SUSE Linux

Applications

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Contents

About This Guide

This guide features a selection of the most important tools offered by your SUSE Linux. Learn which applications to pick for office tasks, browsing the Internet, enjoying your image or multimedia collections, and much more.

TIP: Finding the Right Linux Application

If switching to Linux from Windows or MacOS and wondering which Linux application can replace the software you have been using so far, check out Appendix A, *Getting to Know Linux Software* (page 195).

Office
> Learn how to use the OpenOffice.org office suite and how to manage e-mailing, calendaring, and data synchronization with Evolution and Kontact. Beagle offers powerful desktop search capabilities.

Internet
> Choose Konqueror or Firefox to browse the Web and learn how to use Linphone for Internet telephony. KGpg offers a means for handling GPG keys for file and e-mail encryption.

Multimedia
> Learn about the various Linux sound applications, such as AmaroK and Banshee, radio and TV applications, and media burning with K3b.

Graphics
> Manage your digital image collections with f-spot or Digikam and use The GIMP for advanced image processing.

1 Feedback

We want to hear your comments and suggestions about this manual and the other documentation included with this product. Please use the User Comments feature at the bottom of each page of the online documentation and enter your comments there.

2 Additional Documentation

There are other manuals available on this SUSE Linux product, either online at
http://www.novell.com/documentation/ or in your installed system under
/usr/share/doc/manual/:

SUSE Linux *Start-Up*
> This guide introduces you to the installation procedure of SUSE Linux and the
> basic use of your desktop environment. Find an online version of this document at
> http://www.novell.com/documentation/suse101/.

SUSE Linux *Reference*
> This guide covers advanced system administration tasks with SUSE Linux. Find
> an online version of this document at http://www.novell.com/
> documentation/suse101/.

Novell AppArmor 2.0 Administration Guide
> This guide contains in-depth information about the use of *AppArmor* in your envi-
> ronment. Find an online version of this document at http://www.novell
> .com/documentation/apparmor/.

3 Documentation Conventions

The following typographical conventions are used in this manual:

- /etc/passwd: filenames and directory names

- *placeholder*: replace *placeholder* with the actual value

- PATH: the environment variable PATH

- ls, --help: commands, options, and parameters

- user: users or groups

- Alt , Alt + F1 : a key to press or a key combination; keys are shown in uppercase
  as on a keyboard

- *File*, *File → Save As*: menu items, buttons

- *Dancing Penguins* (Chapter Penguins, ↑*Reference*): This is a reference to a chapter in another book.

4 About the Making of this Manual

This book is written in Novdoc, a subset of DocBook (see `http://www.docbook.org`). The XML source files were validated by `xmllint`, processed by `xsltproc`, and converted into XSL-FO using a customized version of Norman Walsh's stylesheets. The final PDF is formatted through XEP from RenderX.

5 Acknowledgment

With a lot of voluntary commitment, the developers of Linux cooperate on a global scale to promote the development of Linux. We thank them for their efforts—this distribution would not exist without them. Furthermore, we thank Frank Zappa and Pawar. Special thanks, of course, go to Linus Torvalds.

Have a lot of fun!

Your SUSE Team

Part I. Office

The OpenOffice.org Office Suite 1

OpenOffice.org is a powerful office suite that offers tools for all types of office tasks, such as writing texts, working with spreadsheets, or creating graphics and presentations. With OpenOffice.org, use the same data across different computing platforms. You can also open and edit files in Microsoft Office formats then save them back to this format, if needed. This chapter only covers the basic skills needed to get started with OpenOffice.org. Start the application from the SUSE menu or using the command `ooffice`.

OpenOffice.org consists of several application modules (subprograms), which are designed to interact with each other. They are listed in Table 1.1, "The OpenOffice.org Application Modules" (page 15). The discussion in this chapter is focused on Writer. A full description of each module is available in the online help, described in Section 1.6, "For More Information" (page 21).

Table 1.1   *The OpenOffice.org Application Modules*

Writer	Powerful word processor application
Calc	Spreadsheet application that includes a chart utility
Draw	Drawing application for creating vector graphics
Math	Application for generating mathematical formulas
Impress	Application for creating presentations
Base	Database application

The appearance of the application varies depending on which desktop or window manager is used. Additionally, the open and save dialog formats for your desktop are used. Regardless of the appearance, the basic layout and functions are the same.

1.1 Compatibility with Other Office Applications

OpenOffice.org is able to work with Microsoft Office documents, spreadsheets, presentations, and databases. They can be seamlessly opened like other files and saved back to that format. Because the Microsoft formats are closed and the specifics are not available to other applications, there are occasionally formatting issues. If you have problems with your documents, consider opening them in the original application and resaving in an open format, such as RTF for text documents or CSV for spreadsheets.

To convert a number of documents, such as when first switching to the application, select *File → Wizard → Document Converter*. Choose the file format from which to convert. There are several StarOffice and Microsoft Office formats available. After selecting a format, click *Next* then specify where OpenOffice.org should look for templates and documents to convert and in which directory the converted files should be placed. Before continuing, make sure that all other settings are appropriate. Click *Next* to see a summary of the actions to perform, which gives another opportunity to check whether all settings are correct. Finally, start the conversion by clicking *Convert*.

IMPORTANT: Finding Windows Files

Documents from a Windows partition are usually in a subdirectory of `/windows.`

When sharing documents with others, you have several options. If the recipient only needs to read the document, export it to a PDF file with *File → Export as PDF*. PDF files can be read on any platform using a viewer like Adobe Acrobat Reader. To share a document for editing, use one of the regular document formats. The default formats comply with the OASIS standard XML format, making them compatible with a number of applications. TXT and RTF formats, although limited in formatting, might be a good option for text documents. CSV is useful for spreadsheets. OpenOffice.org might also offer your recipient's preferred format, especially Microsoft formats.

OpenOffice.org is available for a number of operating systems. This makes it an excellent tool when a group of users frequently need to share files and do not use the same system on their computers.

1.2 Word Processing with Writer

Figure 1.1   *The OpenOffice.org Writer*
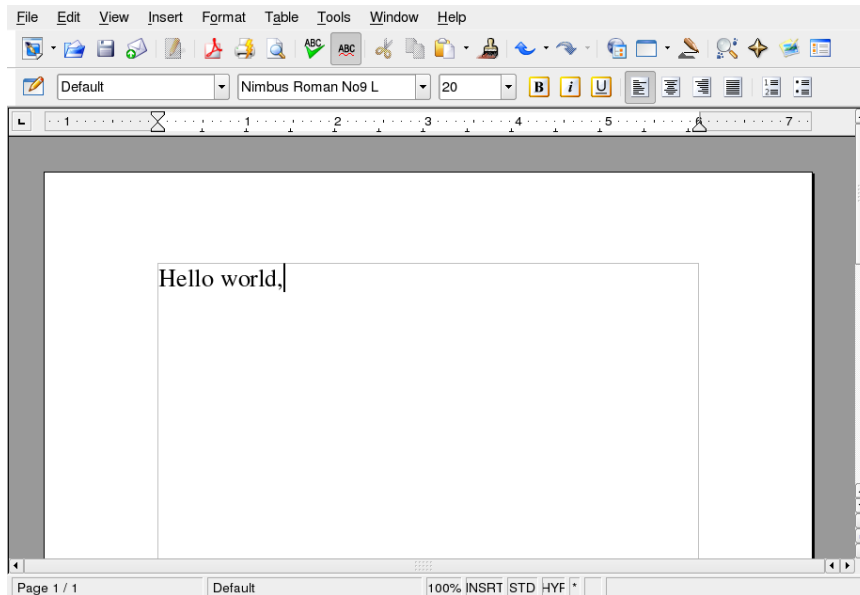
There are two ways to create a new document. To create a document from scratch, use *File → New → Text Document*. To use a standard format and predefined elements for your own documents, try a wizard. Wizards are small utilities that let you make some basic decisions then produce a ready-made document from a template. For example, to create a business letter, select *File → Wizards → Letter*. Using the wizard's dialogs, easily create a basic document using a standard format. A sample wizard dialog is shown in .

Figure 1.2   *An OpenOffice.org Wizard*

Enter text in the document window as desired. Use the *Formatting* toolbar or the *Format* menu to adjust the appearance of the document. Use the *File* menu or the relevant buttons in the toolbar to print and save your document. With the options under *Insert*, add extra items to your document, such as a table, picture, or chart.

1.2.1 Selecting Text

To select text, click the desired beginning of the selection and, keeping the mouse button pressed, move the cursor towards the end of the range (which can be characters, lines, or entire paragraphs). Release the button when all desired text is selected. While selected, text is displayed in inverted colors. Open a context menu by right-clicking the selection. Use the context menu to change the font, the font style, and other text properties.

Selected text can be cut or copied to the clipboard. Cut or copied text can be pasted back into the document at another location. Use the context menu, *Edit*, or the relevant toolbar icons to access these functions.

1.2.2 Navigating in Large Documents

The Navigator displays information about the contents of a document. It also enables you to jump quickly to the different elements included. For example, use the Navigator to get a quick overview of all the chapters or to see a list of the images included in the document. Open it by selecting *Edit → Navigator* or by pressing F5 . Figure 1.3, "The Navigator in Writer" (page 19) shows the Navigator in action. The elements listed in the Navigator vary according to the document loaded in Writer.

Figure 1.3   *The Navigator in Writer*
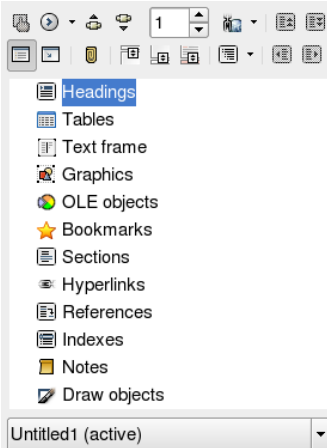
1.2.3 Formatting with Styles

The dialog opened with *Format → Styles and Formatting* can help you format text in a number of ways. If you set the drop-down list at the bottom of this dialog to *Automatic*, OpenOffice.org tries to offer a selection of styles adapted to the task at hand. If you select *All Styles*, the Stylist offers all styles from the currently active group. Select groups with the buttons at the top.

By formatting your text with this method, called *soft formatting*, text is not formatted directly. Instead, a style is applied to it. The style can be modified easily, automatically resulting in a formatting change of all the text to which it is assigned.

To assign a style to a paragraph, select the style to use then click the paint bucket icon in *Styles and Formatting*. Click the paragraphs to which to assign the style. Stop assigning the style by pressing [Esc] or clicking the paint bucket icon again.

Easily create your own styles by formatting a paragraph or a character as desired using the *Format* menu or toolbar. Select the formatted item from which to copy the style. Then click and hold the button to the right of the bucket in *Styles and Formatting* and select *New Style from Selection* from the menu that opens. Enter a name for your style and click *OK*. This style can then be applied to other texts.

Change details of a style by selecting it in the list, right-clicking, and selecting *Modify* from the menu. This opens a dialog in which all the possible formatting properties are available for modification.

1.3 Introducing Calc

Calc is OpenOffice.org's spreadsheet application. Create a new spreadsheet with *File → New → Spreadsheet* or open one with *File → Open*. Calc can read and save in Microsoft Excel's format.

In the spreadsheet cells, enter fixed data or formulas. A formula can manipulate data from other cells to generate a value for the cell in which it is inserted. You can also create charts from cell values.

1.4 Introducing Impress

Impress is designed for creating presentations for screen display or printing, such as on transparencies. Create a presentation from scratch with *File → New → Presentation*. To create one with the assistance of a wizard, use *File → Wizards → Presentation*. Open an existing presentation with *File → Open*. Impress can open and save Microsoft PowerPoint presentations.

1.5 Introducing Base

OpenOffice 2.0 introduces a new database module. Create a database with *File → New → Database*. A wizard opens to assist in creating the database. Base can also work with Microsoft Access databases.

Figure 1.4 *Base—Databases in OpenOffice.org*
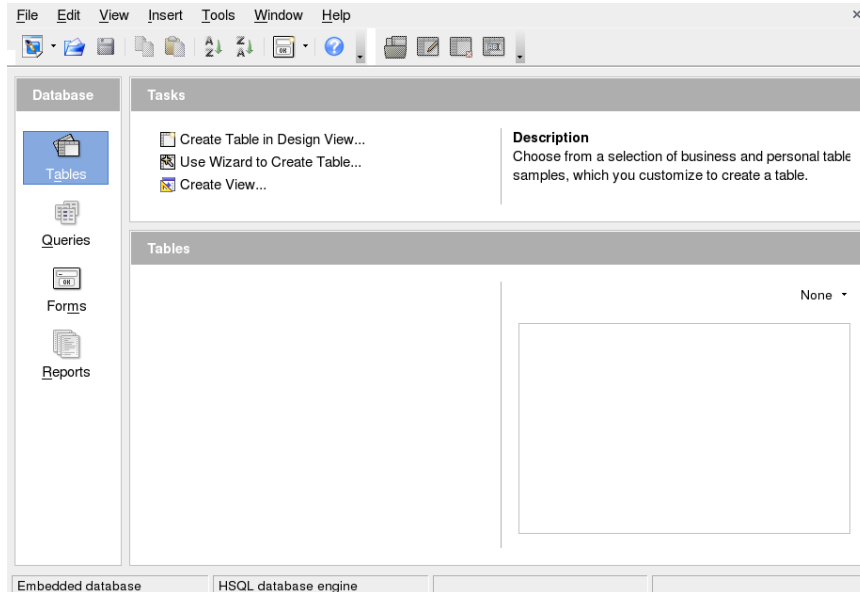
Tables, forms, queries, and reports can be created manually or using convenient wizards. For example, the table wizard contains a number of common fields for business and personal use. Databases created in Base can be used as data sources, such as when creating form letters.

1.6 For More Information

OpenOffice.org includes a number of information options that provide different levels of information. To get thoroughly acquainted with a topic, select *Help → OpenOffice.org Help*. The help system provides in-depth information about each of the modules of OpenOffice.org (Writer, Calc, Impress, etc.).

When the application is first started, it provides *Tips*, short information about buttons when the mouse hovers over them, and the *Help Agent*, information based on actions performed. To get more extensive information about buttons than the *Tips* provide, use *Help* → *What's This* then hover over the desired buttons. To end *What's This* mode, click. If you frequently need this function, consider enabling the *Extended Tips* in *Tools* → *Options* → *OpenOffice.org* → *General*. The *Help Agent* and *Tips* can also be enabled and disabled here.

The OpenOffice.org Web site is http://www.openoffice.org. There, find mailing lists, articles, and bug information. This site provides the versions for various operating systems for download.

Evolution: An E-Mail and Calendar Program

<div style="text-align: right; font-size: xx-large; font-weight: bold;">2</div>

Evolution is a groupware suite that offers the usual e-mail features along with extended features, like task lists and a calendar. The application also provides a complete address book that includes the ability to send contact information to others in vCard format.

Start Evolution from the menu or press `Alt` + `F2` and enter `evolution`. When started for the first time, Evolution offers a configuration assistant. Its use is described in Section 2.2.2, "Configuring Accounts" (page 25).

IMPORTANT: Microsoft Exchange Accounts

To use Evolution with Microsoft Exchange, you must install the `ximian-connector` package. Install it with YaST.

2.1 Evolution Overview

The default window view is shown in Figure 2.1, "The Evolution Window with Mail" (page 24). The available menus, menu items, and the icons in the toolbar vary depending on the open component. Use the left frame to select which information to display in the right frame (*Mail*, *Contacts*, *Calendar*, etc.). Adjust the size of the frames by dragging the dividing bars.

Figure 2.1 *The Evolution Window with Mail*
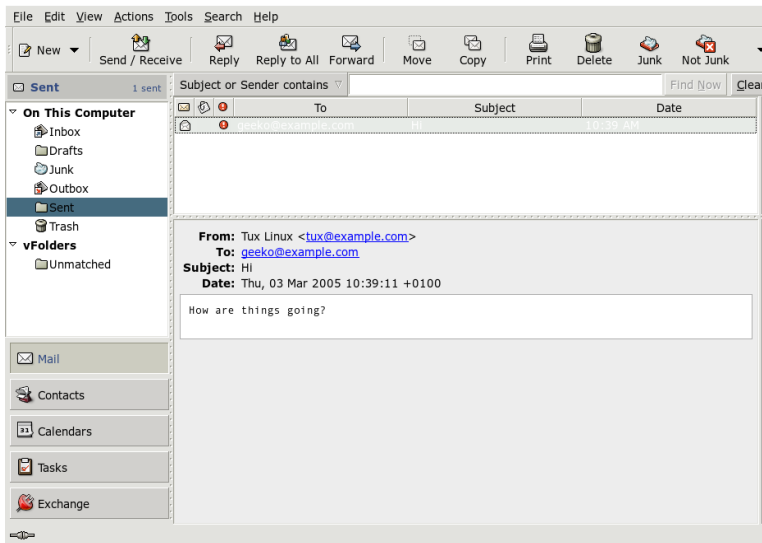
2.1.1 Mail

In this view, the upper half of the window shows the contents of the current folder. The lower half is a preview pane used to display the selected mail message. To display a different folder, select a folder from the folder list in the left frame.

Use the search bar to search the messages in a folder. To sort messages by a table header, click the desired header (*To*, *Subject*, *Date*). The arrow to the right shows whether the column is sorted in ascending or descending order. Click the column header until the messages are sorted in the desired direction.

2.1.2 Contacts

This view shows all the addresses in your address book. To locate a particular address, use the search bar or click the button to the right displaying the first letter of the contact's last name. Add contacts or lists with the toolbar.

2.1.3 Calendar

The initial display shows a view of the current day with the month and a task list shown in an additional pane to the right. Week, work week, and month views are also available from the toolbar or the *View* menu. Use the search bar to find an appointment that has been entered in the calendar. Add appointments and tasks using the buttons in the toolbar. You can also use the toolbar to page through the calendar or jump to a specific date.

2.1.4 Tasks

Tasks provides a list of tasks. Details of the selected task are shown in the lower part of the window. Use *File → New → Task* to add a new task. Search the tasks with the search bar. Assign tasks to others by right-clicking the task and selecting *Assign Task*. *Open* the task to add more details, such as a due date and completion status.

2.2 Mail

The Evolution mail component can work with multiple accounts in a variety of formats. It offers useful features, such as virtual folders for showing search results and filtering for junk mail. Configure the application in *Edit → Preferences*.

2.2.1 Importing E-Mail from Other Mail Programs

To import e-mail from other e-mail programs, such as Netscape, select *File → Import*. For mbox formats, select *Import a single file*. For Netscape, select *Import data and settings from older programs*. To work with data from programs using the maildir format, such as KMail, configure an account that accesses the mail directory.

2.2.2 Configuring Accounts

Evolution can retrieve e-mail from multiple mail accounts. Select the account from which to send e-mail when you compose a message. Configure mail accounts in *Edit*

→ *Preferences* → *Mail Accounts*. To modify an existing configuration, select it and click *Edit*. To delete an account, select it and click *Delete*.

To add a new account, click *Add*. This opens the configuration assistant. Click *Forward* to use it. Enter your name and your e-mail address in the respective fields. Enter the optional information if desired. Check *Make this my default account* to use this account by default when writing mails. Click *Forward*.

Select the appropriate incoming e-mail format for this address in *Server Type*. *POP* is the most common format for downloading mail from a remote server. *IMAP* works with mail folders on a special server. Obtain this information from your ISP or server administrator. Complete the other relevant fields displayed when the server type is selected. Click *Forward* when finished. Select the desired *Receiving Options*, if available. Click *Forward*.

Next, configure the mail delivery options. To submit outgoing e-mail to the local system, select *Sendmail*. For a remote server, select *SMTP*. Get the details from your ISP or server administrator. For SMTP, complete the other fields displayed after selection. Click *Forward* when finished.

By default, the e-mail address is used as the name to identify the account. Enter another name if desired. Click *Forward*. Click *Apply* to save your account configuration.

To make an account the default account for sending e-mail, select the desired account then press *Default*. To disable the retrieval of e-mail from an account, select the account then click *Disable*. A disabled account can still be used as the address for sending, but that account is not checked for incoming e-mail. If necessary, reactivate the account with *Enable*.

2.2.3 Creating Messages

To compose a new message, click *New* → *Mail Message*. Replying to or forwarding a message opens the same message editor. Next to *From*, select from which account to send the message. In the recipient fields, enter an e-mail address or part of a name or address in your address book. If Evolution can match what you enter to something in the address book, a selection list is displayed. Click the desired contact or complete your input if there are no matches. To select a recipient directly from the address book, click *To* or *CC*.

Evolution can send e-mail as plain text or HTML. To format HTML mail, select *Format* in the toolbar. To send attachments, select *Attach* or *Insert → Attachment*.

To send your message, click *Send*. If not ready to send it immediately, make another selection under *File*. For example, save the message as a draft or send it later.

2.2.4 Encrypted E-Mail and Signatures

Evolution supports e-mail encryption with PGP. It can sign e-mail and check signed e-mail messages. To use these features, generate and manage keys with an external application, such as gpg or KGpg.

To sign an e-mail message before sending it, select *Security → PGP sign*. When you click *Send*, a dialog prompts for the passphrase of your secret key. Enter the passphrase and exit the dialog with *OK* to send the signed e-mail. To sign other e-mail messages in the course of this session without needing to "unlock" the secret key repeatedly, check *Remember this password for the remainder of this session*.

When you receive signed e-mail from other users, a small padlock icon appears at the end of the message. If you click this symbol, Evolution starts an external program (gpg) to check the signature. If the signature is valid, a green check mark appears next to the padlock symbol. If the signature is invalid, a broken padlock appears.

The encryption and decryption of e-mail is just as easy. After composing the e-mail message, go to *Security → PGP encrypt* and send the e-mail message. When you receive encrypted messages, a dialog asks for the password of your secret key. Enter the passphrase to decrypt the e-mail message.

2.2.5 Folders

It is often convenient to sort e-mail messages into a variety of folders. Your folder tree is shown in the left frame. If accessing mail over IMAP, the IMAP folders are also shown in this folder bar. For POP and most other formats, your folders are stored locally, sorted under *On This Computer*.

Several folders are included by default. *Inbox* is where new messages fetched from a server are initially placed. *Sent* is used for saving copies of sent e-mail messages. The *Outbox* provides temporary storage for e-mail that has not yet been sent. It is useful if

working offline or if the outgoing mail server is temporarily unreachable. *Drafts* is used for saving unfinished e-mail messages. The *Trash* folder is intended for temporary storage of deleted items. *Junk* is for Evolution's junk mail filtering feature.

New folders can be created under *On This Computer* or as subfolders of existing folders. Create as complex a folder hierarchy as desired. To create a new folder, select *File → New → Mail Folder*. In the *Mail Folder* dialog, enter a name for the new folder. Use the mouse to determine the parent folder under which to place the new folder. Exit the dialog with *OK*.

To move a message into a folder, select the message to move. Right-click to open the context menu. Select *Move to Folder* and, in the dialog that opens, the destination folder. Click *OK* to move the message. The message header in the original folder is shown with a line through it, meaning that message is marked for deletion from that folder. The message is stored in the new folder. Messages can be copied in a similar manner.

Manually moving a number of messages into different folders can be time-consuming. Filters can be used to automate this procedure.

2.2.6 Filters

Evolution offers a number of options for filtering e-mail. Filters can be used to move a message into a specific folder or to delete a message. Messages can also be moved directly to the trash with a filter. There are two options for creating a new filter: creating a filter from scratch or creating a filter based on a message to filter. The latter is useful for filtering messages sent to a mailing list.

Setting Up a Filter

Select *Tools → Filters*. This dialog lists your existing filters, which can be edited or deleted. Click *Add* to create a new filter. Alternatively, to create a filter based on a message, select the message then *Tools → Create Filter from Message*.

Enter a name for the new filter in *Rule Name*. Select the criteria to use for the filter. Options include sender, recipients, source account, subject, date, and status. The drop-box showing *Contains* provides a variety of options, such as *contains*, *is*, and *is not*. Select the appropriate condition. Enter the text for which to search. Click *Add* to add

more filter criteria. Use *Execute actions* to determine if all or only some of the criteria must be met to apply the filter.

In the lower part of the window, determine the action to take when the filter criteria are met. Messages can, for example, be moved or copied to a folder or assigned a special color. When moving or copying, click to select the destination folder. In the folder list that appears, select the folder. To create a new folder, click *New*. Click *OK* when the correct folder is selected. When finished creating the filter, click *OK*.

Applying Filters

Filters are applied in the order listed in the dialog accessed with *Tools → Filters*. Change the order by highlighting a filter and clicking *Up* or *Down*. Click *OK* to close the filter dialog when finished.

Filters are applied to all new mail messages. They are not applied to mail already in your folders. To apply filters to messages already received, select the desired messages then select *Actions → Apply Filters*.

2.3 Contacts

Evolution can use several different address books. Available books are listed in the left frame. Search for a particular contact using the search bar. Add contacts in several formats to the Evolution address book using *File → Import*. Right-click a contact to open a menu in which to select from a variety of options, such as forwarding the contact or saving it as a vCard. Double-click a contact to edit it.

Figure 2.2 *The Evolution Address Book*
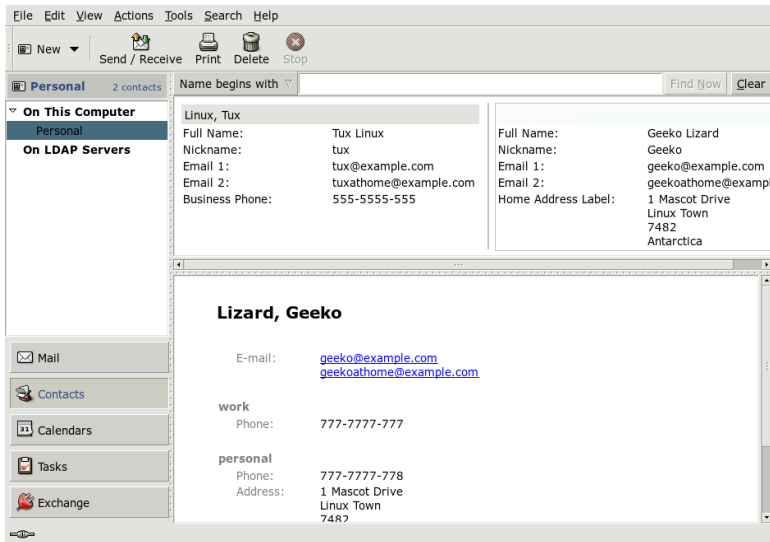
2.3.1 Adding Contacts

Along with the name and e-mail address, Evolution can store other address and contact information about a person. Quickly add the e-mail address of a sender by right-clicking the marked address in the message preview. To enter a completely new contact, click *New* in the *Contacts* view. Both methods open a dialog in which to enter contact information.

In the *Contact* tab, enter the contact's name, e-mail addresses, telephone numbers, and instant messaging identities. *Personal Information* is for Web addresses and other detailed information. Enter the contact's other address information in *Mailing Address*. After entering all desired details for the contact, click *OK* to add it to the address book.

2.3.2 Making a List

If you frequently send e-mail messages to a group of people, you can simplify the process by creating a list containing those addresses. Click *File → New → Contact List*. The contact list editor opens. Enter a name for the list. Add addresses by typing the address in the box and clicking *Add* or by dragging contacts from the *Contacts* view and dropping

them in the box. Toggle *Hide addresses* to select whether the recipients can see who else has received the mail. Click *OK* when finished. The list is now one of your contacts and appears in the composition window after the first few letters are typed.

2.3.3 Adding Address Books

Configure additional GroupWise and Exchange address books in the account configuration. To add other local or LDAP books, select *File → New → Address Book*. In the dialog that opens, select the type of address book and enter the required information.

2.4 Calendars

Evolution can work with multiple calendars. With *File → Import*, import calendars in iCalendar format. Use the calendar to enter appointments and schedule meetings with others. If desired, set reminders to let you know when your scheduled appointments are going to start.

Figure 2.3 *The Evolution Calendar*
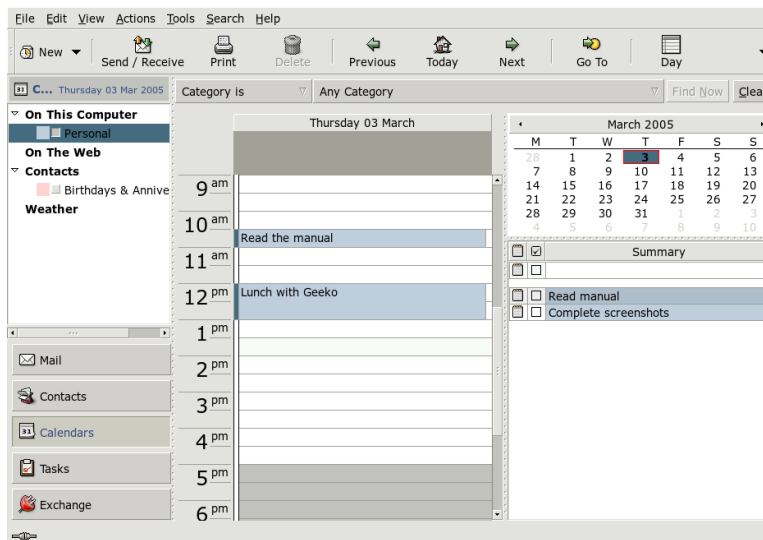
2.4.1 Adding Appointments

To add a new appointment to your calendar, click *File → New → Appointment*. Under the *Appointment* tab, enter the details for the appointment. Select a category, if desired, to ease searching and sorting later. Optionally, use *Alarm* to set an alarm so Evolution will remind you before your appointment starts. If the appointment occurs regularly, set the recurring dates under *Recurrence*. Click *OK* after all settings are made. The new appointment is then shown in your calendar.

2.4.2 Scheduling a Meeting

To schedule a meeting with other people, select *File → New → Meeting*. Enter information as you would for an appointment. Add the attendees in *Invitations* or *Scheduling*. To enter attendees from your address book, use *Contacts* to open a list of the contacts in your address book. *Scheduling* can also be used to schedule a time that fits all attendees. Press *Autopick* after configuring participants to automatically find a time.

2.4.3 Adding Calendars

GroupWise and Exchange calendars should be configured in the account configuration. To add additional local or Web calendars, select *File → New → Calendar*. Select the desired type and enter the required information.

2.5 Syncing Data with a Handheld

Evolution is designed so its data can be synced with handheld devices, such as a Palm. The synchronization uses GNOME Pilot. Select *Edit → Synchronizations Options* to open the configuration wizard. Refer to the help for more information.

2.6 Evolution for GroupWise Users

GroupWise users should have little trouble using Evolution to access their GroupWise accounts. Evolution and GroupWise use very similar terminology. Users familiar with one system should be able to learn the other with minimal effort.

Use the configuration assistant to configure Evolution to access your GroupWise system.

1. To start the assistant, click *Preferences → Mail Accounts → Add* then click *Forward*.

2. On the *Identity* page, provide your e-mail address in the GroupWise system (for example, `joe@example.com`) then click *Forward*.

3. On the *Receiving Email* page, select *IMAP* in *Server Type*, specify the hostname of your GroupWise server in *Host*, set the other settings on the *Receiving Options* page as appropriate for your system, then click *Forward*.

4. On the *Sending Email* page, select *SMTP* in *Server Type*, specify the hostname of your GroupWise server in *Host*, set the other *Sending Email* options as appropriate for your system, then click *Forward*.

5. On the *Account Management* page, specify the name to use to identify this account on the *Evolution Settings* page then click *Forward*.

6. Click *Apply* to create the GroupWise account. Your GroupWise mailbox now appears in the list of available e-mail accounts.

2.7 For More Information

Evolution offers extensive internal help pages. Use the *Help* menu to access this information. For more information about Evolution, refer to the project's Web site at http://www.gnome.org/projects/evolution/.

Kontact: An E-Mail and Calendar Program

3

Kontact combines the functionality of a number of KDE applications into a convenient, single interface for personal information management. These applications include KMail for e-mail, KOrganizer for the calendar, KAddressbook for contacts, and KNotes for notes. It is also possible to sync data with external devices, such as a PalmPilot or other handheld device. Kontact integrates easily with the rest of the KDE desktop and connects to a variety of groupware servers. It includes extra features, such as spam and virus filtering and an RSS reader.

Start Kontact from the main menu. Alternatively, enter `kontact` in a command line or in the *Run Command* dialog. You can also open the individual components instead of the combined application if you only need partial functionality.

3.1 Kontact Overview

The default window view, which shows the *Summary*, is shown in Figure 3.1, "The Kontact Window Showing the Summary" (page 36). Use the buttons in the left section to access the different components.

The *Summary* provides basic information, including upcoming birthdays and to-dos and the number of new mail messages. The news section can access RSS feeds to provide updated news of interest to you. Use *Settings* → *Configure Summary View* to configure the information displayed.

Figure 3.1   *The Kontact Window Showing the Summary*
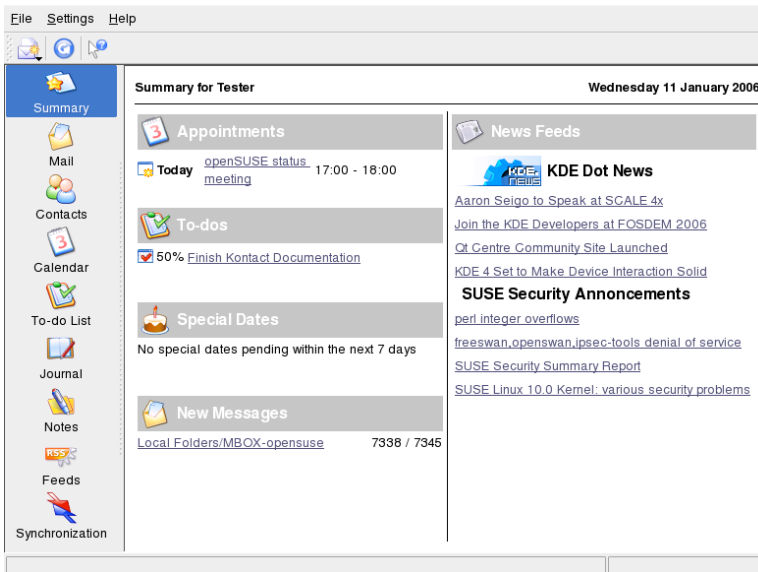
3.1.1 Mail

The folder area to the left contains a list of your mail folders (mail boxes) indicating the total number of messages and how many are still unread. To select a folder, simply click it. The messages in that folder appear in the top right frame. The number of messages in that folder is also shown in the status bar at the bottom of the application window.

The subject, sender, and time of receipt of each message are listed in the header area to the right. Click a message to select it and display it in the message window. Sort the messages by clicking one of the column headers (subject, sender, date, etc.). The contents of the currently selected message are displayed in the message frame of the window. Attachments are depicted as icons at the end of the message, based on the MIME type of the attachment, or they can be displayed inline.

Messages can be marked with different status flags. Change the status with *Message → Mark Message*. You can use this feature to assign a status to a message, such as important or ignored. For example, you can highlight important messages that you do

not want to forget. Display only messages with a certain status using *Status* in the search bar.

3.1.2 Contacts

The upper left frame of this component shows all addresses in the currently activated address books. The lower left frame lists your address books and shows whether each one is currently active. The right frame shows the currently selected contact. Use the search bar at the top to find a particular contact.

3.1.3 Calendar

The calendar view is divided into a number of frames. By default, view a small calendar of this month and a week view of the current week. Also find a list of to-dos, a detailed view of the current event or to-do, and a list of calendars with the status of each. Select a different view from the toolbar or the *View* menu.

3.1.4 To-Do List

To-do List shows your list of tasks. Click the field at the top to add a new item to the list. Right-click in a column of an existing item to make changes to the value in that column. An item can be broken into several subitems. Right-click and select *New Sub-to-do* to create a subitem. You can also assign to-dos to other people.

3.1.5 Journal

The *Journal* provides a place for your reflections, occurences, or experiences. Choose a date in the calendar frame and click *Add Journal Entry* to add a new entry. If a journal entry already exists for the chosen date, edit it in the right frame.

3.1.6 Notes

Use the Notes component to keep sticky notes to yourself. If you are using KDE, use the KNote icon in the system tray to make your notes visible on the desktop.

3.1.7 Feeds

The *Feeds* window is divided into three frames—a tree view with RSS feeds on the left, an article list on the top right, and the article view on the bottom right side. Click a feed in the tree view to display it. Right-click a feed to update, edit, or delete it. Right-click a folder in the tree view to open a menu where you can add a new feed or manipulate existing feeds within this folder.

3.2 Mail

Kontact uses KMail as its e-mail component. To configure it, open the mail component then select *Settings → Configure KMail*. KMail is a fully-featured e-mail client that supports a number of protocols. *Tools* contains several useful tools for managing unwanted e-mails. Use *Find* to perform a detailed search for messages. *Anti-Spam Wizard* can help manage tools for filtering unwanted commercial e-mails. *Anti-Virus Wizard* helps manage e-mail virus scanners. These two wizards work with external spam and virus software. If the options are disabled, install additional packages for protection against spam and viruses.

Figure 3.2   *The Kontact Mail Component*
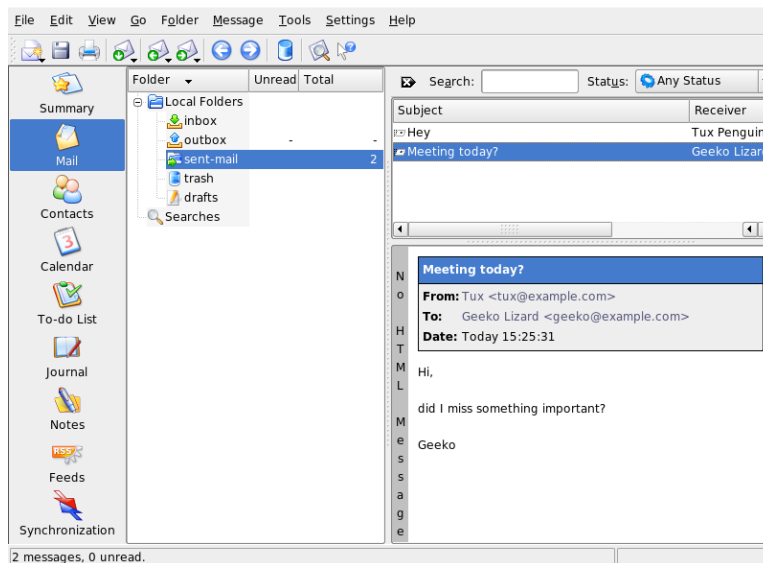
3.2.1 Configuring Identities and Accounts

Kontact can manage multiple e-mail accounts, such as your private e-mail address and your business address. When writing an e-mail, select one of the identities previously defined by clicking *View → Identity*. To create a new identity profile, select *Settings → Configure KMail* then *Identities → Add*. In the dialog that opens, give the new identity a name, such as "private" or "office." Click *OK* to open a dialog in which to enter additional information. You can also assign an identity to a folder so that, when replying to a message in that folder, the assigned identity is selected.

Under the *General* tab, enter your name, organization, and e-mail address. Under *Cryptography*, select your keys to send digitally signed or encrypted messages. For the encryption features to work, first create a key with KGpg, described in Chapter 13, *Encryption with KGpg* (page 107).

Under *Advanced*, you can enter a default reply-to and a default blind carbon-copy address, choose a dictionary, select the folders for drafts and sent messages, and define how messages should be sent. Under *Signature*, decide if and how each of your messages should be signed with an extra block of text at the end. For example, you might sign each e-mail with your contact information. To activate this option, select *Enable Signature* and decide whether to obtain the signature from a file, an input field, or the output of a command. With *Picture*, you can specify the path to a small (48x48 pixel) monochrome icon to display in all your mails if the recipient's software supports this feature. When you are finished with all your identity settings, confirm with *OK*.

The settings under *Accounts* decide how Kontact receives and sends e-mail. There are two tabs, one each for sending and for receiving mail. Many of these settings vary depending on the system and network in which your mail server is located. If you are not sure about the settings or items to select, consult your ISP or system administrator.

To create outgoing mail boxes under the *Sending* tab, click *Add*. Choose between the SMTP and sendmail transport types. SMTP is the correct choice in most cases. After making this selection, a window appears in which to enter SMTP server data. Provide a name and enter the server address (as given to you by your ISP). If the server wants you to authenticate yourself, enable *Server requires authentication*. Security settings are under the *Security* tab. Specify your preferred encryption method here.

Make settings for receiving e-mail under the *Receiving* tab. Use *Add* to create a new account. Choose between different methods for retrieving mail, such as local (stored

in Mbox or Maildir format), POP3, or IMAP. Make the settings appropriate for your server.

3.2.2 Importing E-Mail from Other Mail Programs

To import e-mail from other applications, select *Tools* → *Import Messages* from the mail view in Kontact. It currently features import filters for Outlook Express, the mbox format, e-mail text format, Pegasus Mail, Opera, Evolution, and more. The import utility can also be started separately with the command kmailcvt.

Select the corresponding application and confirm with *Continue*. A file or a folder must be provided, depending on the selected type. Kontact then completes the process.

3.2.3 Creating Messages

To compose new messages, select *Message* → *New Message* or click the corresponding icon in the toolbar. To send messages from different e-mail accounts, select one of the identities as described in Section 3.2.1, "Configuring Identities and Accounts" (page 39). In *To*, enter an e-mail address or part of a name or address in your address book. If Kontact can match what you enter to something in the address book, a selection list opens. Click the desired contact or complete your input if none matches. To select directly from the address book, click the ... button next to the Address field.

To attach files to your message, click the paperclip icon and select the file to attach. Alternatively, drag a file from the desktop or another folder to the *New Message* window or select one of the options in the *Attach* menu. Normally, the format of a file is recognized correctly. If the format is not recognized, right-click the icon. From the menu that appears, select *Properties*. Set the format and filename in the next dialog and add a description. In addition, decide whether the attached file should be signed or encrypted.

When you are finished composing your message, send it immediately with *Message* → *Send* or move it to the outbox with *Message* → *Queue*. If you send the e-mail, the message is copied to sent-mail after having been sent successfully. Messages moved to the outbox can be edited or deleted.

3.2.4 Encrypted E-Mail and Signatures

To encrypt your e-mail, first generate a key pair as described in Chapter 13, *Encryption with KGpg* (page 107). To configure the details of the encryption procedure, select *Settings → Configure KMail → Identities* to specify the identity under which to send encrypted and signed messages. Then press *Modify*. After confirming with *OK*, the key should be displayed in the corresponding field. Close the configuration dialog with *OK*.

3.2.5 Folders

Message folders help organize your messages. By default, they are located in the directory ~/.kde/share/apps/kmail/mail. When starting KMail for the first time, the program creates several folders. inbox is where new messages fetched from a server are initially placed. outbox is used for temporary storage of messages queued for sending. sent-mail is for copies of messages sent. trash contains copies of all e-mails deleted with Del or *Edit → Delete*. drafts is where you can save unfinished messages. If you are using IMAP, the IMAP folders are listed below the local folders. Each incoming mail server has its folders in the Folder list.

If you want to organize your messages in additional folders, create new folders by selecting *Folder → New Folder*. This opens a window in which to specify the name and format of the new folder.

Right-click the folder for a context menu offering several folder operations. Click *Expire* to specify the expiration date for read and unread messages, what should happen with them after expiration, and whether expired messages should be deleted or moved to a folder. If you intend to use the folder to store messages from a mailing list, set the necessary options under *Folder → Mailing List Management*.

To move one or several messages from one folder to another, drag them from the upper window and drop them into the appropriate folder in the left window. Messages can also be moved by highlighting the messages then pressing M or selecting *Message → Move to*. In the list of folders that appears, select the folder to which to move your messages.

3.2.6 Filters

Filters are a convenient method of automatically processing incoming mail. They use aspects of the mail, such as sender or size, to move mail to certain folders, delete unwanted mails, bounce mails back to the sender, or perform a number of other actions.

Setting Up a Filter

To create a filter from scratch, select *Settings → Configure Filters*. To create a filter based on an existing message, right-click the desired message then select *Create Filter* and the desired filter criteria.

Select the match method for filter criteria (all or any). Then select criteria that applies only to the desired messages. In *Filter Actions*, set what the filter should do to the messages that meet the criteria. *Advanced Options* provides control over when the filter is applied and whether additional filters should be considered for these messages.

Applying Filters

Filters are applied in the order listed in the dialog accessed with *Settings → Configure Filters*. Change the order by selecting a filter and clicking the arrow buttons. Filters are only applied to new incoming messages or sent messages as specified in the filter's advanced options. To apply filters to existing messages, right-click the desired messages and choose *Apply Filter* and the desired filter.

If your filters do not act as expected, monitor them with *Tools → Filter Log Viewer*. When logging is enabled in this dialog, it shows how messages are processed by your filters and can help locate the problem.

3.3 Contacts

The contacts component uses KAddressBook. Configure it with *Settings → Configure KAddressBook*. To search for a particular contact, use the search bar. With *Filter*, select to display only contacts in a certain category. Right-click a contact to open a menu in which to select from a variety of options, such as sending the contact information in an e-mail.

Figure 3.3 *The Kontact Address Book*
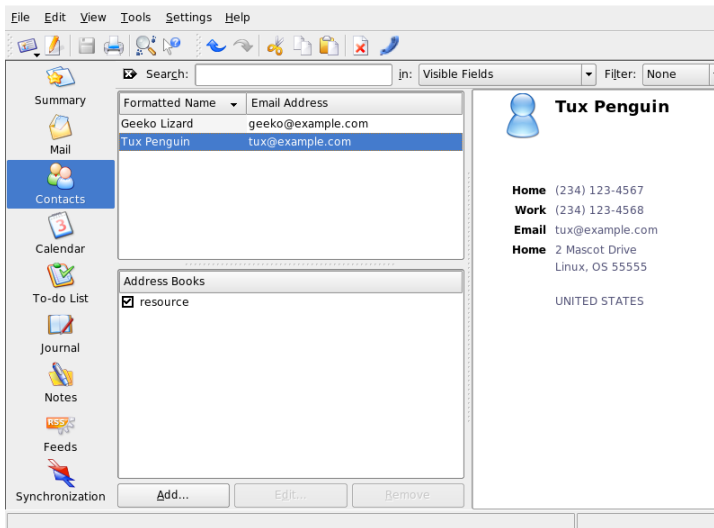
3.3.1 Adding Contacts

To add a contact with the name and e-mail address from an e-mail, right-click the address in the mail component and select *Open in Address Book*. To add a new contact without using an e-mail, select *File → New Contact* in the address component. Both methods open a dialog in which to enter information about the contact.

In the *General* tab, enter basic contact information, such as name, e-mail addresses, and telephone numbers. Categories can be used to sort addresses. *Details* contains more specific information, such as birthday and spouse's name.

If your contact uses an instant messenger, you can add these identities in *IM Addresses*. If you do this and have Kopete or another KDE chat program running at the same time as Kontact, view status information about these identities in Kontact. In *Crypto Settings*, enter the contact's encryption data, such as public key.

Misc has additional information, such as a photograph and the location of the user's Free/Busy information. Use *Custom Fields* to add your own information to the contact or address book.

Contacts can also be imported in a variety of formats. Use *File → Import* and select the desired format. Then select the file to import.

3.3.2 Making a Distribution List

If you frequently send e-mail messages to the same group of people, a distribution list enables you to store multiple e-mail addresses as a single contact item so that you do not need to enter each name individually in every e-mail you send to that group. First, click *Settings → Show Extension Bar → Distribution List Editor*. In the new section that appears, click *New List*. Enter a name for the list then click *OK*. Add contacts to the list by dragging them from the address list and dropping them in the distribution list window. Use this list like you would an individual contact when creating an e-mail.

3.3.3 Adding Address Books

IMPORTANT: Groupware Address Books

The best way to add groupware resources is with the Groupware Wizard, a separate tool. To use it, close Kontact then run `groupwarewizard` in a command line or from the Office group of the KDE menu. Select the server type, such as SLOX, GroupWise, or Exchange, from the list offered then enter the address and authentication data. The wizard then adds the available resources to Kontact.

Kontact can access multiple address books, such as shared ones offered by Novell GroupWise or an LDAP server. Select *Settings → Show Extension Bar → Address Books* to view the current address books. Press *Add* to add one then select the type and enter the required information.

The check boxes in front of the books show the activation status of each address book. To prevent the display of a book without deleting it, uncheck it. *Remove* deletes the selected book from the list.

3.4 Calendar

Kontact uses KOrganizer as its calendar component. To configure it, use *Settings →
Configure KOrganizer*. With the calendar, enter appointments and schedule meetings
with others. If desired, you can be reminded of upcoming events. You can also import,
export, and archive calendars with the options in *File*.

Figure 3.4   *The Kontact Calendar*
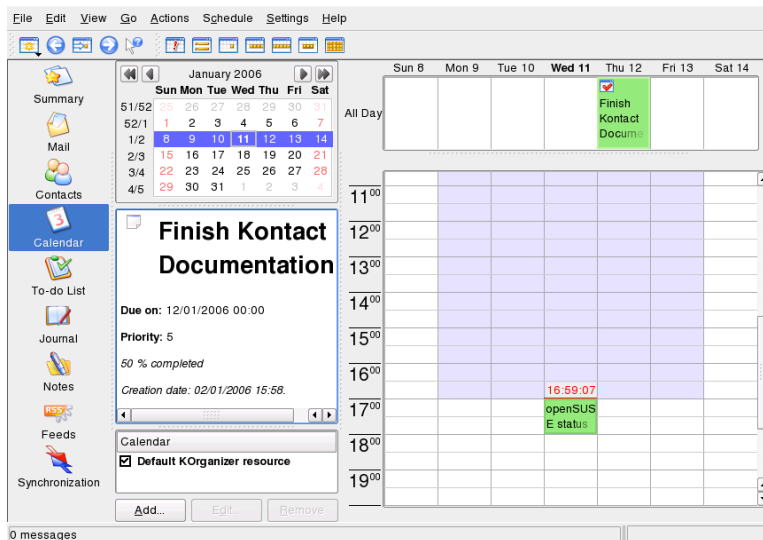
3.4.1 Scheduling an Event

Add a new event or meeting with *Actions → New Event*. Enter the desired details. Under
Reminder, specify the exact time (minutes, hours, or days in advance) when the attendees
should be reminded of the event. If an event recurs, specify the appropriate interval.
Another way to create an event at a specific point in the calendar is to double-click the
corresponding field in one of the program's calendar views. This opens the same dialog
window as that available from the menu. Alternatively, select a time range in the Cal-
endar view and right-click.

Specify the attendees of an event by entering their data manually in the dialog or by
inserting data from the address book. To enter data manually, select *New*. To import

data from the address book, click *Select Addressee* then select the corresponding entries from the dialog. To schedule the event based on the participants' availability, go to *Free/Busy* and click *Pick Date*.

Use the *Recurrence* tab to configure an event that happens on a regular basis. *Attachments* can be convenient for linking other information with the event, such as an agenda for a meeting.

3.4.2 Adding Calendars

IMPORTANT: Groupware Calendars

The best way to add groupware resources is with Groupware Wizard, a separate tool. To use it, close Kontact then run `groupwarewizard` in a command line or from the Office group of the KDE menu. Select the server type, such as SLOX, GroupWise, or Exchange, from the list offered then enter the address and authentication data. The wizard adds the available resources to Kontact.

The calendar module can connect to multiple calendars simultaneously. This is useful, for example, to combine a personal calendar with an organizational one. To add a new calendar, click *Add* then select the calendar type. Complete the necessary fields.

The check boxes in front of the calendars show the activation status of each. To prevent the display of a calendar without deleting it, uncheck it. *Remove* deletes the selected calendar from the list.

3.5 Syncing Data with a Handheld

Kontact is designed so its data can be synced with handheld devices, such as a Palm. View information about the status of KPilot in the summary. Refer to Chapter 4, *Synchronizing a Handheld Computer with KPilot* (page 49) for information about configuring and using KPilot.

3.6 Kontact for GroupWise Users

If you are used to working in GroupWise, you should have very little trouble adjusting to Kontact. The two programs share many concepts and provide many of the same services. This section discusses notable terminology differences, as well as some tips to help GroupWise users make the most of Kontact.

3.6.1 Terminology Differences

The following table lists some key terminology differences between Kontact and GroupWise.

Table 3.1 *Kontact and GroupWise Terminology Differences*

GroupWise	Kontact
Appointments	Events
Busy search	Free/Busy
Notes	Journal entries
Posted, nonposted items	An event without attendees is posted. If an event has attendees, it is a Sent item.
Tasks	To-dos

3.6.2 Tips for GroupWise Users

This section contains hints to help GroupWise users work with some of the differences between GroupWise and Kontact.

Contact Information

You can add your GroupWise Messenger and e-mail contacts to your Kontact contact information. Then you can create an e-mail or open an instant messaging session with that contact by right-clicking the name in the Contact view.

Color Coding

It is helpful to color code GroupWise items, as well as items from other sources. Color coding makes it easy to scan your e-mails, contacts, and other information for items from a particular source.

Inviting Attendees to Events

Unlike GroupWise, Kontact does not automatically enter you as an attendee for events you schedule. Make sure that you remember to invite yourself.

3.7 For More Information

Kontact includes help for itself and its various components. Access it with *Help →
Kontact Handbook.* The project's Web page, http://www.kontact.org, is also informative.

Synchronizing a Handheld Computer with KPilot

4

Handheld computers are in widespread use among users who need to have their schedules, to-do lists, and notes with them everywhere they go. Often users want the same data available on both the desktop and the portable device. This is where KPilot comes in—it is a tool to synchronize data on a handheld with that used by the KDE applications KAddressBook, KOrganizer, and KNotes, which are part of Kontact.

The main purpose of KPilot is to allow sharing of data between the applications of a handheld computer and their KDE counterparts. KPilot does come with its own built-in memo viewer, address viewer, and file installer, but these cannot be used outside the KPilot environment. Independent KDE applications are available for all functions except the file installer.

For communication between the handheld and the different desktop programs, KPilot relies on conduits. KPilot itself is the program that oversees any data exchange between the two computer devices. Using a particular function of the handheld on your desktop computer requires that the corresponding conduit is enabled and configured. For the most part, these conduits are designed to interact with specific KDE programs, so in general they cannot be used with other desktop applications.

The time synchronization conduit is special in that there is no user-visible program for it. It is activated in the background with each sync operation, but should only be enabled on computers that use a network time server to correct their own time drift.

When a synchronization is started, the conduits are activated one after another to carry out the data transfer. There are two different sync methods: a HotSync operation only synchronizes the data for which any conduits have been enabled while a backup operation performs a full backup of all data stored on the handheld.

Some conduits open a file during a sync operation, which means that the corresponding program should not be running at that time. Specifically, KOrganizer should not be running during a sync operation.

4.1 Conduits Used by KPilot

The conduits used by KPilot can be enabled and configured after selecting *Settings →Configure KPilot*. The following is a list of some important conduits:

Addressbook
> This conduit handles the data exchange with the handheld's address book. The KDE counterpart for managing these contacts is KAddressBook. Start it from the main menu or with the command `kaddressbook`.

KNotes/Memos
> This conduit allows you to transfer notes created with KNotes to the handheld's memo application. Start the KDE application from the main menu or with the command `knotes`.

Calendar (KOrganizer)
> This conduit is responsible for syncing the appointments (events) of the hendheld. The desktop equivalent is KOrganizer.

ToDos (KOrganizer)
> This conduit is responsible for syncing to-do items. The desktop counterpart is KOrganizer.

Time Synchronization
> Enabling this conduit adjusts the handheld's clock to that of the desktop computer during each sync operation. This is only a good idea if the clock of the desktop computer itself is corrected by a time server at fairly frequent intervals.

Figure 4.1 *Configuration Dialog with the Available Conduits*
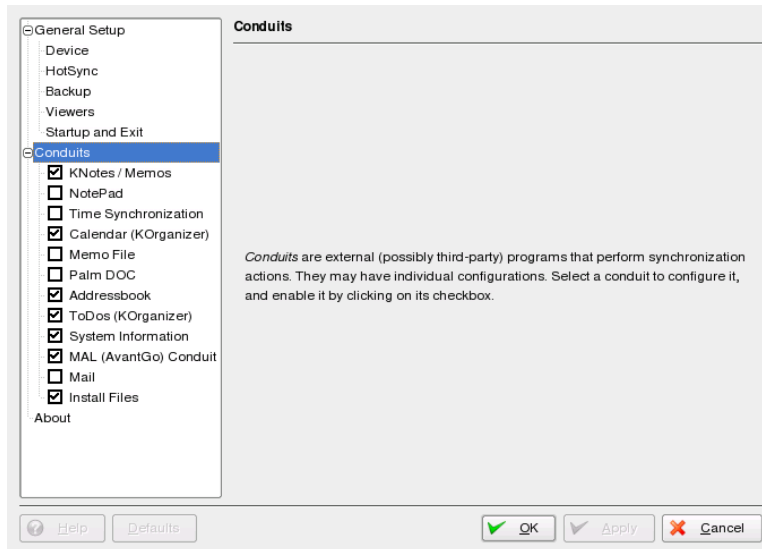
4.2 Configuring the Handheld Connection

To be able to use KPilot, first set up the connection with the handheld computer. The configuration depends on the type of cradle (docking unit) used with the handheld. There are two types of these: USB cradles or cables and serial cradles or cables.

4.2.1 Configuring the Connection from within KPilot

The easiest way to set up the connection is by using the configuration assistant. Do the following:

1 Select *Settings* → *Configuration Wizard* to start the assistant.

2 Enter your username and the name of the device to which the handheld is connected.

3 Choose from one of the following options:

- Select *Autodetect Handheld & Username* if you want the assistant to detect your handheld. If the autodetection fails, refer to Section 4.2.2, "Creating a /dev/pilot Link" (page 52).

- Click *Next* to configure it manually.

4 Specify the applications that should be used for synchronization. You can choose among the KDE application suite (default), Evolution, and none. After selecting, close the window with *Finish*.

4.2.2 Creating a /dev/pilot Link

The setup of the connection with a serial handheld cradle is different from that of a USB cradle. Depending on which cradle is used, you may or may not need to create a symbolic link named /dev/pilot.

USB

Normally, a USB cradle is autodetected and there should be no need to create the symbolic link mentioned.

Serial

With a serial cradle, you need to know to which serial port it is actually connected. Serial devices are named /dev/ttyS?, starting from /dev/ttyS0 for the first port. To set up a cradle connected to the first serial port, enter the command:

```
ln -s /dev/ttyS0 /dev/pilot
```

4.3 Configuring the KAddressBook Conduit

Initially, it should be sufficient to enable the KAddressBook conduit without changing any of the defaults. After the data has been synchronized for the first time, configure the details: what to do in case of conflicts, the way in which backup databases are saved, and how certain fields stored on the handheld should be assigned to the fields expected by KAddressBook.

4.4 Managing To-Do Items and Events

On the KDE desktop, to-dos (tasks) and events (appointments) are managed with KOrganizer. Start the application from the main menu, with the command `korganizer`, or as part of Kontact. After enabling the calendar and the to-do conduit of KPilot, set some configuration options before using them.

Figure 4.2 *KPilot Configuration*
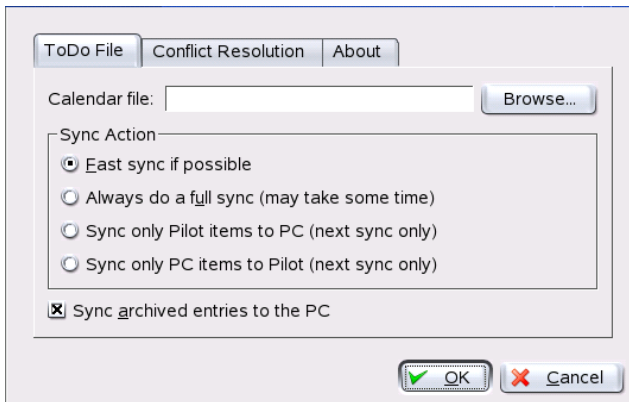
KOrganizer stores its files in the directory `~/.kde/share/apps/korganizer`. However, given that the directory `.kde` begins with a dot, it may not be shown by the file selection dialog. In this case, enter the complete path manually or explicitly toggle the display of hidden files (dot files) in the file selection dialog. The default shortcut for this is F8 .

After opening the directory `~/.kde/share/apps/korganizer`, select a file that can be used as a calendar file by KOrganizer. In this example, this is the file `palm.ics`. In the case of a user called `tux`, the complete path and filename would be `/home/tux/.kde/share/apps/korganizer/palm.ics`, as shown in Figure 4.3, "Dialog Showing the Path to a KOrganizer Calendar File" (page 54).

Figure 4.3   *Dialog Showing the Path to a KOrganizer Calendar File*
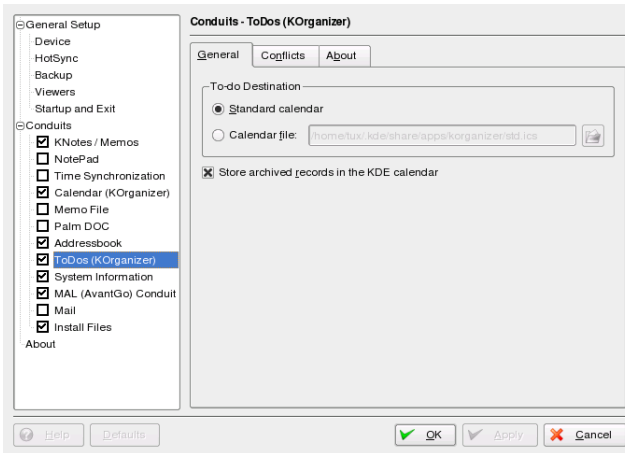
KOrganizer should not be running when data is being exchanged with the handheld. Otherwise KPilot fails to carry out the sync operation.

4.5 Working with KPilot

Synchronizing the data of KDE applications with those of the handheld computer is easy. Simply start KPilot then press the HotSync button on the cradle or cable to initiate the sync operation.

Figure 4.4 *The Main Window of KPilot*
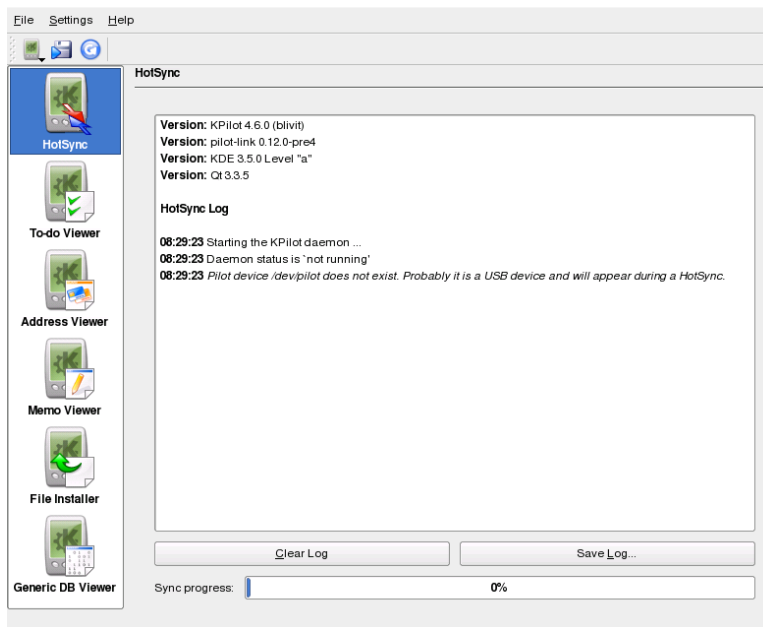
4.5.1 Backing Up Data from the Handheld

To do a full backup, select *File → Backup*. The backup is performed during the next sync operation. After that, switch back by selecting *File → HotSync* from the menu. Otherwise, the time-consuming full backup will be performed again during the next sync operation.

After a full backup, all copies of the handheld's programs and databases are found in `~/.kde/share/apps/kpilot/DBBackup/USERNAME`, where *USERNAME* is the name of the user registered on the handheld.

The two built-in KPilot viewers can be used for a quick lookup of addresses or memos, but they are not designed to actually manage this data. The KDE applications mentioned above are much more suited for these tasks.

4.5.2 Installing Programs on the Handheld

The *File Installer* module is an interesting and useful tool for the installation of handheld programs. These programs normally have the extension `.prc` and they are ready to start immediately after uploading them to the handheld. Before using such add-on programs, read their licenses as well as the instructions included.

Using Beagle

5

Beagle is a search tool that indexes your personal information space to help you find whatever you are looking for. You can use Beagle to find documents, e-mails, Web history, IM/ITC conversations, source code, images, music files, applications, and much more.

Beagle supports the following data sources:

- File system
- Application launchers
- Evolution mail and address book
- Gaim instant messaging logs
- Firefox Web pages (as you view them)
- Blam and Liferea RSS aggregators
- Tomboy notes

It also supports the following file formats:

- OpenOffice.org
- Microsoft Office (doc, ppt, xls)
- HTML

- PDF

- Images (jpeg, png)

- Audio (mp3, ogg, flac)

- AbiWord

- Rich Text Format (rtf)

- Texinfo

- Man pages

- Source code (C, C++, C#, Fortran, Java, JavaScript, Pascal, Perl, PHP, Python)

- Plain text

Beagle automatically indexes everything in your home directory, but you can choose to exclude certain files or directories. Beagle also includes a variety of tools that you can use to search your data.

5.1 Indexing Data

The Beagle daemon (`beagled`) automatically performs all indexing. By default, everything in your home directory gets indexed. Beagle detects changes made to your home directory and reindexes the data accordingly.

- Files are immediately indexed when they are created, reindexed when they are modified, and dropped from the index when they are deleted.

- E-mails are indexed upon arrival.

- IM conversations are indexed as you chat, one line at a time.

Indexing your data requires a fair amount of computing power, but the Beagle daemon tries to be as unobtrusive as possible. It contains a scheduler that works to prioritize tasks and control CPU usage, based on whether you are actively using your workstation.

5.1.1 Preventing Files and Directories from Being Indexed

To prevent a directory (and all of its subdirectories) from being indexed, create an empty file named `.noindex` and place it in the directory. Add a list of files and directories to the `.noindex` file to prevent those files and directories from being indexed. Wild cards are permitted in the `.noindex` file.

You can also put a `.neverindex` file in your home directory with a list of files that should never be indexed. Wild cards are also allowed in this file. Use the same wild cards as you use for `glob` (for example, f*le??.txt). You can also use more powerful regular expressions by adding a forward slash both before and after your pattern (for example, /file.*.txt/). For more information, see http://docs.python.org/lib/module-glob.html.

5.1.2 Indexing Manually

Beagle is smart about how it determines when to index your files and it tries to not interfere with other running applications. It intentionally times its indexing based on load and whether your system is idle to avoid adversely affecting your desktop experience. To index your home directory right away, enter the following commands in a terminal window:

```
export BEAGLE_EXERCISE_THE_DOG=1
beagled --replace --bg
```

5.1.3 Checking the Status of Your Index

Beagle includes the following commands to let you see the current indexing status:

`beagle-index-info`
   Displays how many documents have been indexed and what type of documents have been indexed.

`beagle-status`
   Displays the current work the Beagle daemon is doing (on an ongoing basis).

5.2 Searching Data

Beagle offers several tools that let you search through the data that you have indexed.

5.2.1 Desktop Search

Desktop Search is a graphical tool that searches through your indexed information. Desktop Search does not query the index directly. It passes the search terms to the Beagle daemon, which sends any matches back to the tool. The search tool then renders the results and allows you to perform actions on the matching objects. To start Desktop Search, press ⸢Alt⸣ + ⸢F2⸣ and enter `beagle-search`.

To use Desktop Search, simply type your search text in the entry box at the top then press ⸢Enter⸣ or click *Find*. Desktop Search queries your indexed files and returns the results.

Figure 5.1 *Beagle Search*
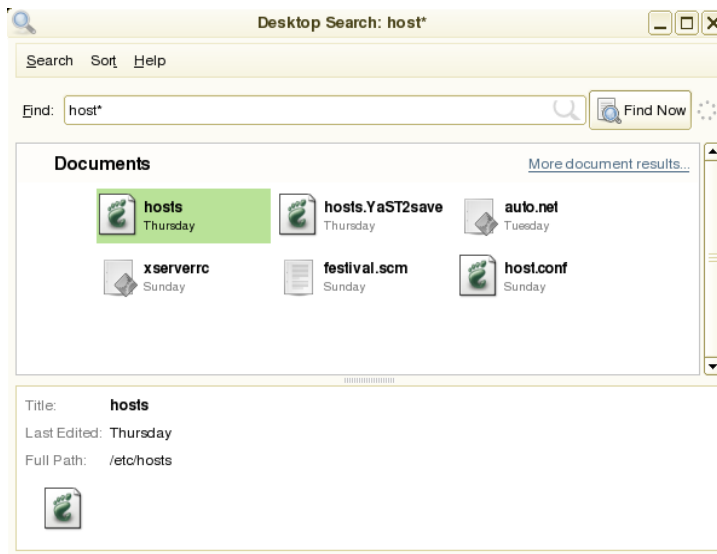
You can use the results list to open a file, mail a file, send an instant message, forward a file, or display a file in your file manager. The options available for each file depend on the type of file it is.
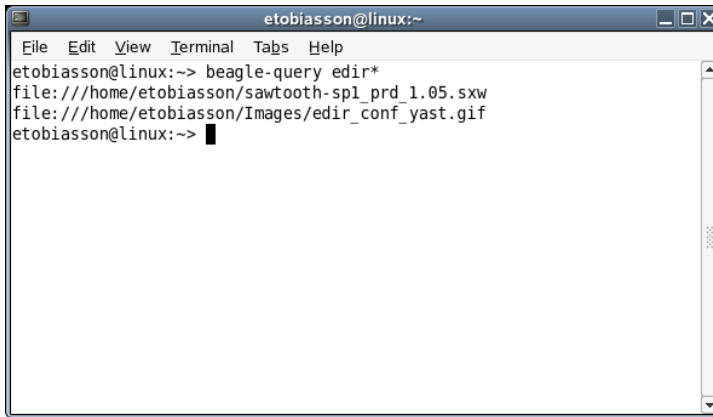
You can also use items in *Search* to limit your search to files in a specific location, such as your address book or Web pages, or to display only a specific type of file in your results list.

5.2.2 beagle-query

Beagle has a command line tool you can use to search your Beagle index. To use this tool, enter `beagle-query` *search* in a terminal window.

Replace *search* with the text to find. The beagle-query tool returns results. You can use wild cards with this command. Use `beagle-query --verbose` *search* to display detailed information about the search results.

Figure 5.2   *Using the beagle-query Command*

Part II. Internet

Managing Internet Connections with KInternet

6

To surf the Internet or send and receive e-mail messages, connect a modem or an ISDN or ethernet card to your machine and configure it. This can be done with the help of the YaST system assistant.

If you do not use NetworkManager and do use KDE, manage your Internet connections with KInternet. The program checks whether an Internet connection can be established. If this is possible, the application icon, a plug, automatically appears in the right section of the KDE panel. Depending on the state of the network connection, the panel icon changes appearance:

Currently there is no connection to the Internet.

The connection is being established or terminated.

The connection has been established.

Data is being transmitted to or from the Internet.

An error has occurred. If a connection has already been configured with YaST, use *View Log* to identify the reason for the error. Access the menu by right-clicking the KInternet icon.

The connection is not yet active, but will be established as soon as a request is made.

Right-click the KInternet panel icon to access its configuration menu. Start the YaST configuration dialog with *Settings → Configure with YaST*. After entering the root password, YaST starts. Depending on the access type, start the modem, ISDN, network, or DSL configuration of YaST.

If you are using an ISDN connection and selected *Channel Bundling* in YaST, add a second ISDN channel to an existing connection with *Add link*. This doubles the transfer rate (although at a higher price). Activate channel bundling if you need to download large files. The activated channel bundling is evident from the red plus symbol at the top left corner of the KInternet icon.

If your computer has more than one network device and you have configured all of them with YaST, you can use the KInternet option *Interface* to switch between these interfaces. You must have selected *User Controlled* device activation in the appropriate YaST network dialog to do this. If you have multiple providers as well, choose them using *Provider* in KInternet. Providers are also set in YaST.

To establish Internet connections automatically, use *dial on demand* (DoD). If this mode is selected, KInternet automatically connects to your Internet service provider (ISP) as soon as a request is submitted. After a certain time-out, the connection is terminated. A DoD connection is evident from the blue D at the bottom right corner of the KInternet icon.

WARNING: Cost Control

Note that DoD only makes sense if you have a flat rate Internet account. If that is not the case, connecting and disconnecting all the time can become very costly.

To use a wireless network card as your connection to the Internet, configure it using YaST as described in *Reference* and make sure that the device activation in YaST is set to *User Controlled*. As soon as the interface is configured, you can use KInternet to control your wireless network connection, just as you would for normal network interfaces.

To access the WLAN functionality of KInternet, right-click the icon to open the menu. Select *Wireless Connection* and a window showing two tabs opens. First, scan for suitable wireless networks to which to connect. Select the tab *Scan for Wireless Networks* and start the scan with *Start Scan*. For KInternet to continuously scan the network environment, also select *Auto Refresh*. Activate acoustic feedback for each connection found with *Acoustic Scan*. Any connection found is displayed in the list window. Select one and click *Connect* to connect to the selected network. If additional configuration efforts are needed to connect to the selected network, click *Start YaST* to launch the YaST network module for wireless network devices.

The *Current Connection* tab allows you to monitor the state of your current wireless connection. The left-hand view of this tab offers a summary of all connection parameters for network address and ESSID, signal quality, signal and noise level, channel frequency and speed, and encryption parameters, such as type of encryption and key length. Select any of these parameters in the tree structure and see the details displayed in the right part of the window.

7

The Web Browser Konqueror

Konqueror is not only a versatile file manager. It is also a modern Web browser. If you start the browser with the icon in the panel, Konqueror opens with the Web browser profile. As a browser, Konqueror offers tabbed browsing, the possibility of saving Web pages with graphics, Internet keywords, bookmarks, and support for Java and JavaScript.

Figure 7.1 *The Browser Window of Konqueror*

Start Konqueror from the main menu or by entering the command `konqueror`. To load a Web page, enter its address in the location bar, for example, http://www .suse.com. Konqueror now tries to reach the address and display the page. Entering the protocol at the beginning of the address (`http://` in this case) is not strictly required. The program is able to complete the address automatically, but this only works reliably with Web addresses. For an FTP address, always enter `ftp://` at the beginning of the input field.

7.1 Tabbed Browsing

If you often use more than one Web page at a time, tabbed browsing may make it easier to switch between them. Load Web sites in separate tabs within one window. The advantage is that you keep more control over your desktop because you only have one main window. After logout, the KDE session management allows for saving your Web session in Konqueror. The next time you log in, Konqueror loads the exact URLs visited last time.

To open a new tab, select *Window → New Tab* or press Ctrl + Shift + N. To change the behavior of tabs, go to *Settings → Configure Konqueror*. In the dialog box that opens, select *Web Behavior → Tabbed Browsing*. To open new tabs instead of windows, enable *Open links in new tab instead of in new window*. You can also hide the tab bar with *Hide the tab bar when only one tab is open*. To see more options, press *Advanced Options*.

7.2 Automatic Scrolling

In general, scrolling with the mouse is the normal way to view information farther down a Web page. However, there are sometimes occasions when it is preferable not to use a mouse. It can be very convenient to use key combinations instead of removing hands from the keyboard.

To scroll down automatically, use Shift + ↓ . This scrolls down the page without further intervention. Increase the speed by pressing Shift + ↓ again. Pressing Shift + ↑ slows down. To stop scrolling, use ↓ .

7.3 Profiles

Section 7.1, "Tabbed Browsing" (page 70) described how to handle tabs in Konqueror. You can save your tabs with URLs and the position of the window in a profile. This differs from the session management already mentioned. With profiles, your saved tabs are at hand without the intensive start-up time of session management.

To create a profile, do the following:

1 Go to *Settings → Configure View Profiles*.

2 In the dialog box that appears, insert a name in *Profile name*.

3 To save your URLs, select *Save URLs in profile*.

4 To freeze the position and size of the windows, select *Save window size in profile*.

5 Approve with *Save*.

The next time you need your tab collection, go to *Settings → Load View Profile* and find the name listed in the menu. After you select it, Konqueror restores your tabs.

7.4 Saving Web Pages and Graphics

As in other browsers, you can save Web pages. To do this, select *Location → Save as* and specify a name for your HTML file. However, images are not saved. To archive an entire Web page including the images, select *Tools → Archive Web Page*. Konqueror suggests a filename that you can usually accept. The filename ends with `.war`, the extension for Web archives. To view the saved Web archive later, simply click the respective file and the Web page is displayed in Konqueror along with its images.

7.5 Searching with Konqueror

Searching with Konqueror is very convenient. You can use the search bar or Web shortcuts.

7.5.1 Using the Search Bar

Konqueror contains a search bar where you can choose from many search engines. If you want to search for a specific term, proceed as follows:

1 Start Konqueror.

2 Locate the search bar. It is on the right side after the location bar.

3 Click the icon inside the search bar. Choose a search engine from the pop-up menu.

4 Insert your search term and press ⎡Enter⎤ . The result is displayed in Konqueror.

If you need a search engine that is not listed in the pop-up menu, add it as follows:

Procedure 7.1 *Adding More Search Engines*

1 Start Konqueror.

2 Click the icon in the search bar.

3 Choose *Select Search Engines*.

4 Make sure that *Enable Web shortcuts* is activated.

5 Enable the respective search engine and close the dialog with *Ok*. You can see your selected search engine if you click the icon in the search bar.

7.5.2 Using Web Shortcuts

Each search engine defined is attached to a *web shortcut*. This shortcut can be entered in the location bar.

To see which are already defined, go to *Settings → Configure Konqueror → Web Shortcuts*. You can see the names of the search providers and the shortcuts. Konqueror defines many search engines: Google, Yahoo, and Lycos, and a number of less common resources, like an acronym database, the Internet movie database, and KDE application searches.

If you do not find your preferred search engine here, easily define a new one. For example, to search our support database for some interesting articles, normally go to `http://portal.suse.com/`, find the search page, and enter your query. This can be simplified

Procedure 7.2   *Creating New Web Shortcuts*

1. Go to the search bar, click the icon, and select *Select Search Engines*.

2. Make sure that *Enable Web Shortcuts* is activated.

3. Click *New*.

4. Create a new Web shortcut:

   a. Assign your Web shortcut a name in *Search provider name*.

   b. Enter the search URI. Pressing `Shift` + `F1` and clicking in the field opens a small help. The search query is specified as `\{@}`. The challenge is inserting this at the correct position. For example, if you want to search in the SUSE Support Database, use `https://portal.suse.com/PM/page/search.pm?q=\{@}&t=optionSdbKeywords&m=25&l=en&x=true`.

   c. Enter your abbreviations in *URI shortcuts*. There can more than one, separated by commas.

5. Proceed with *Ok*.

TIP: Using Shortcuts Directly without Opening Konqueror

You do not need to open Konqueror and enter the Web shortcut. It is also possible to call it directly. Select *Run command* from the main menu or press Alt + F2 . After the dialog box appears, enter your shortcut with the search term.

After creating a new Web shortcut, for example, `sdb_en`, you can use this in the location bar. The result is displayed in the current window.

7.6 Bookmarks

Instead of remembering and reentering addresses for sites visited often, you can bookmark these URLs using the *Bookmark* menu. As well as Web page addresses, you can also bookmark any directories of your local disk in this way.

To create a new bookmark in Konqueror, click *Bookmarks → Add Bookmark*. Any bookmarks added previously are included as items in the menu. It is a good idea to arrange the bookmark collection by subjects in a hierarchical structure, so that you do not lose track of the different items. Create a new subgroup for your bookmarks with *New Bookmark Folder*. Selecting *Bookmarks → Edit Bookmarks* opens the bookmark editor. Use this program to organize, rearrange, add, and delete bookmarks.

If you are using Netscape, Mozilla, or Firefox as additional browsers, it is not necessary to recreate your bookmarks. *File → Import → Import Netscape Bookmarks* in the bookmark editor enables you to integrate your Netscape and Mozilla bookmarks into your most current collection. The reverse is also possible via *Export as Netscape Bookmarks*.

Change your bookmarks by right-clicking the entry. A pop-up menu appears in which to select the desired action (cut, copy, delete, etc.). When you are satisfied with the result, save the bookmarks with *File → Save*. If you only want to change the name or link, just right-click the entry in the bookmark toolbar and select *Properties*. Change the name and location and confirm with *Update*.

To save your bookmark list and have instant access to it, make your bookmarks visible in Konqueror. Select *Settings → Toolbars → Bookmark Toolbar (Konqueror)*. A bookmark panel is automatically displayed in the current Konqueror window.

7.7 Java and JavaScript

Do not confuse these two languages. Java is an object-oriented, platform-independent programming language from Sun Microsystems. It is frequently used for small programs (applets), which are executed over the Internet for things like online banking, chatting, and shopping. JavaScript is an interpreted scripting language mainly used for the dynamic structuring of Web pages, for example, for menus and other effects.

Konqueror allows you to enable or disable these two languages. This can even be done in a domain-specific way, which means that you can permit access for some hosts and block access for others. Java and JavaScript are often disabled for security reasons. Unfortunately, some Web pages require JavaScript for correct display.

7.8 Enabling Advertisment Blockers

Some Web pages open annoying advertisments. With the help of Konqueror, these windows can be blocked. Proceed as follows:

Procedure 7.3   *Blocking Annoying Advertisments*

1   Start Konqueror.

2   Go to *Settings → Configure Konqueror → AdBlock Filter*.

3   Activate *Enable filters*.

4   Click *Insert*.

5   Enter an expression for the Web page to filter. For example:

    ```
    http://www.example.com/*
    ```

    This filters everything that comes from that URL.

7.9 For More Information

For any questions or problems that arise when working with Konqueror, refer to the application's handbook, which is available from the *Help* menu. Konqueror also has a Web page, located at `http://www.konqueror.org`.

The Web Browser Firefox

8

Included with your SUSE Linux is the Mozilla Firefox Web browser. With features like tabs, pop-up window blocking, and download and image management, Firefox combines the latest Web technologies. You can view more than one Web page in a single window. You can suppress annoying advertisements and disable images that only slow you down. Its easy access to different search engines helps you find the information you need. Start the program from the main menu or by entering the command `firefox`. The main program features are described in the following sections.

8.1 Navigating Web Sites

Firefox has much the same look and feel as other browsers. It is shown in Figure 8.1, "The Browser Window of Firefox" (page 78). The navigation toolbar includes *Forward* and *Back* and a location bar for a Web address. Bookmarks are also available for quick access. For more information about the various Firefox features, use the *Help* menu.

Figure 8.1   *The Browser Window of Firefox*
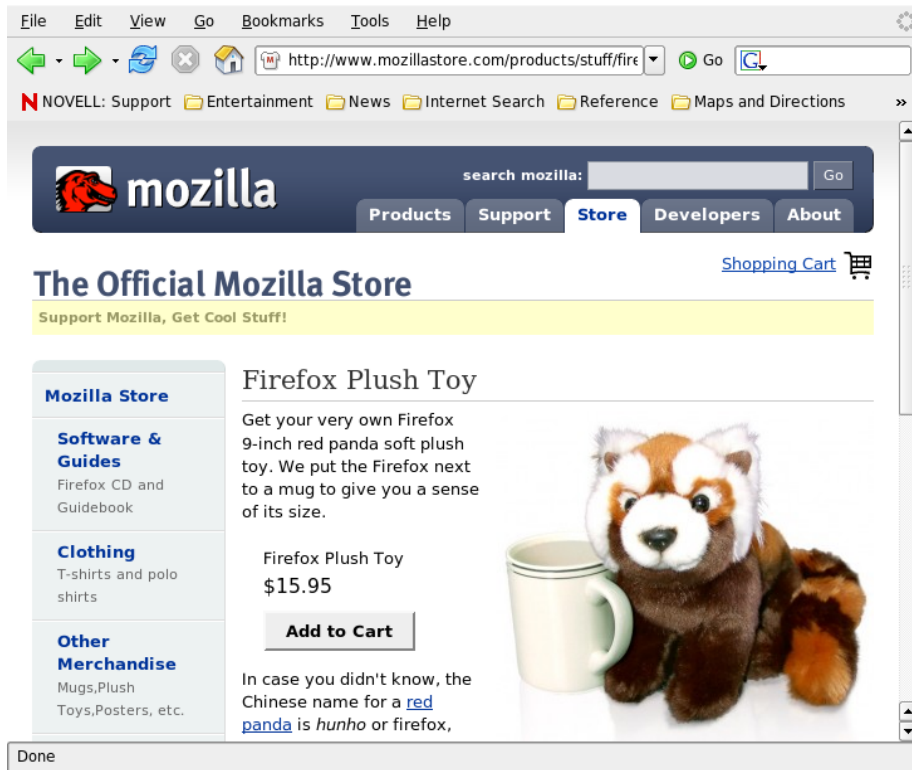
8.1.1 Tabbed Browsing

If you often use more than one Web page at a time, tabbed browsing may make it easier to switch between them. Load Web sites in separate tabs within one window.

To open a new tab, select *File → New Tab*. This opens an empty tab in the Firefox window. Alternatively, right-click a link and select *Open link in new tab*. Right-click the tab itself to access more tab options. You can create a new tab, reload one or all existing tabs, or close them. You can also change the sequence of the tabs by dragging and dropping them on a requested position.

8.1.2 Using the Sidebar

Use the left side of your browser window for viewing bookmarks or the browsing history. Extensions may add new ways to use the sidebar as well. To display the Sidebar, select *View → Sidebar* and select the desired contents.

8.2 Finding Information

There are two ways to find information in Firefox: the search bar and the find bar. The search bar looks for pages while the find bar looks for things on the current page.

8.2.1 Finding Information on the Web

Firefox has a search bar that can access different engines, like Google, Yahoo, or Amazon. For example, if you want to find information about SUSE using the current engine, click in the search bar, type SUSE, and hit Enter . The results appear in your window. To choose your search engine, click the icon in the search bar. A menu opens with a list of available search engines.

8.2.2 Installing a Different Search Engine

If you favorite search engine is not listed, Firefox gives you the possibility to configure it. Try the following steps:

1 Establish an Internet connection first.

2 Click in the search bar on the icon.

3 Select *Add Engines* from the menu.

4 Firefox displays a Web page with available search engines. It is also sorted by categories. You can choose from Wikipdedia, Leo, and others. Click the desired search plug-in.

5 Install your search plug-in with *Ok* or abort with *Cancel*.

8.2.3 Searching in the Current Page

To search inside a Web page, click *Edit → Find in This Page* or press `Ctrl` + `F`. The find bar opens. Usually, it is displayed at the bottom of a window. Type your query in the input field. Firefox finds the first occurence of this phrase. You can find other occurences of the phrase by pressing `F3` or *Find Next* button in the find bar. You can also highlight all occurences by pressing the *Highlight all* button.

8.3 Managing Bookmarks

Bookmarks offer a convenient way of saving links to your favorite Web sites. To add the current Web site to your list of bookmarks, click *Bookmarks → Bookmark This Page*. If your browser currently displays multiple Web sites on tabs, only the URL on the currently selected tab is added to your list of bookmarks.

When adding a bookmark, you can specify an alternative name for the bookmark and select a folder where Firefox should store it. To bookmark Web sites on multiple tabs, select *Bookmark All Tabs*. Firefox creates a new folder that includes bookmarks of each site displayed on each tab. To remove a Web site from the bookmarks list, click *Bookmarks*, right-click the bookmark in the list, then click *Delete*.

8.3.1 Using the Bookmark Manager

The bookmark manager can be used to manage the properties (name and address location) for each bookmark and organize the bookmarks into folders and sections. It resembles Figure 8.2, "Using the Firefox Bookmark Manager" (page 81).

Figure 8.2 *Using the Firefox Bookmark Manager*
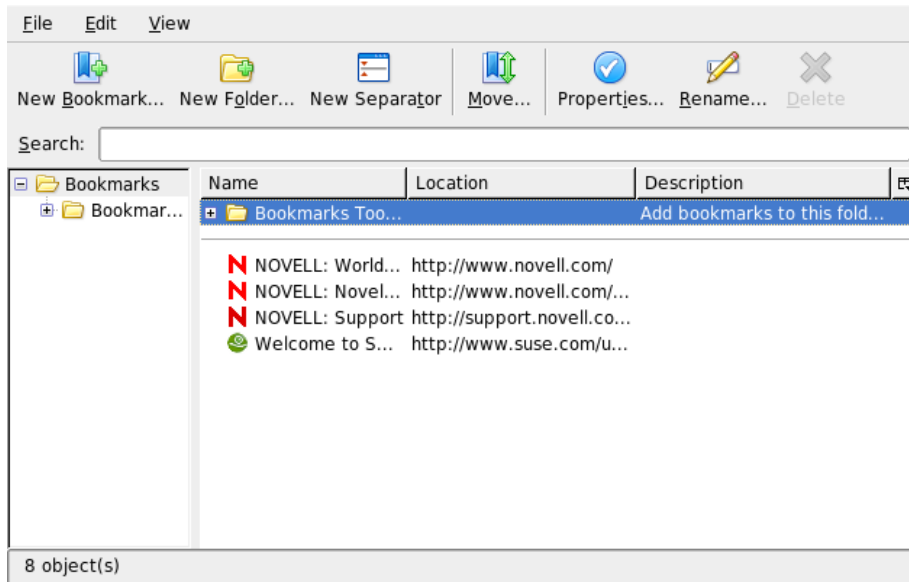
To open the bookmark manager, click *Bookmark → Manage Bookmarks*. A window opens and displays your bookmarks. With *New Folder*, create a new folder with a name and a description. If you need a new bookmark, click *New Bookmark*. This lets you insert the name, location, keywords, and also a description. The keyword is a shortcut to your bookmark. If you need your newly created bookmark in the sidebar, check *Load this bookmark in the sidebar*.

8.3.2 Importing Bookmarks from Other Browsers

If you used a different browser in the past, you probably want to use your preferences and bookmarks in Firefox, too. At the moment, you can import from Netscape 4.x, 6, 7, Mozilla 1.x, and Opera.

To import your settings, click *File → Import*. Select the browser from which to import settings. After you click *Next*, your settings are imported. Find your imported bookmarks in a newly created folder, beginning with From.

8.3.3 Live Bookmarks

Live bookmarks display headlines in your bookmark menu and keep you up to date with the latest news. This enables you to save time with one glance at your favorite sites.

Many sites and blogs support this format. A Web site indicates this by showing an orange icon in the right part of the location bar. Click it and choose *Add NAME OF THE FEED as Live Bookmark*. A dialog box opens where you can select the name and location of your live bookmark. Confirm with *Add*.

Some sites do not tell Firefox that they support a news feed, although they actually do. To add a live bookmark manually, you need the URL of the feed. Do the following:

Procedure 8.1   *Adding a Live Bookmark Manually*

  1 Open the bookmark manager with *Bookmarks → Manage Bookmarks*. A new window opens.

  2 Select *File → New Live Bookmark*. A dialog box opens.

  3 Insert a name for the live bookmark and add your URL, for example, `http://www.novell.com/newsfeeds/rss/coolsolutions.xml`. Firefox updates your live bookmarks.

  4 Close your bookmark manager.

8.4 Using the Download Manager

With the help of the download manager, keep track of your current and past downloads. To open the download manager, click *Tools → Downloads*. Firefox opens a window with your downloads. While downloading a file, see a progress bar and the current file. If necessary, pause a download and resume it later. To open a downloaded file, click *Open*. With *Remove*, remove it from the list. If you need information about the file, right-click the filename and choose *Properties*.

If you need further control of the download manager, open the configuration window from *Edit → Preferences* and go to the *Downloads* tab. Here, determine the download folder, how the manager behaves, and some configuration of file types.

8.5 Customizing Firefox

Firefox can be customized extensively. You can install extensions, change themes, and add smart keywords for your online searches.

8.5.1 Extensions

Mozilla Firefox is a multifunctional application, which means that you can download and install add-ons, known as extensions. For example, add a new download manager and mouse gestures. This has the advantage that Firefox itself stays small and unbloated.

To add an extension, click *Tools → Extensions*. In the bottom-right corner, click *Get More Extensions* to open the Mozilla extensions update Web page where you can choose from a variety of available extensions. Click the extension to install then click the install link to download and install it. When you restart Firefox, the new extension is functional. You can also look at the various extensions at <http://addons.mozilla.org/> .

Figure 8.3 *Installing Firefox Extensions*
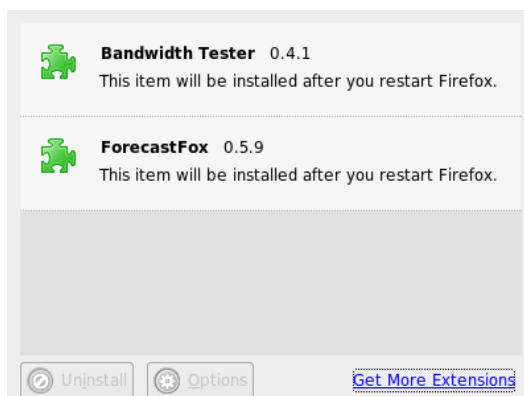
8.5.2 Changing Themes

If you do not like the standard look and feel of Firefox, install a new *theme*. Themes do not change the functionality, only the appearance of the browser. When installing a theme, Firefox asks for confirmation first. Allow the installation or cancel it. After a successful installation, you can enable the new theme.

1 Click *Tools → Themes*.

2 In the new dialog that appears, click *Get More Themes*. If you already installed a theme, find it in the list, as in .

Figure 8.4 *Installing Firefox Themes*

3 A new window appears with the Web site `https://addons.mozilla.org`.

4 Choose a theme and click *Install Now*.

5 Confirm the download and installation.

6 After downloading the theme, a dialog appears and informs you about your list of themes. Activate the new theme with *Use Theme*.

7 Close the window and restart Firefox.

If a theme is installed, you can always switch to a different theme without restarting by clicking *Tools* → *Themes* then *Use Theme*. If you do not use a theme anymore, you can delete it in the same dialog with *Uninstall*.

8.5.3 Adding Smart Keywords to Your Online Searches

Searching the Internet is one of the main tasks a browser can perform for you. Firefox lets you define your own *smart keywords*: abbreviations to use as a "command" for searching the Web. For example, if you use Wikipedia often, use a smart keyword to simplify this task:

1 Go to `http://en.wikipedia.org`.

2 After Firefox displays the Web page, see the search text field. Right-click it then choose *Add a Keyword for this Search* from the menu that opens.

3 The *Add Bookmark* dialog appears. In *Name*, name this Web page, for example, *Wikipedia (en)*.

4 For *Keyword*, enter your abbreviation of this Web page, for example, *wiki*.

5 With *Create in*, choose the location of the entry in your bookmarks section. You can put it into *Quick Searches*, but any other level is also appropriate.

6 Finalize with *Add*.

You have successfully generated a new keyword. Whenever you need to look into Wikipedia, you do not have to use the entire URL. Just type `wiki Linux` to view an entry about Linux.

8.6 Printing from Firefox

Configure the way Firefox prints the content it displays using the *Page Setup* dialog. Click *File* → *Page Setup* then go to the *Format & Options* tab to select the orientation of your print jobs. You can scale or make it adjust automatically. To print a background,

select *Print Background (colors & images)*. Click the *Margins & Header/Footer* tab to adjust margins and select what to include in the headers and footers.

After you configured your settings, print a Web page with *File → Print*. Select the printer or a file in which to save the output. With *Properties*, set the paper size, specify the print command, choose grayscale or color, and determine the margins. When satisfied with your settings, approve with *Print*.

8.7 For More Information

Get more information about Firefox from the official home page at `http://www.mozilla.com/firefox/`. Refer to the integrated help to find out more about certain options or features.

The KGet Download Manager

9

KGet is the download manager for KDE. It manages your transfers in a window. You can stop, resume, delete, queue, and add transfers. Start KGet from the main menu or by pressing ⌐Alt⌐ + ⌐F2⌐ then entering kget.

When KGet is started for the first time, you can choose to have it integrated with Konqueror. If you integrate KGet with Konqueror, KGet is added to the system tray as an icon with a downward arrow. Click this arrow to view KGet transfers.

Figure 9.1 *KGet*
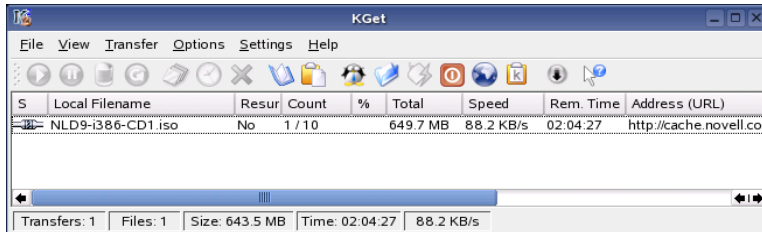
9.1 Adding Transfers to the List

To add a transfer, click *File → Paste*. Specify a URL then click *OK*. Finally, select where to save the downloaded file. The entry for the transfer is added to the main window of KGet and the download starts. Another way to add a transfer is to simply drag a file (for example, from an FTP server) from Konqueror and drop it in the main KGet window.

Modify the preferences for your downloads by clicking *Settings → Configure KGet*.

9.2 Timer-Controller Transfers

You can configure KGet to perform transfers at a specific time.

1 Start KGet.

2 Click *Options → Offline Mode*. All transfers inserted from this point are not started immediately but are queued.

3 To start the clock, double-click the entry then click *Advanced*.

4 Enter the day, month, year, and time to start the transfer, click the *Timer* icon, then close the dialog.

5 After making the desired settings for all your transfers, click *Options → Offline Mode* to set KGet back in online mode.

The transfers should start at the specified times.

Getting News with Akregator

10

If you want to get the latest news, get your information with a news feed reader. One reader is Akregator. It connects to a server that contains a newsticker file and downloads it then shows the headlines and sometimes a small text to give an overview. See Figure 10.1, "Akregator Showing Some News" (page 89). If interested in this news, click it and view it in a separate tab.

Figure 10.1 *Akregator Showing Some News*
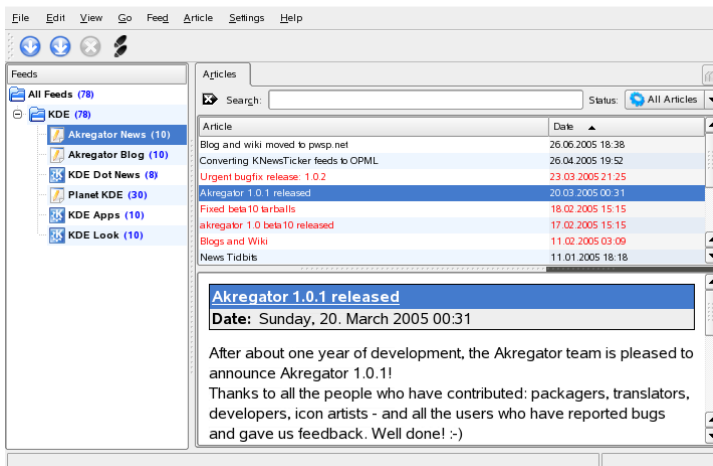
Akregator contains some predefined news feeds for KDE. You can add news feeds manually or some Web sites announce it. For example, a Web site with feed support contains an orange rectangle in the bottom right corner. Click it to open a pop-up menu where you can select *Add Feed to Akregator*. Sometimes a Web site does not announce

that it supports a news feed. Then you can search this site with some keywords like feed or rss. Sometimes you are successful and can obtain a link.

To add a news feed, do the following:

Procedure 10.1   *Adding a News Feed to Akregator*

1 Determine the URL of your news feed. Normally this can be found on your preferred Web site. More links can be found in the KNewsticker tool, an applet for the KDE panel.

2 Open Akregator by pressing ⎡Alt⎤ + ⎡F2⎤ and entering akregator. It opens a new window with the list of all feeds in your configuration. If you close this window, it docks in the system tray.

3 Create a new folder with *Feed → New Folder*. This gives you the opportunity to group your feeds in categories.

4 Name your new folder.

5 Click this folder and choose *Feed → Add Feed*.

6 Insert the feed URL, for example, http://www.novell.com/newsfeeds/rss/coolsolutions.xml. A new window opens where you can change the feed name, URL, or the update interval. With the *Feed Archive* tab, change how long articles should be stored.

7 Proceed with *Ok*. Akregator downloads the latest articles.

After the download of the latest headers is finished, you can click an entry. Depending on the feed, this can list a small summary or just a link. With *Complete Story*, read the entire article.

Check for new news manually with *Fetch Feed*. Another option is to specify an update interval. Configure this by clicking *Settings → Configure Akregator*. A window opens where you can select the interval in *General → Use interval fetching*. Confirm with *Ok*.

You can read the complete story in Akregator or an external browser. Clicking *Complete Story* lets you select which.

Chatting with Friends: Kopete 11

Kopete is an online messenger application allowing multiple partners connected to the Internet to chat with each other. Kopete currently supports all common messenger protocols, such as ICQ, MSN, Yahoo, SMS, Jabber, and IRC.

11.1 Configuring Kopete

Configure Kopete by entering your personal user data. Click *Settings → Configure Kopete*. With *Accounts*, enter your user data. You must register with a provider offering instant messaging services before using such service. Click *New* to open a configuration assistant that can assist you in completing your user profile.

The next step lists the available messaging services. Select the service with which you have registered and click *Continue*. Then enter the user data received on registration with the messaging service. This usually consists of the nickname or e-mail address and a password. Complete the configuration of the messenger account by clicking *Finish*.

Figure 11.1 *Kopete Configuration Panels*
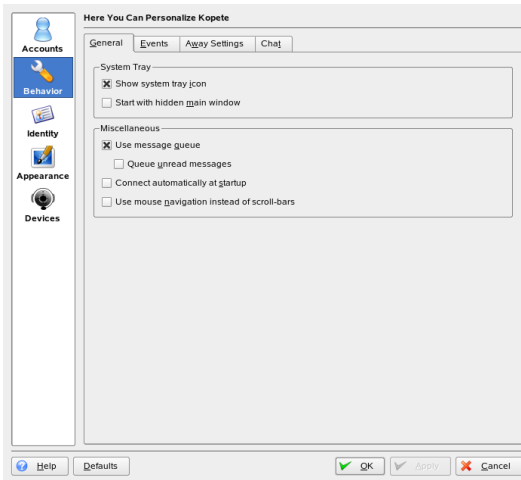
The next item in the configuration dialog is *Appearance*. It influences how Kopete is displayed. *Emoticons* provides a selection of various types of smileys.

Use *Chat window* and *Colors & Fonts* to adjust the appearance of the chat windows for communication with other participants. Choose from the classic themes of the corresponding providers or create a custom theme by adjusting the font or color to your preferences.

11.2 Adding Contacts

Add contacts to chat with them. If you have already created an account on another PC, this data is imported and automatically added to your contact list. To create a contact entry manually, click *File → Add Contact*. A new assistant appears to help with creation. However, you must be online and connect with Kopete to the selected messaging service to add a contact to your list.

11.3 Adding Groups

Access this with *File → Create New Group*. Name the group and confirm this with *OK*. A new folder appears in the contact list that can be used to store the desired contacts.

Drag and drop contacts into the desired folder. Grouping contacts can give a better overview.

Figure 11.2   *The Main Kopete Window*
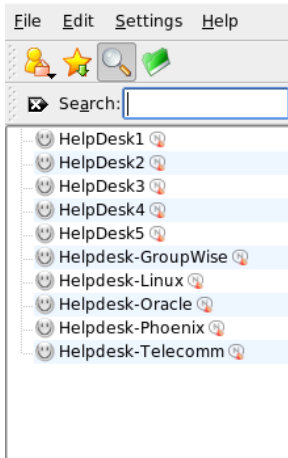
Empty groups can be disabled by activating *Settings* → *Hide Empty Groups*.

11.4 Using Kopete

It is necessary to establish a connection to the Internet to be able to chat with other participants. When this is done, you should set your status by clicking *File* → *Set Status* → *Online*. This establishes a connection between Kopete and the selected messaging service. After the successful login, you are visible to others.

The main application windows features a list of contacts. You must have contacts to chat with others (see Section 11.2, "Adding Contacts" (page 92) for more information). When you right-click a contact marked as online, a menu opens with various options. Send that person a message or start a chatting session. A chat allows invitation of additional participants for real-time discussion. Connection to all participants is closed when the creator of the chat session closes it.

If you want to see your former chatting session, select a contact and go to *Edit* → *View History*. This menu item opens a dialog where you can search and view your chatting sessions with this person.

You can view other options by right-clicking a username. A pop-up menu opens. An important option is *Start Chat* to start a chatting session. With *Rename Contact* and *Remove Contact*, you can run the respective action. The pop-up menu also contains a submenu item with the username where you can block the user or get user information.

Linphone—VoIP for the Linux Desktop

12

Linphone is a small Web phone application for your Linux desktop. It allows you to make two-party calls over the Internet. There is no need for special hardware items: a standard workstation with a properly configured sound card, microphone, and speakers or headphones is all you need to get started with Linphone.

12.1 Configuring Linphone

Before you start using Linphone there are some basic decisions to make and some configuration tasks to complete. First, determine and configure the run mode of Linphone, determine the connection type to use, then start the Linphone configuration (*Go → Preferences*) to make the necessary adjustments.

12.1.1 Determining the Run Mode of Linphone

Linphone can be run in two different different modes, depending on the type of desktop you run and on its configuration.

Normal Application
    After the Linphone software has been installed, it can be started via the GNOME and KDE application menus or via the command line. When Linphone is not running, incoming calls cannot be received.

GNOME Panel Applet

Linphone can be added to the GNOME panel. Right-click an empty area in the panel, select *Add to Panel*, and select Linphone. Linphone is then permanently added to the panel and automatically started on login. As long as you do not receive any incoming calls, it runs in the background. As soon as you get an incoming call, the main window opens and you can receive the call. To open the main window to call someone, just click the applet icon.

12.1.2 Determining the Connection Type

There are several different ways to make a call in Linphone. How you make a call and how you reach the other party is determined by the way you are connected to the network or the Internet.

Linphone uses the session initiation protocol (SIP) to establish a connection with a remote host. In SIP, each party is identified by a SIP URL:

```
sip:username@hostname
```

username is your login on your Linux machine and *hostname* the name of the computer you are using. If you use a SIP provider, the URL would look like the following example:

```
sip:username@sipserver
```

username is the username chosen when registering at a SIP server. *sipserver* is the address of the SIP server or your SIP provider. For details on the registration procedure, refer to Section 12.1.5, "Configuring the SIP Options" (page 99) and check the provider's registration documentation. For a list of providers suitable for your purpose, check the Web pages mentioned in Section 12.8, "For More Information" (page 105).

The URL to use is determined by the type of connection you choose. If you chose to call another party directly without any further routing by a SIP provider, you would enter a URL of the first type. If you chose to call another party via a SIP server, you would enter a URL of the second type.

Calling in the Same Network

If you intend to call a friend or coworker belonging to the same network, you just need the correct username and hostname to create a valid SIP URL. The same applies if this

person wants to call you. As long as there is no firewall between you and the other party, no further configuration is required.

Calling across Networks or the Internet (Static IP Setup)

If you are connected to the Internet using a static IP address, anyone who wants to call you just needs your username and the hostname or IP address of your workstation to create a valid SIP URL, as described in Section "Calling in the Same Network" (page 96). If you or the calling party are located behind a firewall that filters incoming and outgoing traffic, open the SIP port (`5060`) and the RTP port (`7078`) on the firewall machine to enable Linphone traffic across the firewall.

Calling across Networks or the Internet (Dynamic IP Setup)

If your IP setup is not static—if you dynamically get a new IP address every time you connect to the Internet—it is impossible for any caller to create a valid SIP URL based on your username and an IP address. In these cases, either use the services offered by a SIP provider or use a DynDNS setup to make sure that an external caller gets connected to the right host machine. More information about DynDNS can be found at `http://en.wikipedia.org/wiki/Dynamic_DNS`.

Calling across Networks and Firewalls

Machines hidden behind a firewall do not reveal their IP address over the Internet. Thus, they cannot be reached directly from anyone trying to call a user working at such a machine. Linphone supports calling across network borders and firewalls by using a SIP proxy or relaying the calls to a SIP provider. Refer to Section 12.1.5, "Configuring the SIP Options" (page 99) for a detailed description of the necessary adjustments for using an external SIP server.

12.1.3 Configuring the Network Parameters

Most of the settings contained in the *Network* tab do not need any further adjustments. You should be able to make your first call without changing them.

NAT Traversal Options

Enable this option only if you find yourself in a private network behind a firewall and if you do not use a SIP provider to route your calls. Select the check box and enter the IP address of the firewall machine in dot notation, for example, `192.168.34.166.`

RTP Properties

Linphone uses the real-time transport protocol (RTP) to transmit the audio data of your calls. The port for RTP is set to `7078` and should not be modified, unless you have another application using this port. The jitter compensation parameter is used to control the number of audio packages Linphone buffers before actually playing them. By increasing this parameter, you improve the quality of transmission. The more packages buffered, the greater a chance for "late comers" to be played back. On the other hand increasing the number of buffered packages also increases the latency—you hear the voice of your counterpart with a certain delay. When changing this parameter, carefully balance these two factors.

Other

If you use a combination of VoIP and landline telephony, you might want to use the dual tone multiplexed frequency (DTMF) technology to trigger certain actions, like a remote check of your voice mail just by punching certain keys. Linphone supports two protocols for DTMF transmission, SIP INFO and RTP rfc2833. If you need DTMF functionality in Linphone, choose a SIP provider that supports one of these protocols. For a comprehensive list of VoIP providers, refer to Section 12.8, "For More Information" (page 105).

12.1.4 Configuring the Sound Device

Once your sound card has been properly detected by Linux, Linphone automatically uses the detected device as the default sound device. Leave the value of *Use sound device* as it is. Use *Recording source* to determine which recording source should be used. In most cases, this would be a microphone (`micro`). To select a custom ring sound, use *Browse* to choose one and test your choice using *Listen*. Click *Apply* to accept your changes.

12.1.5 Configuring the SIP Options

The *SIP* dialog contains all SIP configuration settings.

SIP Port

>   Determine on which port the SIP user agent should run. The default port for SIP
>   is 5060. Leave the default setting unchanged unless you know of any other appli-
>   cation or protocol that needs this port.

Identity

>   Anyone who wants to call you directly without using a SIP proxy or a SIP provider
>   needs to know your valid SIP address. Linphone creates a valid SIP address for
>   you.

Remote Services

>   This list holds one or more SIP service providers where you have created a user
>   account. Server information can be added, modified, or deleted at any time. See
>   Adding a SIP Proxy and Registering at a Remote SIP Server (page 99) to learn
>   about the registration procedure.

Authentication Information

>   To register at a remote SIP server, provide certain authentication data, such as a
>   password and username. Linphone stores this data once provided. To discard this
>   data for security reasons, click *Clear all stored authentification data*.

The *Remote services* list can be filled with several addresses of remote SIP proxies or
service providers.

Procedure 12.1   *Adding a SIP Proxy and Registering at a Remote SIP Server*

1 Choose a suitable SIP provider and create a user account there.

2 Start Linphone.

3 Go to *Go → Preferences → SIP*.

4 Click *Add proxy/registrar* to open a registration form.

5 Fill in the appropriate values for *Registration Period*, *SIP Identity*, *SIP Proxy*
     and *Route*. If working from behind a firewall, always select *Send registration*

and enter an appropriate value for *Registration Period*. This resends the original registration data after a given time to keep the firewall open at the ports needed by Linphone. Otherwise, these ports would automatically be closed if the firewall did not receive any more packages of this type. Resending the registration data is also needed to keep the SIP server informed about the current status of the connection and the location of the caller. For *SIP identity*, enter the SIP URL that should be used for local calls. To use this server also as a SIP proxy, enter the same data for *SIP Proxy*. Finally, add an optional route, if needed, and leave the dialog with *OK*.

12.1.6 Configuring the Audio Codecs

Linphone supports a several codecs for the transmission of voice data. Set your connection type and choose your preferred codecs from the list window. Codecs not suitable for your current connection type are red and cannot be selected.

12.2 Testing Linphone

Check your Linphone configuration using `sipomatic`, a small test program that can answer calls made from Linphone.

Procedure 12.2   *Testing a Linphone Setup*

1 Open a terminal.

2 Enter `sipomatic` at the command line prompt.

3 Start Linphone.

4 Enter `sip:robot@127.0.0.1:5064` as *SIP address* and click *Call or Answer*.

5 If Linphone is configured correctly, you will hear a phone ringing and, after a short while, you will hear a short announcement.

If you successfully completed this procedure, you can be sure that your audio setup and the network setup are working. If this test fails, check whether your sound device is correctly configured and whether the playback level is set to a reasonable value. If you

still fail to hear anything, check the network setup including the port numbers for SIP and RTP. If any other application or protocol uses the defaults ports for these as proposed by Linphone, consider changing ports and retry.

12.3 Making a Call

Once Linphone is configured appropriately, making a call is straightforward. Depending on the type of call (see Section 12.1.2, "Determining the Connection Type" (page 96) for reference), the calling procedures differ slightly.

1 Start Linphone using the menu or a command line.

2 Enter the SIP address of the other party at the *SIP address* prompt. The address should look like `sip:username@domainname` or `username@hostname` for direct local calls or like `username@sipserver` or `userid@sipserver` for proxied calls or calls using the service of a SIP provider.

3 If using a SIP service provider or a proxy, select the appropriate proxy or provider from *Proxy to use* and provide the authentication data requested by this proxy.

4 Click *Call or Answer* and wait for the other party to pick up the phone.

5 Once you are done or wish to end the call, click *Release or Refuse* and leave Linphone.

If you need to tweak the sound parameters during a call, click *Show more* to show four tabs holding more options. The first one holds the *Sound* options for *Playback level* and *Recording level*. Use the sliders to adjust both volumes to fit your needs.

The *Presence* tab lets you set your online status. This information can be relayed to anyone who tries to contact you. If you are permanently away and wish to inform the calling party of this fact, just check *Away*. If you are just busy, but want the calling party to retry, check *Busy, I'll be back in ... min* and specify how long you will not be reachable. Once you are reachable again, set the status back to the default (*Reachable*). Whether another party can check your online status is determined by the *Subscribe Policy* set in the address book, as described in Section 12.5, "Using the Address Book" (page 102). If any party listed in your address book published their online status, you can monitor it using the *My online friends* tab.

The *DTMF* tab can be used to enter DTMF codes for checking voice mail. To check your voice mail, enter the appropriate SIP address and use the keypad in the *DTMF* tab to enter the voice mail code. Finally, click *Call or Answer* as if you were making an ordinary call.

12.4 Answering a Call

Depending on the run mode selected for Linphone, there are several ways you would notice an incoming call:

Normal Application

Incoming calls can only be received and answered if Linphone is already running. You then hear the ring sound on your headset or your speakers. If Linphone is not running, the call cannot be received.

GNOME Panel Applet

Normally, the Linphone panel applet would run silently without giving any notice of its existence. This changes as soon as a call comes in: the main window of Linphone opens and you hear a ring sound on your headset or speakers.

Once you have noticed an incoming call, just click *Call or Answer* to pick up the phone and start talking. If you do not want to accept this call, click *Release of Refuse*.

12.5 Using the Address Book

Linphone offers to manage your SIP contacts. Start the address book with *Go → Address book*. An empty list window opens. Click *Add* to add a contact.

The following entries need to be made for a valid contact:

Name

Enter the name of your contact. This may be a full name, but you can also use a nickname here. Choose something you easily remember this person as. If you choose to see this person's online status, this name is shown in the *My online friends* tab of the main window.

SIP Address
    Enter a valid SIP address for your contact.

Proxy to Use
    If needed, enter the proxy to use for this particular connection. In most cases, this
    would just be the SIP address of the SIP server you use.

Subscribe Policy
    Your subscribe policy determines whether your presence or absence can be tracked
    by others.

To call any contact from the address book, select this contact with the mouse, click
Select to make the address appear in the address field of the main window, and start
the call with *Call or Answer* as usual.

12.6 Troubleshooting

I try to call someone, but fail to establish a connection.
    There are several reasons why a call could fail:

    Your connection to the Internet is broken.
        Because Liphone uses the Internet to relay your calls, make sure that your
        computer is properly connected to and configured for the Internet. This can
        easily be tested by trying to view a Web page using your browser. If the Internet
        connection works, the other party might not be reachable.

    The person you are calling is not reachable.
        If the other party refused your call, you would not be connected. If Linphone
        is not running on the other party's machine while you are calling, you will not
        be connected. If the other party's Internet connection is broken, you cannot
        make the connection.

My call seems to connect, but I cannot hear anything.
    First, make sure that your sound device is properly configured. Do this by launching
    any other application using sound output, such as a media player. Make sure that
    Linphone has sufficient permissions to open this device. Close all other programs
    using the sound device to avoid resource conflicts.

If the above checks were successful, but you still fail to hear anything, raise the recording and playback levels under the *Sound* tab.

The voice output on both ends sounds strangely clipped.
Try to adjust the jitter buffer using *RTP properties* in *Preferences → Network* to compensate for delayed voice packages. When doing this, be aware that it increases the latency.

DTMF does not work.
You tried to check your voice mail using the DTMF pad, but the connection could not be established. There are three different protocols used for the transmission of DTMF data, but only two of these are supported by Linphone (SIP INFO and RTP rfc2833). Check with your provider whether it supports one of these. The default protocol used by Linphone is rfc2833, but if that fails you can set the protocol to SIP INFO in *Preferences → Network → Other*. If it does not work with either of them, DTMF transmission cannot be done using Linphone.

12.7 Glossary

Find some brief explanation of the most important technical terms and protocols mentioned in this document:

VoIP
VoIP stands for *voice over Internet protocol*. This technology allows the transmission of ordinary telephone calls over the Internet using packet-linked routes. The voice information is sent in discrete packets like any other data transmitted over the Internet via IP.

SIP
SIP stands for *session initiation protocol*. This protocol is used to establish media sessions over networks. In a Linphone context, SIP is the magic that triggers the ring at your counterpart's machine, starts the call, and also terminates it as soon as one of the partners decides to hang up. The actual transmission of voice data is handled by RTP.

RTP
RTP stands for *real-time transport protocol*. It allows the transport of media streams over networks and works over UDP. The data is transmitted by means of discrete

packets that are numbered and carry a time stamp to allow correct sequencing and the detection of lost packages.

DTMF
A DTMF encoder, like a regular telephone, uses pairs of tones to represent the various keys. Each key is associated with a unique combination of one high and one low tone. A decoder then translates these touch-tone combinations back into numbers. Linphone supports DTMF signalling to trigger remote actions, such as checking voice mail.

codec
Codecs are algorithms specially designed to compress audio and video data.

jitter
Jitter is the variance of latency (delay) in a connection. Audio devices or connection-oriented systems, like ISDN or PSTN, need a continuous stream of data. To compensate for this, VoIP terminals and gateways implement a jitter buffer that collect the packets before relaying them onto their audio devices or connection-oriented lines (like ISDN). Increasing the size of the jitter buffer decreases the likelihood of data being missed, but the latency of the connection is increased.

12.8 For More Information

For general information about VoIP, check the VoIP Wiki at `http://voip-info.org/tiki-index.php`. For a comprehensive list of providers offering VoIP services in your home country, refer to `http://voip-info.org/wiki-VOIP+Service+Providers+Residential`.

Encryption with KGpg

13

KGpg is an important component of the encryption infrastructure on your system. With the help of this program, generate and manage all needed keys. Use its editor function for the quick creation and encryption of files or use the applet in your panel to encrypt or decrypt by dragging and dropping. Other programs, such as your mail program (Kontact or Evolution), access the key data to process signed or encrypted contents. This chapter covers the basic functions needed for daily work with encrypted files.

13.1 Generating a New Key Pair

To be able to exchange encrypted messages with other users, first generate your own key pair. One part of it—the *public key*—is distributed to your communication partners, who can use it to encrypt the files or e-mail messages they send. The other part of the key pair—the *private key*—is used to decrypt the encrypted contents.

IMPORTANT: Private Key versus Public Key

The public key is intended for the public and should be distributed to all your communication partners. However, only you should have access to the private key. Do not grant other users access to this data.
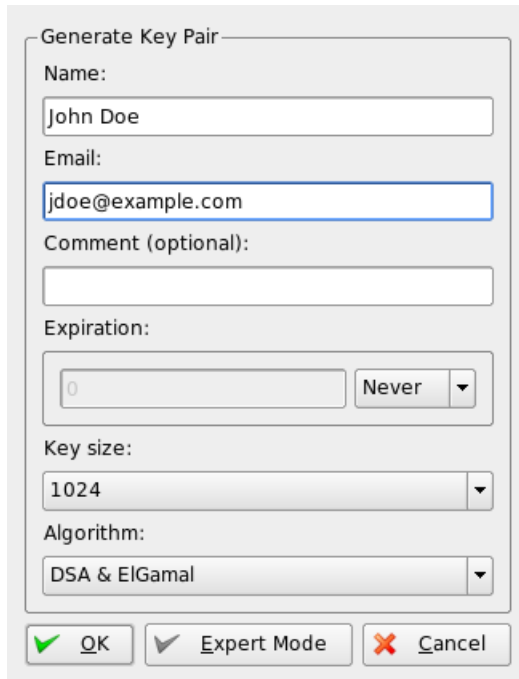

Start KGpg from the main menu by selecting *Utilities → KGpg* or enter `kgpg` on the command line. When you start the program for the first time, an assistant appears to guide you through the configuration. Follow the instructions up to the point where you are prompted to create a key. Enter a name, an e-mail address, and, optionally, a comment. If you do not like the default settings provided, also set the expiration time for

the key, the key size, and the encryption algorithm used. See Figure 13.1, "KGpg: Creating a Key" (page 108).

When you start kgpg in later sessions, only a small icon with a padlock appears in the system tray. Click that icon to display the main kgpg window on your desktop.

Figure 13.1   *KGpg: Creating a Key*

Confirm your settings with *OK*. The next dialog prompts you to enter a password twice. The program then generates the key pair and displays a summary. It is a good idea to save or print a revocation certificate right away. Such a certificate is needed if you forget the password for your private key so need to revoke it. After you confirm with *OK*, KGpg displays its main window. See Figure 13.2, "The Key Manager" (page 109).

Figure 13.2   *The Key Manager*
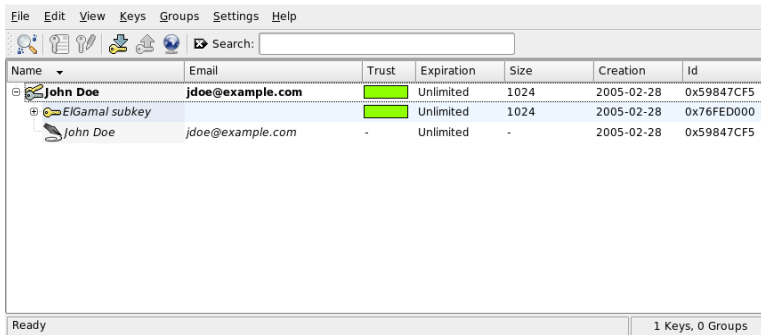
13.2 Exporting the Public Key

After generating your key pair, make the public key available to other users. This enables them to use it to encrypt or sign the messages or files they send you. To make the public key available for others, select *Keys → Export Public Key(s)*. The dialog that opens offers four options:

Email
> Your public key is sent to a recipient of your choice by e-mail. If you activate this option and confirm with *OK*, the dialog for creating a new e-mail message with KMail appears. Enter the recipient and click *Send*. The recipient receives your key and can then send you encrypted contents.

Clipboard
> You can place your public key here before continuing to process it.

Default Key Server
> To make your public key available to a wide audience, export it to one of the key servers on the Internet. For more information, refer to Section 13.4, "The Key Server Dialog" (page 111).

File
> If you prefer to distribute your key as a file on a data medium instead of sending it by e-mail, click this option, confirm or change the file path and name, and click *OK*.

13.3 Importing Keys

If you receive a key in a file (for example, as an e-mail attachment), integrate it in your key ring with *Import Key* and use it for encrypted communication with the sender. The procedure is similar to the procedure for exporting keys already described.

13.3.1 Signing Keys

Keys can be signed like every other file to guarantee their authenticity and integrity. If you are absolutely sure an imported key belongs to the individual specified as the owner, express your trust in the authenticity of the key with your signature.

IMPORTANT: Establishing a Web of Trust

Encrypted communication is only secure to the extent that you can positively associate public keys in circulation with the specified user. By cross-checking and signing these keys, you contribute to the establishment of a web of trust.

Select the key to sign in the key list. Select *Keys → Sign Keys*. In the following dialog, designate the private key to use for the signature. An alert reminds you to check the authenticity of this key before signing it. If you have performed this check, click *Continue* and enter the password for the selected private key in the next step. Other users can now check the signature by means of your public key.

13.3.2 Trusting Keys

Normally, you are asked by the corresponding program whether you trust the key (whether you assume it is really used by its authorized owner). This happens each time a message needs to be decrypted or a signature must be checked. To avoid this, edit the trust level of the newly imported key. By default, a newly imported key is listed with a white box, meaning that no concrete value has been assigned for the trust level.

Right-click the newly imported key to access a small context menu for key management. Select *Sign Keys* from it. KGpg opens a text a message box and asks the user to recheck the fingerprint of the key. Use *Continue* to access the key signing dialog.

Select your trust level, for example, select *I Have Done Very Careful Checking*. After finishing this dialog, you need to enter your passphrase to finish the key signing process. The newly imported key now displays a green trust level for a trusted key.

The trust level of the keys in your key ring is indicated by a colored bar next to the key name. The lower the trust level is, the less you trust the signer of the key to have checked the true identity of the keys signed. You may be entirely sure about the signer's identity, but he may still be lazy in regard to checking other people's identities before signing their keys. Therefore, you could still trust him and his own key, but assign lower trust levels to the keys of others that have been signed by him. The trust level's purpose is solely one of a reminder. It does not trigger any automatic actions by KGpg.

13.4 The Key Server Dialog

Several Internet-based key servers offer the public keys of many users. To engage in encrypted communication with a large number of users, use these servers to distribute your public key. For this purpose, export your public key to one of these servers. Similarly, KGpg enables you to search one of these servers for the keys of certain people and import their public keys from the server. Open the key server dialog with *File →Key Server Dialog*.

13.4.1 Importing a Key from a Key Server

By means of the *Import* tab in the key server dialog, import public keys from one of the Internet-based key servers. Select one of the preconfigured key servers and enter a search string (e-mail address of the communication partner) or the ID of the key to find. When you click *Search*, your system connects to the Internet and searches the specified key server for a key that matches your specifications. Refer to Figure 13.3, "Search Screen for Importing a Key" (page 112).

Figure 13.3   *Search Screen for Importing a Key*

If your search on the key server is successful, a list of all retrieved server entries is displayed in a new window. Select the key to include in your key ring and click *Import*. See Figure 13.4, "Hits and Import" (page 112). Confirm the following message with *OK* then exit the key server dialog with *Close*. The imported key then appears in the main overview of the key manager and is ready for use.
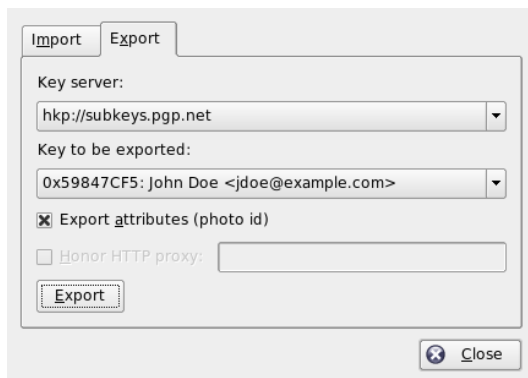
Figure 13.4   *Hits and Import*

13.4.2 Exporting Your Keys to a Key Server

To export your key to one of the freely accessible key servers on the Internet, select the *Export* tab in the key server dialog. Designate the target server and the key to export by means of two drop-down menus. Then start the export with *Export*.

Figure 13.5   *Exporting a Key to a Key Server*

13.5 Text and File Encryption

KGpg also offers the possibility to encrypt text or clipboard contents. Right-click the padlock icon and find the options *Encrypt clipboard* and *Decrypt clipboard* as well as the option for opening the integrated editor.

13.5.1 Encrypting and Decrypting the Clipboard

Files copied to the clipboard can easily be encrypted with a few clicks. Open the function overview by right-clicking the KGpg padlock icon. Select *Encrypt Clipboard* and designate the key to use. A status message about the encryption procedure is displayed on the desktop. The encrypted contents can now be processed from the clipboard as needed. The decryption of clipboard contents is just as easy. Simply open the menu on the panel, select *Decrypt Clipboard*, and enter the password associated with your private

key. The decrypted version is now available for processing in the clipboard and in the KGpg editor.

13.5.2 Encrypting and Decrypting by Dragging and Dropping

To encrypt or decrypt files, click the icons on the desktop or in the file manager, drag them to the padlock in the panel, and drop them there. If the file is not encrypted, KGpg asks for the key to use. As soon as you select a key, the file is encrypted without any further messages. In the file manager, encrypted files are designated with the suffix `.asc` and the padlock icon. These files can be decrypted by clicking the file icon, dragging it to the KGpg symbol in the panel, and dropping it there. If the original file-name already exists, a dialog opens that asks how to name the file or if it should be overwritten.

13.5.3 The KGpg Editor

Instead of creating contents for encryption in an external editor then encrypting the file with one of the methods described above, you can use the integrated editor of KGpg to create the file. Open the editor (*Open Editor* from the context menu), enter the desired text, and click *Encrypt*. Then select the key to use and complete the encryption procedure. To decrypt files, use *Decrypt* and enter the password associated with the key.

Generating and checking signatures on documents is just as easy as encrypting directly from the editor. Select a file in the file manager and copy it to the clipboard. Right-click the padlock icon in the panel and select *Sign/Verify Clipboard*. Then choose the private key to use and enter the associated password. KGpg informs about the successful generation of the signature. Files can also be signed from the editor by simply clicking *Sign/Verify*. To check a signed file, go to *File → Open Editor*, load the file to check in the editor, and click *Sign/Verify*.

13.6 For More Information

For theoretical background information about the encryption method, refer to the brief and clear introduction on the GnuPG project pages at `http://www.gnupg.org/documentation/howtos.html.en`. This document also provides a list of further information sources.

Part III. Multimedia

Sound in Linux

14

Linux includes a wide range of sound and multimedia applications. Some of these applications are part of one of the main desktop environments. With the applications described here, control the volume and balance of playback, play CDs and music files, and record and compress your own audio data.

14.1 Mixers

Mixers provide a convenient means of controlling the volume and balance of the sound output and input of computers. The main difference between the various mixers is the outer appearance of the user interface. However, there are a number of mixers that are designed for specific hardware. One example is envy24control, a mixer for the Envy 24 sound chip. Another one is hdspmixer, which is for RME Hammerfall cards. From the mixers available, select the one that best suits your needs.

TIP: Starting the Mixer

Generally, it is advisable to open a mixer application before opening other sound applications. Use the mixer to test and adjust the control settings for the input and output of the sound card.


14.1.1 The KDE Mixer Applet

KMix is the default KDE mixer application. It is integrated into the KDE panel as a small panel applet located in the system tray. Click the panel icon (a speaker) to control

the volume of your speakers with a control slider. If you right-click the icon, the context menu of KMix appears. Select *Mute* to switch off the sound output. The panel icon then changes its appearance. Clicking *Mute* again unmutes the volume. To fine-tune your sound settings, select *Show Mixer Window* and configure *Output*, *Input*, and *Switches*. Each of the devices featured there has its own context menu that is opened by a right-clicking the device icon. You can mute or hide each one of them separately.

Figure 14.1   *The Mixer KMix*
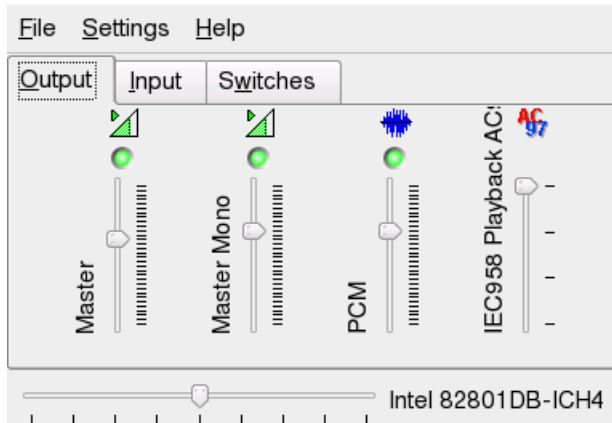
14.1.2 The GNOME Volume Control

The GNOME volume control applet for the GNOME desktop can be integrated into the GNOME panel. Click the panel icon to control the volume of your speakers with a simple control slider. To switch off the sound output, right-click the icon and select *Mute*. The volume control icon then changes its appearance. To unmute the sound output, right-click the icon again and select *Mute* from the menu. Select *Open Volume Control* to access the more advanced mixer features, shown in Figure 14.2, "The GNOME Volume Control" (page 121). Each sound device has its own mixer tab.

Figure 14.2   *The GNOME Volume Control*
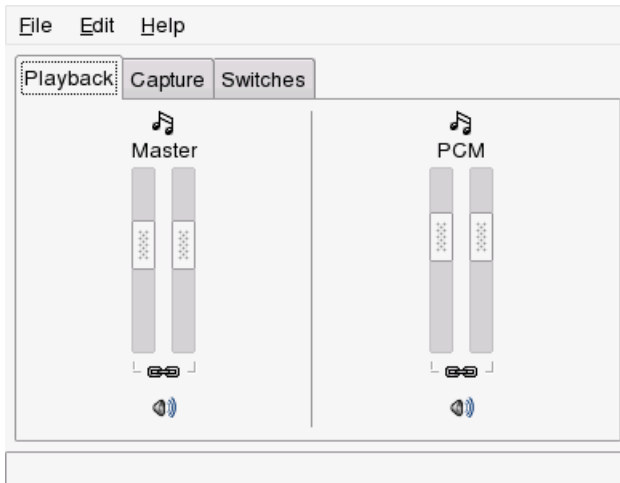
14.1.3 alsamixer

alsamixer can be run from the command line without the X environment, so is entirely controlled by keyboard shortcuts. An alsamixer window always consists of an information area and the volume bars of the devices with their respective names.

Select devices with $\boxed{\rightarrow}$ and $\boxed{\leftarrow}$ or $\boxed{\text{N}}$ and $\boxed{\text{P}}$. Use $\boxed{\uparrow}$ and $\boxed{\downarrow}$ or $\boxed{+}$ and $\boxed{-}$ to increase and decrease the volume. Control stereo channels independently, using $\boxed{\text{Q}}$, $\boxed{\text{W}}$, and $\boxed{\text{E}}$ for increasing the volume and $\boxed{\text{Z}}$, $\boxed{\text{X}}$, and $\boxed{\text{C}}$ for decreasing the volume. Use the number keys between $\boxed{0}$ and $\boxed{9}$ to change the absolute volume quickly. These correspond to 0 to 90% of full volume. Toggle between muted and unmuted state of any mixer control using $\boxed{\text{M}}$. A muted control has *MM* written below its name.

alsamixer has three different view modes: *Playback*, *Capture*, and *All*. By default, alsamixer is started in *playback* mode, displaying only those mixer controls relevant for playback (Master Volume, PCM, CD, etc.). *Capture* displays only those controls used for recording. *All* displays all controls available. Switch the view modes using $\boxed{\text{F3}}$, $\boxed{\text{F4}}$, and $\boxed{\text{F5}}$ or toggle them using $\boxed{\rightarrow|}$.

14.1.4 Look and Feel of Mixer Applications

The look and feel of mixer applications depend on the type of sound card used. Some drivers, like SB Live!, have many controllable (tunable) mixer elements while the drivers for professional sound cards may have elements with totally different names.

On-Board Sound Chip

Most of the PCI on-board sound chips are based on AC97 codec. *Master* controls the main volume from the front speakers. *Surround*, *Center*, and *LFE* control the rear, center, and bass-boost speakers. Each of them has a mute switch. In addition to that, some boards have individual *Headphone* and *Master Mono* volumes. The latter is used for the built-in speaker on some laptops.

PCM controls the internal volume level of digital WAVE playback. PCM is an acronym for pulse code modulation, one of the digital signal formats. This control also has an individual mute switch.

Other volumes, like *CD*, *Line*, *Mic*, and *Aux*, control the loop-back volume from the corresponding input to the main output. They do not influence the recording level, only the playback volumes.

For recording, turn on the *Capture* switch. This is the master recording switch. The *Capture* volume is the input gain for recording. By default, this switch is set to zero. Choose a recording source like *Line* or *Mic*. The recording source is exclusive, so you cannot choose two of them at the same time. *Mix* is a special recording source. You can record the currently played signal from this source.

Depending on the AC97 codec chip, special effects, like 3D or bass/treble, are available, too.

SoundBlaster Live! and Audigy Family

SoundBlaster Live! and SB Audigy1 have numerous mixer controls for their AC97 codec chip and DSP engine. In addition to the controls already described, they have *Wave*, *Music*, and *AC97* volumes to control the internal signal routing and attenuation for PCM, WaveTable MIDI, and AC97 mixing. Keep the volume at 100% to hear all of them. SB Audigy2 (depending on the model) has less controls than SB Live, but still has *Wave* and *Music* controls.

The recording on SB Live is similar to on-board chip. You can choose *Wave* and *Music* as the additional recording source to record the played PCM and WaveTable signals.

USB Audio Devices

USB audio devices usually have a small number of mixer controls. Sometimes they even have none at all. Most devices either have a *Master* or *PCM* control switch to control the playback volume.

14.1.5 The Mixer for the Sound Chip Envy24

envy24control is a mixer application for sound cards using the Envy24 (ice1712) chip. The flexibility of the Envy24 chip can result in varying functionalities in different sound cards. The latest details on this sound chip are available in /usr/share/doc/ packages/alsa-tools/envy24control. Install the package alsa-tools-gui in order to use envy24control.

Figure 14.3   *Monitor and Digital Mixer of envy24control*
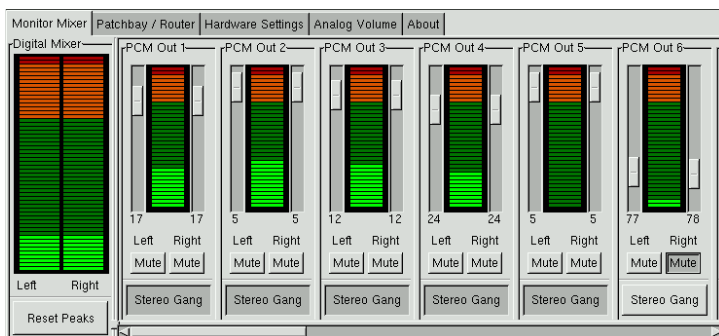
The *Monitor Mixer* of envy24control shows the signal levels that can be mixed digitally in the sound card. The signals designated as *PCM Out* are generated by applications that send PCM data to the sound card. The signals of the analog inputs are shown under *H/W In*. The *S/PDIF* inputs are shown to the right. Set the input and output levels of the analog channels under *Analog Volume*.

Use the *Monitor Mixer* sliders for digital mixing. The respective levels are displayed in the *Digital Mixer*. For each output channel, the *Patchbay* contains a row of radio buttons for selecting the desired channel source.

Adjust the amplification for the analog-to-digital and digital-to-analog converters under *Analog Volume*. Use the *DAC* sliders for the output channels and the *ADC* sliders for the input channels.

The S/PDIF channel settings are made under *Hardware Settings*. The Envy24 chip reacts to volume changes with a delay that can be configured with *Volume Change*.

14.2 Multimedia Players

14.2.1 amaroK

The amaroK media player handles various audio formats and plays the streaming audio broadcasts of radio stations on the Internet. The file types supported depend on the engine used, currently xine or Helix.

On first start, amaroK launches a *First-Run Wizard*, which helps set up amaroK. In the first step, configure your preferred look and feel for amaroK. Choose to display player and playlist in separate windows (see Figure 14.4, "The amaroK Media Player" (page 125)) or combine their functionality in one single window (default). In the second step, determine where amaroK should look for your music collection. amaroK scans these folders for playable media. By default, amaroK is configured to scan the selected folders recursively (to include all their subdirectories in the scan), monitor changes to the content of the selected directories, and import any playlists located there. All the settings made with the wizard can be modified later by starting the wizard again with *Tools → First-Run Wizard*.

Figure 14.4 *The amaroK Media Player*
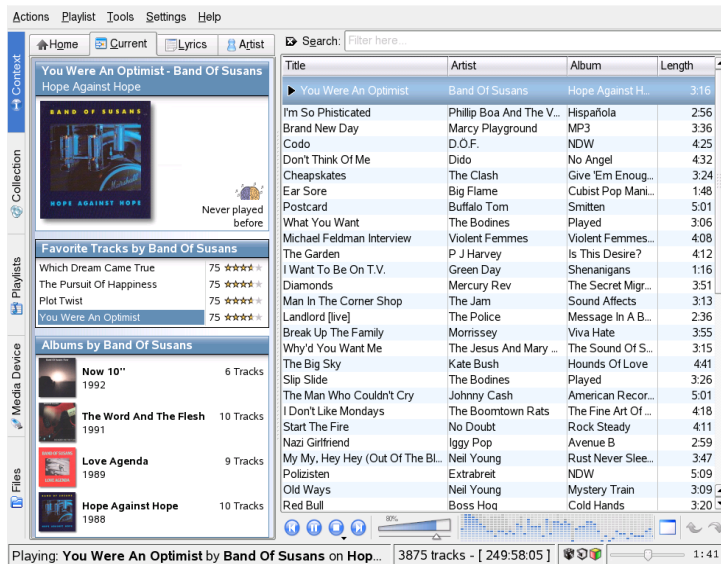
Quick Start

On start-up, amaroK scans the folders that are part of your collection for music files. Although you can use amaroK without building a collection, it is recommended to do so, because most of the powerful, advanced features are only available with an existing collection.

The amaroK main window is divided into two parts. The sidebar browsers on the left contain different views of your music collection and your playlists, a file browser, and an interface to an iPod. Change the browser by clicking a tab on the far left. The right part contains the playlist window and, below it, the player (if you have not configured it to be shown in a separate window).

To play music, first create a playlist. Just drag and drop items from any of the sidebar browsers to the playlist window. Use Shift or Ctrl to select multiple items. Double-click an item in the playlist to play it. You can add or delete items from the list during playback. Use the icons in the bottom right corner to *Undo* and *Redo* changes or to *Clear* the entire list.

The Sidebar Browsers

Context

 With this tab, view information and statistics about your collection and the current artist. Switch to different views using the tabs on top of the *Context* browser. The *Home* view provides statistics on your listening habits, listing your favorite, newest, and least-played tracks or albums. *Current* provides data related to the track currently being played, such as the album cover (see Section "The Cover Manager" (page 128)), the listening statistics related to this track, and much more. If available, *Lyrics* displays the lyrics of the track currently played. You need to be connected to the Internet to use this feature. *Artist* shows information about the artist. This information is fetched from Wikipedia, so an Internet connection is needed as well.

Collection

 Use this view to manage and display your personal collection of titles. The toolbar on top of the browser allows you to configure the way your collection is displayed and to rescan or reorganize the collection. Define the order your titles are displayed in the browser with *Group By*. You can choose between predefined criteria or create your own sort criteria using *Primary*, *Secondary*, and *Tertiary*. The next two icons let you toggle between tree and flat view. Use the update icon to rescan your entire collection for changes and add or delete folders to scan by clicking the wrench icon.

 If you are searching for a particular album, title, genre, or year, use *Filter here*. The selection in the browser is adjusted as you type. You can only search in criteria used to group the collection. If you have grouped your collection by *Artist / Album*, it is not possible to search for titles belonging to a certain genre.

Playlists

 You can access different playlists with the playlist browser. *Playlists* holds your personal playlists found in your collection folders. Every time you create and save a new playlist from the playlist window, it appears here. Right-click to open a menu where you can manually add a new playlist or a subfolder. To add new items from the playlist window to an existing playlist, just drag and drop them on the playlist in the browser window.

IMPORTANT: Sharing Playlists with Other Players

Save playlists in `m3u` or `pls` format, so you can share them with any other players using these formats.

Smart Playlists offer various views of your collection, such as tracks never played, newest tracks, or tracks by genre. Right-click to add subfolders or to create your own smart playlists.

Radio Streams lets you listen to live radio streams from the Internet. An extensive list is already shipped with amaroK. Right-click to add more or create subfolders.

Podcasts imports podcasts to amaroK. Right-clicking opens a menu where you can add podcasts and subfolders, refresh all podcasts, or set the scan interval.

At the bottom of the playlist browser window, you can *Enable dynamic mode* and configure it with *Show Options*. Dynamic mode is a feature that allows you the flexibility of picking music from your entire collection while keeping a relatively small playlist that is easy to maintain. Refer to the online documentation (open it with F1) for details.

Media Device

If you own an iPod, you can use this browser to play music from it or to add music from your collection to the iPod. It must be mounted at `/mnt/ipod` before starting amaroK. To listen to tracks from the iPod, drag and drop them from the list view to the playlist window. To add tracks from the collection to the iPod, drag tracks from the playlist window to the list view.

File Browser

This tab opens a file browser. It corresponds to the standard KDE file selector dialog with the usual controls for navigating the file system. Enter a URL or a path directly into the text input field. From the contents displayed, drag elements to the playlist to include them. You can also perform a recursive search for a file in a given directory. To do so, enter a text string for the title and the location at which to start the search. Then select *Search* and wait for the results to appear in the lower section of the window.

The Cover Manager

With amaroK, you can assign a cover to each album of your collection. With the *Cover Manager*, easily add, delete, and retrieve album covers.

Start the cover manager with *Tools → Cover Manager*. A tree view in the left part of the window lists all artists in your collection. The main part of the window lists the covers of all albums. To filter the covers displayed, click an individual artist in the tree view or enter a term in the input field at the top of the window. Use *View* to toggle between displaying all albums, albums with covers, or albums without covers.

There are three different methods for assigning covers to the albums:

Automatically Assign Covers
amaroK can automatically fetch all missing covers displayed in the main windows from Amazon. Use *Amazon Locale* to determine from which Amazon Web server the covers should be fetched then click *Fetch Missing Covers*.

> **IMPORTANT: Proper Tagging Needed**
>
> amaroK fetches the covers from Amazon using the query string `Artist – Album`. This information is extracted from the tags of your music files. The better they are tagged, the better the hit rate is when automatically fetching covers.

Manually Choose a Cover Fetched from Amazon
If you want more control over what image to use and what query string to use to retrieve a cover, right-click an album in the main window and choose *Fetch from amazon*. *Next Cover* lets you cycle through all images available. *Save* selects the actual cover and assigns it to the album selected. If you are not satisfied with the covers displayed, use *New Search* to refine the search. Use *Amazon Locale* from the toolbar of the main window to determine from which Amazon Web server the covers should be fetched.

Manually Assign Covers
If you already have your own cover images, you can assign them by right-clicking an album and choosing *Set Custom Image*.

Visualizations

amaroK comes with a number of visualizations that display a graphical effect for the music played. Native amaroK visualizations are displayed in the player window. Cycle through the various available display modes by clicking the animation.

In addition to the above, amaroK also supports the visualization plug-ins of the XMMS media player. To use these, first install the `xmms-plugins` package then select *Tools → Visualizations* from the amaroK menu. This opens a window listing the available plug-ins. XMMS plug-ins are always displayed in separate windows. In some cases, there is an option to display them in full-screen mode. For some plug-ins, you may not get a smooth visual effect unless you use a 3D-accelerated graphics card.

The amaroK Tray Icon

Like other KDE applications, amaroK adds an icon to the KDE system tray. You can use this icon to control a large number of amaroK's features. Hovering the mouse over the icon displays information about the track currently played. A single left-click closes the application window without affecting playback. Click again to reopen the window. Clicking with the middle mouse button pauses playback—middle-click again to resume playback. Right-clicking opens a context menu where you have access to the player controls and can exit amaroK. Scrolling the mouse wheel changes the playback volume.

Using the ⇧Shift and Ctrl keys together with the mouse gives you access to more advanced features. Holding ⇧Shift while scrolling the mouse wheel seeks through the current track. Holding Ctrl while scrolling the mouse wheel skips through tracks in the playlist.

You may also drag and drop items on the tray icon to add them to the current playlist. A pop-up menu opens, asking whether to append the track to the playlist, append and play it, or queue it after the current track.

14.2.2 Banshee

Banshee is a GNOME music management and playback application that lets you import CDs, sync your music collection to an iPod, play music directly from an iPod, create playlists with songs from your library, and create audio and MP3 CDs from subsets of

your library. To access Banshee, select *Applications* → *Multimedia* → *Audio Player* → *Banshee Music Player*.

The first time you open Banshee, it prompts you to import music. Click *Automatic Import* to search for music in your home directory and add it to the library. Click *Import Folder* to tell Banshee where to look for music. After successfully importing your music, your library is displayed.

Figure 14.5   *Banshee Library*
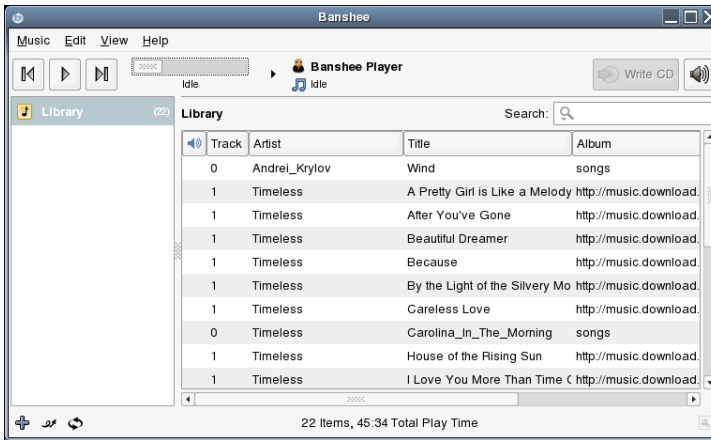
Managing Your Library

You can use the library to do a variety of things, including playing, organizing, and importing music. You can also view a variety of information about your music collection, including playback statistics (when a song was last played and how many times).

Playing Your Music

To play a song, simply select the song in the library and click the play button. During playback, an icon appears in your panel. Right-click the icon to get a list of available options. You can pause the current song, repeat the song, play the previous or next song in the list, shuffle the playlist, or exit Banshee. You can also use the buttons on the upper left corner to pause a song or play the next or previous song.

Banshee also has an integrated CD player. When you insert a music CD, your CD title appears in the left pane. Select the title and click the Play button to play your full CD.

Organizing Your Music

To create a new playlist, click *Music → New Playlist* (or press [Ctrl] + [N]). A new playlist is displayed in the left panel. Double-click *New Playlist* and enter the name you want. You can drag and drop songs from one playlist to another or use the options on the *Edit* menu to remove or delete songs and rename or delete the playlist.

To view the properties of a song, select a song in the library and click *Edit → Properties*. This shows the duration of a song, the number of times it has been played, when it was last played, and when it was imported.

Figure 14.6 *Track Properties Editor*
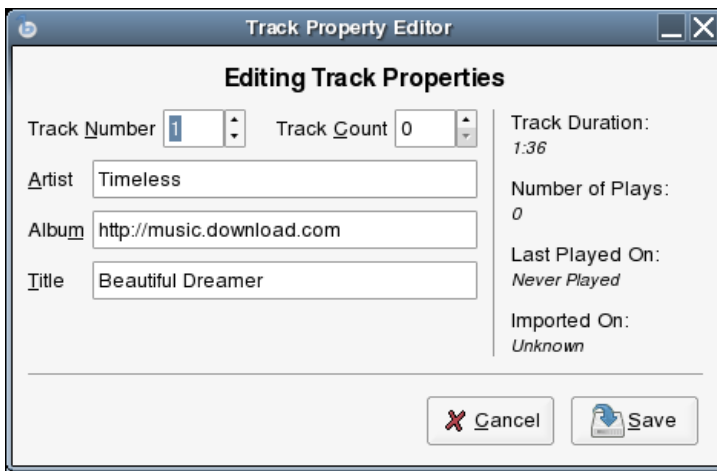
You can edit the artist, album, title, track number, and track count. If you want to set all fields in a set to the same value, select multiple songs in a playlist then click *Edit → Properties*.

Figure 14.7   *Multitrack Editor*

Importing Music

Banshee can import music from a file, folder, or CD. Click *Music → Import Folder*, *Import Files*, or *Import CD* then specify the files, folder, or CD to import. To copy music from a CD to your music collection, click the *Rip* button near the top right.

Using Banshee with Your iPod

To play music from your iPod, simply plug your iPod into your system. Your iPod appears in the left pane. Select the song to hear then click the *Play* button.

Figure 14.8   *iPod List in Banshee*

When the iPod is selected in the left pane, information about your iPod is displayed at the bottom left, including disk usage and *Sync*, *Properties*, and *Eject* buttons.

Figure 14.9   *iPod Buttons in Banshee*
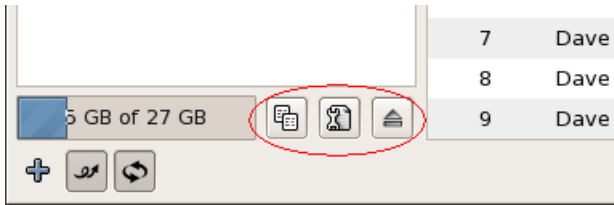
There are three ways to manage the music on your iPod:

Manually
>   Browse your iPod and drag music between your library and the iPod.

Automatically Sync
>   Automatically copies everything in your library to the iPod.

Automatically Merge
>   All the music on your iPod that is not in your library is downloaded to your library
>   and all the music that is in your library and not in your iPod is uploaded to your
>   iPod.

Use the *iPod Properties* dialog to rename your iPod and view vital statistics.

Figure 14.10   *Banshee iPod Properties*
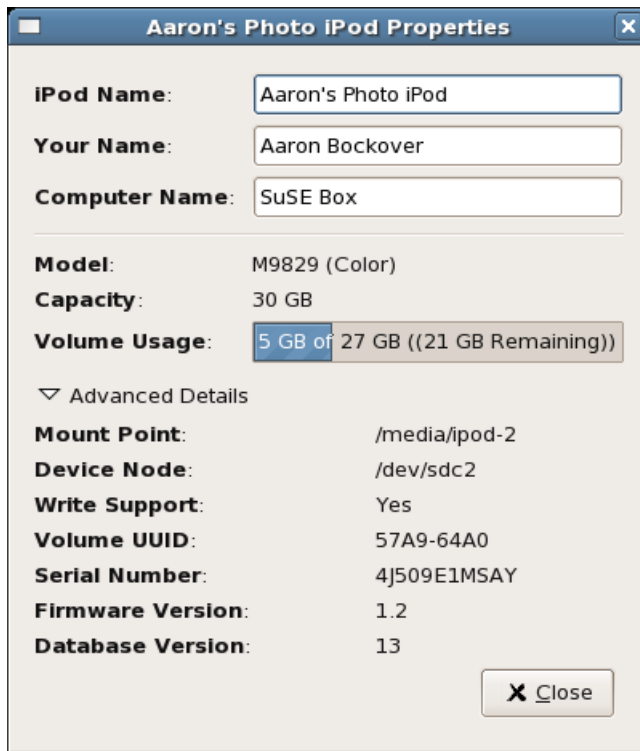
Creating Audio and MP3 CDs

To create audio and MP3 CDs, select the songs you want then click the *Write CD* button in the upper right side of Banshee.

Configuring Preferences

You can configure Banshee preferences by clicking *Edit → Preferences*. The *Preferences* dialog contains the following tabs:

Library
    Specify a music folder location. This location is used when you import music.

Encoding
    Determine encoding profiles for CD ripping and iPod transcoding.

Burning
    Specify CD burning options. You can choose a disk drive, write speed, and disk
    format (Audio CD, MP3 CD, or Data CD). You can also configure advanced options,
   such as ejecting the CD when finished.

Advanced
    Choose the Helix/RealPlayer engine or the GStreamer engine for audio playback
    in Banshee.

14.2.3 XMMS

XMMS is another full-featured media player with robust audio support, so that pops
or breaks during playback should be very rare. The application is easy to use. The button
for displaying the menu is located in the upper left corner of the program window. For
those preferring a GNOME-like look and feel, there is a GTK2 version of XMMS
available, the Beep Media Player. Just install the package bmp. However, not all XMMS
plug-ins are supported by this port of XMMS. XMMS applets for KDE or GNOME
are also available.

Figure 14.11   *XMMS with Equalizer, OpenGL Spectrum Analyzer, and Infinity*
                    Plug-Ins
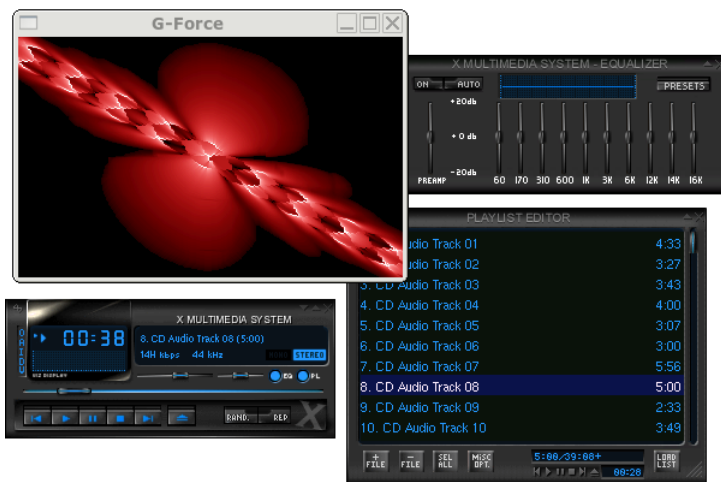
Select the output plug-in module with *Options → Preferences → Audio I/O Plugins*. If the `xmms-kde` package is installed, the aRts sound server can be configured here.

IMPORTANT: Using the Disk Writer Plug-In

XMMS automatically redirects its output to the *Disk Writer Plugin* if it is not able to find a configured sound card. In this case, the played files are written to the hard disk as WAV files. The time display then runs faster than when playing the output through a sound card.

Start various visualization plug-ins with *Options → Preferences → Visualization Plugins*. If you have a graphics card with 3D acceleration, select an application such as the OpenGL spectrum analyzer. If the `xmms-plugins` package is installed, try the Infinity plug-in.

To the left under the menu button, there are five buttons with different letters on them. These buttons allow quick access to additional menus, dialogs, and configurations. Open the playlist with *PL* and the equalizer with *EQ*.

14.3 CDs: Playback and Ripping

There are many ways to listen to your favorite music tracks. Either play a CD or play digitized versions of them. The following section features some CD player applications as well as some applications that can be used for ripping and encoding audio CDs.

IMPORTANT: CDDA and Analog CD Playback

There are two different ways of playing back audio CDs. CD and DVD drives capable of analog CD playback read the audio data and send it to the sound output device. Some external drives connected via PCMCIA, FireWire, or USB need to use CDDA (Compact Disk Digital Audio) to extract the audio data first then play it as digital PCM. The players featured in the following sections do not support CDDA. Use XMMS if you need CDDA support.


14.3.1 KsCD—Audio CD Player

KsCD is an easy-to-use audio CD player. It integrates into the KDE taskbar and can be configured to start playing automatically after a CD has been inserted. To access the configuration menu, select *Extras → Configure KsCD*. Fetch album and track information from a CDDB server on the Internet if KsCD is configured accordingly. You can also upload CDDB information to share it with others. Use the *CDDB* dialog for information retrieval and upload.

Figure 14.12   *The KsCD User Interface*
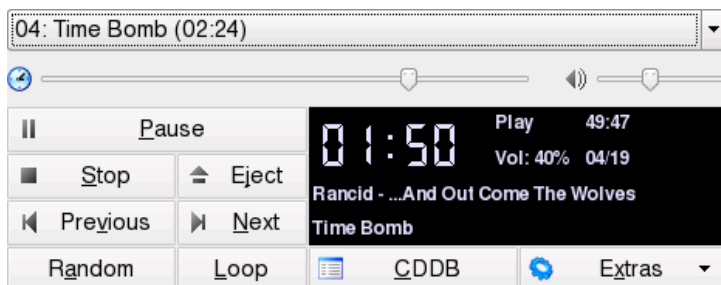
14.3.2 GNOME CD Player

This is a simple CD player. When a CD is inserted, it automatically looks up album and track information if an Internet connection exists. You can change the information retrieved by clicking the track editor icon. The preferences icon lets you choose a theme and configure automatic playback and CD ejection. The GNOME CD player also integrates into the panel. Right-clicking the tools icon gives you access to the playback controls.

Figure 14.13   *The GNOME CD player*
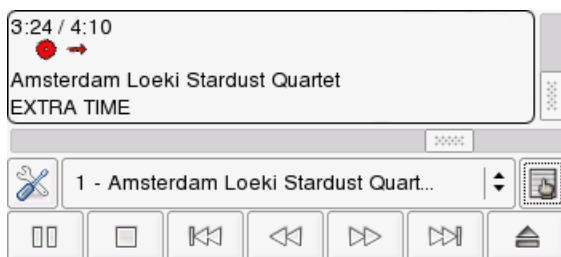
14.3.3 Compressing Audio Data: Ripping

Audio compression can be handled by various tools. The following sections feature a command line approach to encoding and playing audio data as well as some graphical applications capable of audio compression.

Command Line Tools for Encoding and Playback of Audio Data

Ogg Vorbis (package `vorbis-tools`) is a free audio compression format that is now supported by the majority of audio players and even portable MP3 players. The Web page of the project is `http://www.xiph.org/ogg/vorbis`.

SUSE Linux comes with several tools supporting Ogg Vorbis. `oggenc` is a command line tool used for encoding WAV files to Ogg. Just run `oggenc` *myfile.wav* to transform a given `.wav` file into Ogg Vorbis. The option `-h` displays an overview of the other parameters. Oggenc supports encoding with a variable bit rate. In this way, an even higher degree of compression can be achieved. Instead of the bit rate, specify the desired quality with the parameter `-q`. `-b` determines the average bit rate. `-m` and `-M` specify the minimum and maximum bit rate.

ogg123 is a command line Ogg player. Start it with a command like `ogg123` *mysong.ogg*.

Compressing Audio Data Using Sound Juicer

Sound Juicer is a GNOME ripper application. Upon insertion of a CD, album and track information is displayed. You can directly edit title, artist and genre information. To edit track information, slowly double-click a track (normal double-click plays the song). Select or deselect a track for encoding with the check box in front of a title. Clicking *Extract* starts ripping the selected tracks. To configure the output directory, filenames, and encoder, open the configuration dialog with *Edit → Preferences*.

Figure 14.14   *Ripping Audio CDs with Sound Juicer*
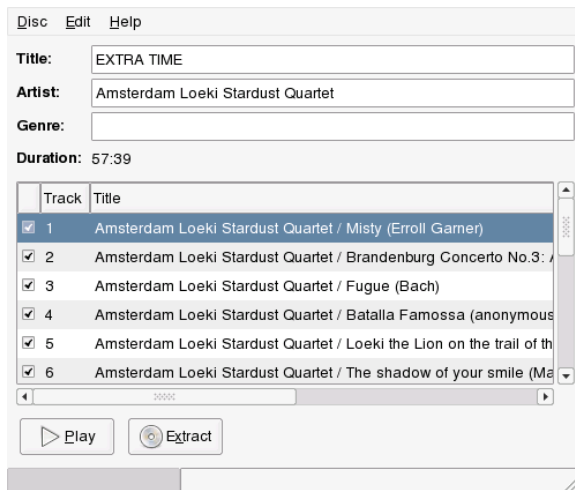
Compressing Audio Data Using KAudioCreator

KAudioCreator is a lean CD ripper application (see Figure 14.15, "Ripping Audio CDs with KAudioCreator" (page 140)). Once started, it lists all the tracks of your CD in the *CD Tracks* tab. Select the tracks to rip and encode. To edit the track information, use the *Album Editor* under *File → Edit Album*. Otherwise just start the ripping and encoding with *File → Rip Selection*. Watch the progress of these jobs using the *Jobs* tab. If configured accordingly, KAudioCreator also generates playlist files for your selection that can be used by players like amaroK, XMMS, or banshee.

*Figure 14.15*   *Ripping Audio CDs with KAudioCreator*
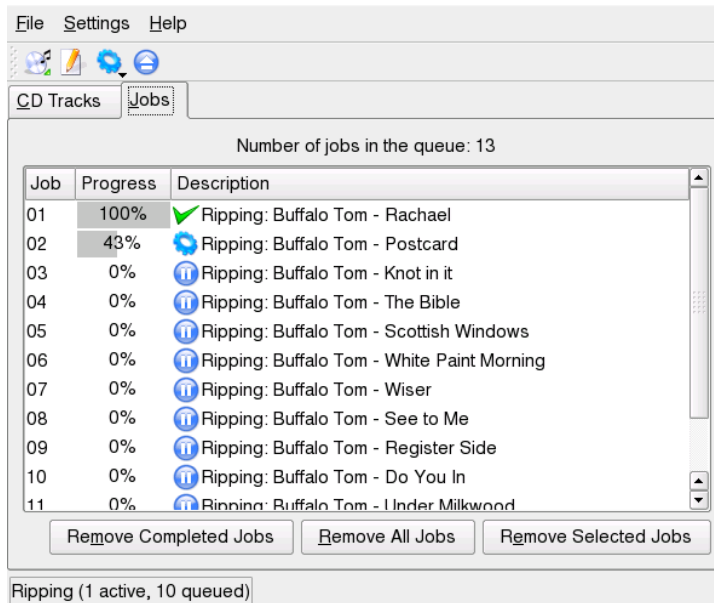
Compressing Audio CDs Using Konqueror

Before you start the actual ripping process with Konqueror, configure the handling of audio CDs and the Ogg Vorbis encoder in the KDE Control Center. Select *Sound & Multimedia → Audio CDs*. The configuration module is divided into three tabs: *General*, *Names*, and *Ogg Vorbis Encoder*. Normally, a suitable CD device is detected automatically. Do not change this default setting unless the autodetection failed and you need to set the CD device manually. Error correction and encoder priority can also be set here. The *Ogg Vorbis Encoder* tab determines the quality of the encoding. To configure online lookup of album, track, and artist information for your ripped audio data, select *Add Track Information*.

Start the ripping process by inserting the CD into the CD-ROM drive and entering audiocd:/ in the *Location* bar. Konqueror then lists the tracks of the CD and some folders (see).

**Figure 14.16** *Ripping Audio Data with Konqueror*
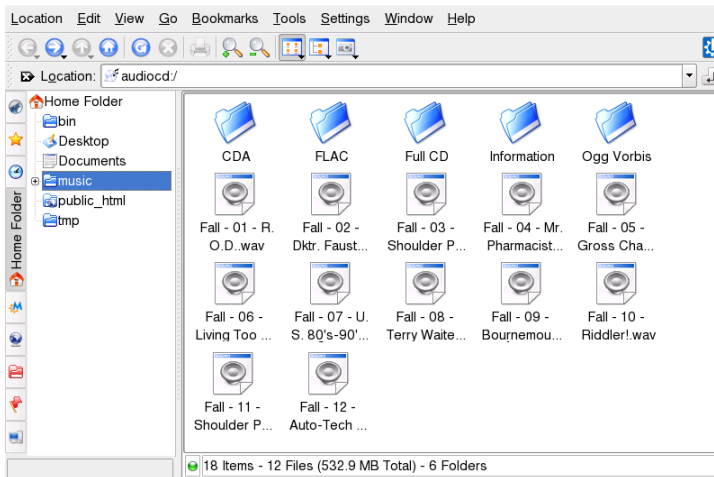
To keep uncompressed audio data on your disk, just select the `.wav` files and drag them into another Konqueror window to copy them to their final destination. To start the Ogg Vorbis encoding, drag the `Ogg Vorbis` folder or files from this folder to another Konqueror window. The encoding starts as soon as you drop the Ogg Vorbis folder at its destination.

14.4 Hard Disk Recording with Audacity

With audacity (package `audacity`), record and edit audio files. This is called hard disk recording. When you start the program for the first time, select a language. At other times, change the language setting under *File → Preferences → Interface*. The language change is then effective the next time you start the program.

Figure 14.17 *Spectral View of the Audio Data*
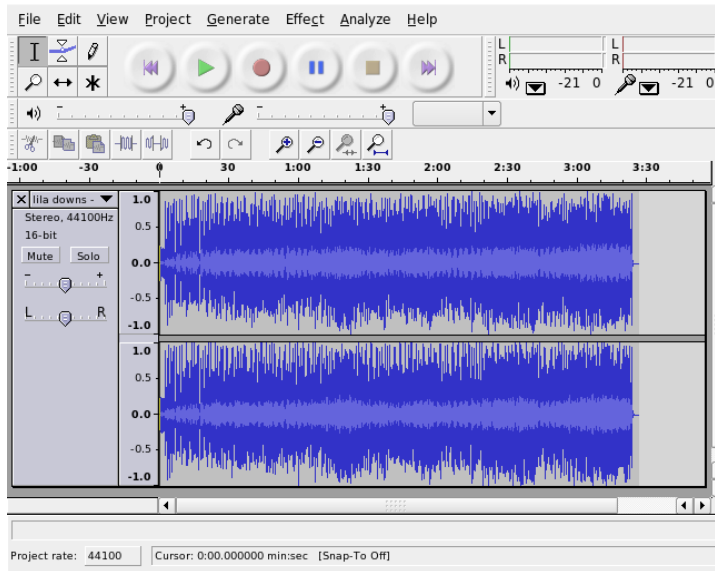
14.4.1 Recording WAV Files and Importing Files

Click the red recording button to create an empty stereo track and start the recording. To change the standard parameters, make the desired settings under *File → Preferences*. *Audio I/O* and *Quality* are important for the recording. Even if tracks already exist, pressing the recording button creates new tracks. Initially, this may be confusing, because these tracks cannot be seen in the standard-size program window.

To import audio files, select *Project → Import Audio*. The program supports the WAV format and the compressed Ogg Vorbis format. See Section 14.3.3, "Compressing Audio Data: Ripping" (page 138) for more information about this format.

14.4.2 Editing Audio Files

Open the *AudioTrack* menu to the left of the track. This menu offers various options for different views and basic editing operations. To rename the track, select *Name* and

enter a new name. The different view modes offered by Audacity include *Waveform*, *Waveform (dB)*, *Spectrum*, and *Pitch*. Choose the one suiting your needs. If you want to edit each channel of a stereo track separately, select *Split Track*. Each channel can then be treated as a separate track. Set *Sample Format* (in bit) and *Sample Rate* (in Hz) for each track.

Before you can use most of the tools offered in the *Edit* menu, first select the channel and the segment of the track to edit. After making your selection, you can apply all kinds of modifications and effects to it.

Depending on the chosen file type, various view formats for segment selections are offered under *View → Set Selection Format*. With *Set Snap-To Mode*, the segment boundaries can automatically be adapted to the selected view format. For example, if you select *PAL frames* as the view format and activate *Snap-To*, the segment boundaries are always selected in multiples of frames.

All editing tools come with tool tips, so should be easy to use. The *Undo History* function, accessed with *View → History*, is a useful feature for viewing recent editing steps and undoing them by clicking in the list. Use *Discard* with caution, because it deletes editing steps from the list. Once discarded, these steps can no longer be undone.

Figure 14.18   *The Spectrum*
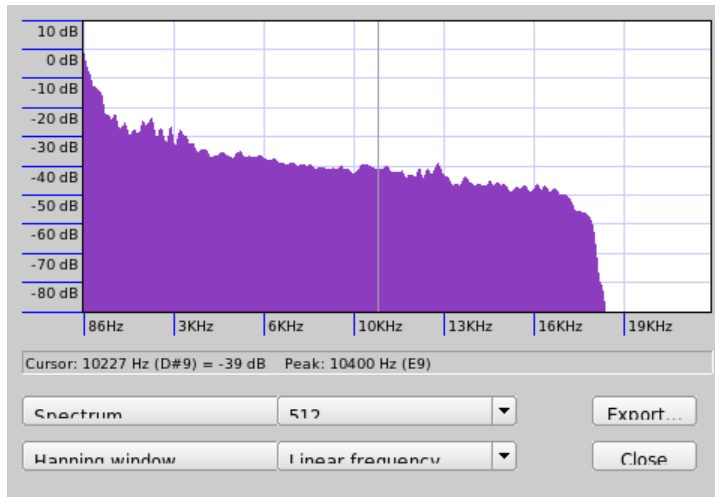
The built-in spectrum analyzer assists in quickly tracking down any noises. View the spectrum of the selected segment with *View → Plot Spectrum*. Select a logarithmic

frequency scale in octaves with *Log frequency*. If you move the mouse pointer within the spectrum, the frequencies of the peaks are automatically displayed together with the respective notes.

Remove unwanted frequencies with *Effect* → *FFT Filter*. In connection with the filtering process, it may be necessary to readjust the signal amplitude with *Amplify*. Additionally, use *Amplify* to check the amplitude. By default, the *New Peak Amplitude* is set to 0.0 dB. This value represents the highest possible amplitude in the selected audio format. *Amplification* shows the value needed to amplify the selected segment to this peak amplitude. A negative value indicates over-amplification.

14.4.3 Saving and Exporting

To save the entire project, select *File* → *Save Project* or *Save Project As*. This generates an XML file with the extension .aup, which describes the project. The actual audio data is saved in a directory named after the project with _data appended.

The entire project or the currently selected segment can also be exported as a stereo WAV file. To export the project in Ogg Vorbis format, refer to the information in Section 14.3.3, "Compressing Audio Data: Ripping" (page 138).

14.5 Direct Recording and Playback of WAV Files

arecord and aplay from the alsa package provide a simple and flexible interface to the PCM devices. arecord and aplay can be used to record and play audio data in the WAV format and other formats. The command arecord -d 10 -f cd -t wav mysong.wav records a WAV file of 10 seconds in CD quality (16 bit, 44.1 kHz). List all options of arecord and aplay by running them with the --help option.

qaRecord (package kalsatools) is a simple recording program with a graphical interface and level display. Because this program uses an internal buffer of about 1 MB (configurable with --buffersize), it enables uninterrupted recordings even on slow hardware, especially if it is run with real-time priority. During the recording, the cur-

rently-used buffer size is displayed in the status line under *Buffer* and the maximum buffer size required so far for this recording is displayed under *Peak*.

Figure 14.19   *QARecord—A Simple Hard Disk Recording Application*
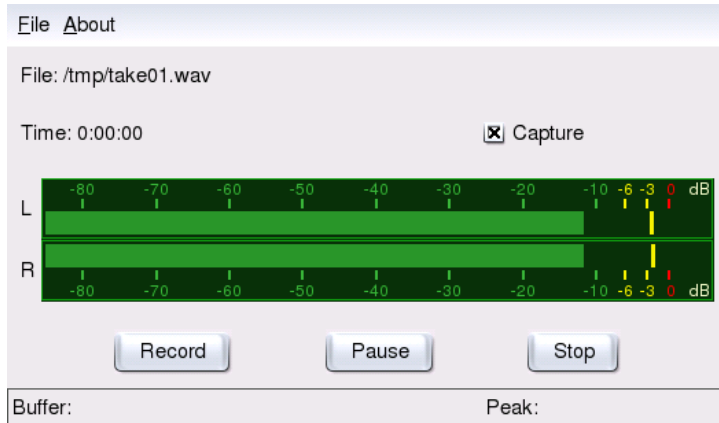
TV, Video, Radio, and Webcam 15

This chapter introduces some basic Linux video, radio, and webcam applications. Learn how to configure and use motv for watching analog TV, using a webcam, and browsing video text. Webcams can be run using gqcam. EPG information can be accessed using nxtvepg.

15.1 Watching TV with motv

motv is an improved successor to xawtv. It incorporates all essential functions into the user interface. Start the application with *Multimedia → TV → MoTV*. Start it at the command line with `motv`. Initially, only a TV window appears after the application starts. Open a menu window by right-clicking it.

Figure 15.1   *The TV Application motv*
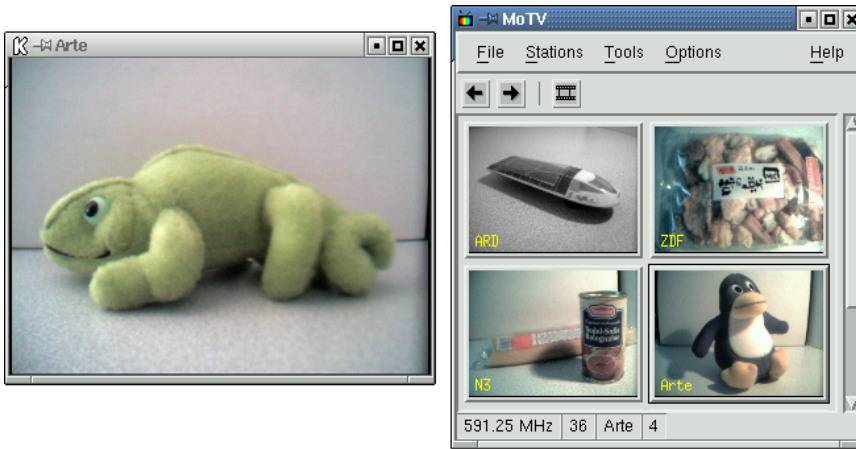
15.1.1 Video Source and Network Search

In *Settings → Input*, select the video source. If you select *Television* here, set up the broadcasting network before starting the application. This automatically takes place with the network search, also found under the *Settings* menu. If you click *Save settings*, the network found is entered into the `.xawtv` file in your home directory and will be available the next time you start the application.

TIP: Selecting Channels

If you do not want to browse for all available channels, find the next channel with `Ctrl` + `↑` . If needed, subsequently adjust the broadcast frequency with `←` or `→` .

15.1.2 Retrieving Audio Data

The audio output of the TV card is connected to the line input of your sound card, to the speakers, or to an amplifier. Some TV cards can change the volume of the audio output. The volume can then be set with the sliders that appear after selecting *Settings → Slider*. This window also provides the sliders for brightness, contrast, and color.

To use your sound card for audio playback, check the mixer settings using gamix, described in Section 14.1, "Mixers" (page 119). For sound cards meeting the AC97 specifications, set *Input-MUX* to *Line*. The volume can then be adjusted with the *Master* and *Line* sliders.

15.1.3 Screen Proportions and Full-Screen Mode

Most television images have a height and width ratio of 4:3. These proportions can be set with *Tools → Screen Dimensions*. If *4:3* is selected here (this is the default setting), the screen dimensions are retained automatically, even when the display size is changed.

With F or *Tools → Fullscreen*, switch to full-screen mode. If the TV image in full-screen mode is not scaled to the full monitor size, some fine-tuning is required. Many graphics cards can scale the full-screen mode television image to the full monitor size without changing the graphical mode. If your card does not support this function, the graphics mode must be switched to 640x480 for the full-screen mode. Create the related configuration in *Settings → Configuration*. After restarting motv, the monitor mode is also changed if you have switched to full-screen mode.

TIP: Storing the Configuration in .xawtv

The `.xawtv` file is created automatically and updated by clicking *Settings → Save settings*. Here, the broadcasters are saved along with the configuration. More information about the configuration file can be found in the man page for `xawtvrc`.

15.1.4 The Launcher Menu

Use the launcher menu to start other applications to use with motv. Start the audio mixer gamix and the video text application alevt, for example, using a keyboard shortcut. Applications to launch from motv must be entered in the `.xawtv` file. The entries should look like this:

```
[launch] Gamix = Ctrl+G, gamix AleVT = Ctrl+A, alevt
```

The shortcut then the command used to start the application should follow the application name itself. Start the applications entered under [launch] via the *Tool* menu.

15.2 Video Text Support

Use alevt to browse video text pages. Start the application with *Multimedia → TV → AleVT* or at the command line with `alevt`.

The application saves all the pages of the selected station just activated with motv. Browse pages by entering the desired page number or by clicking a page number. Move forward or backward through the pages by clicking << or >>, located in the lower window margin.

Recent versions of motv include their own video text viewer application `mtt`.

15.3 Webcams and motv

If your webcam is already supported by Linux, access it with motv. Find a summary of the supported USB devices at `http://www.linux-usb.org`. If you have already used motv to access the TV card prior to accessing the webcam, the bttv driver is loaded. The webcam driver is loaded automatically when your webcam is connected to the USB. Start motv at the command line with the parameter `-c /dev/video1` to access the webcam. Access the TV card with `motv -c /dev/video0`.

When connecting the webcam to the USB before the bttv driver has been automatically loaded (for example, by starting a TV application), `/dev/video0` is reserved for the webcam. In this case, if you start motv with the `-c /dev/video1` parameter to access the TV card, you might get an error message, because the bttv driver was not automatically loaded. Solve this problem by loading the driver separately with `modprobe bttv` as the user `root`. Access an overview of the configurable video devices on your system with `motv -hwscan`.

15.4 nxtvepg—The TV Magazine for Your PC

From some broadcasters, an EPG signal (Electronic Program Guide) is transmitted along with the video text signal. Easily view this electronic guide using the program

nxtvepg. To do this, however, you must have a TV card supported by the bttv driver and be able to receive one of the channels broadcast with an EPG.

With nxtvepg, the broadcasts are sorted according to channel and topic, such as *movie* and *sport*, and filtered according to criteria, such as *Live*, *Stereo*, or *Subtitle*. Start the application with *Multimedia → Video → nxtvepg* or at the command line with `nxtvepg`.

15.4.1 Importing the EPG Database

To set up and update the program database via the EPG signal, set the tuner of your TV card to a station that broadcasts EPG. This can be done using a TV application, such as motv or nxtvepg. Only one application at a time can access the tuner.

If you set an EPG broadcaster in motv, nxtvepg immediately begins importing the current list of TV programs. The progress is displayed.

Figure 15.2   *The Electronic TV Magazine nxtvepg*
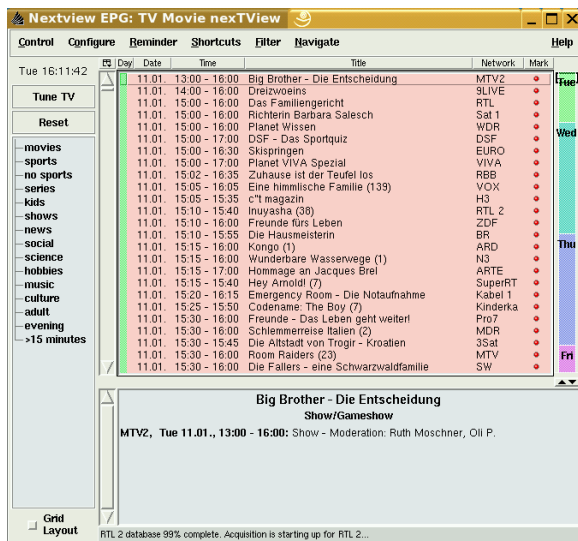
If you have not started a TV application, let nxtvepg search for EPG broadcasters. To do this, use *Configure → Provider scan*. *Use .xatv* is activated by default. This indicates that nxtvepg is accessing the broadcasters saved in this file.

TIP: Troubleshooting

If there are problems, check to see if the proper video source has been chosen under *TV card input*.

Select from the EPG providers found in *Configure → Select Provider*. *Configure → Merge Providers* even creates flexible associations between the various provider databases.

15.4.2 Sorting the Programs

nxtvepg provides a convenient filter function for managing even the most extensive program offerings. Activate a network selection list with *Configure → Show networks*. The *Filter* menu offers plenty of filter functions. Right-click the program list to open a special filter menu in which to activate contextual filter functions.

Of particular interest is the *Navigate* menu. This is built directly from the EPG data. It appears in the language provided by the network.

15.5 Webcam Operation with gqcam

gqcam is a webcam application that assists in taking snapshots or automatic picture series with webcams. To use gqcam, your webcam must be supported by Video4Linux. Many USB webcams are automatically recognized. Grayscale and color cameras can be used. TV cards that support Video4Linux can also be used as an image source. An overview of the supported USB devices is maintained at http://www.linux-usb.org. A graphical user interface is not compulsory because gqcam can also run from the command line.

15.5.1 Operation

Connect your camera to the USB port of your computer before starting gqcam. Then run gqcam. The current picture of your webcam is automatically shown in the upper part of the application window. The lower part has sliders for adjusting the brightness, white balance, contrast, tint, and color saturation as needed. The brightness is automatically preset. This feature can be set in *General* in *File → Preferences*. *Filters* features false color correction switches because some cameras swap the red and blue channels in transmission.

If you operate more than one webcam, use *File → Open New Camera* to switch to another camera. Select the new device from the dialog that opens. The first camera is attached to the device `/dev/video0`, the second is attached to `/dev/video1`, and so on.

15.5.2 Snapshots

To take a snapshot with a camera, click *Snap Picture*. Select a filename and picture format in the dialog that opens. Create a picture series with *Camera → Set Timer*. Set the capturing frequency in seconds or minutes along with the properties of the images in *Set image information*. An optional script to run after every capture event can be chosen with *Run command after snap*. This could, for example, be used to upload the captured image onto an FTP server.

15.5.3 Command Line

gqcam can also be run without its graphical user interface. This may be interesting, for instance, for automatic surveillance controlled by a cron job. This requires that all the necessary settings be passed to the application as parameters. Running `gqcam -t JPEG -s -d webcam.jpg` saves the current image captured by the camera with the filename `webcam.jpg`. The option `-t` defines the file format. Possible values are JPEG, PNG, and PPM. The command line switch `-s` activates the color correction. The filename for saving is passed with the option `-d`. If more than one webcam is operated, the name of the device must be passed. If no device is given, the default device `/dev/video0` is used. To capture an image from the second camera, the option `-v /dev/video1` must be added. List all options with `gqcam --help`.

K3b—Burning CDs or DVDs

16

K3b is a comprehensive program for writing data and audio CDs and DVDs. Start the program from the main menu or by entering the command `k3b`. The following sections brief you on how to start a basic burning process to get your first Linux-made CD or DVD.

16.1 Creating a Data CD

To create a data CD, go to *File → New Project → New Data CD Project*. The project view appears in the lower part of the window, as shown in Figure 16.1, "Creating a New Data CD" (page 156). Drag the desired directories or individual files from your home directory to the project folder and drop them there. Save the project under a name of your choice with *File → Save as*.

Figure 16.1   *Creating a New Data CD*
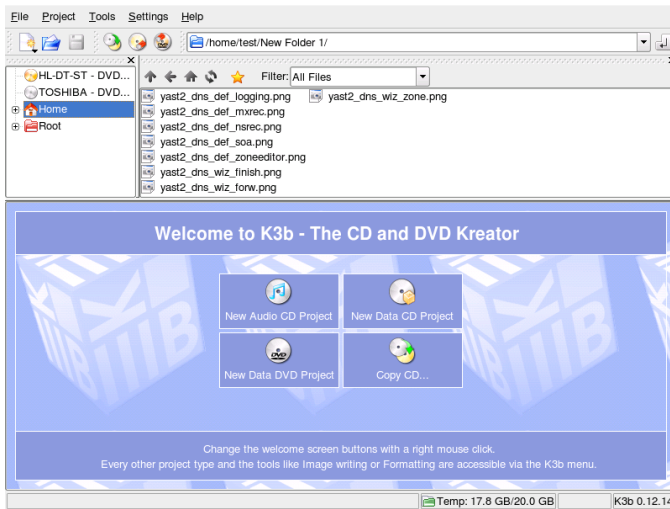
Then select *Burn* from the toolbar or hit ⎡Ctrl⎤ + ⎡B⎤ . A dialog with six tabs offering various options for writing the CD opens. See Figure 16.2, "Customizing the Burning Process" (page 157).

Figure 16.2 *Customizing the Burning Process*
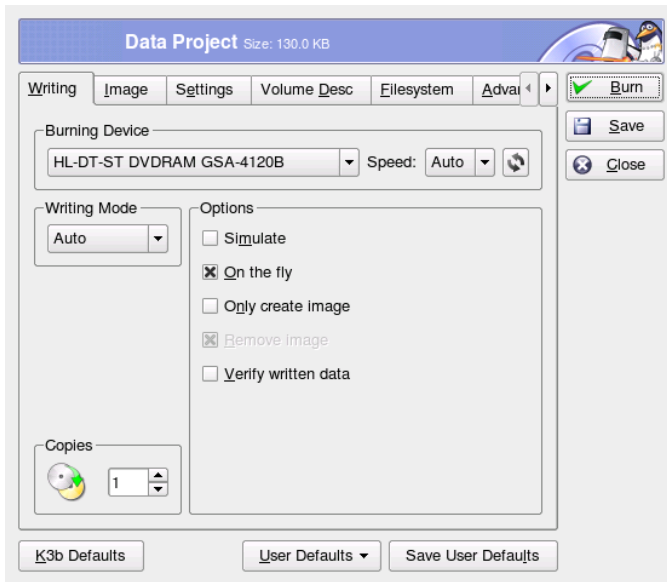
The *Writing* tab has various settings for the burning device, the speed, and the burning options. The following options are offered here:

Burning Device
> The detected writer is displayed under this pop-up menu. You can select the speed here too.

WARNING: Select the Writing Speed with Care

Normally, you should select *Auto*, which chooses the maximum writing speed possible. However, if you increase this value but your system is not able to send the data fast enough, the likelihood of buffer underruns increases.

Writing Mode
> This option determines how the laser writes a CD. In DAO (disk at once) mode, the laser is not deactivated while the CD is written. This mode is recommended for the creation of audio CDs. However, it is not supported by all CD writers. In the TAO mode (track at once), a separate write process is used for each individual track. The RAW mode is not used very often, because the writer does not perform

any data corrections. The best setting is *Auto*, because it allows K3b to use the most suitable settings.

Simulate
> This function can be used to check if your system supports the selected writing speed. The writing is performed with the laser deactivated to test the system.

On the Fly
> Burns the desired data without first creating an image file (do not use this feature on low-performance machines). An image file—also known as an ISO image—is a file containing the entire CD content that is subsequently written to the CD exactly as it is.

Only Create Image
> This option creates an image file. Set the path for this file under *Temporary File*. The image file can be written to CD at a later time. To do this, use *Tools → CD → Burn CD Image*. If this option is used, all other options in this section are deactivated.

Remove Image
> Remove the temporary image file from hard disk when finished.

Verify Written Data
> Check the integrity of the written data by comparing the MD5 sums of the original and the burned data.

The *Image* tab is only accessible if the option *Only create image* from the previous tab is selected. If this is the case, you can determine the file where the ISO is written.

The *Settings* tab contains two options: *Datatrack Mode* and *Multisession Mode*. The *Datatrack Mode* options contains configuration of how data tracks may be written. In general, *auto* is considered the best suited method. The *Multisession Mode* is used to append data to an already written but not finalized CD.

In the *Volume Desc* tab, enter some general information that can be used to identify this particular data project, its publisher and preparer, and the application and operating system used in the creation of this project. Under *File system*, specify settings for the file system on the CD (RockRidge, Joliet, UDF). Also determine how symbolic links, file permissions, and blanks are treated. In the *Advanced* tab, experienced users can make additional settings.

After adjusting all settings to your needs, start the actual burning process using *Burn*. Alternatively, save these settings for future use and adjustment with *Save*.

16.2 Creating an Audio CD

Basically, there are no significant differences between creating an audio CD and creating a data CD. Select *File → New Audio CD Project*. Drag and drop the individual audio tracks to the project folder. The audio data must be in WAV or Ogg Vorbis format. Determine the sequence of the tracks by moving them up or down in the project folder.

With the help of CD Text, you are able to add certain text information to a CD, such as CD title, artist name, and track name. CD players that support this feature can read and display this information. To add CD Text information to your audio tracks, select the track first. Right-click and select *Properties*. A new window opens in which to enter your information.

The dialog for burning an audio CD is not very different from the dialog for burning a data CD. However, the *Disc at once* and the *Track at once* modes have greater importance. The *Track at once* mode inserts an intermission of two seconds after each track.

TIP: Preserving Data Integrity

When burning audio CDs, choose a lower burning speed to reduce the risk of burning errors.

After adjusting all settings to your needs, start the actual burning process using *Burn*. Alternatively, save these settings for future use and adjustment with *Save*.

16.3 Copying a CD or DVD

Select *Tools → Copy CD* or *Tools → Copy DVD* depending on your media. In the dialog that opens, make the settings for the reading and writing device as shown in Figure 16.3, "Copying a CD" (page 160). The writing options discussed are also available here. An additional function enables the creation of several copies of the CD or DVD.

Figure 16.3   *Copying a CD*
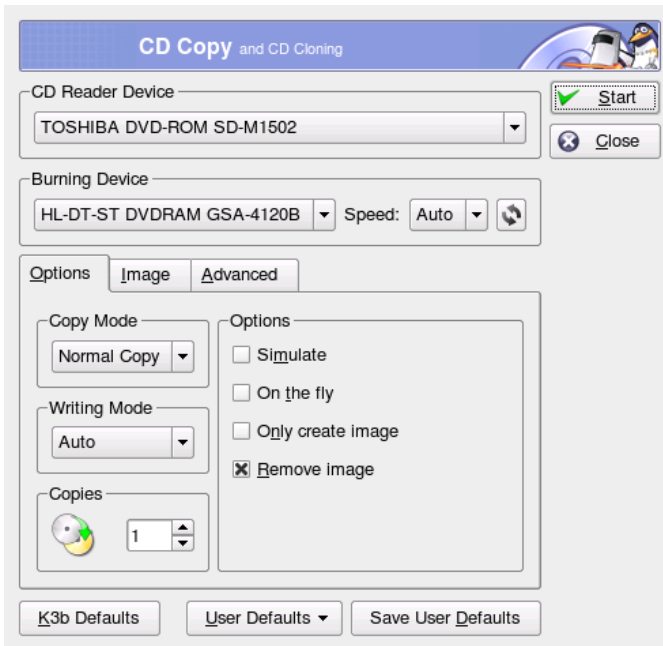
Check *On the fly* to burn the CD as soon as it has been read or select *Only create image* to create an image in the path specified on the *Image* tab in the *Write image file to* option and burn the image later.

16.4 Writing ISO Images

If you already have an ISO image, go to *Tools → CD → Burn CD image*. A window opens in which to enter the location of the *Image to Burn*. K3b calculates a check sum and displays it in *MD5 Sum*. If the ISO file was downloaded from the Internet, this sum shows if the download was successful.

Use the *Options* and *Advanced* tabs to set your preferences. To burn the CD, click *Start*.

16.5 Creating a Multisession CD or DVD

Multisession discs can be used to write data in more than one burning session. This is useful, for example, for writing backups that are smaller than the media. In each session, you can add another backup file. The interesting part is that you are not only limited to data CDs or DVDs. You can also add audio sessions in a multisession disc.

To start a new multisession disc, do the following:

1 Create your data disc first and add all your files. You cannot start with an audio CD session. Make sure that you do not fill up the entire disc, because otherwise you cannot append a new session.

2 Burn your data with *Project → Burn*.

3 In the dialog box that appears, go to the *Settings* tab and select *Start Multisession*.

4 Configure other options if needed. See also .

5 Start the burning session with *Burn*.

After a successful burning process, you have created a multisession disc. As long as the media contains enough space, you can append more sessions if you like. Finish discs only if you are sure you do not need any new sessions or the space is occupied.

NOTE: About Storage Space on Multisession Discs

Be aware that multisession discs need space for bookkeeping all the entries from your sessions. This leads to a smaller amount of available space on your disc. The amount depends on the number of sessions.

16.6 For More Information

Apart from the two main functions described above, K3b offers other functions, such as the creation of DVD copies, reading audio data in WAV format, rewriting CDs, and playing music with the integrated audio player. A detailed description of all available program features is available at `http://k3b.sourceforge.net`.

Part IV. Graphics

Managing Images with f-spot

17

f-spot is a management tool for your collection of digital images tailored for the GNOME desktop. It allows you to assign different tags to your images to categorize them and offers various image editing options.

The first time you run f-spot, tell it where to find the images to import to your f-spot collection. If you already have a collection of images stored on your hard drive, enter the path to the directory and optionally include subfolders. f-spot imports these images into its database.

TIP: Tagging Images on Import

If all the images you are importing belong to the same category, you can attach the appropriate tag on import. Select *Attach Tag* and choose the matching tag.

Figure 17.1 *Importing Images to f-spot*
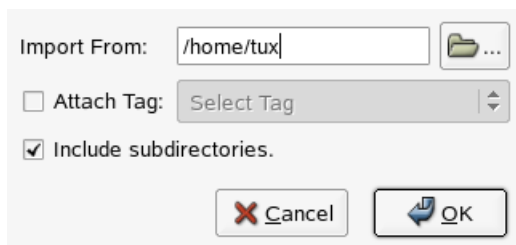
f-spot's main window is divided into three main areas. Categories, tags, and detailed information for the selected images are displayed in a sidebar to the left and thumbnails

of all images bearing the selected tag or category or, if none is selected, the entire collection are displayed in the right part of the window.

Figure 17.2   *f-spot's Main Window*
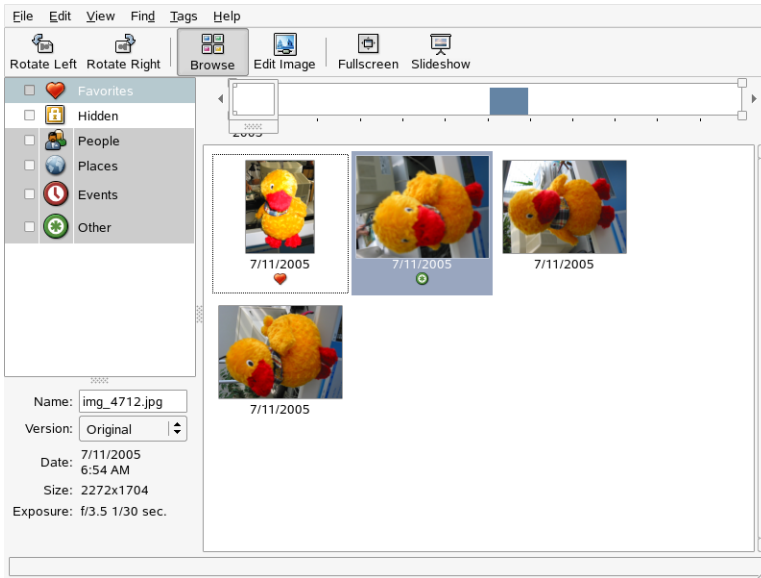
A menu bar right at the top of the window allows you to access the main menus. A toolbar below offers several different functions depicted by a matching icon:

Rotate (Left or Right)
  Use this shortcut to change an image's orientation.

Browse
  The *Browse* mode allows you to view and search you entire collection or tagged subsets of it. You can also use the time line to search images by creation date.

Edit Image
  This mode allows you to select one image and do some basic image processing. Details are available in Section 17.6, "Basic Image Processing with f-spot" (page 171).

Fullscreen
  Switch to fullscreen display mode.

Slideshow
     Start a slide show.

17.1 Downloading Pictures from Your Camera

Import new images from a digital camera connected to the USB port of your computer using *File → Import from Camera*. The type of camera is detected automatically.

Figure 17.3 *Import from Camera*
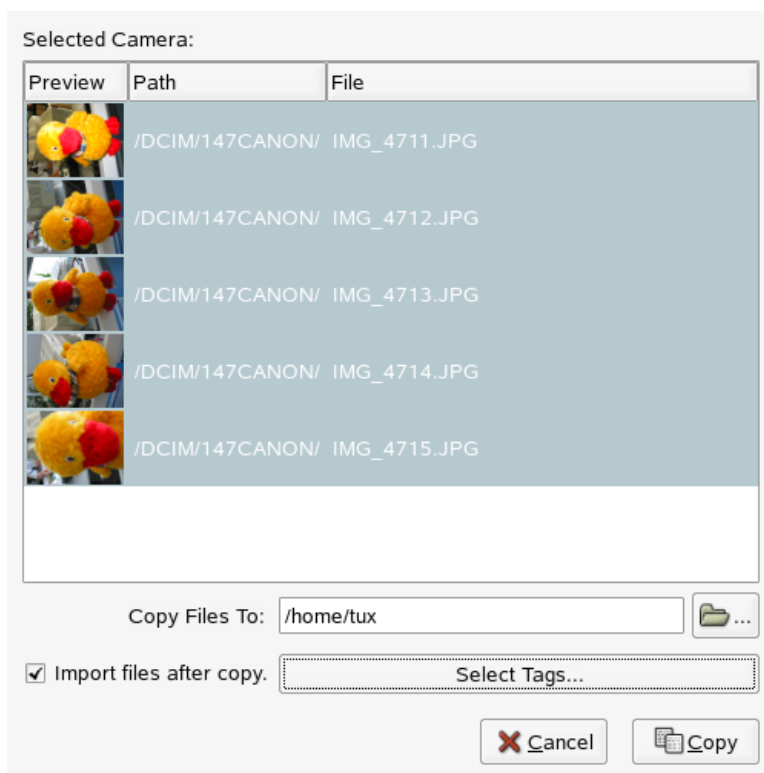
f-spot opens a preview window displaying all the images that are available for download from camera. The files are copied to the target directory specified in *Copy Files to*. If *Import files after copy* is selected, all images copied from the camera are automatically

imported to f-spot's database. Tagging can be done on import if you select the appropriate tag with *Select Tags*. If you do not want to import all images on your camera to your database, just deselect the unwanted ones in the preview window.

17.2 Getting Information

Once you select an image, some basic statistical information on this image is displayed in the lower left part of the window. This includes the filename, its version (copy or original image), the date of creation, its size, and the exposure used to create this particular image. View the EXIF data associated with the image file with *View → EXIF Data*.

17.3 Managing Tags

Use tags to categorize any of your images to create manageable subsets of your collection. If, for example, you want some sort of order in your collection of portrait shots of your loved ones, proceed as follows:

1 Select the *Browse* mode of f-spot.

2 In the left frame of the f-spot window, select the *People* category, right-click it, then choose *Create New Tag*. The new tags then appear as subcategories below the *People* category:

  a Create a new tag called `Friends`.

  b Create a new tag called `Family`.

3 Now attach tags to images or groups of selected images. Right-click an image, choose *Attach Tag*, and select the appropriate tag for this image. To attach a tag to a group of images, click the first one then press `Shift` and select the other ones without releasing the `Shift` key. Right-click for the tag menu and select the matching category.

After the images have been categorized, you can browse your collection by tag. Just check *People → Family* and the displayed collection is limited to the images tagged

`Family`. Search your collection by tag with *Find → Find by Tag*. The result of your search is displayed in the thumbnail overview window.

Removing tags from single images or groups of images works similarly to attaching them. The tag editing functions are also accessible in *Tags* in the top menu bar.

17.4 Search and Find

As mentioned in Section 17.3, "Managing Tags" (page 168), tags can be used as a means to find certain images. Another way, unique to f-spot, is to use the *Timeline* below the toolbar. By dragging the little frame along this time line, limit the images displayed in the thumbnail overview to those taken in the selected time frame. f-spot starts with a sensibly chosen default time line, but you can always edit the time span by moving the sliders at the right and left ends of the time line.

17.5 Exporting Image Collections

f-spot offers a range of different export functions for your collections under *File → Export*. Probably the most often used of these are *Export to Web Gallery* and *Export to CD*.

To export a selection of images to a Web gallery, proceed as follows:

1 Select the images to export.

2 Click *File → Export → Export to Web Gallery* and select a gallery to which to export your images or add a new one. f-spot establishes a connection to the Web location entered for your web gallery. Select the album to which to export the images and decide whether to scale the images automatically and export titles and comments.

**Figure 17.4**   *Exporting Images to a Web Gallery*
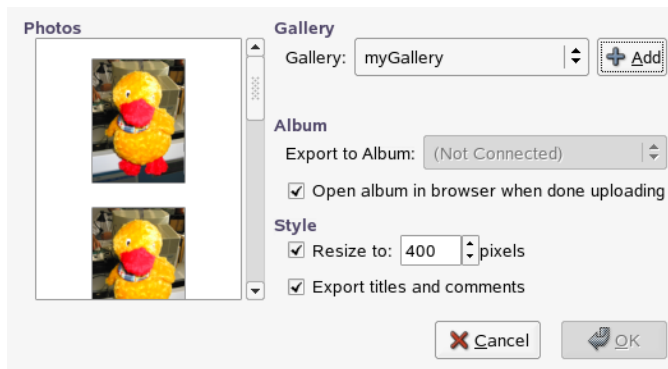
To export a selection of images to CD, proceed as follows:

1 Select the images to export.

2 Click *File → Export → Export to CD* and click *OK*.

   f-spot copies the files and opens the CD writing dialog. Assign a name to your
   image disk and determine the writing speed. Click *Write* to start the CD writing
   process.

Figure 17.5   *Exporting Images to CD*
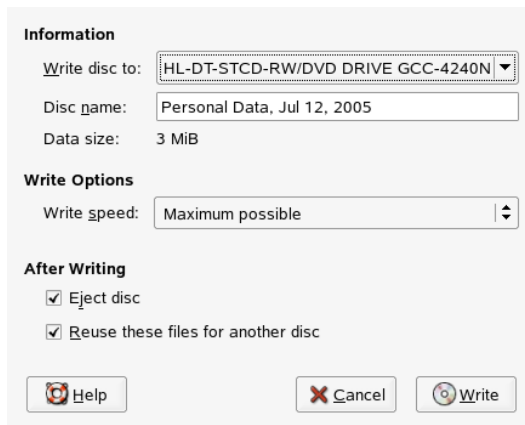
17.6 Basic Image Processing with f-spot

f-spot offers several very basic image editing functionalities. Enter the edit mode of f-spot by clicking the *Edit Image* icon in the toolbar or by double-clicking the image to edit. Switch images using the arrow keys at the bottom right. Choose from the following edit functions:

Sharpen
>   Access this function with *Edit → Sharpen*. Adjust the values for *Amount*, *Radius*, and *Threshold* to your needs and click *OK*.

Crop Image
>   To crop the image to a selection you made, either choose a fixed ratio crop or the *No Constraint* option from the drop-down menu at the bottom left, select the region to crop, and click the scissor icon next to the ratio menu.

Red Eye Reduction
>   In a portrait shot, select the eye region of the face and click the red eye icon.

Adjust Color
>   View the histogram used in the creation of the shot and correct exposure and color temperature if necessary.

TIP: Advanced Image Processing

Professional image editing can be done with The GIMP. More information about The GIMP can be found in Chapter 19, *Manipulating Graphics with The GIMP* (page 185).

Digital Cameras and Linux

18

Managing photos from your camera can be fun if you have the right tools. Linux offers several handy utilities for sorting and organizing your photographs. These include gphoto2, Konqueror, Digikam, and f-spot.

A comprehensive list of supported cameras is available at `http://www.gphoto.org/proj/libgphoto2/support.php`. If gphoto2 is installed, retrieve the list with the command `gphoto2 --list-cameras`. Get information about the available commands with `gphoto2 --help`.

TIP: Unsupported Cameras

If you do not find your camera in the list from gphoto, do not despair. It is very likely that your camera is supported as a USB mass storage device. Find more information in Section 18.2, "Accessing the Camera" (page 174).

18.1 Connecting to the Camera

The fastest and most convenient way to connect digital cameras to the computer is USB, provided the kernel, the camera, and the computer support it. The standard SUSE kernel provides this support. A suitable cable is also required.

Simply connect the camera to the USB port and turn on the camera. You may need to switch your camera to a special data transfer mode. For this procedure, consult the manual of your digital camera.

18.2 Accessing the Camera

There are three possibilities for accessing the pictures on the camera. It depends on your camera and which protocol it supports. Usually it is USB mass storage, which is handled by the hotplug system, or PTP (also known as PictBridge). Some camera models do not work with either protocol. To support these, gphoto2 includes specific drivers.

It is easiest if your camera supports USB mass storage. Read the documentation of your camera if you are unsure if this is possible. Some support two protocols, like both PTP and USB mass storage. Unfortunately, there are also some that communicate with a proprietary protocol, which can complicate the tasks. If your camera does not support USB mass storage or PTP, the following descriptions will not work. Try `gphoto2 --list-cameras` and the information at http://www.gphoto.org/.

If your camera can be switched to a USB mass storage device, select this option. After you connect it with the USB port of your computer and turn it on, it is detected by the hotplug system. This takes care of mounting the device automatically, so it is easily accessible. The KDE desktop shows a camera icon after a successful mount.

After the camera is successfully mounted, see a new directory under `/media`, beginning with `usb` and lots of numbers. Each vendor and product has a number, so when you connect a device on your computer it has always the same name. Depending on what you have connected to the USB bus, find different entries. The only problem left is to find the correct entry for your camera. Try to list one of these directories (`DCIM/`*`xxx`*) and see what happens. Each camera has a different tree structure, so there is no general rule. If you can see JPEG files in a directory, you probably found it.

After you find your correct directory, you can copy, move, or delete the files from your camera with a file manager, such as Konqueror, or simple shell commands (see Section "Important Linux Commands" (Chapter 3, *Working with the Shell*, ↑Start-Up) and the *Reference*).

18.3 Using Konqueror

KDE users can easily access digital cameras by means of the familiar Konqueror interface. Connect your camera to the USB port. A camera icon should appear on the desktop. Click this icon to open the camera in Konqueror. The camera can also be accessed by

entering the URL `camera:/` in Konqueror. Navigate through the camera's directory structure until the files are shown. Use the usual Konqueror file management features to copy the files as desired. More information about using Konqueror is available in Chapter 7, *The Web Browser Konqueror* (page 69).

18.4 Using Digikam

Digikam is a KDE program for downloading photographs from digital cameras. The first time it is run, Digikam asks where to store your photo album. If you enter a directory that already contains a collection of photographs, Digikam treats each subfolder as an album.

On start-up, Digikam presents a window with two sections: your albums are displayed to the left and the photographs of the current album are displayed to the right. See Figure 18.1, "The Main Window of Digikam" (page 175).

Figure 18.1   *The Main Window of Digikam*
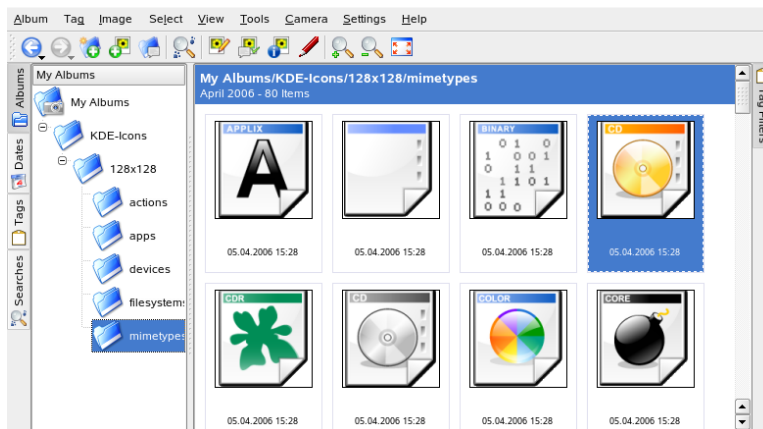
18.4.1 Configuring Your Camera

To set up a camera in Digikam, select *Camera → Add Camera*. First, try to autodetect the camera with *Auto-Detect*. If this fails, browse the list for your model with *Add*. If your camera model is not included in the list, try an older model or use *USB/IEEE mass storage camera*. Confirm with *Ok*.

18.4.2 Downloading Pictures from Your Camera

After your camera has been configured correctly, connect to your camera with the *Camera* menu and the name that you gave in the dialog from Section 18.4.1, "Configuring Your Camera" (page 175). Digikam opens a window and begins to download thumbnails and displays them as in Figure 18.2, "Downloading Pictures from Camera" (page 176). Right-click an image to open a pop-up menu with the options to *View*, display some *Properties* or *EXIF Information*, *Download*, or *Delete* the image. With *Advanced*, select renaming options and how the camera-provided information (EXIF) should be handled.

Figure 18.2 *Downloading Pictures from Camera*
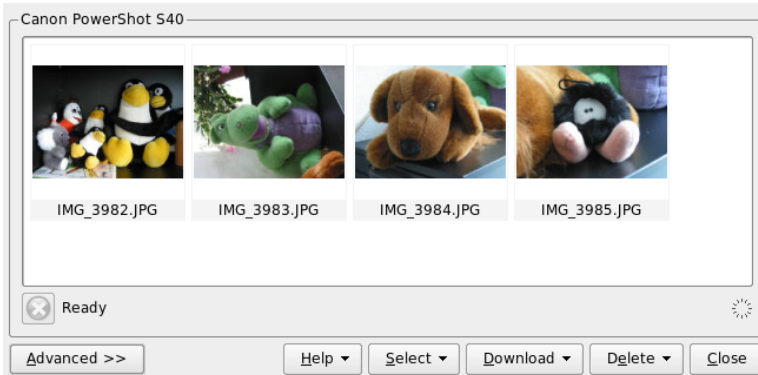
The renaming options can be very convenient if your camera does not use meaningful filenames. You can let Digikam rename your photographs automatically. Give a unique prefix and, optionally, a date, time, or sequence number. The rest is done by Digikam.

Select all photographs to download from the camera by pressing the left mouse button or clicking individual photographs with `Ctrl` pressed. Selected photographs appear with inverted colors. Click *Download*. Select the destination from the list or by creating a new album with *New Album*. This automatically suggests a filename with the current date. Confirm with *Ok* to start the download process.

18.4.3 Getting Information

Getting information about the photograph is not difficult. A short summary is displayed as a tool tip if you point with the mouse cursor at the thumbnail. For longer information, right-click the photograph and choose *Properties* from the menu. A dialog box opens with three tabs, *General*, *EXIF*, and *Histogram*.

General lists the name, type, owner, and some other basic information. The more interesting part is the *EXIF* tab. The camera stores some metadata for each photograph. Digikam reads these properties and displays them in this list. Find the exposure time, pixel dimensions, and others. To get more information for the selected list entry, press Shift + F1 . This shows a small tool tip. The last tab, *Histogram*, shows some statistical information.

18.4.4 Managing Albums

Digikam inserts a *My Albums* folder by default, which collects all your photographs. You can store these into subfolders later. The albums can be sorted by their directory layout, by the collection name that has been set in the album properties or by the date that the albums were first created (this date can also be changed in the properties of each album).

To create a new album, you have some possibilities:

- Uploading new photographs from the camera

- Creating a new album by clicking the *New Album* button in the toolbar

- Importing an existing folder of photographs from your hard disk (select *Album → Import → Import Folders*)

- Right-clicking *My Albums* and selecting *New Album*

After selecting to create an album in your preferred way, a dialog box appears. Give your album a title. Optionally, choose a collection, insert some comments, and select an album date. The collection is a way of organizing your albums by a common label. This label is used when you select *View → Sort Albums → By Collection*. The comment is shown in the banner at the top of the main window. The album date is used when you select *View → Albums → By Date*.

Digikam uses the first photograph in the album as the preview icon in the *My Albums* list. To select a different one, right-click the respective photograph and select *Set as Album Thumbnail* from the context menu.

18.4.5 Managing Tags

Managing lots of different photographs with different albums can sometimes be complex. To organize individual photographs, Digikam provides the *My Tag* system.

For example, you have photographed your friend John at different times and you want to collect all images, independent of your album. This let you find all photographs very easily. First, create a new tag by clicking *My Tags → People*. From the context menu, choose *New Tag*. In the dialog box that appears, enter *John* as title and optionally set an icon. Confirm with *Ok*.

After creating your tag, assign it to the desired pictures. Go to each album and select the respective photographs. Right-click and choose *Assign Tag → People → John* from the menu that appears. Alternativly, drag the photographs to the tag name under *My Tags* and drop them there. Repeat as necessary with other albums. View all the images by clicking *My Tags → People → John*. You can assign more than one tag to each photograph.

Editing tags and comments can be tedious. To simplify this task, right-click a photograph and select *Edit Comments & Tags*. This opens a dialog box with a preview, a comment field, and a tag list. Now you can insert all the needed tags and add a comment. With *Forward* and *Back*, navigate in your album. Store your changes with *Apply* and leave with *Ok*.

18.4.6 Exporting Image Collections

Digikam provides several export options that help you archive and publish your personal image collections. It offers archiving to CD or DVD (via k3b), HTML export, and export to a remote gallery.

To save your image collection to CD or DVD, proceed as follows:

1 Select *File → Export → Archive to CD/DVD*.

2 Make your adjustments in the *Create CD/DVD Archive* dialog using its various submenus. After that, click *OK* to initiate the burning process.

  a *Selection*: Determine which part of your collection should be archived by selecting albums and tags.

  b *HTML Interface*: Decide whether your image collection should be accessible via an HTML interface and whether autorun functionality should be added to your CD/DVD archive. Set a selection title and image, font, and background properties.

  c *Media Volume Descriptor*: Change the settings for volume description, if necessary.

  d *Media Burning*: Adjust the burning options to your needs, if necessary.

To create an HTML export of your image collection, proceed as follows:

1 Select *File → Export → HTML Export*.

2 Adjust the settings in *Create Image Galleries* to your needs, using the various submenus. When you are done, click *OK* to initiate the gallery creation.

  a *Selection*: Determine which part of your collection should be archived by selecting albums and tags.

  b *Look*: Set the title and appearance of your HTML gallery.

  c *Album*: Determine the location of the gallery on disk as well as image size, compression, format, and the amount of metadata displayed in the resulting gallery.

  d *Thumbnails*: As with the target images, specify size, compression and file type for the thumbnails used for gallery navitation.

To export your collection to an external image gallery on the Internet, proceed as follows:

1 Get an account for an external web site holding your gallery.

2 Select *File* → *Export* → *Export to Remote Gallery* and provide URL, username, and password for the external site when asked for them.

Digikam establishes a connection to the site specified and opens a new window called *Gallery Export*.

3 Determine the location of your new album inside the gallery.

4 Click *New Album* and provide the information requested by Digikam.

5 Upload the images to the new album with *Add Photos*.

18.4.7 Useful Tools

Digikam provides several tools to simplify some tasks. Find them in the *Tools* menu. The following is a small selection of the available tools.

Creating a Calendar

If you want to please someone, a custom calendar can be a nice gift. Go to *Tools* → *Create Calendar*, which opens a wizard dialog like that in Figure 18.3, "Creating a Template for a Calendar" (page 181).

Customize the settings (paper size, image position, font, etc.) and confirm with *Next*. Now you can enter the year and select the images to use. After clicking *Next* again, see a summary. The final *Next* opens the KDE Printer dialog. Here, decide if you want to see a preview, save as PDF, or just print directly.

Figure 18.3 *Creating a Template for a Calendar*
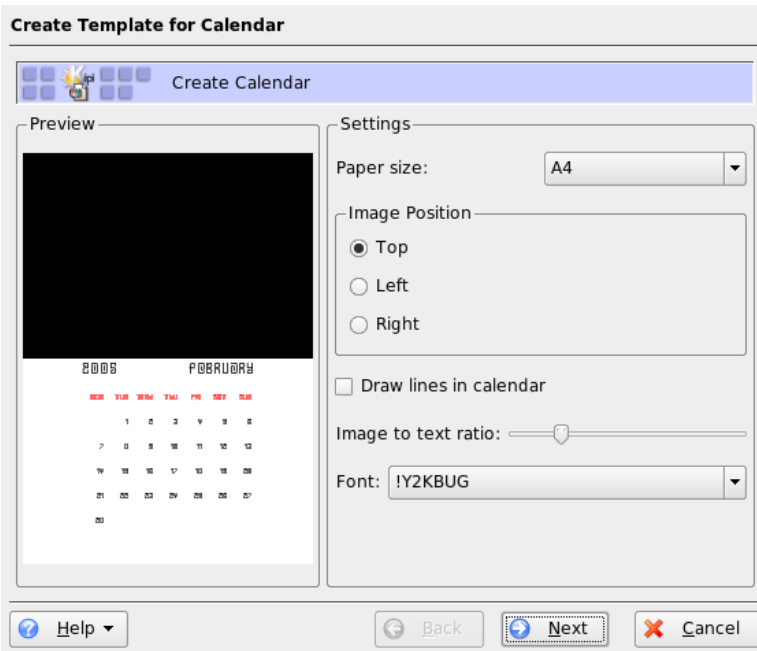
Finding Duplicate Photographs

Sometimes you photograph similar scenes repeatedly and want to keep only the best shots. This is the perfect task for the *Find Duplicate* plug-in.

Go to *Tools → Find Duplicate Images*. Select the albums or tags to handle. Under *Method & Cache*, choose the search method: a more accurate or a faster method. After you confirm with *Ok*, Digikam proceeds with the investigation.

If it finds some duplicates, it shows the result in a window like Figure 18.4, "Results of Find" (page 182). Decide which images to delete by activating the desired check boxes then clicking *Delete*. Leave the window with *Close*.

Figure 18.4   *Results of Find*
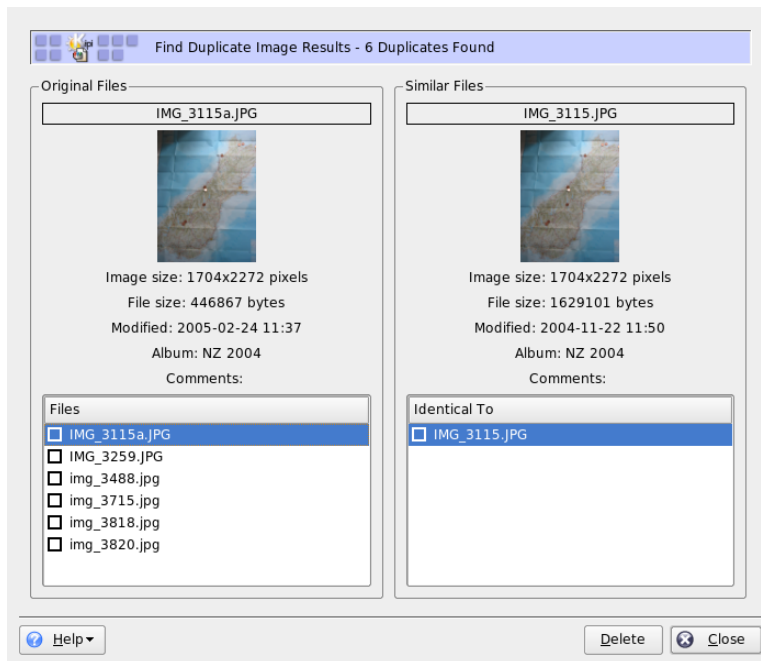
Batch Processes

Digikam also provides some batch processes that perform a specific task on lots of files. This can be renaming, converting, resizing, and much more. Find them under *Tools → Batch Processes*.

18.4.8 Basic Image Viewing and Editing with Digikam

Digikam includes its own lean image viewing and editing program. It automatically opens if you double-click an image's thumbnail.

Use this tool to do some basic image editing on the images you just downloaded from your camera. You can crop, rotate or flip the image, do some basic color adjustments,

apply various colored filters (for example, to export a colored image to black and white), and efficiently reduce red eyes in portrait shots.

The most important menus are:

Image

Use *Edit Comments & Tags* to enter comments to a particular image and to assign a tag (category) to this image. *Properties* takes you to a window consisting of three tabs providing general information, EXIF information, and the histogram of this image.

Fix

This menu contains some of the editing functions most needed in digital photography. *Colors* takes you to a submenu where you can modify all basic color settings. You can also blur or sharpen either the entire picture or just a part of the image you selected. To reduce red eyes in a portrait shot, roughly select the eye region of the face by just clicking and holding the left mouse pointer and gradually expanding the selection, select *Red Eye Reduction* and choose either mild or aggressive reduction depending on whether you selected a whole region or just the eyes.

Transform

The *Transform* menu offers the crop, rotate, flip, and resize functions. You can also use the *Aspect Ratio Crop* option to produce crops in a fixed aspect ratio.

Filters

If you need to transform your color shots into black and white or want to achieve an aged look in your photographs, check out the *Filters* menu and choose from the various export options.

A more detailed description of this tool can be found in Digikam's online help in *digiKam Image Editor*, which can be reached with the *Help* button in Digikam's menu bar.

TIP: Advanced Image Processing

Professional image editing can be done with the GIMP. More information about The GIMP can be found in Chapter 19, *Manipulating Graphics with The GIMP* (page 185).

18.5 For More Information

For more information about using digital cameras with Linux, refer to the following Web sites:

- http://digikam.sourceforge.net/—Information about Digikam

- http://www.gphoto.org—Information about gPhoto2

- http://www.gphoto.org/proj/libgphoto2/support.php—A comprehensive list of supported cameras

- http://www.thekompany.com/projects/gphoto/—Information about Kamera, a KDE front-end for gPhoto2

Manipulating Graphics with The GIMP

19

The GIMP (*The GNU Image Manipulation Program*) is a program for creating and editing pixel graphics. In most aspects, its features are comparable to those of Adobe Photoshop and other commercial programs. Use it to resize and retouch photographs, design graphics for Web pages, make covers for your custom CDs, or almost any other graphics project. It meets the needs of both amateurs and professionals.

Like many other Linux programs, The GIMP is developed as a cooperative effort of developers worldwide who volunteer their time and code to the project. The program is under constant development, so the version included in your SUSE Linux may vary slightly from the version discussed here. The layout of the individual windows and window sections is especially likely to vary.

The GIMP is an extremely complex program. Only a small range of features, tools, and menu items are discussed in this chapter. See Section 19.6, "For More Information" (page 193) for ideas of where to find more information about the program.

19.1 Graphics Formats

There are two main formats for graphics—pixel and vector. The GIMP works only with pixel graphics, which is the normal format for photographs and scanned images. Pixel graphics consist of small blocks of color that together create the entire image. The files can easily become quite large because of this. It is also not possible to increase the size of a pixel image without losing quality.

Unlike pixel graphics, vector graphics do not store information for all individual pixels. Instead, they store information about how image points, lines, or areas are grouped together. Vector images can also be scaled very easily. The drawing application of OpenOffice.org, for example, uses this format.

19.2 Starting GIMP

Start GIMP from the main menu. Alternatively, enter `gimp &` in a command line.

19.2.1 Initial Configuration

When starting GIMP for the first time, a configuration wizard opens for preparatory configuration. The default settings are acceptable for most purposes. Press *Continue* in each dialog unless you are familiar with the settings and prefer another setup.

19.2.2 The Default Windows

Three windows appear by default. They can be arranged on the screen and, except the toolbox, closed if no longer needed. Closing the toolbox closes the application. In the default configuration, GIMP saves your window layout when you exit. Dialogs left open reappear when you next start the program.

The Toolbox

The main window of GIMP, shown in Figure 19.1, "The Main Window" (page 187), contains the main controls of the application. Closing it exits the application. At the very top, the menu bar offers access to file functions, extensions, and help. Below that, find icons for the various tools. Hover the mouse over an icon to display information about it.

Figure 19.1   *The Main Window*
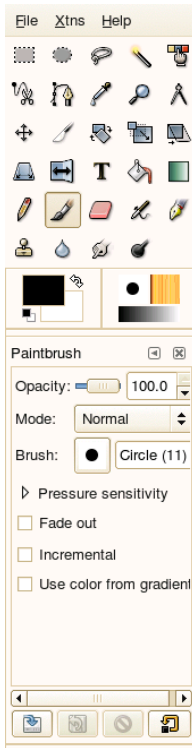
The current foreground and background color are shown in two overlapping boxes. The default colors are black for the foreground and white for the background. Click the box to open a color selection dialog. Swap the foreground and background color with the bent arrow symbol to the upper right of the boxes. Use the black and white symbol to the lower left to reset the colors to the default.

To the right, the current brush, pattern, and gradient are shown. Click the displayed one to access the selection dialog. The lower portion of the window allows configuration of various options for the current tool.

Layers, Channels, Paths, Undo

In the first section, use the drop-down box to select the image to which the tabs refer. By clicking *Auto*, control whether the active image is chosen automatically. By default, *Auto* is enabled.

Layers shows the different layers in the current images and can be used to manipulate the layers. *Channels* shows and can manipulate the color channels of the image.

Paths are a vector-based method of selecting parts of an image. They can also be used for drawing. *Paths* shows the paths available for an image and provides access to path functions. *Undo* shows a limited history of modifications made to the current image.

19.3 Getting Started in GIMP

Although GIMP can be a bit overwhelming for new users, most quickly find it easy to use once they work out a few basics. Crucial basic functions are creating, opening, and saving images.

19.3.1 Creating a New Image

To create a new image, select *File → New* or press Ctrl + N . This opens a dialog in which to make settings for the new image. If desired, select a predefined setting called a *Template*. To create a custom template, select *File → Dialogs → Templates* and use the controls offered by the window that opens.

In the *Image Size* section, set the size of the image to create in pixels or another unit. Click the unit to select another unit from the list of available units. The ratio between pixels and a unit is set in *Resolution*, which appears when the *Advanced Options* section is open. A resolution of 72 pixels per inch corresponds to screen display. It is sufficient for Web page graphics. A higher resolution should be used for images to print. For most printers, a resolution of 300 pixels per inch results in an acceptable quality.

In *Colorspace*, select whether the image should be in color (*RGB*) or *Grayscale*. Select the *Fill Type* for the new image. *Foreground Color* and *Background Color* use the colors selected in the toolbox. *White* uses a white background in the image. *Transparent*

creates a clear image. Transparency is represented by a gray checkerboard pattern. Enter a comment for the new image in *Comment*.

When the settings meet your needs, press *OK*. To restore the default settings, press *Reset*. Pressing *Cancel* aborts creation of a new image.

19.3.2 Opening an Existing Image

To open an existing image, select *File → Open* or press ⎡Ctrl⎤ + ⎡O⎤ . In the dialog that opens, select the desired file. You can also press ⎡Ctrl⎤ + ⎡L⎤ and type directly the URI of the desired image. Then click *OK* to open the selected image or press *Cancel* to skip opening an image.

19.3.3 Scanning an Image

Instead of opening an existing image or creating a new one, you can scan one. To scan directly from the GIMP, make sure that the package xsane is installed. To open the scanning dialog, select *File → Acquire → XSane: scanning device*.

Create a preview when the object to scan is smaller than the total scanning area. Press *Acquire preview* in the *Preview* dialog to create a preview. If you want to scan only part of the area, select the desired rectangular part with the mouse.

In the *xsane* dialog, select whether to scan a grayscale or color image and the required scan resolution. The higher the resolution, the better the quality of the scanned image is. However, this also results in a correspondingly larger file and the scanning process can take a very long time at higher resolutions. The size of the final image (both in pixels and bytes) is shown in the lower part of the dialog.

In the *xsane* dialog, use the sliders to set desired gamma, brightness, and contrast values. Changes are visible in the preview immediately. Once all settings have been made, click *Scan* to scan the image.

19.3.4 The Image Window

The new, opened, or scanned image appears in its own window. The menu bar in the top of the window provides access to all image functions. Alternatively, access the

menu by right-clicking the image or clicking the small arrow button in the left corner of the rulers.

File offers the standard file options, such as *Save* and *Print*. *Close* closes the current image. *Quit* closes the entire application.

With the items in the *View* menu, control the display of the image and the image window. *New View* opens a second display window of the current image. Changes made in one view are reflected in all other views of that image. Alternate views are useful for magnifying a part of an image for manipulation while seeing the complete image in another view. Adjust the magnification level of the current window with *Zoom*. When *Shrink Wrap* is selected, the image window is resized to fit the current image display exactly.

19.4 Saving Images

No image function is as important as *File → Save*. It is better to save too often than too rarely. Use *File → Save as* to save the image with a new filename. It is a good idea to save image stages under different names or make backups in another directory so you can easily restore a previous state.

When saving for the first time or using *Save as*, a dialog opens in which to specify the filename and type. Enter the filename in the field at the top. For *Save in folder*, select the directory in which to save the file from a list of commonly used directories. To use a different directory or create a new one, open *Browse for other folders*. It is recommended to leave *Select File Type* set to *By Extension*. With that setting, GIMP determines the file type based on the extension appended to the filename. The following file types are frequently useful:

XCF
>   This is the native format of the application. It saves all layer and path information along with the image itself. Even if you need an image in another format, it is usually a good idea to save a copy as XCF to simplify future modifications.

PAT
>   This is the format used for GIMP patterns. Saving an image in this format enables using the image as a fill pattern in GIMP.

JPG

JPG or JPEG is a common format for photographs and Web page graphics without transparency. Its compression method enables reduction of file sizes, but information is lost when compressing. It may be a good idea to use the preview option when adjusting the compression level. Levels of 85% to 75% often result in an acceptable image quality with reasonable compression. Saving a backup in a lossless format, like XCF, is also recommended. If editing an image, save only the finished image as JPG. Repeatedly loading a JPG then saving can quickly result in poor image quality.

GIF

Although very popular in the past for graphics with transparency, GIF is less often used now because of license issues. GIF is also used for animated images. The format can only save *indexed* images. The file size can often be quite small if only a few colors are used.

PNG

With its support for transparency, lossless compression, free availability, and increasing browser support, PNG is replacing GIF as the preferred format for Web graphics with transparency. An added advantage is that PNG offers partial transparency, which is not offered by GIF. This enables smoother transitions from colored areas to transparent areas (*antialiasing*).

To save the image in the chosen format, press *Save*. To abort, press *Cancel*. If the image has features that cannot be saved in the chosen format, a dialog appears with choices for resolving the situation. Choosing *Export*, if offered, normally gives the desired results. A window then opens with the options of the format. Reasonable default values are provided.

19.5 Printing Images

To print an image, select *File → Print* from the image menu. If your printer is configured in SUSE Linux, it should appear in the list. In some cases, it may be necessary to select an appropriate driver with *Setup Printer*. Select the appropriate paper size with *Media Size* and the type in *Media Type*. Other settings are available in the *Image / Output Settings* tab.

Figure 19.2   *The Print Dialog*
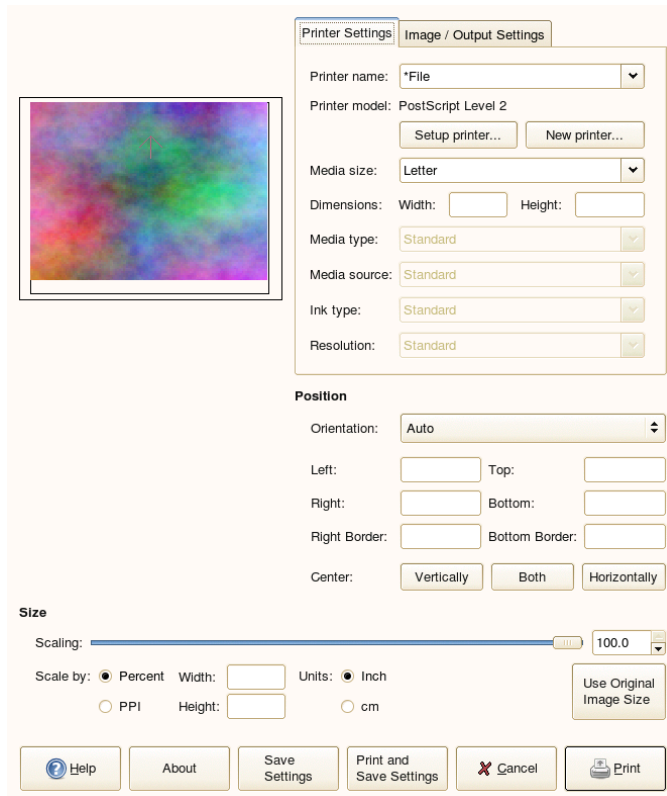
In the bottom portion of the window, adjust the image size. Press *Use Original Image Size* to take these settings from the image itself. This is recommended if you set an appropriate print size and resolution in the image. Adjust the image's position on the page with the fields in *Position* or by dragging the image in *Preview*.

When satisfied with the settings, press *Print*. To save the settings for future use, instead use *Print and Save Settings*. *Cancel* aborts printing.

19.6 For More Information

The following resources are useful for a GIMP user, even if some of them apply to older versions.

- *Help* provides access to the internal help system. This documentation is also available in HTML and PDF formats at http://docs.gimp.org.

- The GIMP User Group offers an informative Web site at http://gug.sunsite.dk.

- http://www.gimp.org is the official home page of The GIMP.

- *Grokking the GIMP* by Carey Bunks is an excellent book based on an older GIMP version. Although some aspects of the program have changed, it can provide excellent guidance for image manipulation. An online version is available at http://gimp-savvy.com/BOOK/.

Getting to Know Linux Software A

The next few sections introduce some of the most powerful Linux counterparts of common Windows software. Each section is dedicated to one particular field of application and lists the tasks, Windows applications, and Linux equivalents. These applications are then discussed in further detail and links to more information are provided. This list is by no means complete, because software development is an evolutionary process and new applications are being created every minute.

TIP: Missing Applications

In case one of the listed applications is not installed by default on your SUSE Linux system, use YaST to install the missing packages. Use the search function of the YaST package management tool to find the package names.

A.1 Office

This section features the most popular and powerful Linux office and business software solutions. These include office suites, databases, accounting software, and project management software.

Table A.1   *Office Software for Windows and Linux*

Task	Windows Application	Linux Application
Office Suite	MS Office, StarOffice, OpenOffice.org	OpenOffice.org, StarOffice, KOffice
Word Processor	MS Word, StarOffice/OpenOffice.org Writer, WordPerfect	OpenOffice.org/StarOffice Writer
Spreadsheet	MS Excel, StarOffice/OpenOffice.org Calc	OpenOffice.org/StarOffice Calc, Gnumeric, KSpread
Presentation	MS PowerPoint, StarOffice Presentation, OpenOffice.org Impress	OpenOffice.org Impress, StarOffice Presentation
Data Plotting	MS Excel, MicroCall Origin	OpenOffice.org Calc, Gnuplot, Grace (Xmgr), LabPlot
Local Database	MS Access, OpenOffice.org + MySQL	OpenOffice.org + MySQL, Rekall, kexi, Mergeant, PostgreSQL
Financial Accounting	MS Money, Quicken, moneyplex	GnuCash, moneyplex
Project Management	MS Project	Planner, Taskjuggler
Mind Mapping	MindManager, Free Mind	VYM (View Your Mind), Free Mind

OpenOffice.org

> OpenOffice.org is the open source equivalent of MS Office. It is a very powerful office suite including a word processor (Write), a spreadsheet and database manager (Calc), a presentation manager (Impress), and a drawing program (Draw). Users familiar with the MS Office family of applications find a very similar application interface and all the functionality to which they are accustomed. Because

OpenOffice.org is capable of importing data from MS Office applications, the transition from one office suite to the other is very smooth. A Windows version of OpenOffice.org even exists, enabling Windows users to switch to an open source alternative while still using Windows. Find more information about OpenOffice.org at `http://www.openoffice.org/` and read Chapter 1, *The OpenOffice.org Office Suite* (page 15) for an introduction to OpenOffice.org and a short guide to migrating your data from one office suite to the other.

StarOffice

StarOffice is a proprietary version of OpenOffice.org and is distributed by Sun Microsystems. It is available on multiple platforms including Windows and Solaris. It includes certain advanced features not available with the free version (OpenOffice.org). Find more information about StarOffice at `http://www.sun.com/software/star/staroffice/`.

KOffice

KOffice is an integrated office suite for the KDE desktop. It comes with various modules like word processing (KWord), spreadsheets (KSpread), presentation (KPresenter), several image processing applications (Kivio, Karbon14, Krita), a database front-end (Kexi), and many more. Find more information about KOffice at `http://www.koffice.org/`.

Gnumeric

Gnumeric is a spreadsheet solution for the GNOME desktop environment. Find more information about Gnumeric at `http://www.gnumeric.org`.

Gnuplot

Gnuplot is a very powerful and portable command line controlled data plotting software. It is also available for MacOS and Windows platforms. Plots created by Gnuplot can be exported to various formats, such as PostScript, PDF, SVG, and others, allowing you to process these plots easily. Find more information about Gnuplot at `http://www.gnuplot.info/index.html`.

Grace

Grace is a very mature 2D plotting tool for almost all flavors of Unix including Linux. Plot creation and editing can be done via a graphical user interface. Grace supports an unlimited number of graphs per plot. Its export formats include JPEG, PNG, SVG, PDF and (E)PS. More information can be found at `http://plasma-gate.weizmann.ac.il/Grace/`.

LabPlot

    LabPlot is a program for creating and managing two or three-dimensional data plots. Graphs can be produced both from data and functions and one plot might include multiple graphs. It also offers various data analysis methods. More information about LabPlot can be found at http://labplot.sourceforge.net/ .

Rekall

    Rekall is a tool for manipulating databases. Supported databases include MySQL, PostgreSQL, XBase with XBSQL, IBM DB2, and ODBC. Use Rekall to generate different sorts of reports and forms, design database queries, or import and export data to various formats. Find more information about Rekall at http://www.thekompany.com/products/rekall/.

Kexi

    Kexi is a database front-end to various different types of databases. It supports connections to MySQL, PostgreSQL, and SQLite database servers. Kexi can be used for manipulating data in tables and creating and storing queries. Find more information about kexi at http://www.koffice.org/kexi/.

Mergeant

    Mergeant is a database front-end for the GNOME desktop. Find more information at http://www.gnome-db.org.

PostgreSQL

    PostgreSQL is an object-relational database management system that supports an extended subset of the SQL standard, including transactions, foreign keys, subqueries, triggers, and user-defined types and functions. Find more information about PostgreSQL at http://www.postgresql.org/.

GnuCash

    GnuCash is a software tool to control both your personal and business finances. Keep track of income and expenses and manage your bank accounts and stock portfolios all using one piece of software. Learn more about GnuCash at http://www.gnucash.org.

moneyplex

    moneyplex is a tool to control your finances. All tasks from managing incoming resources and expenses and monitoring your stock portfolio to online transactions via the HBCI standard are handled by moneyplex. Keep track of your financial

transactions over time using various analysis options. Because this tool is also available for Windows, users can migrate very easily without having to learn a whole new application interface. More information about moneyplex can be found at `http://www.matrica.de`.

Planner
  Planner is a project management tool aiming to provide functionality similar to the project management tools used under Windows. Among its various features are Gantt charting abilities, different kinds of views on tasks and resources, and much more. Find more information about Planner at `http://www.imendio.com/projects/planner/`.

Taskjuggler
  Taskjuggler is a lean, but very powerful project management software. Take control of your projects using the Gantt charting features or by generating all kinds of reports (in XML, HTML, or CSV format). Those users who are not comfortable with controlling applications via the command line can use a graphical front-end to Taskjuggler. Find more information about Taskjuggler at `http://www.taskjuggler.org`.

VYM (View Your Mind)
  VYM is a software for visualizing your thoughts by creating and manipulating mind maps. Most manipulations do not require more than one mouse click. Branches can be inserted, deleted, and reordered very easily. VYM also offers a set of flags allowing you to mark certain parts of the map (important, time critical, etc.). Links, notes, and images can be added to a mind map as well. VYM mind maps use an XML format, allowing you to export your mind maps to HTML easily. Find more information about VYM at `http://www.insilmaril.de/vym`.

A.2 Network

The following section features various Linux applications for networking purposes. Get to know the most popular Linux browsers and e-mail and chat clients.

Table A.2 *Network Software for Windows and Linux*

Task	Windows Application	Linux Application
Web Browser	Internet Explorer, Firefox, Opera	Konqueror, Firefox, Opera, Epiphany
E-Mail Client/Personal Information Management	MS Outlook, Lotus Notes, Mozilla Thunderbird	Evolution, Kontact, Mozilla Thunderbird
Instant Messaging/IRC Clients	MSN, AIM, Yahoo Messenger, XChat, Gaim	Gaim, Kopete, Konversation, XChat
Conferencing (Video and Audio)	NetMeeting	GnomeMeeting
Voice over IP	X-Lite	Linphone, kphone, Skype
FTP Clients	leechftp, wsftp	gftp, kbear

Konqueror

> Konqueror is a multitalented application created by the KDE developers. It acts as file manager and document viewer, but is also a very powerful and highly customizable Web browser. It supports the current Web standards, such as CSS(2), Java applets, JavaScript and Netscape plug-ins (Flash and RealVideo), DOM, and SSL. It offers neat helpers like an integrated search bar and supports tabbed browsing. Bookmarks can be imported from various other Web browsers, like Internet Explorer, Mozilla, and Opera. Find more information about Konqueror at `http://www.konqueror.org/` and read our introduction to using Konqueror in Chapter 7, *The Web Browser Konqueror* (page 69).

Firefox

> Firefox is the youngest member of the Mozilla browser family. It runs on various platforms, including Linux, MacOS, and Windows. Its main features include built-in customizable searches, pop-up blocking, RSS news feeds, password management, tabbed browsing, and some advanced security and privacy options. Firefox is very flexible, allowing you to customize almost anything you want (searches, toolbars, skins, buttons, etc.). Neat add-ons and extensions can be downloaded from the Firefox Web site (`https://addons.update.mozilla.org/`

?application=firefox). Find more information about Firefox at `http://www.mozilla.org/products/firefox/` and read our introduction to using Firefox in Chapter 8, *The Web Browser Firefox* (page 77).

Opera
> Opera is a powerful Web browser with neat add-ons like an optional e-mail client and a chat module. Opera offers pop-up blocking, RSS feeds, built-in and customizable searches, a password manager, and tabbed browsing. The main functionalities are easily reached via their respective panels. Because this tool is also available for Windows, it allows a much easier transition to Linux for those who have been using it under Windows. Find more information about Opera at `http://www.opera.com/`.

Epiphany
> Epiphany is a lean, but powerful Web browser for the GNOME desktop. Many of its features and extensions will remind you of Firefox. Find more information about Epiphany at `http://www.gnome.org/projects/epiphany/`.

Evolution
> Evolution is personal information management software for the GNOME desktop combining mail, calendar, and address book functionality. It offers advanced e-mail filter and search options, provides sync functionality for Palm devices, and allows you to run Evolution as an Exchange or GroupWise client to integrate better into heterogeneous environments. Find more information about Evolution at `http://www.gnome.org/projects/evolution/` and read our introduction to using Evolution in Chapter 2, *Evolution: An E-Mail and Calendar Program* (page 23).

Kontact
> Kontact is the KDE personal information management suite. It includes e-mail, calendar, address book, and Palm sync functionalities. Like Evolution, it can act as an Exchange or GroupWise client. Kontact combines several stand-alone KDE applications (KMail, KAddressbook, KOrganizer, and KPilot) to form an entity providing all the PIM functionality you need. Find more information about Kontact at `http://www.kontact.org/` and read our introduction to using Kontact in Chapter 3, *Kontact: An E-Mail and Calendar Program* (page 35).

Mozilla Thunderbird
> Thunderbird is an e-mail client application that comes as part of the Mozilla suite. It is also available for Microsoft Windows and MacOS which facilitates the transi-

tion from one of these operating systems to Linux. Find more information about Mozilla Thunderbird at `http://www.mozilla.org/products/thunderbird/`.

Gaim

Gaim is a smart instant messenger program supporting multiple protocols, such as AIM and ICQ (Oscar protocol), MSN Messenger, Yahoo!, IRC, Jabber, SILC, and GroupWise Messenger. It is possible to log in to different accounts on different IM networks and chat on different channels simultaneously. Gaim also exists in a Windows version. Find more information about Gaim at `http://gaim.sourceforge.net/about.php`.

Kopete

Kopete is a very intuitive and easy-to-use instant messenger tool supporting protocols including IRC, ICQ, AIM, GroupWise Messenger, Yahoo, MSN, Gadu-Gadu, Lotus Sametime, SMS messages, and Jabber. Find more information about Kopete at `http://kopete.kde.org/` and read an introduction to using Kopete in Chapter 11, *Chatting with Friends: Kopete* (page 91).

Konversation

Konversation is an easy-to-use IRC client for KDE. Its features include support for SSL connections, strikeout, multichannel joins, away and unaway messages, ignore list functionality, Unicode, autoconnect to a server, optional time stamps in chat windows, and configurable background colors. Find more information about Konversation at `http://konversation.kde.org`.

XChat

XChat is an IRC client that runs on most Linux and UNIX platforms as well as under Windows and MacOS X. Find more information about XChat at `http://www.xchat.org/`.

GnomeMeeting

GnomeMeeting is the open source equivalent of Microsoft's NetMeeting. It features LDAP and ILS support for address lookup and integrates with Evolution to share the address data stored there. GnomeMeeting supports PC-to-phone calls, allowing you to call another party with just your computer, sound card, and microphone without any additional hardware. Find more information about GnomeMeeting at `http://www.gnomemeeting.org/`.

Linphone

Linphone is a smart and lean Voice over IP client using the SIP protocol to establish calls. Find more information at http://www.linphone.org and in Chapter 12, *Linphone—VoIP for the Linux Desktop* (page 95).

KPhone

KPhone is a program to initiate Voice over IP connections across the Internet. Find more information at http://www.wirlab.net/kphone.

gftp

gftp is an FTP client using the GTK toolkit. Its features include simultaneous downloads, resume of interrupted file transfers, file transfer queues, download of entire directories, FTP proxy support, remote directory caching, passive and non-passive file transfers, and drag and drop support. Find more information at http://gftp.seul.org.

kbear

KBear is a KDE FTP client with the ability to have concurrent connections to multiple hosts, three separate view modes, support for multiple protocols (like ftp, sftp, etc.), a site manager plug-in, firewall support, logging capabilities, and much more. Find more information at http://sourceforge.net/projects/kbear.

A.3 Multimedia

The following section introduces the most popular multimedia applications for Linux. Get to know media players, sound editing solutions, and video editing tools.

Table A.3 *Multimedia Software for Windows and Linux*

Task	Windows Application	Linux Application
Audio CD Player	CD Player, Winamp, Windows Media Player	KsCD, Grip, Banshee
CD Burner	Nero, Roxio Easy CD Creator	K3b

Task	Windows Application	Linux Application
CD Ripper	WMPlayer	Grip, kaudiocreator, Sound Juicer, Banshee
Audio Player	Winamp, Windows Media Player, iTunes	amaroK, XMMS, Rhythm-box, Banshee
Video Player	Winamp, Windows Media Player	Kaffeine, MPlayer, Xine, XMMS, Totem
Audio Editor	SoundForge, Cooledit, Auda-city	Audacity
Sound Mixer	sndvol32	alsamixer, Kmix
Music Notation	Finale, SmartScore, Sibelius	LilyPond, MusE, Noteedit, Rosegarden
Video Creator and Editor	Windows Movie Maker, Adobe Premiere, Media Studio Pro, MainActor	MainActor, Kino
TV Viewer	AVerTV, PowerVCR 3.0, CinePlayer DVR	xawtv (analog), motv (ana-log), xawtv4, tvtime, kdetv, zapping, Kaffeine

KsCD

    KsCD is a neat little CD player application for the KDE desktop. Its user interface very much resembles that of a normal hardware CD player, guaranteeing ease of use. KsCD supports CDDB, enabling you to get any track and album information either from the Internet or your local file system. Find more information at `http://docs.kde.org/en/3.3/kdemultimedia/kscd/`.

Grip

    Grip provides CD player and ripper functionalities for the GNOME desktop. It supports CDDB lookups for track and album data. Ripping can be done using the built-in cdparanoia capabilities or via external rippers. Find more information at `http://www.nostatic.org/grip/`.

Sound Juicer

Sound Juicer is a lean CD ripper application for the GNOME desktop. Find more information about Sound Juicer at `http://www.burtonini.com/blog/computers/sound-juicer`.

Banshee

Banshee is a digital jukebox very similar to iTunes.

K3b

K3b is a multitalented media creation tool. Create data, audio, or video CD and DVD projects by dragging and dropping. Find more information about K3b at `http://www.k3b.org/` or refer to Chapter 16, *K3b—Burning CDs or DVDs* (page 155).

Kaffeine

Kaffeine is a versatile multimedia application supporting a wide range of audio and video formats including Ogg Vorbis, WMV, MOV, and AVI. Import and edit play lists of various types, create screenshots, and save media streams to your local hard disk. Find more information about Kaffeine at `http://kaffeine.sourceforge.net/`.

Totem

Totem is a movie player application for the GNOME desktop. It supports Shoutcast, m3u, asx, SMIL, and ra play lists, lets you use keyboard controls, and plays a wide range of audio and video formats. Find more information about Totem at `http://www.gnome.org/projects/totem/`.

amaroK

The amaroK media player handles various audio formats and plays the streaming audio broadcasts of radio stations on the Internet. The program handles all file types supported by the sound server acting as a back-end—currently aRts or GStreamer. Find more information about amaroK at `http://amarok.kde.org/` or refer to Section 14.2.1, "amaroK" (page 124).

XMMS

XMMS is the traditional choice for multimedia playback. It is focused on music playback, offering support for CD playback and Ogg Vorbis files. Users of Winamp should find XMMS comfortable because of its similarity. Find more information about XMMS at `http://www.xmms.org/` or refer to Section 14.2.3, "XMMS" (page 135).

Rhythmbox

Rhythmbox is a powerful, multitalented media player for the GNOME desktop. It allows you to organize and browse your music collection using playlists and even supports Internet radio. Find more information about Rhythmbox at `http://www.gnome.org/projects/rhythmbox/`.

Audacity

Audacity is a powerful, free sound editing tool. Record, edit, and play any Ogg Vorbis or WAV file. Mix tracks at your whim, apply effects to them, and export the results to WAV or Ogg Vorbis. Find more information about Audacity at `http://audacity.sourceforge.net/` or refer to Section 14.4, "Hard Disk Recording with Audacity" (page 141).

LilyPond

LilyPond is a free music sheet editor. Because the input format is text-based, you can use any text editor to create note sheets. Users do not need to tackle any formatting or notation issues, like spacing, line-breaking, or polyphonic collisions. All these issues are automatically resolved by LilyPond. It supports many special notations like chord names and tablatures. The output can be exported to PNG, TeX, PDF, PostScript, and MIDI. Find more information about LilyPond at `http://lilypond.org/web/`.

MusE

MusE's goal is to be a complete multitrack virtual studio for Linux. Find more information about MusE at `http://www.muse-sequencer.org/index.php`.

Noteedit

Noteedit is a powerful score editor for Linux. Use it to create sheets of notes and to export and import scores to and from many formats, such as MIDI, MusicXML and LilyPond. Find more information about Noteedit at `http://developer.berlios.de/projects/noteedit/`.

Rosegarden

Rosegarden is a free music composition and editing environment. It features an audio and MIDI sequencer and a score editor. Find more information about Rosegarden at `http://rosegardenmusic.com/`.

MainActor

MainActor is a fully fledged video authoring software. Because there is a Windows version of MainActor, transition from Windows is easy. Find more information about MainActor at `http://www.mainactor.com/`.

xawtv and motv

xawtv is a TV viewer and recorder application supporting analog TV. motv is basically the same as xawtv, but with a slightly different user interface. Find more information about the xawtv project at `http://linux.bytesex.org/xawtv/`.

xawtv4

xawtv4 is a successor of the xawtv application. It supports both analog and digital audio and video broadcasts. The xawtv4 package contains several useful applications apart from the TV viewer: pia4 (a command line controlled movie player for streams recorded by xawtv4), mtt4 (a video text browser), alexplore (a DVB channel scanner; built-in), dvbradio (a DVB radio player; needs an initial channel scan), and dvbrowse (an EPG browser). For more information, refer to `http://linux.bytesex.org/xawtv/`.

tvtime

tvtime is a lean TV viewer application supporting analog TV. Find more information about tvtime, including a comprehensive usage guide, at `http://tvtime.sourceforge.net/`.

kdetv

A TV viewer and recorder application for the KDE desktop supporting analog TV. Find more information about kdetv at `http://www.kdetv.org/`.

zapping

A TV viewer and recorder application for the GNOME desktop supporting analog TV. Find more information about Zapping at `http://zapping.sourceforge.net/cgi-bin/view/Main/WebHome`.

A.4 Graphics

The following section presents some of the Linux software solutions for graphics work. These include simple drawing applications as well as fully-fledged image editing tools and powerful rendering and animation programs.

Table A.4   *Graphics Software for Windows and Linux*

Task	Windows Application	Linux Application
Simple Graphic Editing	MS Paint	The GIMP, Krita
Professional Graphic Editing	Adobe Photoshop, Paint Shop Pro, Corel PhotoPaint, The GIMP	The GIMP, Krita
Creating Vector Graphics	Adobe Illustrator, CorelDraw, OpenOffice.org Draw, Freehand	OpenOffice.org Draw, Inkscape, Dia
SVG Editing	WebDraw, Freehand, Adobe Illustrator	Inkscape, Dia, Karbon14, Kivio
Creating 3D Graphics	3D Studio MAX, Maya, POV-Ray, Blender	POV-Ray, Blender, KPovmodeler
Managing Digital Photographs	Software provided by the camera manufacturer	Digikam, F-Spot
Scanning	Vuescan	Vuescan, The GIMP
Image Viewing	ACDSee	gwenview, gThumb, Eye of Gnome

The GIMP

> The GIMP is the open source alternative to Adobe Photoshop. Its feature list rivals that of Photoshop, so it is well suited for professional image manipulation. There is even a Windows version of GIMP available. Find more information at http://www.gimp.org/ or refer to Chapter 19, *Manipulating Graphics with The GIMP* (page 185).

Krita

> Krita is KOffice's answer to Adobe Photoshop and The GIMP. It can be used for pixel-based image creation and editing. Its features include many of the advanced

image editing capabilities you would normally expect with either Adobe Photoshop or The GIMP. Find more information at http://www.koffice.org/krita.

Dia

Dia is a Linux application aiming to be the Linux equivalent of Visio. It supports many types of special diagrams, such as network or UML charts. Export formats include SVG, PNG, and EPS. To support your own custom-made diagram types, provide the new shapes in a special XML format. Find more information about Dia at http://www.gnome.org/projects/dia/.

Inkscape

Inkscape is a free SVG editor. Users of Adobe Illustrator, Corel Draw, and Visio can find a similar range of features and a familiar user interface in Inkscape. Among its features, find SVG-to-PNG export, layering, transforms, gradients, grouping of objects, and more. Find more information about Inkscape at http://www .inkscape.org/.

Karbon14

Karbon14 is a vector graphics application that integrates into KOffice. Find more information at http://www.koffice.org/karbon/.

Kivio

Kivio is a flow-charting application that integrates into the KOffice suite. Former users of Visio will find a familiar look and feel in Kivio. Find more information about Kivio at http://www.koffice.org/kivio/.

POV-Ray

The Persistence of Vision Raytracer creates three-dimensional, photo-realistic images using a rendering technique called ray tracing. Because there is a Windows version of POV-Ray, it does not take much for Windows users to switch to the Linux version of this application. Find more information about POV-Ray at http://www.povray.org/.

Blender

Blender is a powerful rendering and animation tool available on many platforms, including Windows, MacOS, and Linux. Find more information about Blender at http://www.blender3d.com/.

KPovmodeler

    KPovmodeler is a POV-Ray front-end that integrates with the KDE desktop.
KPovmodeler saves users from needing a detailed knowledge of POV-Ray scripting
by translating the POV-Ray language in an easy to understand tree view. Native
POV-Ray scripts can be imported to KPovmodeler as well. Find more information
at `http://www.kpovmodeler.org`.

Digikam

    Digikam is a smart digital photo management tool for the KDE desktop. Importing
and organizing your digital images is a matter of a few clicks. Create albums, add
tags to spare you from copying images around different subdirectories, and eventu-
ally export your images to your own Web site. Find more information about Digikam
at `http://digikam.sourceforge.net/Digikam-SPIP/` and in Sec-
tion 18.4, "Using Digikam" (page 175).

f-spot

    f-spot is a flexible digital photographs management tool for the GNOME desktop.
It lets you create and manage albums, supports various export options like HTML
pages or burning of image archives to CD. Find more information about f-spot at
`http://www.gnome.org/projects/f-spot/` and in Chapter 17, *Managing
Images with f-spot* (page 165).

Gwenview

    Gwenview is a simple image viewer for KDE. It features a folder tree window and
a file list window that provides easy navigation of your file hierarchy. Find more
information at `http://gwenview.sourceforge.net/home/`.

gThumb

    gThumb is an image viewer, browser, and organizer for the GNOME desktop. It
supports the import of your digital images via gphoto2, allows you to carry out
basic transformation and modifications, and lets you tag your images to create al-
bums matching certain categories. Find more information about gThumb at
`http://gthumb.sourceforge.net/`.

Eye of Gnome (eog)

    Eye of Gnome is an image viewer application that is part of the GNOME Office
suite. Find more information at `http://www.gnome.org/gnome-office/`
`eog.shtml`.

A.5 System and File Management

The following section provides an overview of Linux tools for system and file management. Get to know text and source code editors, backup solutions, and archiving tools.

Table A.5 *System and File Management Software for Windows and Linux*

Task	Windows Application	Linux Application
Text Editor	NotePad, WordPad, (X)Emacs	kate, gedit, (X)Emacs, vim
PDF Creator	Adobe Distiller	Scribus
PDF Viewer	Adobe Reader	Adobe Reader, Evince, KPDF, Xpdf
Text Recognition	Recognita, FineReader	GOCR
Command Line Pack Programs	zip, rar, arj, lha, etc.	zip, tar, gzip, bzip2, etc.
GUI Based Pack Programs	WinZip	Ark, File Roller
Hard Disk Partitioner	PowerQuest, Acronis, Partition Commander	YaST, GNU Parted
Backup Software	ntbackup, Veritas	dar, taper, dump

kate
> Kate is part of the KDE suite. It has the ability to open several files at once either locally or remotely. With syntax highlighting, project file creation, and external scripts execution, it is a perfect tool for a programmer. Find more information at http://kate.kde.org/.

gedit

> GEdit is the official text editor of the GNOME desktop. It provides similar features to Kate. Find more information at http://www.gnome.org/projects/gedit/.

(X)Emacs

> GNU Emacs and XEmacs are very professional editors. XEmacs is based on GNU Emacs. To quote the GNU Emacs Manual, "Emacs is the extensible, customizable, self-documenting real-time display editor." Both offer nearly the same functionality with minor differences. Used by experienced developers, they are highly extensible through the Emacs Lisp language. They support many languages, like Russian, Greek, Japanese, Chinese, and Korean. Find more information at http://www.xemacs.org/ and http://www.gnu.org/software/emacs/emacs.html.

vim

> vim (vi improved) is a program similar to the text editor vi. Users may need time to adjust to vim, because it distinguishes between command mode and insert mode. The basic features are the same as in all text editors. vim offers some unique options, like macro recording, file format detection and conversion, and multiple buffers in a screen. Find more information at http://www.vim.org/ or in *Reference*.

GOCR

> GOCR is an OCR (optical character recognition) tool. It converts scanned images of text into text files. Find more information at http://jocr.sourceforge.net/.

Adobe Reader

> Adobe Reader for Linux is the exact counterpart of the Windows and Mac versions of this application. The look and feel on Linux are the same as on other platforms. The other parts of the Adobe Acrobat suite have not been ported to Linux. Find more information at http://www.adobe.com/products/acrobat/readermain.html.

Evince

> Evince is a document viewer for PDF and PostScript formats for the GNOME desktop. Find more information at http://www.gnome.org/projects/evince/.

KPDF

KPDF is a PDF viewing application for the KDE desktop. Its features include searching the PDF and full screen reading mode like in Adobe Reader. Find more information at `http://kpdf.kde.org/`.

Xpdf

Xpdf is lean PDF viewing suite for Linux and Unix platforms. It includes a viewer application and some export plug-ins for PostScript or text formats. Find more information at `http://www.foolabs.com/xpdf/`.

gzip, tar, bzip2

There are plenty of packaging programs for reducing disk usage. In general, they differ only in their pack algorithm. Linux can also handle the packaging formats used on Windows. Find more information about `gzip` and `tar` in Section "File Administration" (Chapter 3, *Working with the Shell*, ↑Start-Up). `bzip2` is a bit more efficient than `gzip`, but needs more time, depending on the pack algorithm.

GNU Parted

GNU Parted is a command-line tool for creating, destroying, resizing, checking, and copying partitions and the file systems on them. If you need to create space for new operating systems, use this tool to reorganize disk usage and copy data between different hard disks. Find more information at `http://www.gnu.org/software/parted/`.

KDar

KDar stands for KDE disk archiver and is a hardware-independent backup solution. KDar uses catalogs (unlike tar), so it is possible to extract a single file without having to read the whole archive and it is also possible to create incremental backups. KDar can split an archive into multiple slices and trigger the burning of a data CD or DVD for each slice. Find more information about KDar at `http://kdar.sourceforge.net/`.

taper

Taper is a backup and restore program that provides a friendly user interface to allow backup and restoration of files to and from a tape drive. Alternatively, files can be backed up to archive files. Recursively selected directories are supported. Find more information at `http://taper.sourceforge.net/`.

dump

> The dump package contains both dump and restore. dump examines files in a file system, determines which ones need to be backed up, and copies those files to a specified disk, tape, or other storage medium. The restore command performs the inverse function of dump—it can restore a full backup of a file system. Find more information at http://dump.sourceforge.net/.

A.6 Software Development

This section introduces Linux IDEs, toolkits, development tools, and versioning systems for professional software development.

Table A.6   *Development Software for Windows and Linux*

Task	Windows Application	Linux Application
Integrated Development Environments	Borland C++, Delphi, Visual Studio, .NET	KDevelop, Eric, Eclipse, MonoDevelop, Anjuta
Toolkits	MFC, Qt, GTK	Qt, GTK
Compilers	VisualStudio	GCC
Debugging Tools	Visual Studio	GDB, valgrind
GUI Design	Visual Basic, Visual C++	Glade, Qt Designer
Versioning Systems	Clearcase, Perforce, Source-Safe	CVS, Subversion

KDevelop

> KDevelop allows you to write programs for different languages (C/C++, Python, Perl, etc.). It includes a documentation browser, a source code editor with syntax highlighting, a GUI for the compiler, and much more. Find more information at http://www.kdevelop.org.

Eclipse

The Eclipse Platform is designed for building integrated development environments that can be extended with custom plug-ins. The base distribution also contains a full-featured Java development environment. Find more information at `http://www.eclipse.org`.

MonoDevelop

The Mono Project is an open development initiative that is working to develop an open source Unix version of the .NET development platform. Its objective is to enable Unix developers to build and deploy cross-platform .NET applications. MonoDevelop complements the Mono development with an IDE. Find more information about MonoDevelop at `http://www.monodevelop.com/`.

Anjuta

Anjuta is an IDE for GNOME/GTK application development. It includes an editor with automated formatting, code completion and highlighting. Apart from GTK it supports Perl, Pascal, and Java development. A GDB based debugger is also included. Find more information about Anjuta at `http://anjuta.sourceforge.net`.

Eric

Eric is an IDE optimized for Python and Python-Qt development. Find more information about Eric at `http://www.die-offenbachs.de/detlev/eric3.html`.

Qt

Qt is a program library for developing applications with graphical user interfaces. It allows you to develop professional programs rapidly. The Qt library is available not only for Linux, but for a number of Unixes and even for Windows and Macintosh. Thus it is possible to write programs that can be easily ported to those platforms. Find more information at `http://www.trolltech.com`. Language bindings for Qt development are summarized under `http://developer.kde.org/language-bindings/`.

GTK

GTK is a multiplatform toolkit for creating graphical user interfaces. It is used for all GNOME applications, The GIMP, and several others. GTK has been designed to support a range of languages, not only C/C++. Originally it was written for GIMP, hence the name "GIMP Toolkit." Find more information at `http://www`

.gtk.org. Language bindings for GTK are summarized under `http://www`
`.gtk.org/bindings.html`.

GCC
GCC is a compiler collection with front-ends for various programming languages. Check out a complete list of features and find extensive documentation at `http://` `gcc.gnu.org`.

GDB
GDB is a debugging tool for programs written in various programming languages. Find more information about GDB at `http://www.gnu.org/software/` `gdb/gdb.html`.

Valgrind
Valgrind is a suite of programs for debugging and profiling x86 applications. Find more information about Valgrind at `http://valgrind.org/info/`.

Glade
Glade is a user interface builder for GTK and GNOME development. As well as GTK support, it offers support for C, C++, C#, Perl, Python, Java, and others. Find more information about Glade at `http://glade.gnome.org/`.

Qt Designer
Qt Designer is a user interface and form builder for Qt and KDE development. It can be run as part of the KDevelop IDE or in stand-alone mode. QtDesigner can be run under Windows and even integrates into the Visual Studio development suite. Find more information about Qt Designer at `http://www.trolltech` `.com/products/qt/designer.html`.

CVS
CVS, the Concurrent Versions System, is one of the most important version control systems for open source. It is a front-end to the Revision Control System (RCS) included in the standard Linux distributions. Read more about CVS in *Reference*. Find more information at the home page `http://www.cvshome.org/`.

Subversion
Subversion does the same thing CVS does but has major enhancements, like moving, renaming, and attaching meta information to files and directories. Read more about Subversion in *Reference* or go to the home page `http://subversion.tigris` `.org/`.

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Symbols

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