boot system, be very careful to always have a *GNU/Linux* boot disk prepared. *Windows* (all versions) usually replaces *LILO* or *GRUB* (the boot loader that starts up *GNU/Linux* and other operating systems) without any warning at all, and if you don't have a boot disk, you will not be able to boot *GNU/Linux* after you perform the *Windows* upgrade.

22.6.2. Backing Up and Restoring the MBR

To make a backup copy of your hard disk's Master Boot Record, insert a blank floppy in your floppy disk drive and issue the following:

```
# dd if=/dev/hda of=/dev/fd0/mbr.bin bs=512 count=1
```

If you want to restore a backed up copy of your hard disk's MBR, insert the floppy containing it into your floppy disk drive and issue the following:

```
# dd if=/dev/fd0/mbr.bin of=/dev/hda bs=512
```

4. Unless you make a backup of your MBR, more on that later...

The above examples assume that the MBR of your first IDE hard disk (`/dev/hda`) is backed up to a file named `mbr.bin` on your first floppy diskette drive (`/dev/fd0`) and should be run as the `root` user.

22.7. File System Issues

22.7.1. Repairing a Damaged Super-Block

The information below only applies to ext2 and ext3 file systems. If you have another file system, please check its documentation.

The super-block is the first block of each ext2FS/ext3FS partition. It contains important data about the file system, like its size, free space, etc. (it is similar to the method used by FAT partitions). A partition with a damaged super-block cannot be mounted. Fortunately, ext2FS/ext3FS keep several super-block backup copies scattered over the partition.

Boot your system with a boot disk. The backup copies' location depends on the block size of the file system. For file systems with 1 KB block sizes it is at the beginning of each 8 KB (8192 bytes) block, for file systems with 2 KB sizes it is at the beginning of each 16 KB (16384 bytes) block, and so on. You can use the `mke2fs -n [your_disk_device_name]` command to find out at which byte positions the super-block copies are. Assuming a 1 KB block size, the first backup copy is in byte number 8193. To restore the super-block from this copy, execute `e2fsck -b 8193 /dev/hda4`; change `hda4` accordingly to reflect the name of your damaged partition. If that block also happens to be damaged, try the next one at byte number 16385, and so on until you find a suitable one. Reboot your system to activate the changes.

22.7.2. Recovering Deleted Files

We will discuss some ways of recovering deleted files and directories. Please bear in mind that the recovery tools are not magical, and they will work depending on how recently you deleted the file you are trying to recover.

You might be wondering "Well, I accidentally deleted this file, how can I recover it?". There are some utilities designed for *GNU/Linux*'s ext2 file system which allow you to recover deleted files and directories. However these utilities won't recover the files you deleted a few months ago because of disk usage, space marked as "free" will be overwritten; so the **best** way to protect against accidental or not so accidental deletions is doing backups.

Please bear in mind that there are not (as yet) tools to recover files deleted on ReiserFS file systems. Keep in touch with the ReiserFS home page (`http://www.namesys.com`) for the latest news about ReiserFS.

Anyway, on to the tools for recovering your deleted files. One such tool is *Recover*. It is an interactive tool. If you have a Mandrake Linux — PowerPack Edition, you already have this tool in the "contribs" CD-ROM. Otherwise, you can find it on the Rpmfind web site (`http://www.rpmfind.net`). Go there and download the RPM. Once you have the RPM, install it. Then run it with `recover [command_line_opts]` and answer the questions it asks you. The questions will help you to set a time span to look for deleted files and directories to minimize the time it takes to do the search.[5]

Once the tool finishes its search, it will ask you where you want to save the recovered files and directories. Pick a directory of your choice, and you will have all the files and directories recovered in it. Note that you

5. You can search for **all** deleted files too, but it will take longer...

won't be able to recover the file names, just their contents, but you can inspect them or try to rename them with different names until you get the right one. This is better than nothing.

There are also mini-*HOWTO*s related to "undeletion" for ext2, look at Ext2fs-Undeletion (`http://www.tldp.org/HOWTO/mini/Ext2fs-Undeletion.html`) and undeletion of whole directory structures (`http://www.tldp.org/HOWTO/mini/Ext2fs-Undeletion-Dir-Struct/index.html`).

22.8. Recovering from a System Freeze

When stuck in a "freeze", your computer won't respond to commands anymore and input devices like keyboard and mouse seem to be blocked. This is a worst case scenario and could mean that you have a very severe error in either your configuration, your software or your hardware. We will show you how to deal with this annoying situation.

In the case of a system freeze, your top priority should be trying to shutdown your system properly. We assume you are under *X*. Now try these steps consecutively:

1. Try to kill the *X* server by pressing the **Ctrl**-**Alt**-**Backspace** keys.
2. Try to switch to another console by pressing the **Ctrl**-**Alt**-**Fn** keys (where `n` is the console number, from 1 to 6). If you succeed, login as `root` and issue the command: `kill -15 $(pidof X)` or the command `kill -9 $(pidof X)`, if the first command shows no effect. (Check with `top` to see if *X* is still running).
3. If you are part of a local network, try to use `ssh` to connect into your machine from another box. It is advisable to `ssh` into the remote machine as an unprivileged user and then use the `su` command to become `root`.
4. If the system doesn't respond to any of these steps, you have to go through the SysRq (System Request) sequence. The SysRq sequence involves pressing three keys at once: the left **Alt** key, the **SysRq** key (labeled **Print Screen** on older keyboards) and a letter key.
   a. **Alt**-**SysRq**-**R** puts the keyboard in "raw" mode. Now try pressing **Alt**-**Ctrl**-**Backspace** again to kill *X*. If that doesn't work, carry on.
   b. **Alt**-**SysRq**-**S** attempts to write all unsaved data to disk ("sync" the disk).
   c. **Alt**-**SysRq**-**E** sends a termination signal to all processes, except for `init`.
   d. **Alt**-**SysRq**-**I** sends a kill signal to all processes, except for `init`.
   e. **Alt**-**SysRq**-**U** attempts to re-mount all mounted file systems read-only. This removes the "dirty flag" and will avoid a file system check upon reboot.
   f. **Alt**-**SysRq**-**B** reboots the system. You might just as well press the "reset" button on your machine.

Remember that this is a sequence, i.e. you have to press one combination after the other in the right order: **R**aw, **S**ync, t**E**rm, k**I**ll, **U**mount, re**B**oot[6]. Read the kernel documentation for more information on this feature.

5. If none of the above helps, cross your fingers and press the "reset" switch on your machine. If you are lucky, *GNU/Linux* will just run a disk check upon reboot.

By all means, try to find out what causes these lockups because they can do severe damage to the file system. You might also want to consider using ext3 or `ReiserFS`, journaling file systems included in **Mandrake Li-**

nux, which handle such failures more gracefully. However, replacing ext2FS with ext3 or `ReiserFS` requires reformatting your partitions.

22.9. Killing Misbehaving Apps

Well, this one is not so hard after all. Actually, it is not likely that you will need it but just in case you do... You have many ways to do it. You can do it by finding the PID of the program that has gone south, and use the `kill` command to terminate it, or you can use the `xkill` tool or other graphical tools like the ones that show the process tree.

22.9.1. From the Console

The first thing to do to terminate a misbehaving program is to find its PID, or process ID. To do so, execute the following from a console: `ps aux | grep mozilla`, supposing that *Mozilla* is the misbehaving program. You will get something like the following:

```
peter      3505  7.7 23.1 24816 15076 pts/2   Z    21:29   0:02 /usr/lib/mozilla
```

This tells us, among other things, that *Mozilla* was started by user peter and its PID is `3505`.

Now that we have the PID of the misbehaving program, we can execute the `kill` command to terminate it. So we execute the following: `kill -9 3505`, and that's it! *Mozilla* will get killed. Note that this is **only** to be used when the program doesn't respond to your input anymore. **Don't** use it as a standard means to exit from applications.

Actually, what we have done was send the `KILL` signal to the process number `3505`. The `kill` command accepts other signals besides `KILL`, so you can have greater control over your processes. For more info, see kill(1).

22.9.2. Using Graphical Monitoring Tools

You can also use the graphical process' status tools (like *KPM*, *KSySGuard*, and *GTOP* to name a few) which allow you to point to the process name and with one click send that process a signal or just kill that process.

22.10. Miscellaneous

Some considerations on newer hardware like legacy-free systems, nVidia 3D graphics accelerator cards, and other things that don't fit in the preceding sections...

Legacy-Free Systems. Hardware manufacturers have recently introduced what they call "legacy-free systems", mainly on laptops[7]. This basically means that the *BIOS* has been considerably reduced to allow you only to choose which media to boot from. In some cases, *GNU/Linux* will be able to configure everything properly. In other cases, you will have to apply the kernel's ACPI patch.

nVidia 3D Graphics Cards. Computers with nVidia graphics cards need a patched kernel to be able to use OpenGL hardware 3D acceleration on OpenGL-compatible applications. The kernel should have been installed by *DrakX*, however if this is not your case, please install the `NVIDIA-kernel` and `NVIDIA-GLX` packages and run *Mandrake Control Center* and re-configure *X* from there.

nVidia RPMs are **experimental** and, as such, are not supported by **MandrakeSoft**. However, they do work very well on most systems.

7. Refer to the great Linux on Laptops (`http://www.linux-laptop.net`) web site for more information on your laptop make/model.

My Computer is "slow". If you notice your computer is really slow, or slower than with previous **Mandrake Linux** versions, you might overcome this "problem" disabling ACPI support. To do so, add the following to your `/etc/lilo.conf` file:

```
append=" acpi=off"
```

If the file already has an `append=` line, only add `acpi=off` at its end. Running `lilo -v` as `root` and rebooting your computer will make the changes effective.

22.11. Mandrake's Specific Troubleshooting Tools

Each administration tool (the ones started from *Mandrake Control Center*) is a potential trouble fixing tool. You can use all these tools to revert configuration changes, to add or remove software, to update your system with the latest fixes from **MandrakeSoft**, etc.

If you think you have found a bug in any of our tools, please feel free to submit a bug report using *drakbug*, our automated bug report tool, see *The drakbug Bug Reporting Tool*, page **??** for more information.

22.12. Final Thoughts

As you have seen there are many more ways to recover from an emergency than by re-installing the whole system again[8]. Sure, you need a little expertise in applying some of the techniques described in this chapter, but with a little practice you will gain such expertise. However, we hope that you will never need to really master these techniques ... although it doesn't hurt to know them. We hope that the instructions and examples given will be useful when you are in need. Good luck recovering from an emergency!

8. The usual way to fix things in certain other operating systems...

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