

Mastering Mandriva Linux



<http://www.mandriva.com>

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Preface

1. About Mandriva Linux

Mandriva Linux is a GNU/Linux distribution supported by Mandriva 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. Mandriva's two pillars are open source and collaborative work.

Note: In April 2005 the Mandrakesoft company changed its name to Mandriva to reflect its merger with Brazil-based Connectiva. Its core product, Mandrakelinux, became Mandriva Linux.

1.1. Contacting the Mandriva Linux Community

The following are various Internet links pointing you to the most important Mandriva Linux-related sources. If you wish to know more about the Mandriva company, connect to our web site (<http://www.mandriva.com/>). You can also check out the Mandriva Linux distribution web site (<http://www.mandriva.com/community/>) and all its derivatives.

Mandriva Expert (<http://www.mandrivaexpert.com/>) is Mandriva's support platform. It offers a new experience based on trust and the pleasure of rewarding others for their contributions.

We also invite you to subscribe to the various mailing lists (<http://www.mandriva.com/community/resources/newsgroups>) where the Mandriva Linux community demonstrates its high spirits and keen debates.

Please also remember to connect to our security page (<http://www.mandriva.com/security>). It gathers all security-related material about Mandriva Linux distributions. You will find security and bug advisories, as well as kernel update procedures, the different security-oriented mailing lists which you can join, and Mandriva Online (<https://www.mandrivaonline.com/>) (see "*Mandriva Online Services*", page 149). This page is a must for any server administrator or user concerned about security.

1.2. Join the Club!

Mandriva Club is **the** place where users meet to help each other out, exchange valuable information about Mandriva Linux, get informed of the latest Mandriva, Linux and Open Source news. Club subscribers have privileged access to an even wider array of services.

With your Mandriva ID, you have free access to:

- help (forums, chat, Knowledge Base with tutorials, how-tos, tips and tricks)
- news
- more Mandriva- and community-contributed content

As a Club Member, you have exclusive access to :

- 50.000 software packages, including commercial software, drivers, demos...
- super-fast download servers
- official Mandriva Linux documentation
- Mandriva Online Services - Kiosk, Online, Expert and eTraining
- permanent special discounts at Mandriva Store
- ... and much more !

Mandriva Club is where you get the best Mandriva Linux experience, learning from others, teaching others, accessing exclusive features and contributing to the development of Mandriva Linux and Free and Open Source Software in general.

1.3. Subscribing to Mandriva Online

Mandriva offers a very convenient way to keep your system automatically up-to-date, free of bugs and security holes. Consult “*Mandriva Online Services*”, page 149.

1.4. Purchasing Mandriva Products

Mandriva Linux users may purchase products on-line through the Mandriva Store (<http://store.mandriva.com/>). You will not only find Mandriva Linux software, operating systems and “live” boot CDs (such as Live), but also special subscription offers, support, third-party software and licenses, documentation, GNU/Linux-related books, as well as other Mandriva goodies.

1.5. Mandriva Kiosk

Mandriva Kiosk is a service which provides you with a catalog of the most popular software, be it Free or commercial, for your Mandriva Linux distribution. You’ll find new software for all your needs: from the latest version of the OpenOffice.org suite and multimedia applications to the latest KDE and GNOME desktop environments, games and wallpapers.

It’s very easy to use with its web-based graphical interface, detailed application descriptions and a smooth one-click install process that will upgrade or extend your system’s functionality in a few minutes. Installing new software on your Mandriva Linux distribution has never been easier.

Mandriva Linux 2007 Discovery, Powerpack and Powerpack+ users benefit from 30 days of free access to Kiosk with their free Club trial period. Discover it now at the Kiosk Website (<http://kiosk.mandriva.com>).

The Mandriva Kiosk service is free to all Mandriva Club members and is also available as a stand-alone service through an annual subscription. By subscribing to Kiosk, you’re getting:

- access to an easy-to-use web-based catalog of new software - Free and commercial
- packages tested exclusively for Kiosk by Mandriva teams
- packages which seamlessly install on your system
- packages which install with a single mouse click

Enjoy the Kiosk experience!

1.6. Contributing to Mandriva Linux

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

- **Packaging.** A GNU/Linux system is mainly made of programs found on the Internet. These need to be packaged in order to work together.
- **Programming.** There are many, many projects directly supported by Mandriva: find the one which most appeals to you and offer your help to the main developer(s).
- **Internationalization.** You can help us translate web pages, programs and their respective documentation.

Consult the development projects (<http://www.mandriva.com/en/community/contribute/join>) page to learn more about how you can contribute to the evolution of Mandriva Linux.

2. About this User Guide

We wrote this manual to give you a better understanding of the Mandriva Linux system. In it we focus on graphical applications which allow you to perform your daily tasks, such as writing documents and e-mails, surfing the web and listening to music. We also show you how to configure your desktop to your liking, install software, and configure the whole system in general.

3. Conventions Used in this Book

3.1. Typing Conventions

Formatted Example	Meaning
<i>inode</i>	Used to emphasize a technical term.
<code>ls -lta</code>	Used for commands and their arguments. (see <i>Commands Synopsis</i> , page 3).
<code>a_file</code>	Used for file names. It may also be used for RPM package names.
<code>ls(1)</code>	Reference to a <code>man</code> page. To read the page, simply type <code>man 1 ls</code> , in a command line.
<code>\$ ls *.pid</code>	Formatting used for text snapshots of what you may see on your screen including computer interactions, program listings, etc.
<code>localhost</code>	Literal data which does not generally fit in any of the previously defined categories. For example, a key word taken from a configuration file.
<code>OpenOffice.org</code>	Defines application names. Depending on context, the application and command name may be the same but formatted differently. For example, most commands are written in lowercase, while applications names usually begin with an uppercase character.
<u>Files</u>	Indicates menu entries or graphical interface labels. The underlined letter, if present, informs you of a keyboard shortcut, accessible by pressing the Alt key plus the letter in question.
<i>Le petit chaperon rouge</i>	Identifies foreign language words.
Warning!	Reserved for special warnings in order to emphasize the importance of words. Read out loud.

Note: Highlights a note. Generally, it gives additional information about a specific area.

Tip: Represents a tip. It could be general advice on how to perform a particular action, or hints about nice features, such as shortcuts, which could make your life easier.

Warning

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

3.2. General Conventions

3.2.1. 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 will find them elsewhere such as in the `man` pages.

The “<” (lesser than) and “>” (greater than) symbols denote a **mandatory** argument not to be copied as is, 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 arguments may be included.

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

3.2.2. 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 right after as well. The same applies for the **Alt** and **Shift** keys.

Note: We use capital letters to represent the letter keys; this doesn't mean that you have to type them capitalized. However, there might be programs where typing **R** is not the same than typing **r**. You will be informed when dealing with such programs.

Regarding 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.

3.2.3. System-Generic Users

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

Queen Pingusa	queen	This is our default user, used through most examples in this book.
Peter Pingus	peter	This user can be created afterward by the system administrator and is sometimes used to vary the text.

4. Quick Install

If your computer is not already installed with Mandriva Linux you only need the installation media (DVD or CDs), very basic computer skills (of the “move the pointer and click” kind), common sense, and a few minutes.

Installing Mandriva Linux implies copying the required system and application files to your system and answering a few questions regarding the system's configuration and security. Once this is done, all that is left is to fine tune your system... and enjoy it. We concentrate about the former here, the latter is the subject of the rest of this book.

4.1. Performing the Installation

If your computer already has another operating system installed, you might want to first check the notes in *Co-existing With Other Operating Systems*, page 4.

All recent systems can boot from a CD-ROM, configure your computer to boot from the CD, insert the 1st CD (or the DVD), boot the system and follow the on-screen instructions.

The installer asks you some simple questions regarding the desired language, keyboard layout (if applicable), security level, disk partitioning scheme and package selection; it is usually safe to accept the defaults proposed.

Please refer to Part IV in *Mastering Mandriva Linux* if you have doubts about what to answer on any given install step.

4.2. Co-existing With Other Operating Systems

You can install Mandriva Linux alongside other operating systems, such as Windows[®], or other versions of GNU/Linux. Have the documentation for those OSes handy and make sure to:

1. Backup your existing data. This is always the safest choice to ensure no data is lost.
2. Defragment the disk, if needed. This is mostly needed with all variants of Windows[®]. GNU/Linux file systems have very little fragmentation, there is no need to defragment them.
3. Make room for Mandriva Linux, a few GB should be enough. DrakX can resize existing installations of Windows[®] and GNU/Linux without the risk of losing data.

Once Mandriva Linux is installed, and the system is restarted, a menu appears from which you can select the operating system to start: use the arrow keys to highlight the one you want, then press the **Enter** key to boot it.

Using Mandriva Linux on a Daily Basis

The following chapters introduce the applications available under Mandriva Linux for your daily needs.

Chapter 1. Using KDE

1.1. Discovering the K Desktop Environment

This chapter introduces the K Desktop Environment (KDE). It discusses where to find your usual folders, and how to customize your Desktop. It also talks about how to search for files and introduces the concept of KDE sessions. The range of features KDE offers as well as its degree of personalization is huge and you are encouraged to refer to its integrated help to learn more about this great desktop environment.

1.1.1. The Desktop



Figure 1-1. The KDE Desktop

KDE is very much like any modern desktop. In the above figure you see the desktop itself with some icons on it, while the panel sits at the bottom. This figure also introduces something new if you come from the Windows® world: virtual desktops (see *Virtual Desktops*, page 10).

Note: Virtual desktops are **not** an exclusive KDE concept. 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, etc. Almost “everything” can be placed on it. Clicking on each icon opens its associated application.

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 (Mandriva Linux is one of these), every user has a personal directory usually named `/home/login_name`.



Trash. Gives access to all deleted files (the equivalent of Windows® Recycle Bin). Files can also be deleted without being thrown into the trash can (“direct” file deletion) so some deleted files might not be accessible through the trash can.



System and devices Icons. Gives you access to your home folder, system settings, networked places, storage media and the trash can. The Devices icon gives you access to all the storage media present in the system, fixed and removable: hard disk partitions, CD/DVD drive, floppy disk drive, ZIP/JAZ drives, USB keys, and others. Double clicking on a device icon opens the corresponding medium.

1.1.2. The Panel



Figure 1-2. The KDE Panel

The panel is the bar which sits at the bottom of your desktop¹ and contains the following main components:



The Main Menu. Allows you to access the software installed on your system. It is the equivalent of Windows® Start Menu. Programs are arranged into convenient categories, so you can quickly and easily find the applications 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 full of opened windows and you want to access, for example, a folder on your desktop.



Desktop Preview & Switching Applet. Displays icons of applications currently opened in the virtual desktops, and makes switching between virtual desktops as easy as one, two, three. See *Virtual Desktops*, page 10 for more information.

1.1.3. Virtual Desktops

Think of virtual desktops as having several screens available but with only one monitor. Right click on the desktop switching applet and select *Configure Desktops* to add or remove virtual desktops and change desktop names for more meaningful ones such as *Work*, *Play* or *Internet*.

The Desktop Preview & Switching Applet, makes it easier to quickly spot your applications and distinguish between them. To switch between virtual desktops just click on the desktop number in the desktop switching applet *et voilà* !

You can also move application windows from one desktop to another. To do so, simply click an application's icon in a virtual desktop, then drag-and-drop it to the desktop you want. Rolling your mouse over a virtual desktop enables you to preview its content.

When you log in into KDE the last virtual desktop you were in when you closed your last session is re-opened.

1.2. How to Access Folders

If you come from the Windows® world, you may be a bit disoriented at the beginning, but once you know how folders are organized, you will see how simple it is to find your usual folders and access removable media (CDs, DVDs, USB keys, etc) and external resources.

1.2.1. Welcome Home!



Double-click on the home folder icon to open the folder containing all your personal files.

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

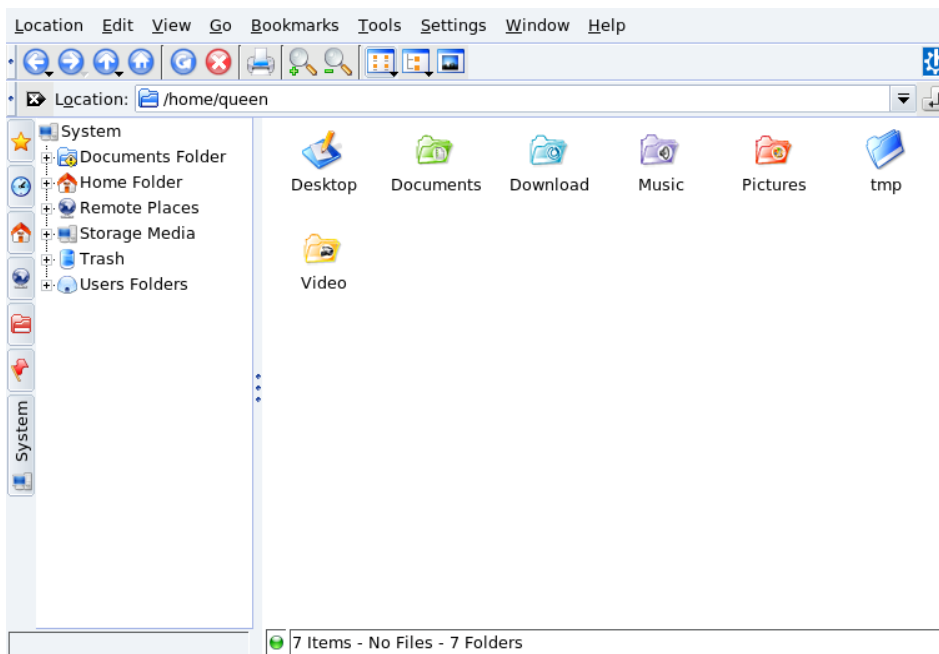


Figure 1-3. Home Folder Content



Documents

This is where all the documents you create are saved by default. It corresponds to the `MyDocuments` folder on a Windows® system.



Download

This is where the files you download from the Internet are stored. It corresponds to the `MyDownloads` folder on a Windows® system.



Music

This is where your music is saved by default. It corresponds to the `MyMusic` folder on a Windows® system. Please refer to *amaroK Audio Player*, page 41 to learn about how to play music files.



Pictures

This is where pictures you download from your digital camera are saved. It corresponds to the `MyPictures` folder on a Windows® system.



Video

This is where you can store all your videos. It corresponds to the `MyVideos` folder on a Windows® system. Please refer to *Movie Applications*, page 44 to learn about how to watch your videos.

You can create, remove, and rename files and folders inside your personal (Home) folder.

1.2.2. Accessing Other Folders



You can also browse the file system tree, by clicking on your Home directory, then on the Root folder on the sidebar. These folders contain all your system configuration settings and the installed programs, among other things. If you need to change the system's settings use the Mandriva Linux Control Center (refer to Part II in *Mastering Mandriva Linux* for more information).

1.2.3. Accessing Removable Media

Mandriva Linux has integrated auto-detection of removable media, which makes accessing and managing CDs, DVDs and USB keys easier. When a removable medium is inserted, a dialog pops up and presents you a set of actions according to the type of medium.

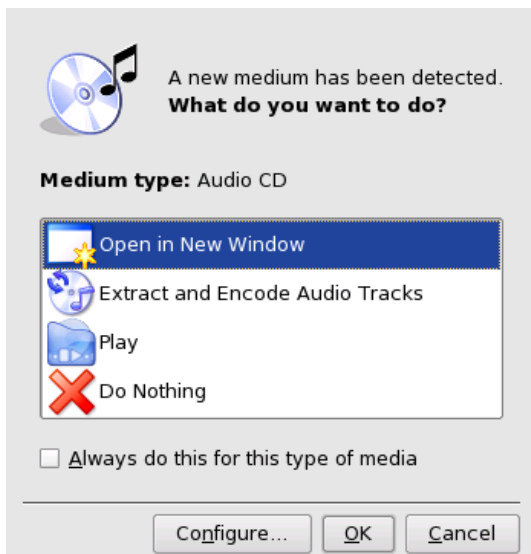


Figure 1-4. An Audio CD has Been Inserted

Check Always do this for this type of media if you want your selected action to be performed again when subsequent media of the same type is inserted. If you choose to do so, the dialog doesn't show again.

Note: Actions can be configured in the KDE Control Center (choose System+Configuration→Control Center from the main menu, then open the Storage Media→Peripherals section) and can even be completely disabled.

1.2.4. Accessing Remote Shares

You can easily access shared resources on remote systems on your network through Remote Places.

1. Open your Home folder
- 2.



On the left side of the window click on the System tab.

3. Open Remote Places→Samba Shares→YourWorkgroupName.
4. Select a system, whose content you want to view, and navigate down to the resource that interests you.

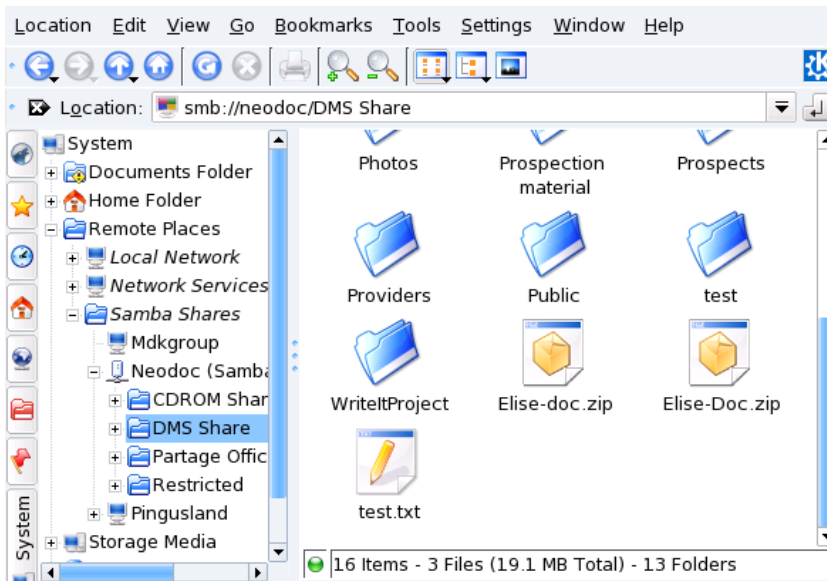


Figure 1-5. Accessing Remote Shares

You can then access the files on the share as if they were located on your own system.

1.3. Personalizing your Desktop

All your desktop features can be personalized through the KDE Control Center. Here, we will focus on how to change the look and feel of the Desktop and the Panel.

1.3.1. Changing your Desktop's Appearance

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

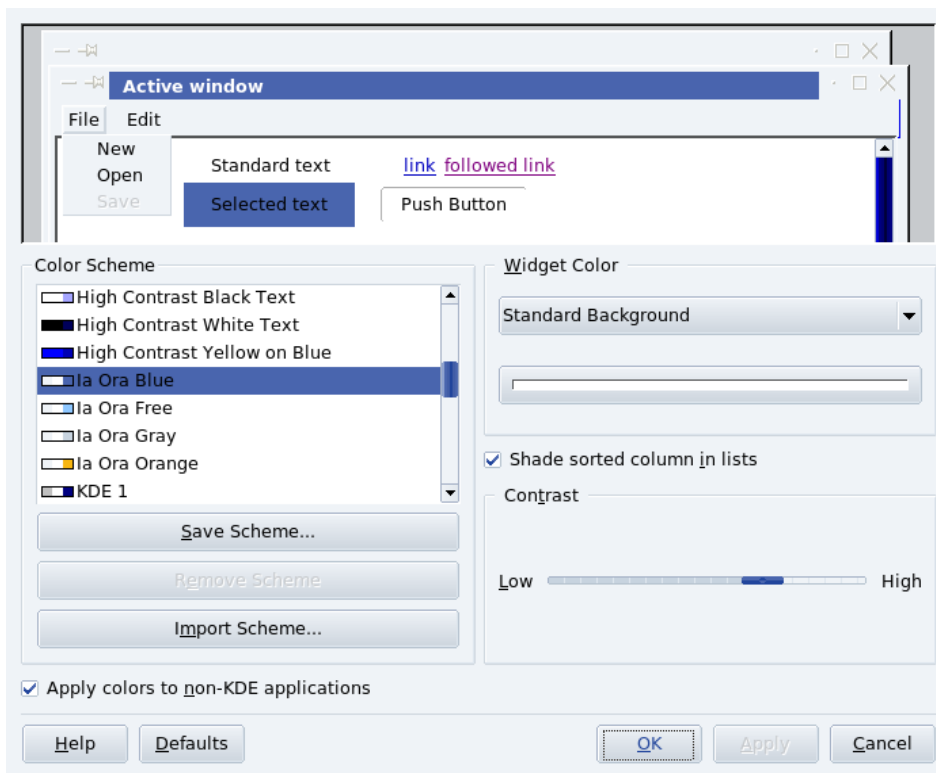


Figure 1-6. Changing KDE's Color Scheme

You can also define custom color schemes: click on the element you want to change (for example, Active Window to change the active window colors), then on the color bar, choose the color you like and click on OK to apply it.

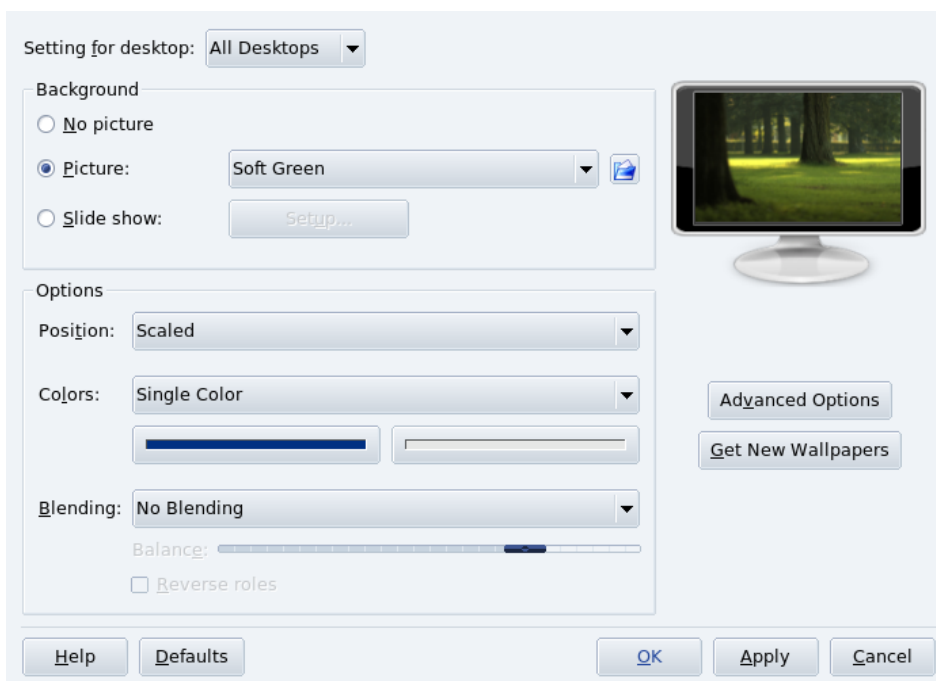


Figure 1-7. Changing KDE's Background Wallpaper

To change the desktop background, choose System+Configuration+KDE+Appearance & Themes→Background from the main menu. Select the Picture option in the Background section and background scaling, colors and blending in the Options section.

Tip: All desktop background settings can be applied on a per-desktop basis using the Setting for desktop pull-down list. Please note that doing so consumes more memory.

1.3.2. Customizing the Panel

KDE's Panel is highly-customizable. All features from the Panel's position to its appearance can be set up to better suit your preferences. Right click on the Panel and choose **Configure Panel** from the menu that pops-up. You can also enrich the Panel with the applets you use most frequently, to have them handy. Right click on the panel and select **Add Applet to Panel** from the menu that pops up; then search and add the applet you want, in the example we add a file find and web search applet.

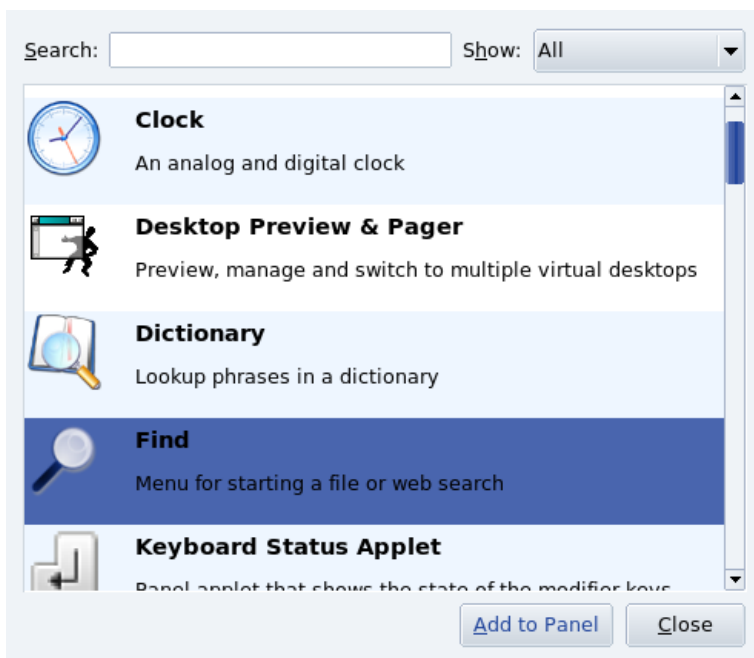


Figure 1-8. Adding an Applet to the Panel

1.4. Searching For Files

1.4.1. With Kerry

Kerry is a search tool based on Beagle, which periodically indexes your computer's content (running in the background) in order to help you find your files more quickly.

Choose **Office+Accessories→Kerry** from the main menu to open Kerry. To search for a file, simply type the filename in the Search field. Specify where you want Kerry to look for that file, using the Within dropdown list (or leave Everything), and click on Find. All files matching your search criteria are listed and a preview of them is displayed.

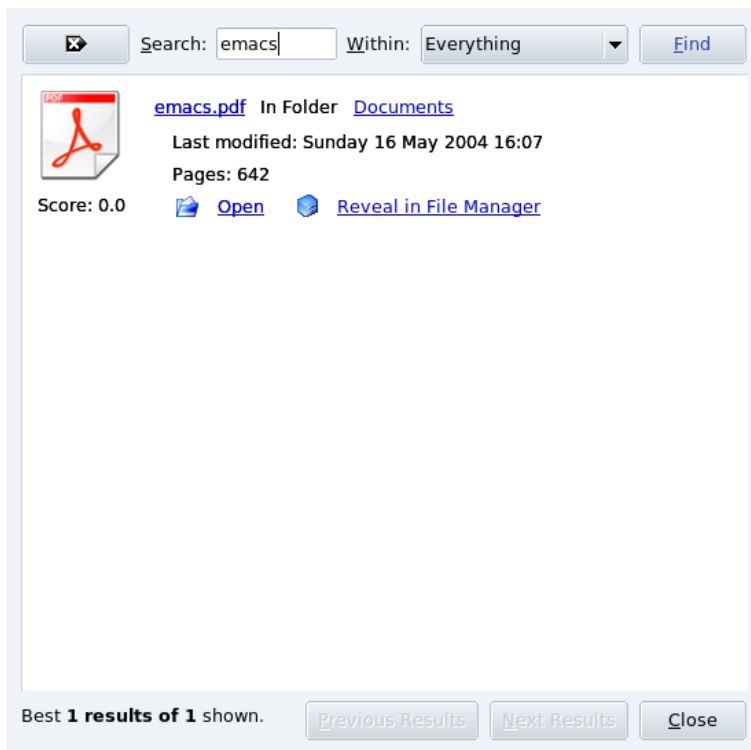


Figure 1-9. Performing a Search with Kerry

Once the results are shown, the following options are available:

- Open: opens the file with its associated application.
- Reveal in File Manager: shows the file's location in Konqueror.



Right click on this icon to view or clear the search history and also to configure Kerry.

1.4.2. With Konqueror

You may already know KDE's web browser: Konqueror. But did you know it is also a powerful file manager, that it can help you find files on your disk?

1. Choose Internet+Web Browsers→Konqueror from the main menu to launch Konqueror.
2. Click the Home button in the navigation toolbar, to go to your personal folder, to perform the search on your hard disk, instead of the Internet.
3. Then choose Tools→Find File from the menu to open the search dialog.
4. Enter the name of the file you are looking for. You can use an asterisk (*) to mean "anything" or a question mark (?) to mean "any single character".

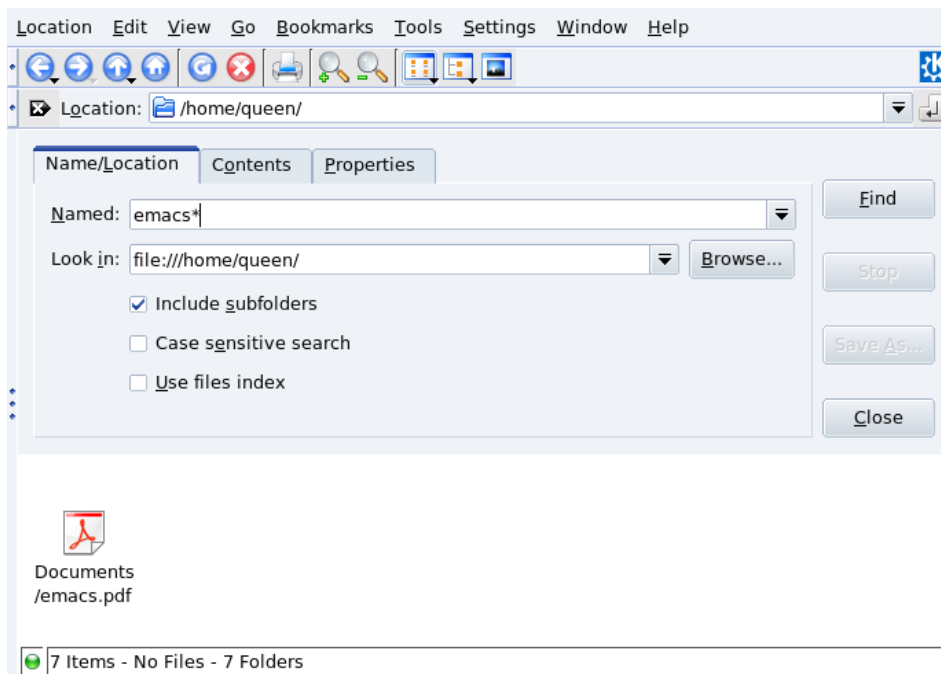


Figure 1-10. Performing a Search with Konqueror

5. Click on the Find button to launch the search. Results are displayed at the bottom of the search window.

1.5. KDE Sessions

KDE and its applications support sessions. This feature allows the system to save the state of all applications that are in use when the user logs out of the desktop environment, and to restore them when the user logs back in.

Note: Please bear in mind that non-KDE applications, and even some KDE ones, may 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 (System+Configuration + KDE Components→Session Manager from the main menu), make your choices and click on the OK button. The settings are effective the next time you log into KDE.

1.6. Manipulating the 3D Desktop

If you have configured your desktop to use 3D effects (*Configuring the 3D Desktop*, page 86), here are some hints about the most useful features.

Effect	Manipulation or Keyboard Shortcut	Comment
Show all windows of current desktop	Move the cursor to the top right corner of screen. Keyboard Shortcut: Ctrl-Alt-↑.	All windows are scattered on the desktop, click the one you wish to use.
Move window to next cube face	Grab the window and drag it to the left or right desktop edge	This rotates the cube and allows you to place the window on the next face

Effect	Manipulation or Keyboard Shortcut	Comment
Switch face	Ctrl-Alt-← or Ctrl-Alt-→	Rotates the cube left or right
Show all faces	Ctrl-Alt-↓	“Flattens” the cube so all faces become visible
Make active window transparent	Alt-Mouse wheel	Control the transparency level of the window by moving the wheel up (less transparent) and down (more transparent). Objects behind the window appear in transparency

Table 1-1. 3D Desktop Manipulations

Chapter 2. Using the Internet

2.1. Writing E-mails

KMail is KDE's mail client, it is both full-featured and easy to use. This section focuses on KMail's common features, we encourage you to refer to the integrated help to learn more about its advanced features.

Launch KMail by choosing Internet+Mail→KMail from the main menu.

The first time you run KMail a wizard appears to help you set up the mail account you will use with KMail. You only need to enter some connection data; press the Next button to validate the information you entered and proceed with the setup.

2.1.1. Mail Configuration

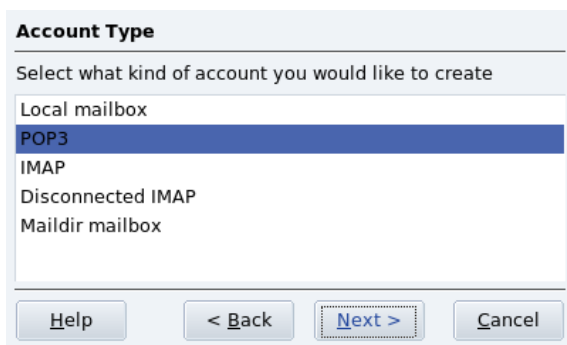


Figure 2-1. Mail Account Type

Select the account type from the proposed list and advance to the next step. Please bear in mind that the POP3 protocol downloads messages to the local computer (they can be kept on the server too) while the IMAP protocol doesn't. Both IMAP and POP3 accounts setup are the same.



Figure 2-2. Your Personal Data

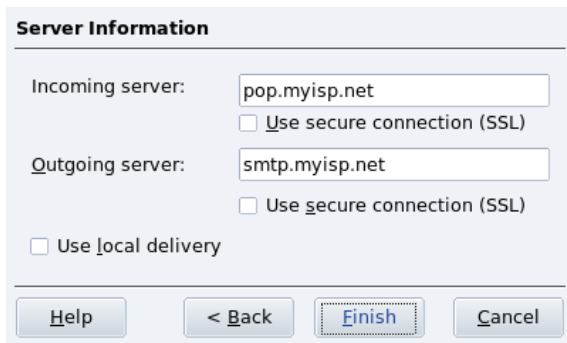
Then you are asked to provide your account information, fill in your personal data. Note that the name you input in the Real name field is the one that will appear on your outgoing mails.



The 'Login Information' dialog box contains two text input fields. The first field is labeled 'Login name:' and contains the text 'queen'. The second field is labeled 'Password:' and contains seven asterisks '*****'. Below the fields are four buttons: 'Help', '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted with a dashed border.

Figure 2-3. Account credentials

You are then asked for the account credentials, enter your login and password. Your ISP or system administrator should have provided this information together with your email address.



The 'Server Information' dialog box contains two text input fields. The first field is labeled 'Incoming server:' and contains the text 'pop.myisp.net'. Below it is a checkbox labeled 'Use secure connection (SSL)'. The second field is labeled 'Outgoing server:' and contains the text 'smtp.myisp.net'. Below it is a checkbox labeled 'Use secure connection (SSL)'. At the bottom left is a checkbox labeled 'Use local delivery'. Below the fields are four buttons: 'Help', '< Back', 'Finish', and 'Cancel'. The 'Finish' button is highlighted with a dashed border.

Figure 2-4. Mail Servers

You are finally asked to provide mail server parameters. Again, your ISP or system administrator should have provided you with the incoming and outgoing mail server information. Outgoing servers are usually of the `smtp.provider.net` form. Incoming POP3 servers are usually of the `pop.provider.net` or `pop3.provider.net` forms. Incoming IMAP servers are usually of the `imap.provider.net` form. The `mail.provider.net` form is also common for both incoming and outgoing mail servers.

2.1.2. KMail's Interface

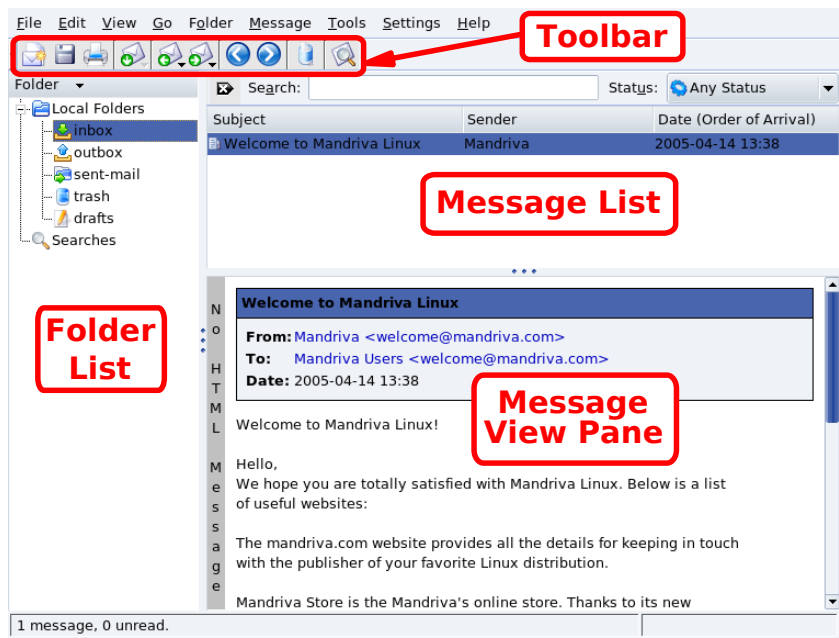


Figure 2-5. KMail Client Interface

Toolbar. Where the main action buttons lie. See table 2-1.

Message List. Where information (subject, date, sender, etc.) about messages stored in the currently selected folder is displayed.

Message View Panel. Where the currently selected message’s contents are displayed.

Folder List. Where all folders are listed. The default folders are `inbox` (incoming messages), `outbox` (unsent templates), `sent-mail` (already sent messages), `trash` (deleted messages) and `drafts` (draft messages).

The following table shows the most important buttons available in KMail’s toolbar, their equivalent keyboard shortcuts and a brief explanation of the functions they provide.







Button	Keyboard Shortcut	Function
	Ctrl-N	Compose a New Message.
	Ctrl-L	Get new messages for all defined e-mail accounts. Keep this button pressed to display a list of all defined accounts; select the one you want to get mail from in order to retrieve messages only for that account.
	R	Reply to the author of the selected message. A message-compose window pops up with some fields already set.
	F	Forward (send to a third party) the selected message.
	Del	Delete the selected messages. Deleted messages are moved to the <code>Trash</code> folder. You can recover messages moved to the <code>trash</code> folder, but deletion from the <code>Trash</code> folder cannot be undone: be careful!

Table 2-1. KMail’s Toolbar Buttons

Note: Some of those buttons have a little black arrow () at the bottom right corner. An additional menu with related actions can be displayed by pressing the mouse button a little longer.

2.1.3. Composing a Message

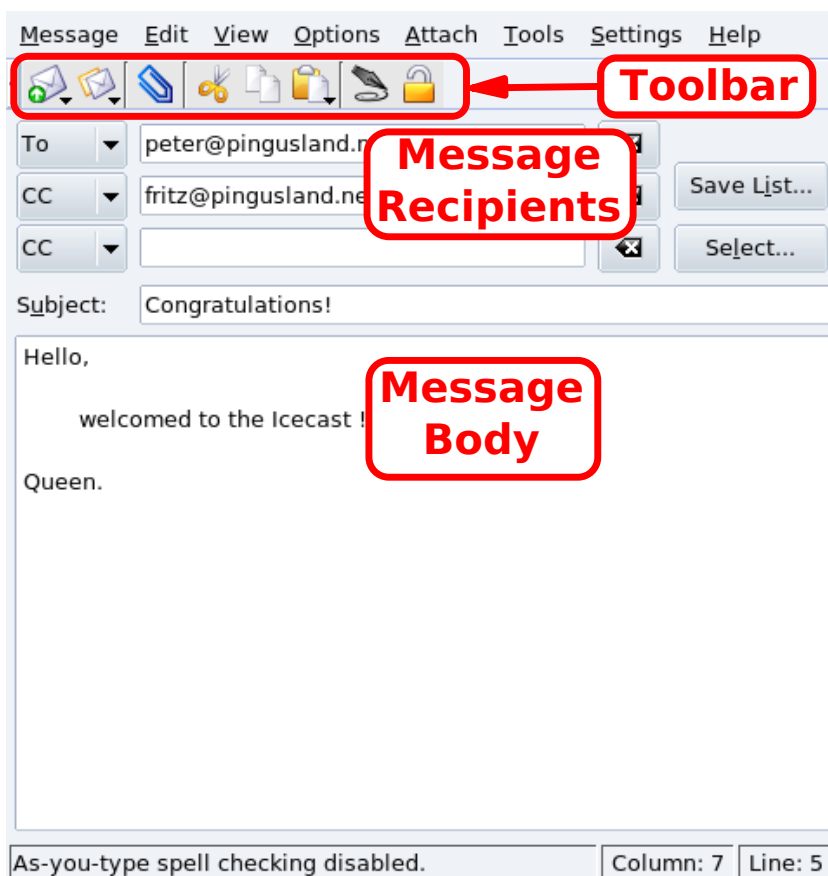


Figure 2-6. The Message-Compose Window



Toolbar. This is where the main message composition buttons reside. See table 2-2

Message Body. The area where you will type the content of your message.

Message Recipients. The list of all recipients of this message. The following options are shown:

- **To:** the “principal” intended recipient of this message.
- **CC (Carbon Copy):** not-hidden “secondary” intended recipient(s) of this message. All recipients will have access to the mail addresses to which this message is sent.
- **BCC (Blind Carbon Copy):** these recipients are also “secondary” but are hidden from the other recipients of this message. No recipients of the message will have access to the other mail addresses to which this message was sent.

The following table shows the buttons which are mostly used in the message-composition window, their equivalent keyboard shortcuts and a brief explanation of the functions they provide.

Button	Keyboard Shortcut	Function
	Ctrl-Enter	Sends the message immediately (your network connection must be active). A copy of the message will be kept in the <code>sent-mail</code> folder.
		Queue the message. The message will be saved in the <code>outbox</code> folder and will be sent the next time you request mail to be sent (File→Send Queued Messages).


Button	Keyboard Shortcut	Function
		Attach a file to the message. This function is also accessible through the Attach→ Attach File menu. A standard file dialog will pop up. Select the file you want to attach and click on Attach. Repeat for multiple files.

Table 2-2. Message-Composition Toolbar Buttons

2.2. Stay Informed Through News Feeds

Akregator is a feed reader (or aggregator) which can check on RSS-enabled sites for the latest headlines or articles. RSS is typically used on blogs and personal web sites but also on major media sites such as those from CNN, BBC and Reuters. Choose Internet+News→Akregator from the main menu to launch it.

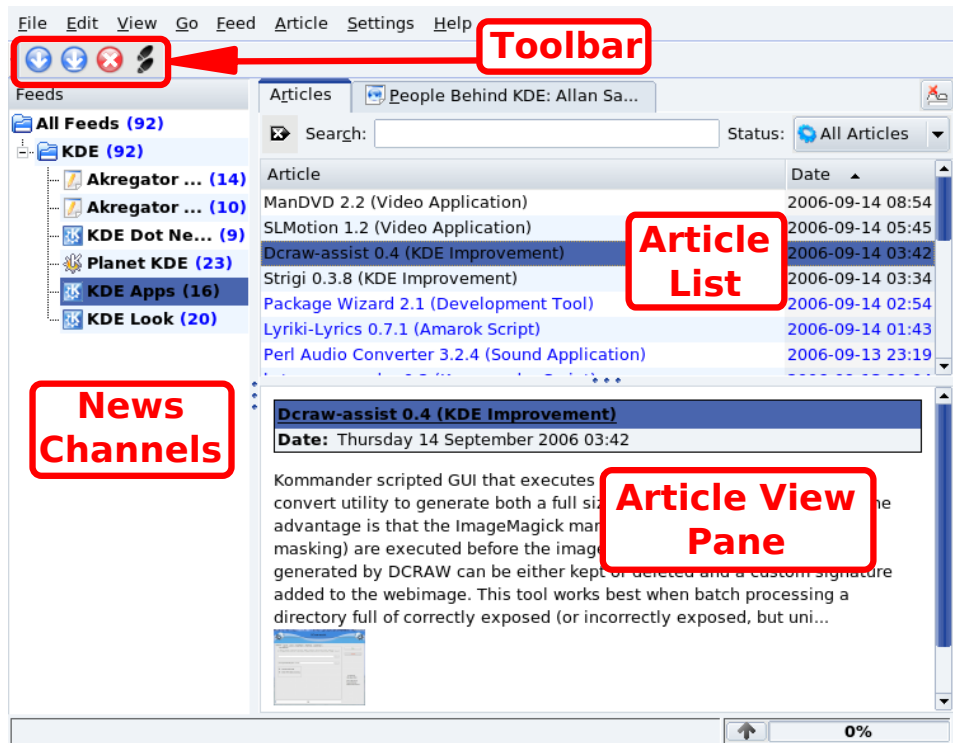


Figure 2-7. Akregator’s Interface

- Toolbar.** Where the main action buttons lie.
- News Channels.** It shows a tree of all news feeds channels with the channels names. A number between parenthesis indicates the number of unread articles on the channel.
- Article List.** Where the subject and date of articles for the currently selected news channel is displayed. Select an article to display it in the Article View Pane.
- Article View Pane.** Where the currently selected article’s contents are displayed. Some news feeds don’t provide the article’s contents but a link to them instead, clicking on that link will open the article on a new tab inside Akregator.

As an example, let’s add a feed for the CNN World News Feed (http://rss.cnn.com/rss/cnn_world.rss). Right-click on the All Feeds folder at the top of Akregator’s tree structure and select Add Feed from the pop-up menu. Type the URL (http://rss.cnn.com/rss/cnn_world.rss) in the Feed URL field and accept your settings.

Tip:
 Look for the RSS icon on a web site, or an RSS link to get the URL for the available RSS feeds.

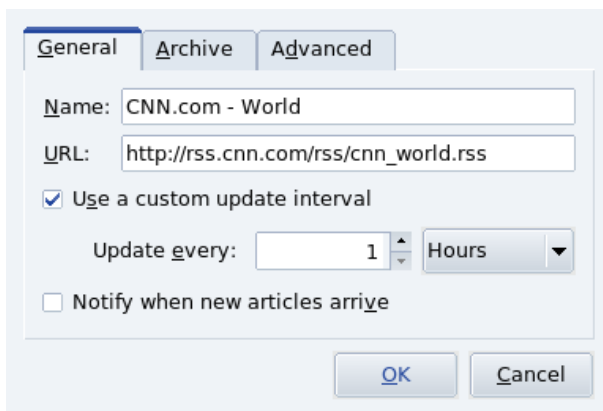


Figure 2-8. Feed Properties

Click on

- ⬇ to fetch new articles for the currently selected feed. Click on
- ⬇ to update all news feeds. By default feeds are updated every 30 minutes, right click on a given feed, then select Edit Feed, put a check mark in the Use a custom update interval option and select the desired update interval as shown in figure 2-8.

2.3. Browsing the Web

Today, most people know how to use a web browser. So, this section, focuses on describing the characteristics of Firefox. It also tells you how to install the “most popular” plugins, namely: Flash, Java and Real.

Launch Firefox by selecting Internet+Web Browsers→Mozilla Firefox from the main menu.

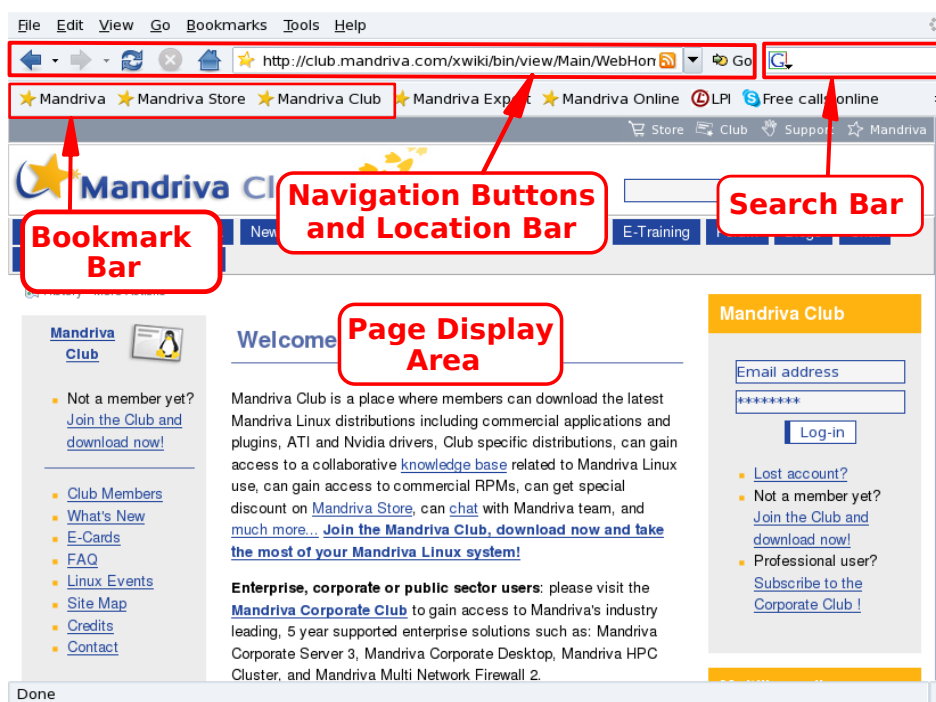


Figure 2-9. Firefox's Interface

The main components of Firefox's interface are:

Page Display Area

Where the contents of the pages you browse are displayed.

Navigation Buttons and Location Bar

Buttons allowing you to move around pages you visit: go back, go forward; refresh a page; stop loading page elements; and go to your starting (home) 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).

Bookmarks Toolbar

You can hide/display the bookmark bar, and add additional buttons to it. To do so, simply select View→Toolbars→Customize and select the items you want to add, and click Done.

Search Bar

Located at the upper-right corner, allows you to perform web searches, dictionary searches, and others.

2.3.1. Tab Browsing

One of Firefox's most convenient features is the ability to browse many websites at the same time, without being confused with all the open windows. Each website is opened in a new tab, this is called: tabbed browsing.

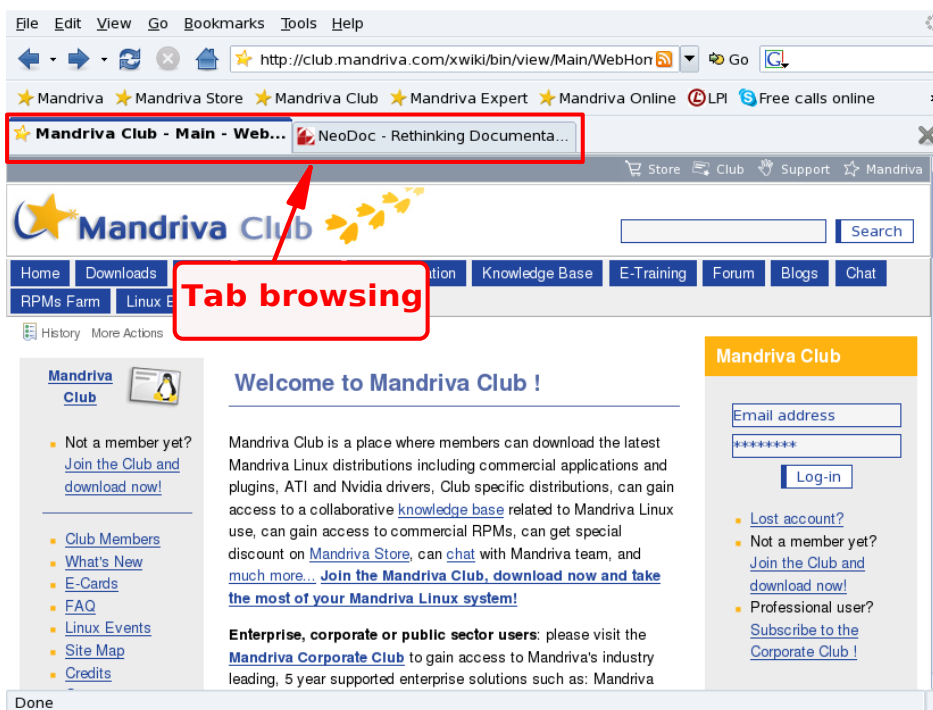


Figure 2-10. Tabbed-browsing with Firefox

To open a new tab, click File→New Tab. To close a tab, right-click on the tab, and select Close Tab. Clicking on the cross at the right of the tab browsing bar closes the currently open tab.

Tip: To quickly open new tabs, simply press **Ctrl-T** as many times as you want tabs. Pressing **Ctrl-W** closes the currently open tab.

Firefox enables you manage tabs easily, you can choose: to close, refresh, mark-up all tabs on the fly, or just the one currently displayed. To do so, simply right-click on a tab, then select the one of the available options according to what you want to do.

You can also **move** tabs. Click on a tab, hold the mouse button down and drag it where you want. When you see a little purple downward-pointing arrow, you can drop the tab to its new location on the tab browsing bar.

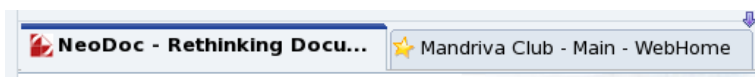


Figure 2-11. Moving a tab

If you wish to duplicate a tab; simply “grab” the tab’s URL (when rolling your mouse over the icon before the URL: a little hand pointer appears) in the location bar, drag-and-drop it onto an empty tab.

2.3.2. Built-in Search Bar

Firefox has a built-in search bar which allows you to search the web using the most popular search engines, notably: Google, Yahoo! and Wikipedia. You can also search words in the Dictionary.com online dictionary.

To perform a search type the text to be searched for, select the search engine and press the **Enter** key. Search results are shown in the Page Display Area. An icon at the left of the search bar identifies the active search engine.

Tip: If you are looking for a website, and you cannot remember its exact address, just enter some keywords in the Location Bar, press the **Enter** key, and you will be taken to the related website. For example, entering `new york times` in the location bar, opens the New York Times website.

2.3.3. Installing Plugins

Plugins are programs which let your browser handle content other than HTML and graphics, such as animations, streaming audio, and Java[™] applets, and so on. Firefox’s plugins are stored in the `/usr/lib/mozilla-firefox-VERSION/plugins` directory and installing plugins requires root privileges.

We look at the procedures to install Java[™], Flash[®] and Real plugins. If you own a commercial version of Mandriva Linux, installation is greatly simplified and all the required packages are on the CDs. See “*Package Management*”, page 75, for information on how to install RPM packages.

Note: If you have a Mandriva Club user name and password, you may be able to install even newer versions of the software mentioned here.

2.3.3.1. Java[™]

Install the `jre` RPM package.

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 the JRE for Linux. Choose the RPM file for the Linux Platform, make it executable once the download is finished (`chmod 700 j2re*.rpm.bin`) and execute it. Accept the license and a “real” RPM will be created.

2.3.3.2. Flash[®]

You can retrieve the Flash plugin on the Adobe[®] web site (<http://www.adobe.com>). Follow the link to the Flash Player and download it. Extract the `tar.gz` file into a temporary directory and follow the instructions given on the Download Center to complete the plugin installation. Test the plugin by opening the Flash web site (<http://www.flash.com>) URL in the browser.

2.3.3.3. Real

You can get the Real plugin on the Real dot com (<http://www.real.com/linux/?src=rpbform>) site. At the time of writing, the latest Real player available for GNU/Linux was version 10. Download and save the .bin file. Make it executable once the download is finished (`chmod 700 Real*.bin`), su to be root and execute it.

It is better to install the plugin in a system-wide location, for example `/usr/local/RealPlayer`, and to answer `Y` to the “configure system wide links” question. This way all users of your system will have access to the plugin.

Chapter 3. Office Work

3.1. Word Processor

This section will give you a brief introduction to OpenOffice.org Writer's word processing functions.

Note: 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.

3.1.1. OpenOffice.org Writer

OpenOffice.org Writer is the part of the OpenOffice.org suite which provides the word processing functions. OpenOffice.org Writer can read most popular Office formats, easing the transition from, and ensuring compatibility with, other Office suites.

3.1.1.1. Starting

To launch OpenOffice.org Writer, select Office+Wordprocessors→OpenOffice.org Writer from the main menu. You can also open it from any other OOO application screen, by selecting File+New→Text Document, which will open a blank OOO Writer document.

When you first launch OpenOffice.org Writer, a dialog will show up asking you whether you prefer to use the Microsoft® or OpenOffice.org format to save your files.

Your decision depends on whether you plan to exchange a lot of files with people who only use Microsoft® tools. If this is the case, click Use the Microsoft ® Word file format, but be warned that it is not perfectly supported. Please bear in mind that this is only the default format and can always be overridden by changing the Filter in the Save as dialog.

3.1.1.2. Interface

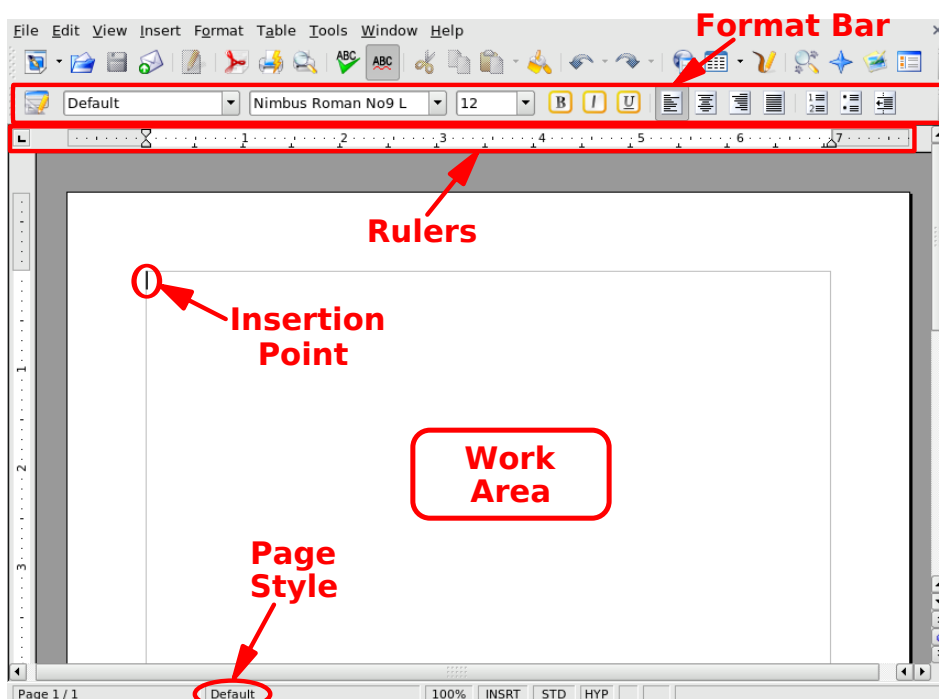


Figure 3-1. OpenOffice.org Writer's Main Window

3.1.2. Using the Word Processor

3.1.2.1. 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 a structure-centric approach to writing documents with a word processor, while normalizing document formatting and layout, and easily automating the generation and maintenance of table of contents (TOC), indexes, references, etc. In OpenOffice.org Writer, styles are handled using the Stylist, click on its icon in the Format Bar to open/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	Text Body, First Line Indent
List Item	List

Table 3-1. Suggested Styles

Use the styles listed in table 3-1, 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.

3.1.2.2. Margins

You can always adjust margins by hand with the ruler, but if you want to format a long document, this may 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 which pops up.
3. Assign a Name to your new style. The Next Style field will be updated accordingly when you select it. For the purpose of this example, `Default Copy` will be used as the style name.
4. Click on OK 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 Style: Default Copy window appears. Open the Page tab and modify the margins to your liking.

Note: You can also change margins choosing the Format→Page menu. The margins you set are applied to the `Default` style.

In the Page Style: Default Copy window, you can modify many formatting elements. If most 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.

Warning

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

3.1.2.3. Lists

Use lists to enumerate the properties of an object (“unordered” or “bullet” list), or the steps to be performed in order to accomplish some task (an “ordered” or “numbered” list).



Click on this button to format the selected text into an unordered list. Select the list items and choose Format→Bullets and Numbering from the menu to change the bullet type from a predefined set.



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

3.1.2.4. 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.

Choose Insert+Header→Default from the menu to add a page header to your document, and choose Insert+Footer→Default to 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.

3.1.3. Going Further

If you wish to learn more on the usage of OpenOffice.org Writer, you should consult the tutorials available on the Tutorials for OpenOffice (http://www.tutorialsforopenoffice.org/category_index/wordprocessing.html) Web site.



Also don’t hesitate to refer to the OpenOffice.org Writer’s help which is accessible through the Help→OpenOffice.org Help menu, or by pressing the **F1** key. You are bound to find the answers to your questions.

Tip:



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

3.2. Spreadsheet

This section gives you a brief introduction to OpenOffice.org Calc’s spreadsheet functions. We take for granted that you know why you intend want to use a spreadsheet, so we don’t delve deeply into application-specific (accounting, financial, simulation, etc.) considerations.

3.2.1. OpenOffice.org Calc

3.2.1.1. Starting

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 opens an OpenOffice.org Calc window with a blank spreadsheet on it.

When you first launch OpenOffice.org Calc, a dialog pops up asking you whether you prefer to use the Microsoft® or OpenOffice.org format to save your files.

Your decision depends on whether you plan to exchange a lot of files with people who use only Microsoft® tools. If this is the case, click Use the Microsoft® Excel file format, but be warned that it is not perfectly supported. Also note that this is only the default format and can always be overridden by changing the Filter in the Save as dialog.

3.2.1.2. Interface

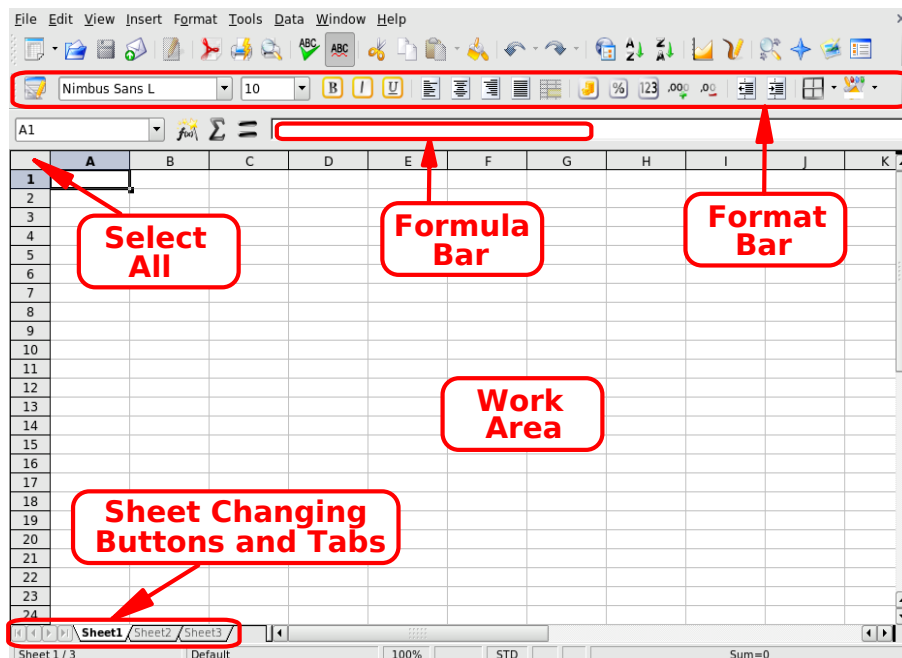


Figure 3-2. OpenOffice.org Calc's Main Window

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 enter, edit or delete 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's useful when you need to make changes which are "global" to the spreadsheet. For example, changing all font sizes in the cells to 10pt (points).

Sheet Changing Buttons and Tabs

Spreadsheets usually contain more than one sheet. Use these buttons to easily navigate through each of the spreadsheet's sheets. You may also use the tabs to switch between sheets.

3.2.2. Using the Spreadsheet

The following sections explore basic functions such as 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 is used. Consult *Going Further*, page 34, for more information on how to make full use of OpenOffice.org Calc.

3.2.2.1. Entering Data

To enter data into a cell navigate to the cell and type the data in it, pressing the **Enter** key when you are finished.

Auto-completion simplifies data entry “guessing” the next cell’s value using the current cell’s value as a base. It works for any kind of data which can be associated to a simple series of integral numbers.

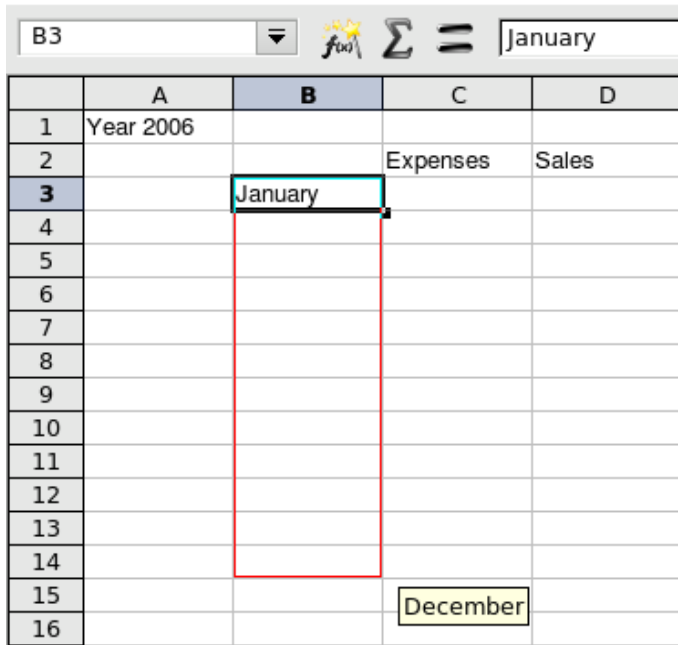


Figure 3-3. Simplifying Data Entry Using Auto-Completion

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 3-3). Release the mouse button to complete the cells once the desired final value is shown.

Cell data can also be sorted according to different criteria. Select the cells you want to sort and then open the sort options dialog choosing Data→Sort from the menu. Specify the sort criteria, order and additional options and click on the OK button to sort the cells.

Tip: Make sure you also select columns and rows which act as “headers” for the data in order for those to “follow” the sorting of the data.

3.2.2.2. 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 value in cell B34, adds the value in A20 to the result, multiplies that by 4 and then adds 3 times the value of cell A25. Thus, rather complex expressions can be made using simpler ones as a base.

OpenOffice.org Calc gives you many predefined-defined functions which you can use in your formulas, explore them by choosing the Insert→Function menu.

3.2.2.3. Charts: Explaining Data in a Simpler Way

When a spreadsheet contains too much information it often becomes difficult to understand how different pieces of data relate to one another: too many numbers and too little meaning. The best way to represent this kind of data is through a chart.

As in all data-analysis functions, you must select the region 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.

Make your selections for the chart type, variant, title, axis titles, etc. and then click on Create to create and insert the chart in the spreadsheet (see figure 3-4).

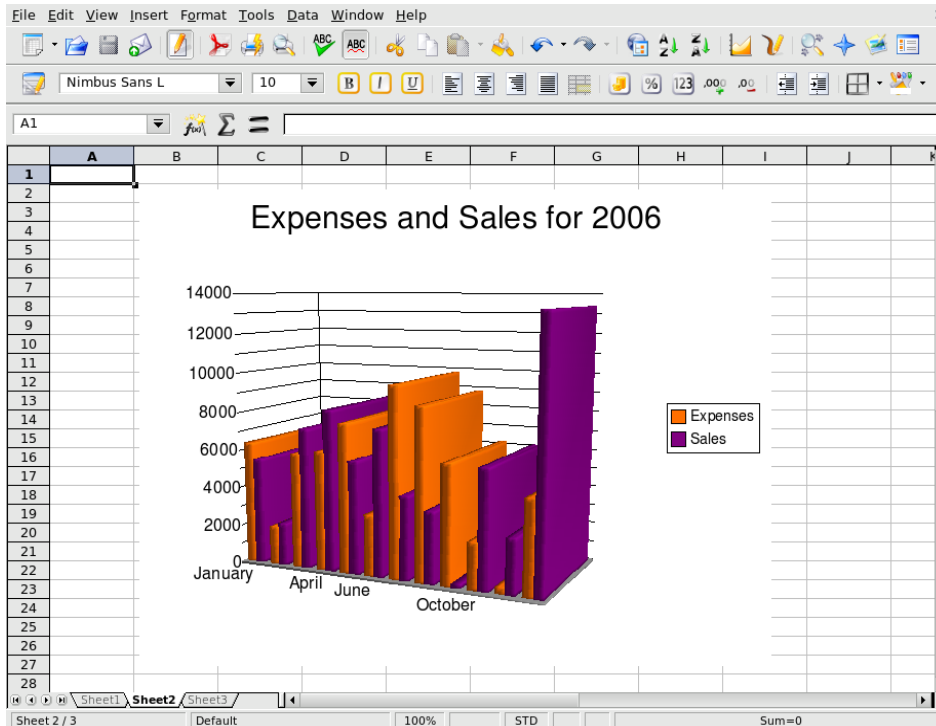


Figure 3-4. A 3D Chart Inside the Spreadsheet

Tip: Charts are “dynamic” in the spreadsheet which means that when you change data in a cell belonging to a chart, the chart will be automatically updated.

Tip: Double clicking and then right-clicking on an inserted chart brings up a menu showing options to change many chart parameters.

3.2.3. Going Further

If you wish to learn more on the use of OpenOffice.org Calc, you should consult the tutorial available at the Tutorials for OpenOffice (http://www.tutorialsforopenoffice.org/category_index/spreadsheet.html) Web site.



Also, don't hesitate to refer to OpenOffice.org Calc's help accessible through the Help→OpenOffice.org Help menu, or by pressing the F1 key. There you are bound to find answers to your questions.

3.3. Printing and Faxing from Applications

GNU/Linux applications support a simple printing method based on a program called KPrinter which can even be used to build PDF files and to send faxes.

3.3.1. Accessing KPrinter

Just click on any application's print button to invoke the printing interface. In most cases, this is KPrinter. Select the required print settings and click on the Print button to start printing.

3.3.2. KPrinter's Interface

KPrinter allows you to set many options for printing your documents¹, such as the output device (generally a physical, local or remote printer), the number of copies, the paper size, the printer resolution, etc.

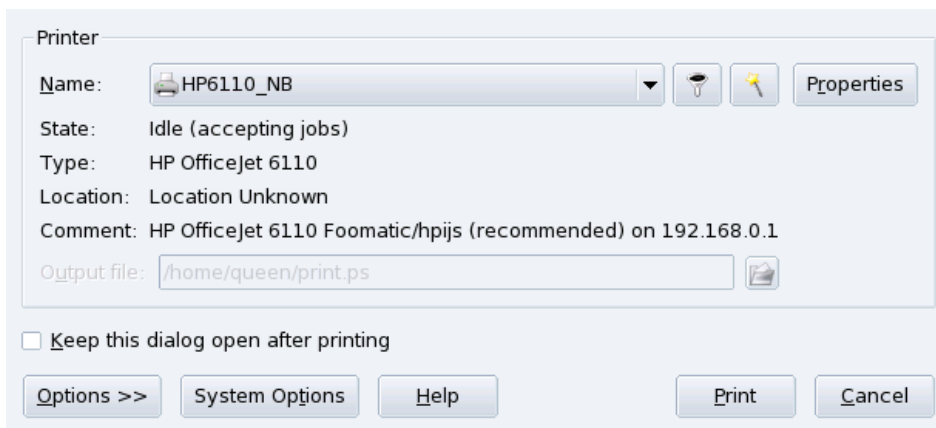


Figure 3-5. KPrinter Window

Choose the printer using the pull-down list in the Printer section. You can further configure the printer settings by clicking on the Properties button. Click on the Options >> button at the bottom to set more printing options and on the System Options button to access global printing configuration.

Tip: 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 are listed too, so network printing becomes very simple.

1. The actual printing options you are able to set depend on the output device you have selected.

3.3.2.1. Printer Properties

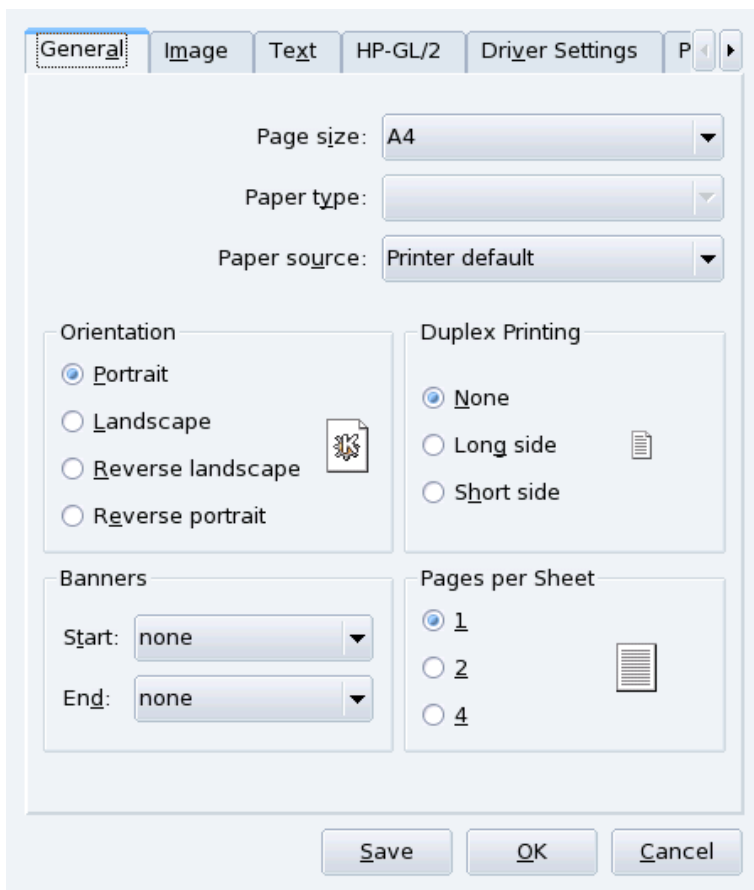


Figure 3-6. Printer Properties Window

One option worth mentioning is Pages per sheet (set to 2 in the example). This allows you to 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.

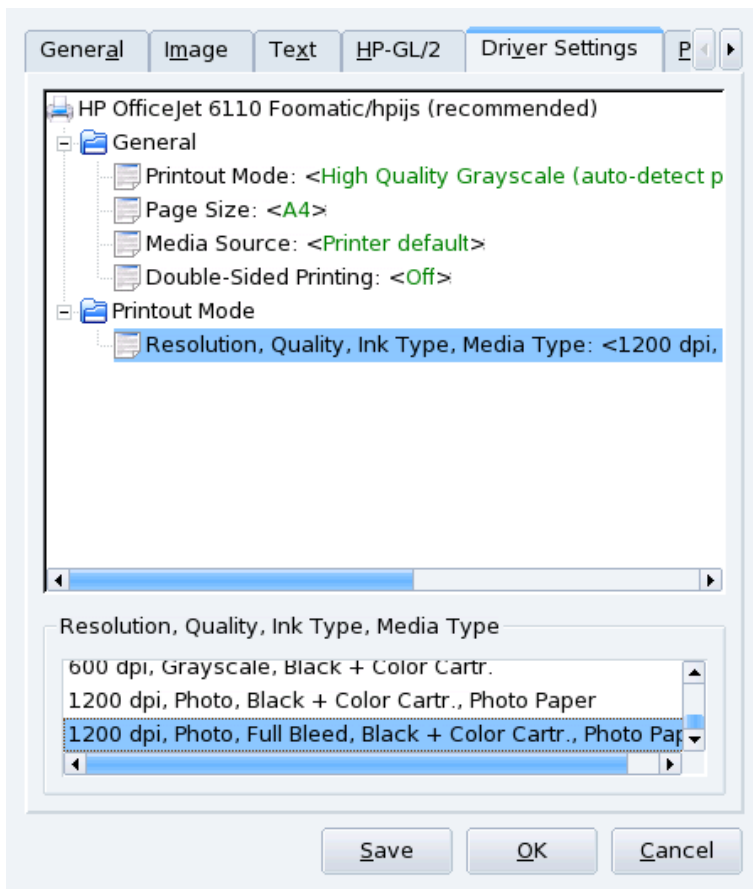


Figure 3-7. Changing Printer Resolution

Click on the Driver Settings tab to change printer-specific options such as the resolution of the printing device. When you click on the Resolution option the available resolutions are displayed, select the one you want from the list.

Other settings include printing modes which use 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.

Tip: Use the Save button to store current settings, making them the defaults for subsequent printing jobs.

3.3.3. Building PDF Files

Select the Print To File (PDF) special printer, enter the file name in the Output file field as shown in figure 3-8, and click on Print to build a PDF file.

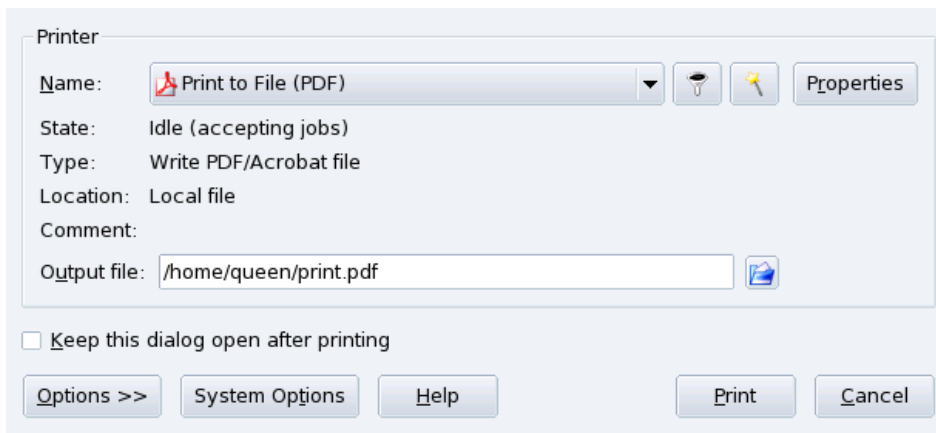


Figure 3-8. Generating a PDF File

3.3.4. Sending Faxes

3.3.4.1. Through a Modem

The special Send To Fax printer allows you to send the document you are working on directly by fax². When you click on the Print button, a dialog similar to the one shown in figure 3-9 appears.

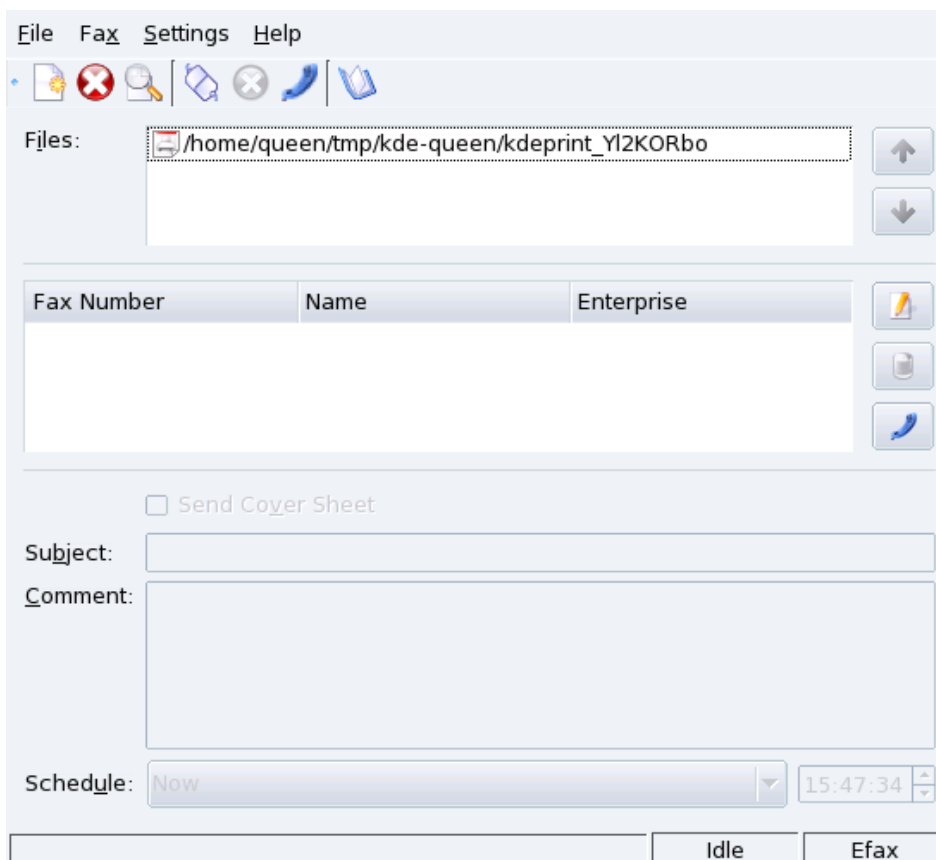





Figure 3-9. Faxing Main Window

The first time you select this function you need to make sure that your fax modem is properly configured, select Settings→Configure KdeprintFax from the menu. Fill the information under the Personal section with your name, company and fax number. In the System section make sure that the correct faxing system and its corresponding parameters are set. An example is shown in figure 3-10.

2. Of course a modem fax must be installed on your computer and connected to the phone line.

-  Select the fax number from the list (or add a new entry for the number you are trying to reach) and click on the Send Fax button, or press the **Enter** key, to send the fax immediately.
-  The View Log button (**Ctrl-L**) shows a window with the fax activity log (check it to make sure your fax has been sent correctly).
-  The Address Book button (**Ctrl-A**) opens the KDE address book to let you select fax numbers to dial.

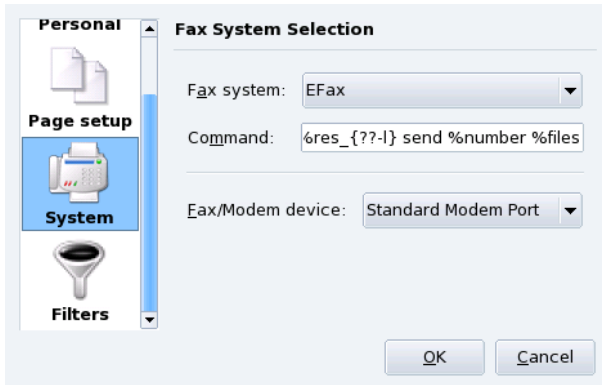


Figure 3-10. Fax Settings

3.3.4.2. Through an HP Multifunction Device

If you are the owner of an HP multifunction printer (print, scan, fax), and already installed it (see *Configuring Printers with PrinterDrake*, page 88), then you have a special virtual printer available that queues documents to be faxed.

Print to the Fax Queue

- Using any application, just print your document using the special “Fax printer” (something like HPOJ6110FAX).

Tip: You can print various documents to have them sent in a single fax session.

- Launch the HP Send Fax application from the main menu (Office+Communications+Fax→HP Sendfax).

Send the Fax

- Documents to be faxed
Check the documents you printed appear in the items list.
- Specify recipients
Click the Address Book button and add new recipients if necessary. Then put a check mark for the recipients in the Recipients tab.
- Send Faxes
Just press the Send Fax button when you’re set.

Chapter 4. Audio, Movie and Video Applications

4.1. Audio Applications

This section introduces the main audio applications you may need for your entertainment: **Amarok** the music player, **KsCD** the cd player, and **KMix** the sound mixer. All can be accessed by choosing **Multimedia→Sound** from the main menu.

4.1.1. amarok Audio Player

Amarok is “the” multimedia application to use to listen to your favorite music. You can organize your music in collections, get information about recordings such as artist, lyrics, album covers, and more.

In this section we go through its essential features.

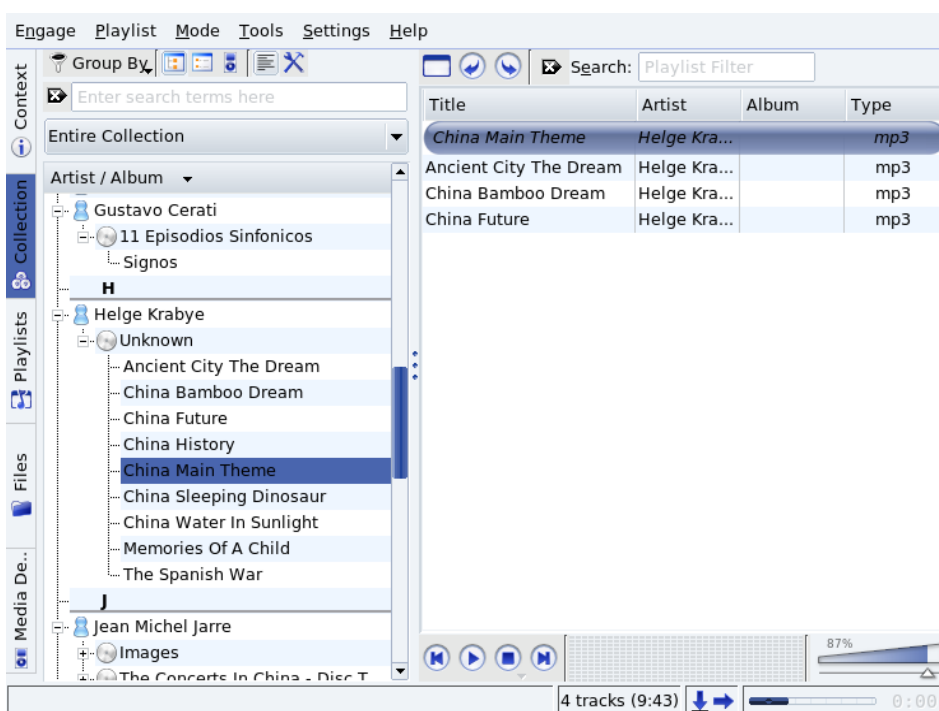


Figure 4-1. amarok's Main Window

Note:



Once Amarok is launched this icon appears on the panel. Right-click on it to access its options.

Amarok's main features are divided up in four browsers, located on the sidebar.



The context browser which spreads out on three tabs: Music, Lyrics, and Artist, gives you various information on the music currently playing.



The Collection browser enables you to view and organize your entire music collection.

To use it, you need to create a collection first: click on the **Build Collection** button, check all the folders you want Amarok to look in for music files and click **Ok** to start building the collection.

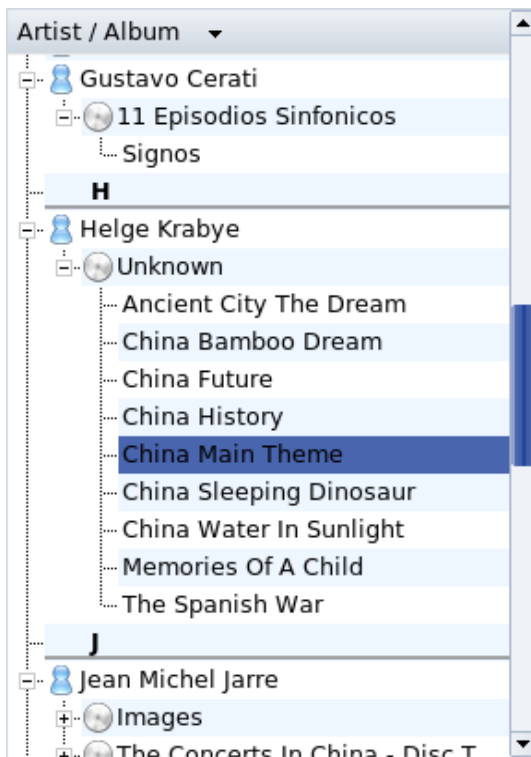


Figure 4-2. Music Collection



With the collection browser active, click on this button to add more folders to your collection; put check marks on the ones you are interested in and click Ok. Then choose Tools→Rescan Collection from the menu to update the collection.

Warning

If you added files from removable devices (such as a USB key or an external hard drive), make sure they are mounted at the same location as when you originally added them to your collection or **Amarok** won't be able to find the files they contain.



The playlist browser lets you roam your playlists and podcasts! If you don't have any you can listen to the Cool-Streams, which is a collection of online radio broadcasts. To create a playlist, simply drag tunes into the playlist, then select PlaylistSave Playlist As and give it a name. To add new podcasts, click the Add button, select Podcast and add the podcast's URL into the dialog.



The File Browser allows you to access and search your local file system. You can use it as an alternative to **Amarok**'s Collection.



The Media Device Browser allows you to transfer songs to your portable audio device, such as an iPod.

4.1.2. KsCD CD Player

When you insert an audio CD in your CD drive a window pops up, if you choose to play the cd, the KsCD player starts up.

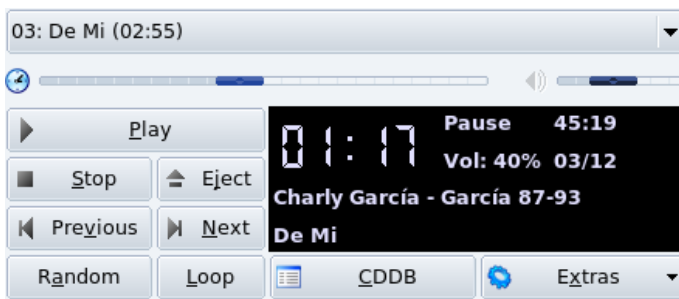


Figure 4-3. KsCD's Main Window

Tip:

Once KsCD is launched, this quick-launch icon appears near the clock. Right-click on it, to access KsCD's main features.

On the left you have the typical CD player controls: Play/Pause, Stop, Eject, etc. The ones below alter the playing order. The CDDb button can be used if your CD information doesn't appear automatically, it will display the CD's title, artist and tracklist information. The Extras button let you access more advanced configuration options.

4.1.3. Using the KMix Mixer

KMix is a sound mixing application under KDE. It allows you to fine-tune your sound card's audio levels through various sliders.

Note: The availability and type of the controls discussed below depend on your particular sound card. Some controls may even be absent for your hardware.



When KMix starts, this quick-launch icon appears near the clock. Click on it, then click Mixer to view the full mixer window.

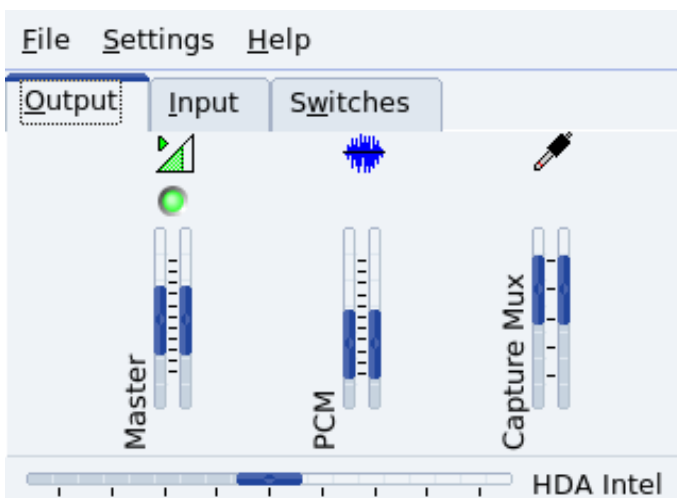


Figure 4-4. KMix Main Window

The Output tab controls the volume levels of the sound sources of your sound card. The most important one is the Master which controls the general volume. By right-clicking on each slider you have extra options such as Split Channels, Muted Hide, etc. Clicking on the green dot at the top of a column will mute/unmute that sound source.

Tip: Clicking on the quick-launch icon, pops up a slider which lets you control the master volume, as well as to mute all sound.

The Input tab controls the volume levels of the recording sources of your sound card. If you use videoconferencing software or are a musician, this is where you'll want to adjust your microphone and your auxiliary devices. Clicking on the green dot at the top of a column will mute/unmute that recording source, the red dot at the bottom enables or disables it.

The Switches tab goes deeper into your sound card's configuration. Boosting your microphone, using an external amplifier: these features are for advanced users who wish to **really** master their sound system. To activate them, simply click on the dot at the top of each column.

Finally, the horizontal slider enables you to balance your sound between the left and right speakers. Notice that if your sound card supports separate levels for master's right and left, the Output's Master controllers will be modified following the movement of the horizontal balance slider.

4.2. Movie Applications

4.2.1. Introduction

Most popular video codecs are proprietary, which means that implementing them in a free software application requires reverse-engineering techniques. This may limit the availability of such codecs in a free operating system, like Mandriva Linux. However, codecs for many of those popular video formats do have their free software equivalents, and are included with Mandriva Linux, allowing you to play many video file types, except maybe one or two. You may also need to download a decrypting library to play the so called commercial DVDs.

Warning

The information included here is meant to help Mandriva Linux users who know that, in their country, using these codecs and plugins is legal. **Mandriva does not encourage law violation and you should verify the law(s) which apply in your case before you download and use these codecs and plugins.**

4.2.2. Kaffeine

Kaffeine is a multimedia player based on Xine libraries which can play video files and streams, DVDs and other media. You can launch Kaffeine by selecting Multimedia+Video→Kaffeine from the main menu.

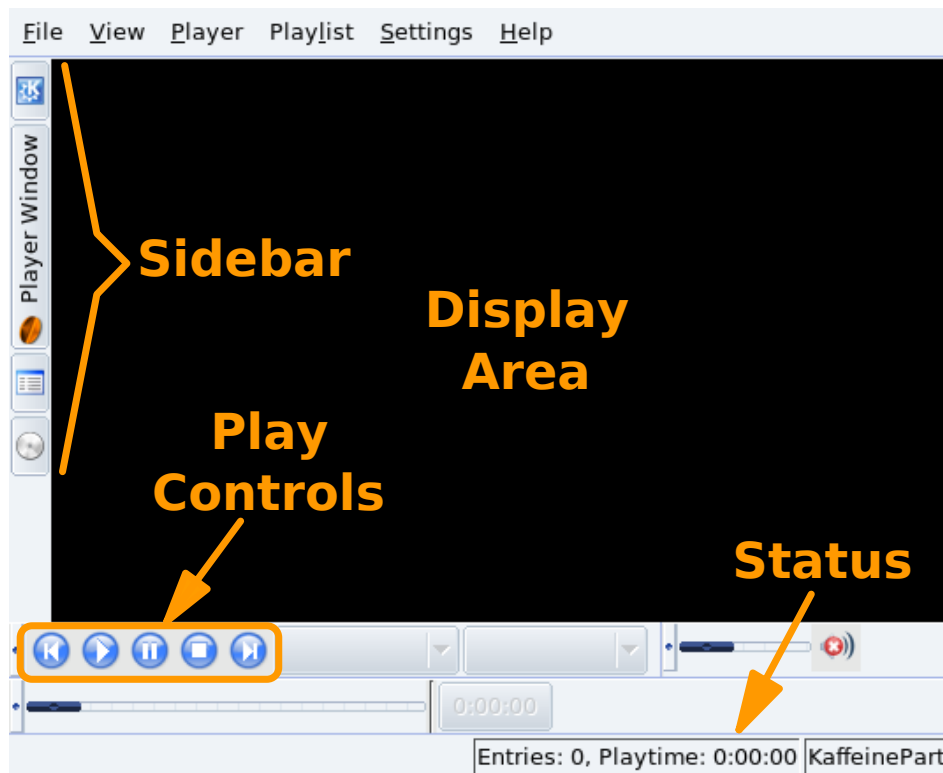


Figure 4-5. Kaffeine's Interface

Kaffeine's interface (figure 4-5) is comprised of the following:

- **Display Area.** Where the movie being played is shown. Press the **Ctrl-Shift-F** keys to switch between full-screen and windowed modes.
- **Sidebar.** The sidebar allows you to switch between Kaffeine's windows: these windows allow you to view Kaffeine's start menu, listen to CDs, a playlist, and watch DVDs.
- **Play Controls.** A reduced set of the usual VCR controls: Previous, Play/Pause (keyboard shortcut: **Space Bar**), Stop (keyboard shortcut: **Backspace**) and Next.
- **Status.** Located at the bottom right of Kaffeine's window, it shows information about the playlist and the movie being played.

Choose File→Open to open a standard file open dialog allowing you to choose the movie you want to play, select it and click Open, the movie starts playing immediately.

4.2.3. Other Movie Applications for Linux

Xine

Xine is one of the most interesting video application for GNU/Linux. It supports a wide range of formats and input sources. It's fast, flexible and extensible. It's also provided as a library on which many players are based.

MPlayer

MPlayer is yet another interesting application and supports multiple output drivers, and even older video cards. It can also handle DVD, AVI, VideoCD, amongst others. However you'll 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®.

Totem

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's better integrated in the GNOME environment.

4.3. CD/DVD Burning

In this section we concentrate on using K3b to perform common CD burning operations. DVD recording is very similar to its CD counterpart.

Copyrighted Material. Please note that data, audio, video CD or DVD copying is often forbidden by copyright law. We assume that if you want to duplicate copyrighted material, it's because you have the right to do so.

4.3.1. Getting Started

Choose System+Archiving+CD burning→K3b from the main menu to start K3b. figure 4-6 shows K3b's interface with a new data project open.

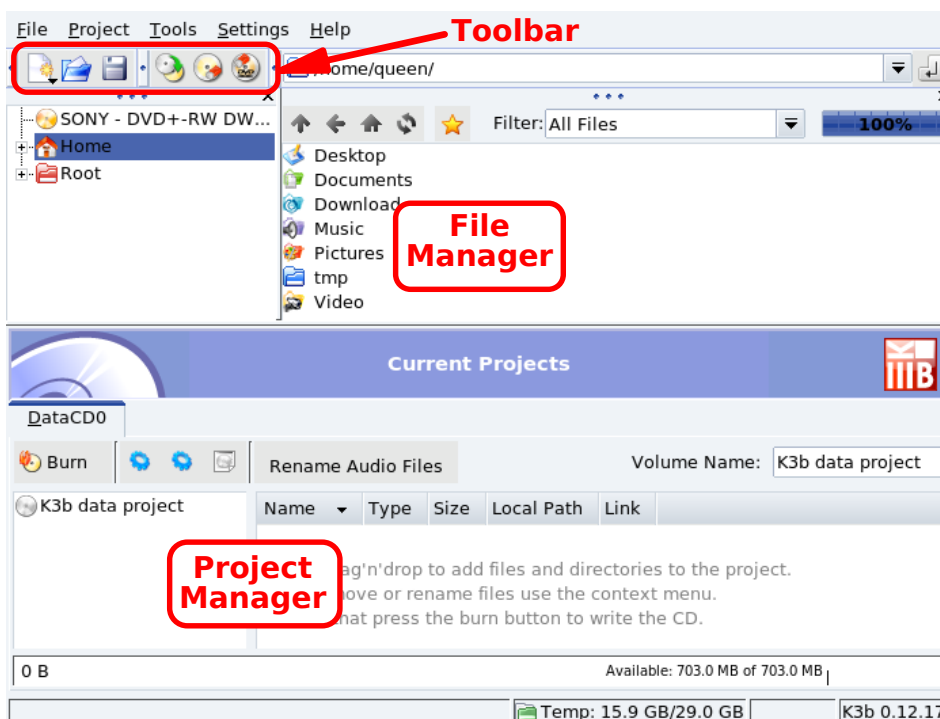


Figure 4-6. K3b's Interface

Toolbar. Where buttons to perform common actions lie. See table 4-1.

File Manager. To choose which files to include in the burned CD. Use the left-side tree to navigate the file system and drag and drop the files you want to include in the project into the Project Manager.

Project Manager. Where all files which will be on the burned CD are shown and handled. Files can be removed and their location (directory) on the CD can be changed here.

The following table shows the most important buttons available in K3b's toolbar, their equivalent keyboard shortcuts and a brief explanation of the functions they provide.

Note: Not all buttons are enabled at all times. For example, the Save button is not enabled if there is no active project.







Button	Keyboard Shortcut	Function
		Create a New Project. When you click on this button a list of available project types is shown: New Data CD Project creates a data CD; (see <i>Burning Data CDs</i> , page 47); New Data DVD Project creates a data DVD; New Audio CD Project create an audio CD; (see <i>Burning Audio CDs (CDDA)</i> , page 50); New Mixed Mode CD Project creates a mixed mode (data+audio) CD; New Video CD Project creates a digital compressed video CD; New Video DVD Project creates a video DVD; that is a video DVD that can be played on any DVD player; New eMovix CD Project creates an eMovix (http://movix.sourceforge.net) CD; New eMovix DVD Project creates an eMovix DVD.
	Ctrl-O	Open an Existing Project. A standard file dialog opens from where you can choose the project you wish to open. Select the project you are interested in and click the Open button.
	Ctrl-S	Save the Current Project. A standard file dialog opens where you can enter the name under which the current project will be saved. Type the name of the project and click the Save button.
		Copy a CD. To make an exact copy of a CD. It opens a window which asks for the copy settings. Refer to <i>Duplicating a CD</i> , page 52, for more information. Please note that you cannot duplicate copyrighted DVD movies with this function, as they are encrypted.
		Erase a CD-RW. To erase re-writable CD medium. It opens a window which asks for the erase operation settings. Please refer to <i>Erasing CD-RW media</i> , page 53, for more information.
		Format a DVD-RW. To format a re-writable DVD medium. It opens a window which asks for the formatting settings.

Table 4-1. K3b's Toolbar Buttons

4.3.2. Burning Data CDs

4.3.2.1. Burning a Set of Files or Directories

Choose File+New Project→New Data CD Project from K3b's menu . Then drop into the Project Manager the files and directories you want to include on the CD (see figure 4-7).

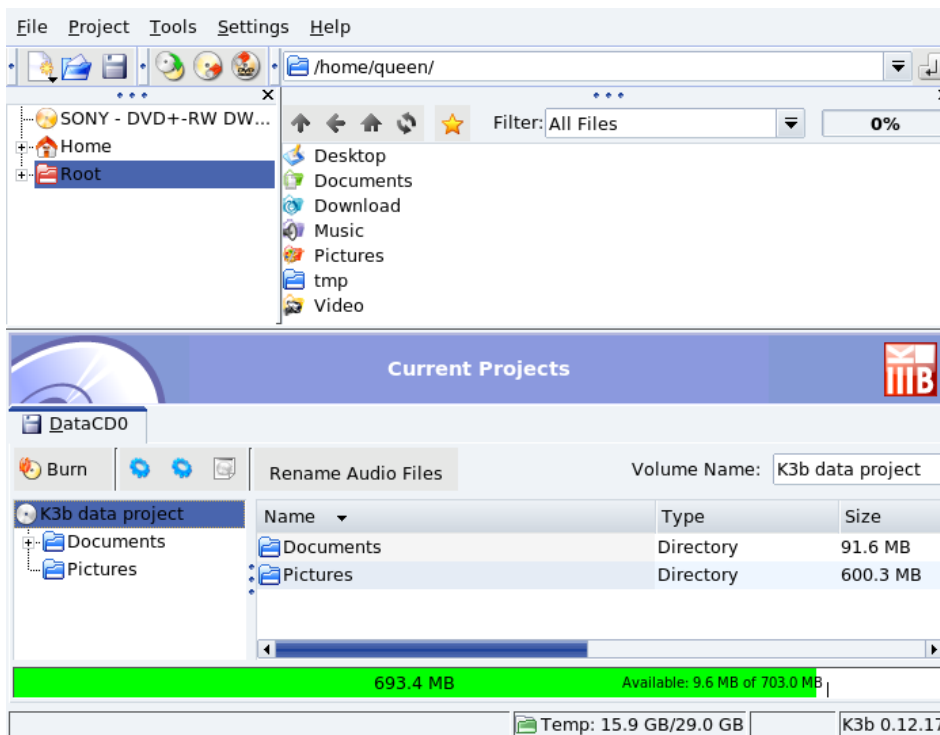


Figure 4-7. Selecting Files and Directories to Include on a CD

Note: 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.

The space occupied by the selected files and directories is shown by a color-coded bar at the bottom of the Project Manager, together with the volume expressed in MB and the available MB of the medium's total capacity. The bar's color codes are as follows:

Green

The size of the set is less than that of the selected medium's capacity (700 MB by default). There are no capacity-related problems.

Yellow

The size of the set is nearly equal the selected medium's capacity. If it's a few MB below the medium's capacity, there won't be any capacity-related problems; if it's a few MB above the medium's capacity, the CD might be written without problems, but there's little guarantee of success.

Red

The size of the set exceeds the medium's capacity by many MB. The CD won't be burnt properly.

Right-clicking on any file or directory in the Project Manager pops 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 you want them to appear) on the CD using drag-and-drop.

Tip: Renaming the top element of the left side tree in the Project Manager changes the CD's volume name (K3b data project by default for data CDs).

Choosing the Project→Burn menu entry displays a window where you can select writing parameters (see figure 4-8). Insert a recordable medium in the CD burner and click the Burn button to start writing the CD.

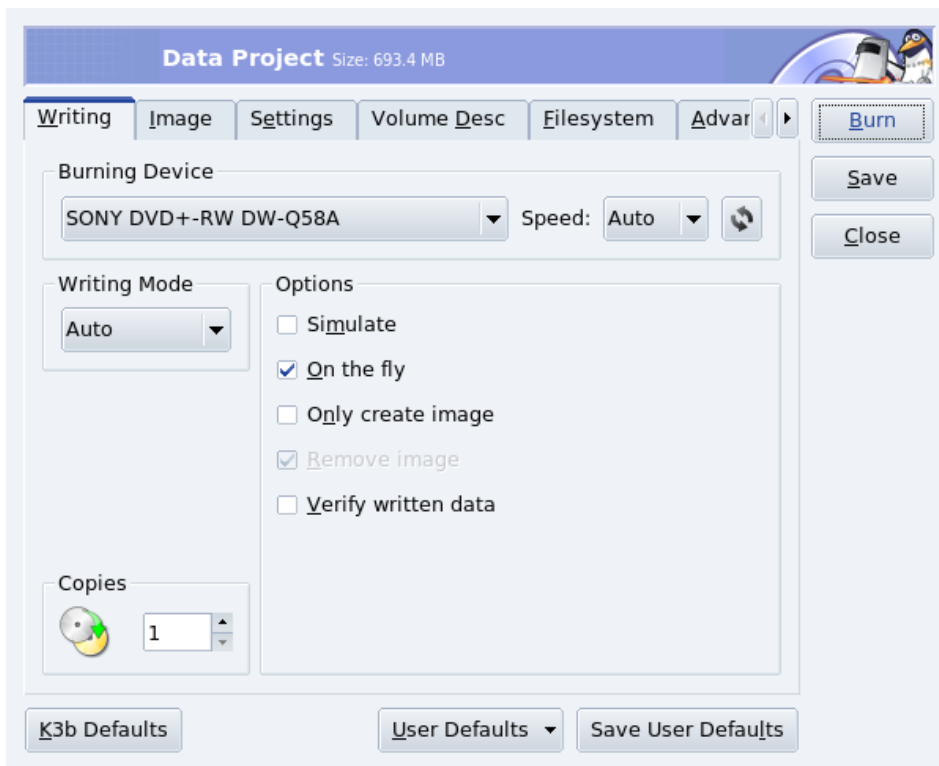


Figure 4-8. Setting Writing Parameters

4.3.2.2. Burning an ISO Image

Let's assume you have downloaded a CD-ROM image from the Internet and you want to burn it on a CD. Choose Tools→Burn CD Image from K3b's menu. Click the "open file" button to browse for the CD image file and select the file in the standard open file dialog. The CD image is then verified and information about it is displayed (see figure 4-9).

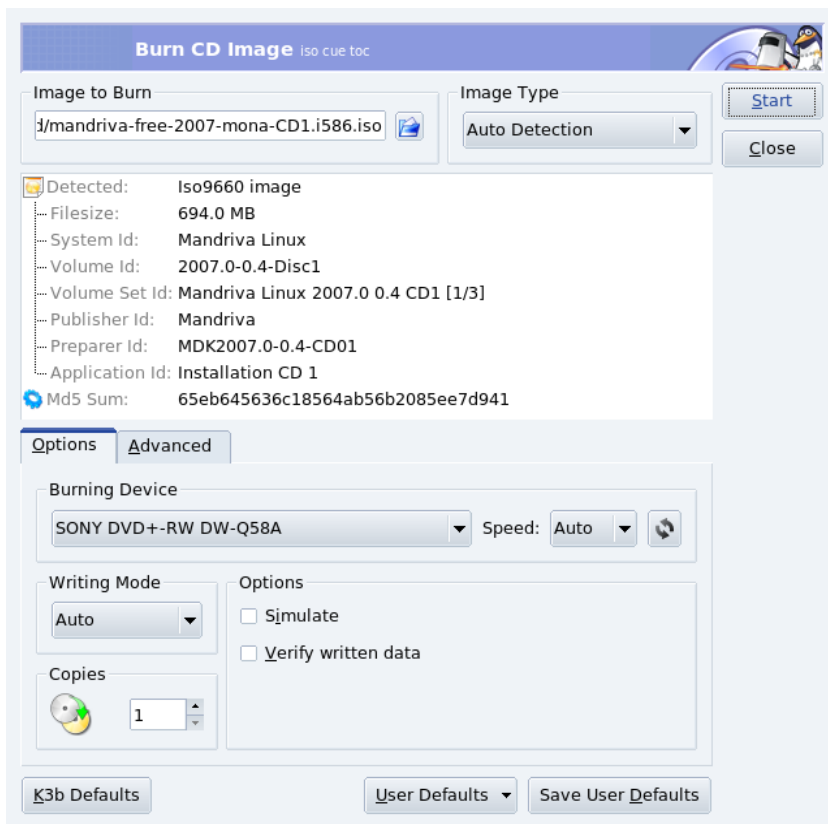


Figure 4-9. Burn CD Image Options

Once the image is verified, you can insert the recordable medium and click Start to write it to the disc.

Tip: The Speed pull-down list should be set to Auto to make K3b select the fastest possible recording speed supported by the combination of your CD burner and the currently inserted recordable medium. The “slowest” speed of the two determines the recording speed.

4.3.3. Burning Audio CDs (CDDA)

By audio CDs, we mean the ones you play in your car or home stereo equipment, not data CDs containing OGG, MP3 or any other digital audio format files.

K3b supports recording audio CDs from tracks digitized in Wave (*.wav), Ogg Vorbis (*.ogg), and MP3 (*.mp3) formats. You can mix digital audio formats since K3b decompresses the compressed ones on-the-fly. K3b can also create digital audio tracks from audio CDs, also known as “ripping” (see *Audio CD Extraction (Ripping)*, page 51).

Choose File+New Project→New Audio CD Project from K3b’s menu. 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 4-10).

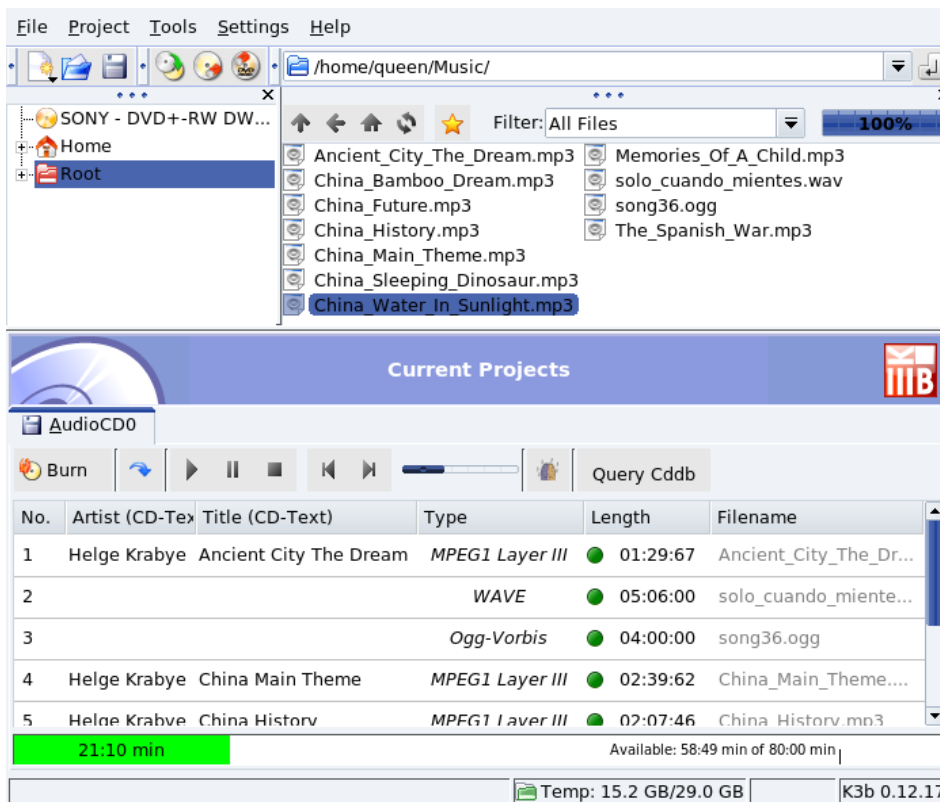


Figure 4-10. Selecting Audio Tracks to Include on the CD

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 Manager, you can write them to CD.

4.3.4. Audio CD Extraction (Ripping)

Insert the audio CD to rip tracks from and double click on the drive in the left side of the File Manager. The CD is read and, by default, all tracks are marked to be ripped. To remove the check mark from those you don't want to rip, right-click on them and deselect them.

Note: Make sure that enough temporary space is available. You can check the available space in K3b's status bar. Bear in mind that each minute of CD-quality digitized uncompressed audio takes a bit more than 10MB of disk space.



Click this button to review the different ripping options (see figure 4-11), especially the file naming ones and once you're satisfied with your settings click the Start Ripping button.

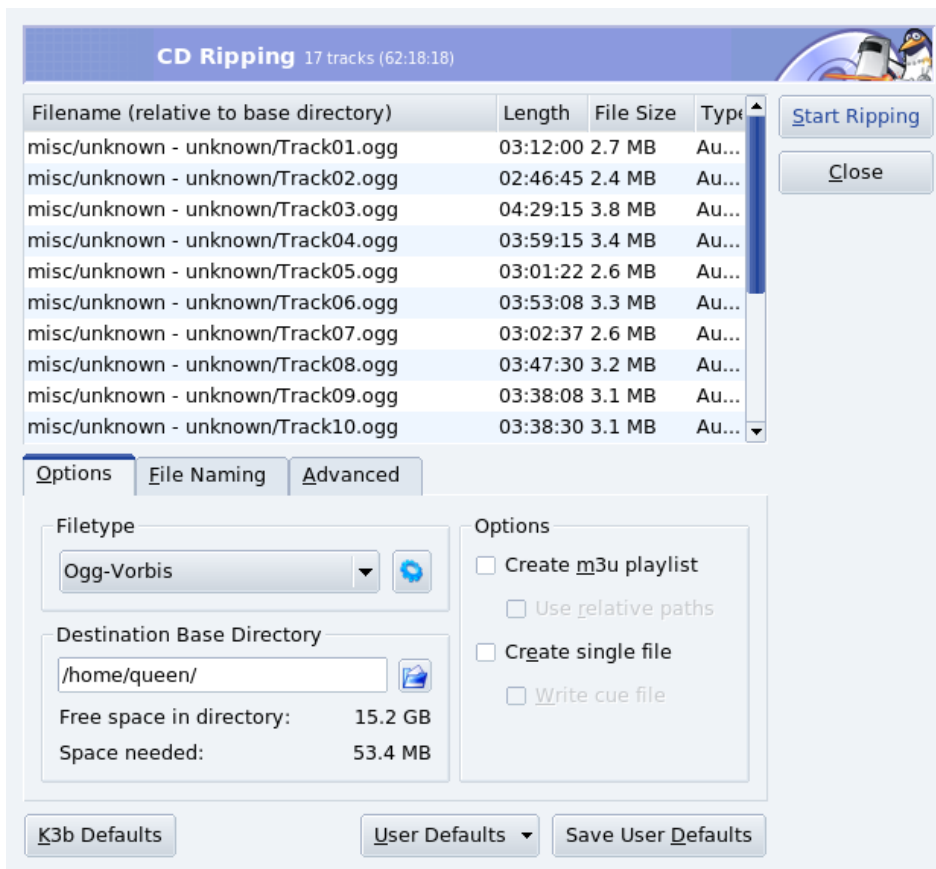


Figure 4-11. CD Ripping Options

4.3.5. Duplicating a CD

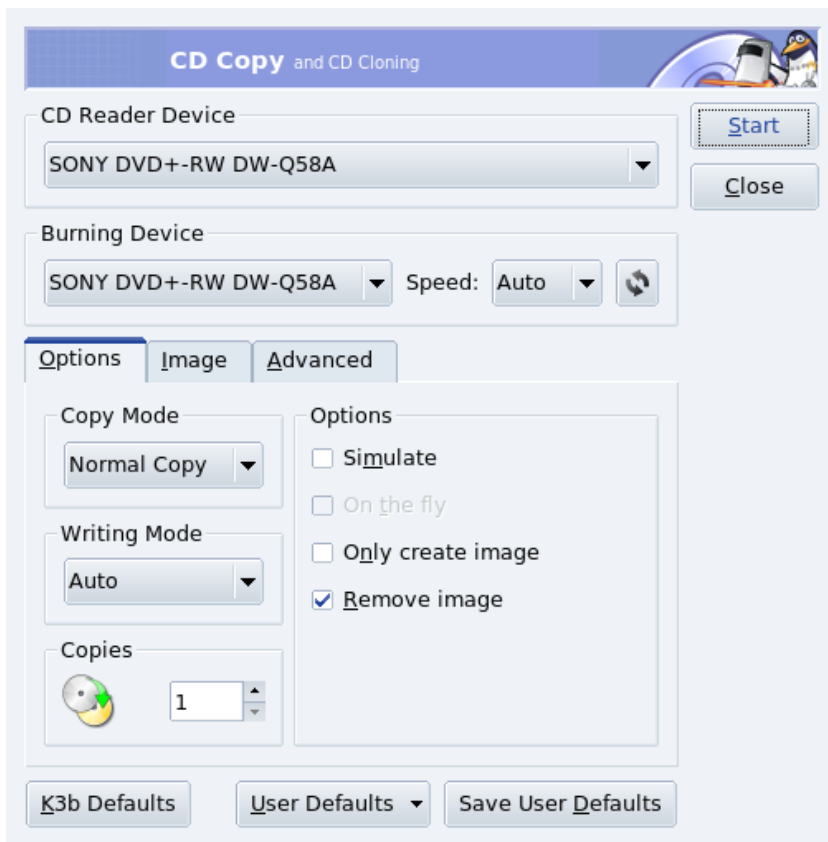


Figure 4-12. Setting Options to Copy a CD

Choose Tools→Copy CD from the menu. Select the number of copies (1 in the example), whether to remove the temporary image or not (yes), the reader and burning devices (automatically set) and click on Start. The “source” CD is then read, an image of it is made and the “target” CD is written.

4.3.6. Erasing CD-RW media

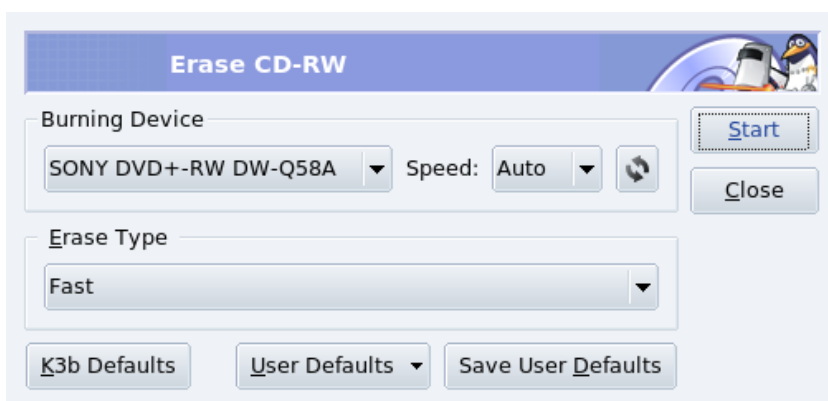


Figure 4-13. Setting CD-RW Blanking Options

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 (see figure 4-13). 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 are also available. Insert the medium in the CD burner and click the Start button to erase the CD-RW.

Chapter 5. Graphics Tools And Practical Devices

5.1. Graphic Art And Image Manipulation

This chapter concentrates mainly on GIMP, and introduces other interesting applications you may wish to explore on your own.

5.1.1. GIMP

The GNU Image Manipulation Program (GIMP) is a free software program challenging proprietary applications such as Adobe® Photoshop® or Corel® Painter™, allowing advanced photo editing tasks such as cropping, resizing, painting, drawing, modifying colors, etc. Its true beauty lies in its extensibility and its scripting options, which opens GIMP to full integration in programs and scripts therefore enabling it to act as a mass production image rendering application.

5.1.1.1. Introduction

5.1.1.1.1. Strengths

For normal users, GIMP will seduce you with its advanced functions for web images and formats. You can easily create animations and optimize your art for web publishing, and take advantage of GIMP's extensive photo manipulation features.

Power users, publishers and document management specialists truly benefit from GIMP through its advanced scripting capabilities and the programs' function accessibility.

5.1.1.1.2. Weaknesses

GIMP, like most Free Software graphic design applications, suffers from the fact that prepress standards, such as PANTONE® Color Systems, are proprietary and closed. So for GIMP, it means that there are no usable implementations of these standards. Also, because the press world is dominated by **Apple**-compatible computers you will have to put in some extra effort to print professionally with GIMP, although it is feasible. Another limitation is the internal 8 bit-per-channel representation for images, which might not be sufficient for the professional digital photographer (16 bits-per-channel would be required).

5.1.1.1.3. Finding More Information

GIMP includes extensive documentation. If the `gimp-help` package is installed, pressing the **F1** key lets you access a help index for the current "active" item, and pressing **Shift-F1** gives you access to contextual help.

On the net, GIMP is a very well documented application and a lot of information is freely available. Please refer to The GIMP web site (<http://www.gimp.org/docs/>) for more information about the available GIMP documentation.

5.1.1.2. Starting GIMP and its Interface

Choose Multimedia+Graphics→GNU Image Manipulation Program from the main menu to start GIMP.

Unlike Adobe® Photoshop®, when you open GIMP a few dialogs appear, the main one being the toolbox (see figure 5-1). It offers GIMP's core functions and allows you to initiate other tasks.

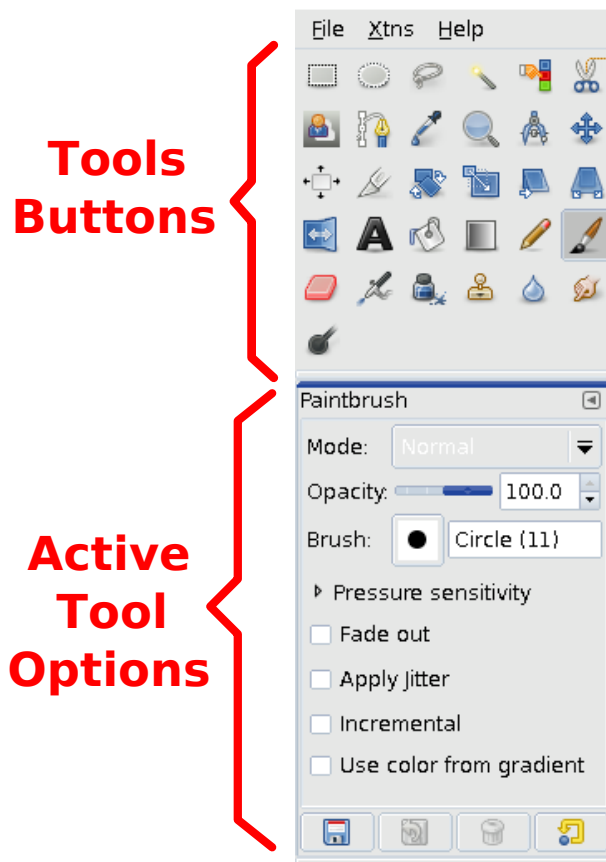


Figure 5-1. GIMP's Main Interface

5.1.1.3. Concepts

GIMP embraces differences. Therefore, there are usually many ways to achieve the same goal. The following is a brief description of some concepts and the way they work under GIMP.

5.1.1.3.1. Menu

From GIMP's main window (called the tool box), you can access the basic program options such as opening a file, creating a new file, etc.

5.1.1.3.2. Right-clicks

Once an image is opened or created, you can right-click in the image window and access the image's specific options such as Close, Save, Save as, Dialogs, Filters, etc. We call this the "image menu" in the following sections.

5.1.1.3.3. Layers, Image Modes and File Formats

Some of the key concepts to grasp in order to truly benefit from an advanced graphic design application like GIMP are those to do with layers, formats and file modes. Roughly put, digital image editing adds a 4th dimension: layers. Images are built vertically (as are animations), and each layer has user-defined properties which determine other tasks that can be accomplished. File mode defines the inner logic of the graphic elements. Hence, an RGB image allows for different operations and capabilities that you would not have for a gray scale image. Finally, the file format also impacts on which operations can be done on that file.

If you face difficulties accomplishing any task described below, check those three elements before jumping to conclusions.

5.1.1.4. Using GIMP

5.1.1.4.1. Basic Operations

Opening a File. Choose File→Open from the menu. Your image appears in a new window. From that window, you can access the image's menu (File, Edit, Select, etc.) or right-click as explained in *Right-clicks*, page 56. Depending on the file format you want to open, you may have to answer some questions pertaining to the details of that format and its conversion. Keyboard shortcut: **Ctrl-O**.

Creating a New File. Choose File→New from the menu. A dialog appears letting you determine image dimensions in different measurement units (pixels, inches, millimeters, etc.), image orientation (landscape or portrait) and some advanced options (see figure 5-2). You may also specify a Template from the pulldown list and have most image parameters filled for you. Once you click on the OK button the image is created in a new window. Keyboard shortcut: **Ctrl-N**.

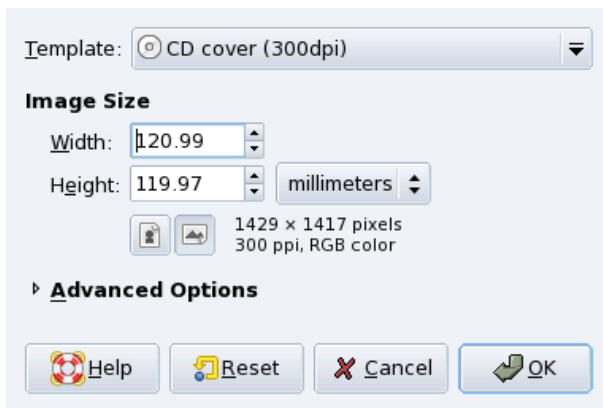


Figure 5-2. Creating a New File

Saving a File. The first time you Save, or when you Save as, a dialog pops up which allows you to set the name and location of your image. More importantly, this is the place to define the file type such as JPEG or PNG. Keyboard shortcut: **Ctrl-S** for Save, **Shift-Ctrl-S** for Save as.

Note: New users, at the stage of saving their work, run into multiple problems such as losing layers or simply damaging their work. Most of these problems come from the specific options allowed for each file format. If you have no idea, preserve the image format or save in XCF, GIMP's own file format. You can always try saving the image under different formats later.

5.1.1.4.2. The Tool Box

The tool box contains your basic graphic design tools. If you move your mouse over any item, its name and keyboard shortcut pops up in a help balloon. Tool options are accessible through the Active Tools Options section of the tool box. We will not detail each tool in this guide as there are already books written about GIMP to assist you. Remember that all operations take place in the current active layer.

Note: If you close the tool box, GIMP and all windows are closed. Closing any other window only affects that window.

5.1.1.4.3. Image Window

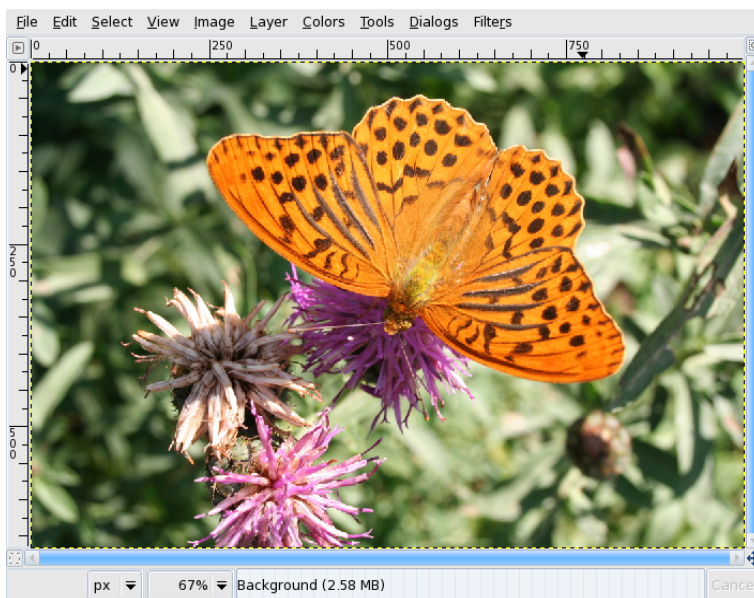


Figure 5-3. GIMP Picture

This window manages either new or opened images and it is where tools selected in the tool box may be used.

5.1.1.4.4. View Size

At the bottom of the image window is a numeric value shown as a percentage. This is the zoom ratio. Click on it to choose another zoom ratio. You can also press the **+** key to increase zoom or the **-** key to decrease it. Press the **1** key to set zoom to 100%.

Tip: Go to menu entry View→Navigation Window to launch a window navigator allowing you to pan and change the zoom ratio of an image window.

5.1.1.4.5. Undo and Redo

All operations can be undone and redone. You can change how far, as a minimum, you can go back in the commands “history” and how much memory to reserve for it, by choosing File+Preferences from the menu, then selecting the Environment section. Please bear in mind that both settings have a large impact on RAM usage which might make it difficult, or even impossible, to manipulate a large image file.

Choose Edit→Undo from the image menu, or press the **Ctrl-Z** keys, to undo the last operation.

Choose Edit→Redo from the image menu, or press the **Ctrl-Y** keys, to redo the last undo operation.

5.1.1.4.6. Copy, Cut and Paste

GIMP allows you to copy (**Ctrl-C**), cut (**Ctrl-X**) and paste (**Ctrl-V**) within any window, as well as between any GIMP image window. You can also paste as layers.

5.1.1.4.7. Layers, Channels and Paths

Choose Dialogs→Layers (or press the **Ctrl-L** keys); Dialogs→Channels; Dialogs→Paths from the image menu to access the layers, channels and paths dialogs respectively (see figure 5-4).

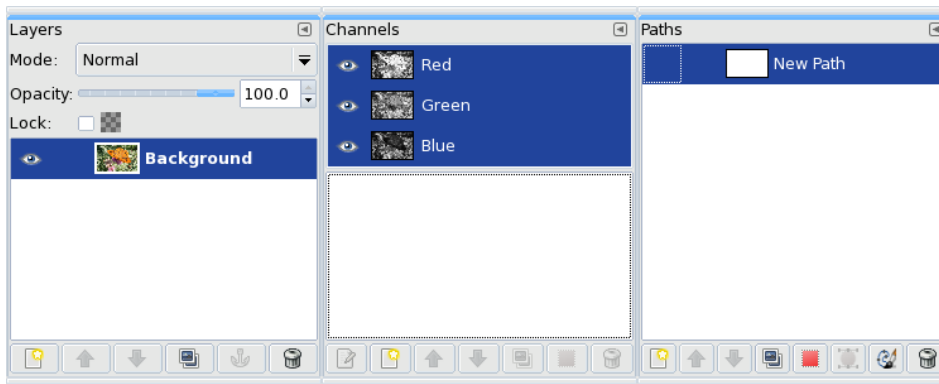


Figure 5-4. Layers, Channels and Paths Dialogs

GIMP allows for an unlimited number of layers. Each layer has a specific set of properties.

In a RGB color image there are three channels, one for red, one for green and one for blue. The channels dialog lets you turn a channel off or on, as well as add and remove other channels. Clicking on the eye at the left of a channel name turns it on or off depending of its original status.

Paths let you manipulate your selections in very complex ways. You can transform selections into paths which let you treat the selection as a curve, giving you more control over it since you can, for example, add points to the curve to manipulate it.

5.1.1.4.8. Filters

Filters are a set of programmed actions which modify your image according to specified options. GIMP offers a vast range of filters such as blurs, noise effects or image enhancement operations that may be applied to selections and layers. Feel free to explore them all.

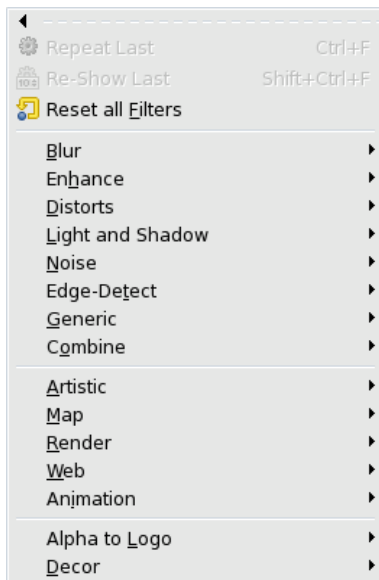


Figure 5-5. Filter's Menu

5.1.1.5. Dialogs

Dialogs give any tool further options. There is quite a large number of them and for the purpose of this introduction, we only discuss the Color Selection and Brushes dialogs.

5.1.1.5.1. Color Selection

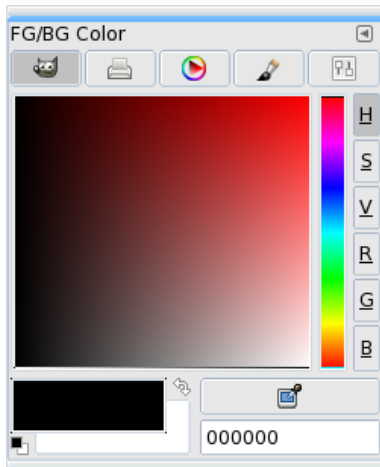


Figure 5-6. Color Selection Dialog

Choose the Dialogs→Colors menu to open the color selection dialog. Use the buttons at the top to select the color “space” you want to use for color selection: GIMP (which lets you select colors using different palettes: Red, Green, Blue, Hue, Saturation and Value), CMYK, color triangle, watercolor or scales. The fore/background colors are handled the same way they are in GIMP’s tool box. Selected colors are active immediately after choosing them. Rule of thumb: try to work in RGB so you can have a wider number of formats to save your work into.

5.1.1.5.2. Brushes

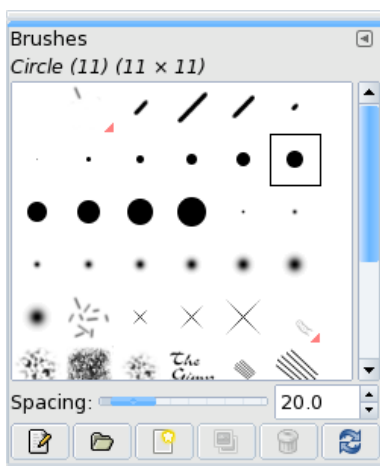


Figure 5-7. Brushes Dialog

This dialog lets you define the type and size of the brushes which apply to most drawing and erasing tools. Click on the active brush section of the tool box, or choose the Dialogs→Brushes menu to open this dialog. Keyboard shortcut: **Ctrl-Shift-B**.

5.1.1.6. Printing

GIMP is ideal for web development but printing from GIMP is sometimes tricky. Because of the absence of PANTONE® Color Systems support, GIMP might not be ideal for prepress work, although CMYK images are supported.

Internally GIMP supports many printers and it is always feasible to filter images through GhostScript or print to file (PostScript). Therefore, you can print images relatively easily. Remember to adjust your resolution to match your printer’s capabilities.

A lot of online documentation is available to further your knowledge about printing with GIMP, and we encourage you to explore further.

5.1.1.7. Plugins

Plugins are external applications which extend a program's core functions. GIMP, like Adobe® Photoshop®, relies on a vast range of plugins to extend its capabilities. You may also contribute plugins to the community. Most of them are free to use and distribute.

Choose Xtns→Plug-In Browser from the menu to view all installed plugins.

5.1.1.8. Conclusion

Hopefully, this brief introduction caught your interest for this amazing piece of software. GIMP is a first-class application and should be considered by any GNU/Linux graphic artist.

5.1.2. Vector Graphic Applications

GIMP is a bitmap graphics applications, however for enterprise logos, diagrams, maps or any kind of drawing (as opposed to photo), a vector graphics application is preferred.

Dia

Dia is a diagramming application which can be considered as an alternative to Microsoft® Visio®. It contains a set of predefined symbols for different types of diagrams you may use. Just like GIMP, Dia offers many common look-and-feel features. Right-clicking in the image gives you image-specific menus, and allows you to modify the image to your needs. Please refer to the Dia web site (<http://www.gnome.org/projects/dia/>) for more information.

Kivio

Very much like Microsoft® Visio®. Kivio possesses a very complete stencil set and it can even use Dia stencils. Worth a try if you are familiar with Microsoft® Visio®. Please refer to the Kivio web site (<http://www.koffice.org/kivio/>) for more information.

Inkscape

Inkscape could be considered the “star” of current vector drawing applications for Linux. With it you can draw anything you want (unlike Dia and Kivio). It's a very mature application available under both GNU/Linux and Windows® and it saves in the SVG format by default, easing interoperability and the support of standards. Please refer to the Inkscape web site (<http://inkscape.sourceforge.net/>) for more information.

5.2. Digital Cameras

5.2.1. Configuring Your Digital Photo Camera

Even if there are still serial (RS-232) digital cameras around, virtually all recent digital cameras use USB, so we assume that you have a USB camera.

GNU/Linux software uses the Gphoto2 library to communicate with your digital camera. Check GPhoto2's supported cameras list (<http://www.gphoto.org/proj/libgphoto2/support.php>) for more information on camera support. If your camera uses the Picture Transfer Protocol (PTP), it may be supported even if it's not in Gphoto2 list.

Tip: You can also consult the very complete Digital Camera Support for UN*X (<http://www.teaser.fr/~hfiguiere/linux/digicam.html>) web page.



Plug your camera in a free USB slot, turn it on into “play” mode¹, and choose Multimedia+Graphics→digiKam from the main menu to launch digiKam. If your camera is not listed in the Camera menu, then choose Add Camera and click on Auto-Detect. If detection fails, click on Add and look for your camera in the list, or fill the parameters corresponding to your camera, and accept your settings.

5.2.1.1. Handling Digital Camera Storage Media

If your digital camera is not recognized you can still try to use a USB “card reader” which lets you plug in the camera’s memory and usually appear mounted under `/mnt/removable` or `/mnt/memory_card`, so you can access it like you would any other storage device. There are many card readers that support multiple memory card types: Compact Flash, Secure Digital, etc.

If you have a laptop computer with a PCMCIA slot, you can use the ATA photo memory PCMCIA card adapters. They are mounted just like any other ATA device (CD-ROM, hard disk, etc.) in order to access your pictures. This is the fastest method to access photo cards. It also means the camera’s batteries may last longer.

Note: Actually, **any** file can be accessed this way, not only pictures. You can put whatever file you want on your memory card.

5.2.2. Transferring and Manipulating Pictures

Choose the Camera→Your_Digital_Camera_Model menu and select the photos you want to transfer in the digiKam camera import window (see figure 5-8) and then click on Download and select the Download Selected option. Then choose (or create) the album to store photos into and click OK: the pictures will be transferred to that album².

Tip: New in-camera images will be marked with a colored border.

-
1. As opposed to “record” mode, which is the mode used to take pictures.
 2. Albums are stored under the `/home/user_name/Pictures` folder.

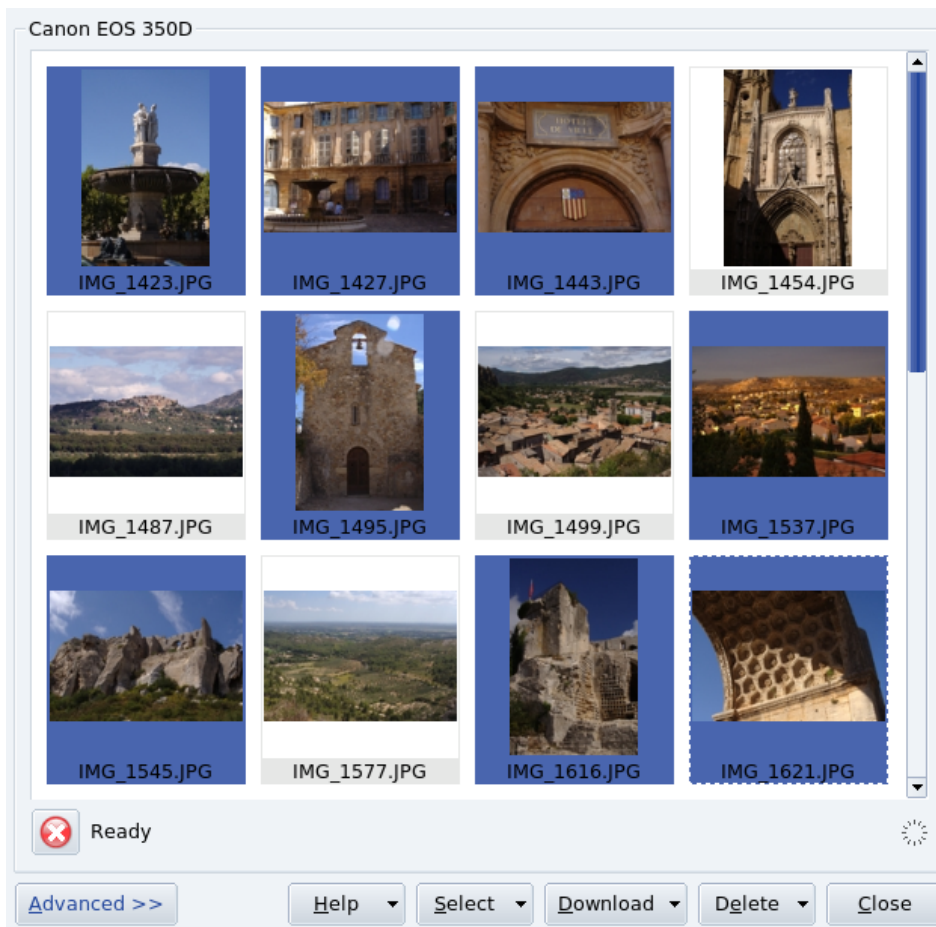


Figure 5-8. Selecting Pictures to Transfer

5.2.2.1. Deleting Pictures

Select a set of pictures and choose Image→Move to Trash from the menu and confirm the operation: the images are moved to the desktop's Trash. Keyboard shortcut: **Shift-Delete**.

5.2.2.2. Rotating Pictures

Create a set of pictures and choose one of the entries Image+Correct Exif Orientation Tag menu.

Warning

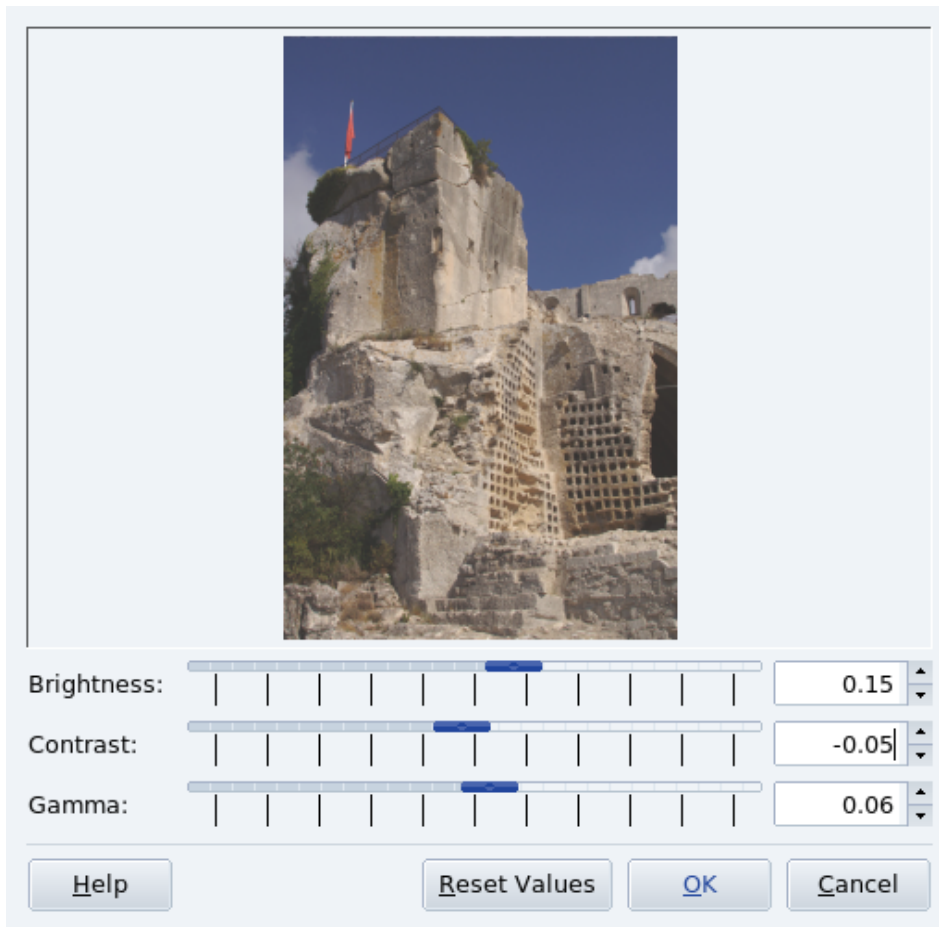
All transformations on pictures (such as rotation) are done on the on-disk file. digiKam doesn't make a backup of the transformed pictures. Also bear in mind that all transformations are, when possible, loss-less.

5.2.2.3. Touching-Up Pictures

Double click on a picture to open the image edit window. Note that all touch-up operations affect the quality of the picture's on-disk file. Also bear in mind that on-screen rendering is quite different from printing your digital pictures on photographic paper. So if you intend to both print and publish your pictures for online viewing, it might be wise to treat both copies differently from the beginning.

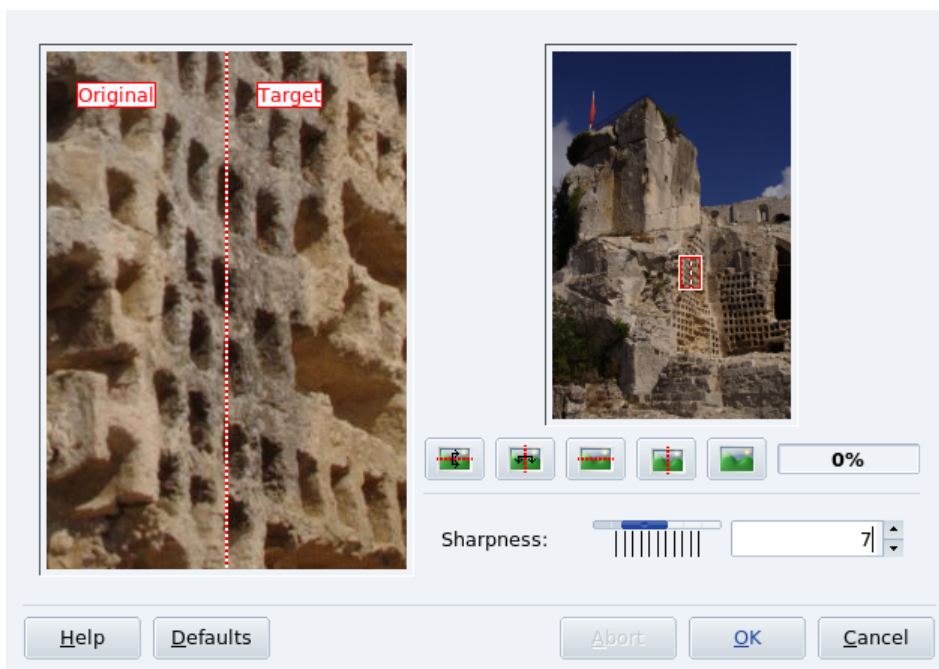
Tip: Press **Ctrl-Z** to undo the last transformation operation. However, once you have saved the image, changes cannot be undone.

Brightness, Contrast and Gamma



Choose Fix+Colors→Brightness/Contrast/Gamma from the menu and use the sliders to adjust the brightness, contrast and gamma of the picture using the picture copy as a guide.

Sharpen



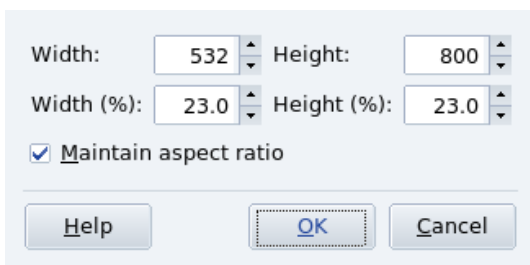
Choose Fix→Sharpen from the menu, drag the rectangle to the part of the image to be used as a guide, and use the slider to sharpen the picture.

Red-Eye Reduction

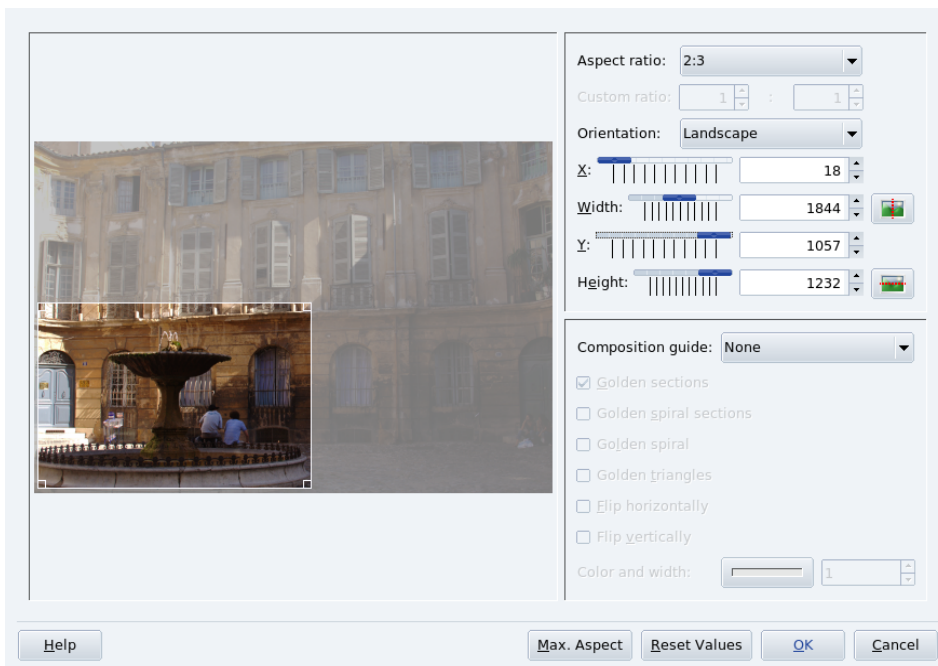


Select the pupil of the eye to fix, choose **Fix→Red Eye Reduction** from the menu, and then select the aggressive (only part of the eye selected) or mild (more than the eye selected) option to reduce the red-eye flash effect. Repeat for the other eye, if needed.

Image Resizing and Cropping



Multi-megapixel images are excellent for photographic paper print-ups, but are far from adequate for e-mailing or publishing on the web. Choose **Transform→Resize** from the menu, then select the desired size, either in pixels or in percentage, and whether or not to keep (recommended) the aspect ratio.



You can also crop an image to a desired size while keeping aspect ratio. Choose **Transform→Aspect Ratio Crop** from the menu, drag the rectangle to frame the part of the image you are interested on and

select the aspect ratio, orientation, width and height (one follows the other according to the aspect ratio selected).

Tip: For electronic publication, the usual aspect ratio is 4:3, while for printing the usual aspect ratio is 3:2.

Usually a size of 640×480 is enough for e-mailing a photo, while 800×600 is enough for web publishing.

5.2.3. EXIF: Digital Camera Photographic Settings

Most digital cameras produce EXIF (Exchangeable Image File Format) files. EXIF provides extra tags containing information about the image such as the date, the camera model, the exposure time, the ISO speed setting, the aperture, etc.



Select the picture, choose Image→Properties from the menu, and select the EXIF tab. Then, select the level of information detail: either Simple (shows the most important settings only) or Full (shows all EXIF information).

To add a comment to a picture select it and press the **F3** key, then fill your Comments (see figure 5-9).

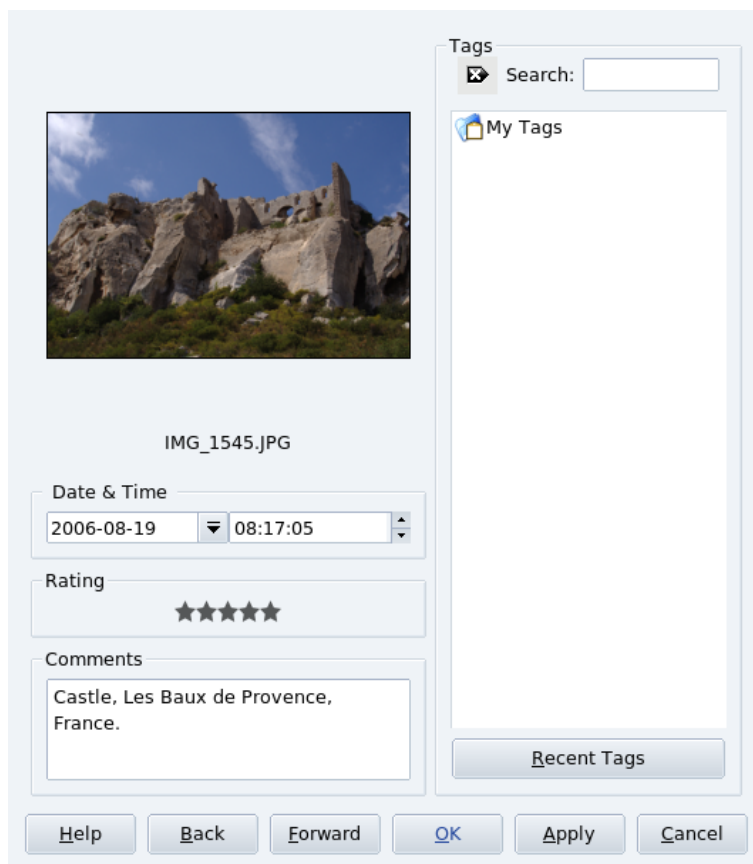


Figure 5-9. Adding an EXIF Comment to a Picture

5.2.4. Web Albums

If you want to share your pictures with your family and friends, you can easily create a “Web Album” of your pictures. Choose Album+Export→HTML Gallery from the menu, select the album options (theme, picture and thumbnails size and format, etc.), finally provide a Destination folder to store the album and click Finish to create it: the album is then opened inside the browser for you to preview it (see figure 5-10). You are ready to upload the album to the web.

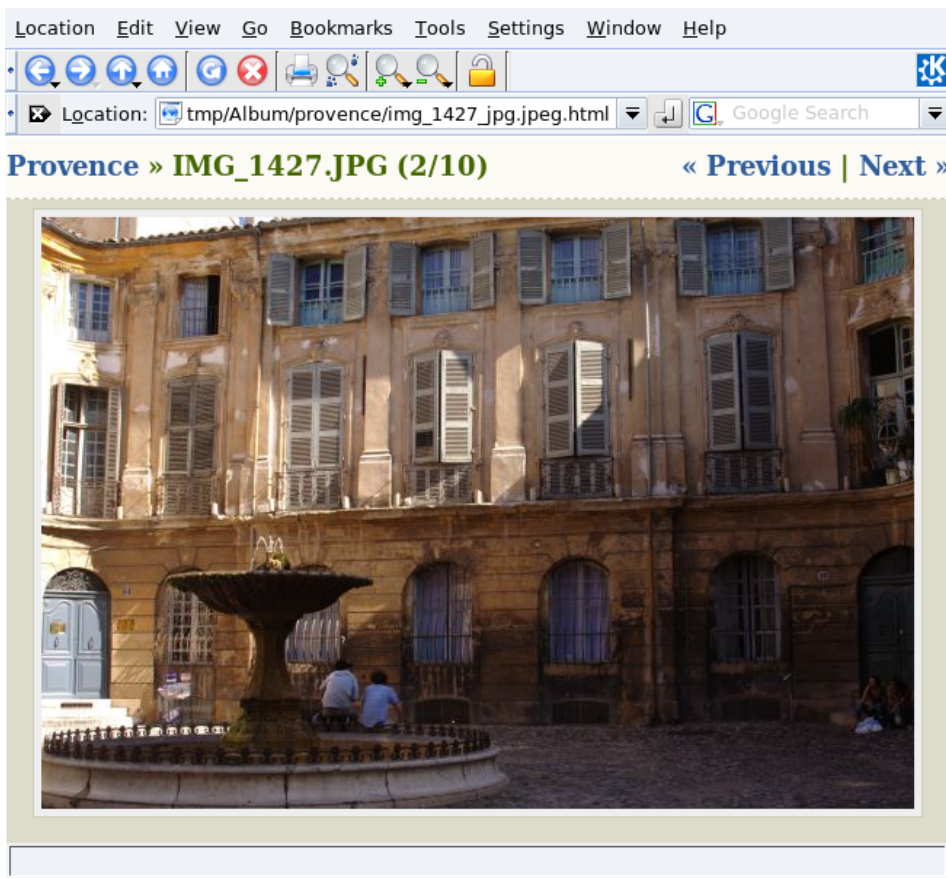


Figure 5-10. Previewing a Web Album

5.3. Scanning Documents and Images

This section explains how to use a scanner with Kooka and GIMP. Please refer to *Installing and Sharing Scanners*, page 98 for instructions to setup your scanner.

5.3.1. Scan Documents with Kooka

While there are many scanning applications available, we chose to present Kooka which is both simple and complete. Make sure the kooka package is installed.

You can launch Kooka through the Multimedia+Graphics→Kooka menu item.

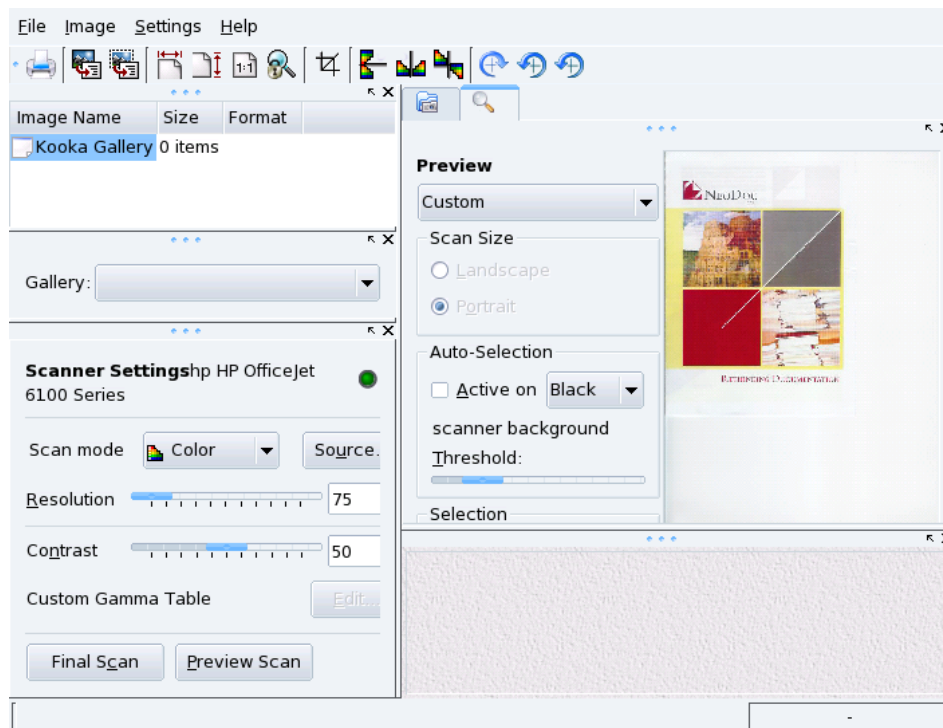



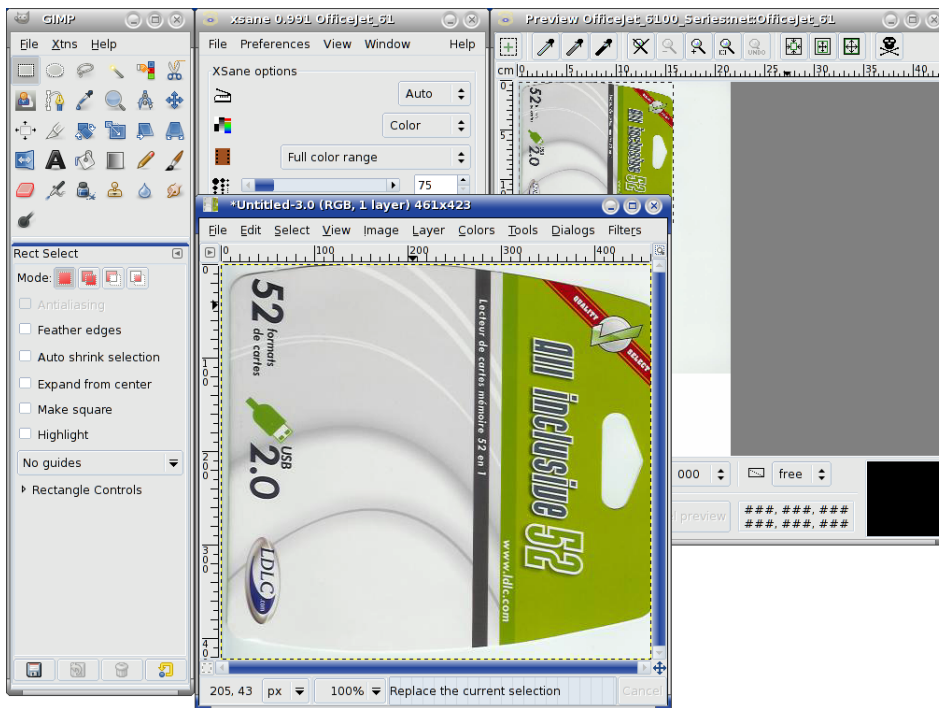
Figure 5-11. Kooka Main Interface

1. Place your document into the scanner, and click the Preview Scan button. The image appears in the right pane.
2. Click and drag your mouse over the preview image to select the area to be scanned
3. Set the scan parameters, especially the Scan mode and resolution.
4. Click Final Scan to launch the actual document scan.
5. In the window that pops up, choose the image format to be used to store that scan. The image then stacks on the images list, top left.
6.  Check the result by opening the final scan tab. You can then change parameters and scan again if required.
7. If all looks fine you can save your image at the location of your choice by right clicking on it in the images list. Remember to clean that list from time to time by deleting items from it.

5.3.2. Scan Images with The Gimp

Install the `xsane-gimp` package to be able to import your images directly into GIMP for image retouching tasks (see *Graphic Art And Image Manipulation*, page 55). Choose File+Acquire→XSane: SCANNER_DEVICE_NAME to launch XSane.

Then, click on Acquire preview in XSane's Preview SCANNER_DEVICE_NAME window, select the area to be scanned by dragging the selection square and its borders around, and click on Scan on XSane window. The image is sent directly to GIMP.



5.3.3. A Note About the Resolution

Most modern scanners boast high resolutions, such as 1200, 1600 or 2400 DPI (Dots Per Inch). But it would be a mistake to perform all of your scanning at the maximum available resolution. You will notice very little — if any — quality difference between a 300 and a 600 DPI image scan, but the file size will grow exponentially, 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 is to be reproduced. For images to be viewed on computer monitors, e.g. for web sites, the resolution should be close to typical monitor resolution values, between 70 and 100 DPI. Higher values will result not only in bigger images, but the dimensions will also increase, so that an image scanned at 160 DPI instead of 80 will be about twice as large³.

If you intend to print your images, a resolution of 300 DPI should be enough for most home printers. Increase this value if you have a very high quality printer.

Higher values should be chosen only for specific uses, such as enlarged images on very high quality printers, or quality scans of black and white originals. You will have to experiment a little until you're satisfied with the results.

5.3.4. Extracting Text from Scanned Documents (OCR)

By installing the ocrad package, you will be able to use Kooka to perform OCR tasks. figure 5-12 shows Kooka with a document scanned as explained in *Scan Documents with Kooka*, page 67.

Tip: For better results, you should set the scanning mode to Lineart and the resolution to no less than 300 DPI.

3. However scanning at a higher resolution and then reducing the resulting image size using graphic manipulation software such as GIMP is one method often used to obtain better results than directly scanning at the desired final resolution.

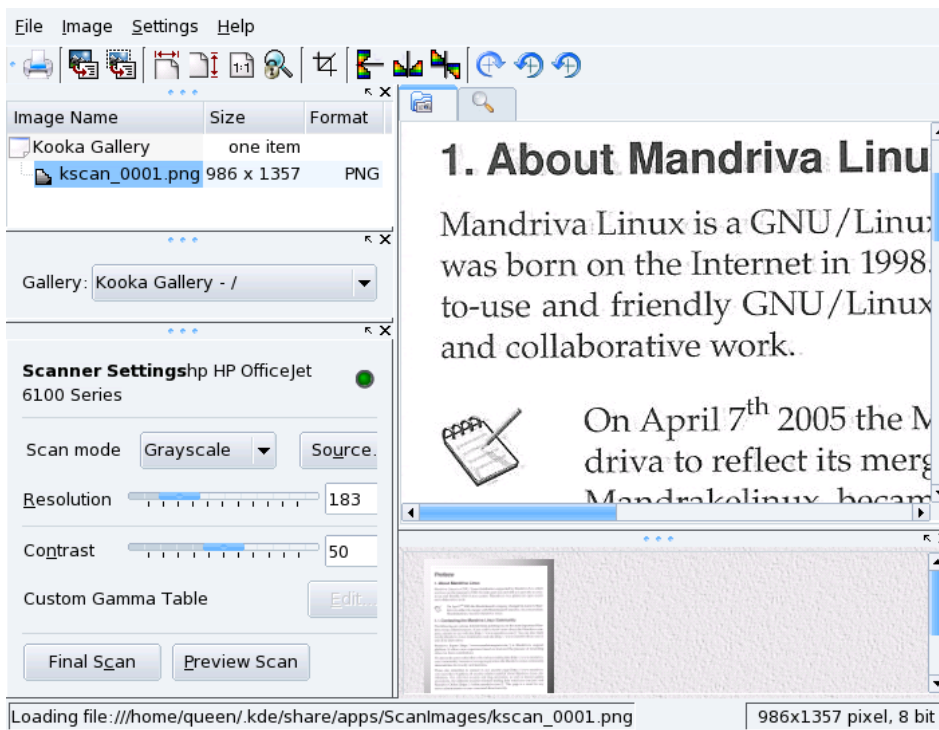


Figure 5-12. Scanned Document in Kooka

Once the document is scanned you can click on this icon (Image→OCR Image) and click on Start OCR. The resulting text appears along with a spell-correction window.

Note: Although it's possible to make ocrad work properly with Kooka you will need to adjust parameters until you obtain a decent rendering. For more information on Kooka please read its handbook (Help→Kooka Handbook).

Chapter 6. Introduction to the Mandriva Linux Control Center

6.1. MCC's Components

The Mandriva Linux Control Center (MCC) enables the system administrator to configure the hardware and the services used by all users in a friendly way.



Access the Mandriva Linux Control Center through the main menu (System+Configuration→Configure Your Computer).

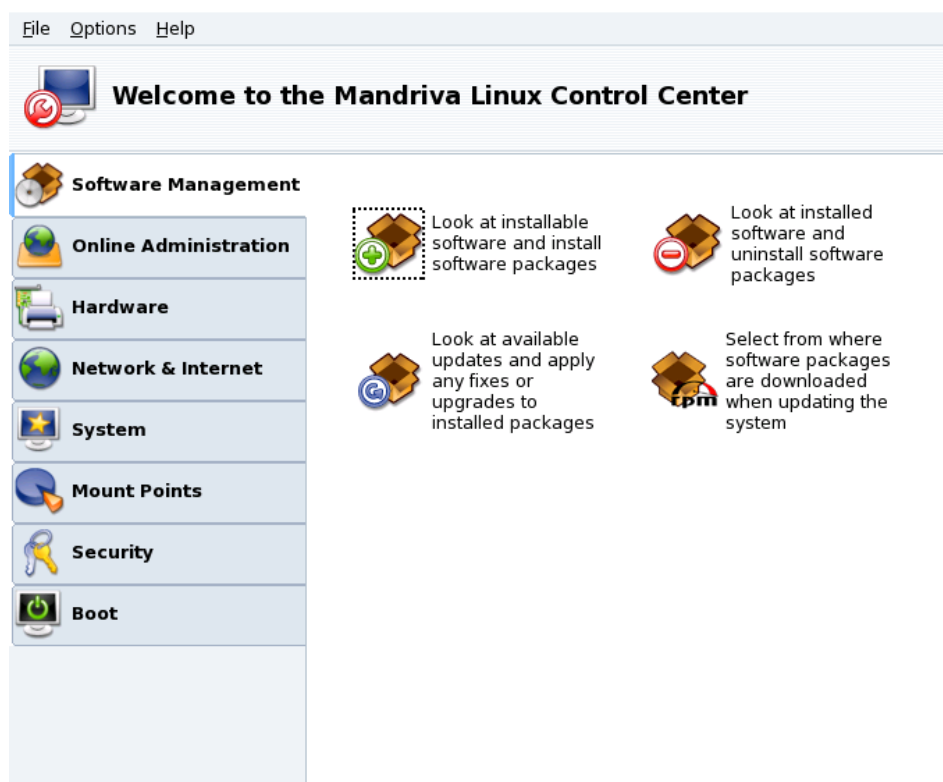


Figure 6-1. The Control Center's Main Window

Here are some of the available menu entries:

- **Options→Display Logs.** When activated this option displays a Tools Logs window. It shows all system modifications made by the configuration tools launched from within Mandriva Linux Control Center.
- **Options→Expert mode.** Gives you access to some of the more advanced tools, which are shown in the table below.
- **Help→Help.** Opens the help browser which displays documentation about the active configuration tool.
- **Help→Report Bug.** Allows you to report a bug to the development team. See *The Drakbug Reporting Tool*, page 73.

The tools are sorted into categories. The following table lists them all and refers to the corresponding sections of this manual.

Software Management	<i>"Package Management"</i> , page 75
Hardware	<i>Configuring your Hardware</i> , page 81
	<i>Controlling the Graphical Configuration</i> , page 82
	<i>Configuring the 3D Desktop</i> , page 86
	<i>Changing your Keyboard Layout</i> , page 87

	<i>Changing your Mouse</i> , page 88
	<i>Configuring Printers with PrinterDrake</i> , page 88
	<i>Installing and Sharing Scanners</i> , page 98
	<i>Setting up your UPS</i> , page 101
Network & Internet	<i>Network and Internet Connection Management</i> , page 103
	<i>Proxy Settings</i> , page 108
	<i>Internet Connection Sharing</i> , page 109
	<i>Activating and Managing Network Profiles</i> , page 108
	<i>Wireless Connections Management (Roaming)</i> , page 112
	Configure VPN Connections: Allows you to setup a Virtual Private Network with a remote VPN server. Protocols supported are Cisco VPN Concentrator and OpenVPN.
	Manage host definitions: If you have fixed IP addresses on your network, this tool allows you to associate names to those IPs, easier to remember.
System	Menu style configuration: This utility allows you to switch the menu style from the “Discovery” one, to the more complete “Mandriva” one.
	Display manager chooser: allows you to choose the X11 display manager for users who graphically log onto the machine. Basically, all display managers offer the same features, it’s just a question of taste.
	<i>Configuring Start-Up Services</i> , page 115
	<i>Managing Fonts on your System with DrakFont</i> , page 115
	<i>Setting your Machine’s Date and Time</i> , page 117
	Select the language and the country or region: This utility allows you to switch the main language of the system, as well as local settings. First choose the language to be used, then the country or region.
	<i>Monitoring System Activity and Status</i> , page 118
	Console: simply opens a terminal to directly enter commands from the administrator account (root).
	<i>Managing Users and Groups</i> , page 119
	<i>Backing Up and Restoring your Files</i> , page 121
Mount Points	<i>Managing your Hard Drive Partitions with DiskDrake</i> , page 129
	<i>Managing Removable Devices</i> , page 130
	<i>Importing Remote NFS Directories</i> , page 132
	Manage NFS Shares: Allows you to create and maintain shares to be mounted by other UNIX® machines on the local network.
	<i>Importing Remote SMB Directories</i> , page 131
	<i>Allowing Users to Share Folders</i> , page 133
	Manage Samba configuration: This tool allows you to manage the folders and printers of your machine shared with Windows® machines on the local network. It also allows you to manage Samba users for shares access control.
	<i>Securing your Internet Access via DrakFirewall</i> , page 140
Boot	<i>Configuring the Login Mode</i> , page 145
	<i>Changing your Boot-up Configuration</i> , page 145
	<i>Customizing your Boot Theme</i> , page 146

Table 6-1. Overview of Graphical Tools

Note: Additionally, the Online Administration category only appears if the `rftdrake` package is installed. This tool allows you to take control of a remote host (Linux/UNIX®, Windows®).

Some other categories appear if the `drakwizard` package is installed. The documentation for those wizards is available on disk as well as in the *Server Administration Guide*. Those wizards enable you to do basic configuration of common LAN services such as web, FTP, mail and database servers.

6.2. The Drakbug Reporting Tool

If you encounter unexpected behavior in Mandriva Linux-specific tools, Drakbug allows you to report it to the development team.

Note: To be able to report bugs using Drakbug, you need a working Internet connection as well as an Drakbug account (<http://qa.mandriva.com/createaccount.cgi>).

To run Drakbug, go to the Help→Report Bug menu entry of the faulty tool, or run it from Mandriva Linux Control Center's own menu. Drakbug can also be triggered automatically by a crashed Mandriva Linux tool.

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To submit a bug report, click on the report button. This will open a web browser window on Bugzilla where you'll find a form to fill in. The information displayed above will be transferred to that server. Things useful to include in your report are the output of `lspci`, kernel version, and `/proc/cpuinfo`.

Select Mandriva Tool:

or Application Name (or Full Path):

Package:

Kernel:

Figure 6-2. Reporting a Bug

1. Identify the Faulty Package

In order to correctly report a bug, it is important to identify the package it is related to. To make this task easier, enter the application name in the Application Name (or Full Path) field and click on the Find Package button.

2. Fill in the Report

Click on the Report button. Your web browser will then open. If you are not logged in to the Mandriva Bugzilla web site (<http://qa.mandriva.com/>) you will be asked to log in (or create an account if you do not have one). Once you are logged on the site, complete the bug report as completely and accurately as possible and click on Commit.

Chapter 7. Package Management

To begin with, a bit of vocabulary.

Package

Software needs to be broken down into different files to ease its development and management. An application ends up being lots of pieces: the binaries, the documentation, the resources the application needs (images, icons, translations, sounds, etc.). A package is the set of all of an application's components, stored in a single file in a way that's very simple to install, update and remove.

Dependency

Applications rely on software libraries or components made by different developers to perform a given set of functions, not part of the main functionality but needed to achieve it. A dependency is a package another package needs in order to work properly. Mandriva Linux's package management tool takes care of all the dependencies automatically.

Update

Software is a living thing: new features are added, existing ones are enhanced and problems (bugs) are fixed. An update is a package which brings in some or all of these enhancements and fixes into an existing application. It is recommended that you check for updates often in order to keep your system in good shape and free from bugs and security threats.

Source

A source is a repository of packages, and the place where packages are installed from. Sources for the media used during system installation are automatically created, you can add your own sources for updates and packages you find on the Internet.

Mandriva Linux uses the RPM packaging system. Mandriva Linux provides convenient tools to simplify package maintenance. The urpmi set of tools is command line based and discussed briefly in *"Package Management From The Command Line"*, page 189; here we will concentrate on Rpm Drake: Mandriva Linux's graphical software installation tool and the Software Media Manager. figure 7-1 shows the Software Management section of Mandriva Linux Control Center.

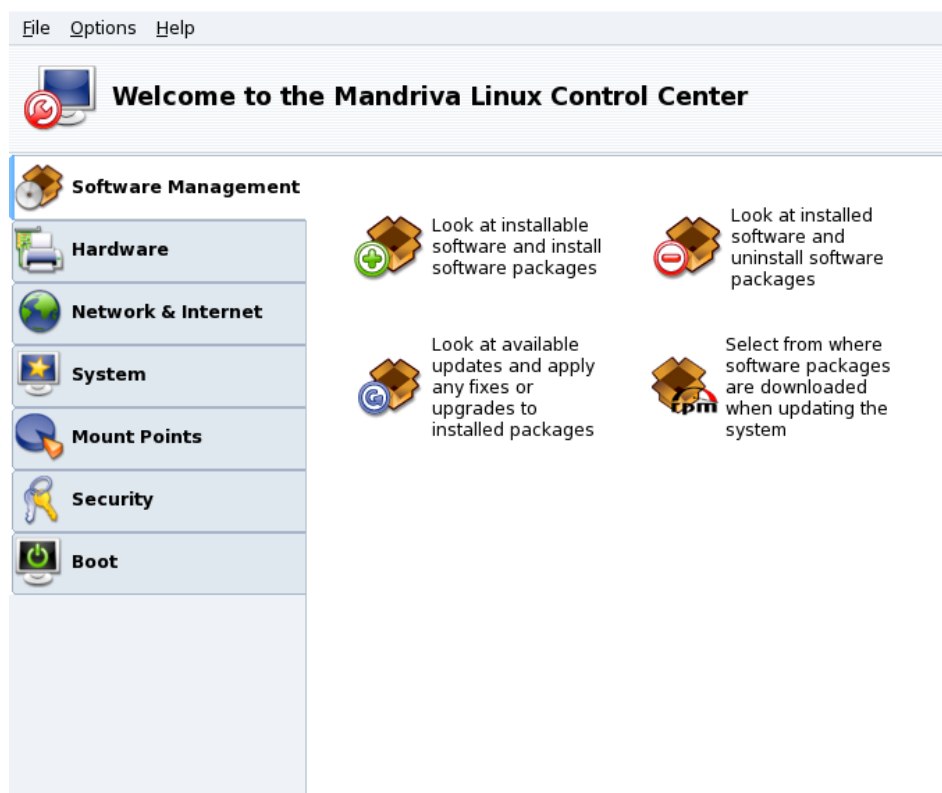





Figure 7-1. Software Management in the Mandriva Linux Control Center

Rpmdrake can be used in one of three modes: install

 , remove

 and update

 , each explained in *Adding, Removing and Updating Software*, page 76. Media management is covered in *The Software Media Manager*, page 78.

7.1. Adding, Removing and Updating Software

When launching Rpmdrake you have to wait a few seconds while the package databases are scanned. Then you are presented with Rpmdrake's main interface.

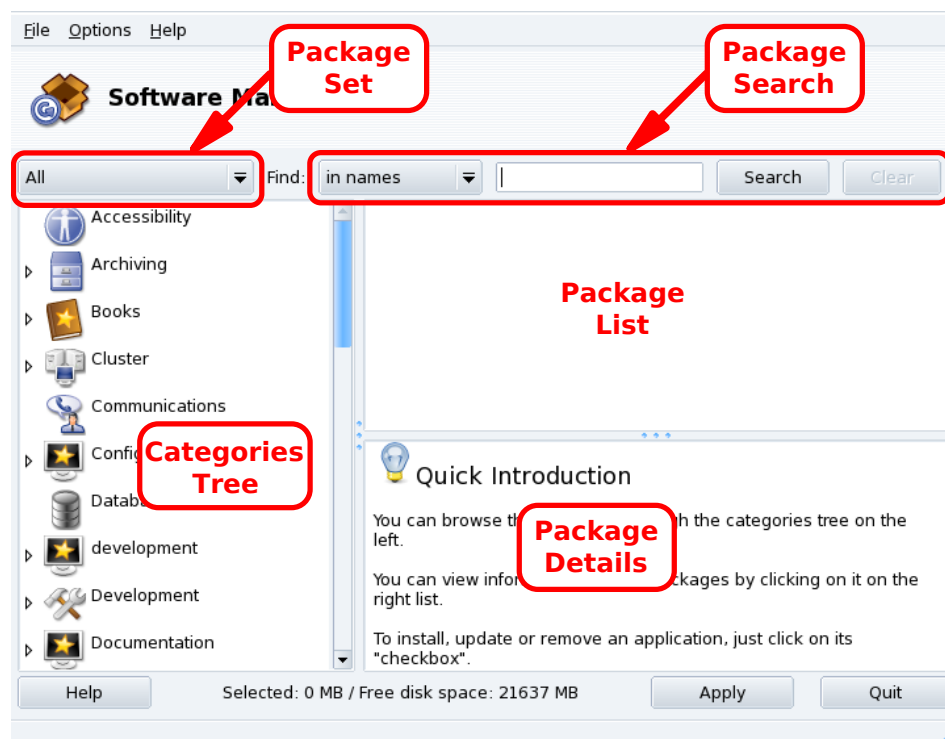


Figure 7-2. Rpmdrake Interface

Package Set. Use this pulldown list to select the types of package to be displayed: all of them (installed or not); only installed ones (to be uninstalled); only uninstalled ones (to be installed); and a few options for updated packages (all, security fixes, bug fixes, normal updates). Each time a package set is selected, the Categories Tree is rebuilt to display matching packages only.

Package Search. If you are not sure about a package name, use this facility to search for it. Type the string to be searched for, select the criteria using the pulldown list, and click Search. You can search for package names (in names), package descriptions (in descriptions) and the package providing a given file (in file names).

Note: If your software media repositories are configured to use the synthesized package lists (the summary `synthesis` files, not the full `hdlist` ones) you will not be able to look for the package providing a given file. You will only be able to search for package names and descriptions.

Categories Tree. To ease management, packages are classified into categories (Networking, Office, Games, Development, Graphics, etc.). Open a category to display packages which match the current criteria set using Package Set and Package Search.

Package List. Where currently matching packages (Set, Category and Search Criteria) are displayed. This is where you select packages to be installed, removed and upgraded.

Package Details. Displays details about the currently selected package in the Package List.

Note: Additionally, a status bar in the lower part of the window displays messages about actions currently in progress or completed.

Actions on Packages

1. Limit List of Packages Displayed

Use the Package Set pulldown list, the Categories Tree and, optionally, the Package Search facility to browse for packages to be installed, removed or updated.

2. Select Packages

In the Packages List, select packages to be installed, removed or updated. If the checkbox by the package name is empty, it means that the package can be installed or upgraded, once selected it will be marked with the



icon. If the checkbox by the package name has the



icon, it means the package is already installed, select it for removal.

3. Apply Changes

Once you are satisfied with your choices, click on Apply to perform the actual install, remove and upgrade of these packages. A new window appears, where you can see the progress of actions being taken. If you prefer to leave without doing anything, you can just click on Quit.

Handling Dependencies

It may happen that you select a package which requires dependencies (additional libraries or another tool) or which is a dependency of other packages. In this case Rpmrake displays an information window allowing you to choose whether to accept the selected dependencies, to Cancel the operation, or to get More info on the operation (figure 7-3).



Figure 7-3. Dependency Alert Box

Alternative Dependencies. You may also want to install a package which requires dependencies, and various packages are capable of providing that dependency. The list of alternatives is then presented (figure 7-4). You may read the additional information presented by clicking the Info... button to help you choose the best alternative.

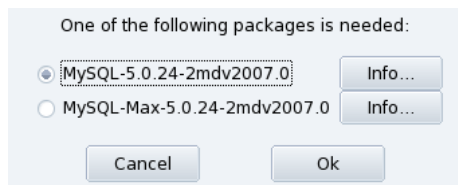


Figure 7-4. Alternative Packages

Note: Due to dependencies, the disk space required by the selected packages might be greater than the size required by the chosen package by itself.

7.2. The Software Media Manager



Use this tool to configure the package media repositories. figure 7-5 shows some media already defined: “Main”, “Contrib”, etc. You can also add other software media: a CD from a magazine containing RPMs, a Web repository, etc.

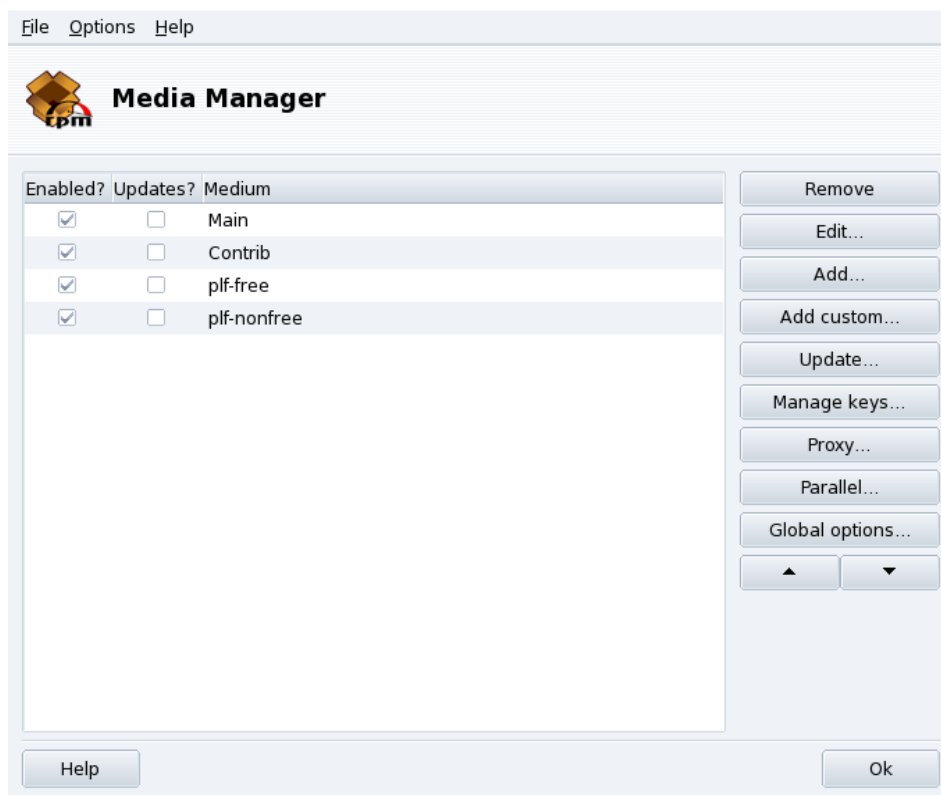


Figure 7-5. The “Software Media Manager”

Use check boxes of the left-hand columns to flag the repositories

Enabled?

Uncheck this box to temporarily disable the corresponding medium. The packages contained in this medium will not be available until you enable the medium again.

Updates?

This box must be checked for update media, that is, media that contains updates of packages that are already in another medium, albeit with an older version number. Thus only update media are taken into account when looking for updates.

Action Buttons on the Right

Remove

Discard a medium which you no longer use. Simply select the medium to be removed in the list and click this button.

Edit

Change the medium's parameters: the URL or the relative path to the `synthesis/hdlist` (if you do not know what we are talking about it is wise to leave this window via Cancel instead of Save changes).

In case you need to pass through a specific proxy to access this particular medium, you can configure it here by clicking on Proxy.

Add

Add to your system all publicly available official package sources from Internet repositories. This is useful for example if you have a fast Internet connection or only have the first installation CD at hand. Choose a mirror geographically near to your location.

After choosing a mirror and clicking Ok, package information for the source you chose is downloaded and all included packages will be available.

Add custom

This button provides access to a new dialog, in which you define all needed parameters for a new software package medium. Please bear in mind that the required parameters, and available options, depend on the type of medium being defined.

Adding a medium:

Type of medium: FTP server

Name: Updates

URL: ftp.free.fr/pub/Distributions_Linu:

☐ Relative path to synthesis/hdlist:

☐ Login:

☐ Password:

☐ Create media for a whole distribution

☒ Search this media for updates

Cancel Ok

Figure 7-6. Adding a Custom Package Repository Media

Update

You are shown a list of already defined, enabled, media; select the ones you want to update the list of available packages for, and click Update. This is useful for remote media to which new packages are being added.

Manage keys

It is important that any package you install is 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 7-7, you can see that the Mandriva Linux key is allowed for medium “Main”. Click on Add a key to allow another key for the selected medium (beware, do this with care, as with all security-related questions), and on Remove key to remove a key from the selected medium.

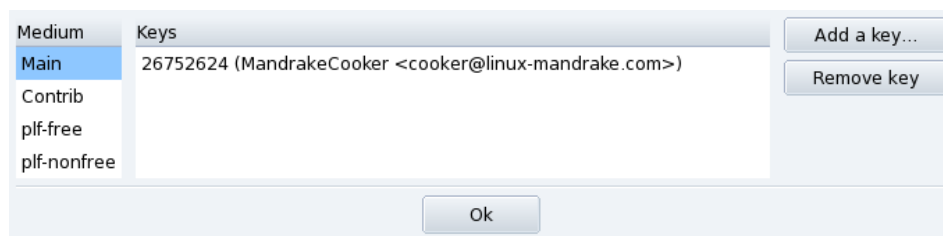


Figure 7-7. Package Repository Authentication Key Management

Proxy

If you are sitting behind a firewall and you still need to access remote media (especially for package updates), 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 7-8). If you need a user / password combination to get through the proxy, you can also specify these here. Just confirm your changes by clicking on OK and you are done.

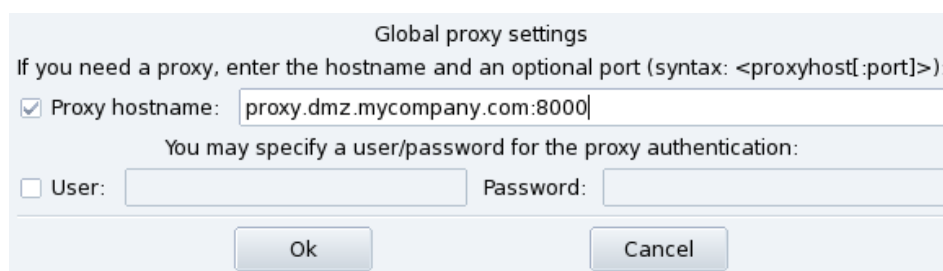


Figure 7-8. Specifying a Proxy for Remote Media

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 opens a dialog window allowing the configuration of the “Parallel” mode. As it is rather complicated and only useful to a limited group of people, this short introduction will not give further details about it.

Global options

This button allows you to configure the program used to retrieve remote packages and whether the packages should be checked against a key. These choices affect all package sources.

Up and Down arrows

These buttons allow changing the order in which sources will be used when installing packages. By default, the newest version of a given package will always be installed, but if the same version is found on two different media, the one from the first medium in the list will be installed.

Tip: Therefore, it is better to move fastest media up...

Chapter 8. Hardware Setup

8.1. Configuring your Hardware

8.1.1. Hardware Detection and Configuration



The HardDrake project has been developed to simplify hardware detection and configuration under GNU/Linux by providing a user-friendly interface.

8.1.1.1. What Is HardDrake?

HardDrake is a service for hardware detection, run at system boot time, and also 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, it can launch configuration tools. With its easy-to-use interface, you can browse all the hardware your system contains.

8.1.1.2. Usage

To launch HardDrake, you can start it through:

- the Mandriva Linux Control Center: click on the Hardware category, and then on the Hardware icon.
- a terminal: type `harddrake2` as `root`. You can also pass parameters to HardDrake through the command line (type `harddrake2 -h` to get a list of possible parameters).
- the desktop: go to the main menu. The HardDrake entry is in the System+Configuration+Hardware→HardDrake sub-menu.

After all devices have been detected, the main HardDrake window appears (see figure 8-1).

On the left, you can see the device tree showing you all of the hardware categories.

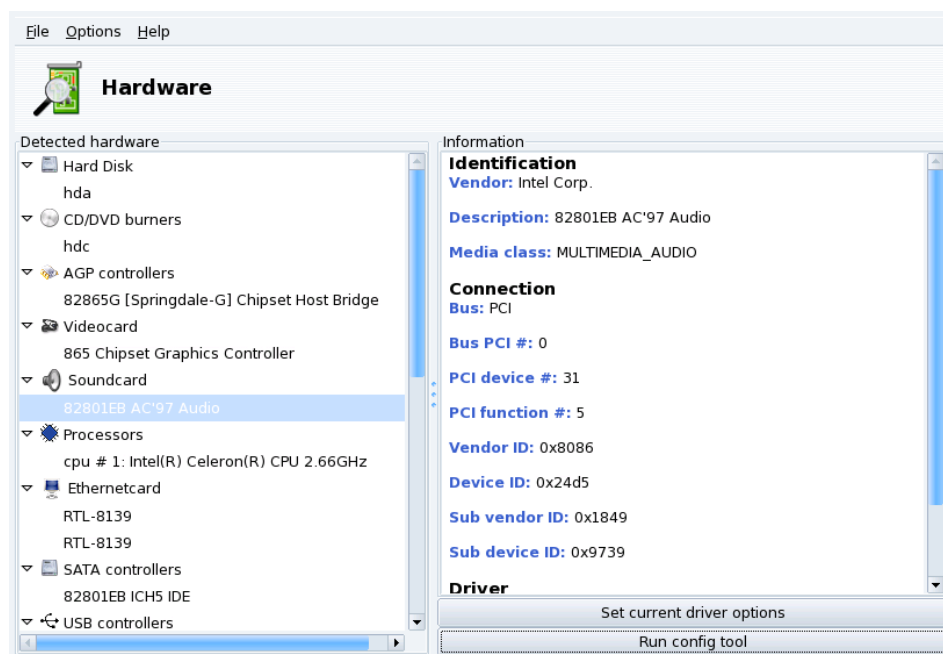


Figure 8-1. Selected Device

By selecting a device, you will see additional information about it in the right frame. To better understand the meaning of the information presented, you can consult the help page accessible by choosing Help→Fields description from the menu.

Depending on the device selected, two other buttons may appear:

- **Set current driver options.** This pops up a window with all the module device parameters listed. **For experts only!**
- **Run config tool.** Launches the Mandriva Linux configuration tool (available through the Mandriva Linux Control Center) associated with that device.

Unknown hardware. A special category called *Unknown/Others* might also show up, containing all the currently unknown hardware in your system, as well as known hardware that does not fit into the existing categories (such as thermal sensors, random number generators, etc.).

8.1.2. Problems/Troubleshooting

If you think you have found a bug related to HardDrake, report it using the Mandriva Linux bug reporting tool (see *The Drakbug Reporting Tool*, page 73).

Sound Cards. HardDrake does not probe for ISA PnP devices. If you have an ISA PnP sound card, run `sndconfig` or `alsaconf` from the command line. You may need to install the `sndconfig` package or the `alsa-utils` package.

8.2. Controlling the Graphical Configuration

This set of tools allows you to configure your graphical display. With it you will be able to change your video card, your resolution and your monitor. It can be useful if you happen to change one of your graphical components after the initial installation.

If you Don't See Graphical Login at Boot: If the graphical server cannot start because of a configuration error, a dialog offers to reconfigure the graphical server. You will get a tool similar to the one described in *Controlling All Video Parameters*, page 84, but in text mode.

The graphical configuration tools are accessible through different icons in the Mandriva Linux Control Center Hardware section.

8.2.1. Changing the Monitor



This tool allows you to change the monitor type currently in use. When you click on it a window pops up, listing many monitor models (see figure 8-2). If your monitor was automatically detected it is listed as Plug'n Play along with its model.

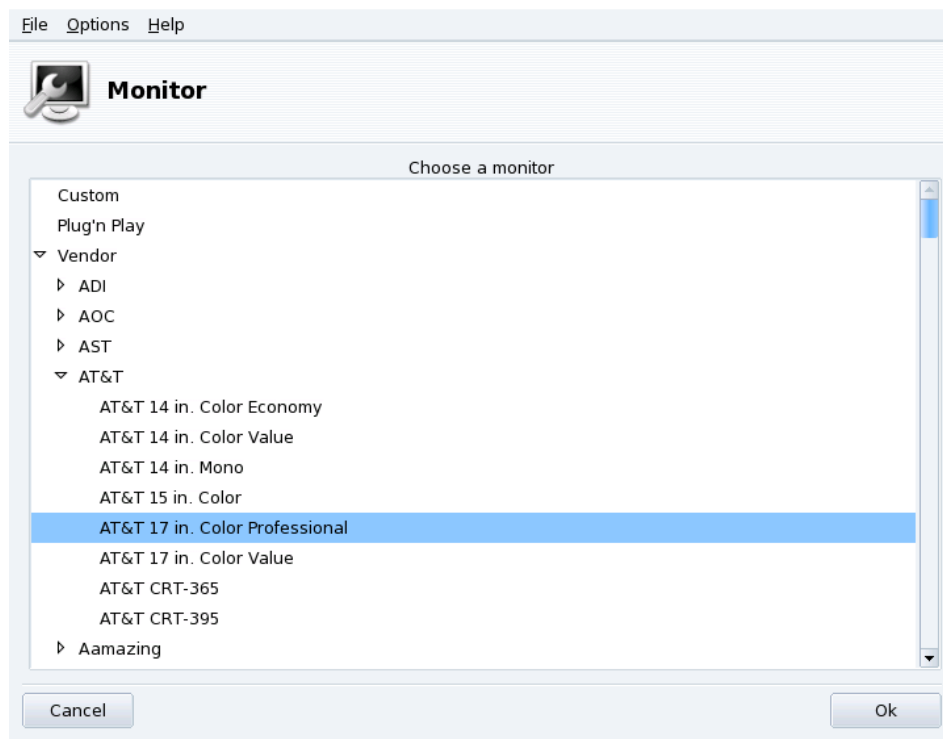


Figure 8-2. Choosing a New Monitor

If your monitor wasn't automatically detected, you can choose it from the list. If you don't find your monitor or a compatible one, choose one with parameters corresponding to your own monitor from the Generic entry, at the bottom.

8.2.2. Changing Resolution



This tool enables you to change the current screen resolution (800x600, 1024x768, etc.) and the color depth. Simply choose the one you wish to use.

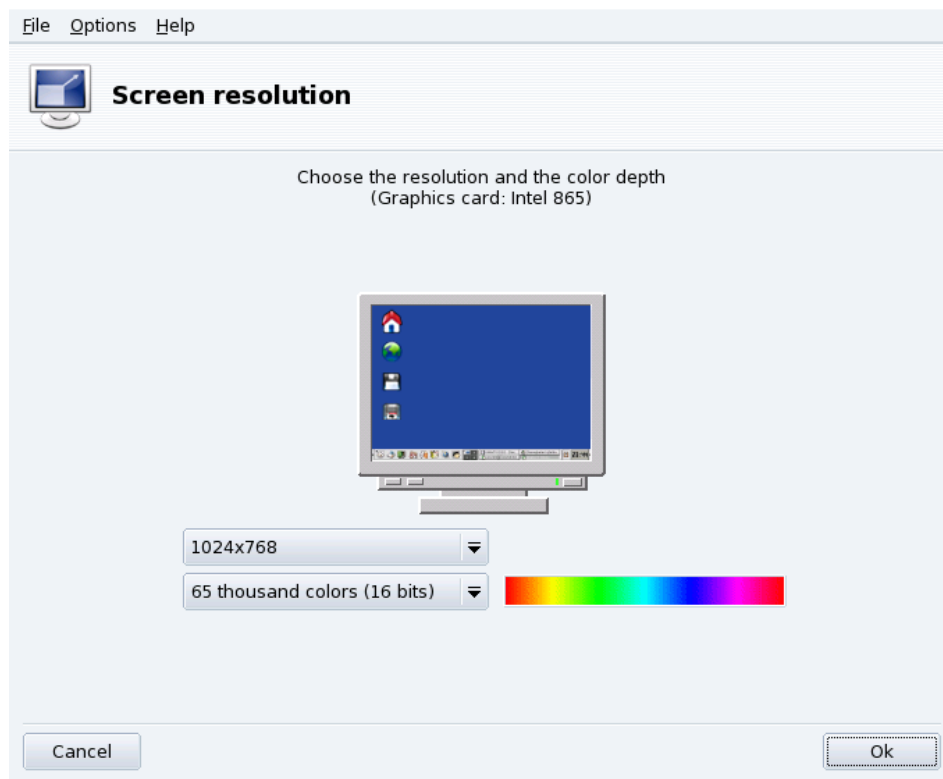


Figure 8-3. Changing the Resolution of your Screen

The monitor in the window displays what the desktop will look like with the chosen configuration (see figure 8-3). If it looks good, click on OK. The changes will be activated after you quit and restart your graphical environment.

Monitor and Resolution Ratio. By default, the available resolution list only shows resolutions supported by your video card and monitor combination. There is a special entry named Other which adds more possible resolutions along with their ratios. Bear in mind that most monitors are designed with a 4 : 3 horizontal vs. vertical ratio.

8.2.3. Controlling All Video Parameters



If you happen to change your video card after installing your system, or want to have full control over the graphic configuration, run this tool.



Figure 8-4. XFdrake Main Window

The first three buttons allow you to change certain aspects of the graphical 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.

In case you cannot find the graphic card you have, but you know which driver supports it, select it from the Xorg entry at the bottom.

Monitor

Enables you to change the monitor with the tool described in *Changing the Monitor*, page 82.

Resolution

Enables you to change the pixel resolution and the color depth with the tool described in *Changing Resolution*, page 83.

Changing the Resolution Using the Desktop Applet: If you are using KDE you can also change the screen resolution on the fly by using the screen resize applet, accessible choosing System+Configuration+Hardware→KRandRTray from the main menu.

Then, there are more buttons:

Test

Click on this button to verify that your modifications actually work. It is highly recommended that you do test it, because if it does not work, it will be harder to recover a working graphical environment later. If the test fails simply wait until it ends. If you are not satisfied with the suggested settings, choose No during the test, and you will be returned to XFdrake's main menu.

If the Test is Not Available: Depending on your video card, video testing may not be available. You will be warned of such a situation. If it happens that the settings are incorrect and your display does not work, launch XFdrake as `root` in the console to use XFdrake's text version.

Options

Graphic card options

Depending on your hardware capabilities, you can choose here to activate or disable specific features such as 3D acceleration or special visual effects (translucency).

Graphical interface at startup

This option allows you to choose whether you want your machine to automatically switch to a graphical interface at boot. Obviously, you may want to select the No option if your machine is to act as a server, or if you were not successful in getting the display configured.

Quit

If you modified your graphical display in some way, the current configuration will be displayed and XFdrake will ask you whether you want to keep your changes or not. This is your last chance to go back to the old configuration. If all seems OK, click on Yes. If you wish to restore the previous parameters, click on No.

The changes will be activated after you confirm them and restart your graphical environment.

8.3. Configuring the 3D Desktop



This tool, accessible from the Hardware section of Mandriva Linux Control Center, lets you configure the “3D desktop” for stunning visual effects on your desktop, together with a change from a flat desktop to a cubic one.

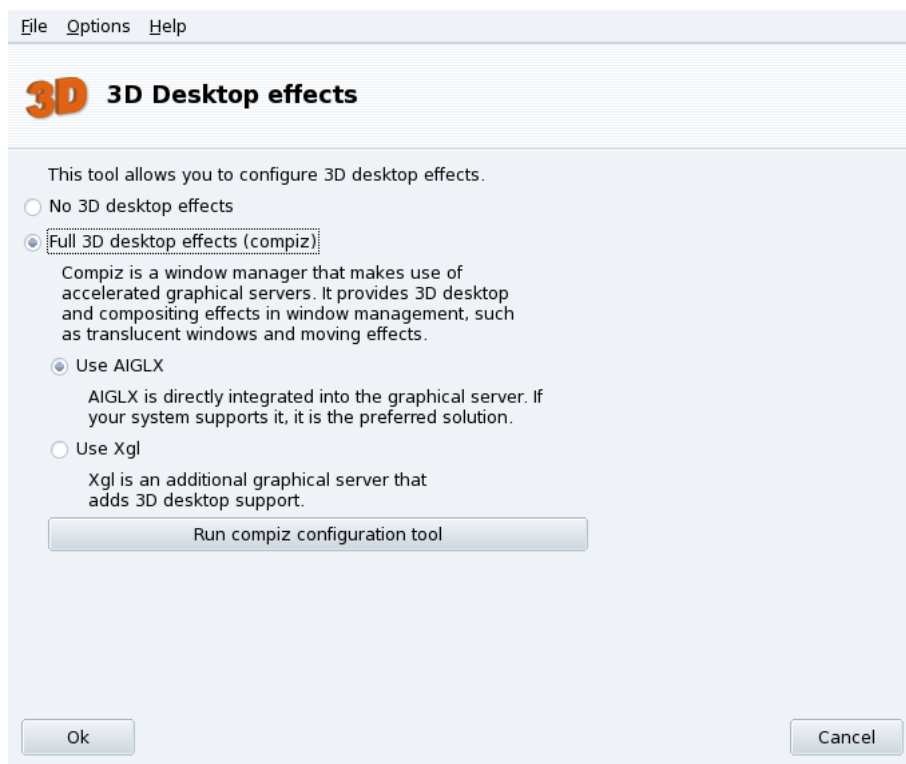


Figure 8-5. Activating 3D Desktop Effects

Activate the 3D Desktop

1. The first time you run Drak3D a few required packages may be installed; then you are presented with its main window (see figure 8-5).
2. Select the Full 3D desktop effects (compiz) option to enable the 3D desktop. There are two approaches: AIGLX and Xgl, Drak3D selects the most appropriate one for you according to your hardware.
3. Click Run compiz configuration tool to fully customize every single aspect of the 3D desktop support, a new window appears for you to set all parameters to your liking.

About desktops: Once the 3D desktop is active, the number of virtual desktops as shown by the desktop manager (KDE or GNOME) will be reduced to one. You now have instead viewports (the cube faces) for your virtual desktops, explore and enjoy them!

4. Once you are satisfied with your settings, apply them by clicking Ok; they take effect the next time you enter your graphical session.

Disable 3D. Select the No 3D desktop effects option to disable the 3D desktop completely, and return to your “flat” desktop.

8.4. Changing your Keyboard Layout



This tool allows you to define another keyboard layout, useful when the keyboard you want to use is different from the one chosen at installation time.

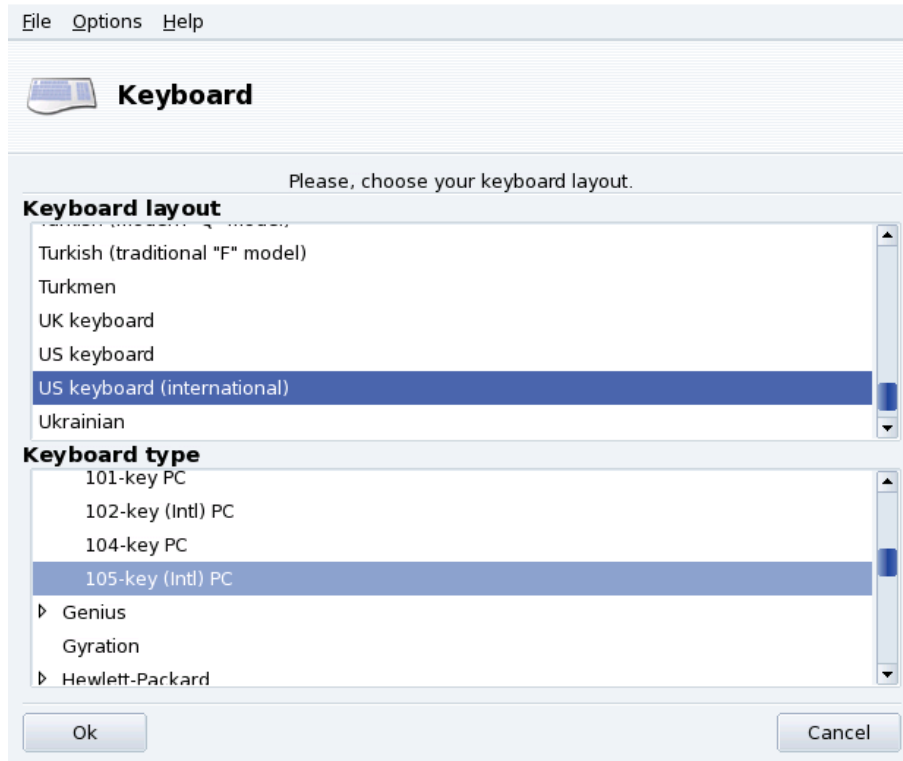
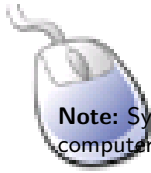


Figure 8-6. Choosing a Different Keyboard Layout

Select your keyboard’s language and then its model from the lists shown in figure 8-6. If you own a multimedia keyboard and it is listed in the manufacturer list, chances are most multimedia keys on it will be supported. Otherwise, choose your keyboard type under the Generic branch. Changes are effective immediately after clicking OK.

Note: If you choose a keyboard layout based on a non-Latin alphabet, the next dialog will ask you to choose the key combination that will switch the keyboard configuration between the Latin and non-Latin layouts.

8.5. Changing your Mouse



This tool enables you to set up a different mouse, which is useful if the mouse you are currently using is not the same as the one you chose at installation time.

Note: Synaptics Touchpad function is automatically configured to work with almost every touch pad found on notebook computers. The same goes for Wacom® tablets.

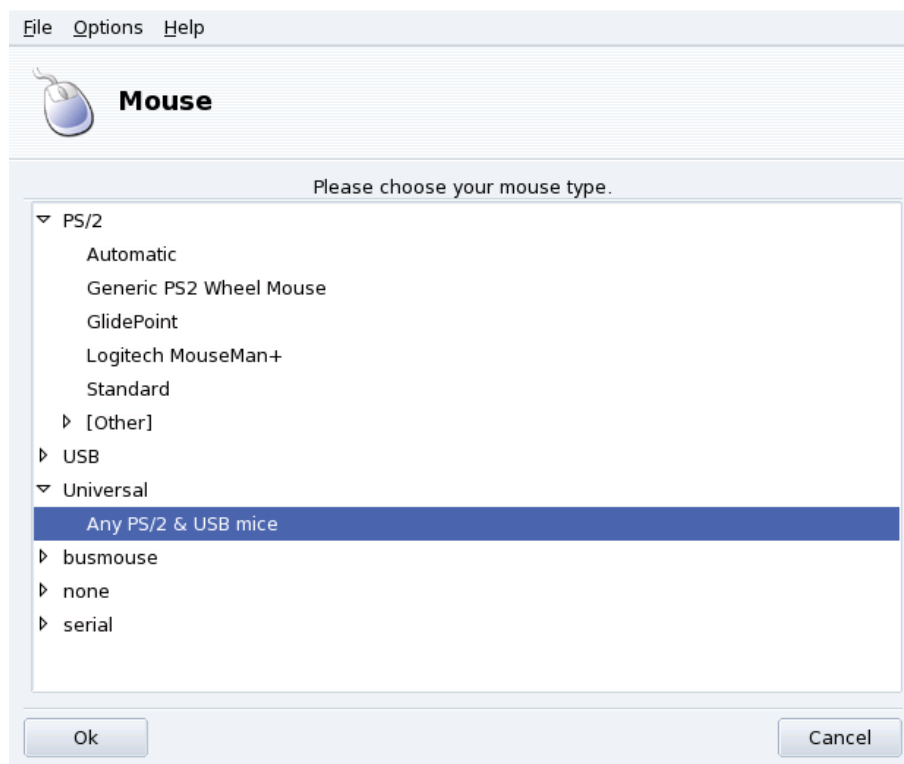


Figure 8-7. Choosing a Different Mouse

Mice are sorted into a tree according to their connection type and model (see figure 8-7). Highlight the mouse of your choice and click OK. Changes take effect immediately after the mouse test is done.

Tip: The Any PS/2 & USB mice option works with virtually all modern mice.

8.6. Configuring Printers with PrinterDrake



This tool allows you to:

- Configure a newly installed printer;
- configure your machine to act as a server for a printer connected to your local network;
- set up your machine to access network printers served by other servers.

8.6.1. Automatic Installation

If you connect and power on a USB printer, a dialog pops up.



Figure 8-8. A new Printer was Detected

Deactivate Automatic Detection. If you don't want the "automatic setup" popup to show again, check Do not setup printer automatically again.

Then just click Ok, all required packages will be installed, and the printer configured for you to let you use it right away: nothing else to do!

Configuration. It is however recommended that you check the printer default parameters, especially paper size. To do this launch PrinterDrake from the Mandriva Linux Control Center and follow the instructions from *Reconfiguring an Existing Printer*, page 96.

8.6.2. Manual Configuration

Tip: If you have just installed a printer that wasn't available when you installed Mandriva Linux, make sure it is correctly connected and powered on before launching the configuration tool.

When you first launch the PrinterDrake tool, it may be in one of these states:

8.6.2.1. There is no printer directly connected to the computer.

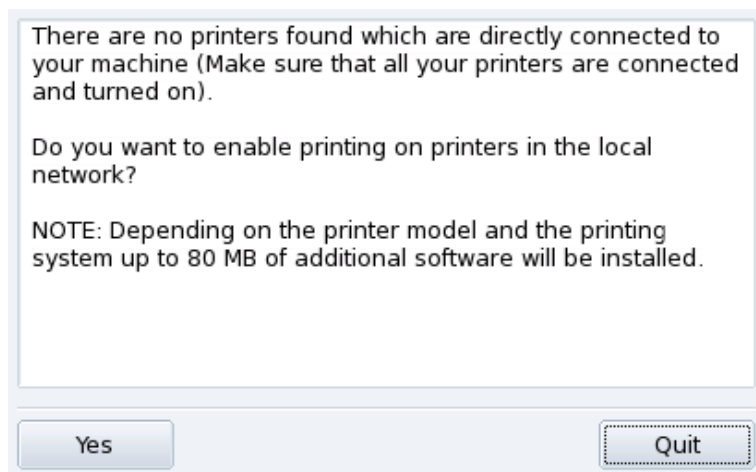


Figure 8-9. Activate Printing

The tool did not detect any local printers. However you can print on network printers, or manually installed printers which weren't detected by clicking on Yes.

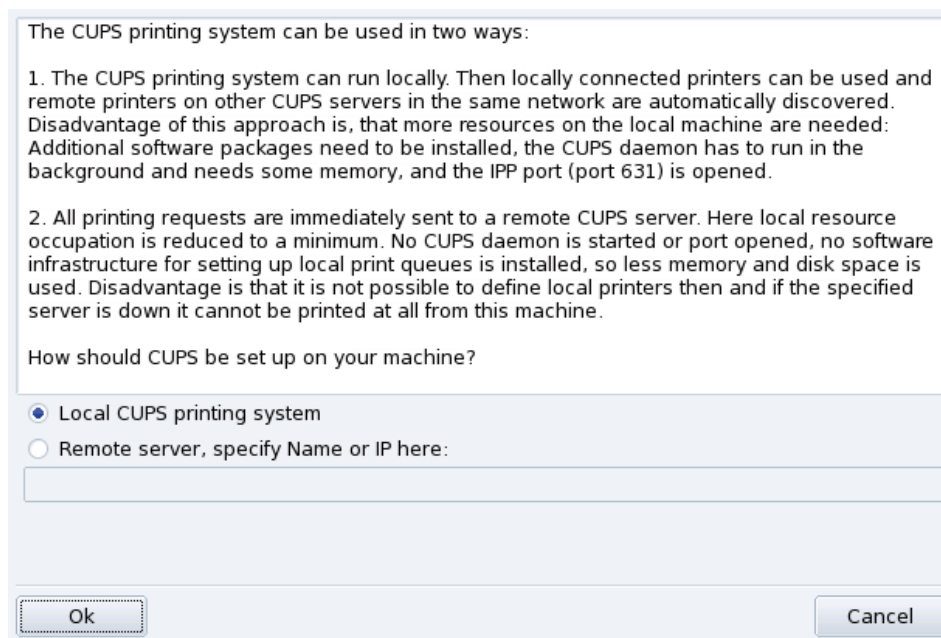


Figure 8-10. Activating Network Printers

- Select the Local CUPS printing system option if you wish to configure your machine to act as a print server for either a local printer which was not detected, or a networked printer connected to your local network. Any required software will be installed and then the main configuration interface (see figure 8-12) appears. Click on Add Printer to install the network printer.
- Select the Remote server option if you wish to be able to print on printers served by another CUPS print server on the network. Your applications will immediately have access to all public printers served by that server. You only need to provide the hostname or IP address of that server in the field (ask your system administrator).

When this is done, the main configuration interface (see figure 8-12) appears. The Configured on other machines tab will be filled with the available network printers.

8.6.2.2. New Printer Detected

The following window appears when PrinterDrake detects a new printer at launch time.

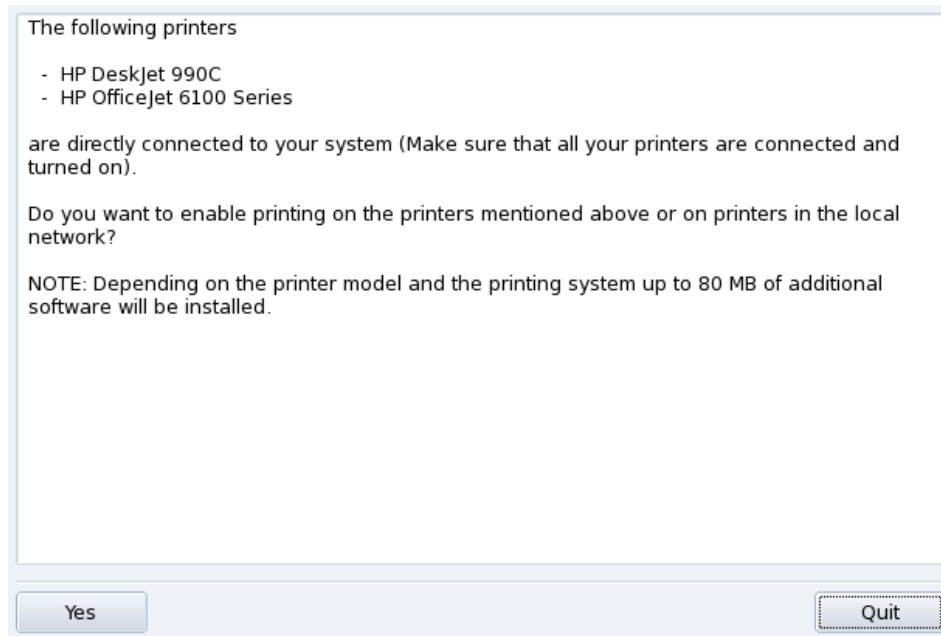


Figure 8-11. A New Printer Is Detected

Simply confirm the automatic installation of the new printer. The main configuration interface (see figure 8-12) is then displayed. Make sure you check that the printer parameters fit your needs (see *Reconfiguring an Existing Printer*, page 96).

8.6.2.3. A Printer is Already Configured

The main configuration interface (see figure 8-12) is shown. Make sure that the printer parameters fit your needs (see *Reconfiguring an Existing Printer*, page 96).

8.6.3. The Printer Management Interface

Local and Remote Printers. Use the printer configuration tool's first tab for locally connected printers (Configured on this machine), and the other tab for printers available on your local network (Configured on other machines).

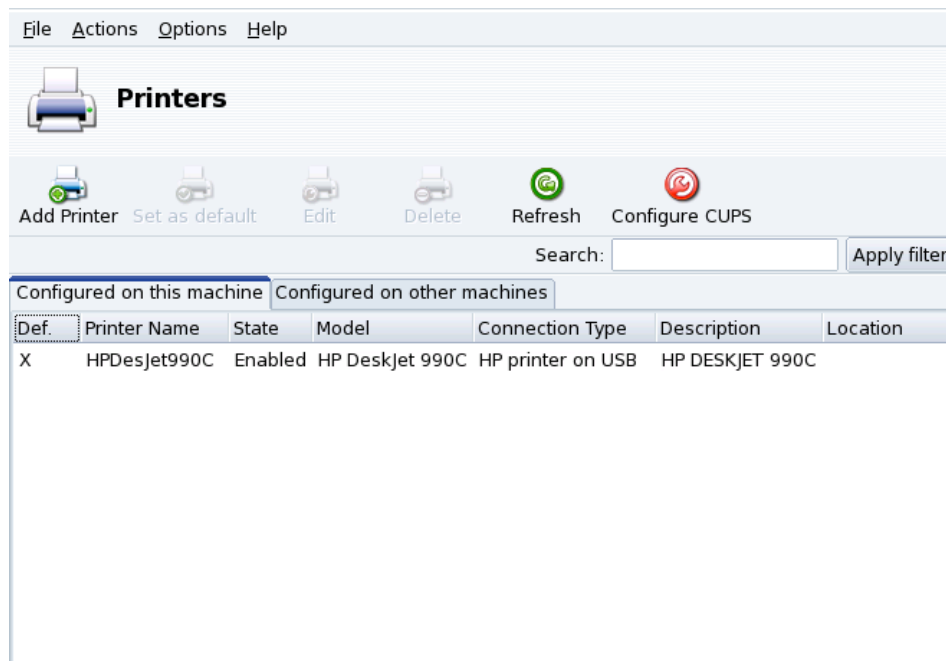


Figure 8-12. Managing Printers

The following buttons give you access to all available maintenance tasks:

- **Add Printer:** launches the printer configuration wizard described in *The Printer Configuration Wizard*, page 95.
- **Set as default:** sets the selected printer as the default printer when no specific printer is chosen at print time. A cross appears in the Def. column of that printer.
- **Edit:** opens the printer configuration dialog described in *Reconfiguring an Existing Printer*, page 96.
- **Delete:** removes the selected printer from the available printer pool.
- **Refresh:** updates the list of available printers, especially useful for networked printers.
- **Configure CUPS:** by default, your system is open. PrinterDrake uses all of the network's available printers and shares all of its local printers with the local network. Click on this button if you don't want to access network printers, or if you want to restrict the access to your local printers. This dialog also lets you configure access to print servers outside the local network (see *Print Server General Configuration*, page 92).

Note: The Options→Expert mode menu adds extra features to the tool. See *Expert Mode*, page 98.

8.6.4. Print Server General Configuration

The Configure CUPS button allows you to control the behavior of printers connected to your machine and to your network.

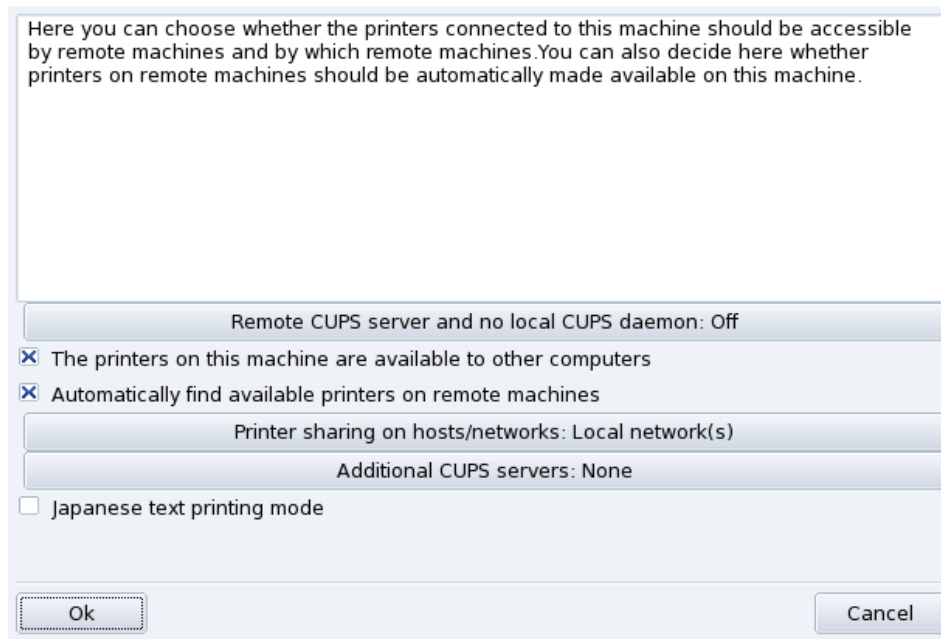


Figure 8-13. CUPS Printer Server Configuration

This dialog enables you to switch between the client and server printing modes through the Remote CUPS server and no local CUPS daemon button.

This button enables you to select between two remote server access methods.

In the first method your server **must** have a CUPS daemon running and be listening on port 631 in order to manage the print queue and to listen for jobs coming in from applications. In this case the CUPS server broadcasts its presence to the entire network. This is the default configuration.

In the second method, the CUPS daemon is still required to manage the queue and to handle jobs coming in on port 631, but it does not broadcast its presence to the network. In this case the clients do not need to run a CUPS daemon, instead they have a configuration file which contains the IP address of the server. In this way the clients know they can send jobs directly to the IP address.

	Advantages	Disadvantages
Method 1	No client configuration required	Runs with at least one open port and consumes extra machine resources
Method 2	No local printing system. No open ports	If the IP of the server changes or the client changes to another network, then reconfiguration is required.

Table 8-1. Considerations

8.6.4.1. Client Mode

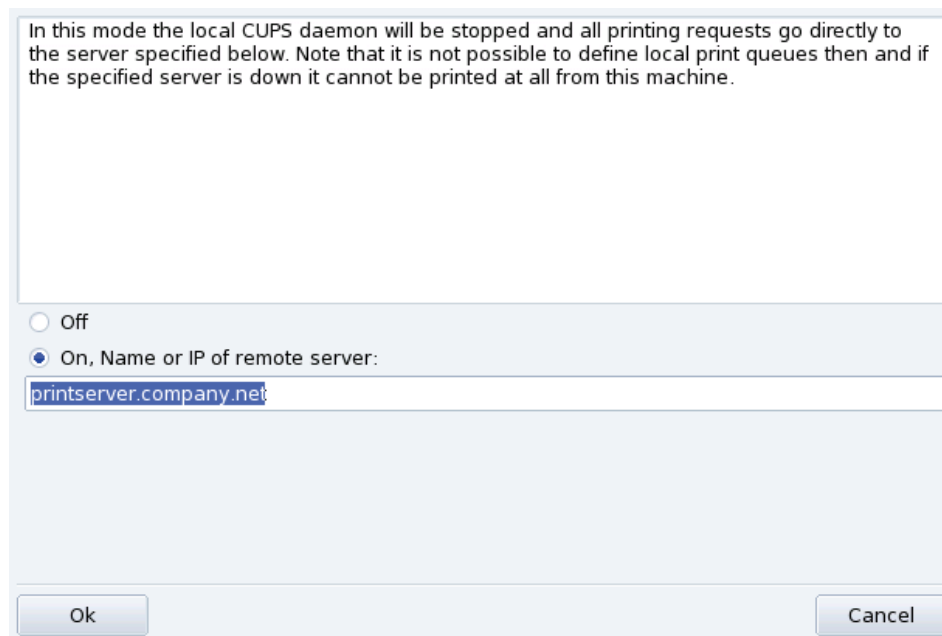


Figure 8-14. Client Mode Configuration

Select the On option to connect to another printer server. Then you only need to specify the name or IP address of that server in the next field below.

If you choose this mode, your printing configuration is now finished. Accept the options by clicking the OK buttons, and you will be able to check the list of available printers in the Configured on other machines tab of the main interface (see figure 8-12).

8.6.4.2. Server Mode

If you want your machine to access locally connected printers (through parallel or USB ports), or network printers not already configured on another server, you need to select the Off option. Click OK to fine tune your printer server (see figure 8-13).

A number of options are available to further secure and enhance your print server features:

The printers on this machine are available to other computers

Allows other computers to print on printers configured locally. Remember to restrict access by clicking on Printer sharing on hosts/networks (see below).

Automatically find available printers on remote machines

Tells your print server to automatically make all printers found on other servers available to the local network, as if they were locally connected to your print server. This way your system's users are able to print on any printer the print server can "see". If the remote printers you intend to use are served by a server not on your local network, you can still tell the print server to use them with the Additional CUPS servers button (see below).

Printer sharing on hosts/networks

Allows you to specify from which networks the local printers are made available.

Additional CUPS servers

Allows you to specify one or more CUPS servers to which you can connect and access printers. Specify the IP address and port of the CUPS server in the dialog.

Japanese text printing mode

Replaces the original text filter for one more suited to Japanese texts, but with less features. Use it if you have to print Japanese text-only files.

8.6.5. The Printer Configuration Wizard

Click on Add printer and the configuration wizard comes up.

8.6.5.1. Detect Printers or Specify Access Path

The first step serves to either specify an access address to a network printer, or to activate auto-detection of locally connected printers, network printers, and finally printers served by SMB (Windows®) servers.

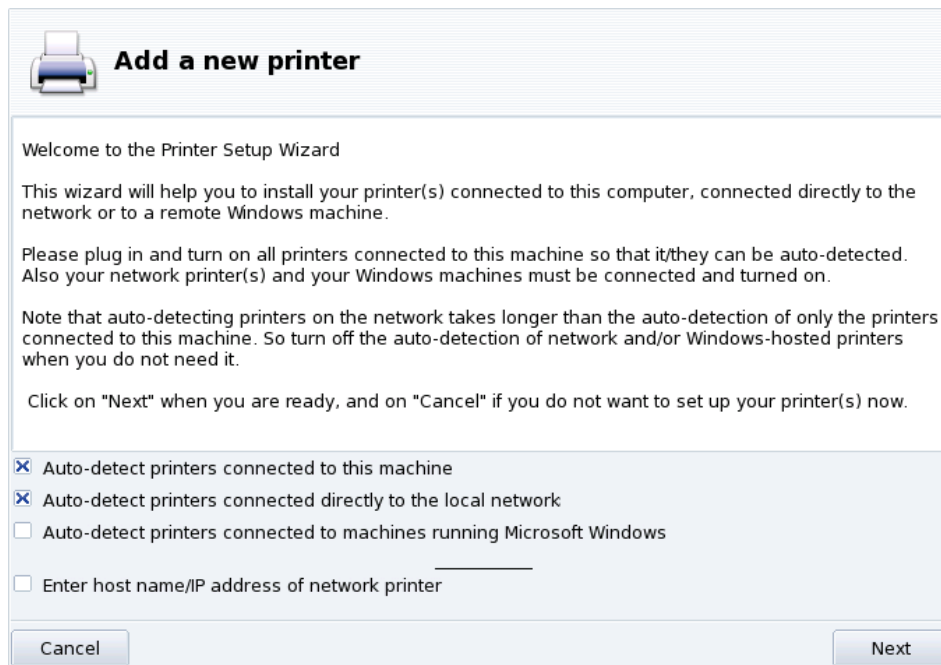


Figure 8-15. Printer Type

Specifying the Location. If you happen to know all parameters required to access a specific network printer, select Enter host name/IP address of network printer. Configuration steps are then similar to the ones involved in auto-detection procedure.

8.6.5.2. Choose the Printer

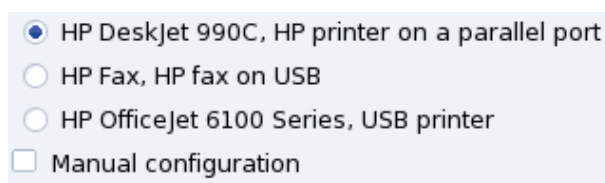


Figure 8-16. Detected Printers List

1. Choose the Printer to be Configured

Select the printer you want to add from the list of detected printers. If the detected printer isn't the correct one check the Manual configuration box and proceed with the printer model step. If autodetection fails, remove the check mark from all check boxes, click on Next and follow the instructions below.

2. Specifying the Driver Manually

PrinterDrake displays your printer's model name. Choose **Select model manually** if it's incorrect. Select the printer you have or a compatible one (see *Choose the Printer*, page 95) if yours is not specifically listed.

3. Manufacturer-Supplied Driver

If you want to install the driver supplied by your printer manufacturer, click on the **Install a manufacturer-supplied PPD file** button and select the medium containing the PPD file and browse to it. Accept subsequent dialogs to use your chosen PPD file.

4. HP Multifunction Devices

If you own a multi-function device such as those of HP or Sony, an information window pops up and gives you information about your scanner and scanner software (*Installing and Sharing Scanners*, page 98). Additional required packages are also installed.

Fax Virtual Printer. If your device also provides fax functions, you are given an option to create a virtual fax printer that will actually queue the printed documents so they can be later sent via fax. See *Through an HP Multifunction Device*, page 39 to learn how to send faxes.

5. Optional Configuration Step

If your printer has optional add-on devices (finishers, extra paper trays, etc.), you are asked which features are actually installed.

8.6.5.3. Printer Test

Several test pages are available (see figure 8-17). We recommend you print at least one test page so you can immediately correct the parameters if something is incorrect. The printer should begin to print almost immediately.



Figure 8-17. Testing the Printer

8.6.5.4. It's Done

If you're not satisfied with your test page, answer the appropriate question with **No** and you will be led to the printer configuration menu (see figure 8-18) where you can correct the settings. See *Reconfiguring an Existing Printer*, page 96.

Your printer will now appear in the list of available printers in the main window (see figure 8-12).

8.6.6. 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 (figure 8-18). You can change the printer name, options, etc.

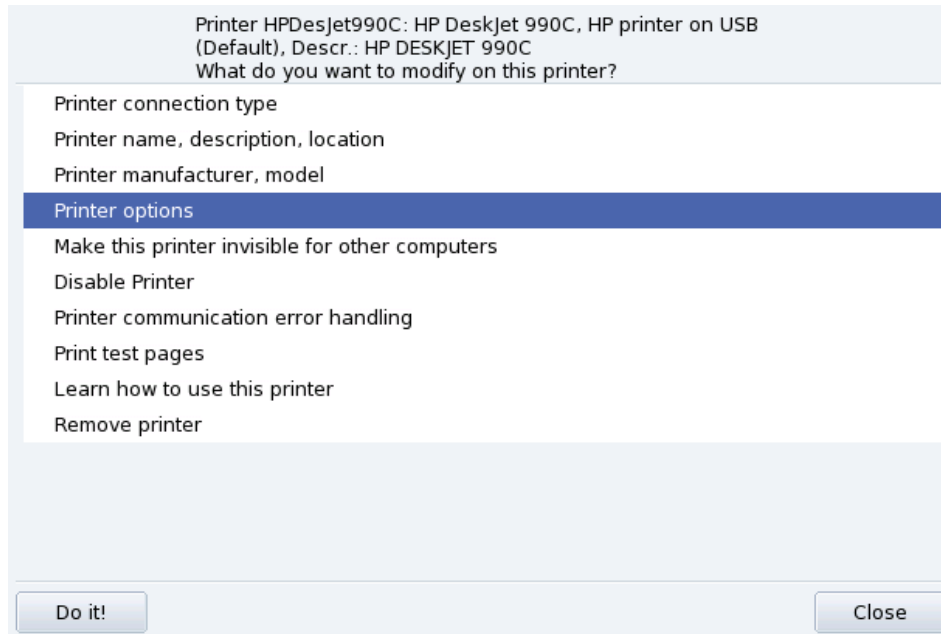


Figure 8-18. Modifying an Existing Printer

Here are some of the most useful entries:

- **Printer name, description, location.** If you have many printers around it is better to give them explicit names, and meaningful descriptions, plus a location so people don't end up looking desperately for their printouts in many floors.
- **Printer Options.** Shows the different options available for that printer (paper size, printout mode, etc.), so you can set a default value for them.
- **Make this printer invisible for other computers.** Printers are normally made available to other computers in the local network. Using this option you can disable this behavior for the currently selected printer.
- **Disable Printer.** Use this option to remove a printer from those to the system's users. You might need to temporarily disable a printer under maintenance so that users don't try to use it in the meantime. When a printer is disabled, that option changes to Enable printer.
- **Learn how to use this printer.** Displays information on how to use a particular printer model. In the case of a multi-function device from HP, additional information for the "extra" functions is also displayed.
- **Remove printer.** Deletes that printer's configuration from the system.

Select an action in the dialog and then click on the Do it! button to perform it.

8.6.7. Controlling Automatic Installations

Open the Options→Configure Auto Administration menu to go to the automatic installation options form.

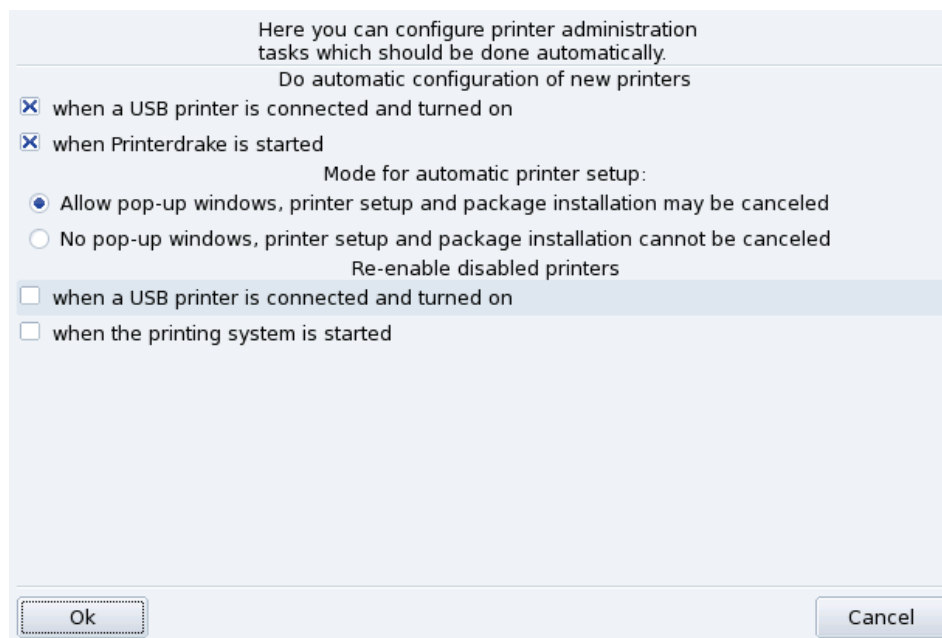


Figure 8-19. Set Automatic Installation Options

You can here configure whether new printers should be automatically detected, automatically configured, etc.

8.6.8. Expert Mode

The expert mode activates additional features in the application.

More Technical Installation Wizard. The installation wizard displays more technical information and allows you to configure printer name and other options directly from within the wizard.

Choose a Different Printer Driver. Different drivers are available for the same printer. In expert mode, a third level appears in the printer model selection list (see *Choose the Printer*, page 95) letting you change each printer's driver.

No Automatic Configuration. If PrinterDrake is in expert mode, it doesn't automatically configure new local printers on start-up. Use the Add printer button to configure the printer. However you can choose to Configure Auto Administration from the Options menu to override that behavior.

Automatic correction of CUPS configuration. This new option appears in the CUPS server configuration window (figure 8-13). It is activated by default. Leave the mouse over the option name to get more information about what it does.

8.7. Installing and Sharing Scanners



The ScannerDrake wizard helps you install your scanner. Make sure your scanner is powered on and launch ScannerDrake by clicking on the Scanners entry of the Mandriva Linux Control Center's Hardware section.

Tip: Please note that not all scanners are supported under GNU/Linux. Before buying new hardware, remember to check out Mandriva's Hardware Database (<http://hcl.mandriva.com>) and the SANE home page (<http://www.sane-project.org/>) for compatibility issues.

8.7.1. Main Interface and Scanner Installation

The program tries to detect your scanner's manufacturer and model. If it finds the scanner then information about it is displayed in the upper part of the wizard's main window. The window also offers a few action buttons (figure 8-20).

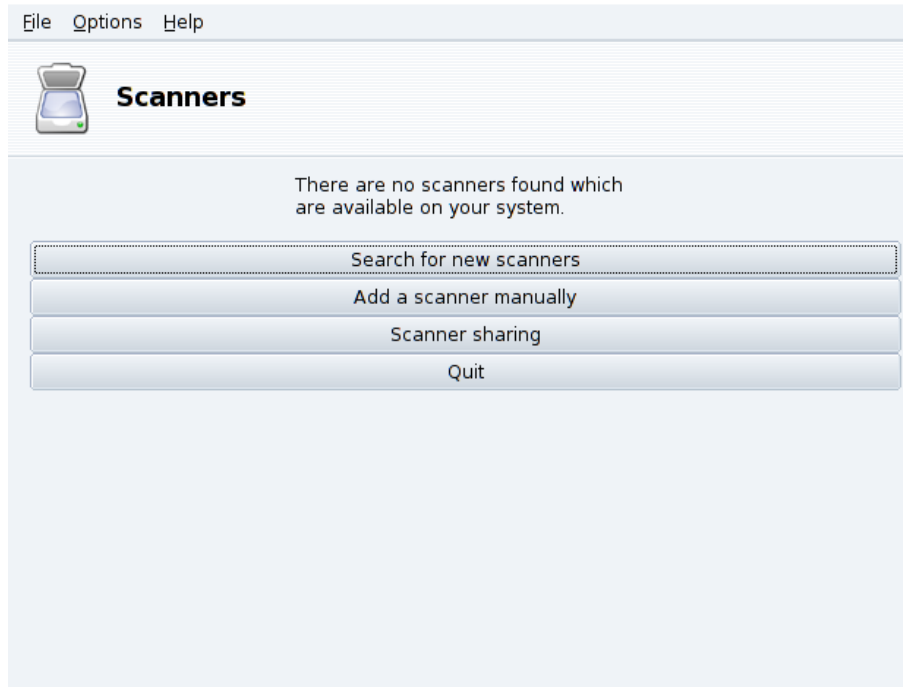


Figure 8-20. Installing your Scanner

Search for new scanners

Click on this button to autodetect a new scanner you have just plugged in.

Add a scanner manually

Use this button if the automatic detection fails and then look for the specific model you own by browsing through the list of available scanners and models.

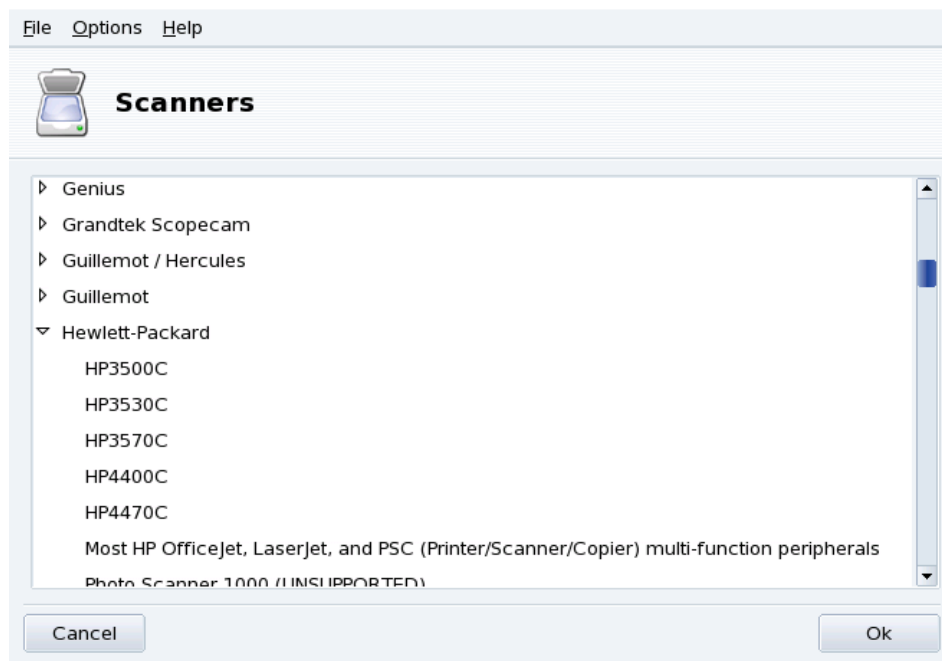


Figure 8-21. The Tree-list of All Known Scanner Models

Choose the right Port. After choosing the appropriate model, you can leave the default Auto-detect available ports option unless you have a parallel port scanner, in which case selecting `/dev/parport0` in the pull-down list should be the right choice.

HP multi-function devices

Note that HP multi-function devices, such as the OfficeJet and PSC printers, must be configured through PrinterDrake. Please refer to *Configuring Printers with PrinterDrake*, page 88. The scanning part of non-HP multi-function devices can be set up with ScannerDrake as a stand-alone scanner.

Test the Scanner. Once your scanner appears in ScannerDrake main window, you can test its configuration by referring to *Scanning Documents and Images*, page 67.

8.7.2. Share your Scanner

ScannerDrake allows for scanner sharing between users connected via a LAN.

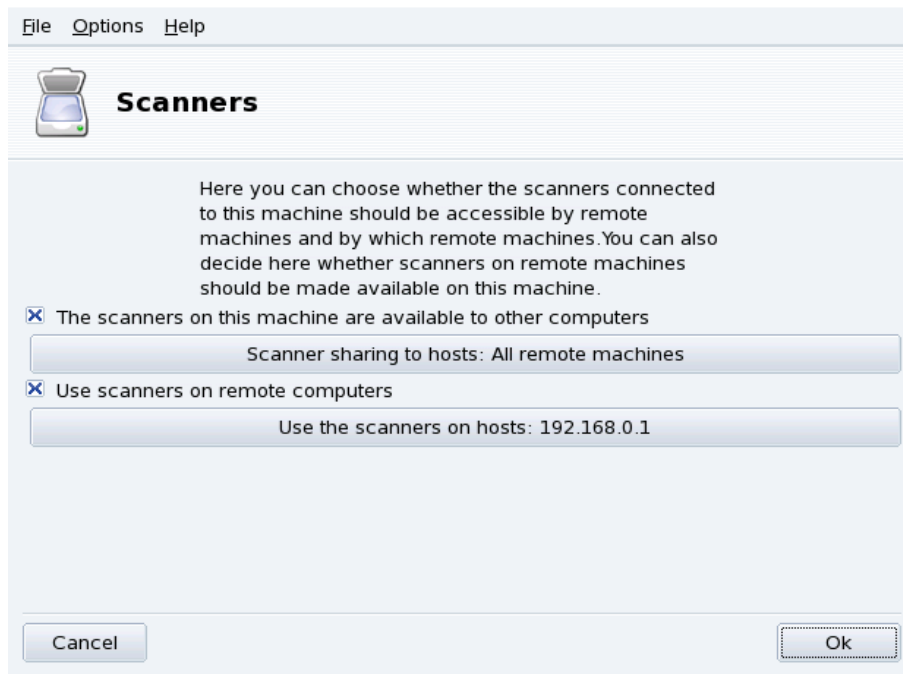


Figure 8-22. Sharing Scanners within a LAN

Share Your Own Scanner

1. Check the The scanners on this machine are available to other computers box.
2. Click the Scanner sharing to hosts button and then Add host to specify which hosts will be actually allowed to access your scanner.

Use Other People Scanners

1. Check the Use scanners on remote computers box.
2. Click the Use the scanners on hosts button and then Add host to specify which hosts serve the scanner you wish to use.

8.8. Setting up your UPS

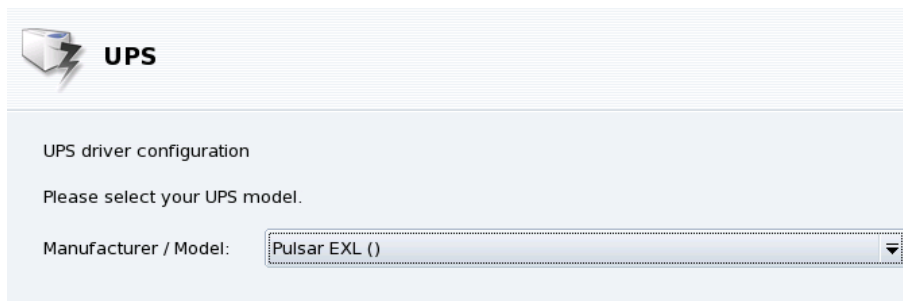


This tool will configure the NUT (Network UPS Tool) service for you. The service checks the UPS connected to your machine and automatically shuts it down when the UPS is about to run out of battery power.

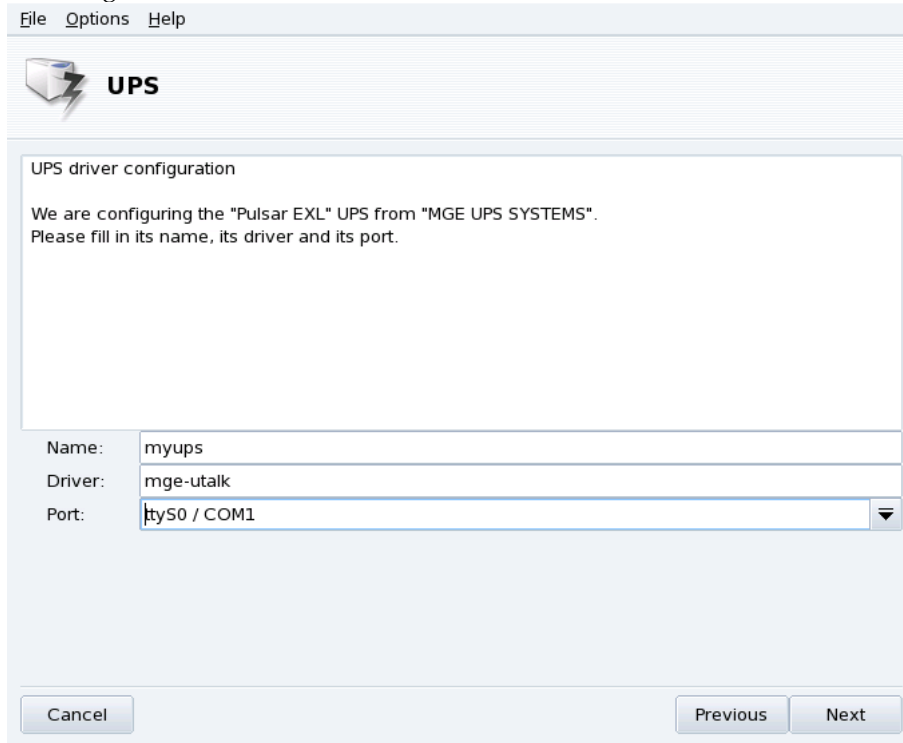
Automatic Installation. Open the Mandriva Linux Control Center in the hardware section and click on Set up a UPS for power monitoring to launch DrakUPS. Check the Connected through a serial port or a USB cable button to let DrakUPS autodetect your UPS.

Manual Configuration (Serial Port)

1. Select the Manual configuration option.
2. Select your UPS from the list of manufacturers and models.



3. Then assign a Name, Driver, and Port¹.



If all went well your UPS should now be configured and ready to help avoid bad power outage surprises.

¹ The Name and Driver fields should automatically be filled. Of course, you can change its name but we recommend you keep the driver name.

Chapter 9. Setting up your Network and Accessing the Web

9.1. Network and Internet Connection Management

Tip: Before connecting to the Internet, you are encouraged to set up a firewall on your machine so as to avoid bad surprises such as intrusions to your system. You can set up a very simple, yet effective, firewall using DrakFirewall. Please refer to *Securing your Internet Access via DrakFirewall*, page 140 for more information.

The drakconnect set of tools allows you to easily configure your network access, whether it be to the *Internet* or to a local network. Open Mandriva Linux Control Center and select the Network & Internet section to access drakconnect tools. A view of the main interface is shown in figure 9-1. The Internet connection sharing tool is described in *Internet Connection Sharing*, page 109.



Figure 9-1. DrakConnect Tools

9.1.1. Set Up a New Network Interface



drakconnect supports different types of Internet and network connections. The first step consists of choosing which type of connection you wish to configure. Always make sure you have all the information provided by your ISP or network administrator at hand.

Note: After a connection has been configured it can be further modified using the Connections management interface (see *Reconfigure Interfaces*, page 106).

9.1.1.1. Wired Ethernet Connection

1. Select the Ethernet type

Your NICs are detected automatically; if you have more than one, you have to select the one you wish to configure. You can also load a driver for your NIC manually.

2. Automatic or Static Configuration

You now have to specify whether the network parameters are automatically set up (Automatic IP (BOOTP/DHCP)) or not (Manual configuration): fill the next steps with the parameters which your ISP or network administrator gave you.

3. Connection Control

Allow users to manage the connection

If you wish users to be able to bring up or shutdown the connection without having to provide the `root` password (see *Monitoring Connections*, page 107) check this box.

Start the connection at boot

Uncheck this if you want the connection to be activated on demand only.

The Net Applet: An applet appears in the desktop's panel indicating that the connection is up



or down

. Right click on it to access a menu that will also let you control the connection's state as well as other parameters.

9.1.1.2. Wireless Connection

This entry allows you to configure WiFi PCMCIA or PCI devices.

1. Choose WiFi Card

If your card is not listed, choose the Use a Windows driver entry. The next step then asks you to select the driver from the manufacturer's card drivers CD.

2. Choose Network

A list of detected networks is then shown. Select yours, or unlisted otherwise.

3. Wireless Settings

Operating Mode

The mode the card will operate on, with respect to the other WiFi devices in the network. The most common one is Managed to simply connect to an existing access point.

Network Name (ESSID)

The name of the network you wish to connect to. Ask your network administrator.

Encryption Mode

This depends on the network settings, ask your network administrator.

Encryption key

This also depends on the network settings, ask your network administrator for the key the network uses.

4. Network Configuration

This is now similar to the traditional ethernet network setup: *Wired Ethernet Connection*, page 103.

5. Connection Control

Check the Allow access point roaming box if you wish the connection to automatically switch from one access point to another, depending on the signal strength of it. Particularly useful when moving a laptop around.

Managing Connections. Consult *Wireless Connections Management (Roaming)*, page 112 to learn how to configure and manage various wireless networks.

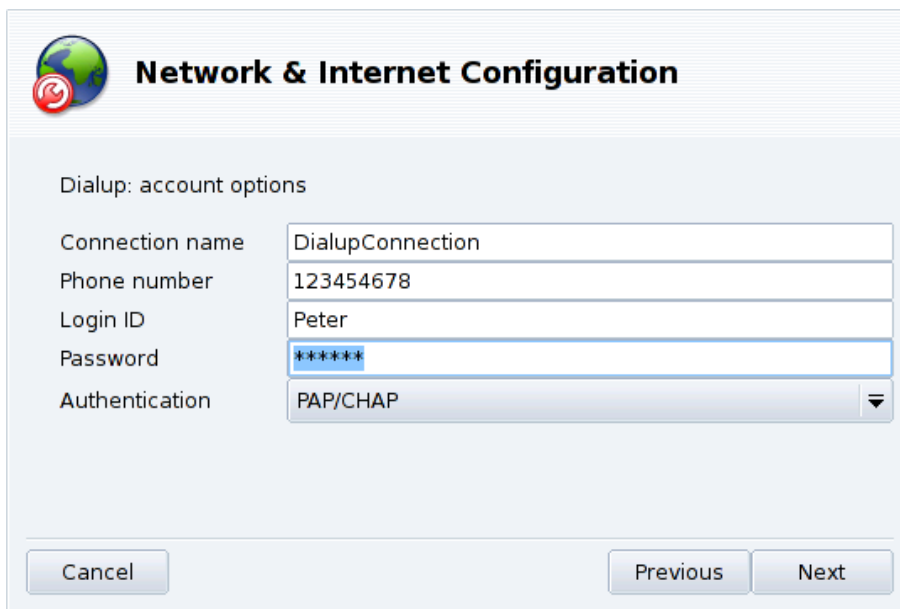
9.1.1.3. ISDN Connection

Simply make sure you select the right parameters in all steps, concerning your area and provider.

The last step gives you the option to handle the connection status through the net applet, this can prove useful if you only need the Internet connection from time to time.

9.1.1.4. Modem Connection (POTS)

1. A list of detected modems is shown. If no modem was detected then only the Manual choice option is shown, click on Next and choose the communications port the modem is connected to. The required packages are installed.
2. You then see a list of countries/ISPs. If yours is listed select it and continue to the next step: some parameters (connection name, phone number to dial, and authentication scheme) will be automatically set. If not, select the Unlisted - edit manually option.
3. Verify the parameters, add the missing ones provided by your ISP.



The screenshot shows a window titled "Network & Internet Configuration" with a globe icon. Below the title bar, the text "Dialup: account options" is displayed. The window contains several input fields and a dropdown menu:

- Connection name: DialupConnection
- Phone number: 123454678
- Login ID: Peter
- Password: *****
- Authentication: PAP/CHAP (with a dropdown arrow)

At the bottom of the window, there are three buttons: "Cancel", "Previous", and "Next".

Figure 9-2. Entering Dial-up Connection Parameters

All parameters should be obvious, except for the authentication type. The value in the Authentication pull-down depends on what your ISP supports: Script-based (an old type of authentication method based on “expect” and “send” types of chat between your system and your ISP); Terminal based (a terminal window will pop up when the connection is made and you will have to login interactively); PAP, CHAP, or PAP/CHAP (authentication information exchange protocols, CHAP is preferred because it is more secure, PAP/CHAP will automatically choose the supported one).

4. Then come the IP, DNS and gateway settings. Nowadays, most ISPs provide them automatically when a connection is made, so selecting the Automatic option on them is usually a safe bet.
5. Connection Control

Allow users to manage the connection

You are then asked whether you wish to allow users to start the connection. That will allow them to do so without needing the `root` password.

Start the connection at boot

It is probably safer and cheaper to choose No.

6. Finally you are asked to test the connection: we recommend you to do so to make sure all parameters are accurate. You can now control your Internet connection using the net applet. You can also use the `kppp`

remote access connection dialer (package kppp) by choosing Internet+Remote Access→KPPP from the main menu.

9.1.1.5. DVB Connection

This connection type is used for satellite connections.

1. Choose the connection card you wish to configure, and then the adapter settings.
2. Network configuration is then similar to the LAN connection type (see *Wired Ethernet Connection*, page 103).

9.1.1.6. GPRS/Edge/3G

This connection type supports Internet connections through cellular phone networks, accessed through a PCMCIA card. Third generation (3G) technologies, as well as older ones (GPRS/Edge) are supported. Support for newest HSDPA norm is also available.

9.1.2. Internet Settings

File Options Help

Internet access

Internet Connection Configuration

Internet access

Connection type: wifi

Status: Not connected

Parameters

Host name (optional)	
First DNS Server (optional)	192.168.2.1
Second DNS Server (optional)	212.27.53.252
Third DNS server (optional)	212.27.54.252

Cancel Ok

Figure 9-3. Configuring the Internet Access



This tool allows you to specify Internet access parameters if they need to be modified after your initial configuration. Please bear in mind that these parameters are system-wide and apply to all interfaces. To change the gateway address see *Reconfigure Interfaces*, page 106.

9.1.3. Reconfigure Interfaces

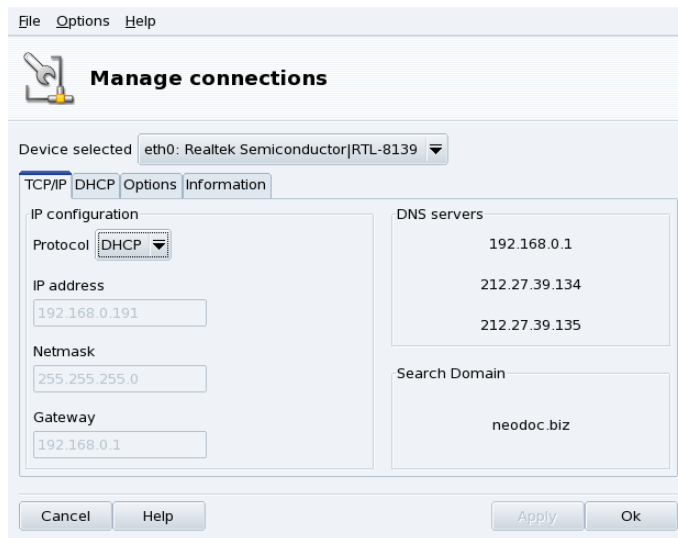


Figure 9-4. Manage Network Connections



This tool permits you to modify network interface-specific parameters, after you have set them up through the new interface wizard (see *Set Up a New Network Interface*, page 103). Use the drop-down list at the top to select the interface you want to configure. The tabs allow you to change parameters and options according to the network interface type selected.

9.1.4. Monitoring Connections

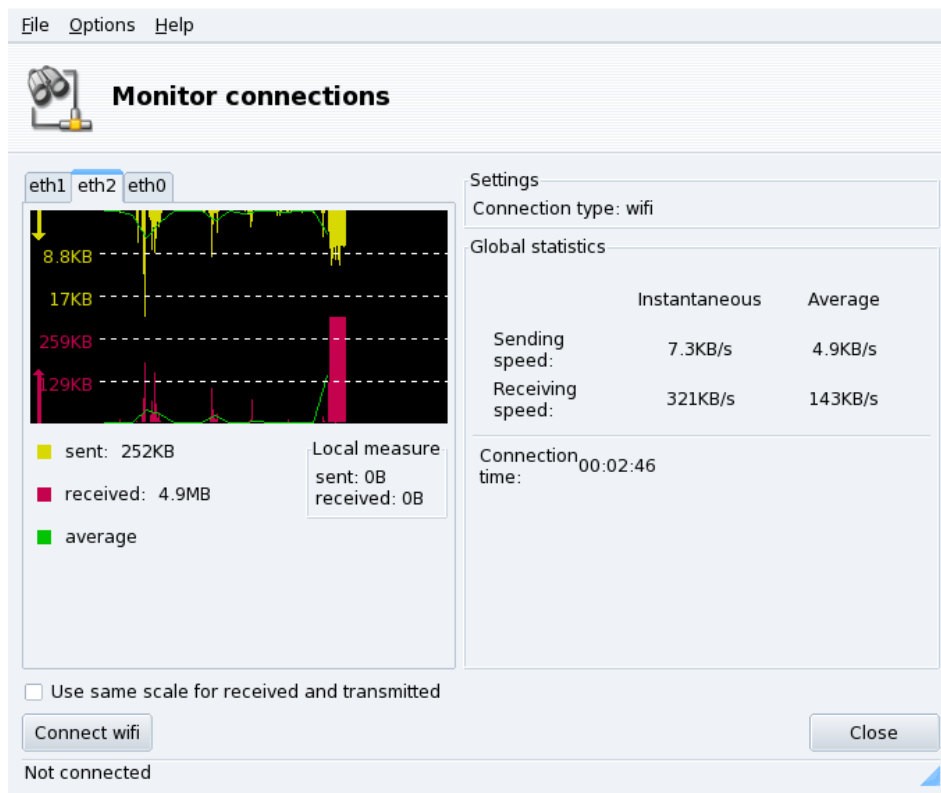


Figure 9-5. Real-Time Network Connection Monitoring



This tool shows the network interfaces activity. You can specify some options for the traffic graphic and statistics: update interval, scale, etc (see figure 9-5). It can also be used to control the status of the network connection, bringing it up or down using the button at the lower left.

Note: The network monitoring interface can be brought up by users through the net applet to monitor traffic.

9.1.5. Removing a Connection



This tool simply allows you to remove a network interface. Select the interface to be removed in the Net Device pull-down list.

Warning

You will not be asked for confirmation. Once an interface is selected for removal, pressing the Next button deletes it immediately.

9.1.6. Proxy Settings



If your Internet connections must (or can) pass through a proxy, this tool allows you to define the hostnames or IP addresses of proxies for the FTP and HTTP protocols. Fill the fields with the required values and click OK.

What's a Proxy. A proxy is a server which retrieves information from the Internet on your behalf, keeping a local copy of the web pages which are most frequently requested. They are referred to as “caching proxies”, and optimize bandwidth usage. In some organizations, you cannot access the Internet directly. You must pass through a proxy which authenticates you before allowing you to connect to the Internet. This is usually combined with a firewall which only guarantees the proxy direct access to the Internet. They are referred to as “authentication proxies”. In corporate or business environments, proxies perform both caching and authentication functions for performance and security reasons.

9.2. Activating and Managing Network Profiles



Mandriva Linux Control Center profiles enable you to store different configuration sets for your machine, for example for different locations. This is especially useful for laptops which need a different configuration for home, at the office, the coffee shop, etc. The parameters that can change from one profile to another are:

Network Configuration

Activate different interfaces, with different configuration, for wireless for example.

Services Configuration

Allows you to activate different services from one profile to another, for example a firewall at home and no firewall at the office (see *Configuring Start-Up Services*, page 115).

9.2.1. Profile Handling

New profiles you wish to create are based on the active one. All modifications are automatically recorded in the active profile. A single menu (Profiles) lets you manage them.



Figure 9-6. The Control Center Profiles Interface

Activate

Make the selected profile active.

Clone

Creates a new profile based on the selected one's settings. A dialog pops up asking for the name of the new profile. Don't forget to activate that profile after creating it if you wish to configure it.

Delete

Deletes the currently selected profile, without further prompts. Please note that a warning is shown if you try to delete the active profile, because it cannot be removed while being used.

The default Profile. This is the profile that will be used at boot time. It cannot be deleted.

Example: Create a New Profile for your Dial-up Home Connection. You come back home with your brand new laptop which your system administrator configured so you can connect to your corporate network. You now want to configure the network to access the Internet from home with a dial-up connection.

1. Create a new profile called "Home".
2. Switch to it.
3. Reconfigure your network so that the modem, instead of the network card, is used to access the Internet (see *Network and Internet Connection Management*, page 103).
4. Connect to the Internet.
5. When back at the office, switch back to the "default" profile.

9.3. Internet Connection Sharing



This tool configures your system so that it acts as a gateway to the Internet for other machines connected to it via a LAN. This is very useful at home for example, if you wish all computers to access the Internet through the same Internet link.

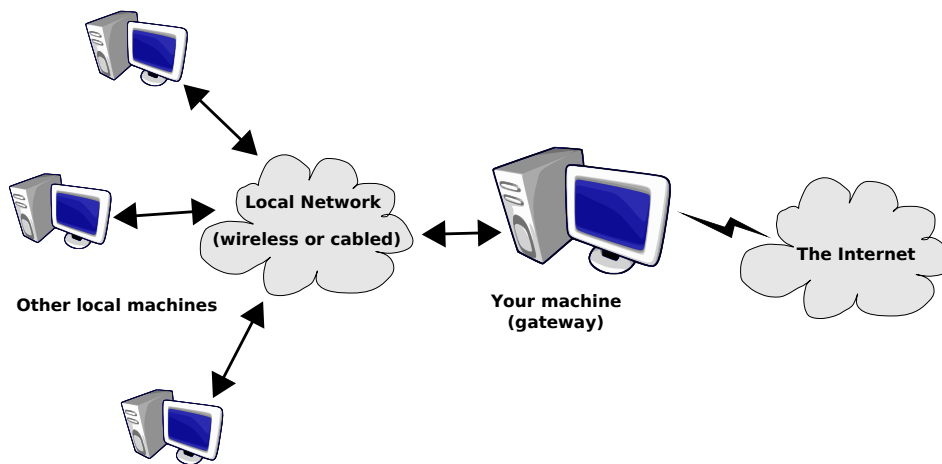


Figure 9-7. A Simple Gateway Configuration

The overall procedure is the following:

1. Configure your Internet access (*Network and Internet Connection Management*, page 103). In order for your machine to act as a gateway, you need an already configured and working connection to the Internet, plus a network connection to your LAN. This implies at least two interfaces, for example, a modem and an Ethernet card.
2. Setup the gateway (*The Gateway Connection Wizard*, page 110).
3. Configure the other local machines as clients (*Configuring the Clients*, page 111).

Warning

This wizard also configures a firewall to block most connections from the Internet. You are encouraged to check that the firewall configuration (*Securing your Internet Access via DrakFirewall*, page 140) suits you after completing the wizard.

After you complete this wizard, all computers on the LAN will be able to access the Internet. Their configuration will be automated due to the DHCP server which is installed on your gateway, and the web access will be optimized due to the use of the Squid transparent proxy cache.

9.3.1. The Gateway Connection Wizard

These are the steps that the wizard takes:

1. Choosing the Internet Interface
You first need to specify the name of the interface connected to the Internet. Make sure you select the correct one from the drop-down list. It should be the interface name you configured in the Internet Configuration Management tool.
2. Choosing The LAN Network Adapter
If you have more than one Ethernet interface, and depending on what you chose as your Internet interface, the wizard might ask you to select the one connected to your LAN¹. Make sure you select the correct one.
3. Local Area Network Settings

1. Note that all traffic to and from this network passing through the gateway will be masqueraded, that is: it will appear (from an Internet point of view) to come from the gateway instead of from the LAN.

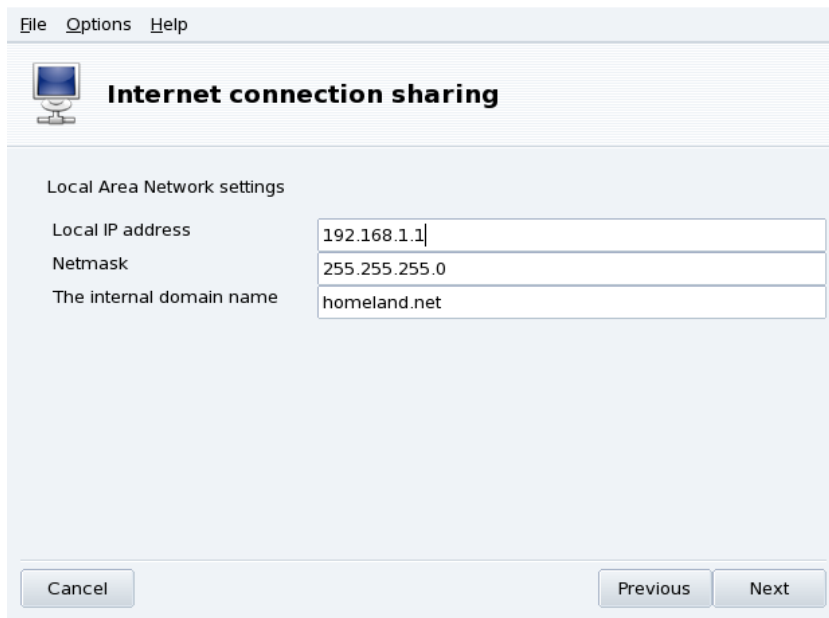


Figure 9-8. Configuring The LAN

At this point, if it is the 1st time the system has been configured as a gateway, the wizard proposes default parameters for the new local network to be managed. Check that these values are not already in use in your network, and proceed to the next step.

Otherwise, the wizard will first offer to reconfigure the LAN interface so that it will be compatible with the gateway services. It is recommended that you leave the default options and click on Next. Then, all the required software is installed.

4. DNS Configuration

If you plan on having a local name server on your machine, you can check the box. Otherwise you can choose to use the name server of your provider. If you don't know what a name server is, leaving the box checked is safe.

5. DHCP Server Configuration

Installing a DHCP server on your machine will allow all client machines to have their network configuration automatically done. Otherwise you will have to configure each of the clients by hand: IP address, network, gateway, DNS.

6. Proxy Caching Server (SQUID)

A caching server records the Internet pages requested by local browsers. Then if the same page is asked for again by someone else, it is able to serve it without needing to retrieve it again from the Internet, thus saving bandwidth, and improving response time. This is very useful if there are many clients behind the gateway.

The application used to perform this task is Squid (<http://www.squid-cache.org/>).

When the wizard is completed, any required packages are installed and configured.

Disable Connection Sharing: The next time you launch this wizard, the first step proposes either to reconfigure or to disable connection sharing.

9.3.2. Configuring the Clients

Configuration of the clients mainly depends on whether you chose to install a *DHCP* server on your gateway or not. By configuring the clients on the local network to use DHCP, they will automatically use the Mandriva Linux machine as a gateway to the Internet. This works for Windows®, GNU/Linux and any other OS which supports DHCP.

If you have no DHCP server, you have to configure each of your machines manually, according to the network parameters set on the connection sharing wizard.

For DHCP, on a Mandriva Linux client system, make sure you selected DHCP in the Protocol pull-down list when configuring the network as shown in figure 9-9.

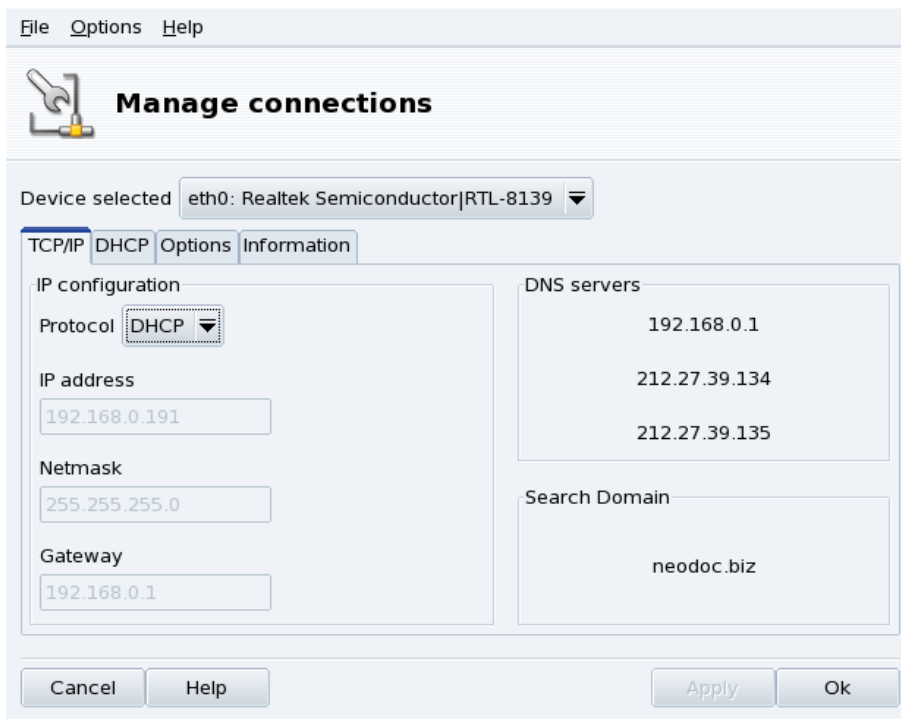


Figure 9-9. Configuring a Client to Use DHCP

9.4. Wireless Connections Management (Roaming)



This tool shows the wireless networks currently available and allows you to switch between them, and to change their configurations. If you haven't configured your wireless interface yet, please refer to *Wireless Connection*, page 104 for information. figure 9-10 shows DrakRoam's interface: a list of the available networks, together with their status, and buttons for actions at the bottom.

Tip:



You can also right click on the "signal meter" icon in the panel and choose Manage wireless networks, then enter root's password, to access the tool.

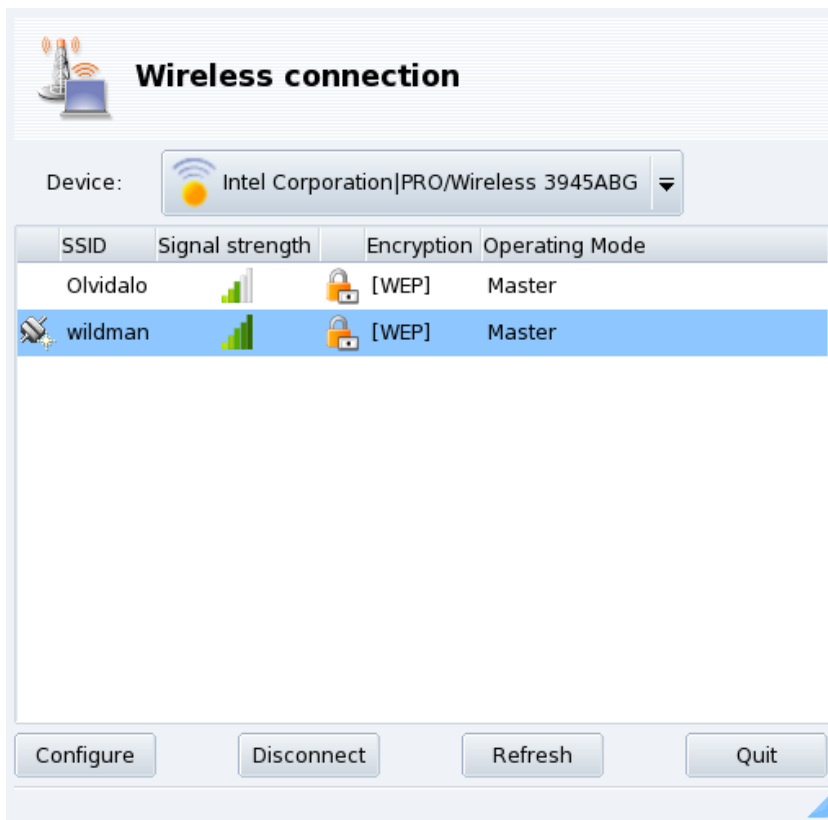


Figure 9-10. DrakRoam Interface

9.4.1. Switching Networks

To change networks, select one of those from the list, then click on Connect. If the network is public you will be immediately connected. If the network is private, then you are asked for configuration parameters with the same dialog shown in figure 9-11. Provide required settings (in particular, the encryption key) and click Ok. Settings take effect immediately.

9.4.2. Configuring a Wireless Connection

If you need to change the network parameters, just select the network from the list, then click on Configure. See figure 9-11 for an example of a secured wireless network connection.

Operating Mode

Network name (ESSID)

Encryption mode

Encryption key

IP address

Netmask

Gateway

☒ Get DNS servers from DHCP

DNS server 1

DNS server 2

Please enter settings for network

Managed

wildman

Restricted WEP

V3ryS3cr3t

☒ Automatic IP (BOOTP/DHCP)

☐ Manual configuration

No IP

No Mask

Ok

Advanced

Cancel

Figure 9-11. Changing Wireless Network Configuration

Make your adjustments and click Ok, the settings take effect immediately.

Chapter 10. Personalizing your System

10.1. Configuring Start-Up Services



At boot time, the system starts a number of services (programs which run in the background to perform a variety of tasks). 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 10-1. Choosing the Services Available at Boot Time

For each service, this is the list of items found in each column:

- Service name;
- Current Status: either `running` or `stopped`;
- Info: click on this button to get a little explanation about that service;
- On Boot: check this box if you wish this service to be automatically started at boot time¹. Alternatively, if `xinetd` is installed and 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.

After pressing the Start or Stop buttons, a tool tip shows you the status of the operation.

1. Generally in *runlevels* 3 and 5.

10.2. Managing Fonts on your System with DrakFont



This system administration tool enables you to review the different font families, styles, and sizes available on your system. It also allows for fonts to be installed or removed.

The main window (see figure 10-2) shows a visual appearance of the currently selected font combination.

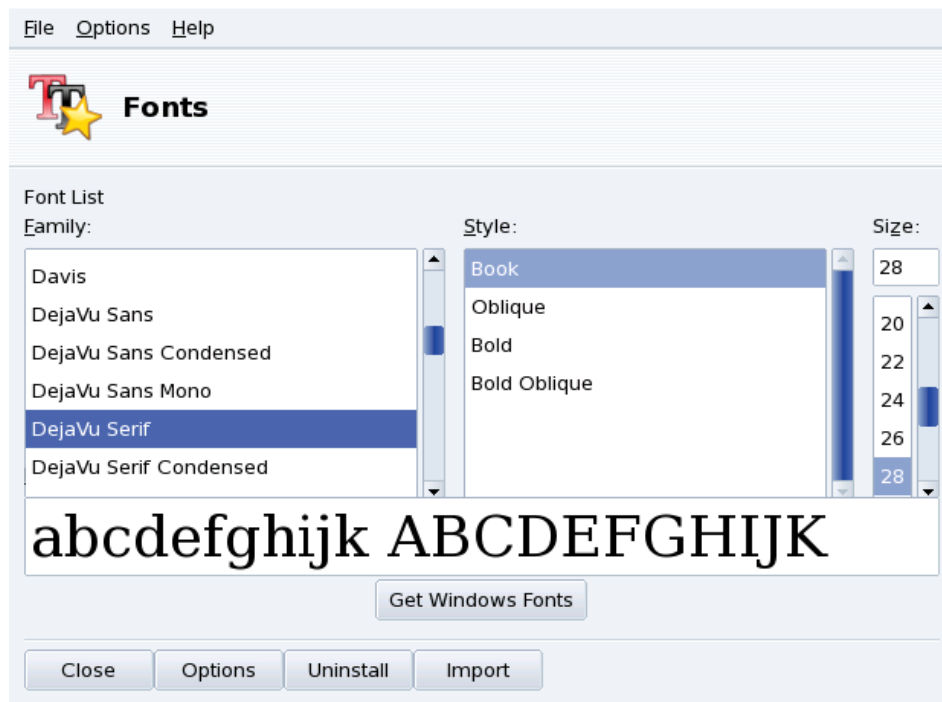


Figure 10-2. DrakFont's Main Window

drakfont is made up of a number of dialogs which are accessible through the buttons located at the bottom.

Get Windows Fonts

This button automatically adds fonts found on your Windows[®] partitions, if any, of your local hard drives.

Options

Allows you to specify which applications and devices (such as printers) will support the fonts. Select the ones you want support for and click on the OK button.

Uninstall

Allows you to remove installed fonts, in order to save space for example. Use this with great care, it could have side effects for your applications. In particular you should not remove fonts you did not install yourself.

This actually removes all fonts found in a given directory. Note that fonts manually added through drakfont are found in `/usr/share/fonts/drakfont/`

Import

Allows you to manually add fonts found outside the Mandriva Linux distribution, from a fonts disk you have purchased or from the Internet, for example. Supported font types are `ttf`, `pfa`, `pfb`, `pcf`, `pfm`, `gsf`. Clicking on the Add button will open a standard dialog allowing you to specify the font file to import. Once you've specified all the fonts you want to import, click on the Install fonts button.

Selecting more than one font: To select more than one font, press the **CTRL** key while selecting the fonts you want to install and click OK, they will be added to the Import Fonts window. Then, click on the Install fonts button.

Note: When adding or removing fonts, the change might not appear immediately in the fonts list. Close and re-launch drakfont to ensure your changes were taken into account.

10.3. Setting your Machine's Date and Time



This little tool enables you to set your system's correct internal date and time.

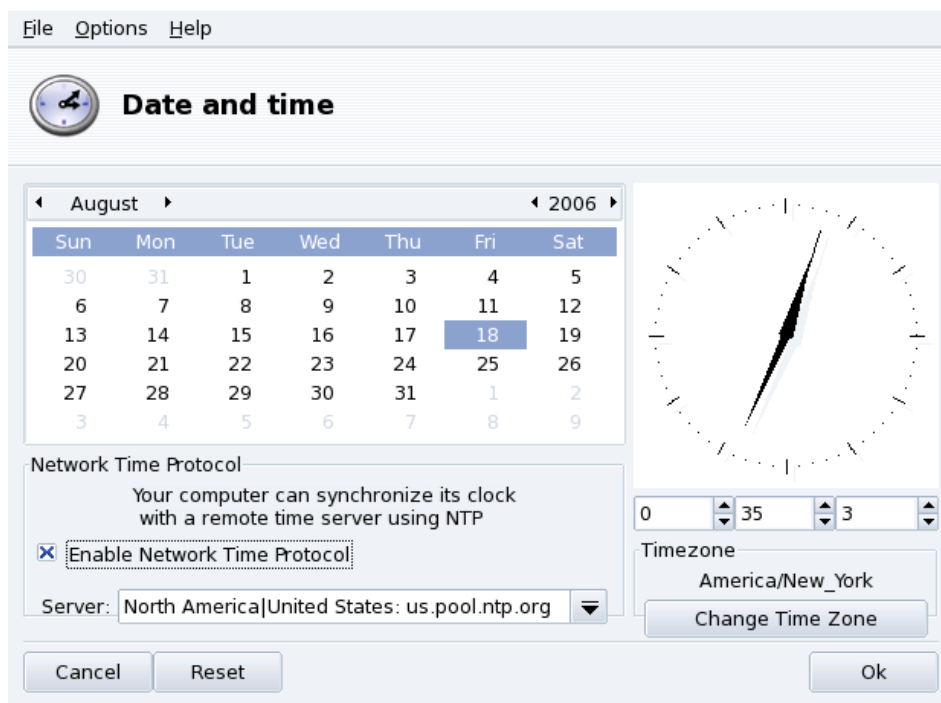


Figure 10-3. Changing Date and Time

You can set the date on the left and the time on the right:

1. Date

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.

2. Time Zone

We recommend that you check the time-zone settings for your geographical location. Click on the Change Time Zone button and select the correct place in the tree view.

Once you've chosen the time zone, a dialog appears asking you whether your hardware clock is set to GMT. Answer Yes if only GNU/Linux is installed on your machine, No otherwise.

3. Time

To change the time, you can either move the hour, minute and second hands of the analog clock, or change the numbers below it.

4. Automatic Clock Synchronization

If you have a permanent Internet connection and want your system to synchronize its internal clock with time servers on the Internet, put a check mark in the Enable Network Time Protocol option and select a server in the Server pull-down list, preferably one near you. If you know the name or the IP address of a local server you can also enter it manually in that field.

When you're finished, click on OK to apply your settings or Cancel to close the tool, which will discard your changes. If you want to return to your previous settings, click on Reset.

10.4. Monitoring System Activity and Status



This tool allows you to look for specific entries in various log files, therefore making it easier to search for particular incidents or security threats.

10.4.1. Browsing System Logs

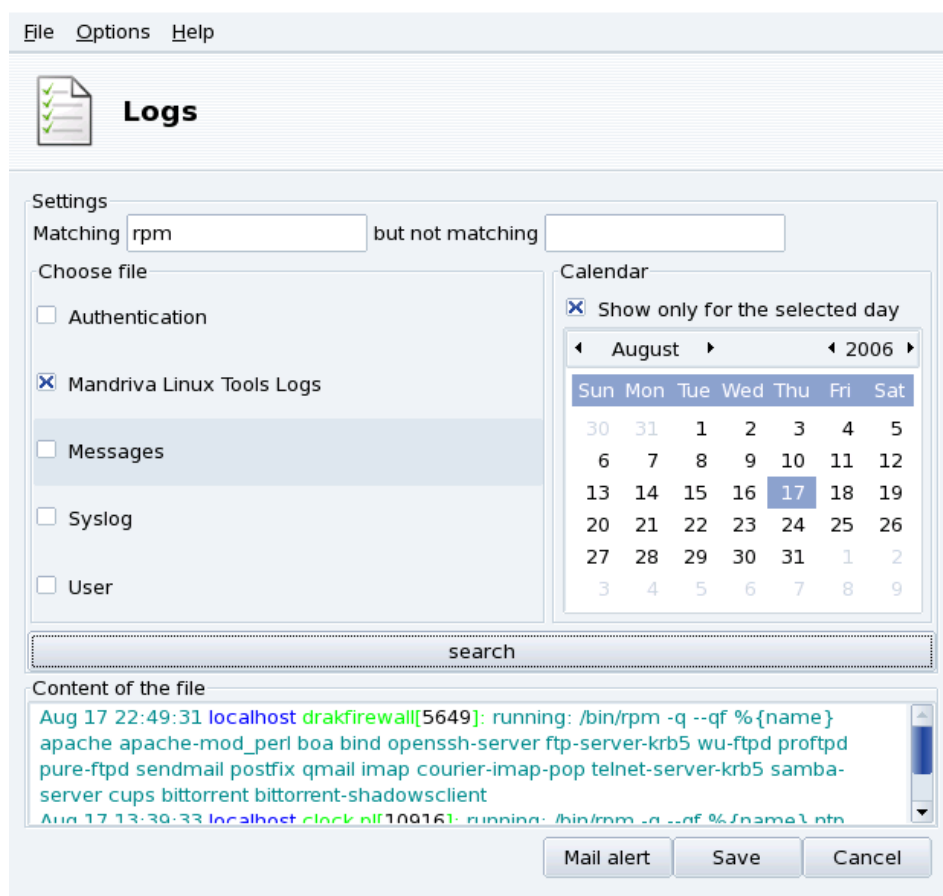


Figure 10-4. Browsing and Searching through System Logs

These are the steps to follow in order to browse or look for a specific event into the system logs:

1. Matching Terms

You must choose which specific words to match by filling the Matching (log files contain the words) field and/or the but not matching (log files which don't contain the words) field. At least one of the two fields must be filled.

2. Log File

Then in the Choose file area select the file you want to perform the search on. Simply check the corresponding box.

Note: The Mandriva Linux Tools Log is filled by Mandriva Linux-specific configuration tools, like those you find in the Mandriva Linux Control Center. Each time these tools modify the system configuration they write to this log file.

3. Date of Event

Optionally, you can restrict the search to a specific day. In that case, check the Show only for the selected day box and choose the desired day from the calendar.

4. Search

When all is set up, click on the Search button. The results appear in the Content of the file area at the bottom.

Clicking on the Save button opens a standard dialog letting you save the search results into a plain text (*.txt) file.

10.5. Managing Users and Groups

UserDrake allows system administrators to easily add and remove users from the system, to assign users to a group, and to manage user groups in the same manner.

Note: In this section we will only focus on user management. Group management being similar.

10.5.1. The Interface

Launching UserDrake will display the main window (figure 10-5) which lists the users currently defined on the system. You can switch from users to groups by clicking on the Groups tab next to the Users tab.

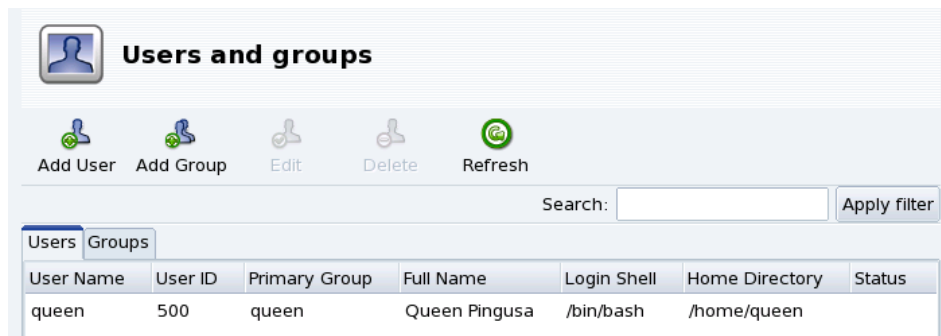


Figure 10-5. The User List in UserDrake

All changes have immediate effect on your local user database. If the user list is modified outside of UserDrake, you can refresh UserDrake's window by clicking on the Refresh button.

Note: If you make changes to an already logged in user, those changes won't take effect until the next time he or she logs 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 120.

Add Group

Adds a new user group to the system.

Edit

Allows you to change the parameters of the selected user or group. We will detail editing user parameters in *Adding a New User*, page 120. In the case of a group you will be able to assign or remove users from 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 also be able to remove the user's /home directory and mailbox.

10.5.2. 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. Then we want to make them both members of the `fileshare` group, so that they can share folders with other users on the network (see *Allowing Users to Share Folders*, page 133, custom option).

Click on the Add User button, a dialog box to add a new user will pop up (see figure 10-6). The only required field is Login although we strongly recommend that you set up a password for this new user: enter it in both the Password and Confirm Password fields. 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.

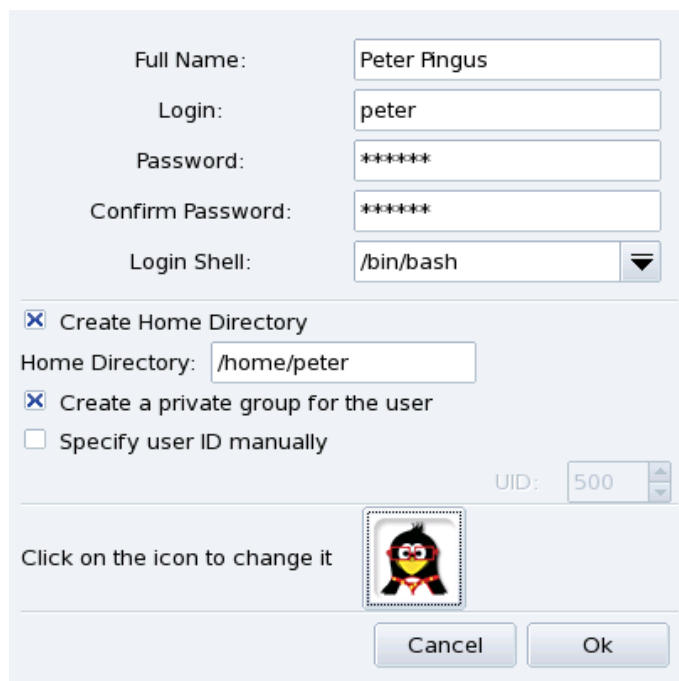


Figure 10-6. Adding a New User in the System

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 10-7 will pop up. It allows you to modify most available user parameters.

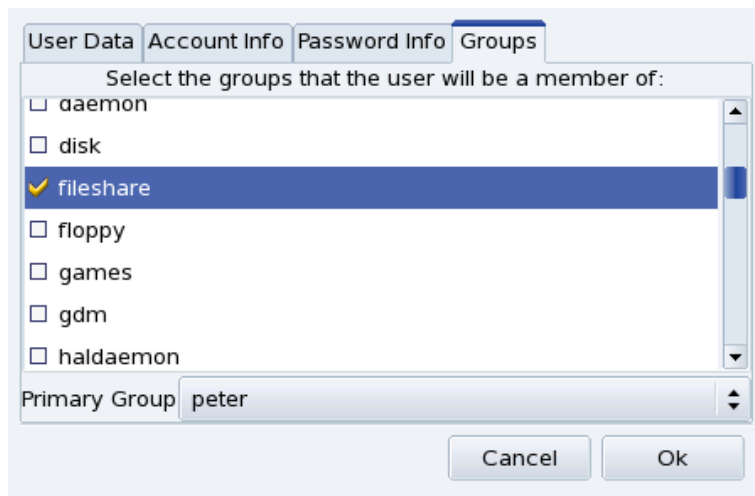


Figure 10-7. Adding Users to a Group

The dialog is made of the following tabs:

User Data

Allows you to modify information provided when the user was created.

Account Info

Enables you to provide an expiration date for that account, after which the user won't be able to connect to the system. This is useful for temporary accounts. It's also possible to temporarily lock an account to prevent a user from logging in. Finally, this tab allows you to change the icon associated with the user.

Password Info

Allows you to provide a password expiration date, after which the user will be required to change his password.

Groups

Shows the list of available groups where you can select the groups to which any user should belong.

For our users we just need to look for the `fileshare` entry and check the box associated to it. Then click on the OK button to make the changes effective.

10.6. Backing Up and Restoring your Files



This tool allows you to back up data present on your computer onto different media and also to a remote machine over a network. It also supports multiple profiles for different backup scenarios. Once the parameters are set, you can run the backup periodically. Then, you can forget about it until you wish or need to restore files.

10.6.1. A Practical Example Using the Wizard

You can access this tool by clicking on the Backups icon in Mandriva Linux Control Center's System section. Click on the Wizard Configuration button to start the wizard. After making your choices in each step click on Next.

10.6.1.1. First Step: What to Backup

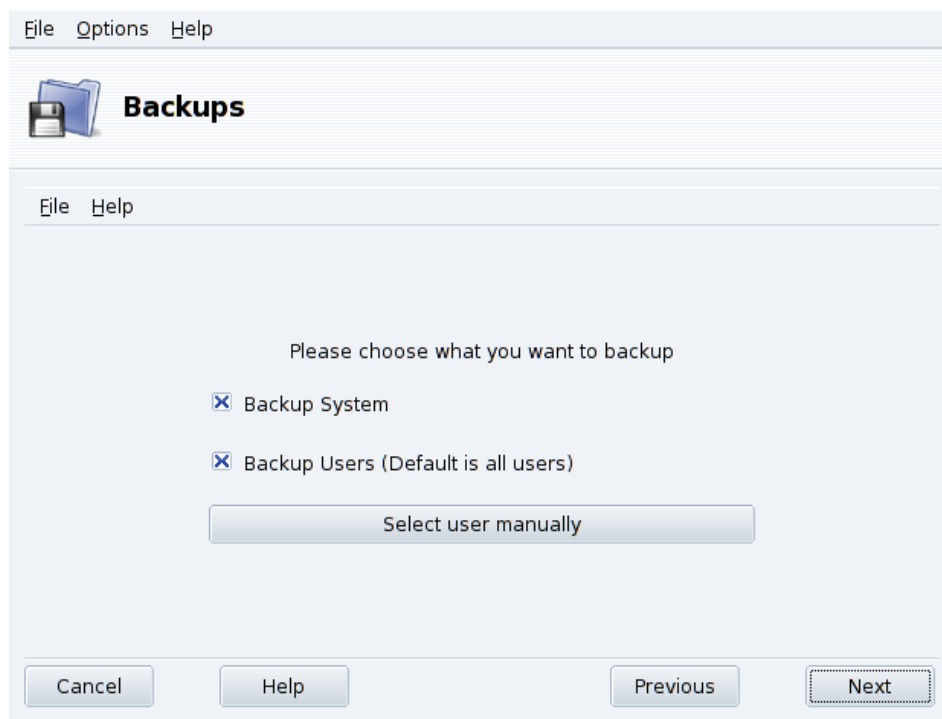


Figure 10-8. Selecting What to Backup

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.

Note: The “system” backup does not include applications themselves (i.e. executable files, 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 button lets you select individual users and give you the following options:

- Do not include the browser cache. Selecting this option is recommended due to the very nature of the ever-changing browser cache.
- Use Incremental/Differential Backups. Selecting this will preserve old backups. Choosing Use Incremental Backups will only save files which have been changed or added since the **last** backup operation. Choosing Use Differential Backups will only save files which have been changed or 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 “as it was” at any given point in time for which a differential backup was made.

10.6.1.2. Second Step: Where to Store the Backup

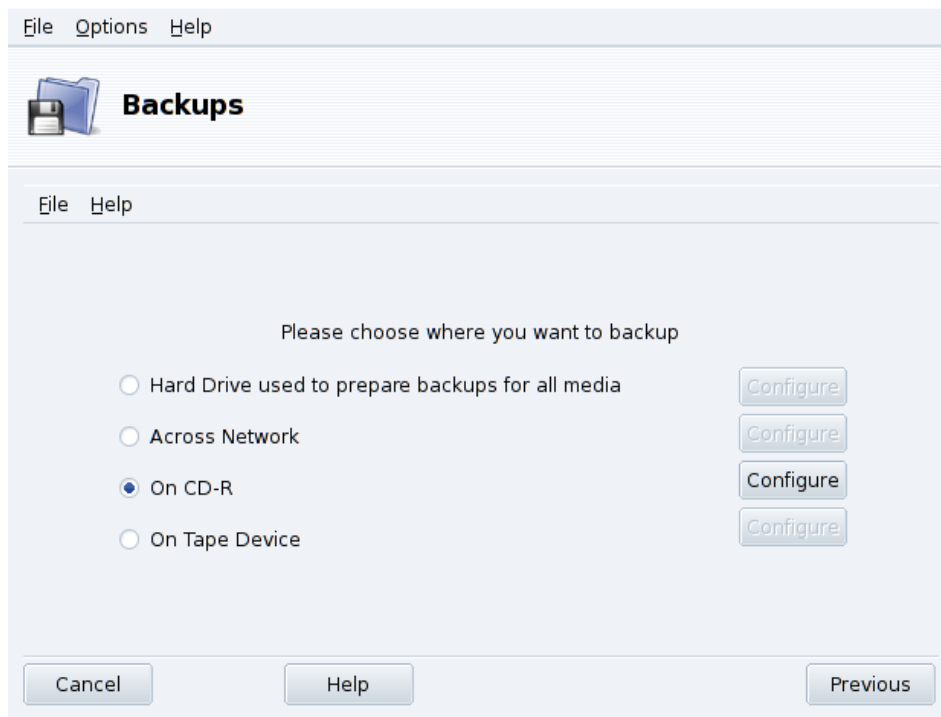


Figure 10-9. Selecting Where to Store the Backup

All possible backup media are listed, along with a Configure button to change media-dependent options:

Hard Disk Drive

The local hard disk drive is used to prepare backups for all media except NFS and direct to tape. You should not perform backups on your local hard disk anyway, you should always backup on remote or removable media. You can set the directory for storage and the limit of storage space. You can also set how many days to keep incremental or differential backups in order to save disk space.

Across the Network

To store the backup on a remote computer accessible using different methods. You can set the connection parameters as well as the access method and its options (if applicable). Please note that NFS backups are considered to be local disk backups, even if they are effectively stored on a remote system.

On Tape

You can set the tape device if it's not detected automatically, and tape parameters such as writing directly on tape, whether or not to rewind, erase and eject the tape.

Optical Media (CD-R)

This is our preferred media for the example, so click on its Configure button to set the required parameters (see figure 10-10).

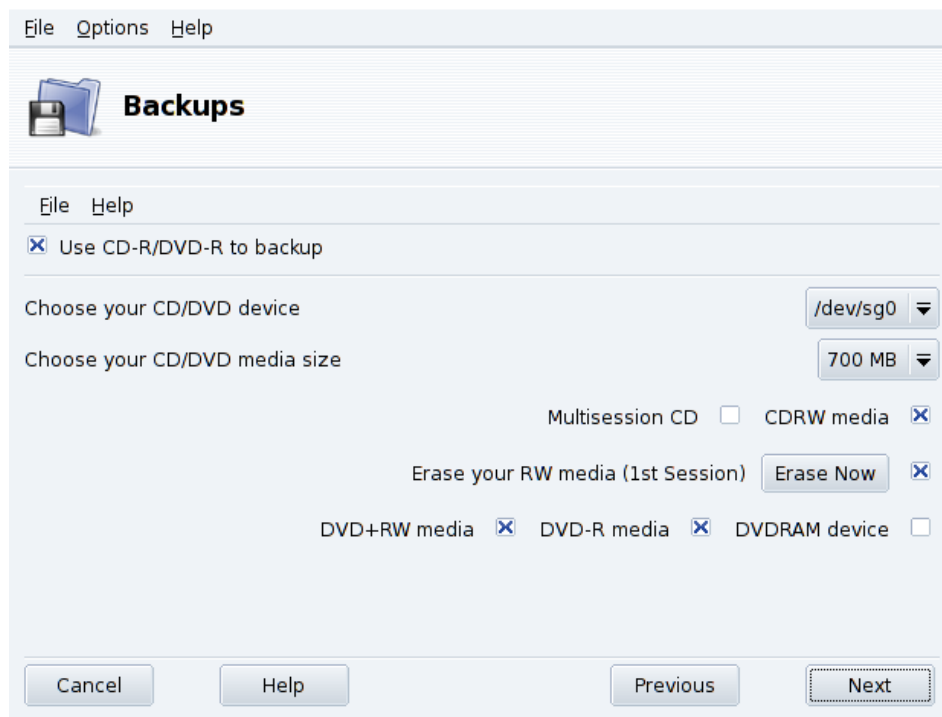


Figure 10-10. Setting Optical Media Parameters

If it isn't done automatically, use the Choose your CD/DVD device combo box to set the CD/DVD device. Set the medium's type and size, multisession and erasing options.

For multisession recordings, please bear in mind that the option to erase the medium is only effective for the 1st session and also that session-related information recording takes some space out (20 to 30 MB) for each session, so the "real data" storage space will actually be less than the medium's size.

10.6.1.3. Third Step: Review and Store the Configuration

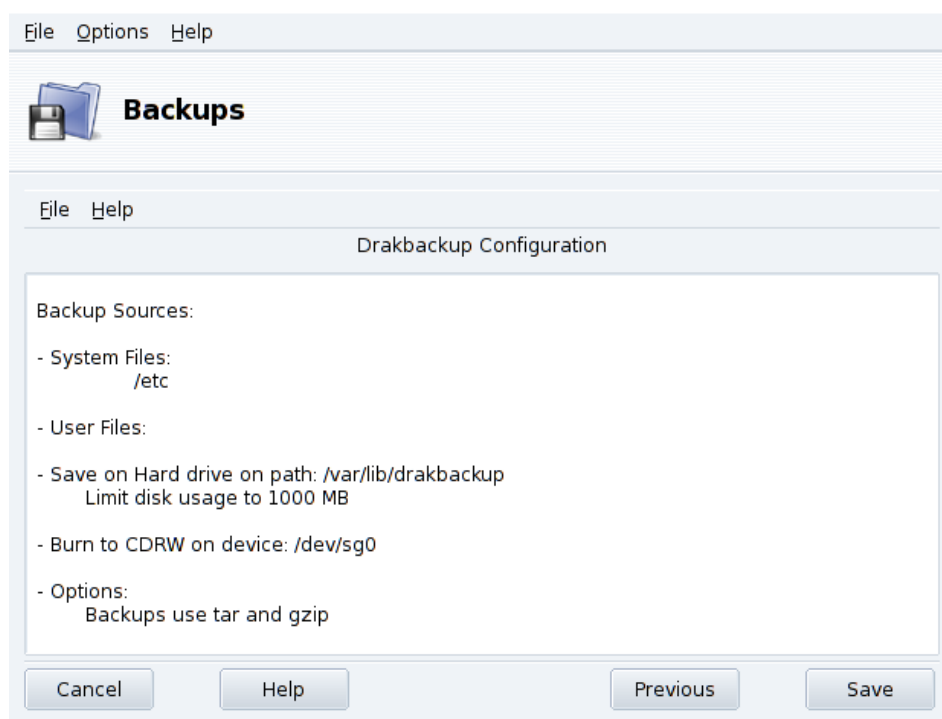


Figure 10-11. Review Configuration Parameters

The last wizard step shows a summary of the configuration parameters. Use the Previous button to change any parameter you are not satisfied with. Click on Save to store them on the Default profile. The backup set is now ready to be performed.

Backup Profiles

You can choose File→Save profile as from the menu and provide a profile name to store the current backup settings within a named backup profile. You can then run the configuration wizard again, define other settings and store them under a different profile.

Use the `--profile Profile_Name.conf` option when you run Drakbackup from the command line to load the `Profile_Name.conf` profile.

10.6.1.4. Performing the Backup

Click on Backup Now, make sure the corresponding media is ready (the recordable CDs in our example), and then on Backup Now from configuration file to perform the backup.

Warning

If the backup set size exceeds the medium's available capacity, the backup operation might just fail. This is a known issue and it's being worked on. As a work-around, please try to remove files from the backup set so its size never exceeds the medium's available capacity.

A dialog will display the current progress of the operation. Please be patient: the time it takes to back up depends on many factors such as the size of the backup file set, the speed of the storage option selected, and so on. Once the operation is finished a report is shown: look for possible errors on it and take corrective measures if needed.

10.6.2. Restoring Backups

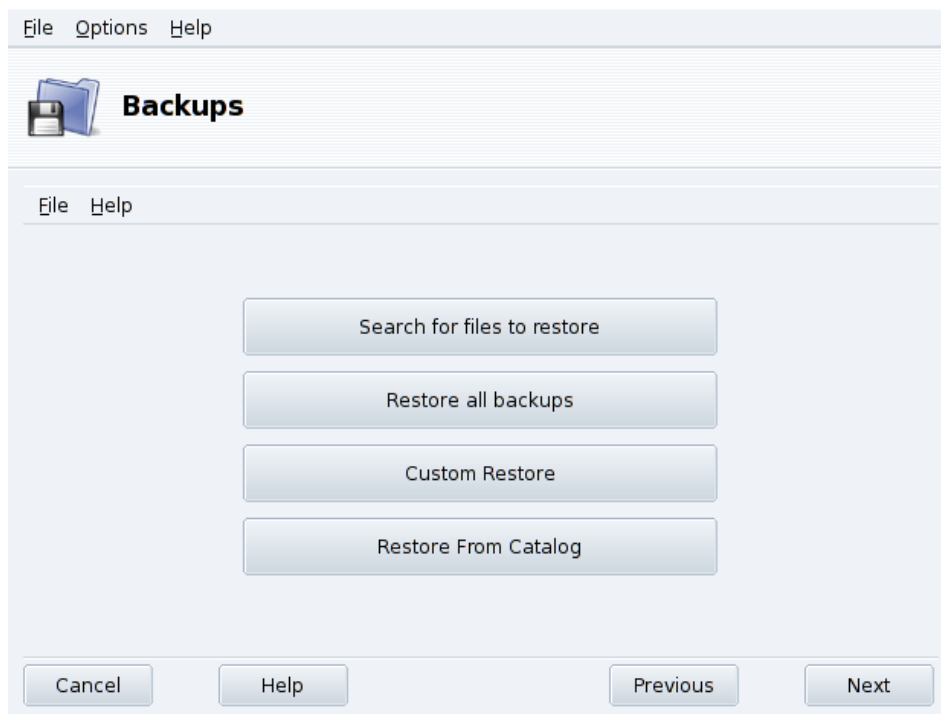


Figure 10-12. Choosing the Restore Type to Perform

Make sure the media you want to restore the backup from is accessible and ready and click on the Restore button. In our example we restore the whole backup so on the restore dialog (figure 10-12) click on Restore all backups and then on the Restore button to start the restoration process.

Warning

Existing files in the target restoration directory (same location where the backup was made from, by default) will be overwritten.

Feel free to investigate the other restore options if you want to restore part of a backup instead of the full file set, or to restore the backup to a different location.

10.6.3. Automating Periodic Backups

In the tool's main window, click on Advanced Configuration and then on the When button. In the backup scheduling window (see figure 10-13) select Use daemon to define the schedule.

Figure 10-13. Daemon Options Window

You are then 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 from Wednesday to Friday at a quarter to midnight and store it on CD, using the Default backup profile.

10.6.4. Advanced Backup Wizard Configuration

Click on Advanced Configuration and then on the More Options button to set more backup options (see figure 10-14).

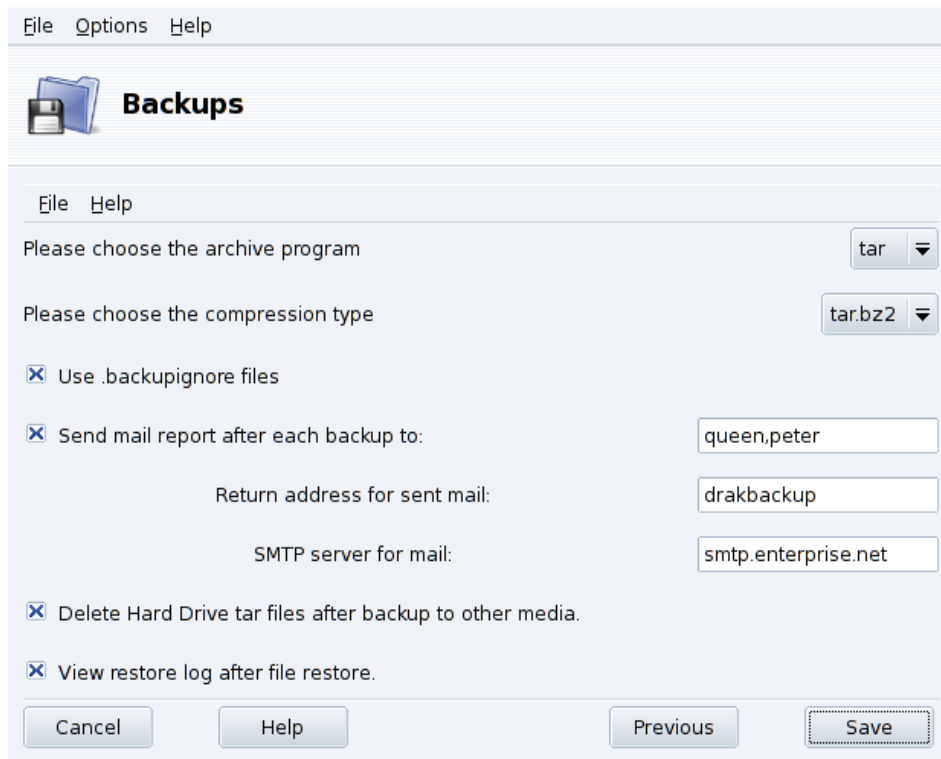


Figure 10-14. Miscellaneous Options Window

Archiving Program

You can choose between `tar` (the default) and `star` which allows you to backup extended ACLs too.

Compression Type

You can choose the compression strategy used for your backups among `tar` (no compression), `tar.gz` (gzip compression) and `tar.bz2` (bzip2 compression: better but slower).

Files to Ignore

You can 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 simple: a one-file-per-line list of the names of the files to exclude.

Tip: You can use the star (`*` = “matches any 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*` matches all files whose names start with `somename`, and `image00?.jpg` matches files named `image001.jpg`, `image009.jpg`, `image00a.jpg`, `image00h.jpg`, etc.

Send Reports by Email

Fill the mail address to which a report of the operation will be sent. You can specify many mail addresses separating each with a comma (,). Please complete also the Return address for sent mail field with the email address of the backups administrator, and the SMTP server for mail field with the name or IP address of the outgoing mail server.

Delete Temporary Files

Select the Delete Hard Drive tar files after backup to other media option to free that space after performing the backup.

View Restore Log

You can choose to view the restore operation log after each restore. This can be handy to spot and fix potential problems when restoring files: reading errors, network communications errors, etc.

Chapter 11. Mount Points and Remote Directories

11.1. Managing your Hard Drive Partitions with DiskDrake



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 we will not discuss these advanced uses here.

Warning

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, DVD/CD, 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 129).

11.1.1. The Interface

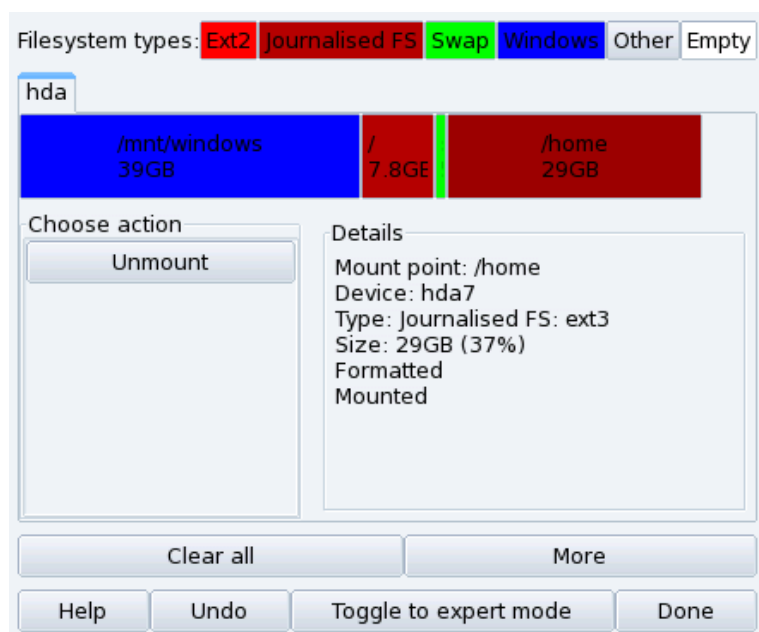


Figure 11-1. DiskDrake's Main Window

DiskDrake enables you to manage partitions on each physical hard drive on your 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 drive will have its own tab and will be named according to the Linux name for that drive.

The window (see figure 11-1) 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 executing general actions. See *DiskDrake's action buttons*, page 129.

We will now review the actions available through the buttons at the bottom of the window.

11.1.2. DiskDrake's action buttons

Clear all

Clicking on this button will clear all partitions on the current hard drive.

More

Displays a 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). This may prove useful if a problem arises (such as 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 overwrites all your data.

Rescue partition table. If you lose your partition table and have no backup, this function scans your hard drive to try and reconstruct the partition table.

Help

Display this documentation in a browser 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.

11.2. Managing Removable Devices



These tools enable system administrators to easily control those options which affect the behavior of removable devices such as floppy, CD and DVD disks. Note that, by default, all removable devices are automatically made available so users shouldn't need to manually mount media.



Figure 11-2. Changing a Parameter

For each device the following properties may be changed:

- **Mount point.** The directory from where the device's files will be accessed. You can either choose an entry from the list or type in your own path. If the directory does not exist, it is created automatically.
- **Options.** Controls various device options, notably whether a user is allowed to use new media without root privileges. If the user option (available by clicking the Advanced button) is deselected, regular users won't be able to access newly inserted media on this drive, only root will be able to access it.
- **Type.** Displays a list of file-system types. If you have a specific medium with a different file system on it, this is where you can tell Linux how to access it.

Select the property you wish to change and click OK. The corresponding dialog pops up in which you can change your settings. Then click OK again. The system then asks you if you want to save the modifications in the `/etc/fstab` file. By saying yes, you will not have to unmount and re-mount that device: it is done automatically

11.3. Importing Remote SMB Directories



This tool allows the system administrator to give users access to remotely shared directories using the SMB protocol (used mainly by Windows®).

While users can individually access remote shares through their file managers, it may be required in some cases to import a specific share for it to become immediately available for all users. We'll go through an example showing you how to import a directory from a Windows® machine.

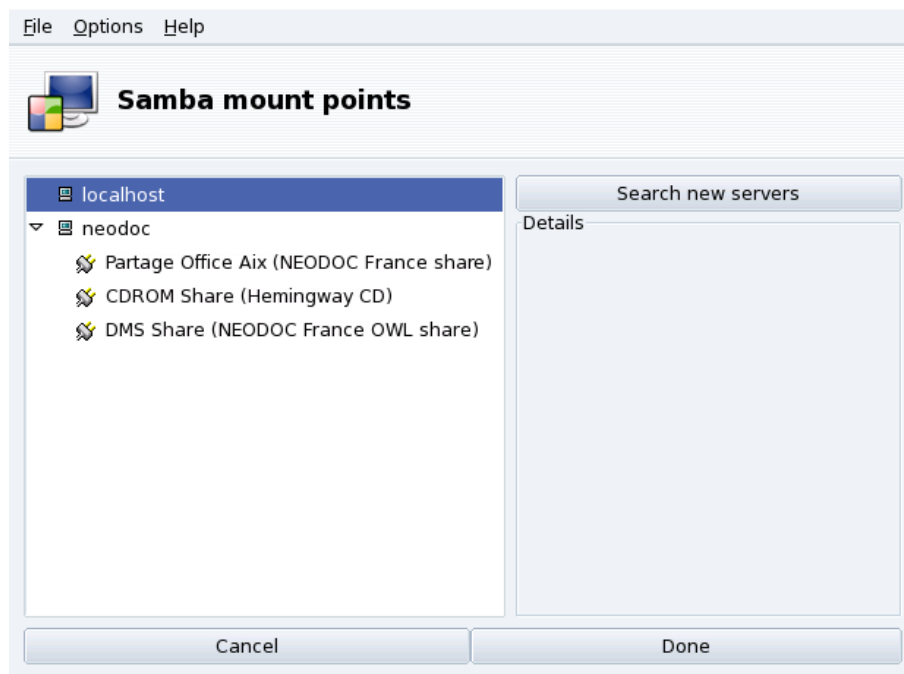


Figure 11-3. Scanning the Whole Network

Choose a Server. Clicking on the Search servers button scans the local network for machines which currently share directories (including the local one). We'll choose one of them and make it available locally for all users.

Choose a Share. Clicking on a machine's name will try to connect to it and browse for available shares. If that machine has password-protected shares, a dialog pops up asking you to identify yourself. Enter the correct Username, Password and Domain. The available shares on that machine will then appear. Click on the little arrow at the left of the machine icon to show available shares.

Tip: If the machine you're connecting to has both public and password-protected shares, then canceling the password entry dialog will connect you to that machine, but only to its public shares.

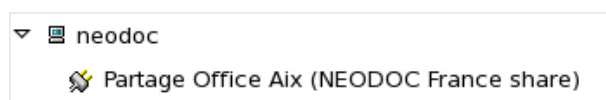


Figure 11-4. Choosing the Remote Directory to Import

Once a share is selected, a Mount point button appears. Clicking on it displays a dialog where you can type the local directory name where remote files will be accessible.

Once this is done, two more buttons appear:

- **Mount.** Makes the resource available locally. When this is done, users simply have to point their file manager to the directory selected as the mount point to get the files hosted by the server.
- **Options.** Allows you to set a user name and password to access that SMB mount point. Other permissions and advanced settings can also be set through this button.

Import Share on Each Reboot. When you're finished configuring the access points for remote directories, click on Done. A dialog box will appear asking you whether you wish to save your modifications to the `/etc/fstab` file (where mount point information is usually stored), or not. Click on Yes to make the shares configuration persistent between sessions. Click on No to exit without saving your changes.

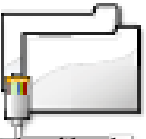
11.4. Importing Remote NFS Directories



This tool is exactly the same as the one mentioned in *Importing Remote SMB Directories*, page 131, except that it controls file sharing through the NFS protocol rather than SMB. Therefore it allows you to locally import shared files from NFS-friendly machines. The interface is the same as the one described in *Importing Remote SMB Directories*, page 131, and the effects are similar. Only the corresponding machines are different: UNIX[®] for NFS and Windows[®] for SMB.

One other difference is that there is no need to provide a password to access NFS shares. The authentication mechanism is host-based.

11.5. Allowing Users to Share Folders



This tool enables you to share files with other users of your computer network. File sharing can be done on heterogeneous systems such as GNU/Linux and Windows[®].

The file-sharing configuration is done in two simple steps: determining who can export folders, and then which protocol to use. A third step is necessary if you select the Custom export option.

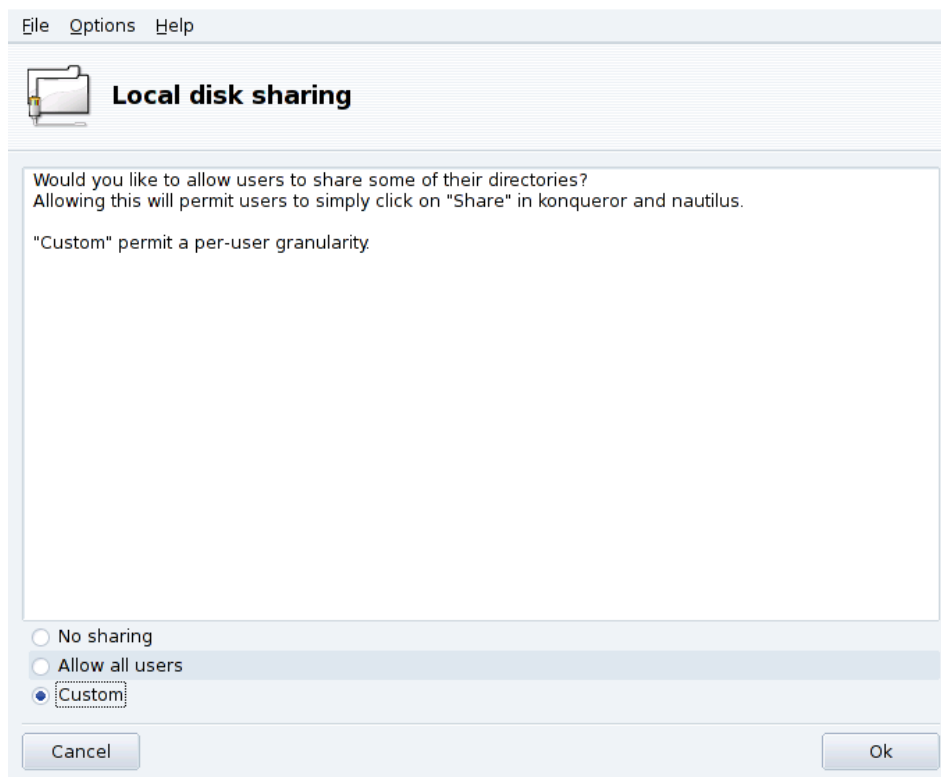
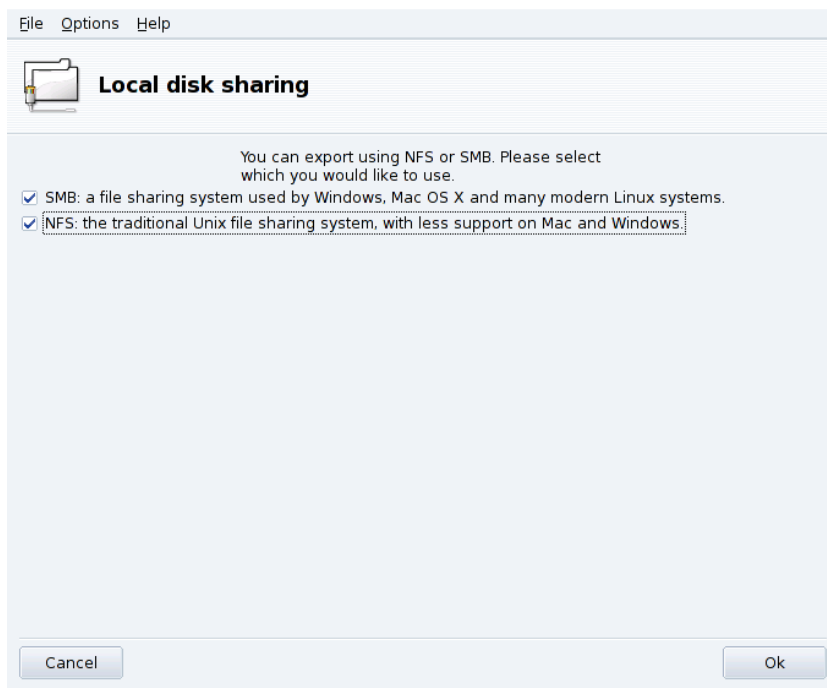


Figure 11-5. Controlling Exports

1. Who is Allowed to Share Folders
 - **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 same `fileshare` group will be allowed to share data. If you choose this option, the `fileshare` group will be created and, as a 3rd step, you will be prompted to run UserDrake in order to add the allowed users to this group (see *Managing Users and Groups*, page 119).
2. Choose the Export Protocol



You must now choose which protocol to use for file sharing. Check one or both of the following:

- **SMB.** If most of your users use Windows[®] systems, this is the preferable protocol to select.
 - **NFS.** If most of your users use UNIX[®] systems (such as GNU/Linux), this is the preferable protocol to select.
3. Once you have checked the appropriate boxes, click on OK. The required packages will be installed, if needed. If you uncheck a previously checked box, the corresponding service will be stopped.

Users Can Now Share Folders. Once users are allowed to share data, they can select the folders to be shared through their preferred file manager.

11.6. Setting up WebDAV Mount Points



WebDAV (*Web-based Distributed Authoring and Versioning*) is an extension to the HTTP protocol which allows you to create, move, copy, and delete resources on a remote web server. In practice, mounting a remote WebDAV repository on your local machine allows users to modify a remote web server's files as if those files were local to the system.

Tip: Browse the WebDAV Resources (<http://www.webdav.org/>) pages to learn more about this protocol.

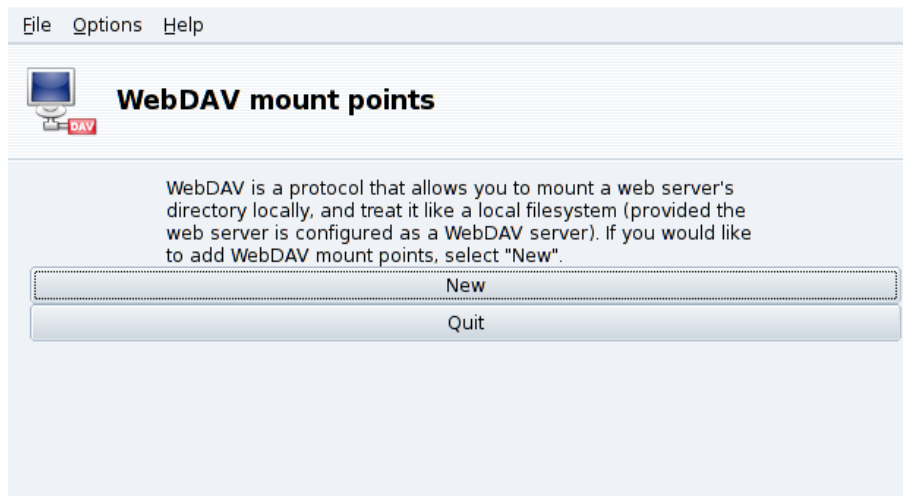


Figure 11-6. Managing WebDAV Mounts Points

The first time you launch this tool the required packages are installed if needed, and only two buttons are available. New, which allows you to define a new mount point, the other one just Quits the application. After you have defined mount points, they will appear as new buttons at the top of the buttons list. Clicking on a mount point button will take you to the mount point menu (see figure 11-7).

When you click on the New button you are asked for the URL of the web server. Enter the complete URL of the web server, beginning with `http://` or `https://`, then click OK.

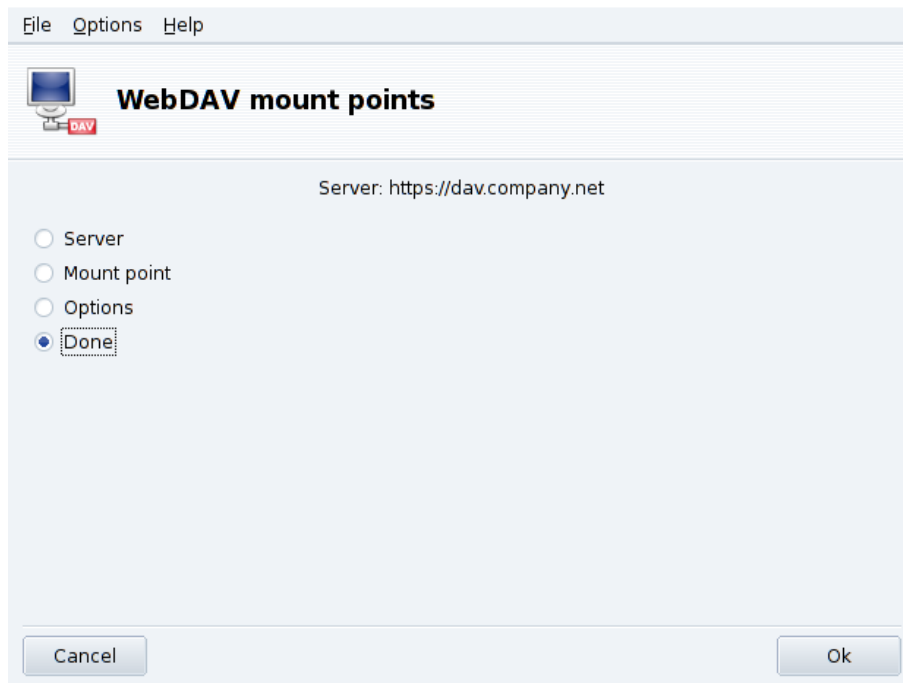


Figure 11-7. WebDAV Menu

You must now decide where the web server files will be accessible from. Select the Mount point option and click OK. There you are able to choose a local directory or type in your own. If the selected mount point does not exist, it is created.

If the server requires authentication, do not forget to fill the username and password fields in the Options dialog. Then all you need to do is to actually mount the remote repository by selecting Mount and clicking OK.

You are now able to browse and modify files on the local mount point you have defined and the changes will be immediately available on the web server.

To make your settings persistent between sessions, remember to save modifications to the `/etc/fstab` file, as suggested when you quit the wizard.

Chapter 12. Securing your Linux Box

12.1. Securing your Machine through DrakSec



draksec is a graphical interface to msec (which stands for Mandriva Linux Security Tool). It allows you to change your system's security level and to configure every option of msec's security features.

msec has two aspects: system behavior configuration and periodic checks of system state. Each security level modifies the system configuration, making it more and more secure, and verifying more and more security related aspects.

12.1.1. Setting your Security Level

Expert Tool: This tool is only displayed in expert mode. Choose Options→Expert mode from the menu and then access the Security section of Mandriva Linux Control Center.

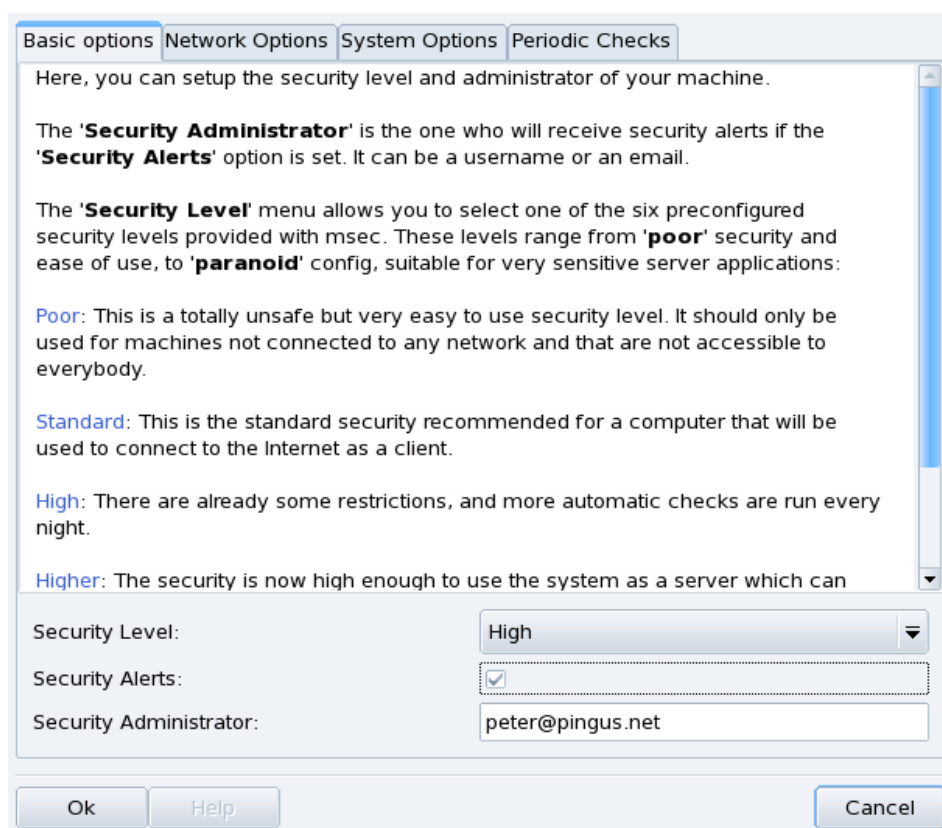


Figure 12-1. Choosing the Security Level of your System

Choose a Security Level. Simply choose the security level you want from the Security Level pull-down list: it will be effective as soon as you click on OK. Please read the help text regarding security levels very carefully so that you know what setting a specific security level implies.

Explore Each Level: If you wish to check which options are activated for each security level, review the other tabs: Network Options, System Options and Periodic Checks. Click on the Help button to display information about the options and their default values. If some of the default options don't suit your needs, simply redefine them. See *Customizing a Security Level*, page 138, for details.

Activate Security Alerts. 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 to the e-mail address defined in the Security Administrator field.

Warning

We highly recommend you 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 relevant system log files.

12.1.2. Customizing a Security Level

Clicking on each of the Options tabs (and the Periodic Checks one) lead you to msec's list of security options. This allows you to define your own security level based on the security level previously chosen.

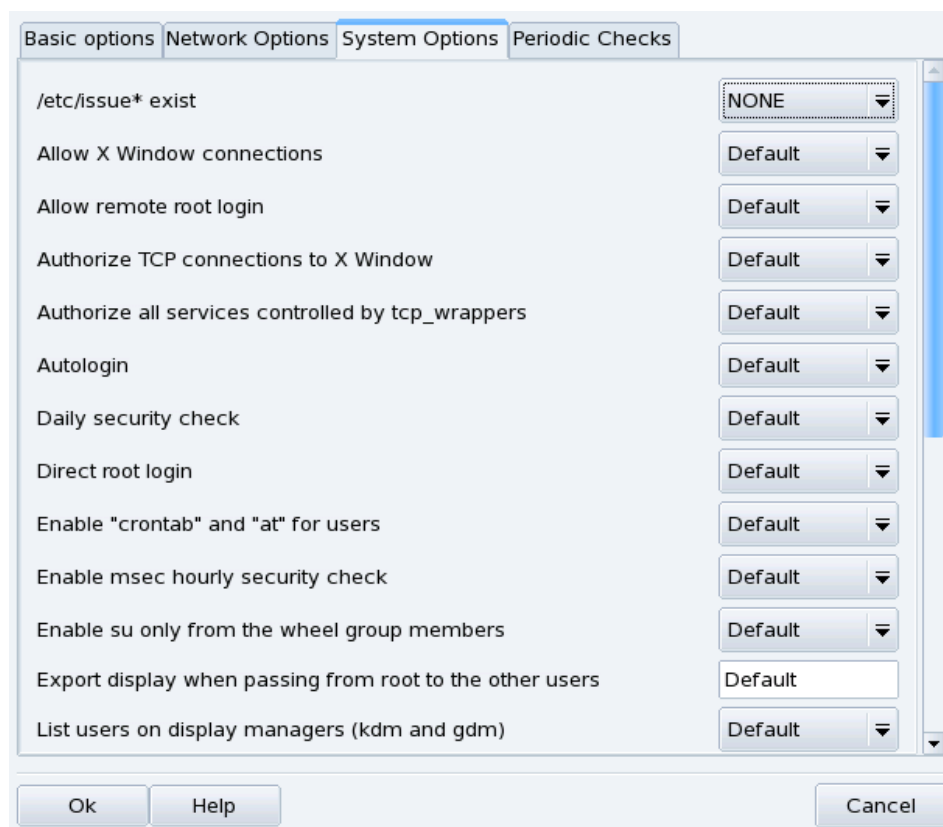


Figure 12-2. Modifying Standard Options

For each tab, there are two columns:

1. **Options List.** All available options are listed.
2. **Value.** For each option¹ 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 value if you don't wish this test to be performed.
 - **ALL, LOCAL, NONE.** The meaning of these are option-dependent. Please see the Help text available through the Help button for more information.

Clicking on OK accepts the current security level with custom options, applies it to the system and exits the application.

¹ The default security level setting is shown in the Help window.

12.2. Controlling File Permissions with DrakPerm



drakperm allows you to customize the permissions which should be associated with each file and directory in your system: configuration files, personal files, applications, etc. If the owners and permissions listed here don't match the actual permissions of the system's files, then msec (which stands for *Mandriva Linux Security Tool*) will change them during its hourly checks. These modifications can help prevent possible security holes or intrusions.

Note: This tool is accessible only in expert mode. Choose Options→Expert mode from the menu and then access the Security section of Mandriva Linux Control Center.

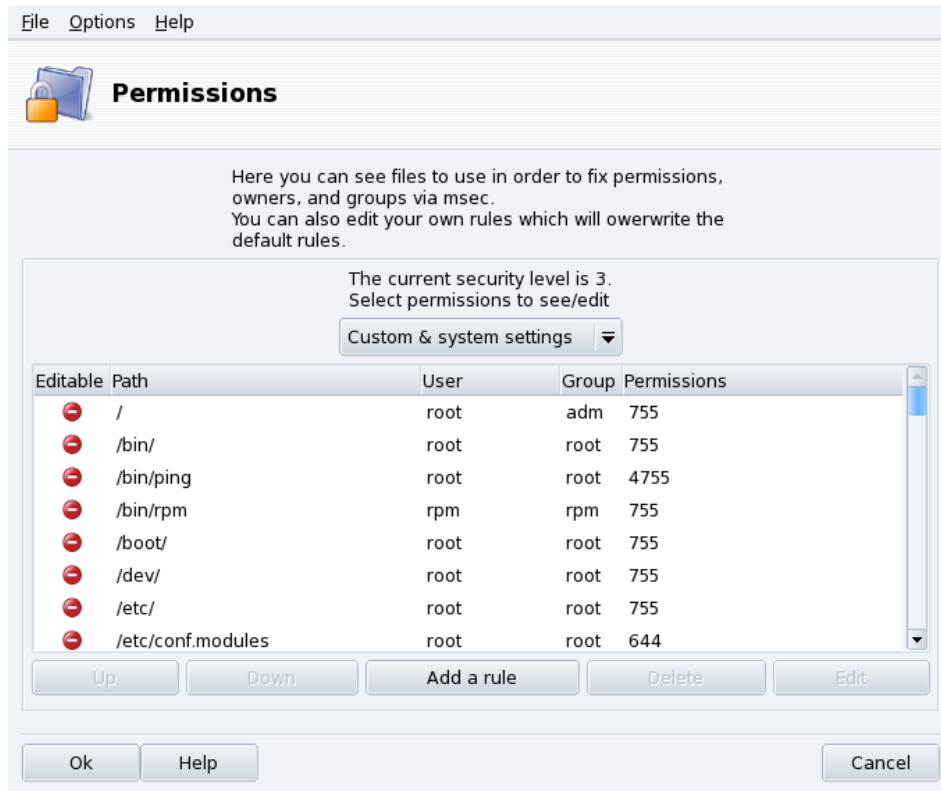


Figure 12-3. Configuring File-Permission Checks

The list of files and directories which appears depends on the current system's security level as set by msec, along with their expected permissions for that security level. For each entry (Path) exists a corresponding owner (User), owner group (Group) and Permissions. In the drop-down menu, you can choose to display only msec rules (System settings), your own user-defined rules (Custom settings) or both as in the example shown in figure 12-3.

Note: You cannot edit system rules, as stated by the "Do not enter" sign on the left. However you can override them by adding custom rules.

Create Your Own 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.

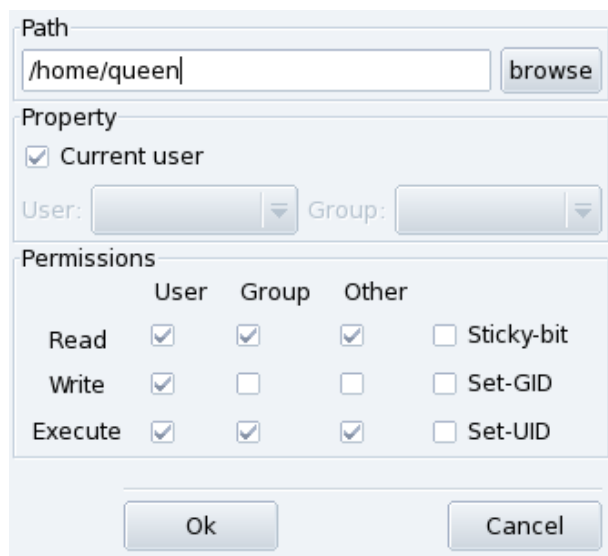


Figure 12-4. Adding a File-Permissions Rule

Customize Your Home Directory Permissions

1. Create a New Rule in msec

Let's imagine your current security level is set to 3 (high). This means that only the owners of the home directories can browse them. If you wish to share the content of Queen's home directory with other users, you need to modify the permissions of the `/home/queen/` directory.

2. Actually change the Home Permissions

msec only changes file permissions that are more permissive than the one required by a certain security level. That means that for the change above, the permissions must be changed by hand.

You can do this in Konqueror by modifying the permission properties of your home directory, and checking the Apply changes to all sub-folders and their contents option.

3. Check Rules Priority

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.

12.3. Securing your Internet Access via DrakFirewall



This little tool allows you to set up a basic firewall on your machine. It filters connection attempts made from the outside, and blocks unauthorized ones. It's a good idea to run it just after installing your machine and before connecting to the Internet, therefore minimizing the risks of your machine being compromised.

This Wizard consists of the three steps we detail below.

12.3.1. Choose Services to be Available from Outside

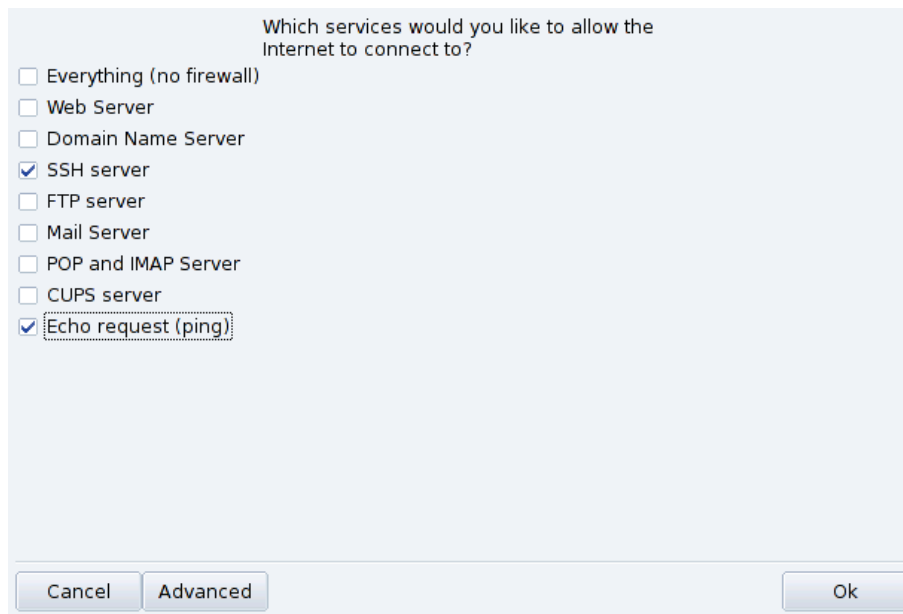


Figure 12-5. The DrakFirewall Window

Open Up Ports, If Needed. If checked, uncheck the Everything (no firewall) box, 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 isn't listed here, click on Advanced to manually enter the port numbers to open.

Opening Unusual Services: The Advanced button opens a field named Other ports where you can enter any port to be opened to the outside world. Examples of port specifications are presented just above the input field: use them as a guide. It's possible to specify port ranges by using the `:` syntax such as `24300:24350/udp`.

This Won't Block You from Accessing the Net. Not checking a service in this list won't stop you from connecting to it. It will only prevent people **from** the Internet connecting to that service on your machine. If you don't plan on hosting any services on your machine (common case for a desktop machine) just leave all boxes unchecked.

How to Disable the Firewall. On the other hand if you wish to disable the firewall and leave all services accessible from the outside, check Everything (no firewall), but please bear in mind that this is **very insecure**, and therefore not recommended.

12.3.2. Activate Interactive Firewall Feature



Figure 12-6. Interactive Firewall Options

Stay Informed of Connections on your Machine.

The interactive firewall can warn you of connection attempts on your machine by displaying alert popups through the network applet. Check the Use Interactive Firewall option to activate this feature.

Port scan detection

Activate this option to be warned of malicious attempts to access your machine.

Other entries corresponding to open ports

Next you are shown a checkbox for each port you have chosen to open during the previous step. Activating them will popup a warning each time a connection attempt is made on those ports.

12.3.3. Which Interface to Protect

The next step consists of selecting the network interface connected to the Internet.

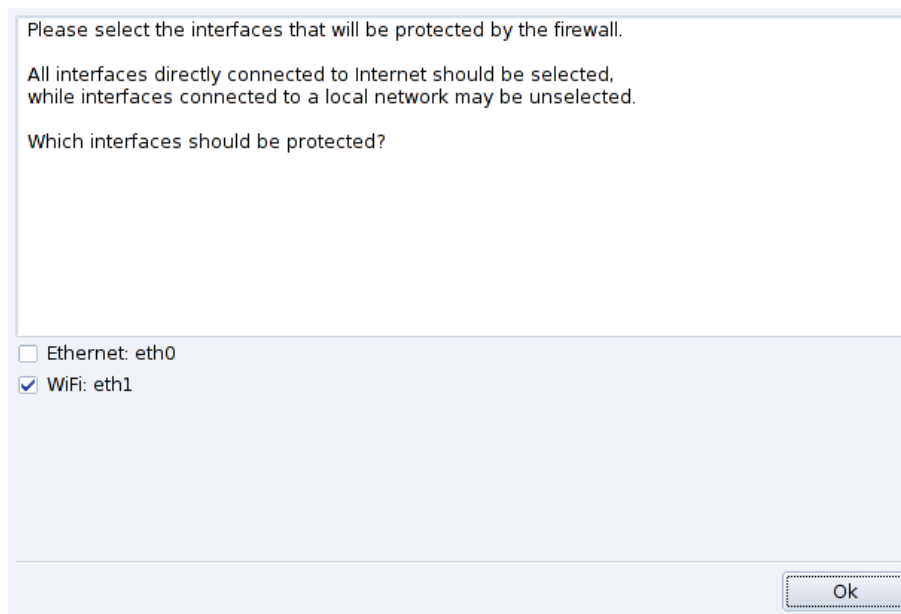


Figure 12-7. The Internet Interface

If you don't know which interfaces you have connected for the Internet, you can check the system network configuration (see *Reconfigure Interfaces*, page 106). You can finally click OK to install the required packages, activate the firewall and enjoy your secure Internet connection.

Chapter 13. Boot Device Configuration

13.1. Configuring the Login Mode



This tool allows a user to be automatically logged into the system at boot time, without a password being required.

☒ Launch the graphical environment when your system starts

☐ No, I do not want autologin

☐ Yes, I want autologin with this (user, desktop)

Default user: queen

Default desktop: KDE

Cancel Ok

Figure 13-1. Choosing the Login Mode

Here are the available parameters:

Graphical Interface

If you wish to have the X Window System (graphical display) 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 and you will need to start the graphical environment manually.

Autologin

If you're the only person using your machine and nobody else has access to it, you may choose to be automatically logged in at boot time.

1. Select the Yes, I want to autologin with this (user, desktop) option.
2. Choose the user you want to be logged on automatically in the Default user pull-down menu.
3. Choose the preferred Default desktop in the pull-down menu.

13.2. Changing your Boot-up Configuration



This tool allows you to configure the bootloader and the boot menu entries.

Warning

Unless you're an expert, it's not recommended that you change these settings as this may prevent you from booting your machine the next time you try to power it on.

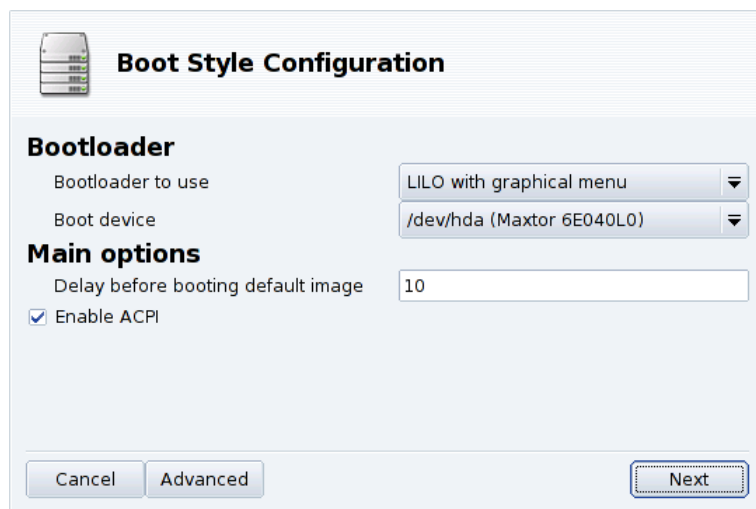


Figure 13-2. Choosing the Boot Mode

13.2.1. Configuring the Bootloader

You can choose between the GRUB and the LILO bootloader. Either one will allow you to boot Mandriva Linux, it's just a question of taste.

Unless you know what you're doing, you shouldn't change the default Boot device shown, since that's where the bootloader installs itself. If more than one OS is installed on your machine, it's a good idea to leave at least 5 seconds so that you can easily select a different menu item than the default image.

The dialog finally shows a few options which can be useful depending on your specific hardware.

Enable ACPI

Enable this option to allow better power management support if your hardware is ACPI compatible. ACPI is often needed for new laptops which no longer support APM.

Advanced options. Click on Advanced to be able to wipe the contents of the /tmp directory (which might hold some files you download from the Internet, for instance) and to tell Linux how much RAM your machine has, should this prove to be an issue at boot time.

13.2.2. Managing Boot Entries

After clicking Next, the list of available entries at boot time is displayed; the default one is marked by a star (*).

It's also possible to make an entry the default one by checking the Default check-box in the Modify dialog.

13.3. Customizing your Boot Theme



The Boot Theme utility enables you to change the default theme displayed at boot time, as well as a few other options.

- Choose one of the available boot modes in the pull-down menu (figure 13-3).
- Uncheck the Display theme under console option if you want a clean, "traditional" console. This relates to those accessible through the **Ctrl-Alt-Fn** keys.

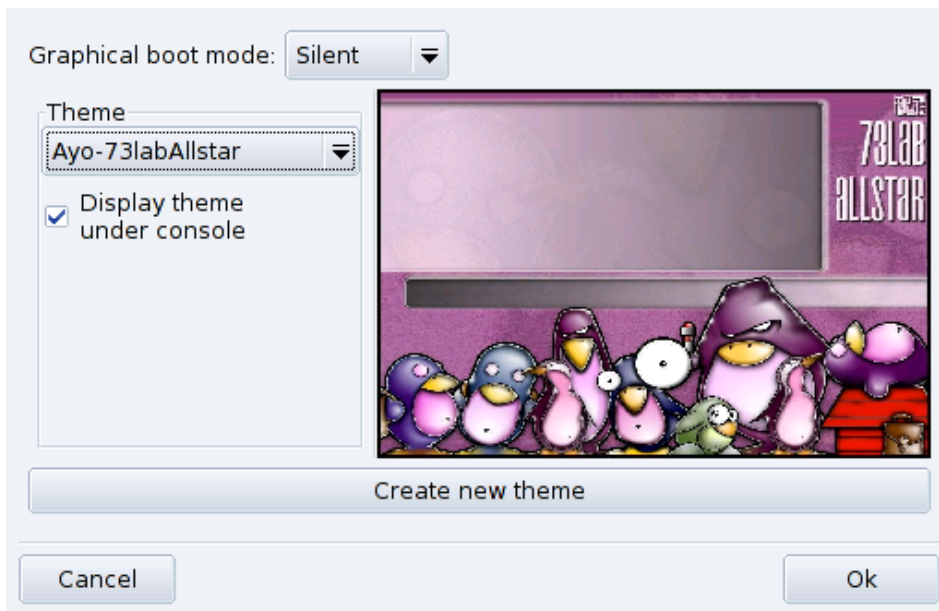


Figure 13-3. DrakBoot Theme Window

The boot theme setting will have no effect if your system isn't set to boot using the graphical mode. Please refer to *Changing your Boot-up Configuration*, page 145, for more information on setting the boot mode.

Installing Fancy New Themes. If you only have one theme available, you may install the `boot splash-themes` package which you will find in `contribs`. Other themes are also available on the web.

Create Your Own. The Create new theme button allows you to fully customize an existing boot theme or create a new boot theme from scratch. Adjust the parameters to your liking and save it. It will then be accessible in the available Themes list.

Chapter 14. Mandriva Online Services

Mandriva's convenient update service warns you about bug or security fixes specifically available for your machines. This service can also be configured to automatically install package updates so you don't have to run it manually.

The system is comprised of the following items:

Initial Configuration Wizard (see *Initial Configuration*, page 149)

Enables you to register a new machine.

Web Management Interface (see *The Web Management Interface*, page 150)

Allows you to manage all the hosts you maintain and to activate hosts so they are taken into account for updates.

Applet (see *Mandriva Online Applet*, page 152)

Informs you on the status of your updates, and allows you to launch the installation of updates when needed.

Take a look at the Mandriva Online FAQ (<https://www.mandrivaonline.com/page.php?page=info>) page to get further information about the Mandriva Online service.

14.1. Initial Configuration

The Mandriva Online wizard shows up when you boot your machine for the first time. It allows you to create a new account or to register an existing one. To manually launch the wizard from your user account, right-click on the Mandriva Online applet icon on the panel and choose *Configure Now!*. You will have to provide `root`'s password.

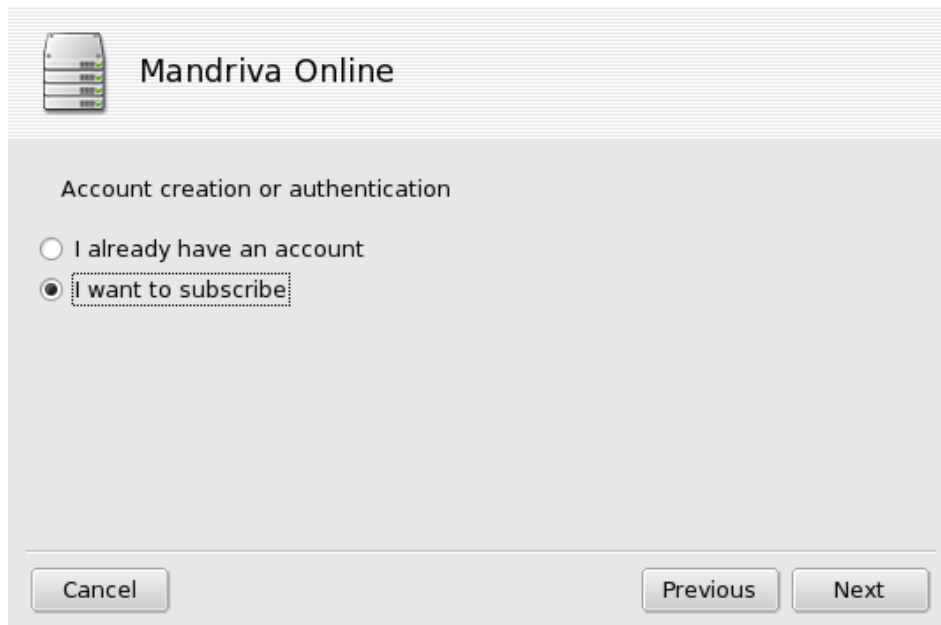
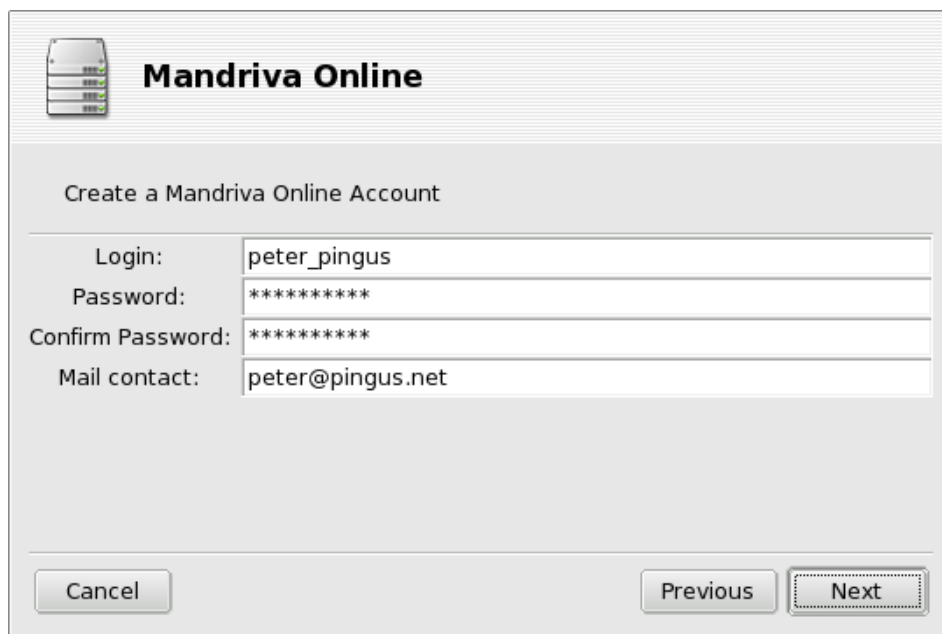


Figure 14-1. Existing or New Mandriva Online Account?

After clicking on *Next*, select the appropriate option (*I already have an account* or *I want to subscribe*) and click *Next*.

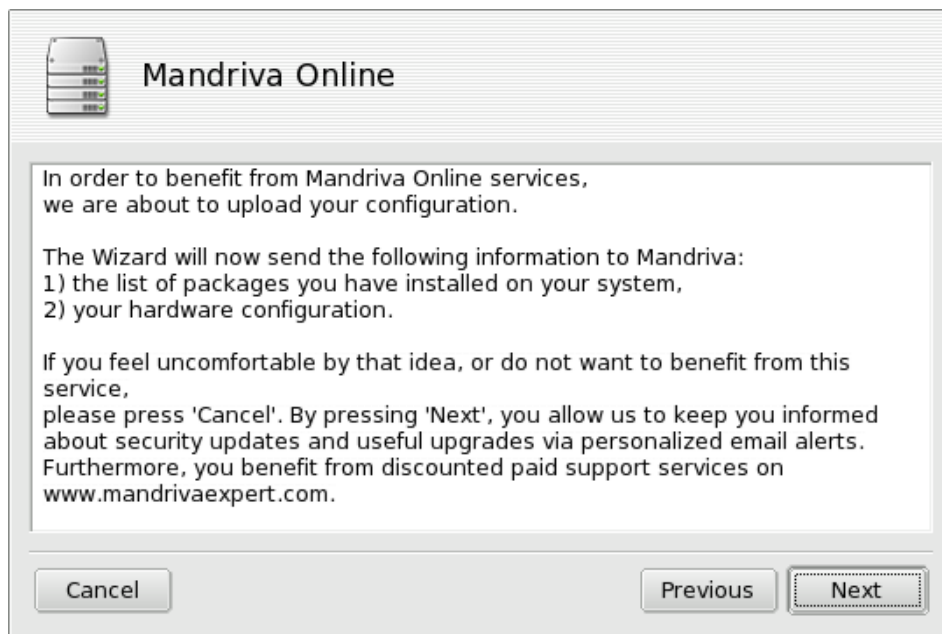


The image shows a window titled "Mandriva Online" with a server icon. Below the title bar, it says "Create a Mandriva Online Account". There are four input fields: "Login:" with the text "peter_pingus", "Password:" with "*****", "Confirm Password:" with "*****", and "Mail contact:" with "peter@pingus.net". At the bottom, there are three buttons: "Cancel", "Previous", and "Next".

Figure 14-2. Authentication on Mandriva Online

Enter your login information and provide a name to identify your machine. This is useful if you manage several computers with Mandriva Online.

The next step explains what information is collected on your computer. This information is required for the service to work correctly.



The image shows a window titled "Mandriva Online" with a server icon. The main text area contains the following information: "In order to benefit from Mandriva Online services, we are about to upload your configuration." followed by "The Wizard will now send the following information to Mandriva:" and a list: "1) the list of packages you have installed on your system, 2) your hardware configuration." Below this, it says: "If you feel uncomfortable by that idea, or do not want to benefit from this service, please press 'Cancel'. By pressing 'Next', you allow us to keep you informed about security updates and useful upgrades via personalized email alerts. Furthermore, you benefit from discounted paid support services on www.mandrivaexpert.com." At the bottom, there are three buttons: "Cancel", "Previous", and "Next".

Figure 14-3. Uploading Your Configuration

Finally, choose your country so that automatic updates occur from the nearest possible server. If your country is not listed, select the nearest one. Click on Next and Finish to exit the wizard.

Note: To complete your setup, you must activate this machine in your Mandriva Online account.

14.2. The Web Management Interface

To activate your Mandriva Online account, access the Mandriva Online web administration interface (<https://www.mandrivaonline.com/>) by right-clicking on the Mandriva Online applet on the panel, and choose Online WebSite. Once you're on the website, provide your Mandriva Online email address and password.

Note: At this point, you can check out your mandriva account (<https://my.mandriva.com>) settings on the My Mandriva Web site.

14.2.1. Subscribing New Machines

Registered hosts










active	status	host	arch.	release	expir.	mail alert	details
		linuxbox	i586	2006.0	Permanent	no	
		linuxbox64	x86_64	10.2	Permanent	no	
		101	i586	10.1	Permanent	no	

Figure 14-4. Mandriva Online Hosts List

14.2.2. Host Management

Once you activate a host you can access its management interface by clicking on the details icon.

Registered hosts > linuxbox

User:	fabman@mandriva.com	Status:	
Host:	linuxbox	Installed packages:	See
Architecture:	i586	Automatic scheduled updates:	no
Mandriva Linux Version:	2006.0	<p>If you set your system to automatically schedule updates, you will not be able to exclude packages from being updated.</p>	
Service Activated on:	Sep 05, 2005		
Active Service until:	Permanent		
E-mail Alert:	no		
Send Alert to:	fabman@mandriva.com		

Remove from Mandriva Online

Figure 14-5. Up-To-Date Mandriva Online Host

The available actions differ slightly according to whether your machine's packages are up-to-date or not, but basically here are the actions you can perform:

Control email alerts

Change the mail-sending status to yes (by clicking on the link) to receive an email when updates are available.

Control automatic scheduled updates

Change the auto-update status to yes (by clicking on the link) to have updates for your machine automatically installed by the applet (see *Mandriva Online Applet*, page 152) which regularly connects to the Internet to check for such updates.

Check current packages

Click on the See link by the Installed packages or Errata(s) label.

14.2.3. Scheduling Updates

You can update your machine manually from the applet (see *Mandriva Online Applet*, page 152); from the Web interface, you can check which updates are available and choose which ones to install.

■ [Registered hosts > 101](#)

User:	fabman@mandriva.com	Status:	
Host:	101	Installed packages:	See
Architecture:	i586	Outdated packages:	144 See
Mandriva Linux Version:	10.1	schedule all outdated packages to be updated	
Service Activated on:	Sep 05, 2005	Automatic scheduled updates:	no
Active Service until:	Permanent	If you set your system to automatically schedule updates, you will not be able to exclude packages from being updated.	
E-mail Alert:	no		
Send Alert to:	fabman@mandriva.com		
Remove from Mandriva Online			

Figure 14-6. Outdated Mandriva Online Host

You must now select the packages to be updated. You can either schedule all packages to be updated, or choose them one by one by clicking on the See link in the Outdated packages field.

■ [Registered hosts > "101" > Erratas](#)

bugfix

Advisory / Date		Package Name
<input type="checkbox"/>	Sep 5, 2005 MDKA-2005:037	rpmdrake-2.1.5-13.2.101mdk.i586.rpm fixes package rpmdrake-2.1.5-13mdk Due to the changeover of the Mandriva domain names and the unavailability of the old Mandrake Linux domains, rpmdrakeneeded an update in order to update the mirrors list file.
<input type="checkbox"/>	Dec 29, 2004 MDKA-2004:060	udev-030-24.1.101mdk.i586.rpm fixes package udev-030-24mdk Updated udev packages fix problem with firewire cameras
<input type="checkbox"/>	Dec 17, 2004 MDKA-2004:059	urpmi-4.5-29.1.101mdk.noarch.rpm fixes package urpmi-4.5-28mdk Updated urpmi packages fix ssh parallel support

[Schedule Packages](#)

Figure 14-7. Select Packages to be Updated

Click on the advisory link (of the MDKA-year:number or MDKSA-year:number forms) to obtain details about that update. Check the box for each package you want to be updated on your machine. When this is done, click on Schedule Packages.

Once updates are selected, they are automatically installed next time the applet connects to the Mandriva Online server, which occurs several times a day.

14.3. Mandriva Online Applet

The applet resides on your desktop panel. It informs you about update availability and allows you to perform basic system maintenance tasks.

The applet icon can be in one of many states, depending on your machine's status:



The system is up-to-date. All is fine.



A standard program update is available for your installed packages.



A bugfix update is available for your installed packages.



A security update is available for your installed packages. It is **highly** recommended that you install security updates.



The applet is currently contacting the server, be patient.



This host isn't currently activated. Activate it using the Web interface (see *Subscribing New Machines*, page 151).



The applet cannot connect to the server. Check your Internet connection.



The system is currently not configured or a configuration error was found. Launch the configuration wizard (see *Initial Configuration*, page 149) to use Mandriva Online.

Click on the applet icon to open a dialog with action buttons, followed by the current machine's status.

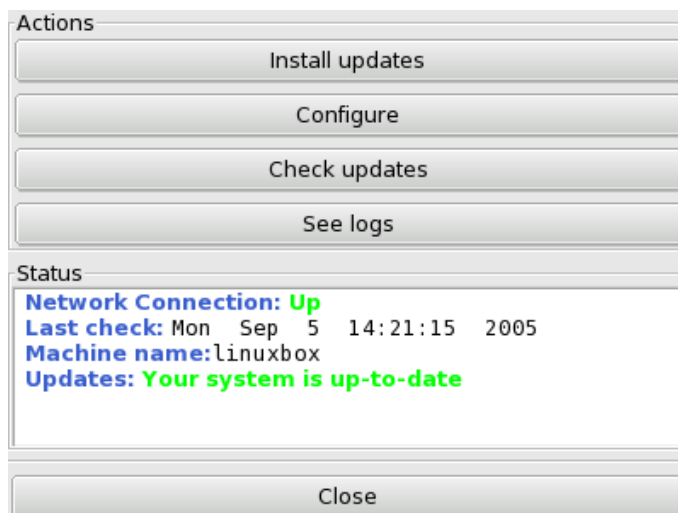


Figure 14-8. Mandriva Online Applet

Install updates

Manually launch the updates installer by opening Rpm Drake (see *Adding, Removing and Updating Software*, page 76).

Configure

Launch the wizard (see *Initial Configuration*, page 149). This can be useful to resend your machine configuration to the server, for example if you have upgraded your hardware.

Check updates

Manually connects to the server to check if updates are available. This is done periodically by the applet, but if you have no permanent connection to the Internet, it may be useful to manually check for updates when you are online.

Chapter 15. Server Configuration Wizards

15.1. Foreword

The Mandriva Linux configuration wizards are designed to configure servers located between a local network and the Internet. They let you quickly and efficiently configure the most common services in a local network, as well as Internet web and FTP services. We assume that your network is as shown in figure 15-1, and that Mandriva Linux is installed on the server. Configuring and bringing up the Internet connection is beyond the scope of this chapter (see *Network and Internet Connection Management*, page 103).

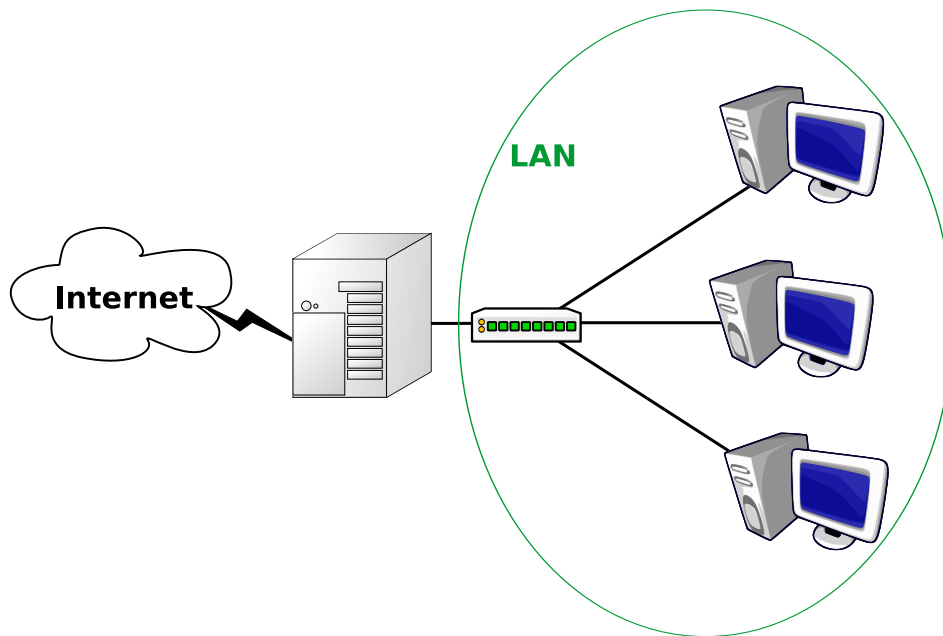


Figure 15-1. An Example of an Internal Network

The server configuration wizards are available through the Control Center when the drakwizard package is installed. New categories appear in the Mandriva Linux Control Center, so wizards are organized as follows:

Note: Wizards noted as “Expert mode only” below are only accessible when the expert mode is toggled on (Options→Expert mode).

Sharing

- FTP server (*FTP Server Configuration*, page 163): configure where your FTP server should be reachable from.
- Samba server (*Samba Server Configuration*, page 159): this wizard helps you set up public shared files and printers, and announce their names to the Windows[®] network.
- Samba server fine tuning: this set of wizards let you manage and create shares for repositories (public/user shares). Expert mode only.
- Web server (*Web Server Configuration*, page 162): to setup your GNU/Linux box as a web server. We explain how to make it reachable from the Internet.
- Installation server (*Installation Server Wizard*, page 166): to allow your network client machines to be installed from the server, making CDs and DVDs obsolete. Expert mode only.

Network Services

- DHCP server (*DHCP Server Configuration*, page 156): your server can assign IP addresses dynamically to machines on the network.
- DNS server (*DNS Server Configuration*, page 157): to configure name resolution for machines inside and outside the private network.
- Proxy server (*Proxy Server Configuration*, page 168): configure your server to act as a web proxy cache. This speeds up web browsing while limiting the bandwidth usage on the Internet.
- Time server (*Time Configuration*, page 170): your machine can also supply time to other machines using NTP (*Network Time Protocol*).
- OpenSSH server: to let people connect to your server, and use its console “as if they were sitting there”, through a secure communications channel.

Authentication

- Change authentication method: to set up the local users authentication scheme (local, LDAP, NIS, Windows Domain). Expert mode only.
- NIS server (*NIS and Autofs Servers Wizard*, page 166): to set up the Network Information System, centralizing users authentication and home directories.
- LDAP server (*LDAP Configuration Wizard*, page 167): to set up a simple LDAP repository to be used as authentication mechanism.

Groupware

- Mail server (*Mail Server Configuration*, page 158): configure your mail domain for sending and receiving mail to and from the outside world.

You can access the wizards by clicking on their corresponding buttons. We describe wizards for the most common services in no particular order. Note that the required packages are installed by the wizard if they are not already available.

Note: For experienced users: wizards are limited to configuring class C networks, and only the basic configuration is handled for each service. This should be enough for most situations, but if you wish for a more fine-tuned configuration, you must edit the configuration files by hand or by using another administration tool such as Webmin.

15.2. DHCP Server Configuration



DHCP stands for *Dynamic Host Configuration Protocol*. This protocol allows for machines connecting to your local network to be automatically assigned all relevant network parameters such as an IP address, the addresses of the name servers and the address of the gateway.

File Options Help

Configure DHCP

Range of addresses used by DHCP
Select the range of addresses assigned to the workstations by the DHCP service; unless you have special needs, you can safely accept the proposed values. (ie: 192.168.100.20 192.168.100.40)

If you want to enable PXE in your dhcp server please check the box (Pre-boot eXecution Environment, a protocol that allows computers to boot through the network).

Lowest IP address: 192.168.1.65
Highest IP address: 192.168.1.254
Gateway IP address: 192.168.0.1
Enable PXE: ☒

Cancel Next

Figure 15-2. DHCP Server Address Range

All you have to do is specify the range of addresses¹ that you want to have available via DHCP, as shown in figure 15-2. Select the network interface the DHCP server must listen on for requests: choose the one connected to your LAN. If you wish that client computers be able to access the Internet, you need to provide the IP address of the gateway. In case the DHCP server is also the gateway for your LAN fill it with the server's LAN address (for example: 192.168.0.1).

Tip: Check the Enable PXE option if you want your machine to act as an installation server for multiple machines on your LAN.

15.3. DNS Server Configuration



DNS stands for "Domain Name System". It allows you to specify a machine by its name instead of its IP address. This wizard allows you to setup a basic DNS server, master or slave.

Make sure you have a FQDN host name set for your system, otherwise the DNS wizard will refuse to start. Please refer to *Network and Internet Connection Management*, page 103, for information on how to set the system's host name. You are given the option to run one of the following wizards:

Master DNS Server

Setup your machine as a plain DNS server. After selecting the network interface on which to listen for DNS requests, you can provide the address of an external DNS server to which the requests that the local server cannot answer will be forwarded. It is generally the address of your ISP's DNS server.

Then you can specify domain names for lookups. For example if you request the IP of a machine called *kenobi*, the server appends the domain names you add here to perform the request.

1. Addresses outside this range are available for machines which need static addresses. Those machines can then be listed in the DNS configuration (*DNS Server Configuration*, page 157).

Slave DNS Server

Setup your machine as the slave server of another, master, DNS server. Just supply the IP address of the master server for the slave to mirror. Then clients can be configured to query both servers: if the master fails, the slave takes over.

Add Host in DNS

If your machine is a master DNS server, you'll be able to declare all the machines with static addresses on your network so that the DNS server can answer requests about them.

Remove Host in DNS

This is used to remove a DNS entry previously added with Add Host in DNS.

Note: Both the Add Host in DNS and Remove Host in DNS wizards only work if your machine is set up as a master DNS server.

15.4. Mail Server Configuration



SMTP stands for "Simple Mail Transfer Protocol". An SMTP server allows you to send internal and external mail through it. If your server is referenced on the Internet public DNS as an MX server for your domain name, then it also receives and manages mail from the Internet addressed to users of your domain. This wizard allows you to setup a mail server with Postfix.

Warning

Your server network parameters must not be provided by DHCP for Postfix to work properly.

The first step consists of choosing whether you intend to use an external SMTP relay or not. If you can use one provided by your ISP then choose Relay mail server in the drop-down list. Otherwise, choose Main mail server. In the procedure below only the second step differs from one configuration to the other.

1. Global Postfix Configuration

Smtpd banner

The banner your server advertises when talking to other servers or clients.

Hostname

The FQDN name of your server.

Domain

The domain handled by this mail server.

Origin

The domain name that locally-posted mail appears to come from, and that locally posted mail is delivered to.

2. Relay (for Relay mail server only)

Relay host

This is where you define the mail server responsible for relaying your outgoing messages.

Relay domains

What destination domains (and subdomains thereof) this system relays mail to. Mails sent to a domain other than the local domain that are not part of the relay domains are rejected (to prevent spam).

3. Main server Configuration (for Main mail server only)

helo required

For security reasons you might require remote clients to identify themselves before starting communication. Choose yes in this case.

Disable verify command

The `verify` command can be used by a client to verify a specific user is actually handled by a mail server. You can disable it to prevent email harvesting by spammers.

Masquerade domains

This field is used to masquerade the domain from which internal mail appears to come from. For example: `foo.example.com` `example.com` directs Postfix to masquerade `toto@foo.example.com` to `toto@example.com`.

4. Message options

A few options affecting message handling you can leave at their default values.

Maximal queue life

If a message cannot be delivered after this delay it is sent back as undeliverable. Expressed as a number of days prefixed by the letter `d`, for example `3d` means three days.

Message size limit

Messages larger than this size (kilobytes) are rejected. When defining this parameter, please bear in mind that binary attachments have a bigger size than their filesize because they have to be encoded differently to be sent in a mail message.

Delay warning time

If a message cannot be delivered, the sender will receive a warning after this number of hours.

5. Network Configuration

inet interfaces

The network interface addresses that this mail system receives mail on. By default the server listens on all network interfaces (`all`), specify `localhost` to listen only on the local interface.

my destination

The list of domains that are delivered via the local mail delivery transport. The SMTP server validates recipient addresses and rejects non-existent recipients.

my networks

The list of “trusted” SMTP clients who have more privileges than “strangers”. In particular, “trusted” SMTP clients are allowed to relay mail through Postfix. Specify a list of network addresses or network/netmask patterns, separated by commas and/or whitespace.

If a parameter is not clear to you, please refer to the Postfix Configuration Parameters (<http://www.postfix.org/postconf.5.html>).

15.5. Samba Server Configuration



Samba allows GNU/Linux to act as a file and/or printer server for Windows[®] machines. Even though this wizard can help configure primary and backup domain controllers, we will concentrate here on the most common, standalone server configuration.

File Options Help

Configure Samba

Workgroup

Samba needs to know the Windows Workgroup it will serve.

Workgroup: GALAXY

Netbios name: skywalker

Cancel Previous Next

Figure 15-3. Choose the Workgroup

Enter the workgroup to be served by your Samba server and the server's NetBIOS name (figure 15-3). You can either create a new workgroup or choose an existing one, please refer to your network administrator if you are unsure.

Tip: A valid NetBIOS name must follow the simple NetBIOS naming rules (basically, a 1 to 16 character mix of letters, numbers and the – sign is allowed), and be unique (ie. no other machine should have that same name) within the workgroup.

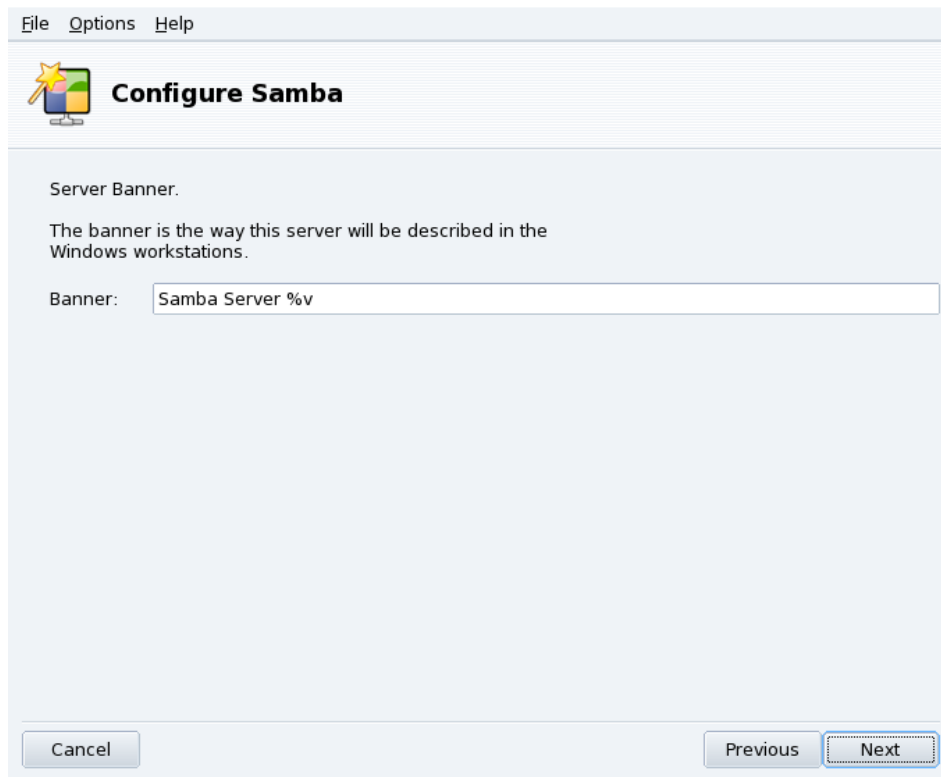
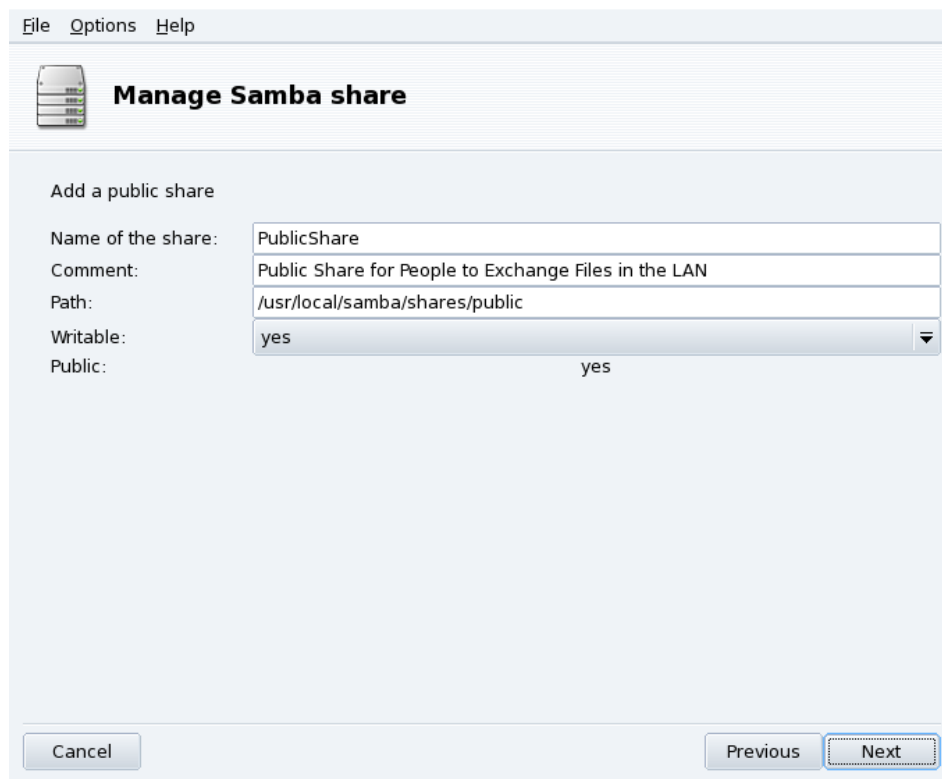


Figure 15-4. Server Banner

Then you have to specify a descriptive name for your Mandriva Linux server, as shown in figure 15-4. This is the description Windows[®] machines on your network get when requesting more information about the server. You may just accept the default or choose whatever name you want.

Finally you can adjust the log facility parameters. Keep the defaults unless you have specific needs.

When the Samba server is configured you can use the Samba share wizard to create new shares and manage existing ones. Please note that it is only available in Expert Mode.



The screenshot shows a window titled "Manage Samba share" with a menu bar (File, Options, Help) and a server icon. The main area is titled "Add a public share" and contains the following fields:

Name of the share:	PublicShare
Comment:	Public Share for People to Exchange Files in the LAN
Path:	/usr/local/samba/shares/public
Writable:	yes
Public:	yes

At the bottom, there are three buttons: "Cancel", "Previous", and "Next". The "Next" button is highlighted with a dashed border.

Figure 15-5. Samba Public Share Setup

Run the Samba share manager, select Public share and proceed to the next step. figure 15-5 shows an example of a public share, writable by everyone with files hosted on the `/usr/local/samba/shares/public` folder in the server.

Warning

Home directories should not be shared by means of a writable public share, use the Special share (CDrom, Homes, Profiles) option to share home directories instead.

15.6. Web Server Configuration



This wizard will simply let you specify if your web server will be disabled, visible from the local network, from the external network (generally the Internet) or from both. Check the appropriate boxes as shown in figure 15-6.



Figure 15-6. Defining the Web Server Visibility

Warning

If your server network parameters are provided by DHCP the web server might not function properly if set to be visible from the Internet.

Then you can enable the feature which gives users the option to maintain their own web sites, available from the `http://server_name/~user/` URL. The directory where they store their sites (`public_html`, inside the user's home directory, by default) can also be changed if this option is checked.

Finally you can specify the directory where the files to be served by the server will be stored, known as the **Document Root**. To publish your web site, simply put the files in the chosen directory. You can connect to your web site as soon as the wizard is finished through the `http://localhost/` URL.

15.7. FTP Server Configuration



This wizard resembles the one used to configure a web server: It will let you specify whether FTP should be disabled, visible from the local network, from the external network, or both. Check the appropriate boxes as shown in figure 15-7.

File Options Help

Configure FTP

FTP server

Your server can act as an FTP server toward your internal network (intranet) and as an FTP server for the Internet.

Select the kind of FTP service you want to activate:

Enable the FTP server for the intranet ☒

Enable the FTP server for the Internet ☐

Cancel Previous Next

Figure 15-7. Defining FTP Server Visibility

Warning

If your server network parameters are provided by DHCP the FTP server might not function properly if set to be visible from the Internet.

File Options Help

Configure FTP

FTP Proftpd server options, step 1

Permit root login: allow root to log on FTP server.
Admin email: email address of the FTP administrator.

Server name:

Admin email:

Permit root login: ☐

Cancel Previous Next

Figure 15-8. FTP Server Configuration

The basic FTP server configuration is shown in figure 15-8. Besides the server's name you should provide an email address for the administrator so that he can receive alert messages.

Admin e-mail

Enter the address to which messages regarding the FTP server should be sent.

Permit root login

Check this box if you wish the root user to be allowed to login into the FTP server. If the FTP authentication is made in clear text, this option is **not** recommended.

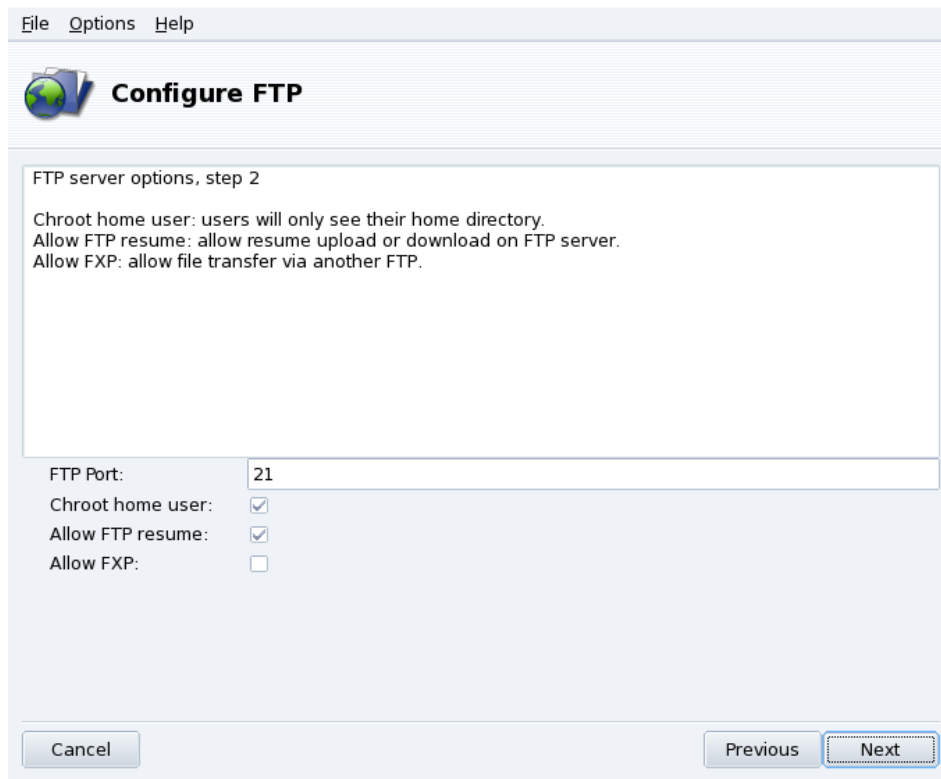


Figure 15-9. FTP Server Options

You are then allowed to configure a few options (figure 15-9):

FTP Port

The standard FTP port is 21, if you specify something else here FTP clients will have to be configured accordingly.

Chroot home user

By checking this option, users who log into the FTP server will be “boxed inside” their home directories.

Allow FTP resume

If your server is likely to host large files, it might be prudent to allow users to resume downloads.

Allow FXP

Check this option if you want your server to be able to exchange files with other FTP servers. Please note that the FXP protocol is not very secure.

To begin populating your FTP server, simply put the files in the `/var/ftp/pub/` directory. You can connect to your FTP server as soon as the wizard is finished through the `ftp://localhost/pub` URL. Home directories are also accessible by default with local password authentication. If queen wants to access her home directory she has to use the `ftp://queen@localhost` URL.

Note: To enable anonymous login on the FTP server, you need to install the `proftpd-anonymous` package.

15.8. Installation Server Wizard



You are performing lots of installations and are tired of changing CDs? This wizard is for you. It configures your machine to act as an installation server, so new machines can get all required packages directly from your server on the local network, either for initial installation or for maintenance.

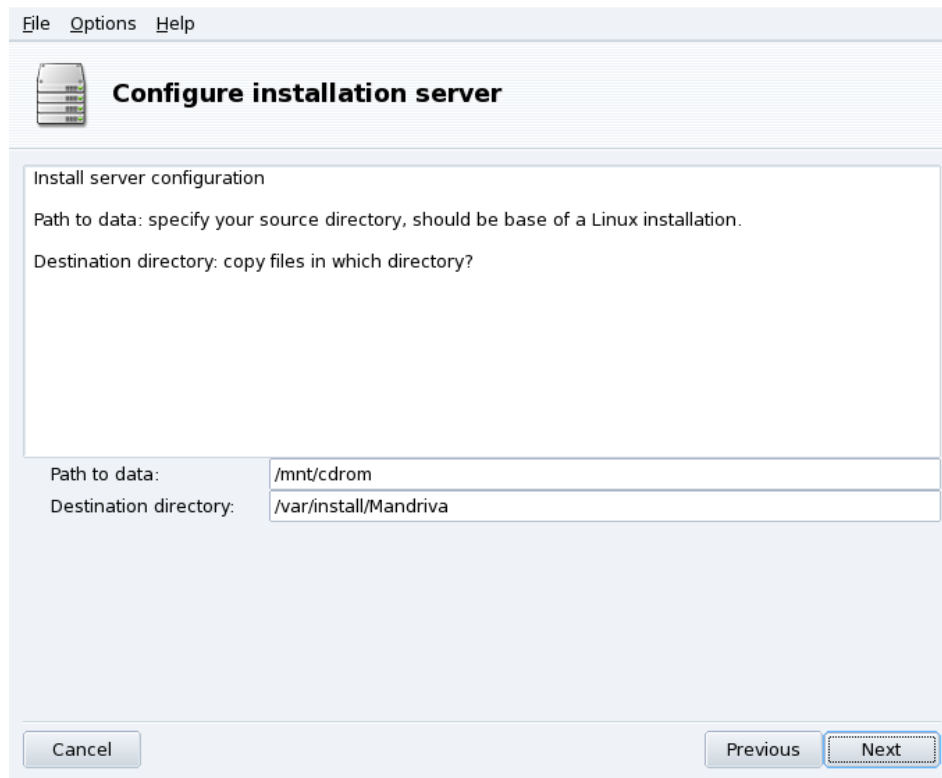


Figure 15-10. Copying Installation Sources

Specify the location to copy the CDs or DVD from, and a place on your disk where the files are to be stored.

Note: If you get an error, please check that the medium you selected as source is mounted.

15.9. NIS and Autofs Servers Wizard



NIS stands for “Network Information Service” and allows you to centralize your users’ authentication and home directories. Run this wizard if you want users to have access to their own environment no matter which machine on the local network they connect from.

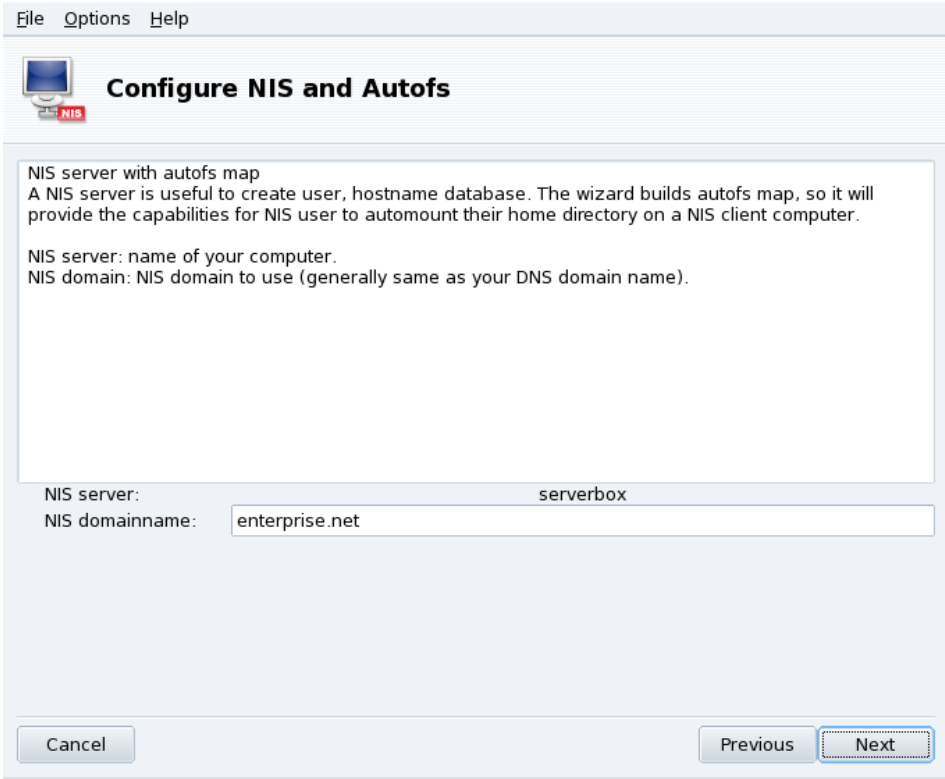


Figure 15-11. Setting NIS Server Parameters

Fill the NIS domain field with your domain name, then fill the directory to “host” the NIS users homes. When configuration is done, NIS users can login from any machine on the network that is setup to connect on your NIS server. Additionally, those users have their home directories automatically mounted locally.

15.10. LDAP Configuration Wizard



LDAP stands for “Lightweight Directory Access Protocol” and can be used to centralize directory-like information, for example address books, user account details, etc. This simple wizard allows you to setup a basic LDAP server, and add users to it. This is useful to quickly setup a LDAP-based authentication mechanism.

When you first run the wizard, you are presented with the server configuration dialog.

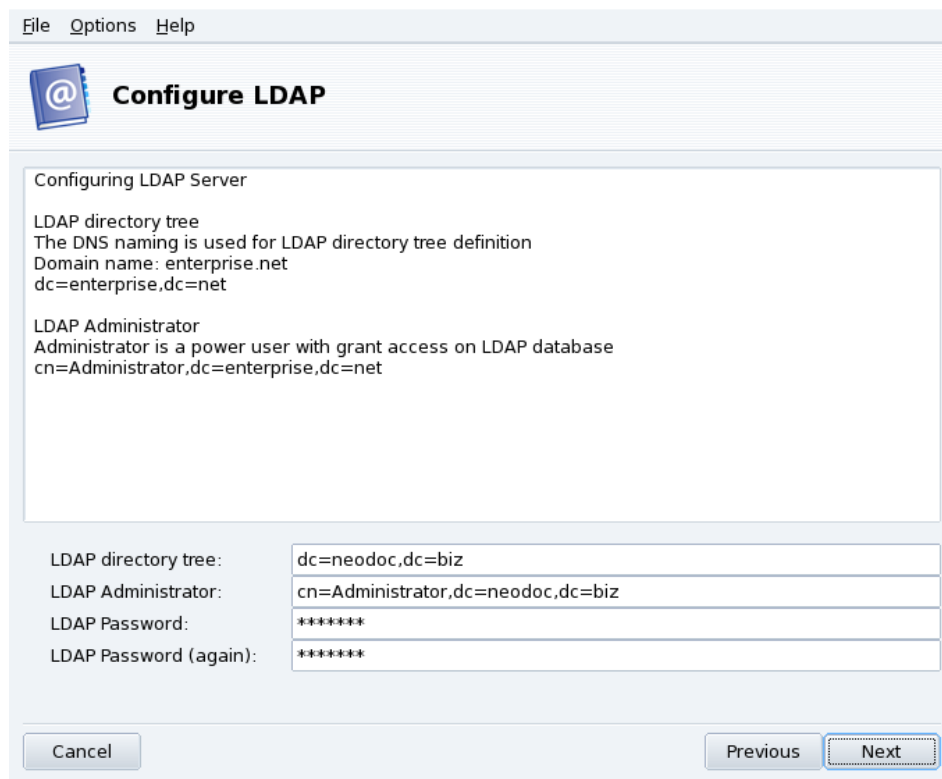


Figure 15-12. LDAP Server Configuration

Once the configuration is set and the server launched, running the wizard again gives you the following options:

Show Ldap configuration

Shows current server configuration, useful to configure possible LDAP clients.

Delete Ldap configuration

Removes current server configuration and stops the server. You are informed of the file name where current LDAP directory information will be stored in LDIF format.

Add user in Ldap server

Starts a little wizard which allows you to add new users inside the users directory.

15.11. Proxy Server Configuration



A proxy server is very useful for a local network accessing many web pages across a slow, or relatively slow, connection. It maintains a cache of most visited pages so that they don't need to be retrieved again from the Internet if requested by different users. This wizard sets up the Squid proxy server.

First of all you need to choose a port for the proxy to listen to requests on. Users have to configure their web browsers to use this port as the proxy port and your server's name or IP address as the proxy server.

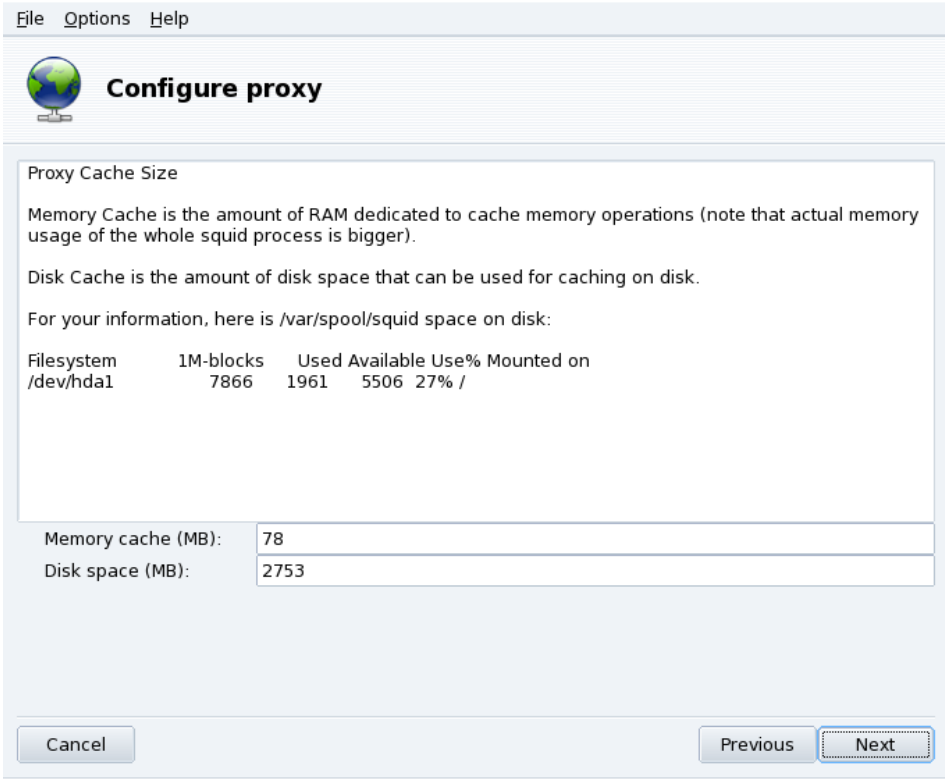


Figure 15-13. Choose the Cache Size

Depending on your machine’s available memory, you can allocate more or less to the proxy. The bigger the memory cache, the fewer disk accesses on the server. Depending on your available disk size you can allocate more or less room for cached pages. The more the space, the less accesses to the Internet. The wizard chooses appropriate values for your system, if in doubt just accept the proposed ones.

In the next step, some access levels are available for clients wishing to use the proxy:

- **All.** There is no restriction, all computers are granted access to the cache. This setting is not very secure and thus not recommended.
- **Localhost.** Only the local machine, the server, can access its own proxy.
- **Local Network.** Only machines on the local network can access the proxy. This is the recommended setting.

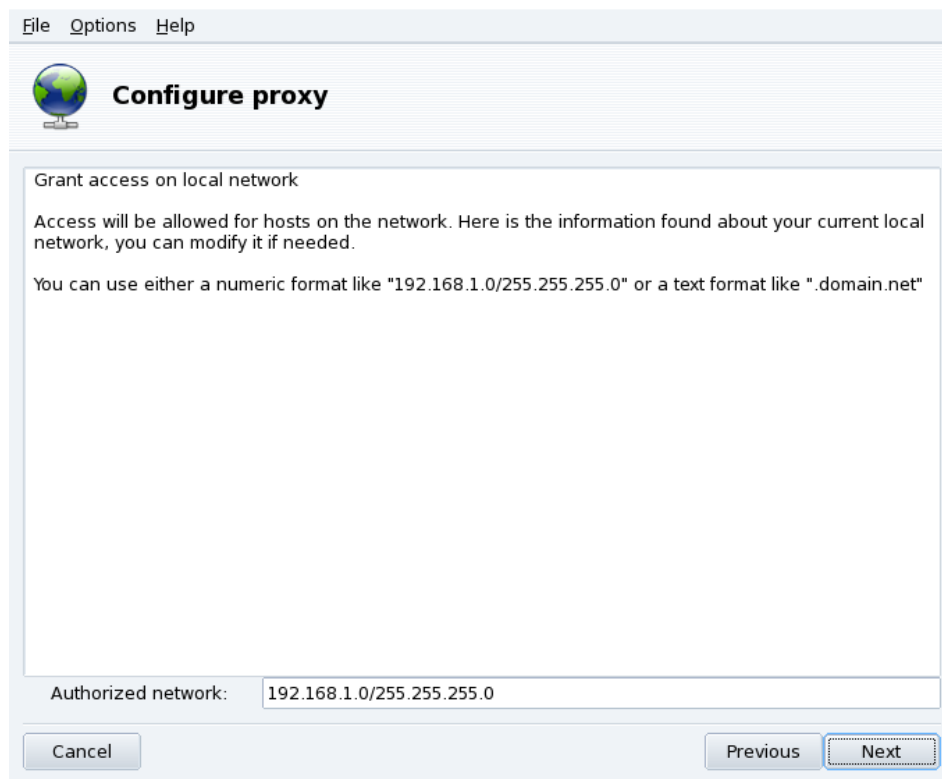


Figure 15-14. Restrict Access to a Particular Sub-network

If you have previously chosen the Local Network access policy, you can choose to restrict even more the access to a particular subnetwork or domain. The wizard will detect your LAN's network address and will offer it by default: make modifications if needed.

Finally, if your server itself has access to another larger proxy connected to the Internet, you can choose to Define an upper level proxy to which requests will be forwarded. If so, the next step will ask you for the name and port of that server.

15.12. Time Configuration



NTP stands for "Network Time Protocol" and is used to synchronize system time with reference time servers on the Internet. This wizard lets you set up a time server for your internal network. When you have set up the external time servers your own server will use to correct its internal clock, machines on your local network will be able to get the correct time from your local server.

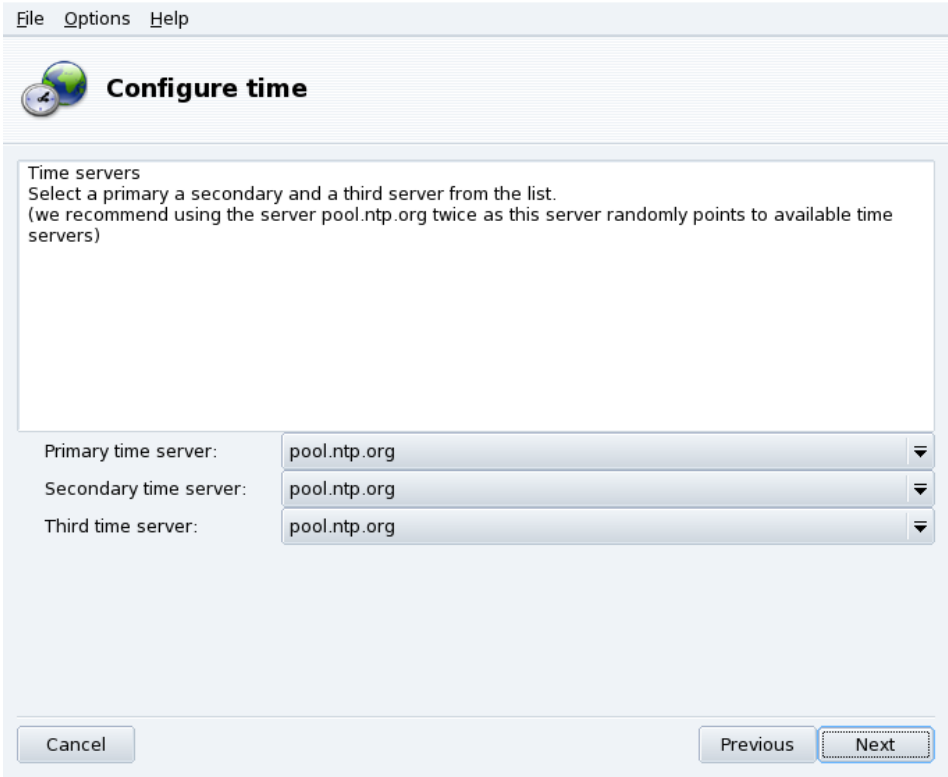


Figure 15-15. Choosing your Time Servers

Choose the time servers to query, in order of preference. It is advisable to keep the default suggested ones, otherwise choose servers which are geographically close to you. Then the time zone has to be set, use the pulldown lists to choose your geographic location.

Chapter 16. Exchanging Data with Other Devices or Local Computers

16.1. PDAs

Handheld computers are widely used by people who need to have their schedules, to-do lists, and notes with them everywhere they go. Often they need to have the same data available both on the desktop and their portable device. KPilot is a tool to synchronize data on a handheld with the PIM applications on the desktop computer.

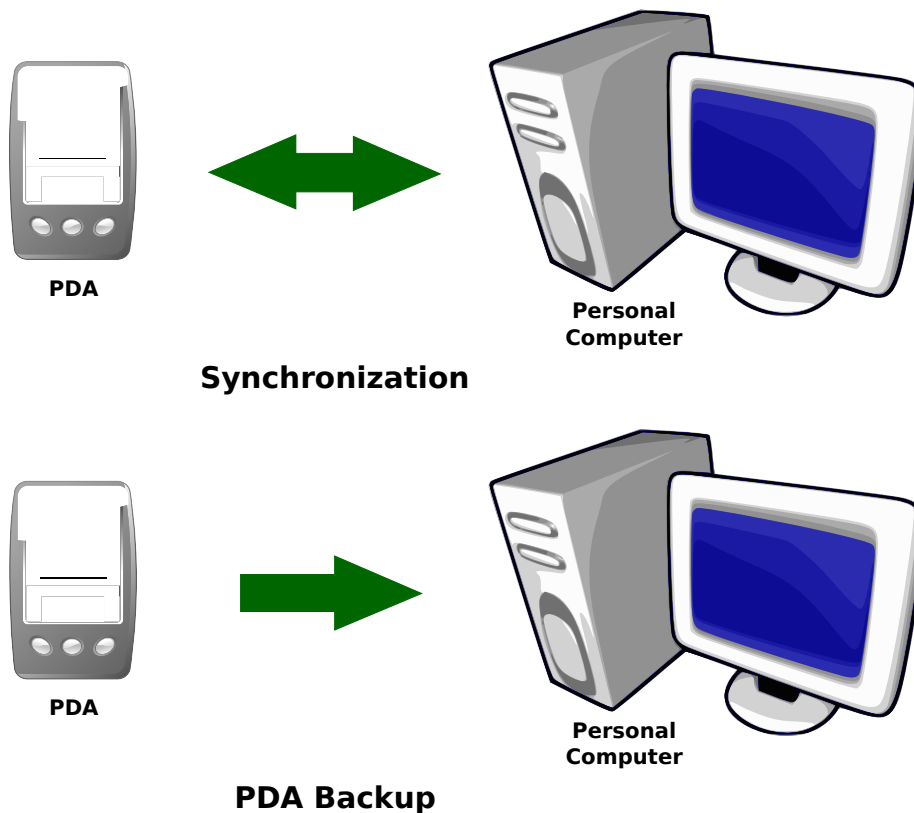


Figure 16-1. PDA Operations

16.1.1. Configuring KPilot

Choose Office+Communications+PDA→KPilot from the main menu to launch KPilot. The first time you run it you are presented with a dialog offering to configure the application, click on the Use Wizard button.

Figure 16-2. Information About the PDA User

Type in your name and check the Start KPilot at login to have KPilot run automatically every time you login into your desktop.

Figure 16-3. Selecting PIM to Synchronize With

Then select the PIM suite you want to synchronize your PDA with, or select the No sync, just backup option to have your PDA's data backed up on your computer instead of being synchronized with the PIM software.

16.1.2. Working with KPilot

Synchronizing the data of the PIM applications with those of the handheld computer is quite easy. Simply open KPilot, place your PDA in the cradle, then press the "HotSync" button on the cradle to initiate the sync operation.

16.2. Computers in the Local Network

To browse the LAN, open Konqueror and type `lan://localhost` on the Location Bar. All machines on the network offering LAN services are displayed.

Double click on the host you are interested in and you are presented with virtual folders named after the service they are associated to (see figure 16-4). Virtual folders' names are self-explanatory. The ones that might need further explanation are:

FISH

Provides SSH (secure-shell) access to the machine. An attempt is made to login to that machine using your SSH credentials when you double click this folder.

NFS

Provides access to shares on UNIX[®] and UNIX[®]-like servers. An attempt is made to access available NFS shares on the server when you double click this folder.

SMB

Provides access to shares on a Windows[®] server. All shares you have access to are displayed when you double click this folder.

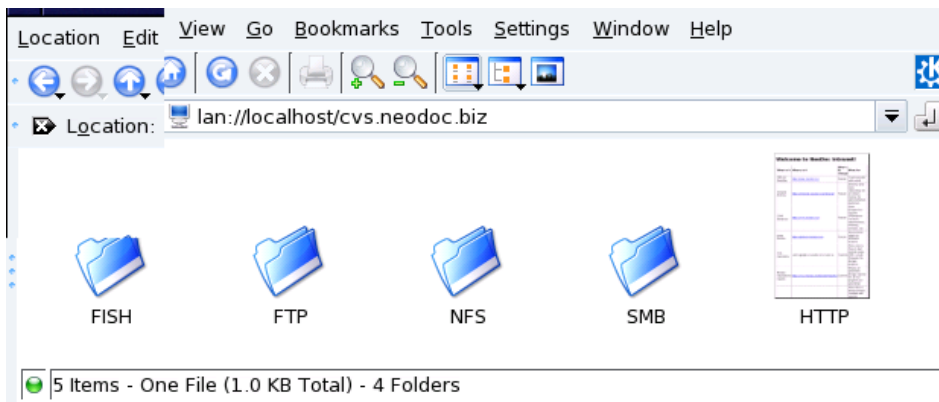


Figure 16-4. LAN Virtual Folders

Once you are connected to the service, you can manage the files on the remote server as if they were local, using the same techniques in a transparent way.

Chapter 17. Getting the Most Out of your Laptop

17.1. Which Laptop Should I Get?

Before buying your laptop you should refer to the excellent Linux On Laptops (<http://www.linux-laptop.net>) web site, where you will find a list of laptop manufacturers and other user's experiences with specific models from those manufacturers.

Laptops from the following manufacturers, presented in no particular order, are known to work with Mandriva Linux: HP, Dell, Lenovo/IBM, Maxdata, Sony, Asus, Toshiba, Aopen.

ACER Laptops: ACER laptops have BIOS compatibility problems with ACPI. You might be able to use your ACER laptop without problems, provided you update its BIOS to the latest version available.

17.2. Compatible Hardware

Besides the "usual" compatible hardware (floppy disks, modems, network cards, CD/DVD burners, hard disks, etc.), the following laptop-specific newer hardware is properly supported under Mandriva Linux:

Processor

All Intel processors for the laptop platform: Pentium M, Core Solo, Core Duo, Core 2 Duo and the Centrino norm; both 32 and 64 bit architectures.

All AMD processors: Turion and Sempron; both 32 and 64 bit architectures.

Wireless Network

All Intel WiFi cards: IPW2100, IPW2200, IPW3945.

Video

All Intel graphics cards (GMA900, GMA950), all ATI and nVidia cards.

Note: If you have an Intel GMA9xx graphics card and it's not automatically configured with a wide-screen, native, resolution, please install the `915resolution` package. Then edit the `/etc/sysconfig/915resolution` file and change `XRESO`, `YRESO` and `BIT` according to your hardware. Finally, reboot the laptop to enjoy wide-screen, native resolutions!

SiS and VIA graphics cards are not as powerful for 3D-accelerated effects as the above ones, so their 3D performance may be poor.

Audio

All latest sound cards compatible with HDA or AC'97 specifications.

Memory Card Reader

Newer laptops come with memory card readers to access the memories used mainly by digital cameras. If the card reader is an USB one (connected internally) it will work out-of-the-box. If the card reader uses a proprietary connection, chances are it will not be supported under GNU/Linux.

Integrated Webcam: Some of the newest laptops have a small webcam integrated into the chassis (usually, on the top border of the screen). At the time of writing these devices are not supported under GNU/Linux.

17.3. Laptop Features

Laptop-specific features have the main goal of reducing battery usage, in order to extend battery life, thereby increasing the mobility of the system. Other laptop-specific features simplify the usage of common features such as playing a music CD. Most laptop-specific features make use of ACPI, so make sure it is enabled in the bootloader configuration (see *Changing your Boot-up Configuration*, page 145 for more information).

17.3.1. Power Control, Hibernation and CPU Throttling

Enabling Laptop Support Tools

1. Install Required Software

Make sure the `kdeutils-klaptop` package is installed.

2. Launch KLaptop



Choose System+Configuration+KDE→Laptop Battery from the main menu.

3. Enable ACPI Control Software

- Select the ACPI Config tab.
- Click on Setup Helper Application.
- Click on Continue and provide root's password, when prompted.

4. Select Features to Enable

Put a checkmark on each of the features you want to enable. Here you have a short explanation on the most important ones:

Standby

When entering standby some components, mainly the screen, are powered off to reduce power usage. When mouse or keyboard activity is detected, the system returns to the normal mode of operation almost instantaneously.

Hibernation

Hibernation allows you to “put your laptop to sleep”, and “wake it up” later when you need to continue using it. RAM contents are copied to the hard disk when entering hibernation and then copied back to RAM when leaving hibernation, so you can continue using your laptop from the state it was when put to hibernate.

Note: For hibernation to work, you must have a swap partition of at least 1.25 times the RAM size.

CPU Throttling

To further reduce battery usage, the speed of the processor can be stepped down. Nowadays, most processors are powerful enough to browse the web, manage emails and use office applications, while full processor power may only be needed for multimedia, gaming, and other processor-intensive applications.

5. Accept Settings

Simply click on Ok once you are satisfied with your settings.



KLaptop's control icon is shown on the panel. The icon shows whether the laptop is plugged in to the mains or running on batteries, and the charge level. When you right click on it a menu pops up allowing you to throttle the CPU down, put the laptop into hibernation, etc. Select the Configure KLaptop item to set power control, low battery warnings, hibernation and CPU throttling parameters.

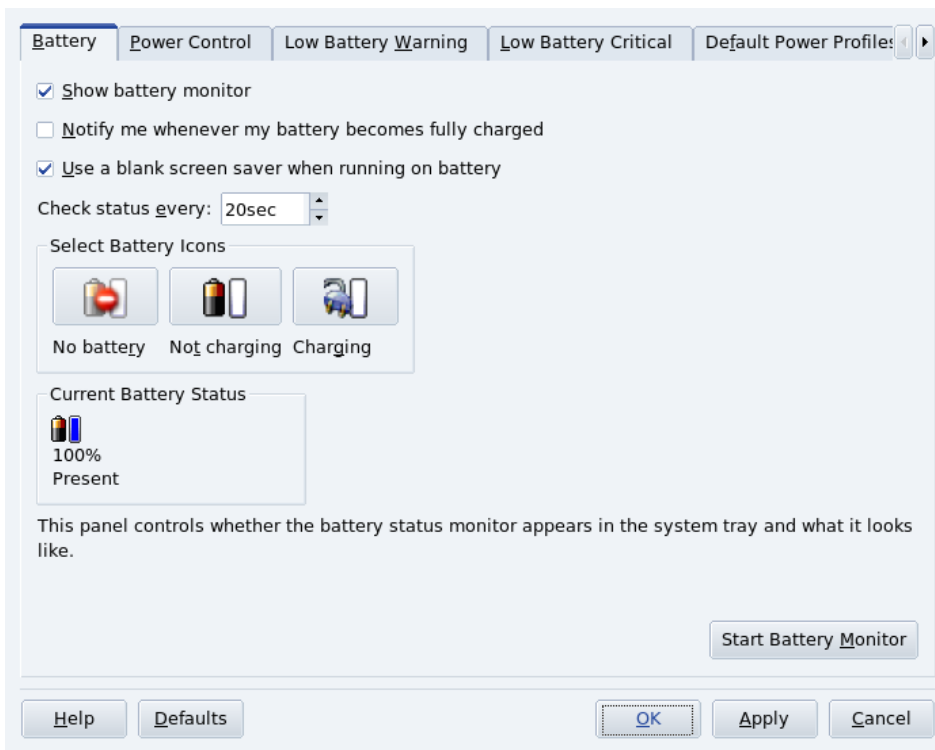


Figure 17-1. KLaptop — Battery Controls

figure 17-1 shows options for monitoring the battery (how often its status should be checked, which is its current status, and others). Make sure the Show battery monitor option is checked to have KLaptop's control icon shown on the panel. Check the Use a blank screen saver when running on batteries option to save even more power.

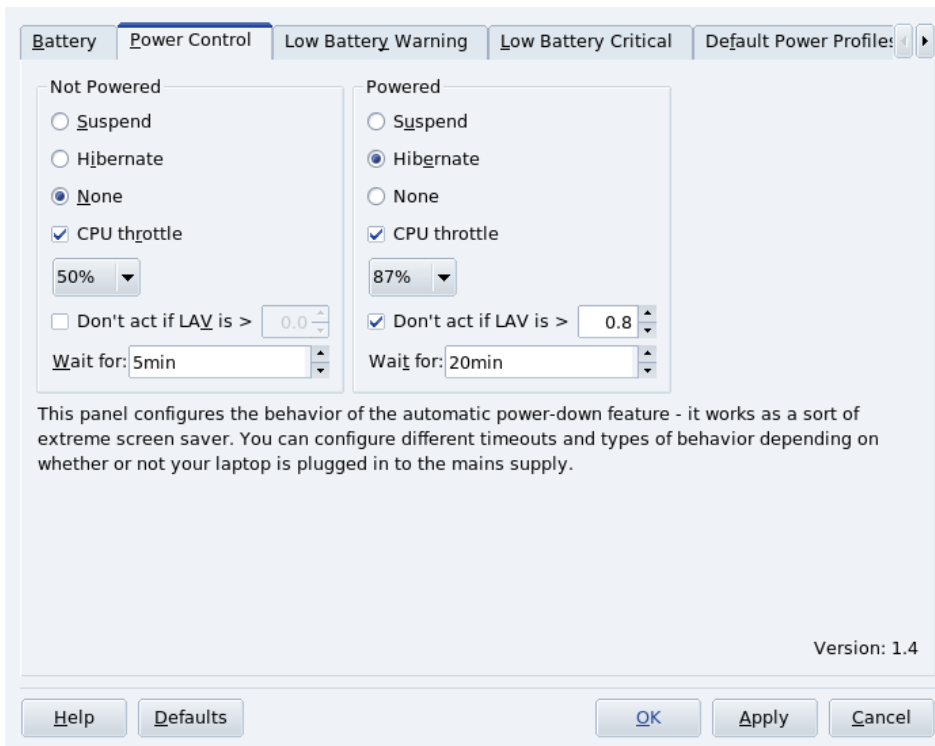


Figure 17-2. KLaptop — Power Controls

figure 17-2 shows options for power control, where you define what to do when the laptop enters automatic power down mode. The example shows that when the laptop is running on batteries (Not Powered) the CPU is to be throttled down 50% after 5 minutes of inactivity; while when the laptop is running on the mains (Powered)

the CPU is to be throttled down 87% and the system put into hibernation after 20 minutes of inactivity, but only if the system's load (or level of activity, LAV) is less than 80%.

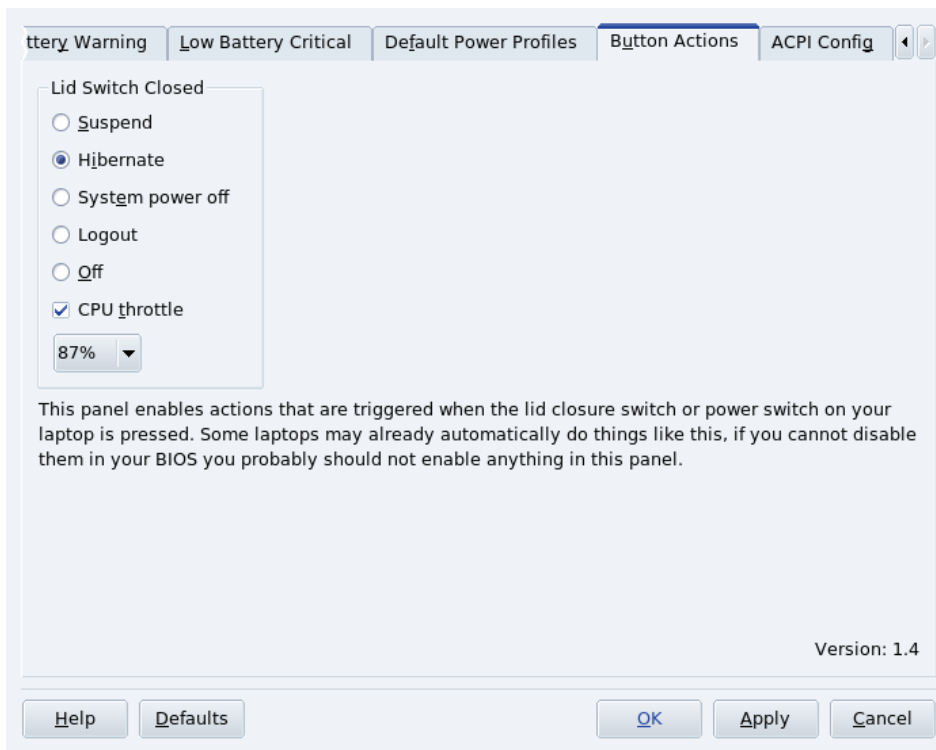


Figure 17-3. KLaptop — Lid Switch Controls

figure 17-3 shows options for what to do when the laptop's lid is closed. In the example we've chosen to throttle the CPU down 87% and to put the system into hibernation. When the lid is opened again, the system will return to normal speed of operation.

17.3.2. Multimedia Keys



Many laptops have multimedia keys usually allowing you to control the CD/DVD player and also the sound volume. Choose System+Configuration+KDE+Regional & Accessibility→Keyboard Layout from the main menu to configure support for them.

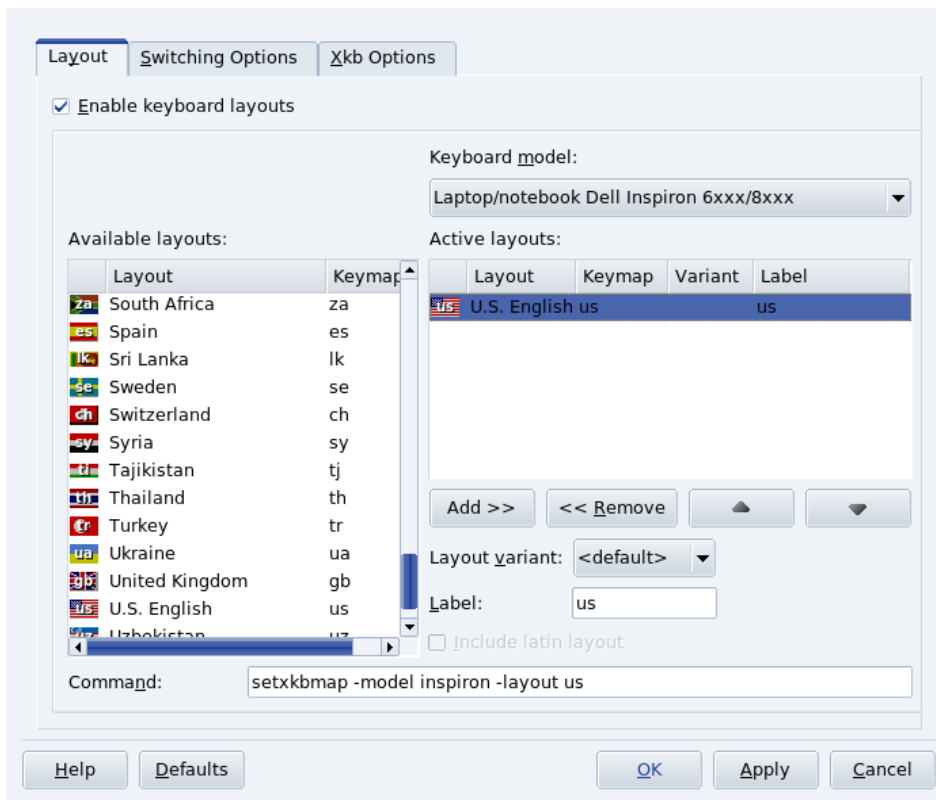


Figure 17-4. Selecting a Laptop Keyboard Layout

Check the Enable keyboards layout option and select your laptop's keyboard model using the Keyboard model pulldown list. figure 17-4 shows an example for Dell Inspiron 6xxx and 8xxx laptops.

Note: Some keyboards are listed as Laptop/Notebook ones, other as the specific laptop models ones. Scan the whole list to look for yours. If you cannot find yours specifically, you could try with a similar model.

You can also use the Mandriva Linux Control Center, Hardware section, keyboard icon (see *Changing your Keyboard Layout*, page 87). The list shown is the same as the one above; however, the tool described above provides more options.

Chapter 18. Introduction to the Command Line

Even if using graphical applications is very comfortable and easy for most people, the command line is a very powerful interface to interact with your system. The shell's main asset is the number of existing utilities: there are thousands of them, and each utility is devoted to a particular task. We look at a very small number of these utilities hoping that you will feel more comfortable interacting with your system through the command line.



Choose System+Terminals→Konsole from the main menu to get a terminal window to have access to the command line. By default you will be “inside” your personal directory, named after your user name: `/home/your_user_name`.

18.1. File Manipulation

All your data is contained within files: office documents, songs, movies, etc. We present some commands to organize and manage those files.

18.1.1. List the Contents of a Directory

`ls` (*LiSt*) is equivalent to the DOS command `dir`. Its syntax is as follows:

```
ls [options] <directory> [directory ...]
```

The most common options are:

- `-R`: recursively list the contents of the directory and all its subdirectories. Please note that before displaying a directory's contents the name of the directory itself is shown.
- `-l`: use a long listing format. Details about the file such as the file's type, permissions, owner and size are displayed.
- `-a`: show also hidden files. In UNIX® systems, all files whose names start with a period (.) are hidden. Use this option to show such files when listing a directory. If you don't want the current directory and its parent (namely, `.` and `..`) to be displayed use the `-A` option instead.

Some examples:

- `ls -lA /tmp/movies /tmp/images`: list the contents of both the `movies` and `images` directories inside the `/tmp` directory, displaying file details and hidden files, but not displaying the `.` and `..` entries for each directory;
- `ls -R ~/:` display, recursively, all the files and directories you have inside your personal directory.

18.1.2. Copy

`cp` (*CoPy*) is equivalent to the DOS commands `copy` and `xcopy` but has more options. Its syntax is as follows:

```
cp [options] <file|directory> [file|directory ...] <destination>
```

The most common options are:

- `-R`: recursive copy; **mandatory** for copying a directory, even an empty directory.
- `-f`: replaces any existing files without requesting confirmation. Use with care.
- `-a`: archive mode, preserves all file attributes on the copy and performs a recursive copy.
- `-v`: verbose mode, displays all actions performed by `cp`.

Some examples:

- `cp -f /tmp/images/* images/:` copies all files in the `/tmp/images` directory to the `images` directory located in the current directory. It **doesn't** request confirmation if a file is going to be overwritten.

- `cp -vR docs/ /shared/mp3s/* mystuff/`: copies the whole docs directory, plus all files in the /shared/mp3s directory to the mystuff directory, displaying all actions performed.
- `cp foo bar`: makes a copy of the foo file with the name bar in the current directory.

18.1.3. Move

`mv` (*MoVe*) is equivalent to the DOS command `move`. Its syntax is as follows:

```
mv [options] <file|directory> [file|directory ...] <destination>
```

Note that when you move multiple files the destination must be a directory. To rename a file you simply move it to the new name.

The most common options are:

- `-f`: forces the operation. No warnings are given if an existing file is to be overwritten. Use with care.
- `-v`: *verbose* mode, reports all changes and activity.

Some examples:

- `mv /tmp/pics/*.png .`: move all files in the /tmp/pics directory whose names end with .png to the current directory.
- `mv foo bar`: rename file foo to bar. If a bar directory already existed, the effect of this command would be to move file foo or the whole directory (the directory itself plus all files and directories in it, recursively) into the bar directory.
- `mv -vf file* images/ trash/`: move, without requesting confirmation, all files in the current directory whose names begin with file, together with the entire images directory to the trash directory, and show each operation carried out.

18.1.4. Remove

The `rm` command (*ReMove*) is equivalent to the DOS commands `del` and `deltree`, but has more options. Its syntax is as follows:

```
rm [options] <file|directory> [file|directory...]
```

The most common options are:

- `-r`, or `-R`: delete recursively. This option is **mandatory** for deleting a directory, empty or not. However, you can also use `rmdir` to delete empty directories.
- `-f`: forces deletion of the files or directories. Use with care.

Some examples:

- `rm images/*.jpg file1`: deletes all files with names ending in .jpg in the images directory and deletes file1 in the current directory.
- `rm -Rf images/misc/ file*`: deletes, without requesting confirmation, the whole directory misc in the images directory, together with all files in the current directory whose names begin with file.

Warning

Using `rm` deletes files **irrevocably**. There is no easy way to restore them! Be extra careful when using the `-f` option to skip confirmation request to ensure that you do not delete something by mistake.

18.1.5. Create a Directory

`mkdir` (*MaKe DIRectory*) is equivalent to the DOS commands `mkdir` and `md`. Its syntax is as follows:

```
mkdir [options] <directory> [directory ...]
```

Only the `-p` option is worth noting. It does two things:

1. creates parent directories if they did not exist previously. Without this option, `mkdir` would just fail, complaining that these directories do not exist;
2. returns silently if the directory you wanted to create already exists. If the `-p` option is not specified, `mkdir` sends back an error message, complaining that the directory already exists.

Some examples:

- `mkdir foo`: creates a directory `foo` in the current directory;
- `mkdir -p images/misc`: creates the `misc` directory in the `images` directory, creating first the latter if it does not exist.

18.1.6. Change the Working Directory

The current working directory, symbolized by a period (`.`), is the place on the file system you are “standing onto”. The double period (`..`) symbolizes the parent directory of the current one which is “one level up” (or back) on the file system structure.

`cd` (*Change Directory*) lets you navigate the file system structure. Its syntax is as follows:

```
cd <directory>
```

Some examples:

- `cd /tmp/images`: changes to the `images` directory inside the `/tmp` directory;
- `cd -`: changes to the previous current working directory;
- `cd`: changes to your personal (home) directory;
- `cd ~/images`: changes to the `images` directory inside your personal directory.

18.2. Process Manipulation

From the system’s point of view, applications run in one or many processes, consuming system resources, such as memory and processor time. We present some commands to monitor and manage those processes, and as a consequence, the applications they belong to.

18.2.1. Information on Processes

The `ps` command displays a list of processes currently running on the system, according to the criteria you set.

Running `ps` without arguments will show only processes initiated by you and attached to the terminal you are using:

```
$ ps
  PID TTY          TIME CMD
 18614 pts/3        00:00:00 bash
 20173 pts/3        00:00:00 ps
```

The most common options are:

- `a`: displays processes started by all users;

- `x`: displays processes launched from any terminal, not just yours (or even from no terminal at all);
- `u`: displays for each process the name of the user who started it and the time at which it was started.

18.2.2. Controlling Processes

Processes are controlled by means of signals. The `kill` and `killall` commands are used to send signals to processes. The `kill` command requires a process number as an argument, while `killall` requires a process name.

Note: Please bear in mind that processes react differently to the same signals. You cannot expect *a priori* that the process behaves as you thought it would when you send it a signal.

```
kill [-SIGNAL] <process_number>
```

```
killall [-SIGNAL] <process_name>
```

Signals can be specified by number or name. Execute `kill -l` to view a list of available signals. The most commonly used signals are:

- `TERM` or 15: this is the default signal sent if the signal name or number is omitted. It terminates the process gracefully.
- `STOP` or 19: this signal is used to temporarily pause a process. Send signal `CONT` or 18 to continue a paused process.
- `KILL` or 9: this signal is used to force process termination. It is commonly used to end a process that is not responding anymore (or “frozen”). It terminates the process abruptly.

Some examples:

- `kill 785`: asks the process identified by the number 785 to finish execution giving the process the chance to perform any clean-up operation it needs;
- `kill -KILL 785`: forces termination of the process identified by the number 785 without giving the process the chance to perform any clean-up operation. The process ends immediately;
- `killall -TERM make`: asks all processes named `make` launched by this user to finish execution.

Whatever happens, you will only control your own processes (unless you are `root`) so you do not need to worry about other users’ processes since they will not be affected.

18.2.3. Mixing `ps` and `kill`: `top`

`top` is a program which simultaneously fulfills the functions of `ps` and `kill`, and is also used to monitor processes in real-time giving information about CPU and memory usage, running time, etc., as shown in figure 18-1.

```
top - 22:54:53 up 15:10, 0 users, load average: 0.02, 0.06, 0.01
Tasks: 80 total, 1 running, 79 sleeping, 0 stopped, 0 zombie
Cpu(s): 1.7% us, 0.7% sy, 0.0% ni, 97.7% id, 0.0% wa, 0.0% hi, 0.0% si
Mem: 515640k total, 484920k used, 30720k free, 39856k buffers
Swap: 506008k total, 4k used, 506004k free, 244752k cached
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
16666	reine	15	0	25232	14m	23m	S	0.7	2.8	0:51.21	kscd
1732	root	15	0	57860	21m	38m	S	0.3	4.3	21:14.37	X
13510	reine	16	0	2172	1036	1964	R	0.3	0.2	0:00.03	top
13512	reine	15	0	9364	2580	8912	S	0.3	0.5	0:00.01	import
1	root	16	0	1580	516	1424	S	0.0	0.1	0:03.45	init
2	root	34	19	0	0	0	S	0.0	0.0	0:00.01	ksoftirqd/0
3	root	5	-10	0	0	0	S	0.0	0.0	0:00.55	events/0
4	root	5	-10	0	0	0	S	0.0	0.0	0:00.02	kblockd/0
5	root	15	0	0	0	0	S	0.0	0.0	0:00.03	kapmd
6	root	25	0	0	0	0	S	0.0	0.0	0:00.00	pdflush
7	root	15	0	0	0	0	S	0.0	0.0	0:00.20	pdflush
8	root	15	0	0	0	0	S	0.0	0.0	0:00.04	kswapd0
9	root	10	-10	0	0	0	S	0.0	0.0	0:00.00	aio/0
11	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kseriod
15	root	15	0	0	0	0	S	0.0	0.0	0:00.83	kjournald
121	root	16	0	2036	1204	1588	S	0.0	0.2	0:00.31	devfsd
247	root	15	0	0	0	0	S	0.0	0.0	0:00.00	khubd

Figure 18-1. Monitoring Processes with `top`

The `top` utility is entirely keyboard controlled. Commands are case-sensitive. You can access help by pressing `h`. Its most useful commands are the following:

- **k**: sends a signal to a process. You are asked for the process' PID followed by the number or the name of the signal to be sent (`TERM` or `15`, by default);
- **M**: sorts display of processes by the amount of memory they take up (field `%MEM`);
- **P**: sorts display of processes by the CPU time they take up (field `%CPU`): this is the default sorting method;
- **u**: displays a given user's processes. You are asked to enter the user's **name**, not his UID. If you do not enter any name, all processes are displayed;
- **i**: by default, all processes, even sleeping ones, are displayed. This command ensures that only processes currently running are displayed (processes whose `STAT` field shows `R`, *Running*) and not the others. Using this command again takes you back to showing all processes.

18.3. Commands Documentation

If you want to know more about a given command options and usage, you can consult the commands manual, or "man page". The syntax for the `man` command is:

```
man [section] <man_page>
```

Sections are like different chapters of a big book, each one specific to an aspect of the system. Some commands might appear in different sections, so you might need to specify which section you are interested in.

Sections are numbered from 1 to 9, and there's a 10th one, called `n`. You can also specify `a` to display all matching sections for a given man page. If you omit the `section` parameter, the first matching man page is displayed.

`man` has its own man page, execute `man man` to display it.

18.4. Further Reading

Here we've just "scratched the surface" on the command line and its powerful tools. If you want to read more you can try the GNU Linux Tools Summary Guide (<http://www.tldp.org/LDP/GNU-Linux-Tools-Summary/html/index.html>) from The Linux Documentation Project website (<http://www.tldp.org>).

Chapter 19. Package Management From The Command Line

Rpmdrake applications are merely graphical interfaces to the powerful urpmi command line tools. For those wishing to manage their packages via the command line (useful if you are working remotely, for example) we present the most useful commands.

19.1. Installing and Removing Packages

This is done with two simple commands:

```
urpmi <package_name>
```

With this command the `package_name` will be installed if it exists. If the package contains the `package_name` string it will also work. If more than one package matches, you will see a numbered list of potential matches: just type the number of the one you are interested in and tap **Enter**.

If the package you are trying to install has dependencies (other packages it needs to function correctly) its list will be displayed. Review it and press the **Y** key to install all packages.

```
urpme <package_name>
```

This command will remove the package `package_name`. If other installed packages depend on the one you are trying to remove, a list will be presented along with the reason why they will have to be removed. Review the list and press the **Y** key to remove all packages.

Tip: Both `urpmi` and `urpme` support the `--auto` option to handle the dependencies automatically, without further prompts.

Consult the `urpmi(8)` and `urpme(8)` man pages for more information about these commands' options.

19.2. Media Management

Software media are the different "sources" where you can install packages from. There must be at least one medium defined for `urpmi` to work. Predefined media include the ones you used to install your system (network, CD, DVD, etc.). You should define other media to install bugfixes and security updates. Adding and removing media is easy, but the syntax must be strictly respected.

19.2.1. Adding New Media

```
urpmi.addmedia <name> <URL>
```

This command allows you to add a new medium either from a local drive, a removable device (CD/DVD), or from the network through the HTTP, FTP, NFS, `ssh` or `rsync` protocols. The URL syntax varies for each of these media so you are encouraged to consult the `urpmi.addmedia(8)` man page before using it.

Update Media: If you are adding a new update medium, use the `--update` option on your `urpmi.addmedia` command line.

You can use online resources such as the Easy Urpmi Page (<http://easyurpmi.zarb.org/>) if you don't know where to find media containing useful applications specially packaged for your Mandriva Linux system. The Mandriva Club (<http://club.mandriva.com/>) site also provides the Urpmi media (<http://club.mandriva.com/xwiki/bin/view/Downloads/MirrorFinder>) module for test and contribution packages.

Note: Mandriva Club members get a list with better, faster mirrors than the publicly available ones.

19.2.2. Removing Media

```
urpmi.removemedias <name>
```

This command will simply remove the medium `name`. If you cannot remember the medium's name, issuing `urpmi.removemedias` alone on the command line will list all defined media.

19.2.3. Updating Media

```
urpmi.update <name>
```

This command scans the named medium and updates the package list associated with it. This is useful for media which change often, such as the security and bugfix update ones. Use the `-a` option to rescan all the defined media.

19.3. Tricks and Recipes

19.3.1. Synthesized vs. Complete Lists

When adding media, there are two options for the list of packages: synthesized or complete. Use the `--probe-synthesis` option to try to find and use a synthesized list of packages, or the `--probe-hdlist` to try to find and use a complete one. Synthesized lists are smaller in size, making them more suited for users with slower network connections. However they are more limited when looking for information on packages.

19.3.2. Finding the Package which Contains a Specific File

You know you need a specific file on your system but you don't know which package provides it. Issue `urpmf <file_name>` and any packages, installed or not, which contain the `file_name` file will be displayed.

Note: If you use the synthesized lists, `urpmf` can only search for files on already installed packages.

You can even provide only a partial name. For example `urpmf salsa` will return a list of all packages which contain a file whose name contains the word `salsa`.

```
[queen@test queen]$ urpmf salsa
php-devel:/usr/src/php-devel/extensions/hash/hash_salsa.c
php-devel:/usr/src/php-devel/extensions/hash/php_hash_salsa.h
kaffe:/usr/lib/jvm/java-1.4.2-kaffe-1.4.2.00/jre/lib/i386/libtritonusalsa-1.1.8-pre.so
kaffe:/usr/lib/jvm/java-1.4.2-kaffe-1.4.2.00/jre/lib/i386/libtritonusalsa.la
kaffe:/usr/lib/jvm/java-1.4.2-kaffe-1.4.2.00/jre/lib/i386/libtritonusalsa.so
libncbi6-devel:/usr/include/ncbi/salsa.h
libncbi6-devel:/usr/include/ncbi/salsap.h
libncbi6-devel:/usr/share/ncbi/build/salsa.o
libncbi6-devel:/usr/share/ncbi/build/salsap.o
emboss:/usr/share/EMBOSS/data/CODONS/Esalsa.cut
```

19.3.3. Updating Packages

This command will update the named package:

```
urpmi.update -a && urpmi --update <package_name>
```

This command will automatically update all the packages which need it just as Mandriva Update would do it:

```
urpmi.update -a && urpmi --update --auto-select --auto
```

If you don't have any medium specifically configured as an update medium, you have to omit the `--update` option in the `urpmi` commands above.

Chapter 20. Coexisting with Other Operating Systems

If you plan on using Windows® as well as GNU/Linux by dual-booting (meaning being able to access either system 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 — Mandriva Linux's installation program — will have to re-size your Windows® partition. This operation can be harmful to your data. Therefore, you **must** perform the following steps before proceeding:

1. Run `chkdsk` on your Windows® computer (also called `scandisk` on some non-NT systems, such as Windows® 9x). The resizing program can detect some obvious errors, but `chkdsk` is better suited for this task. Refer to the `chkdsk` documentation for more information on the different options it has.

Note: Before using `chkdsk` make sure your screen saver and any other program that might write to the hard disk is turned off. To obtain even better results, you should run `chkdsk` from Windows®'s "Safe Mode", though it will take longer.

2. For maximum data security, also run `defrag` on your partition if you use Windows® 9x¹. This further reduces the risk of data loss. This isn't mandatory, but it's **highly recommended**. Doing so will make the resizing process much faster and easier.
3. The ultimate insurance against problems is to always **back up your data!** Of course, you should back up your data on **another** computer, upload your back-ups onto the web, on a friend's computer, etc. **Do not** back it up onto the computer on which you want to install GNU/Linux.

1. On NT-based operating systems, defragmentation has little to no effect.

Chapter 21. Before Installation

This chapter covers issues which should be addressed **before** you start your new Mandriva 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.).

21.1. 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's also used for the initial hardware configuration and low-level hardware access.

The appearance of plug'n'play devices and their widespread use means that all modern BIOSes 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 BIOSes use the **F1**, **F2**, **F10** or **Esc** keys instead) right after the computer is switched on. Unfortunately, there are so many types of BIOSes, you will need to look for the appropriate option yourself. It's 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, which helps Linux to recognize them.

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

Note: If you want to use a parallel printer connected locally to your machine, make sure 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 manually. Also make sure the printer is properly connected to your machine and powered on beforehand.

21.2. Supported Hardware

Mandriva Linux can handle a large number of hardware devices, and the list is far too long to be quoted exhaustively. Nevertheless some of the steps we 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 the Mandriva Linux Hardware Database (<http://www.mandriva.com/hardware>) web site.

Warning

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

USB devices: support for USB 1.x 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 overview (<http://www.qbik.ch/usb/devices/>) site. Relevant information can also be found on the Linux USB (<http://www.linux-usb.org>) web site.

Chapter 22. Installation with DrakX

22.1. The Mandriva Linux Installer

With the DrakX installation program, it doesn't matter whether you're a newbie or a GNU/Linux guru. The job of DrakX is to provide you with a smooth installation and an easy transition to Mandriva Linux's latest version.

Tip: Make sure that all your hardware is connected to your 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 Mandriva Linux is being installed.

Begin Installation

1. Stop the Timer

Press any keyboard key (but Enter) when you see that screen appear. The first screen offers a list of various possible actions, and if you do nothing, the first option (Boot from Hard Disk) is carried on after the timer expires.

2. Choose your Language

Press the **F2** key to have all options displayed in your language. Simply select your language by using the up and down arrow keys, then press Enter.

3. Start Installation

Simply select the Installation option on the list, and press Enter.

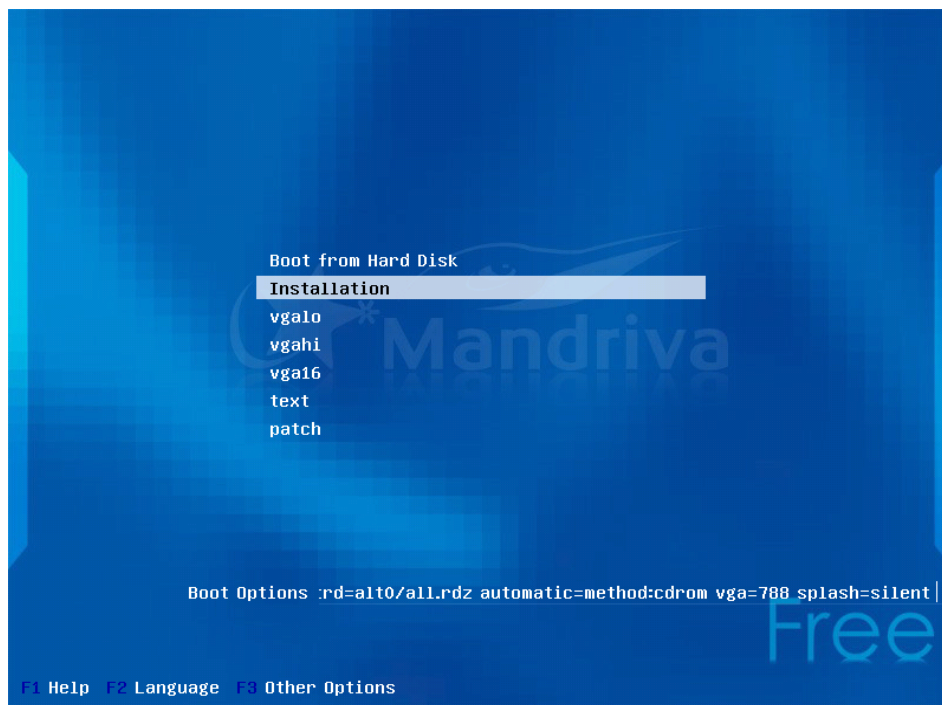


Figure 22-1. Very First Installation Welcome Screen

If Something Goes Wild: In case this default procedure does not work for you, read *Startup Options*, page 198.

22.1.1. The Installation Process

When the installer starts, you see a nice graphical interface (see figure 22-2). On the left are the various installation steps, the current one marked by a highlighted bullet. The installation occurs in two phases: installation, then configuration.

Steps and Substeps. Each step may present various screens. You can surf between those screens through the Next and Previous buttons. Additionally an Advanced button may be available to show more advanced configuration options. Note that most of the latter should only be used by **expert** users. But there's no harm in looking at them!

Tip: The Help button displays explanations concerning the current installation step.

22.1.2. Startup Options

If something goes wrong during the first installation attempt, boot again from the CD, and depending on your problem, try one of the options available. Select an option and press **F1** to get more information about what that specific option does.

Boot Options. This line contains the options passed on to the kernel that will be used for the selected action. Most machines don't require specific kernel options.

22.2. Choosing your Language

The first step is to choose your preferred language. If you have already changed the language at the CD boot splash screen (figure 22-1) and don't need additional languages to be installed, you can safely move to the next step.

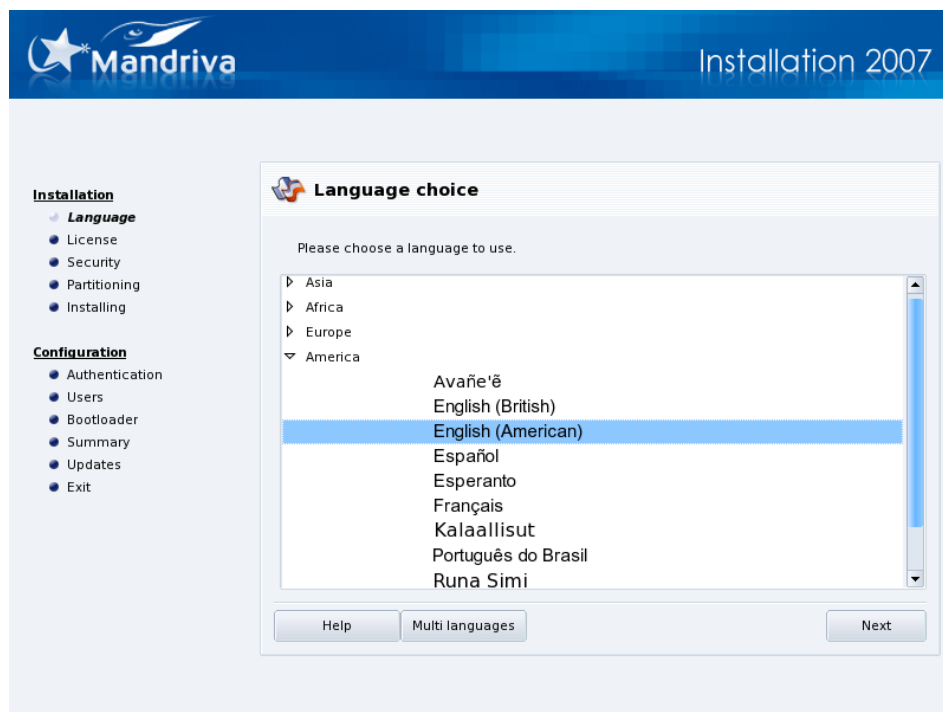


Figure 22-2. Choosing the Default Language

Open the tree representing the continent you're located in, then choose your language. Your language choice will affect the installer, the documentation, and the system in general.

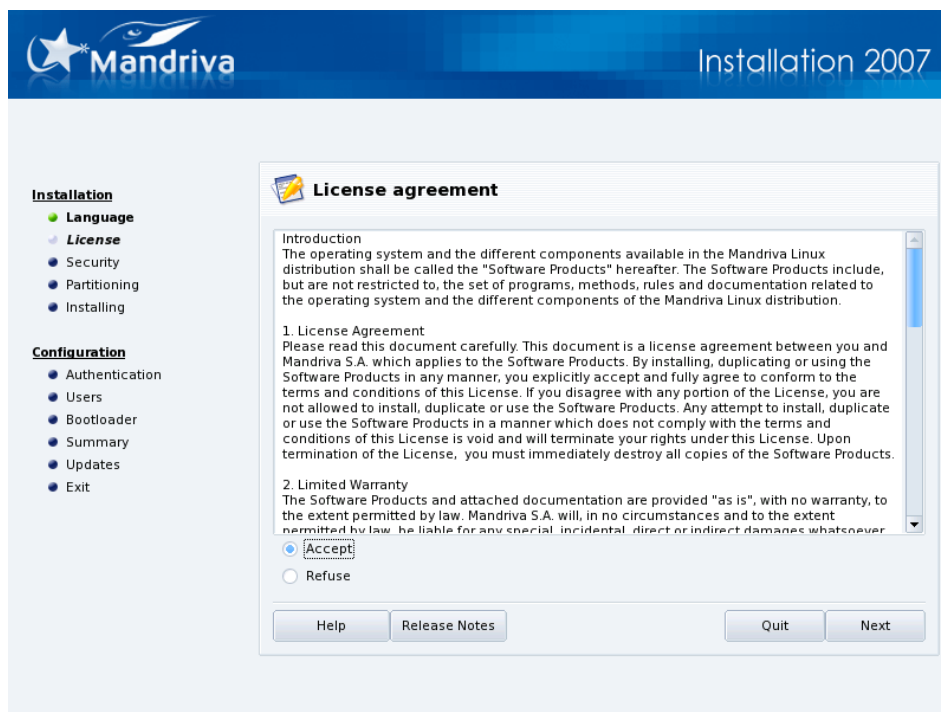
Multi-Language System. Use the list accessible through the Multi languages button to select other languages to be installed on your system, thereby installing the language-specific files for system documentation and

applications (translations, fonts, spell checkers, etc.) For example, if Spanish friends are to use your machine, select English as the default language in the tree view and Español in the list view. You may choose several, or even install them all by selecting the All languages option. Make sure you select all languages which are likely to be useful on the machine now, once the system is installed it may be difficult to configure support for languages not chosen at install time.

UTF-8 (Unicode) Support: Unicode is a character encoding intended to cover all existing languages and alphabets, and Mandriva Linux uses it by default. However, if you have previously noticed problems with it for your language, you can resort to your language-specific encoding by selecting the Old compatibility (non UTF-8) encoding option.

Switching from one Language to Another: To switch between the various languages installed on your system, you can launch the `localedrake` command as `root` to change the language used by the entire system. Running the command as a regular user only changes the language settings for that particular user.

22.3. License Terms of the Distribution

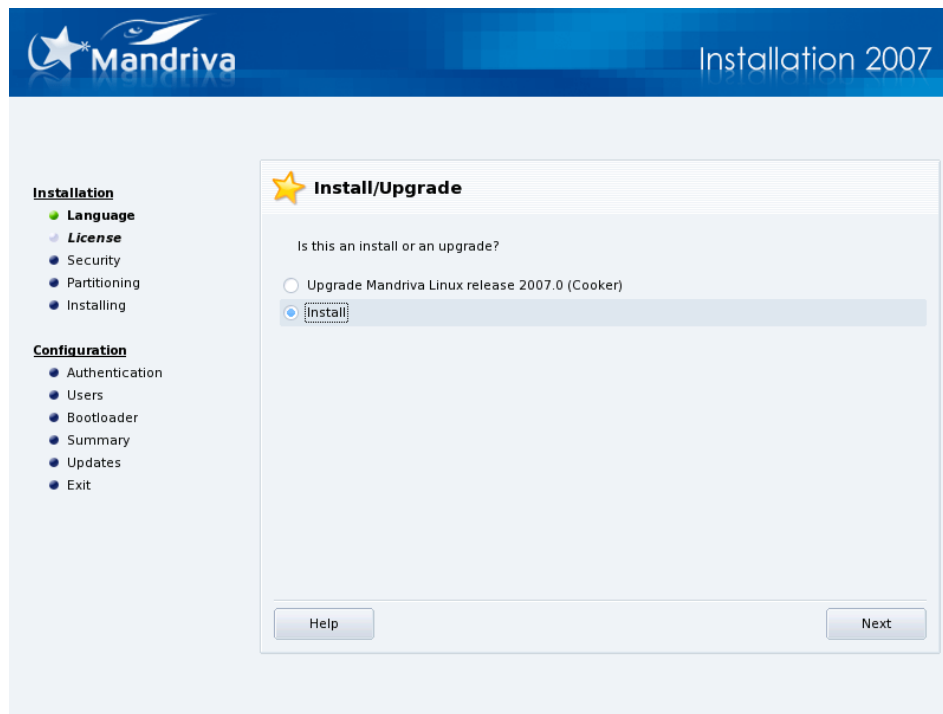


Before continuing, you should carefully read the terms of the license. It covers the entire Mandriva Linux distribution. If you agree with all the terms it contains, select Accept and click on Next. If not, clicking on Quit reboots your computer.

Release Notes: If you are curious about any technical changes which have occurred in the distribution since the last release, you can click on Release Notes.

22.4. Installation Class

This step is shown only if an existing GNU/Linux partition is found on your machine.



DrakX now needs to know if you want to install from scratch or to upgrade your existing Mandriva Linux system:

Upgrade

This installation type simply updates the packages currently installed on your Mandriva Linux system. Your current partitioning scheme and user data won't be altered. Most of the other configuration steps remain available and are similar to a standard installation.

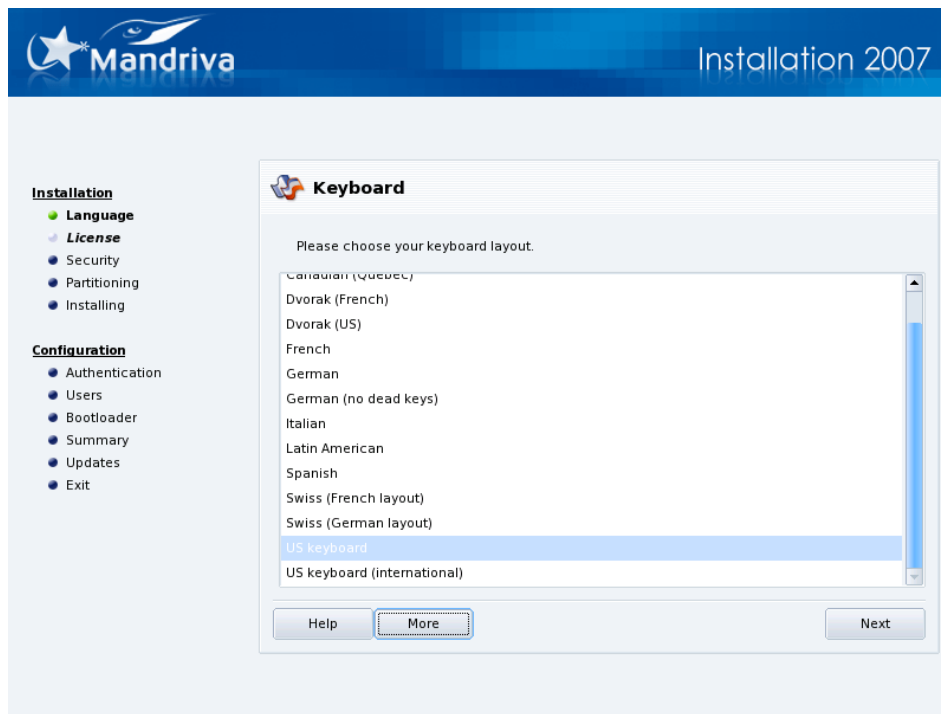
Install

For the most part, this completely wipes out the old system. However, depending on your partitioning scheme, you can prevent some of your existing data (particularly `/home` directories) from being overwritten.

Note: Using the "Upgrade" option should work fine on Mandriva Linux systems running versions up to two releases "in the past". Performing an upgrade on prior versions is not recommended.

22.5. Configuring your Keyboard

This step only shows if your language settings match more than one keyboard layout. Otherwise, your keyboard layout is automatically selected.

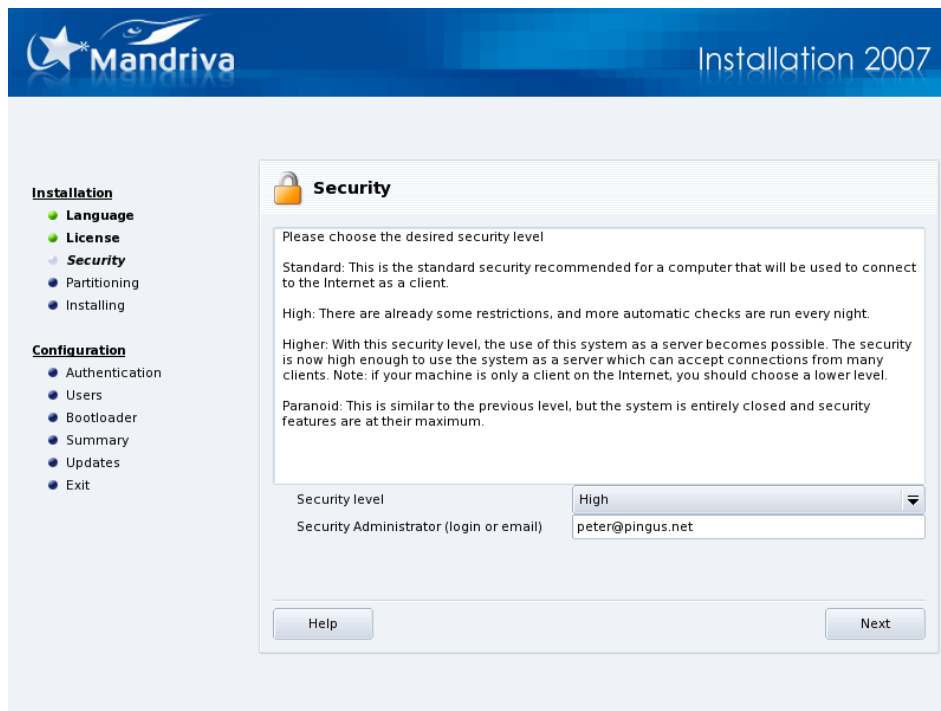


Depending on the language you choose (see *Choosing your Language*, page 198), DrakX automatically selects a particular type of keyboard configuration. Verify that the selection suits you or choose another keyboard layout.

More Keyboards. Click on the More button to display the list of all supported keyboards, if yours is not in the first list.

Non Latin Alphabets. If you choose a keyboard layout based on a non-Latin alphabet, the next dialog allows you to choose the key binding which can switch the keyboard between the Latin and non-Latin layouts.

22.6. Security Level



At this point, DrakX allows you to choose your machine's security level. As a rule of thumb, the security level should be set higher if the machine is to contain crucial data, or if it's to be directly exposed to the Internet. The trade-off is that a higher security level is generally obtained at the expense of ease of use.

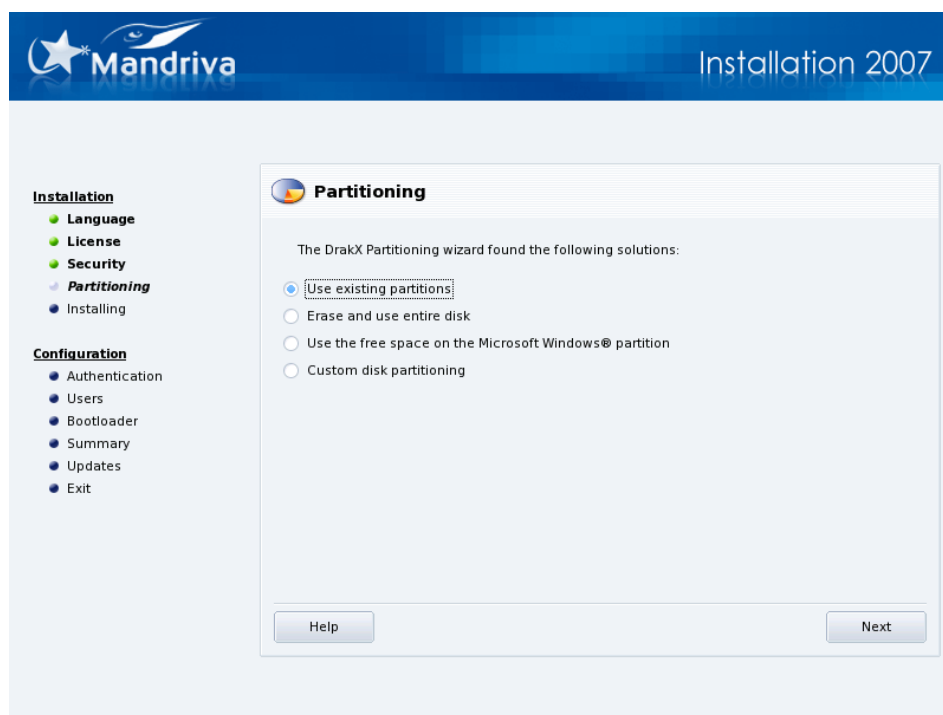
1. Choose the Security Level

If you do not know what to choose, keep the default option. You will be able to change it later with the draksec tool in the Mandriva Linux Control Center.

2. Selecting the Administrator Email Address

Fill the Security Administrator field with the e-mail address of the person responsible for security. Security-related messages will be sent to that address.

22.7. Where to Install Mandriva on your Hard Disk



You now have to decide where you will install Mandriva Linux on your hard drive. Your hard drive needs to be partitioned which means it must be logically divided in order to create the required space for your new Mandriva Linux system.

Because the process of partitioning a hard drive is usually irreversible and can lead to data loss, it can be intimidating and stressful for the 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 the configuration of your hard drive, several options are available:

Use free space

This option performs an automatic partitioning of any blank areas of your drive. If you use this option there will be no further prompts.

Use existing partitions

The wizard has detected one or more existing Linux partitions on your hard drive. If you want to use them, choose this option. Then choose the mount points to be 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. Then choose the partitions to be formatted or preserved.

Use the free space on the Microsoft Windows® partition

If Windows® is installed on your hard drive, you might have to create free space for GNU/Linux. To do so, you can delete your Windows® partition and data (see the “Erase and use entire disk” solution below) or resize your 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 Mandriva Linux and Windows® on the same computer.

Before choosing this option, please understand that after this procedure, the size of your Windows® partition will be smaller than when you started, which means you will have less free space to store your data or to install new software.

Erase and use entire disk

Choose this option to delete all existing data and partitions present on your hard drive. You won't be able to undo this operation after you confirm.

Warning

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

Remove Microsoft Windows®

This option appears when the hard drive is entirely taken by Windows®. Choosing this option simply erases the entire drive, partitioning everything from scratch.

Warning

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

Custom disk partitioning

Choose this option to manually partition your hard drive. Be careful: it's a powerful but dangerous choice and you can very easily lose all your data. This option is only recommended if you performed custom disk partitioning before, and have enough GNU/Linux experience. For more instructions on how to use the DiskDrake utility, refer to *Managing your Hard Drive Partitions with DiskDrake*, page 129.

22.8. Package Selection

We now enter the software package installation itself. It first consists of selecting the installation media and then the packages to be installed.

22.8.1. Choose Installation Media

Select available CDs. If you are doing an installation from a CD, you are first asked to select the CDs you actually have available.

Copy CDs to Hard Drive. You are also given the option to copy all packages on your hard drive. This will probably speed up installation and will ease later package installation as all packages will already be available on the hard disk.

22.8.2. Supplementary Installation Media

It is now possible to add new installation media, such as a CD or remote network repositories from Mandriva Club for example. If you choose a network repository, you will go through the following steps:

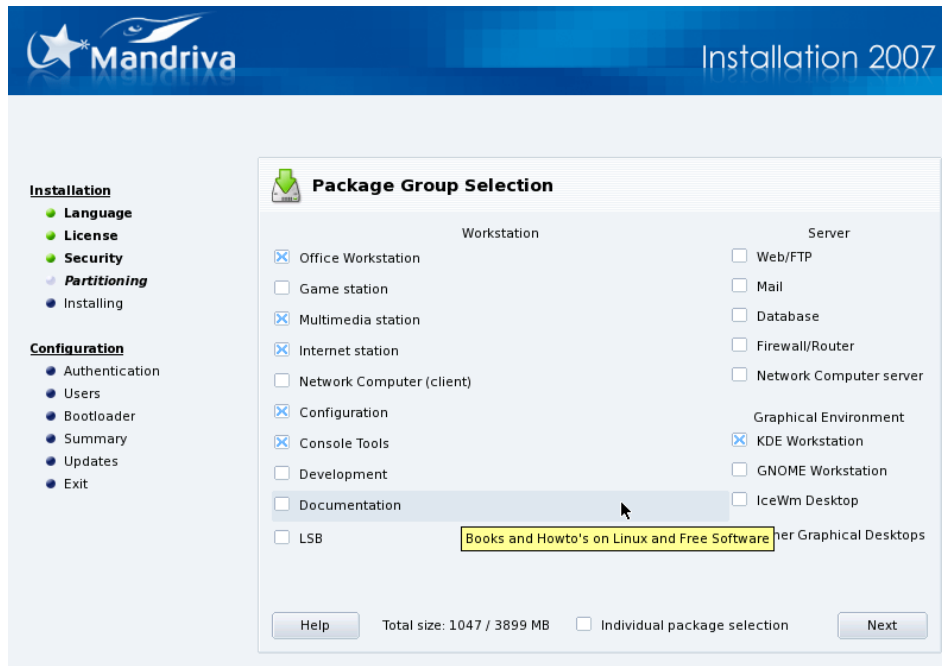
1. Network Configuration

Simply choose the connection type needed to access the remote repository. Your settings will be preserved for the actual system network configuration.

2. Media Selection

Provide the information (URL or NFS server and path) to access the new media.

22.8.3. Choose Package Groups to Install



It's now time to specify which applications you wish to install on your system. There are thousands of packages available for Mandriva Linux, and to make it simpler to manage, they have been placed into groups of similar applications.

Mandriva Linux sorts package groups into categories. You can mix and match applications from the various categories, so a Workstation installation can still have applications from the Server category installed.

1. **Workstation:** if you plan to use your machine as a workstation, select one or more of the groups in this category. The special LSB group will configure your system so that it complies as much as possible with the Linux Standard Base Project (<http://www.linuxbase.org/>) specifications.
2. **Server:** if your machine is intended to be a server, select which of the more common services you wish to install on your machine.
3. **Graphical Environment:** this is where you can choose your preferred graphical environment. At least one must be selected if you want to have a graphical interface available.

Tip: Moving the mouse cursor over a group name will display a short explanatory text about that group.

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

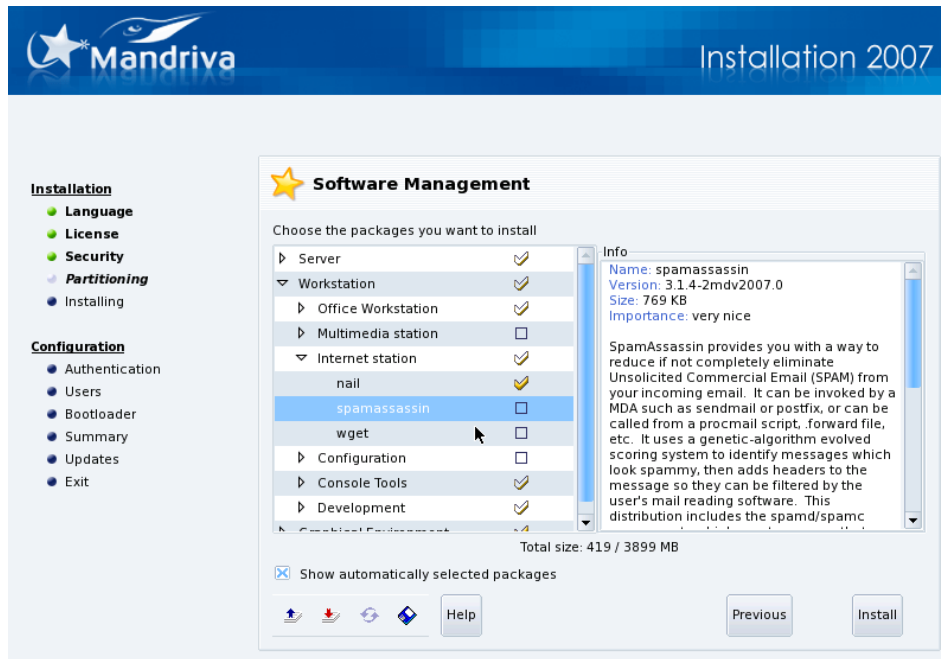
Upgrade Applications Only. If you start the installation in Upgrade mode, you can deselect all groups and prevent the installation of any new packages. This is useful for repairing or updating an existing system.

22.8.4. Minimal Installation

If you deselect all groups when performing a regular installation (as opposed to an upgrade), a new dialog shows after pressing the Next button, suggesting different options for a minimal installation:

- **With X:** installs 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:** installs the absolute minimum number of packages necessary to get a working Linux system. With this installation you will only have a command-line interface.

22.8.5. Choosing Individual Packages to Install



If you choose to select which packages to install, the installer presents a tree structure containing all packages classified by groups and subgroups. While browsing the tree, you can select entire groups, subgroups, or individual packages.

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

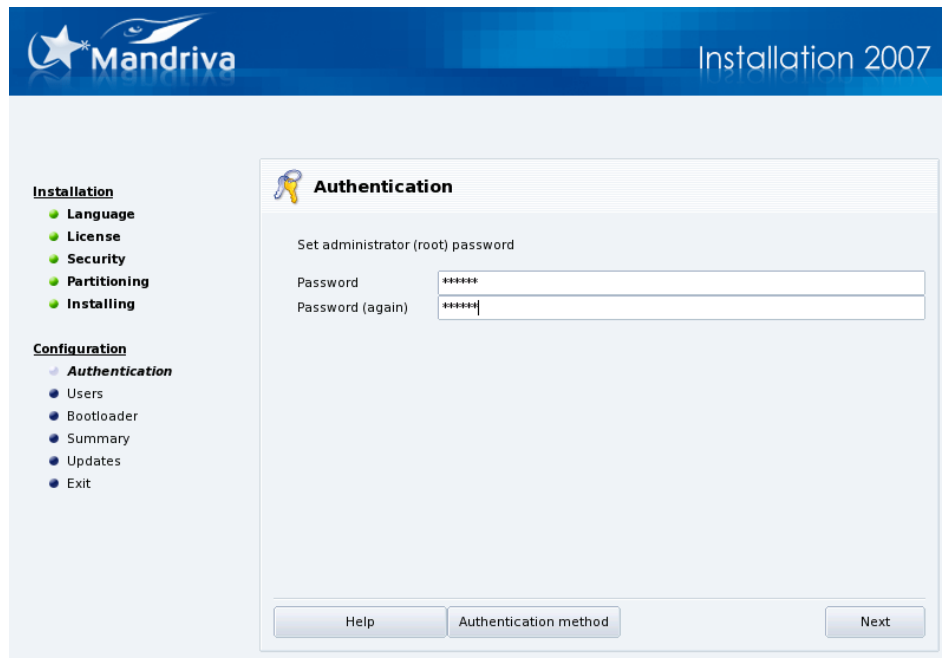
Server Applications

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 are asked to confirm that you really want those server packages to be installed. By default Mandriva Linux will automatically start any installed services (servers) 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 security holes were discovered after this version of Mandriva Linux was finalized. If you don't know what a particular service is supposed to do or why it's being installed, then click No.

Dependencies Between Packages. The Show automatically selected packages option is used to disable the warning dialog. Those appear whenever the installer automatically selects a package to resolve a dependency issue. Some packages depend on others and the installation of one particular package may require the installation of others. The installer can determine which packages are required to satisfy a dependency and to successfully complete the installation.

Load/Save the List of Packages. The little floppy disk icon at the bottom of the list allows you to load or save the package list. This is useful if you have a number of machines that you wish to configure identically. Click on this icon and select whether you wish to Load or Save the package list, then select the medium in the following screen and click on the Ok button.

22.9. Root Password



22.9.1. Enter a Password

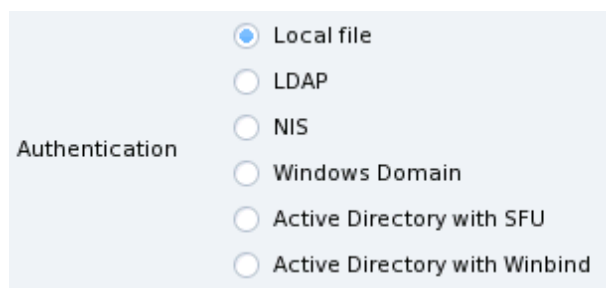
The Root Password is Key to Your System Security. The `root` user is the system administrator and is the only user authorized to make updates, add users, change the overall system configuration, and so on. In short, `root` can do everything! That's why you must choose a password which is difficult to guess: DrakX tells you if the password you choose is too simple. Depending on the security level you chose, you're not forced to enter a password, but we **strongly** encourage you to do so. 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, becoming `root` **must** be difficult.

Choose the Right Password. The password should be a mixture of alphanumeric characters and at least 8 characters long. Never write down `root`'s password — it makes it far too easy to compromise your system. However, don't make the password too long or too complicated because you must be able to remember it too!

Enter the Password, Twice. The password won't be displayed on screen as you type it. To reduce the chance of a blind typing error you have to enter the password twice.

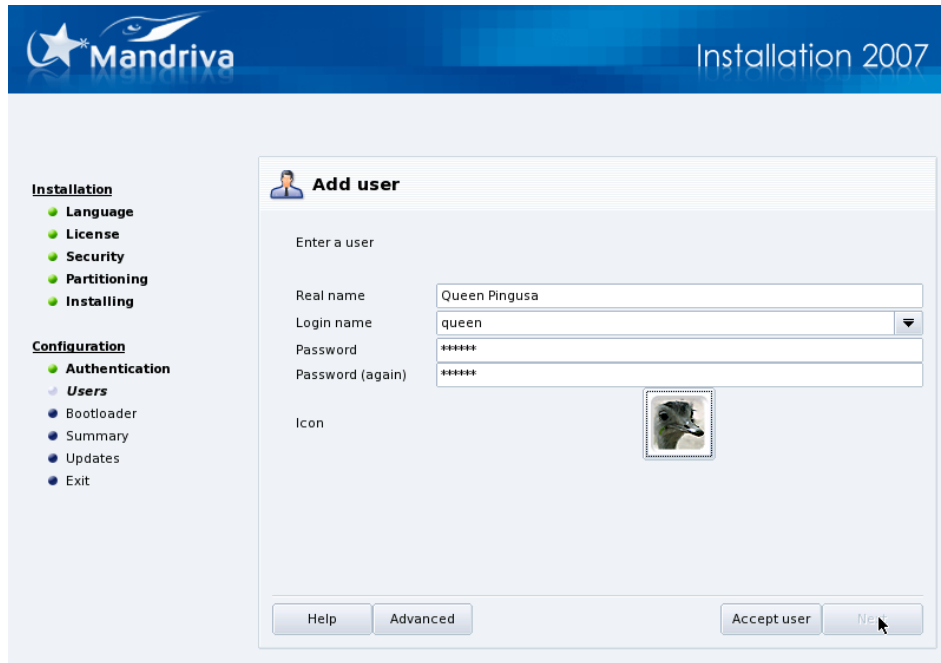
22.9.2. Optional: Choose a Centralized Authentication Scheme

By default, users accounts are created locally on the machine itself. However, in a corporate environment, user accounts are often stored on a central authentication database. You can change the way users are authenticated on your computer by clicking on the Authentication method button. Various authentication methods are available.



If you select a method other than Local file, you are asked to provide some parameters which vary from one method to the other. If you don't know those parameters, you should ask your network administrator.

22.10. Adding a User



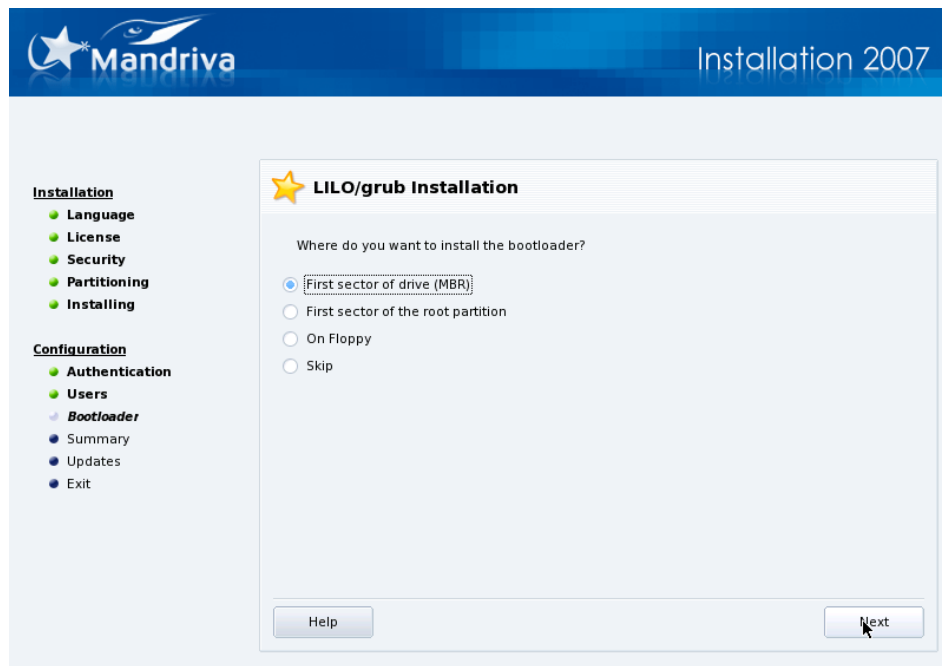
Linux is a secure multi-user system. Each user can have his own preferences, files and so on. But unlike the system administrator called `root`, the users you add at this point are not authorized to change anything except their own files and their own configurations, protecting the system from unintentional or malicious changes which could have a serious impact on it.

Create at Least One User. You are first asked for a real name. DrakX uses the first word you type in this field and copies it, all in lowercase, to the Login name field, which is the name this user must enter to log on to the system. Then enter a password, twice (for confirmation). From a security point of view, a non-privileged (regular) user's password isn't as crucial as the `root` password, but that's no reason to neglect it by making it blank or too simple: after all, **your** files could be the ones at risk.

Create Other Users if Needed. Once you click on Accept user you can add other users. Add a user for each one of your friends, your father, your sister, etc. Click Next when you're finished adding users.

User Shell: Clicking the Advanced button allows you to change the default `shell` for that user (`bash` by default), and to manually choose the user and group IDs for that user.

22.11. Installing a Bootloader



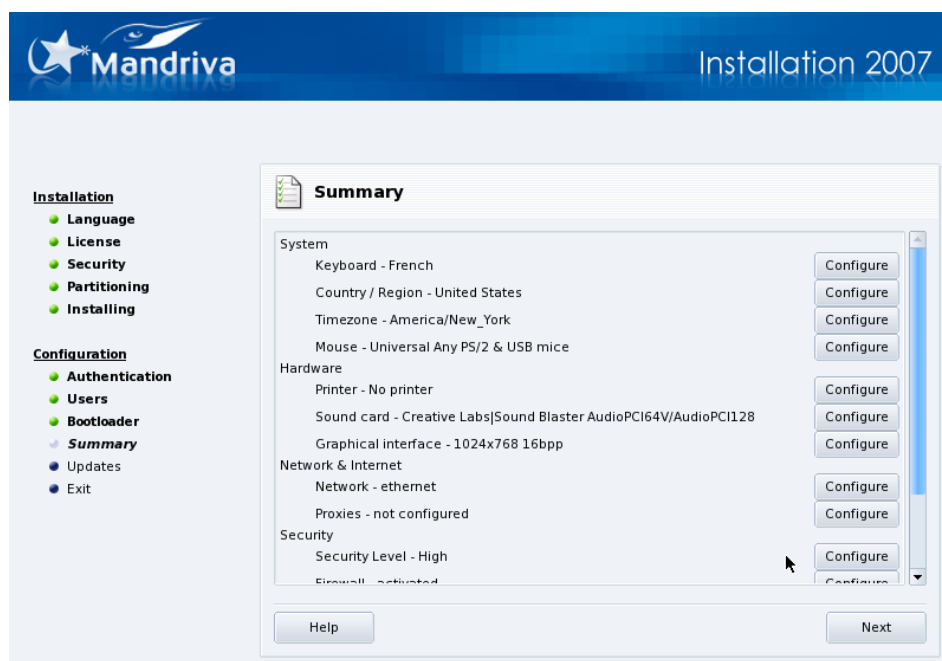
A bootloader is a small program which is started by the computer at boot time. It's responsible for starting up the whole system. Normally, the bootloader installation is totally automated. DrakX analyzes the disk boot sector and acts according to what it finds:

- If a Windows® boot sector is found, it is replaced by a GRUB/LILO boot sector. This way you are able to load either GNU/Linux or any other OS installed on your machine.
- In any other case it asks you where it should place the boot loader. Generally, the First sector of drive (MBR) is the safest place.

Choosing Skip won't install a bootloader. Use this option only if you know what you're doing.

22.12. Checking Miscellaneous Parameters

22.12.1. Summary



As a review, DrakX presents a summary of information it gathered about your system. Depending on the hardware installed on your machine, you may have some or all of the following entries. Each entry is made up of the hardware item to be configured, followed by a quick summary of the current configuration. Click on the corresponding Configure button to make any changes.

- **Keyboard:** check the current keyboard map configuration and change it if necessary.
- **Country / Region:** check the current country selection. If you're not in the country selected by DrakX, click on the Configure button and choose another. If your country isn't in the list shown, click on the Other Countries button to get a 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. See *Time Zone Options*, page 209.
- **Mouse:** verify the current mouse configuration and change it if necessary.
- **Printer:** clicking on the Configure button opens the printer configuration wizard. Consult *Configuring Printers with PrinterDrake*, page 88 for more information on how to set up a new printer. The interface presented in our manual 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 isn't the one actually present on your system, you can click on the button and choose a different driver.
- **TV card:** if you have a TV card, this is where information about its configuration is displayed. If you want to try a different driver for your TV card, or its detection wasn't accurate you can click on Configure to try to configure it manually.
- **Graphical Interface:** by default, DrakX configures your graphical interface with a resolution that best matches your video card and monitor combination. If that doesn't suit you, or DrakX could not automatically configure it (not configured is displayed), click on Configure to reconfigure your graphical interface. You can click on Help from within the configuration wizard to benefit from full in-line help.
- **Network:** if you wish to configure your Internet or local network access, you can do so from here. Refer to the printed documentation or use the Mandriva Linux Control Center after the installation has finished to benefit from full in-line help.
- **Proxies:** allows you to configure HTTP and FTP proxy addresses if the machine you're installing on is to be located behind a proxy server.
- **Security Level:** this entry allows you to redefine the security level as set in a previous step (see *Security Level*, page 201).
- **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 *Securing your Internet Access via DrakFirewall*, page 140 for details about firewall settings.
- **Bootloader:** to change your bootloader configuration. This should be reserved to advanced users. Refer to the printed documentation or the in-line help about bootloader configuration in the Mandriva Linux Control Center.
- **Services:** with this entry you can fine tune which services are run on your machine. If you plan to use this machine as a server it's a good idea to review this setup.

22.12.2. Time Zone Options

This setup allows you to refine the time zone you are currently located in. After you've chosen the location nearest to your time zone, two more options for time management are shown.

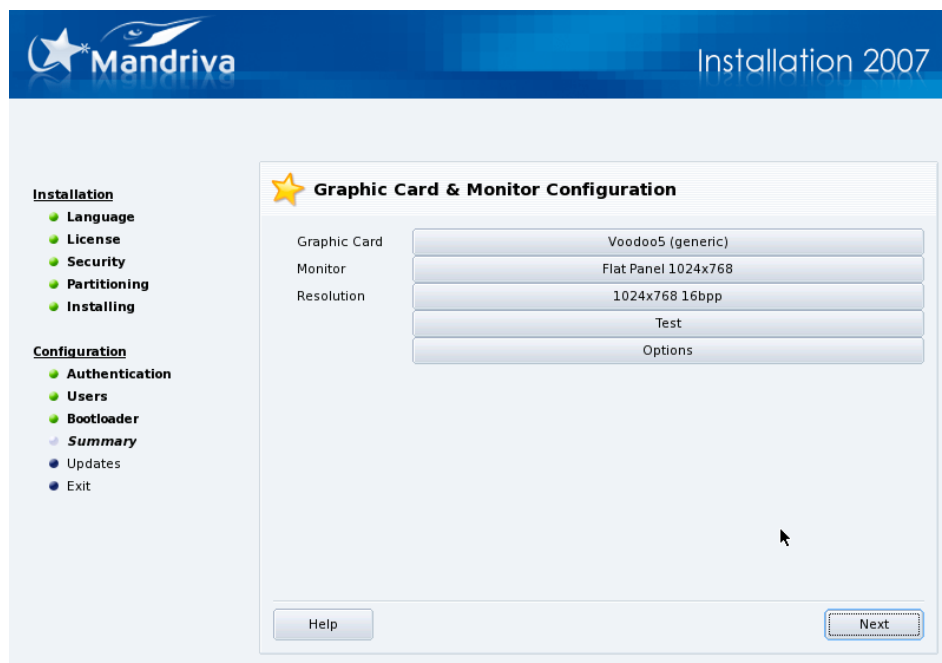
Hardware clock set to GMT

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 computer is set to local time, you may deactivate this by deselecting Hardware clock set to GMT. This is useful when the machine also hosts another operating system that doesn't handle time the same way.

Automatic time synchronization

This option automatically regulates the system clock by connecting to a remote time server on the Internet. For this feature to work, you must have a working Internet connection. We recommend that you choose a time server located near you or the default All servers entry which will select the best server for you. This option actually installs a time server which can be used by other machines on your local network as well.

22.12.3. 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 Mandriva Linux rely on.

Graphic Card

If everything works fine, the installer should detect and configure the video card installed on your machine. If the detection or configuration is incorrect, you can choose the card installed on your system from a list.

Monitor

If the installer fails to detect or configure your monitor properly, you can choose from this list the monitor which is connected to your computer.

Resolution

Here you can choose the resolution and color depth from those available for your graphics hardware. Choose the one which best suits your needs (you will be able to make changes after the installation). A sample of the chosen configuration is shown in the monitor picture.

Test

Note: Depending on your hardware, this entry might not appear.

The system tries to open a graphical screen at the desired resolution. If you see the test message during the test and answer Yes, then DrakX will proceed to the next step. If you don't see it, it means that some part of the auto-detected configuration was incorrect and the test automatically ends after a few seconds and returns you to the menu. Change settings until you get a correct graphical display.

Options

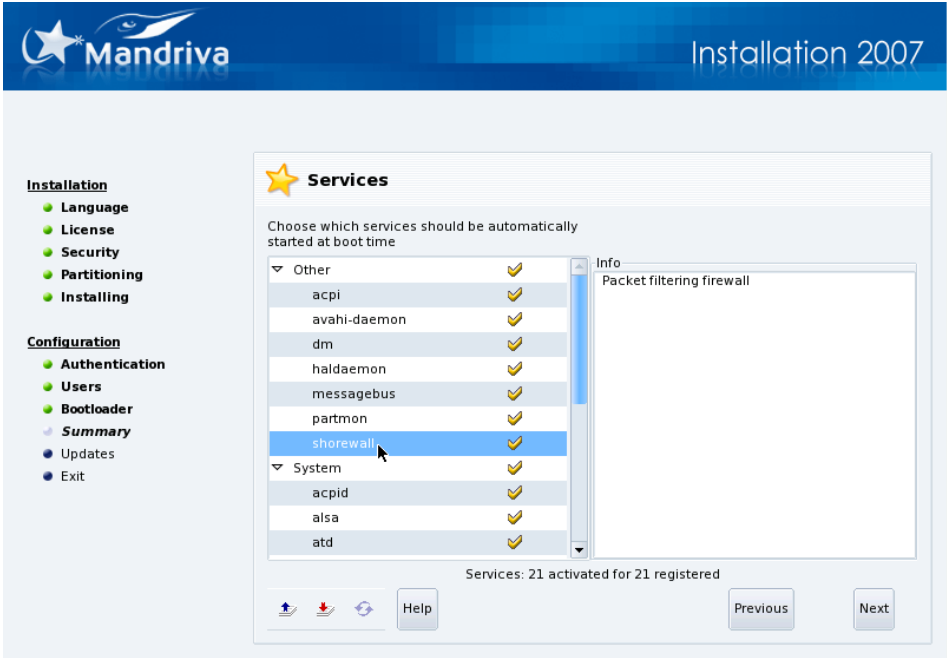
Graphic card options

Depending on your hardware capabilities, you can choose here to activate or disable specific features such as 3D acceleration or special visual effects (translucency).

Graphical interface at startup

This option allows you to choose whether you want your machine to automatically switch to a graphical interface at boot. Obviously, you may want to select the No option if your machine is to act as a server, or if you were not successful in getting the display configured.

22.12.4. Selecting Available Services at Boot Time



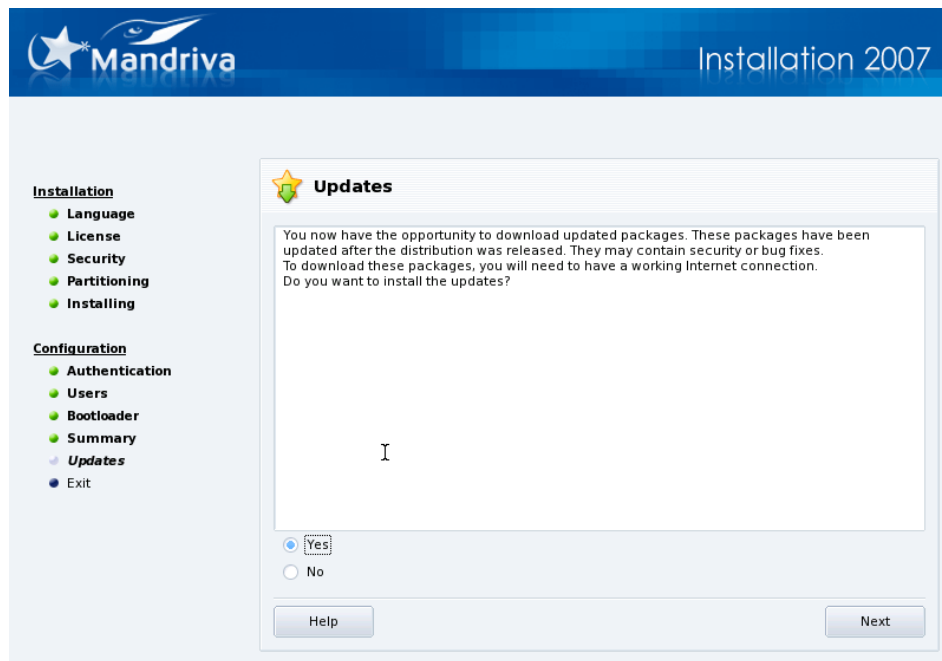
This dialog is used to select which services will be automatically started at boot time: DrakX lists all services available on the current installation. Review each of them carefully and uncheck those which aren't needed at boot time.

Tip: A short explanatory text is displayed about a service when it is selected. However, if you're not sure whether a service is useful or not, it is safer to leave the default setting.

Server Installation

At this stage, be very careful if you intend to use your machine as a server: you probably don't want to start any services which you don't need. Please remember that some services can be dangerous if they're enabled on a server. In general, select only those services you **really** need.

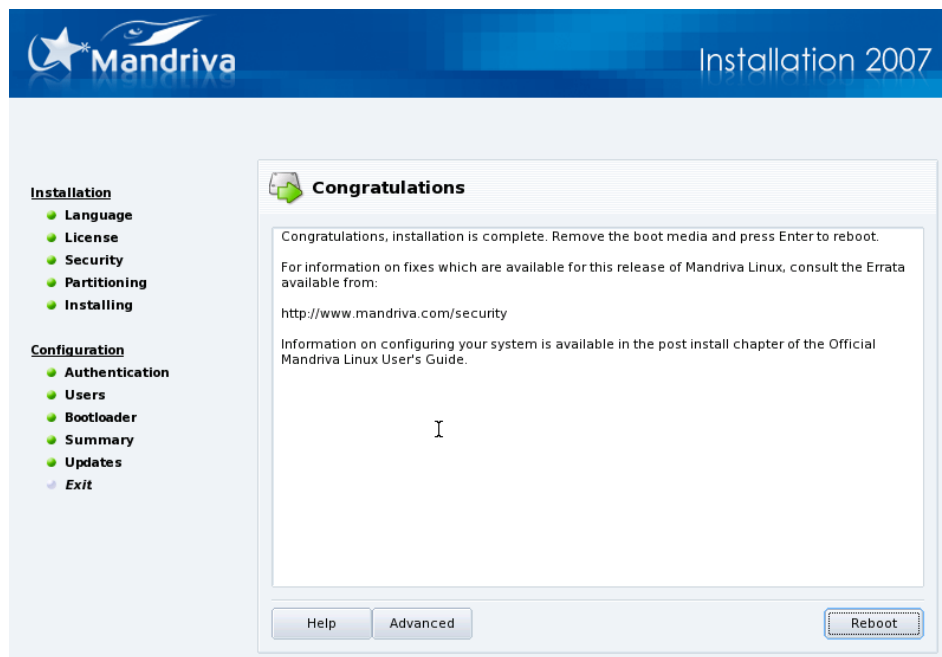
22.13. Installing Updates from the Internet



By the time you install Mandriva Linux, it's likely that some packages have been updated since the initial release. Bugs may have been fixed, security issues resolved, etc.

Choosing Yes displays a list of web locations from which you can retrieve updates. You should choose one near to you. Review the packages from the tree selection, and press Install to retrieve and install the selected packages.

22.14. It's Done!



There you are. The installation is now complete and your GNU/Linux system is ready to be used. Just click on Reboot to restart the system. Remember 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, which allows you to choose between the OSes your system can boot.

22.15. How to Uninstall Linux

If for any reason you want to uninstall Mandriva Linux, you can do so. The process of uninstalling Mandriva Linux is done in two steps:

Warning

Removing partitions on your hard drive will inevitably result in the loss of all data stored on those partitions. Please make sure you've backed up all of the data you want to keep **before** proceeding.

1. Remove the bootloader from the Master Boot Record (MBR)
 - a. To do so, reboot your computer with the installation CD/DVD (see *The Mandriva Linux Installer*, page 197)
 - b. Choose the option Rescue System.
 - c. In the new menu that appears choose the option Restore Windows Boot Loader.

2. Delete all partitions related to Mandriva Linux on your hard drive

These are usually partitions hosting ext3 file systems and the Swap partition. You can also replace them with a single partition using `fdisk`.

- a. Still in rescue mode, select option Go to console.
 - b. Run `fdisk /dev/hda` (if the hard disk containing Mandriva Linux is other than the 1st IDE disk, change `/dev/hda` accordingly).
 - c. Use the **p** command to display partition information, and then use the **d** command to delete all unneeded partitions.
 - d. If you want to create a single partition, use the **c** command, specify **1** as the partition number, make it use all of the space available, and when asked for the partition type use the **L** command to list the supported partition types and choose the one for the OS you plan to install later. Some examples: **c** for a FAT32 (Windows[®] 9x) partition, **7** for a NTFS (Windows[®] NT/Windows[®] 2000/XP) partition, **83** for a GNU/Linux partition. Finally use the **w** command to write changes back to disk.
3. Once this is done, just reset or shutdown the machine using the corresponding buttons.

Appendix A. Where to Get Documentation

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

A.1. Mandriva Linux-Specific Documentation

A.1.1. Mandriva's Own Documentation

Some of these manuals may be available in your Mandriva Linux pack, in the `mandriva-doc-MANUAL_NAME-en` package. Once installed, menu entries of the form `More Applications+Documentation→Mandriva Linux MANUAL_NAME` in English are available, choose them to open the manual in the browser and select the format you wish to use.

If you have the Beagle package installed, searching the manuals is even easier:

1. Choose `System+File Tools→Search` from the main menu to open Beagle search dialog.
2. In the Find field type the keywords you are looking for.
3. Click on Find now.

Note: If you do not get results immediately, it may be because Beagle hasn't finished its indexing of files. Please try the search again after a few minutes. You can open a terminal window and run `beagle-status` to get information about current Beagle activities.

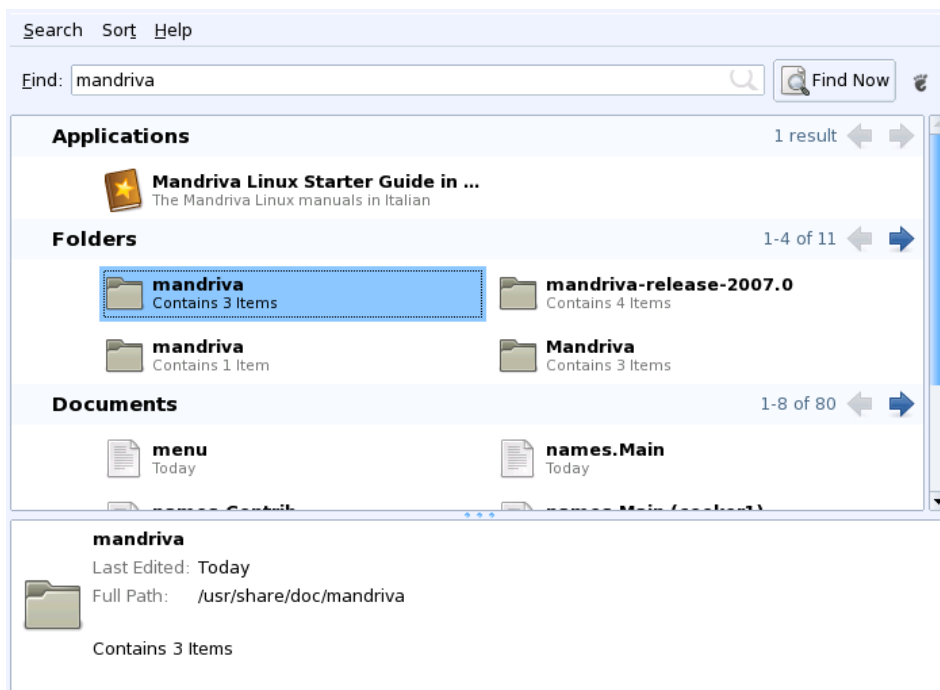


Figure A-1. Beagle Search Example

All Mandriva Linux Control Center tools have online help by choosing `Help→Help from Mandriva Linux Control Center's menu`: the browser is opened with Mandriva Linux Control Center's help.

A.1.2. Internet Resources

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

Your preferred source of information should be the Mandriva Linux official web site (<http://www.mandrivalinux.com/>). In particular, check out the support section (<http://expert.mandriva.com>).

On the other hand, many unofficial sources will also be of value. For one there is the Mandriva Community Twiki (<http://mandriva.vmlinuz.ca/bin/view/Main/WebHome>). It offers a lot of resources and gives information and documentation which can certainly interest Mandriva Linux users.

A.1.2.1. Mandriva Club

If you're familiar with Mandriva Linux's web sites, you probably know about Mandriva Club (<http://club.mandriva.com/>). It's the meeting point for all Mandriva Linux users. On it you will find questions along with their answers, suggestions and news related to Mandriva Linux and GNU/Linux. You will be able to express your opinions and influence future development of Mandriva Linux. If you're not a member yet, we encourage you to join.

One specific area of the Club is of particular interest: the Mandriva Club Knowledge Base (<http://club.mandriva.com/xwiki/bin/view/KB/>) is **the** Mandriva Linux user's database. It is probably the largest collection of Mandriva Linux-related documentation on the web.

It collects submissions by Mandriva Linux users. It also features a discussion forum and a community newsletter. These articles are meant to be practical and to target beginner and intermediate users.

Topics range from administrative issues, such as the handling of the shell, to the tweaking of X, GNU/Linux's graphical subsystem.

A.1.2.2. Mandriva Security Advisories

The Mandriva Security Advisories web site (<http://www.mandriva.com/security/>) is Mandriva's very own security site which covers package vulnerabilities.

A.1.2.3. Mandriva E-training

The Mandriva E-Training web site allows you to buy quality GNU/Linux training in order to improve your Open Source knowledge. You can access this web site (<http://etraining.mandriva.com/>) by using your Mandriva Club account. A free demo on Samba is available.

A.2. GNU/Linux Useful Resources

In this section we present resources useful for any GNU/Linux distribution. Most are not written specifically for Mandriva Linux, but may nevertheless prove useful.

A.2.1. The `/usr/share/doc` Directory

Most packages include their own documentation in one of `/usr/share/doc`'s sub-directories, which will be named after the specific package. Mandriva Linux's own documentation, when installed, is available in the `/usr/share/doc/mandriva/` directory.

A.2.2. The Man Pages

The Manual Pages (also known as “man pages”) are a set of exhaustive documents which help you acquire better knowledge of GNU/Linux commands. The latter are usually issued through the “command line” and allow great control over your system (see the Introduction to the Command Line chapter of the *Reference Manual*). Although these man pages might seem discouraging at first, they offer great detail and we encourage you to browse through them when a problem occurs.

This should be your primary source of information for shell commands. 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.

Tip: The easiest way to view a man page is through a browser. Using Konqueror, type `man:/man(1)` in the Location bar and the man page for the `man` command will be displayed. For example, to display the man page for `fstab(5)`, type in the Location field: `man:/fstab(5)`.

To display a man page in a terminal (or shell), type `man`. The syntax to obtain 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 of the page you will find references to other pages with related subjects (usually in the **SEE ALSO** section).

You can start by consulting the pages related to the different commands covered in the *Reference 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: `man 2 mknod`. If you forgot the exact section, `man -a mknod` will read through all the sections looking for pages named `mknod`.

Appendix B. About the Making of this Manual

B.1. Technical Infrastructure

This manual is written and maintained by NeoDoc (<http://www.neodoc.biz>). Translations are assured by NeoDoc, Mandriva and other translators.

This document was written in DocBook XML. The set of files involved were managed using the Borges Collaborative Content Creation System (C3S) (<http://sourceforge.net/projects/borges-dms>). The XML source files were processed by `xsltproc`, and `jadetex` (for the electronic version) using a customized version of Norman Walsh's stylesheets. Screen shots were taken using `xwd` or `GIMP` and converted with `convert` (from the ImageMagick package). All these programs are free software and all of them are available in your Mandriva Linux distribution.

B.2. Help Improve Mandriva Linux Documentation

In the open-source philosophy, contributors are always welcomed! Updating the Mandriva Linux documentation pool is quite a task. You could provide help in many different ways. In fact, the documentation team is constantly looking for talented volunteers to help us to accomplish the following tasks:

- writing or updating;
- translating;
- copy editing;
- XML/XSLT programming.

If you have a lot of time, you can write or update a whole chapter; if you speak a foreign language, you can help us translate our manuals; if you have ideas on how to improve the content, let us know; if you have programming skills and would like to help us enhance the Borges Collaborative Content Creation System (C3S) (<http://sourceforge.net/projects/borges-dms>), join in. And please don't hesitate to contact us if you find any mistakes in the documentation so we can correct them!

For any information about the Mandriva Linux documentation project, please contact the documentation administrator (<mailto:documentation@mandriva.com>) or visit the Mandriva Linux Documentation Project Pages (<http://qa.mandriva.com/twiki/bin/view/Main/DocumentationTask>).

Note: Please note that since June 2004 the Mandriva Linux documentation and the development of Borges is handled by NeoDoc (<http://www.neodoc.biz>).

Appendix C. The GNU General Public License

The following text is the GPL license that applies to most programs found in Mandriva Linux distributions. The original can be found at the GNU website (<http://www.gnu.org/copyleft/gpl.html>).

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C.1. Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software — to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

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For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

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Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

C.2. Terms and conditions for copying, distribution and modification

- 0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

- 1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

- 2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:
 - a. You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.
 - b. You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.
 - c. If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

- 3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:
 - a. Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
 - b. Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
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