

# GNOME Quick Start

## openSUSE 11.1

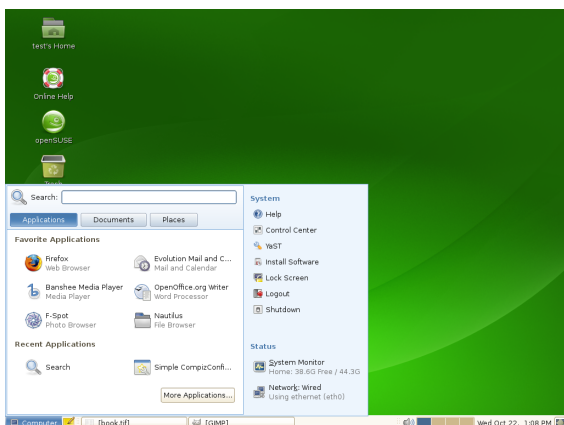
NOVELL® QUICK START CARD

openSUSE® provides the tools that Linux\* users require in their daily activities. It comes with an easy-to-use graphical user interface, the GNOME\* desktop, that communicates with the underlying Linux system to let you access and manage files, folders, and programs. openSUSE provides an integrated suite of applications for a wide range of office, multimedia, and Internet activities. The OpenOffice.org suite, which allows you to edit and save files in a number of formats, is also included. The office suite is available for several operating systems. Therefore, you can use the same data across different computing platforms.

## Getting Started

When you start your system, you are usually prompted to enter your username and password. If someone else installed your system, check with your system administrator for your username and password.

After logging in to GNOME for the first time, you see the GNOME desktop, offering the following basic elements:



### Desktop Icons

Access programs and features on your system by double-clicking an icon. Right-click an icon to get additional menus and options. By default, the desktop features

several key icons, including your personal *Home* folder and a trash can for deleted items. Other icons representing devices on your computer, such as CD drives, might also be present on the desktop and you can add as many icons on your desktop as you want to. If you double-click your *Home* folder, the Nautilus file manager starts and displays the contents of your home directory.

### Bottom Panel

The desktop includes a panel at the bottom of the screen. This panel contains the *Computer* menu (similar to the Start menu in Windows\*), the system tray, and a taskbar to display icons for all currently running applications. You can also add applications and applets to the panel for easy access.

### Main Menu

Click *Computer* on the far left of the bottom panel to open the main menu. Commonly used applications appear in the main menu, along with recently used applications. Click *Documents* to display your recent documents, or click *Places* to display your favorite places (such as your home directory or the desktop). Click *More Applications* to access additional applications listed in categories. Use the options on the right to access help, install additional software, open the GNOME Control Center, lock your screen, log out of the desktop, or check the status of your hard drive and network connections.

## System Tray

The right side of the bottom panel holds some smaller icons, including the system clock that displays the date and time, the volume control, and icons for several other helper applications.

## Taskbar

By default, all running applications are displayed in the taskbar (the area in the middle of the panel between the Computer button and the system tray). You can access any running application regardless of the currently active desktop. Click an application name to open it. Right-click an application name to see options for moving, restoring, or minimizing the window.

## Desktop Menu

Right-click an empty spot on the desktop to display a menu with various options. Click *Create Folder* to create a new folder. Use *Create Launcher* to create a launcher icon for an application. Provide the name of the application and the command for starting it, then select an icon to represent it. You can also change the desktop background, open a terminal, create a document, and align desktop icons.

## Modifying Desktop Panels

The bottom panel can be customized to meet your individual needs, and additional panels can be configured to further personalize your desktop.

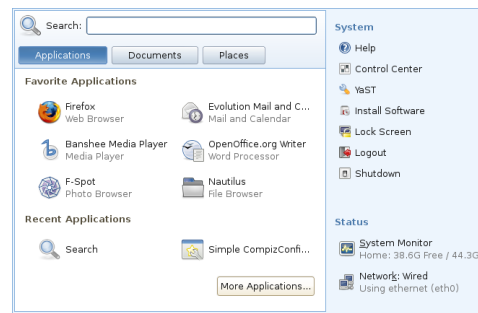
To add a new panel, right-click a blank space in the bottom panel and select *New Panel*. To delete a panel, right-click a blank space in the panel and select *Delete This Panel*. openSUSE requires that at least one panel be left on the desktop.

## Adding and Removing Panel Icons

1. Right-click a blank space on the panel and select *Add to Panel*.
2. Browse to the desired program and double-click it to add it to the panel.
3. To remove a program icon from a panel, right-click its icon in the panel and select *Remove From Panel*.

## Starting Programs

To run a program in openSUSE, click *Computer* on the panel to open the main menu screen. If the program you want does not appear in the main menu screen, click *More Applications* to view a list of all available applications grouped in categories. You can also limit the list to show only applications with a specific name by entering the name or its part to the *Filter* field. Click an entry in the list to start the corresponding program.



You can also add an icon to your panel that opens a more traditional version of the main menu. Right-click a blank space on the panel, select *Add to Panel*, then double-click *Traditional Main Menu*.

If you already know the name of an application but are not sure how to start it from the main menu, use the *Search* field in the main menu. Click *Computer*, type a portion of the application name in the *Search* field, then press *Enter*. If the application is installed on your system, the name of the application appears in the *Desktop Search* dialog box. Click the name to start the program.

## Customizing Your Desktop

You can easily add, delete, and create shortcut icons on your desktop. You can also change icon properties and the desktop background to suit your needs.

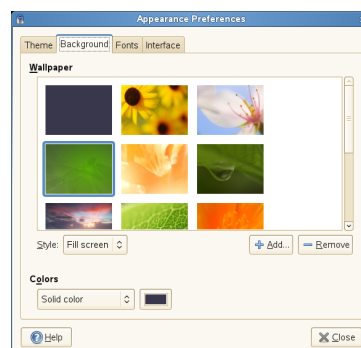
## Adding Program Icons to Your Desktop

1. Click *Computer*.
2. Browse to the desired program.
3. Click and drag the icon to the desktop and position it as desired.

To delete an icon from your desktop, simply click the program icon and press the *Delete* key on your keyboard.

## Changing the Desktop Background

1. Right-click the background.
2. Select *Change Desktop Background*.



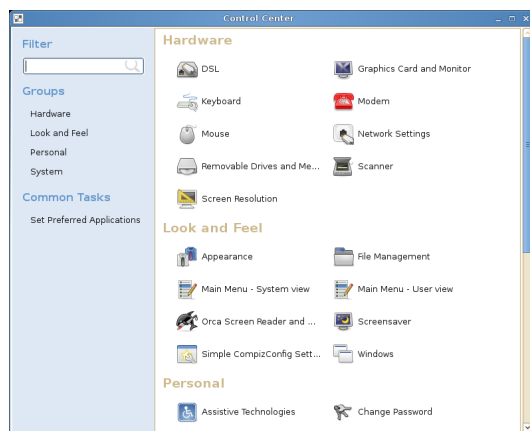
3. To select a wallpaper from the preprogrammed images, browse to and select the desired image. After you select it, the background changes automatically.

4. To add an image, select *Add*, browse to the desired image, then click *Open*.
5. To display a colored background, select *No Wallpaper* from the top of the list; then, from *Colors*, select the fill pattern and the desired colors.
6. Click *Close*.

## Using the GNOME Control Center

In addition to letting you change individual desktop elements, GNOME lets you extensively personalize your desktop. You can find more settings to adjust the overall appearance and behavior of your desktop in the GNOME Control Center. There, you can also change fonts, keyboard and mouse configurations, regional and language settings, parameters for your Internet and network usage, and more.

To start the Control Center, click *Computer*, then click *Control Center* on the right of the main menu.



## Configuring Desktop Effects

Compiz is a compositing window manager for the X Window System that uses 3D graphics hardware to create fast compositing desktop effects for window management. It lets you turn your desktop into a rotating 3D cube, tile windows so they do not overlap, and switch tasks while viewing live thumbnails. You can enable translucent or transparent windows, zoom in and out of the desktop screen, and use other window effects such as shadows, fading, and transformations. You can also configure windows to snap to other windows and screen edges when they are moved.

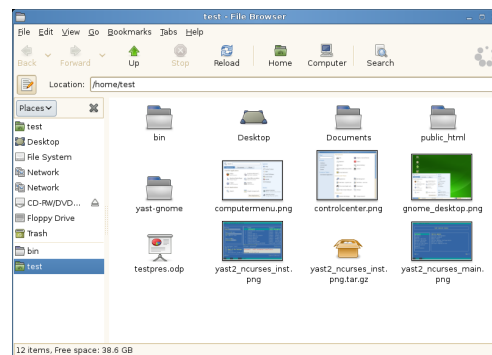


To use compositing desktop effects, you need a graphics adapter capable of providing 3D support with a appropriate driver supporting 3D acceleration installed. 3D acceleration must also be enabled. Use *SaX2* to change your graphics card and monitor properties if necessary. If the 3D acceleration works properly, compositing effects are enabled by default.

To enable compositing desktop effects manually or to configure the particular effects you want to see, click *Computer* → *More Applications* → *Utilities* → *Simple CompizConfig Settings Manager*. There, you can configure your desktop effects.

## Managing Files and Folders

Use the Nautilus File Manager to create and view folders and documents, run scripts, and create CDs of your data. Open Nautilus by double-clicking your home directory icon on the desktop. The contents of your home directory are displayed.



The elements of the Nautilus window include the following:

### Menu

Lets you perform most tasks.

### Toolbar

Lets you quickly navigate among files and folders, and provides access to files and folders.

### Location Bar

Lets you locate files, folders, and URI sites.

### Side Pane

Lets you navigate or display information about the selected file or folder. Use the drop-down list to customize what is shown in the pane. The list includes ways to view information about files, perform actions on files, add emblems to files, view a history of recently visited sites, and display your files in the tree system.

### View Pane

Displays folders and files. Use the options on the *View* menu to increase or decrease the size of content in the view pane and to display items as a list or as icons.

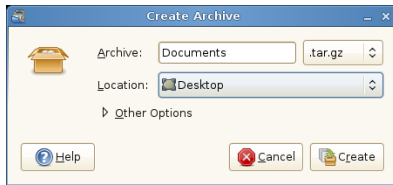
### Status Bar

Displays the number of items in a folder and gives the available free space. When a file is selected, the status bar displays the filename and size.

## Archiving Folders

If you have files you have not used recently but want to keep on your computer, you can compress the files into a tape archive (TAR) format.

1. In the Nautilus view pane, right-click the folder you want to archive and select *Create Archive*.



2. Accept the default archive filename or provide a new name.
3. Select a file extension from the drop-down list. Use `tar.gz` for the most common archive form.
4. Specify a location for the archive file, then click *Create*.

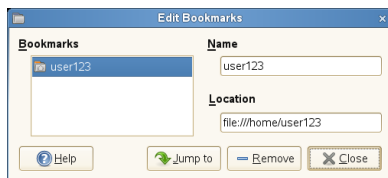
To extract an archived file, right-click the file and select *Extract Here*.

## Using Bookmarks

Use the Nautilus bookmarks feature to mark your favorite folders.

1. Open the folder you want to create a bookmark for.
2. Click *Bookmarks* → *Add Bookmark*. The bookmark is added to the list, with the folder name as the bookmark name.
3. To select an item from your bookmarks list, click *Bookmarks*, then click the desired bookmark in the list.

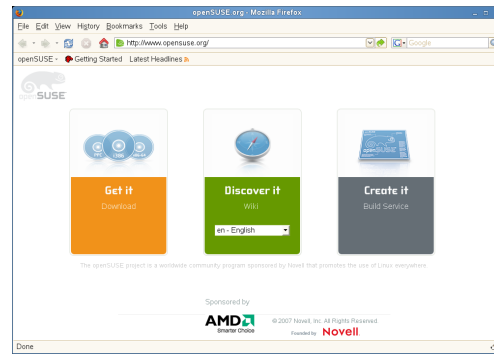
You can also organize your bookmarks list by clicking *Bookmarks* → *Edit Bookmarks* and making your selections in the dialog box.



To change the order of your bookmarks, click a bookmark shown in the *Edit Bookmarks* dialog and drag it to the desired location.

## Browsing the Internet with Firefox

Firefox\* is becoming the Web browser of choice. It has all the familiarity of other browsers, plus added features such as security and privacy tools.





To start Firefox, click *Computer* → *Firefox Web Browser*. When starting Firefox for the first time, you need to agree with its licence agreement and click *OK*.

With features like tabbed browsing, pop-up window blocking, and download and image management, Firefox combines the latest Web technologies. Its easy access to different search engines helps you find the information you need. Enter a URL in the location bar to start browsing.

To open an empty tab in Firefox, press `Ctrl + T` and type a new URL. To open a link in a new tab, click the link with your middle mouse button. Right-click a tab to access more tab options. You can create a new tab, reload one or all existing tabs, or close a single tab or all tabs. You can also change the sequence of the tabs by dragging and dropping them to a new position.

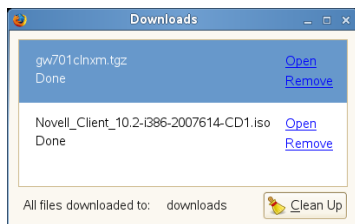
## Finding Information on the Web

1. To start a search on the Web with the Google\* engine, type your search keywords in the integrated search box  Google  on the right of the location bar, then press `Enter`. The results display in the window.
2. To use a different search engine, click the G icon in the search box to open a list of other search engines.
3. Click the desired engine, then press `Enter` to start the search.

You can also search the current Web page for keywords. To do so, press `Ctrl + F` to open a *Find* bar at the bottom of the window. Enter your search keyword there and use the buttons to the right of the box to search in different directions or to select all hits in the text.

## Downloading Files with Firefox

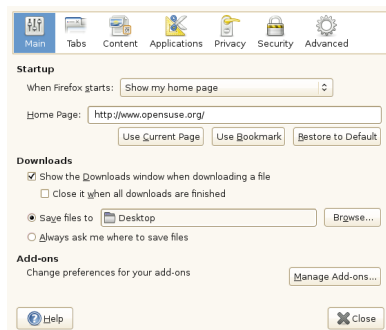
If you download a file with Firefox, the Firefox download manager starts and saves this file to the folder configured in Firefox *Preferences*. By default, your desktop is the destination folder for downloaded files. Firefox shows your finished downloads in the *Downloads* window.



You can open the downloaded files directly from the *Downloads* window or from the destination folder. To clean up the history of downloaded files, click *Clean Up*.

## Configuring Firefox Preferences

To adjust the default download folder or to activate or modify the pop-up blocking feature, click *Edit* → *Preferences*.

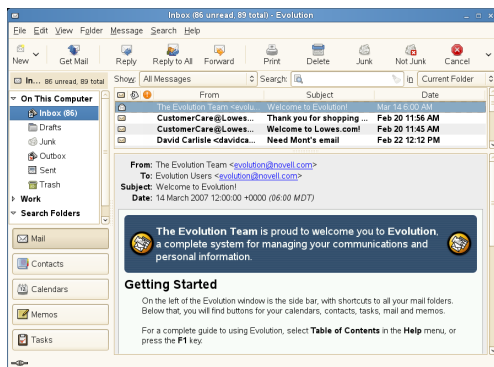


From here you can also configure numerous other settings such as appearance, language, privacy, and tab options. Click the icons and set the options on each page according to your preferences. Click *Close* to apply the changes.

## E-Mailing and Calendaring

For reading and managing your mail and events, openSUSE offers you Novell® Evolution™, a groupware program that makes it easy to store, organize, and retrieve your personal information.

Evolution seamlessly combines e-mail, a calendar, an address book, and a task list in one easy-to-use application. With its extensive support for communications and data interchange standards, Evolution can work with existing corporate networks and applications, including Microsoft® Exchange.



To start Evolution, click *Computer* → *More Applications* → *Office* → *Evolution Mail and Calendar*.

The first time you start it, Evolution prompts you with a few questions as it sets up a mail account and helps you import mail from your old mail client. It shows you how many new messages you have and lists upcoming appointments and tasks, as well as the current weather and news from news feeds. The calendar, address book, and mail tools are available in the shortcut bar on the left.

Press **Ctrl + N** to open a new item for whatever part of Evolution you are working in. In mail, this creates a new message. If you are in the address book, **Ctrl + N** creates a new contact card, and in the calendar, it creates a new appointment.

For more information on using Evolution, click *Help* → *Contents* in any Evolution window.

## Instant Messaging with Pidgin

Pidgin is a multiprotocol instant messaging (IM) client. It is compatible with AOL® Instant Messenger (AIM), Google Talk, GroupWise® Messenger, ICQ, IRC, MSN Messenger, Jabber/XMPP, Yahoo!®, and other networks.

With Pidgin, you can log in to multiple accounts on multiple IM networks simultaneously. Pidgin also supports many features of the various networks, such as file transfer, away messages, and typing notification.

To start Pidgin, click *Computer* → *More Applications* → *Internet* → *Pidgin*, or press **Alt + F2** and enter `pidgin`.

To add an account to Pidgin, select *Accounts* → *Manage Accounts* from the *Buddy List*. Click *Manage Accounts*, select the protocol you want, and type your login information in the appropriate fields. Activate the account by checking the *Save* checkbox in the account list.

Add contacts by clicking *Buddies* → *Add Buddy*. An assistant appears to help with creation. However, you must be online and connected to the selected messaging service to add a contact to your list.

To start a chat, double-click the desired contact and type your message in the lower part of the chatting window. Press **Enter** to send the message. The upper part of the window displays the messages you have sent and received.

## Starting OpenOffice.org

The OpenOffice.org office suite offers a complete set of office tools, including word processing, spreadsheet, presentation, vector drawing, and database components. Because OpenOffice.org is available for a number of operating systems, you can use the same data across different computing platforms.



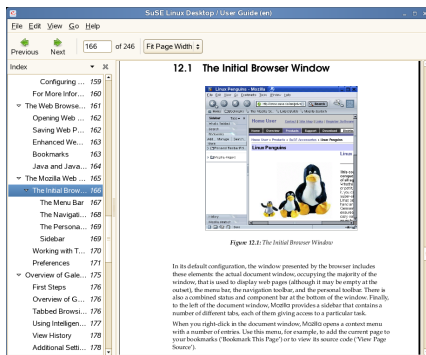
To start OpenOffice.org, click *Computer* → *OpenOffice.org Writer*. To create a new document, click *File* → *New*, then choose the type of document you want to create. To open an existing document, click *Open*, then select the file you want from the file system.

## Viewing PDF Files

Documents that need to be shared or printed across platforms are often distributed as PDF (Portable Document Format) files. PDF files can be created using OpenOffice.org suite or other applications. The GNOME PDF viewer is called Evince. It can be used to view PDFs and many other document formats, like PostScript, DjVu, DVI, and multi-page TIFFs.

To start Evince, press **Alt + F2** and enter `evince` or click *Computer* → *More Applications* → *Office* → *Evince*.

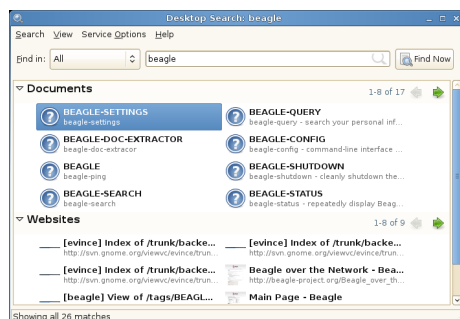
1. Click *Computer* → *More Applications* → *Office* → *Evince* or press **Ctrl + F2** and enter `evince`.
2. To view a PDF file, click *File* → *Open*, locate the desired PDF file, then click *Open*.



3. Use the navigation icons at the top of the window to navigate through the document. If your PDF document provides bookmarks, you can access them in the left panel of the viewer.

## Finding Files on Your Computer

To locate files on your computer, click *Computer*, enter your search terms in the *Search* field, then press **Enter**. The results are displayed in the *Desktop Search* dialog box.



You can use the results lists to open a file, forward it via e-mail, or display it in the file manager. Simply right-click an

item in the results list and select the option you want. The options available for an item depend on the type of file it is. Clicking a file in the list displays a preview of the file and information such as the title, path, and date the file was last modified or accessed.

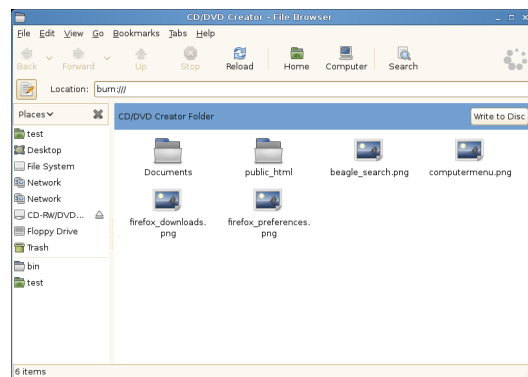
Use the *Find In* menu to limit your search to files in a specific location, such as your address book or Web pages, or to display only a specific type of file in your results list. The *View* menu lets you sort the items in your results list according to name, relevance, or the date the file was last modified.

You can also access *Desktop Search* by clicking *Computer* → *More Applications* → *System* → *Search*.

## Creating a CD/DVD

If your system has a CD or DVD read/write drive, you can use the Nautilus file manager to burn CDs and DVDs.

1. Click *Computer* → *More Applications* → *Multimedia* → *GNOME CD/DVD Creator*, or just insert a blank disk.
2. Copy the files you want to put on the CD or DVD into the Nautilus *CD/DVD Creator* window.



3. Click *Write to Disk*.
4. Modify the respective information in the *Write to Disk* dialog box, or accept the default values, then click *Write*. The files are burned to the disk. This could take a few minutes, depending on the amount of data being burned and the speed of your burner.

You can also use Brasero or Banshee to burn audio and MP3 CDs.

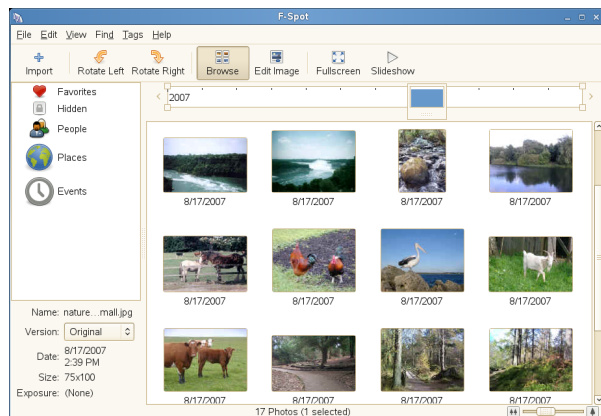
## Managing Your Digital Image Collection

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 in order to categorize them, and offers various image editing options. For example, you can remove red-eye, crop, and adjust brightness and colors. F-Spot supports all important image formats, includ-

ing JPEG, PNG, TIFF, and several vendor specific RAW formats.

You can import photos from your hard drive, your digital camera, or your iPod. You can also use F-Spot to create photo CDs, generate a Website gallery, or export your photos to your Flickr, 23, Picasa Web, or SmugMug account.

To access F-Spot, click *Computer* → *F-Spot Photo Browser*. The first time you run F-Spot, you must tell it where to find the images you want to import into your collection. If you already have a collection of images stored on your hard drive, enter the path to the respective directory and optionally include subfolders. F-Spot imports these images into its database.



Thumbnails of your images are displayed in the right part of the window, and detailed information for a selected image is displayed in a sidebar to the left. By default, your photos are displayed in reverse-chronological order, so your newest photos are always at the top. You can sort your photos in chronological order or reverse-alphabetical order by clicking *View* → *Reverse Order*.

A menu bar 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.

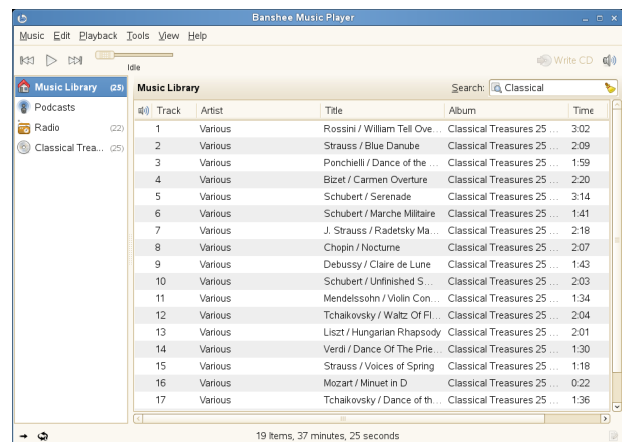
## Managing Your Media

Use Banshee to import CDs, sync your media collection to an iPod\* or other digital media player, play music directly from an iPod (or other digital media player), create playlists with songs or videos from your library, create audio and MP3 CDs from subsets of your library, and subscribe to, download, and listen to your favorite podcasts. Banshee also has an Internet Radio plug-in that allows you to listen to audio streams.

To open Banshee, click *Computer* → *Banshee Media Player*.

When you start Banshee for the first time, you need to import your media to make them available in the library. To do so, select *Media* → *Import Media* from the menu. Choose an import source and click *Import Media Source*. After

successfully importing your media, you can access them from your library.



To play a song or a movie, simply select it in the library and click the play button. You can also use the buttons in the upper left corner to pause a song or play the next or previous song. Use the loudspeaker button on the right to adjust the volume.

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

To create audio and MP3 CDs, select the songs you want, then click the *Edit* → *Write CD* from the menu.

## Configuring Your System with YaST

Use the YaST Control Center to change the installation and configuration of your whole system. `root` permission is required to open YaST.

To open YaST, click *Computer* → *More Applications* → *System* → *YaST*, then enter the `root` password. If you do not know the `root` password, ask your system administrator.

YaST contains various modules you can use to adjust your system settings. These modules are divided into the following categories:

### Hardware

Contains modules for configuring hardware components such as your monitor, keyboard, mouse, printer, and scanner.

### Miscellaneous

The YaST Control Center has several modules that cannot easily be classified into the other module groups. The modules in this category can be used for things such as viewing log files and installing drivers from a vendor CD.

### Network Devices

Includes modules for configuring network devices such as network cards, ISDN, DSL, or modem.

## Network Services

Contains modules for network services and for configuring clients such as LDAP and NFS.

## Novell AppArmor

Use the modules of this category to configure the Novell AppArmor™ access control system. This option is available only if the *Novell AppArmor* pattern is installed.

## Security and Users

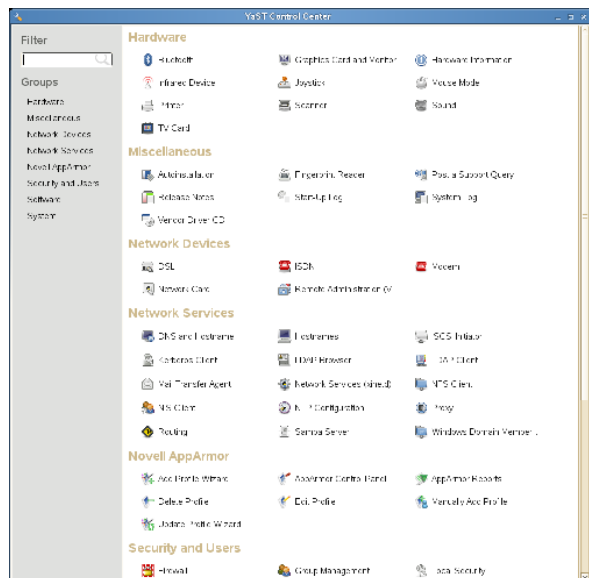
Use these modules to configure security details such as firewall options, and to create and manage users and groups.

## Software

Use the modules of this category to set options for installation and updates, and to install or remove software packages.

## System

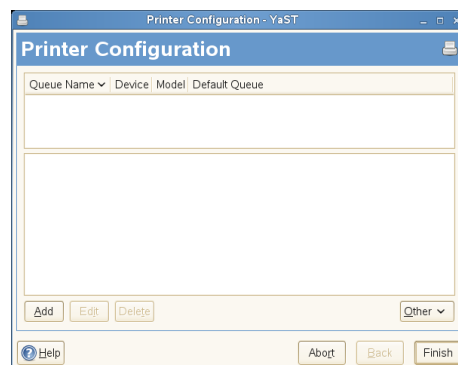
Use these modules to change system settings such as the date, time, or language, and to perform tasks like backing up or restoring files.



## Managing Printers

Printers can either be connected to your system locally or accessed over a network. To use a local printer, make sure that it is connected to your machine. Shut down the system before connecting a non-USB printer to your system.

You can configure printers with YaST. Start YaST, then click *Hardware* → *Printer* to open the main printer configuration window. Depending on the network environment or your local printer model, YaST might be able to configure the printer automatically. If autodetection of printing devices fails, click *Add* in the *Printer Configuration* dialog box to start the manual configuration workflow. Follow the instructions in the YaST online help. If you are not sure which option to choose and which information to enter, ask your system administrator.



After configuring a printing device correctly, you can address it from any application.

If you have active printing jobs, a printer icon is shown in your tray. Click on the icon to open a dialog which lets you manage your print jobs.

## Logging Out

When you are finished using the computer, you can log out and leave the system running, or restart or shut down the computer.

### Logging Out or Switching Users

Click *Computer* → *Logout*, then select one of the following options:

#### Log out

Logs you out of the current session and returns you to the login screen.

#### Switch User

Suspends your session, allowing another user to log in and use the computer.

## Restarting or Shutting Down the Computer

Click *Computer* → *Shutdown*, then select one of the following options:

#### Shutdown

Logs you out of the current session, then turns off the computer.

#### Restart

Logs you out of the current session, then restarts the computer.

#### Suspend

Puts your computer in a temporary state that conserves power. The state of your session is preserved, however, including all applications you have running and all documents you have open.

#### Hibernate

Suspends your session, using no power until the computer is restarted. The state of your session is preserved, however, including all applications you have running and all documents you have open.



## For More Information

This guide gave you a short introduction to the GNOME desktop and some key applications running on it.

Find the other manuals available for openSUSE at <http://www.novell.com/documentation/opensuse110> or in your installed system under `/usr/share/doc/manual`.

To learn more about GNOME and GNOME applications, refer to <http://www.gnome.org/>.

## Legal Notice

Copyright© 2006- 2009 Novell, Inc. All rights reserved.

Permission is granted to copy, distribute and/or modify this document under the terms of the GNU Free Documentation License, Version 1.2 or any later version published by the

Free Software Foundation; with the Invariant Section being this copyright notice and license. A copy of the license is included in the section entitled “GNU Free Documentation License”.

SUSE®, openSUSE®, the openSUSE® logo, Novell®, the Novell® logo, the N® logo, are registered trademarks of Novell, Inc. in the United States and other countries. Linux\* is a registered trademark of Linus Torvalds. All other third party trademarks are the property of their respective owners. A trademark symbol (® , ™, etc.) denotes a Novell trademark; an asterisk (\*) denotes a third-party trademark.

All information found in this book has been compiled with utmost attention to detail. However, this does not guarantee complete accuracy. Neither Novell, Inc., SUSE LINUX Products GmbH, the authors, nor the translators shall be held liable for possible errors or the consequences thereof.

# GNU Free Documentation License

Version 1.2, November 2002

Copyright (C) 2000,2001,2002 Free Software Foundation, Inc. 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

## PREAMBLE

The purpose of this License is to make a manual, textbook, or other functional and useful document “free” in the sense of freedom: to assure everyone the effective freedom to copy and redistribute it, with or without modifying it, either commercially or noncommercially. Secondly, this License preserves for the author and publisher a way to get credit for their work, while not being considered responsible for modifications made by others.

This License is a kind of “copyleft”, which means that derivative works of the document must themselves be free in the same sense. It complements the GNU General Public License, which is a copyleft license designed for free software.

We have designed this License in order to use it for manuals for free software, because free software needs free documentation: a free program should come with manuals providing the same freedoms that the software does. But this License is not limited to software manuals; it can be used for any textual work, regardless of subject matter or whether it is published as a printed book. We recommend this License principally for works whose purpose is instruction or reference.

## APPLICABILITY AND DEFINITIONS

This License applies to any manual or other work, in any medium, that contains a notice placed by the copyright holder saying it can be distributed under the terms of this License. Such a notice grants a world-wide, royalty-free license, unlimited in duration, to use that work under the conditions stated herein. The “Document”, below, refers to any such manual or work. Any member of the public is a licensee, and is addressed as “you”. You accept the license if you copy, modify or distribute the work in a way requiring permission under copyright law.

A “Modified Version” of the Document means any work containing the Document or a portion of it, either copied verbatim, or with modifications and/or translated into another language.

A “Secondary Section” is a named appendix or a front-matter section of the Document that deals exclusively with the relationship of the publishers or authors of the Document to the Document’s overall subject (or to related matters) and contains nothing that could fall directly within that overall subject. (Thus, if the Document is in part a textbook of mathematics, a Secondary Section may not explain any mathematics.) The relationship could be a matter of historical connection with the subject or with related matters, or of legal, commercial, philosophical, ethical or political position regarding them.

The “Invariant Sections” are certain Secondary Sections whose titles are designated, as being those of Invariant Sections, in the notice that says that the Document is released under this License. If a section does not fit the above definition of Secondary then it is not allowed to be designated as Invariant. The Document may contain zero Invariant Sections. If the Document does not identify any Invariant Sections then there are none.

The “Cover Texts” are certain short passages of text that are listed, as Front-Cover Texts or Back-Cover Texts, in the notice that says that the Document is released under this License. A Front-Cover Text may be at most 5 words, and a Back-Cover Text may be at most 25 words.

A “Transparent” copy of the Document means a machine-readable copy, represented in a format whose specification is available to the general public, that is suitable for revising the document straightforwardly with generic text editors or (for images composed of pixels) generic paint programs or (for drawings) some widely available drawing editor, and that is suitable for input to text formatters or for automatic translation to a variety of formats suitable for input to text formatters. A copy made in an otherwise Transparent file format whose markup, or absence of markup, has been arranged to thwart or discourage subsequent modification by readers is not Transparent. An image format is not Transparent if used for any substantial amount of text. A copy that is not “Transparent” is called “Opaque”.

Examples of suitable formats for Transparent copies include plain ASCII without markup, Texinfo input format, LaTeX input format, SGML or XML using a publicly available DTD, and standard-conforming simple HTML, PostScript or PDF designed for human modification. Examples of transparent image formats include PNG, XCF and JPG. Opaque formats include proprietary formats that can be read and edited only by proprietary word processors, SGML or XML for which the DTD and/or processing tools are not generally available, and the machine-generated HTML, PostScript or PDF produced by some word processors for output purposes only.

The “Title Page” means, for a printed book, the title page itself, plus such following pages as are needed to hold, legibly, the material this License requires to appear in the title page. For works in formats which do not have any title page as such, “Title Page” means the text near the most prominent appearance of the work’s title, preceding the beginning of the body of the text.

A section “Entitled XYZ” means a named subunit of the Document whose title either is precisely XYZ or contains XYZ in parentheses following text that translates XYZ in another language. (Here XYZ stands for a specific section name mentioned below, such as “Acknowledgements”, “Dedications”, “Endorsements”, or “History”.) To “Preserve the Title” of such a section when you modify the Document means that it remains a section “Entitled XYZ” according to this definition.

The Document may include Warranty Disclaimers next to the notice which states that this License applies to the Document. These Warranty Disclaimers are considered to be included by reference in this License, but only as regards disclaiming warranties; any other implication that these Warranty Disclaimers may have is void and has no effect on the meaning of this License.

## VERBATIM COPYING

You may copy and distribute the Document in any medium, either commercially or noncommercially, provided that this License, the copyright notices, and the license notice saying this License applies to the Document are reproduced in all copies, and that you add no other conditions whatsoever to those of this License. You may not use technical measures to obstruct or control the reading or further copying of the copies you make or distribute. However, you may accept compensation in exchange for copies. If you distribute a large enough number of copies you must also follow the conditions in section 3.

You may also lend copies, under the same conditions stated above, and you may publicly display copies.

## COPYING IN QUANTITY

If you publish printed copies (or copies in media that commonly have printed covers) of the Document, numbering more than 100, and the Document’s license notice requires Cover Texts, you must enclose the copies in covers that carry, clearly and legibly, all these Cover Texts: Front-Cover Texts on the front cover, and Back-Cover Texts on the back cover. Both covers must also clearly and legibly identify you as the publisher of these copies. The front cover must present the full title with all words of the title equally prominent and visible. You may add other material on the covers in addition. Copying with changes limited to the covers, as long as they preserve the title of the Document and satisfy these conditions, can be treated as verbatim copying in other respects.

If the required texts for either cover are too voluminous to fit legibly, you should put the first ones listed (as many as fit reasonably) on the actual cover, and continue the rest onto adjacent pages.

If you publish or distribute Opaque copies of the Document numbering more than 100, you must either include a machine-readable Transparent copy along with each Opaque copy, or state in or with each Opaque copy a computer-network location from which the general network-using public has access to download using public-standard network protocols a complete Transparent copy of the Document, free of added material. If you use the latter option, you must take reasonably prudent steps, when you begin distribution of Opaque copies in quantity, to ensure that this Transparent copy will remain thus accessible at the stated location until at least one year after the last time you distribute an Opaque copy (directly or through your agents or retailers) of that edition to the public.

It is requested, but not required, that you contact the authors of the Document well before redistributing any large number of copies, to give them a chance to provide you with an updated version of the Document.

## MODIFICATIONS

You may copy and distribute a Modified Version of the Document under the conditions of sections 2 and 3 above, provided that you release the Modified Version under precisely this License, with the Modified Version filling the role of the Document, thus licensing distribution and modification of the Modified Version to whoever possesses a copy of it. In addition, you must do these things in the Modified Version:

- A.** Use in the Title Page (and on the covers, if any) a title distinct from that of the Document, and from those of previous versions (which should, if there were any, be listed in the History section of the Document). You may use the same title as a previous version if the original publisher of that version gives permission.
- B.** List on the Title Page, as authors, one or more persons or entities responsible for authorship of the modifications in the Modified Version, together with at least five of the principal authors of the Document (all of its principal authors, if it has fewer than five), unless they release you from this requirement.
- C.** State on the Title page the name of the publisher of the Modified Version, as the publisher.
- D.** Preserve all the copyright notices of the Document.
- E.** Add an appropriate copyright notice for your modifications adjacent to the other copyright notices.
- F.** Include, immediately after the copyright notices, a license notice giving the public permission to use the Modified Version under the terms of this License, in the form shown in the Addendum below.
- G.** Preserve in that license notice the full lists of Invariant Sections and required Cover Texts given in the Document’s license notice.
- H.** Include an unaltered copy of this License.
- I.** Preserve the section Entitled “History”. Preserve its Title, and add to it an item stating at least the title, year, new authors, and publisher of the Modified Version as given on the Title Page. If there is no section Entitled “History” in the Document, create one stating the title, year, authors, and publisher of the Document as given on its Title Page, then add an item describing the Modified Version as stated in the previous sentence.
- J.** Preserve the network location, if any, given in the Document for public access to a Transparent copy of the Document, and likewise the network locations given in the Document for previous versions it was based on. These may be placed in the “History” section. You may omit a network location for a work that was published at least four years before the Document itself, or if the original publisher of the version it refers to gives permission.
- K.** For any section Entitled “Acknowledgements” or “Dedications”, Preserve the Title of the section, and preserve in the section all the substance and tone of each of the contributor acknowledgements and/or dedications given therein.
- L.** Preserve all the Invariant Sections of the Document, unaltered in their text and in their titles. Section numbers or the equivalent are not considered part of the section titles.
- M.** Delete any section Entitled “Endorsements”. Such a section may not be included in the Modified Version.
- N.** Do not retitle any existing section to be Entitled “Endorsements” or to conflict in title with any Invariant Section.
- O.** Preserve any Warranty Disclaimers.

If the Modified Version includes new front-matter sections or appendices that qualify as Secondary Sections and contain no material copied from the Document, you may at your option designate some or all of these sections as invariant. To do this, add their titles to the list of Invariant Sections in the Modified Version’s license notice. These titles must be distinct from any other section titles.

You may add a section Entitled “Endorsements”, provided it contains nothing but endorsements of your Modified Version by various parties—for example, statements of peer review or that the text has been approved by an organization as the authoritative definition of a standard.

You may add a passage of up to five words as a Front-Cover Text, and a passage of up to 25 words as a Back-Cover Text, to the end of the list of Cover Texts in the Modified Version. Only one passage of Front-Cover Text and one of Back-Cover Text may be added by (or through arrangements made by) any one entity. If the Document already includes a cover text for the same cover, previously added by you or by arrangement made by the same entity you are acting on behalf of, you may not add another; but you may replace the old one, on explicit permission from the previous publisher that added the old one.

The author(s) and publisher(s) of the Document do not by this License give permission to use their names for publicity for or to assert or imply endorsement of any Modified Version.

## COMBINING DOCUMENTS

You may combine the Document with other documents released under this License, under the terms defined in section 4 above for modified versions, provided that you include in the combination all of the Invariant Sections of all of the original documents, unmodified, and list them all as Invariant Sections of your combined work in its license notice, and that you preserve all their Warranty Disclaimers.

The combined work need only contain one copy of this License, and multiple identical Invariant Sections may be replaced with a single copy. If there are multiple Invariant Sections with the same name but different contents, make the title of each such section unique by adding at the end of it, in parentheses, the name of the original author or publisher of that section if known, or else a unique number. Make the same adjustment to the section titles in the list of Invariant Sections in the license notice of the combined work.

In the combination, you must combine any sections Entitled "History" in the various original documents, forming one section Entitled "History"; likewise combine any sections Entitled "Acknowledgements", and any sections Entitled "Dedications". You must delete all sections Entitled "Endorsements".

## COLLECTIONS OF DOCUMENTS

You may make a collection consisting of the Document and other documents released under this License, and replace the individual copies of this License in the various documents with a single copy that is included in the collection, provided that you follow the rules of this License for verbatim copying of each of the documents in all other respects.

You may extract a single document from such a collection, and distribute it individually under this License, provided you insert a copy of this License into the extracted document, and follow this License in all other respects regarding verbatim copying of that document.

## AGGREGATION WITH INDEPENDENT WORKS

A compilation of the Document or its derivatives with other separate and independent documents or works, in or on a volume of a storage or distribution medium, is called an "aggregate" if the copyright resulting from the compilation is not used to limit the legal rights of the compilation's users beyond what the individual works permit. When the Document is included in an aggregate, this License does not apply to the other works in the aggregate which are not themselves derivative works of the Document.

If the Cover Text requirement of section 3 is applicable to these copies of the Document, then if the Document is less than one half of the entire aggregate, the Document's Cover Texts may be placed on covers that bracket the Document within the aggregate, or the electronic equivalent of covers if the Document is in electronic form. Otherwise they must appear on printed covers that bracket the whole aggregate.

## TRANSLATION

Translation is considered a kind of modification, so you may distribute translations of the Document under the terms of section 4. Replacing Invariant Sections with translations requires special permission from their copyright holders, but you may include translations of some or all Invariant Sections in addition to the original versions of these Invariant Sections. You may include a translation of this License, and all the license notices in the Document, and any Warranty Disclaimers, provided that you also include the original English version of this License and the original versions of those notices and disclaimers. In case of a disagreement between the translation and the original version of this License or a notice or disclaimer, the original version will prevail.

If a section in the Document is Entitled "Acknowledgements", "Dedications", or "History", the requirement (section 4) to Preserve its Title (section 1) will typically require changing the actual title.

## TERMINATION

You may not copy, modify, sublicense, or distribute the Document except as expressly provided for under this License. Any other attempt to copy, modify, sublicense or distribute the Document is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

## FUTURE REVISIONS OF THIS LICENSE

The Free Software Foundation may publish new, revised versions of the GNU Free Documentation License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns. See <http://www.gnu.org/copyleft/>.

Each version of the License is given a distinguishing version number. If the Document specifies that a particular numbered version of this License "or any later version" applies to it, you have the option of following the terms and conditions either of that specified version or of any later version that has been published (not as a draft) by the Free Software Foundation. If the Document does not specify a version number of this License, you may choose any version ever published (not as a draft) by the Free Software Foundation.

## ADDENDUM: How to use this License for your documents

To use this License in a document you have written, include a copy of the License in the document and put the following copyright and license notices just after the title page:

```
Copyright (c) YEAR YOUR NAME.  
Permission is granted to copy, distribute and/or modify this document  
under the terms of the GNU Free Documentation License, Version 1.2  
only as published by the Free Software Foundation;  
with the Invariant Section being this copyright notice and license.  
A copy of the license is included in the section entitled "GNU  
Free Documentation License".
```

If you have Invariant Sections, Front-Cover Texts and Back-Cover Texts, replace the "with...Texts." line with this:

```
with the Invariant Sections being LIST THEIR TITLES, with the  
Front-Cover Texts being LIST, and with the Back-Cover Texts being LIST.
```

If you have Invariant Sections without Cover Texts, or some other combination of the three, merge those two alternatives to suit the situation.

If your document contains nontrivial examples of program code, we recommend releasing these examples in parallel under your choice of free software license, such as the GNU General Public License, to permit their use in free software.