

# **User Guide to Using the Linux Desktop**

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# Preface

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This user guide is meant as an introductory guide for a user to use a modern personal computer (PC) running the Linux operating system. The main aim is to provide a self-learning guide on how to use a modern Linux desktop system. It assumes that the user has no prior knowledge of Linux or PC usage.

After going through the guide the reader should be in a position to start using a Linux desktop for both personal and office use. In particular she should be able to:

- access the Internet and use the WWW and Internet email
- manipulate and manage files, folders and the file system
- produce and print simple documents and presentation materials
- advance to become a power user by further self-learning and exploring

Linux has many distributions and sometimes the programs or tools used to perform a certain function can vary from distribution to distribution. This guide tries to be as generic as possible in the description of the features and functionalities. However, in some cases, especially some of the GUI desktop configuration tools, there is no really independent generic tool that can be used and each distribution has its own tool. In such cases, we have tried to illustrate their usage using Fedora Linux.

This guide was written on a Fedora Linux system and as such many of the screen shots reflect this. However, this should not be construed as an endorsement of this distribution of Linux over the others on the part of the authors.

*Nah Soo Hoe and Colin Charles*

*July 2004*

# Chapter 1: Getting Started

In order to start using your system you will usually have to perform what is known as a user login. This procedure is necessary to identify yourself to the system. The system allows multiple users to use it concurrently and so it has to be able to identify a user in order to grant them the necessary privileges and rights to use the system and applications. Each user upon successful login will be assigned to his home directory (folder).

Some systems may have been set up so that upon power-on, a default user is logged in automatically. If this is so, then you will not be presented with a login screen or prompt as described in the section below. You may skip on to the section entitled “Basic Navigation using the Mouse on the Desktop”.

## Note:

There is a special user called the **root** or **superuser** (this user is usually created during the system installation) which has unlimited access and rights to all the system files and resources. You only need to login as root if certain system level administrative tasks are to be carried out. Otherwise there is usually no need for a normal user to login as root. This is to prevent accidentally damaging the system by deleting or modifying important system files.

## LOGGING IN

Depending on how you have set up your system, you will either have a graphical login screen or a text-based login prompt for you to perform the login process.



Fig. Graphical Login Screen

```
Fedora Core release 1
Kernel 2.4.22-1 on an i686
localhost login:
```

Fig. Text-based Login Prompt

To login, enter the username followed by the ENTER key and when the password prompt appears, enter the password followed by the ENTER key.

## STARTING THE GRAPHICAL DESKTOP

If you have logged in from the graphical login screen, the graphical desktop will be started automatically for you. The graphical desktop presents a Graphical User Interface (GUI) for the user to interact with the system and run

applications. If you have used the text-based screen login, you will have to start the graphical desktop manually by entering the command `startx` followed by the ENTER key.

```
[anita@localhost anita]$ startx
```

Fig. Starting the Graphical Desktop

## Note:

The graphical desktop that we will be using throughout most of this guide is called the **GNOME Desktop**. There is another desktop environment in popular use on Linux systems – the **KDE Desktop**. There is some coverage of KDE later, comparing the similarities and differences between GNOME and KDE although we will not be covering the KDE desktop in detail.

For the rest of this user guide, when we refer to the graphical desktop or Desktop we shall be talking about the GNOME Desktop unless stated otherwise.

## USING THE MOUSE ON THE DESKTOP

Proper usage of the mouse is essential in order to have a rewarding and productive experience on the graphical desktop. Most Linux graphical desktops are designed for use with a 3-button mouse. If you are using a 2-button mouse, during installation, it should have been configured to emulate the middle-button of a 3-button mouse by pressing both buttons simultaneously.

To click on a mouse the left button is depressed. (A mouse configured for a left-handed user will need to have its right button depressed.) The right (or left button for a left-handed mouse) and middle buttons are usually used to invoke special or specific features of the GUI and instructions to do so will be explicitly given.

The term “clicking on the mouse” means that you click on the mouse once.

The term “double clicking” means that you click twice in succession on the mouse.

To “select” an item means clicking it once with the mouse.

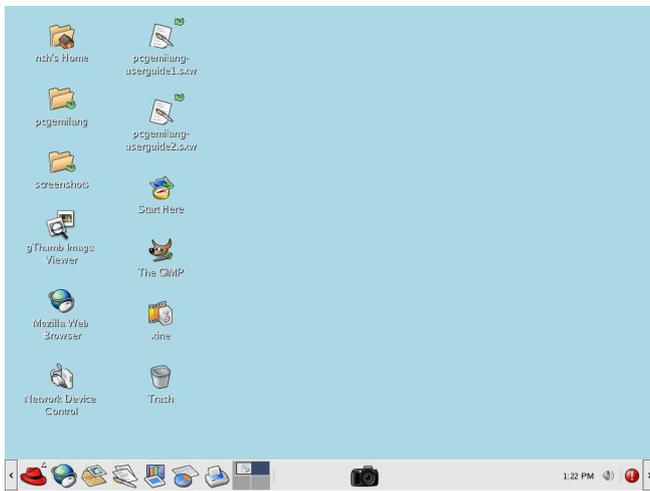
The term “drag and drop” means that you will have to click on an item and while continuing to hold the mouse button down, drag the item to another place and on reaching its destination drop it by releasing the mouse button.

## EXERCISES

1. Open the home folder from the Desktop.
2. Close the home folder window by clicking on the close window button at the top right-hand corner.
3. Right-click on the trash icon, view its properties and close it back.
4. Move the trash icon to another location on the desktop by using the mouse to drag it to the new location and releasing the mouse.

## MAIN COMPONENTS OF THE DESKTOP

The figure below shows a typical view of the graphical Linux desktop.



**Fig. A Typical Linux Desktop**

There are 3 main components on the desktop:

- the Menu System
- the Panel
- the Desktop itself

## THE MENU SYSTEM

The main menu can be accessed by clicking on the Main Menu button located at the extreme lower left hand corner of the desktop. This may be portrayed by one of several icons depending on the desktop environment used.



Generic GNOME Main Menu button



Fedora/Red Hat Main Menu button

Clicking on this will bring up the Menu System as shown in the figure below.



**Fig. The Menu System**

From the Menu System you can start many of the applications installed on your Linux system. Note that the Menu System consists of a Main Menu panel and sub-menu panels. Each entry in the Menu System which has an arrow on its right means that it is an entry point to a sub-menu, and there can be sub-menus within each sub-menu. In this way applications in the Menu System can be organised and categorised for easy reference and access.

To access a the sub-menu associated with a menu entry, move the mouse and rest it on the menu entry in question and a sub-menu panel will appear.



**Fig. Main Menu and Sub-menu**

Clicking once on a menu entry will cause an application associated with it to be launched, i.e. executed.

## THE PANEL

The long bar across the bottom of the desktop screen is called the Panel. The Panel contains the Main Menu icon, the application launcher icons, a notification area and applets.



**Fig. The Panel**

Installed by default are several application launcher icons on the Panel. Clicking on one of these will run an application. Commonly accessed applications can be added to the Panel and those that are less frequently used can be taken off.

The notification area holds alert icons so that the user can be alerted to critical messages.

Applets are small applications that run on the Panel. These usually perform useful and informative tasks like setting the sound level of the soundcard, monitoring whether the system software needs an update, etc. By default the following applets are run.

## The Workspace Switcher

The graphical desktop can be regarded as a workspace drawing an analogy with the working area on a real physical tabletop. Programs are run, documents displayed and files opened on the workspace. To cut down on workspace clutter and to enable the user to organise his workspace more efficiently, the graphical desktop environment allows the usage of multiple workspaces. Each workspace can be considered as a virtual desktop.



Fig. The Workspace Switcher

By default the user has 4 desktop workspace areas to work on. The workspace switcher represents each workspace as a small square and shows the applications running in each of them. To access a workspace click on the square with the mouse.

## The Taskbar

The Taskbar applet is located next to the workspace switcher and shows the titles of all the running applications in a virtual desktop (a workspace).

## THE DESKTOP SPACE

The Desktop space refers to the rest of the screen. It contains icons which are graphical representations of shortcuts to application launchers, file folders, files and peripheral devices like floppy disks, CD-ROM drives and printers. Double-clicking on an icon representing an application will launch or execute the application. Commonly used applications and/or files/folders are usually placed on the desktop space.

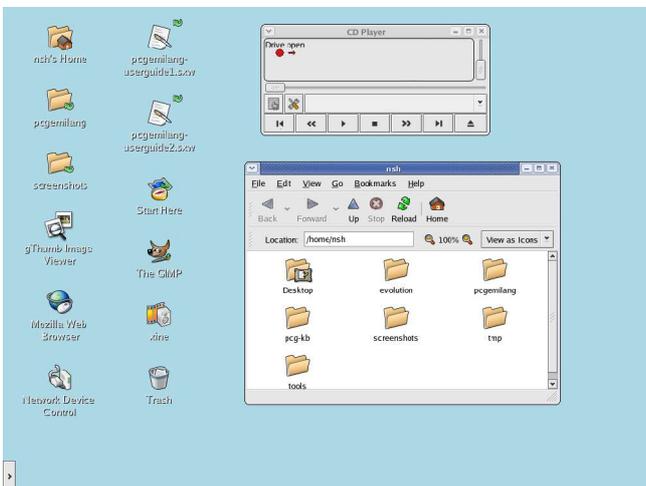


Fig. The Desktop Space

## USING THE WINDOW MANAGER

An interactive application that is run on the graphical desktop, is usually displayed inside a window. This window can be accessed and manipulated using the window manager.

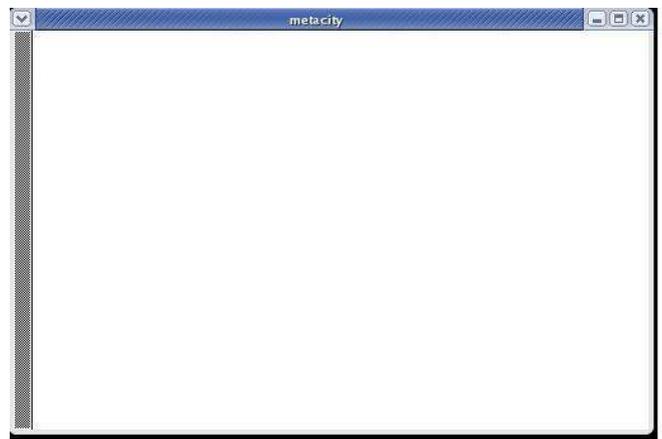


Fig. An Application Window Frame

## THE TITLEBAR

When an application is started an application window opens and a frame (see figure above) is placed around the window of the application. The top edge of the frame has a titlebar that contains the title of the application.



Fig. The Window Titlebar

At the left hand corner of the titlebar is the Window Menu button. Clicking on this button will open up the Window Menu.

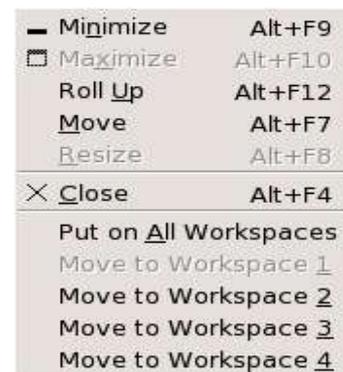


Fig. The Window Menu

You can perform operations such as minimise, (un)maximise, roll up, move and resize the window from this menu. At the right edge of the titlebar there are three buttons which allow you to minimise, (un)maximise and close the window.

To perform an operation in the Window Menu, open the menu by clicking on the Window Menu button and then select the desired operation.

## MANIPULATING THE WINDOW

Some basic instructions to manipulate the windowing system are given here. More details can be obtained by running the "Help" application on the Main Menu. After running the Help application choose:

Desktop --> Windows --> Manipulating Windows

## Focus

In order for a window to receive input from the mouse and the keyboard it has to be the window "in focus". Only one window can have focus at a time. Windows that are not in focus have their titlebars greyed-out. To focus on a window place the mouse on the titlebar and click on it. (You can actually click anywhere within the window, but it

is safer to click on the titlebar since there is no possibility of accidentally clicking on some item selection or functionality of the application running within the window.) If the window is not visible you can click on the taskbar on the Panel at the bottom of the Desktop to bring into focus the window you want.

### Maximise and Minimise

Maximising a window means that the window is expanded to cover the whole desktop while minimising it means that the window is taken off the desktop and it appears as an icon in the taskbar on the Panel.

You can maximise a window which has focused from the Window Menu or by clicking on the maximise button on the titlebar. You can similarly minimise the window. If the window does not have focus bring it into focus first by clicking on the taskbar on the Panel.

### Resize

You can resize a window, i.e. change its size, by placing the mouse at an edge of the window and then drag the window to the desired size.

### Move

To move a window to another place on the desktop, place the mouse on the titlebar and drag the window to the desired location.

### Roll Up and Unroll

To roll up a window allows you to “roll up” the window frame until what can be seen of the window is just the the titlebar. You can perform this operation from the Window Menu.

To restore the window back to its original shape, select the unroll option from the Window Menu.

### Close

You can close a window which has focused from the Window Menu or by clicking on the close window button on the titlebar. If the window does not have focus bring it into focus first by clicking on the taskbar on the Panel.

*Note: Closing the window will terminate your application.*

### Move to Workspaces

The Window Menu can be used to move the application currently opened to another workspace or to all the workspaces.

## EXERCISES

1. Open your home folder from the Main Menu. Perform the following operations on the opened window:
  - maximise it
  - minimise it
  - resize it
  - roll it up
  - unroll it
  - move it to another position on the Desktop
  - place it on workspace 3
  - close the window

## ENDING THE SESSION

To end this chapter, you can exit your session on the desktop by performing what is known as a logout.

If you do not want to use the system anymore, you can turn it off by performing a system shutdown.

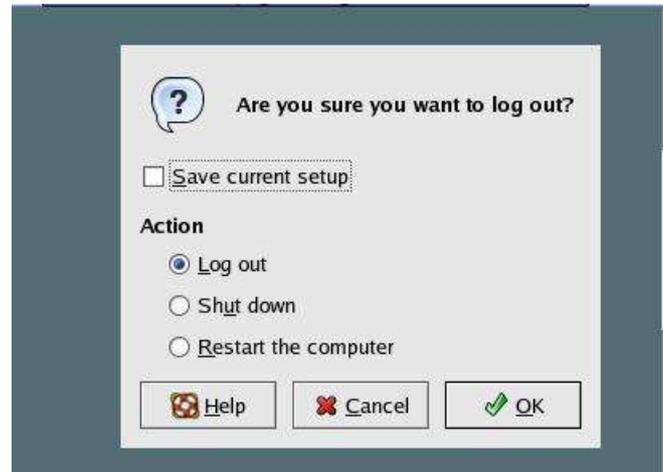
## LOGOUT

When you have finished working on the system, you will need to logout. Logging out will inform the system that you are no longer using the system's resources. All the files opened and programs run by you will be closed and/or stopped unless you have specifically informed the system to keep them open or running for you.

To logout, at the Main Menu select:

Main Menu --> Logout

and at the dialog window select logout and click OK



**Fig. Logout Dialog Window**

## SHUTTING DOWN THE SYSTEM

When you have finished using the computer and want to power it off, you will have to perform a system shutdown.

*Note:*

*It is very important that a proper system shutdown is performed. You should not just turn off the power switch of the computer to shut it down. Failure to observe this may lead to system software and data corruption and failure.*

To shutdown, at the Main Menu, perform a logout. Then at the graphical login screen select the “Shut down” option at the bottom of the screen. Sometimes (depending on the login screen chosen) the Shutdown option is available as a sub-option under the Actions option at the bottom of the screen.

Alternatively on some systems, you may be able to perform a shut down by performing a log out operation as described in the previous section but instead of selecting “Log out”, select the “Shut down” option from the Logout dialog.

# Chapter 2: Using the Desktop

## BASIC DESKTOP CUSTOMISATION

The desktop can be customised to your preferences and tastes in a variety of ways. Here we will explore some basic customisations. More details can be obtained by running the "Help" application on the Main Menu. After running the Help application choose:

Desktop --> Basic Preferences

### Desktop Background

The background image displayed on the desktop can be changed by running the Background application from the Main Menu (this is in the Preferences sub-menu).

Main Menu --> Preferences --> Background

To change the background image, click on the square marked "Select picture". An image selector dialog is displayed. Choose an image from the dialog. If you want to choose an image from another directory, click the Browse button. When you have chosen an image, click OK.

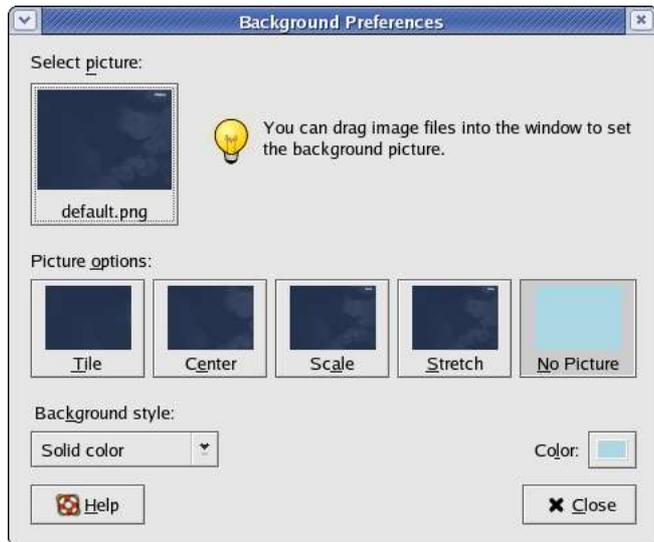


Fig. Selecting a New Background image

### Desktop Themes

The desktop theme specifies the visual appearance of the panels, applets, and windows. The desktop theme may also specify the appearance of interface items in applications. For example, the theme affects the appearance of buttons, scrollbars, check boxes, and so on in the applications.

The theme used by the Desktop can be changed by running the Theme application from the Main Menu (this is in the Preferences sub-menu).

Main Menu --> Preferences --> Theme

An theme selector dialog is displayed. To change the theme, click on a new theme. The screenshot below shows a sample of some of the themes which may be available. Note that the actual themes available can vary from system to system.

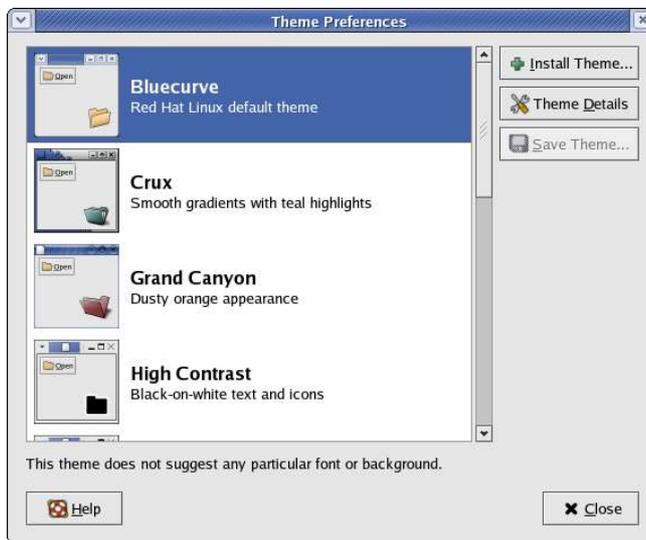


Fig. Selecting a New Theme

### Default Fonts

The default fonts used to display applications and the desktop background can be changed by running the Fonts application from the Main Menu (this is in the Preferences sub-menu).

Main Menu --> Preferences --> Font

A selector dialog for the application, window title, dialog and terminal fonts are displayed. To change the font for each category of usage, click on the space listing the font.

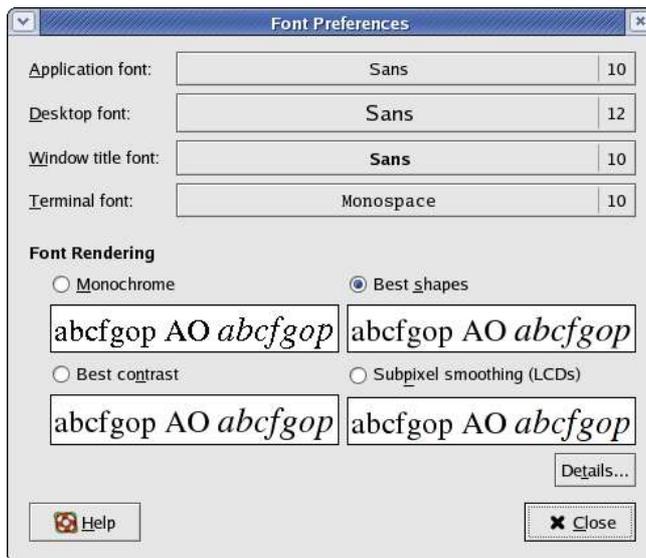


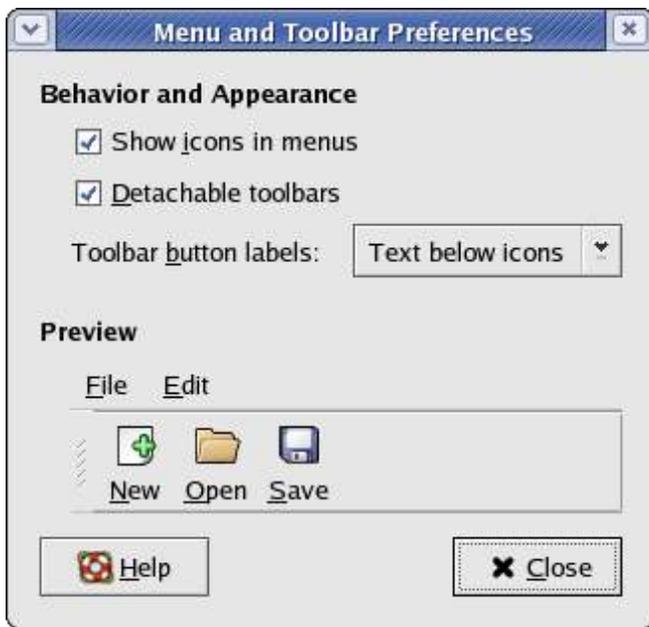
Fig. Selecting New Fonts

### Menus and Toolbars

The Menus & Toolbars tool is used to customise the appearance of menus, menubars, and toolbars. Again this can be run from the Preferences sub-menu in the Main Menu.

Main Menu --> Preferences --> Menus & Toolbars

Experiment on each of the settings to get the ones preferred.



**Fig. Customising Menus and Toolbars**

## EXERCISES

Experiment with each of the following desktop preferences:

- background
- themes
- fonts
- menus and toolbars

## USING THE DESKTOP

The Desktop provides a useful metaphor for a modern office work environment. So on the Desktop we find that the applications that we want to run can easily be started or launched and the information and data that we need can easily be located.

## RUNNING APPLICATIONS

Applications that we can run from the Desktop are to be found either from the Main Menu (and sub-menus therein), or as icons on the Panel and the Desktop itself.

To run an application from the Main Menu, open up the menu (or sub-menu) and click on the application listed in the menu bar.

To run an application from the Panel, click once on the icon representing the application.

To run an application from the Desktop itself, double-click on the icon representing the application.

Sometimes it is more handy to have the application as an icon on the Panel or Desktop where you can launch it more easily by just clicking on it, rather than in the Main Menu, especially if it is buried deep within several sub-menus. To achieve this open the Main Menu and select the application item listed in it by clicking with the right mouse button. Click on the selection "Add this launcher to panel" and a copy of the application icon will be placed on the Panel.

To make a copy of this on the Desktop, you can drag the icon from the Panel over to the Desktop.

To delete an application icon from the Panel right-click on it and select the "Remove from Panel" option.

To delete an application icon from the Desktop, right-click on it and select the "Move to Trash" option.

## THE PANEL

The Panel houses many useful utilities called applets. Applets are small applications that run on the Panel. As discussed in Chapter One, by default, the taskbar and the workspace switcher applets are placed and run on the Panel. Other useful applets that may be placed on the Panel include:

- clock
- sticky notes
- volume control

## Placing an Applet on the Panel

To place an applet on the Panel, move the mouse over to an empty space on the Panel and right-click it. Select the item "Add to Panel" and from the sub-menus select the applet to place on the Panel. For example to place the "sticky notes" applet, select:

Add to Panel --> Accessories --> Sticky Notes

To prevent accidental removal of an applet, you can lock it on the Panel by right-clicking on its icon and selecting "Lock".

## Removing an Applet from the Panel

To remove an applet, right-click on the applet icon and select "Remove from Panel". If the applet is locked, you will have to unlock it first by right-clicking on the icon and selecting "Unlock".

## Configuring the Panel

To change the properties of the Panel, right-click on the Panel and select "Properties".



**Fig. General Properties of the Panel**

From the general properties menu you can change the orientation, size and (un)hide the Panel.

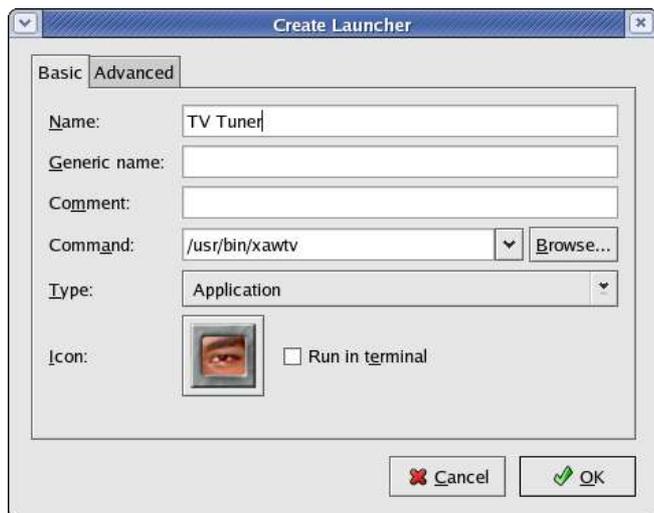
From the background properties menu, you can change the colour of the Panel as well as its visual appearance.

## LAUNCHERS

Launchers allow the user a quick way to access specific resources on the system. For example if a user needs to access a specific file in one of the folders often, he can create a launcher to run an application to open the file and this launcher can be placed it on the Desktop. In this way

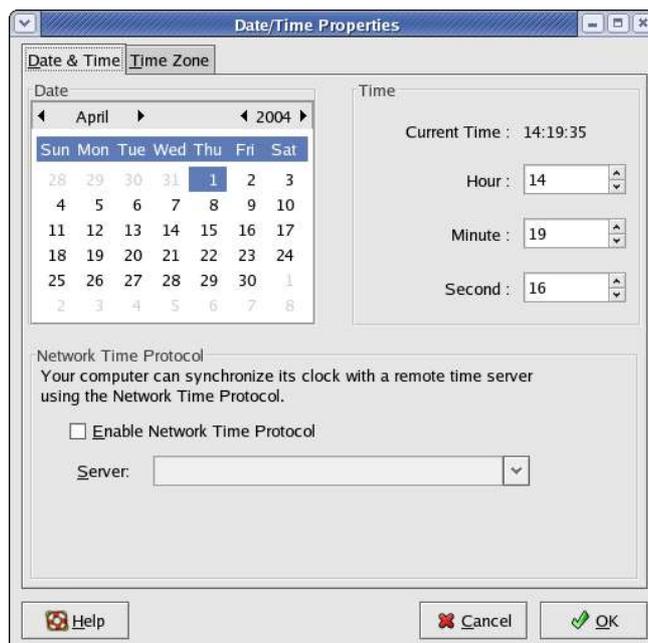
the resource (the file) can be accessed very quickly by just double-clicking on it.

To create a launcher on the Desktop, right-click on an empty area on the Desktop and select the item "Create Launcher". Enter the Name and the Command to run and if you want you can select an icon for it by clicking on the icon button.



**Fig. Creating a Launcher**

selecting the appropriate timezone region. Usually the system uses the local time, so do not select the "System clock uses UTC" checkbox.



**Fig. Setting the Date and Time**

## EXERCISES

1. The Mozilla web browser is a popular web browser application for Linux systems. It has an easily recognisable icon – a red dinosaur head.
  - Locate the Mozilla application in the Main Menu and place it on the Panel as well as the Desktop.
  - Launch the Mozilla application from:
    - the Desktop
    - the Main Menu
    - the Panel
2. Configure the Panel so that it has the following properties:
  - a background colour of solid blue
  - contains the Geyes and Screenshot (locked) applets
3. Create a launcher to run the text editor command "gedit" on the Desktop. Use an appropriate icon for the text editor.

## SETTING THE DATE AND TIME

It is important that the date and time are set correctly in your system. This will make it easier to manage the system resources and files and also aid in troubleshooting any problems. To set the date and time, run the Date & Time application tool from the System Settings sub-menu under the Main Menu.

Main Menu --> System Settings --> Date & Time

Alternatively you can right-click on the clock (time) applet display on the Panel and choose "Adjust Date & Time".

A dialog box asking for the root password will appear if you are not logged in as root. This is because the system date and time are important system parameters and so only the system administrator or root is allowed to do it. After entering the correct root password, you can change the date using the displayed calendar and the time in the boxes provided. Select the Time Zone tab and check to see that the timezone selected is correct. If not, correct it by

Click on the OK button after all is done to enable the new date and time. You can check for the new date and time by resting your mouse over the clock (time) applet display on the Panel at the bottom of the screen.

## EXERCISES

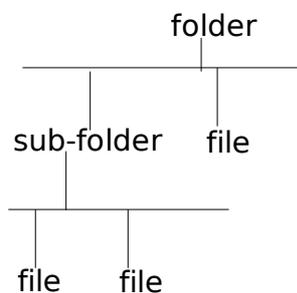
1. Practice setting the date and time.
2. Practice changing the appearance of the desktop clock

# Chapter 3: Files and Folders

## THE FILE SYSTEM

One of the most powerful features of a modern computer system is the ability to store data in a form which can be easily retrieved and transported or copied across to other computer systems or media. Data created and accessed by a user in the computer is stored in what is called a *file*. This concept of an electronic file to store electronic data mimics the physical world usage of a file to store data written on paper. This mimicry is carried further by the organisation of these electronic files into electronic folders or directories. Like a physical folder, an electronic folder can contain very many files. A folder may also have sub-folders or sub-directories.

*Note:*  
We shall be using the terms *folder* and *directory* interchangeably, unless stated otherwise.



**Fig. The Hierarchical File System**

Files and folders can be created, copied, moved (i.e. transferred) and deleted. The folders themselves are organised in a hierarchical manner starting at the root of the file system. Each user is given a home directory and upon logging in, the user is placed in his home directory.

## OWNERSHIPS AND PERMISSIONS

As the system is set up to handle multiple users concurrently, it needs to have in place mechanisms with which it can control the security and privacy of the file system. It needs to be able to control access to the file system resources for each individual user. In addition it also has to be able to control access at a group level i.e. users who belong to the same group can be given certain privileges with respect to the file system operations. To be able to perform these features, associated with each file or folder are the categories:

- owner
- group
- others

and the file permissions:

- read (r)
- write (w)
- execute (x)

and the directory permissions:

- read (r)
- write (w)
- access (x)

Associated with a file are the categories owner, group and others and the permissions which these have on the file. The userid of the user who creates a file by default becomes

the owner of the file. Userids on the system are assigned to one or more groups. When a userid is created on the system, a group which has the same name as the userid is also created and the new userid belongs to this group. By default this group (which has the same name as the file owner) is associated with the file. All of the other userids on the system which are not the owner of the file or belong to the group associated with the file, are placed in the category others .

By default the owner has read and write permission for a non-executable file and read,write and execute permission for an executable file. The group associated with the file has read permission for a non-executable file and read, execute rights for an executable file. The others group has read only permission for non-executable file and read, execute rights for an executable file.

The rights and ownership concepts described above apply to directories too. However since a directory cannot be executed, access rights is substituted for execution rights. Access to a directory means that the userid with the appropriate permission can descend into the directory (i.e. change directory to it).

The File Manager application described below may be used to view and modify the ownership and permissions of a file or folder. Only the owner of a file/folder can change its permissions and only the *superuser* or *root* can change the ownership of a file/folder.

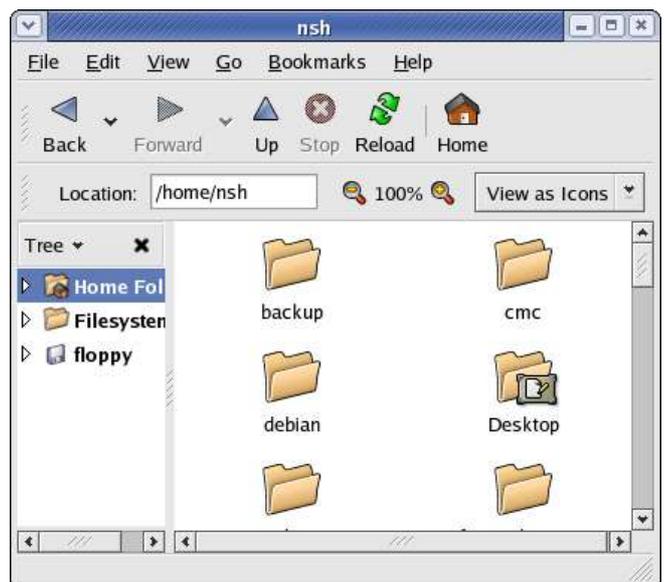
## USING THE FILE MANAGER

As it is possible for a user to create and store hundreds and thousands of files and folders, a File Manager is needed to assist the user to manage and manipulate these files and the file system on which it resides.

In this section a brief description of the File Manager and how to use it is given. For more details you should consult the "Help" application on the Main Menu. From the Help application choose:

Desktop --> Nautilus File Manager

To start using the File Manager double-click on the home directory icon on the desktop. (This may be named "*username's Home*" where username is the username of the user currently logged in.)



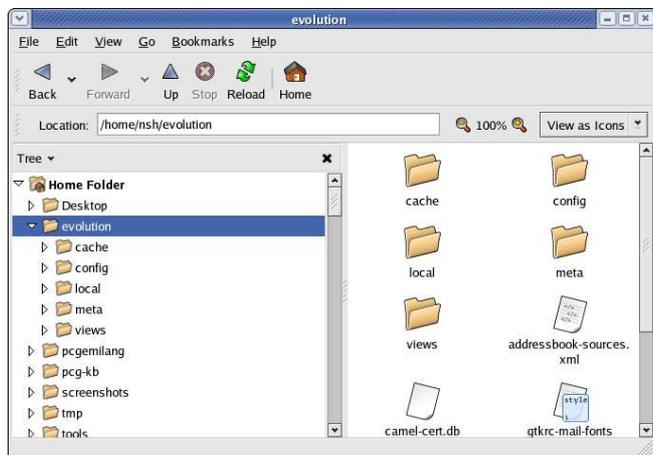
**Fig. The File Manager**

By default, the File Manager window consists of a side pane and a main view pane. At the top of the window just under the window titlebar, are the menu bar and the location bar.

The view pane displays the files and folders contained in the current directory that the user is in. These can be displayed

as icons (default) or changed to display them as a listing of filenames.

The side pane contains an icon that represents the current file or current folder. The side pane also contains information about the current file or current folder. A hierarchical (tree) view of the file system on the computer can be obtained from the side pane. By navigating through this, you can access files and folders outside your home directory (provided of course that you have the permission to do so).



**Fig. The Side Pane with a Tree View of Folders**

## ACCESSING FILES AND PROGRAMS

From the view pane of the File Manager, you can open files as well as run (launch) executable programs by double-clicking on the icon representing them.

### Creating New Folders

To create a new folder under the folder you are currently in, move the mouse to the menu bar at the top (just beneath the titlebar of the window) and click on File and then click on Create Folder. A new folder will appear on the view pane and you will have to type in the name of the new folder.  
Copy Files and Folders

To copy a file, click on the file in the view pane to select it. Then select from the menu bar at the top,

Edit --> Copy File

Next open up the folder in which you want to copy the file to and then select from the menu bar at the top,

Edit --> Paste Files

Another way to copy a file is to right click on the file icon and then select "Copy File". Then navigate to the icon of the folder where you want the copy to be placed in and then right click on the folder icon and select "Paste Files into Folder".

The procedures above can be done with folders too.

To copy more than one file or folder at a time, select multiple files/folders by holding down the CTRL key while clicking on the files or folders.

### Moving Files and Folders

Moving a file or folder is different from copying in that a copy of the file/folder is not made, i.e. only one copy of the file/folder exists, and the file/folder is transferred from one folder to another.

To move a file, click on the file in the view pane to select it. Then select from the menu bar at the top,

Edit --> Cut File

Next open up the folder in which you want to move the file to and then select from the menu bar at the top,

Edit --> Paste Files

Another way of moving a file is to drag and drop the file into the destination folder.

The procedures above can be done with folders too.

To move more than one file or folder at a time, select multiple files/folders by holding down the CTRL key while clicking on the files or folders.

### Renaming Files and Folders

To rename a file, click on the file in the view pane to select it. Then select from the menu bar at the top,

Edit --> Rename

and then type in the new name.

Alternately you can also right-click on the file and then select "Rename".

The procedures above can be done with folders too.

### Deleting Files and Folders

To delete a file, click on the file in the view pane to select it. Then select from the menu bar at the top,

Edit --> Move to Trash

Alternately you can select the file and then use the DELETE key on the keyboard to delete the file. This has the same effect as above of moving the file to the Trash folder.

It is still possible to salvage a deleted file from the Trash. To do this double-click on the Trash icon on the desktop to open up the Trash folder. Then you can move the file you want to salvage to the desired folder. Note that if you delete the file from the Trash then it cannot be recovered anymore.

The procedures above can be done with folders too.

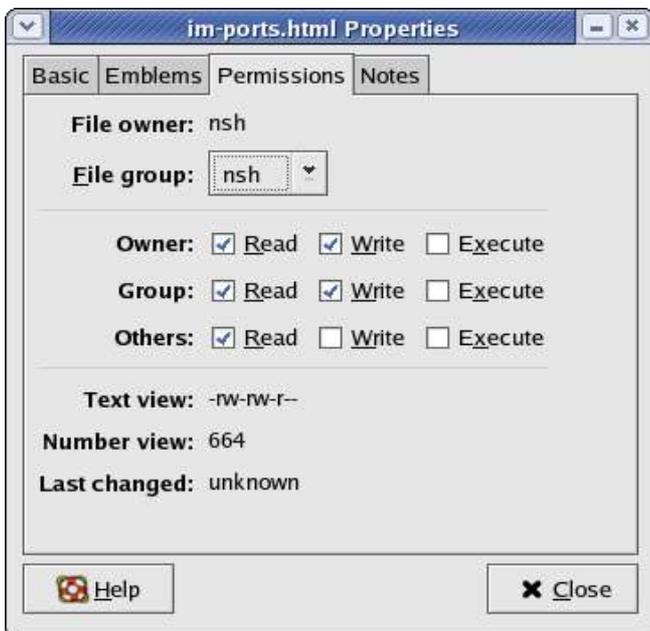
To delete more than one file or folder at a time, select multiple files/folders by holding down the CTRL key while clicking on the files or folders.

### Viewing and Modifying the Permissions of a File or Folder

To view the owner and group of a file/folder and/or to modify its permission settings, select the file/folder and select from the menu bar at the top,

File --> Properties

Click on the Permissions tab. The owner and group of the file/folder are displayed as well as the associated permissions.



**Fig. Ownership and Permission Properties of a File**

To change the permissions, modify the check boxes accordingly to the new permissions desired. Click on Close to apply the changes.

*Note:*  
It is recommended that you do not modify the default file/folder permission settings unless you know what you are doing. This is to minimise the risk of compromising the security of the files and folders.

## THE TRASH CAN

The trash can icon on the desktop contains files and folders which you have deleted using the File Manager or an application run from the desktop. As noted above it is a special folder in which it is still possible to move back the deleted items to another folder so as to “undelete” them. However over time, the trash folder will be filled up as many files and folders get deleted through usage. So it is a good idea to periodically empty or delete the items found in the trash.

To empty the trash, right-click on the trash icon and select “Empty Trash”. Otherwise you can open the trash by double-clicking on it and then select to delete all the items in the trash folder using the File Manager functions described above.

## EXERCISES

- Use the File Manager to perform the following:
  - Create a new folder called *testdir* under the home directory
  - Copy the following files into the folder *testdir*:
    - /etc/services*, */etc/hosts*
  - Access the *testdir* folder:
  - Open the two files there to view their contents, then close them
  - Rename the file *hosts* to *hosts.backup* and *services* to *services.copy*
  - Move the file *hosts.backup* to the */usr/tmp* directory
  - Delete the file *services.copy*
  - Move up to the home directory
  - Delete the folder *testdir*
  - Launch the application *xeyes* found in the folder */usr/X11R6/bin*
- Check the trash can and restore the deleted file(s) there

## USING A TEXT EDITOR

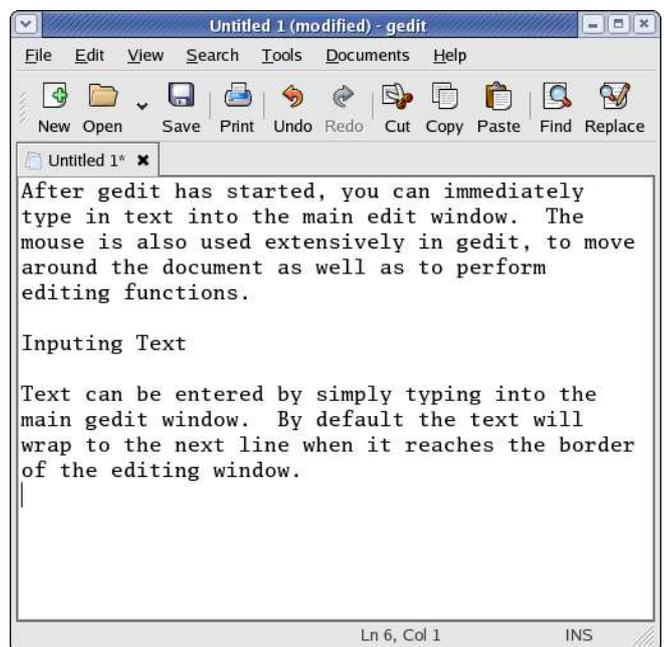
Very often it is necessary to use the computer to input some text or to modify the data in a text file. While a full-fledged word processor like OpenOffice.org’s Writer may be used, it can be an overkill since the sophisticated features and formatting available with a word processor are not needed in many cases. A text editor can be used instead. The Linux system comes installed with many text editors. In this section we shall be looking at how to use a text editor which comes with the GNOME Desktop - gedit.

*Note:*  
A text file here refers to a file which contains pure text printing characters only. Some types of files e.g. those created by a word processor, while appearing to be text-only actually contain other non-printing characters and hence are not pure-text files.

### Starting Gedit

Gedit may be started from the Main Menu,

Main Menu --> Accessories --> Text Editor



**Fig The Gedit Text Editor**

After gedit has started, you can immediately type in text into the main edit window. The mouse is also used extensively in gedit, to move around the document as well as to perform editing functions.

### Inputing Text

Text can be entered by simply typing into the main gedit window. By default the text will wrap to the next line when it reaches the border of the editing window.

### Marking Text

The mouse may be used to mark a block of text by clicking on the beginning of the block and dragging the mouse to the end of the block before releasing it.

### Deleting Text

Text can be deleted one character at a time by moving the mouse to the character in question and using the DELETE and BACKSPACE keys in the normal fashion.

If there is a lot of text to be deleted, a more efficient way to delete text is to mark it first and then press the DELETE key on the keyboard.

## Copy, Cut and Paste

Text can be edited by marking it first and then selecting Cut, or Copy from the buttons at the top. "Cutting" will result in the marked text being copied into a storage buffer and then deleted from the editing window, while "Copying" will result in just a copy of the text being copied into the storage buffer without the deletion of the original text. The text cut/copied in this way can then be pasted into another part of the document by moving the mouse to the desired location and selecting the Paste button at the top.

Another way of invoking these functions is to click on the Edit option on the top menu bar and selecting the desired function, e.g.

```
Edit --> Cut
Edit --> Copy
Edit --> Paste
```

## Undo

After performing an editing function, e.g. deleting a block of text, you can undo the action by clicking on the Undo button at the top. The Undo function can also be invoked using the Edit menu selection at the top.

## Saving Text

The text typed in can be saved by clicking on the File option on the main menu bar at the top and selecting,

```
File --> Save As ...
```

Move to the folder you want to save the file in and enter the name of the file to save.

## Find and Replace

The Find button can be used to locate a text string. By default this search is not case sensitive and will also locate the text if it is part of a word. These default options can be changed from the Find dialog.

The Replace button can be used to locate a text string and replacing it with another. Again the default options of non-case sensitive and matching part of a word can be changed.

The Find and Replace functions can also be performed using the Search menu selection at the top.

## Opening A File

You can edit a text document already saved on the system by opening it. From the main menu at the top choose,

```
File --> Open
```

and select the file to open.

## Preferences

Preferences can be set from the Preferences menu selection,

```
Edit --> Preferences
```

The Preferences you can set include the font, colour and point size to be used, tab spacing, autowrapping, and autoindenting.

## Help

More information on how to use gedit can be obtained by selecting Help from the menu at the top.

## EXERCISES

1. Use the gedit text editor to type in the first page of this guide. Save the document in a file on your home folder.
2. Open the saved file and edit it by:

- deleting the second paragraph on page one
- adding the statement "End of Chapter" to the last page
- save the edited document as a new file

# Chapter 4: Using Common Mass Storage Peripherals

Besides the main components which make up the modern PC, there are many optional peripherals which can be attached to it and when these are properly utilised they can contribute to make the computing environment and experience more convenient, productive and pleasant. The more common peripherals include:

- printer
- scanner
- mass storage devices

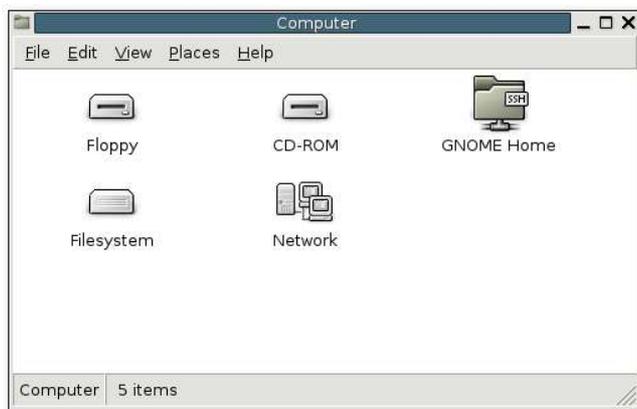
In this chapter we shall be looking at how to access and use the common peripheral mass storage devices,

- floppy disk drive
- CD-ROM drive
- USB mass storage device
- CD-RW drive

Setting up and using a printer and scanner will be covered in the next chapter.

### Note:

The method for accessing the mass storage peripherals described below are based on GNOME version 2.4. A new version of GNOME, version 2.6, came out while this guide is being written. In GNOME 2.6 the right-clicking on the Desktop and selecting Disks method has been deprecated. The new method is to use the Computer icon located on the Desktop. Double-click on the Computer icon, and it will display all the system devices as well as the filesystem.



**Fig. Accessing System Devices and Filesystem in GNOME 2.6**

## THE FLOPPY DISK DRIVE

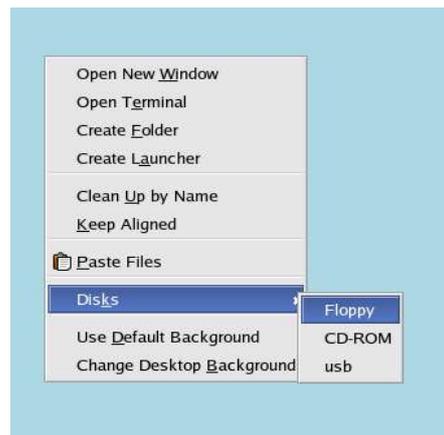
While most of the work is done using the hard disk or drive and system and user data are stored on the hard drive, sometimes you may want to transfer or copy files to another PC. One convenient way to perform this provided that the file sizes are not too large is to use a floppy disk or diskette. Diskettes are very useful as a portable storage medium for small files.

### Mounting and Using the Diskette

Before a diskette can be used, you have to perform an operation called "mounting" the diskette. This is to let the system know that you are going to use and access the diskette in the floppy drive.

To mount a diskette, move the mouse to an empty area on the Desktop and right-click it. From the pop-up menu select,

Disks --> Floppy



**Fig. Mounting a Floppy**

(Under the new version of GNOME, disk access is done by right-clicking on the Computer icon on the desktop and selecting Floppy. See the Note at the top of this chapter.)

This will mount the floppy and add a floppy icon on the desktop. Double-clicking on this will list out the files and folders in the floppy under the File Manager.

Once you have successfully mounted the diskette and listed out its directory contents under the File Manager, you can treat it like another folder to read and write files and folders. However, you have to bear in mind some differences between the floppy diskette folder and the normal folder you have been working with.

The diskette has a very low storage capacity compared with the hard disk; a floppy diskette typically will have about 1.44 MB of storage capacity only. In contrast a hard disk will have at least a few hundred MB of storage capacity at the minimum!

If the write-protect tab on the diskette is enabled, then the diskette can be used for reading only, i.e. you can read the contents of the files on it only. You cannot write to the files, and so you cannot modify and/or create new files or folders.

After using the diskette, you will need to unmount it before you take off the diskette from the floppy drive. To unmount the diskette, right-click on the floppy icon on the desktop and select "Eject". This will unmount the diskette and the floppy icon will disappear from the Desktop. Once this has happened, you can safely remove the diskette from the floppy drive.

### Note:

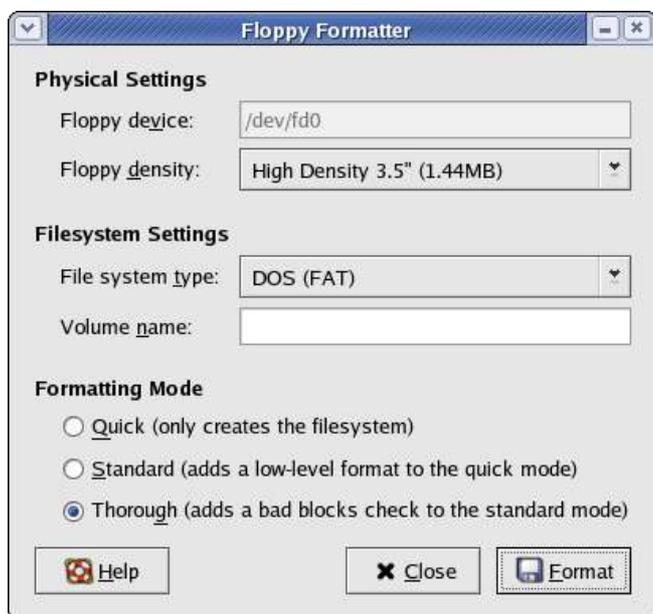
It is important that you unmount the diskette before removing it from the floppy drive, especially if it has been mounted for writing. Failure to do so may result in incomplete data being written to the diskette and corruption of the file system on the diskette.

## Formatting the Diskette

Before a diskette can be used it has to be "formatted" first. This will create the directory structures and other information needed for the system to keep track of where the data is stored on the diskette. You need to format a diskette once only. You can subsequently format it again after using it for some time but re-formatting will result in the loss of the original contents of the diskette.

To format a diskette, you can use the floppy formatter selection from the Main Menu.

Main Menu --> System Tools --> Floppy Formatter



**Fig. Floppy Formatter Dialog**

Choose the default floppy density of 1.44 MB and the DOS (FAT) file system type. This will enable the diskette to be read on almost all commonly used operating systems including Microsoft Windows.

## EXERCISES

1. Format a floppy diskette, mount it for read-write and copy the following files/folders found in the /etc directory to it: hosts, termcap, motd and rc.d.
2. Unmount the diskette, mount it again and copy its entire contents to the folder tmp in your home directory (create this folder if it is not there). Unmount the diskette after the copying.

## THE CD-ROM DRIVE

Nowadays the CD-ROM is widely used as a means to store and distribute data and information. A typical 5.25" CD-ROM can store up to 700 MB of data. It is thus ideal as a medium for distributing large files, multimedia games and software packages.

By default when a CD-ROM is placed in the drive it is automatically mounted and the File Manager will open it to display its directory contents. If it is not automounted, then it can be mounted by moving the mouse to an empty area on the Desktop and right-click it. From the pop-up menu select,

Disks --> CD-ROM

(Under the new version of GNOME, disk access is done by right-clicking on the Computer icon on the desktop and selecting CD-ROM. See the Note at the top of this chapter.)

This will mount the CD and add a CD icon on the desktop. Double-clicking on this will list out the files and folders in the CD-ROM under the File Manager. The File Manager can then be used to access the files and folders on the CD. Since the CD-ROM is a read-only medium, you can only read the contents of the CD and not write to it.

After using the CD, you will need to unmount it before you take it off the CD-ROM drive. To unmount the CD, right-click on the CD icon on the desktop and select "Eject". This will unmount the CD and the CD icon will disappear from the desktop.

## THE USB MASS STORAGE DEVICE

Another popular portable storage medium is the USB mass storage device (sometimes also known as a thumb drive). Like the floppy diskette you can read and write to a thumb drive but it has the advantage of storing much more data than a diskette. Thumb drive devices of capacities 32 MB, 64, 128 MB etc. are common.

To access the thumb drive, place it in the USB slot (port) provided and move the mouse to an empty area on the desktop and right-click it. From the pop-up menu select,

Disks --> usb

*Note:*

*This assumes that the system you are using has been set up with the name of "usb" for the thumb drive; it can be another name (customisable).*

*Under GNOME 2.6 (see the Note at the beginning of this chapter) the thumb drive is accessed by double-clicking on the Computer icon on the Desktop, and is referred to by the name "Flash",*

Computer --> Flash

This will mount the USB thumb drive and add a thumb drive icon on the desktop. Double-clicking on this will list out the files and folders in the thumb drive under the File Manager. You can then treat it like another folder to read and write files and folders.

After finishing with the thumb drive, you will need to unmount it by right-clicking on the thumb drive icon on the desktop and selecting "Unmount Volume", before removing it from the USB port.

## THE CD-RW DRIVE

While the CD-ROM drive is very useful as a portable storage medium due to its high capacity and low cost, it suffers from the disadvantage that it is a read-only medium.

To overcome this, many PCs are sold nowadays with drives which enable you to record data onto CD-R (CD recordable) and CD-RW (CD rewritable) disks. The former refers to a CD medium which allows you to record to it only once, while with a CD-RW disk it is possible to rewrite data to it multiple times.

*Note:*

*While a CD-RW drive supports both CR-R and CD-RW functionalities, the CD medium that you utilise determines whether you can write data to it only once (CR-R) or multiple times (CD-RW). So it is important that you buy the correct medium type for the function that you want.*

## CD-CREATOR

The File Manager has a facility which enables a user to copy files and folders very easily to a CD-RW drive. To use this feature, start the File Manager and from the menu bar at the top select,

Go --> CD Creator

and the CD Creator window will be displayed. The files and folders which are to be copied (burned) onto the CD-R(W) disk are to be placed here in this window. To do this, open up another window on the File Manager,

File --> Open New Window

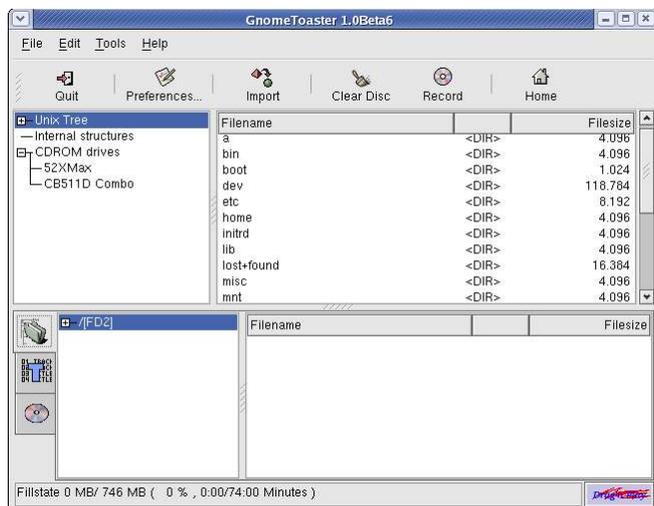
In the new File Manager window, select the files and folders you want and drag and drop them into the CD Creator window. After you have finished selecting and dropping all the files and folders you want, go to the Cd Creator window and click on the "Write to CD" button at the top. A dialog box will open up and from here you can choose the writing speed, the CD name and other options. The default settings may be used if you do not know what to fill in here.

To start the burning, click on the "Write files to CD" button in the dialog box. A status window showing the status of the CD burning will be displayed.

## GNOME TOASTER

While the CD Creator application described above is very convenient and easy to use, its functionality is mainly limited to the copying of files/folders to a CD-R(W). A more versatile CD burning application is GnomeToaster. To start it select,

Main Menu --> System Tools --> More System Tools  
--> CD Writer



**Fig GnomeToaster**

### Top Window - Data Sources

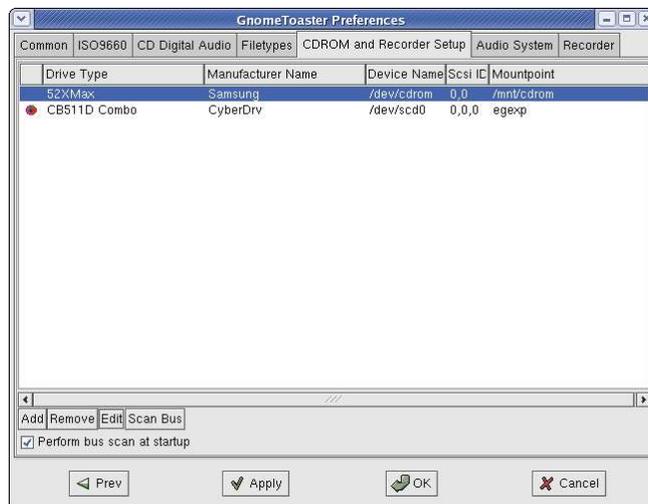
The GnomeToaster window has 2 main window sections. The top window shows a list of data sources - Unix Tree, Internal Structure and CDROM drives. The data sources are the sources for the data to be copied and burned into the CD-R(W).

The Unix Tree represents the file system on the computer. Clicking on the + icon of the tree will expand it to display the file system, i.e. the hierarchical tree structure comprising files and directories (folders). Clicking on a directory will cause the files in the directory to be displayed on the right panel of the top window.

Clicking on CDROM drives will expand into a listing of the CD-ROM drives present in the system and clicking on one of the drives will display the tracks in it on the right panel.

#### Note:

If you have a CD-ROM drive and it is not displayed on the GnomeToaster CDROM drives listing, you may have to physically enter your CD-ROM drive device information into the GnomeToaster configuration setup so that the application can recognise it. To perform this, click on the Preferences button at the top and select "CDROM and Recorder Setup". Click on the Add button at the bottom to display the setup window. Enter the CD-ROM drive data for your system. For the model and manufacturer, you can enter the information marked on your CD-ROM drive or if you do not know what they are, you can just enter any meaningful text description. The Device File entry will probably be "/dev/cdrom" while the Mountpoint entry is usually "/mnt/cdrom". For the Scsi ID use the default value of "0,0". Ensure that the boxes entitled "This Drive is a CD writer" and "Use SCSI Interface for DAE" are **not** marked. Click on OK to apply the settings and click on OK again to exit the "CDROM and Recorder Setup" window.



**Fig GnomeToaster CDROM and Recorder Setup**

The CD-ROM drive should now be visible in the CDROM drives tree listing panel. You can now use it as a source of data for burning.

Clicking on Internal Structures will display the "GnomeToaster-Filesystem" on the right panel.

### Bottom Window

Writing data to the CD-R(W) involves selecting the data from the data sources window described above and dragging and dropping them into the bottom window panel. The bottom window has three possible selections - the virtual filesystem, the track editor and the recorder settings. Each of these can be selected by clicking on the icons in the left panel of the bottom window.

The virtual filesystem represents a view of the filesystem setup in a track of the CD-R(W) to be written to later. Note that this is not part of the actual filesystem on your computer and so manipulating the files here will not affect the ones in the computer filesystem. The virtual filesystem can be managed and edited by right-clicking the mouse.

The track editor shows you the tracks that you have selected to be burned to the CD-R(W). You can edit them using the track editor by right-clicking the mouse before committing them to be burned.

The recorder settings view enables you to change from the default, the various parameters for recording, e.g. recording speed etc.

### FillstateStatus

At the bottom of the GnomeToaster window is the Fillstate status panel. This shows you the current space that will be taken up by the selected tracks as a percentage of the space available on the CD-R(W). This space utilisation is also displayed in megabyte (MB) units as well as the audio playing time.

### Duplicating CDs

It is easy to make a duplicate of a CD using GnomeToaster. The source CD should be placed into the CD drive and the drive selected in the data source top window. The tracks in the source CD will be displayed in the right window panel. Select the tracks you want (or all of it if you are duplicating the CD) and drag them into the tracklist panel in the bottom window. The tracklist panel is displayed in the bottom window right panel when the trackeditor is selected for the bottom window.

After you have selected all the tracks you want, you should select the recorder settings parameters. This is done by clicking on the recorder settings button in the bottom window left panel. Usually you need to change only the recording speed to one which can be adequately supported

by your drive. The Multisession box should usually be off while the Fixate box turned on.

To start the actual recording (burning) of the CD click on the Record button at the top of the GnomeToaster window.

## **Creating a Data CD**

This section will discuss how you can copy files and folders from the mounted filesystem and record them into a CD-R (W). Select the files and folders you want to copy from the Unix Tree in the Data Source window at the top and drag them into the virtual filesystem right panel in the bottom window (the virtual filesystem will have to be selected first in the bottom window). The files and folders in the virtual filesystem can be edited by right-clicking on the mouse. You can create, delete and rename files and directories (folders). You can also provide your own volume name to the data track's volume id (default name is CDROM) by selecting the root entry in the filesystem 's editor left panel and right-clicking it. Select the "Rename VOLUME/Directory" option and choose a new name for the volume.

After you have selected all the files you want, you should select the recorder settings parameters as above and then start the recording.

## **Writing ISO Images**

It is possible to copy and store all of the data on a CD in the form of what is known as an ISO image file format. If this ISO image file is then written to a CD, the new CD will be a duplicate of the original one from which the ISO image was created. This provides a convenient way of duplicating a data CD if you can copy or download the ISO image file from another source to the filesystem on your computer.

To write ISO images to a CD-R(W), select the ISO image file from the Unix Tree filesystem data source window and drag it into the tracklist panel window in the bottom window. After that ensure that the recording settings are correct and click on the record button at the top to start the burning.

## **Help**

There are many more options and features which GnomeToaster have, e.g. multisession burning, mixing audio and digital data, working with CD-RW media etc. The GnomeToaster documentation should be consulted for these more advanced features. The GnomeToaster User's Guide may be obtained from:

**<http://gnometoaster.rulez.org>**

# Chapter 5: Using the Printer and Scanner

While the holy grail of office computing may well be the paperless office, for many users, it is often desirable and indeed sometimes necessary to be able to put on hard copy the information available on the computer. The printer allows you to do that. The printer is essentially an output device with which you are able to output text and graphics onto paper from digital data stored on the computer. To complement this, the scanner is an input device with which you can transfer text and graphics from paper to the computer and stored in the form of digital data which can then be further manipulated by other software applications.

## THE PRINTER

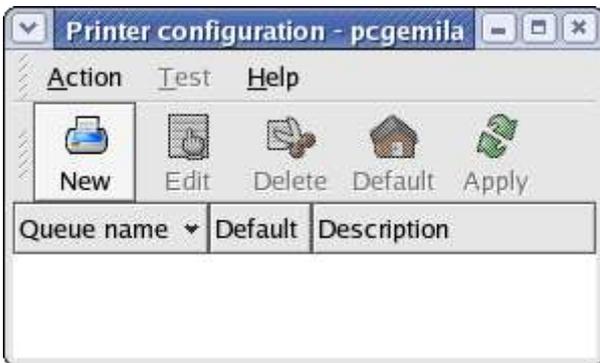
### PRINTER SETUP AND CONFIGURATION

If you have a printer attached to your system you will need to configure and set it up before you can use it properly. To do this, click on the Print Manager icon on the Panel

**Note:**

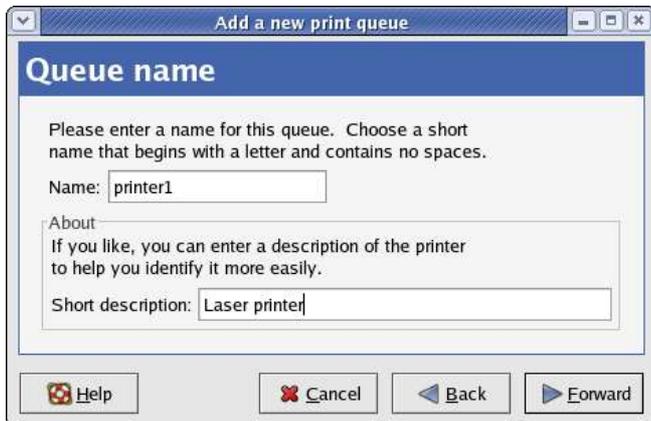
To enable the system to detect your printer properly, you should turn on the printer before trying to configure it.

When you are prompted to run the printer configuration tool select OK. You will then need to enter the root password since you are now attempting to set and change some system parameters and configuration. At the printer configuration screen click on the New button to add and configure a new printer.



**Fig. Printer Configuration**

The Add new print queue screen will be displayed. Select Forward.



**Fig. Print Queue**

Fill in the details for the print queue. Enter a unique name for the printer in the Name field. This name must begin with a

letter and cannot contain spaces. You may also want to enter a brief description of the printer. Enter Forward to go to the next screen.



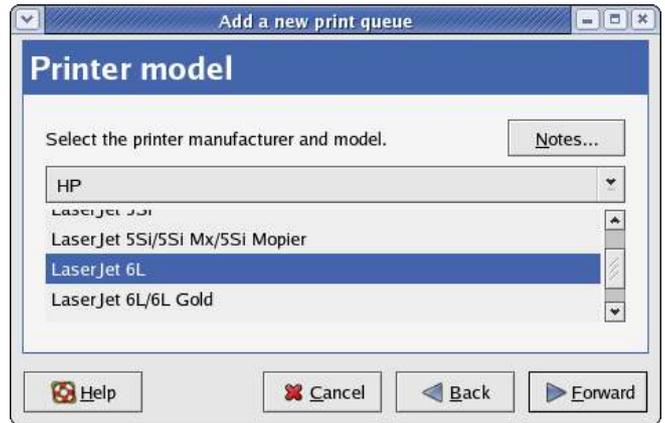
**Fig. Queue Type**

Select locally-connected for the queue type. Select the printer device by clicking on the device displayed on the screen. If no device is shown click on Rescan device button for the system to check for the availability of the printer device.

**Note:**

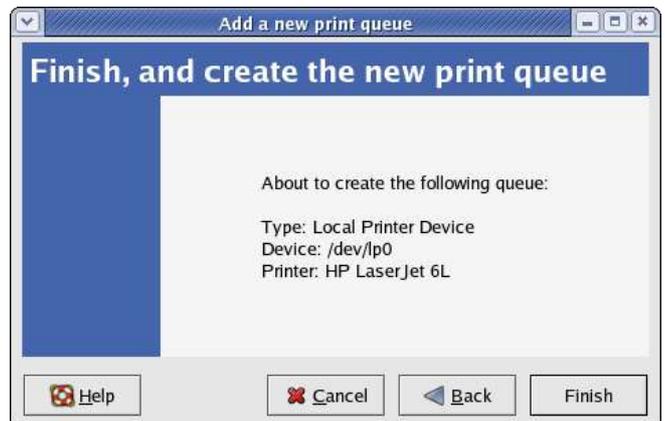
For a parallel printer the device name is usually /dev/lp0 and for a USB printer the name is usually /dev/usb/lp0.

Select Forward to go to the Printer model screen.



**Fig. Printer Model Selection**

The model of the printer should have been auto detected by the system. If it is not, click on the pull-down menu to select the manufacturer and the model of the printer. Click on Forward to go to the next screen.



**Fig. Finish and Create New Print Queue**

Confirm that the printer information displayed on the screen is correct. If so click on the Finish button, otherwise click on the Back button to go back and make further changes.

After clicking Finish you will be asked whether you want to print a test page. Ensure that the printer is connected and online and answer yes to it. Check to see if the test page is printed properly. If it is, click on the Apply button in the Printer configuration screen to add this printer to the system.

After setting up the printer you can delete it or edit its properties anytime by clicking on the Print Manager icon on the Panel. The Print Manager screen will be displayed.



**Fig. Print Manager**

Right click on the printer in question and select Properties. Select the print queue in question and click on the Edit button to make changes or the Delete button to remove it from the system.

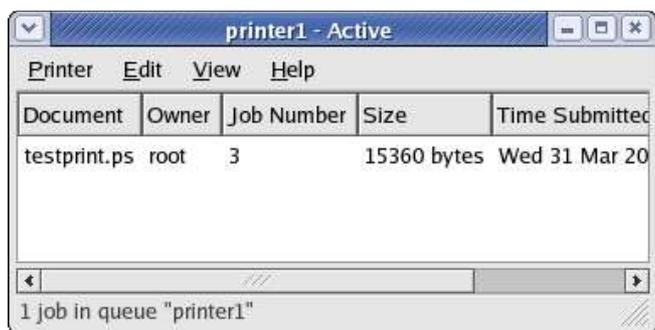
*Note:*

*If you delete all the print queues associated with a printer, the printer itself will be deleted from the system too and you will have to set up a new printer again in order to print.*

### MANAGING PRINT JOBS

When you send something for printing from your application, the data to be printed is stored in the print spooler area and a print job is added to the print spooler queue. In this way many printing jobs can be carried out without waiting for the printer to finish printing a job first before accepting another printing job. The Print Manager is used for managing the print jobs associated with a given printer.

The Print Manager can be utilised to check on the status of the printing jobs that you have submitted to the printer and to cancel jobs still in the queue if you need to. To do this, launch the Print Manager and then double-click on the icon of the printer that you want to monitor. A list of current print jobs in the queue is displayed. To cancel a print job, highlight the job in question and then click on the Edit button on the menu bar on top and select Cancel Documents from the pull down menu.



**Fig: Status of Print Jobs in the Queue**

### USING THE PRINTER

Normal usage of the printer from an application is straightforward. Select the printing function from your application and a print job is then automatically submitted to the printer queue.

### EXERCISES

1. Edit the printer properties to change it to another printer

### THE SCANNER

The scanner is a device which allows you to convert analog graphics e.g. a photograph or a printed page into digital format where it can be stored on the computer and further manipulated by appropriate software. Flat-bed scanners for personal use are quite common nowadays.

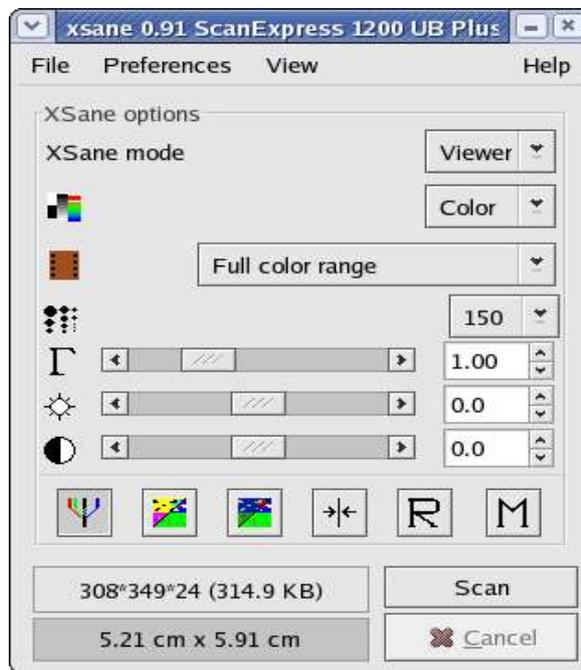
Most scanners connect to the computer using the USB, SCSI or parallel ports. To use the scanner, suitable software to control and drive it is required. The SANE backend drivers may be used to drive the scanner hardware while the XSane GUI front-end acts as the end-user interface. To check whether the scanner you have can be used, the SANE website at <http://www.sane-project.org> should be consulted.

### USING THE SCANNER

You can start the scanning software on the Desktop, from the Main Menu,

Main Menu --> Graphics --> Scanning

This will invoke the XSane program and by default two windows will be displayed, the Main Xsane window and the Preview window.



**Fig XSane Main Window**

There are 5 modes of viewing for this Main window – viewer, save, copy, fax, mail:

- viewer mode - an image is scanned and displayed in the viewer
- save mode - an image is scanned and saved to a file
- copy mode - an image is scanned and sent directly to a printer
- fax mode - the scanned image can be sent to a back-end fax software
- mail mode - an image is scanned and sent via email to intended recipients.

The above modes can be selected in the Main window. In addition, the following selections are also available :



**Scanmode:**

Selects the mode of scanning choices including colour, grayscale, lineart.



**Scansource:**

Selects the source of scanning, e.g.: Flatbed, Transparency, Automatic Document Feeder. This is only displayed if there is more than one possible source of input for scanning.



**Scanmedium:**

Selects the scan medium, e.g.: slide, standard negative or full colour range.

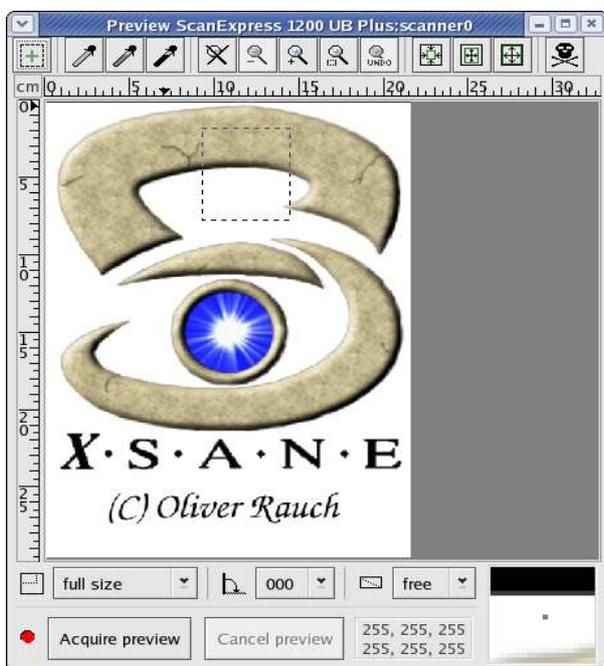


**Scan resolution:**

Selects the resolution that is to be used for scanning.

**Preview**

Before the actual scanning of an image takes place, the preview operation is usually carried out to preview the scanned image. To perform the preview, place the image to be scanned into the scanner and click on the "Acquire preview" button in the Preview window.



**Fig Preview Window**

As the scanner will scan its entire scanner bed by default, if you are scanning an image which occupies only a part of the bed you will want to select only the area which holds the image to be scanned. This can be done from the Preview window in several ways. One way is to manually select the scan area frame by pressing and holding the left mouse button to define one edge, moving the mouse so that the area to scan is completely inside the frame (which is marked by a dashed white line) and then releasing the mouse button. Another way is to select the Autoraise button and then clicking on the image to be scanned. A frame is created to mark the scan area. The mouse may be used to adjust the scan area if it is not fully correct.

**Scan**

After the appropriate scan area has been chosen in the Preview window, the image can be adjusted and/or enhanced for colour correction, contrast, and brightness. The gamma value, brightness and contrast can be adjusted manually in the scan window before performing the scan. In addition, the Autoenhancement button may be used to automatically

enhance and sharpen the scanned image for brightness and contrast.

After a satisfactory image is seen in the preview window, perform the actual scan by clicking on the scan button in the main Scan window. The scan will be performed and the scanned image displayed in the Viewer window.

**Save**

The scanned image that is displayed in the Viewer window can be saved to a file by selecting the operation, File --> Save image. The file name and image format to be saved in can be chosen from the drop down menu selection.

Another way of saving is to select the Save mode, select the filename and format to save the image in and then perform the scan.

**Help**

More detailed information on how to use the scanner software as well as changing the default configuration can be obtained from the Help menu selection. It also contains useful general information about scanner and scanned image technologies.

**EXERCISES**

1. Perform a scan of an entire photograph containing several people or objects.
2. Using the same photograph as for the previous exercise, this time perform the scan for only the image of one person or object.

# Chapter 6: Multimedia and Graphics Access

## MULTIMEDIA ACCESS AND PLAYERS

Apart from being able to view and create graphics and other images, the PC is capable of supporting a wide range of audio and video features and facilities. These include the playing of audio CDs, audio digital files, VCD and DVD as well as multimedia games.

### Note:

While support may be available in the software, the necessary hardware has to be available before these multimedia facilities can be used, e.g. a DVD drive is required to be present on the system before you can play a DVD.

By default most modern PCs come with a CD-ROM drive capable of playing audio CDs and VCDs as well as a soundcard and speakers. As such in this chapter we shall discuss how you can listen to an audio CD, play audio digital files and view VCDs.

In the following sections we shall be discussing several media players. Some of these e.g. mplayer and xine are multimedia players in that they can be used as generic players for audio CD, digital audio files, VCD and DVD.

## THE VOLUME CONTROL APPLET

Since almost all the multimedia applications require some form of audio production and mixing, it is useful if we know how to control the various channels of audio available from the sound card using the Volume Control Applet on the Panel. This may be launched by right-clicking the Volume Control icon on the Panel and selecting Open Volume Control. If it is not there you can also launch it from the Main Menu.

Main Menu --> Sound & Video --> Volume Control

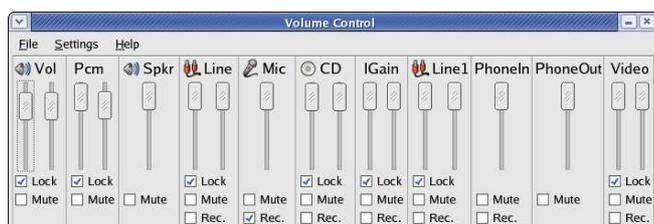


Fig Volume Control Applet

The Volume Control application is essentially an audio mixer which enables you to mix the audio for a 2-channel sound card. As can be seen from the figure above the main component for each audio channel is the "fader", represented by a control knob slider icon. The fader controls the volume of the channel. In addition each channel also has a mute, record and lock button. The mute button mutes the channel. The lock button locks the left and right channels together so that when the fader is adjusted both channels are synchronised. The rec button is a toggle to turn on or off the recording function of the soundcard on a channel.

Usually the main channel that is controlled is the Volume fader. To turn up (or down) the volume of an application, the Volume fader may be manipulated. This can also be done by clicking on the Volume Control applet on the Panel.

## PLAYING AUDIO CDs

You can play an audio CD by placing the CD into the CD-ROM drive. The CD player application will be run automatically to

play the CD. Ensure that your speakers are turned on so that you can hear the CD! You can also manually start the CD Player application from the Main Menu:

Main Menu --> Sound & Video --> CD Player



Fig. CD Player

You can control the CD Player just like a normal CD player with the buttons shown on the CD Player screen. These include volume control, track forward/backward, play/pause, stop, eject as well as jumping to any track on the CD directly.

## PLAYING DIGITAL AUDIO FILES

The XMMS (X Multimedia System) application can be utilised to play a wide variety of digital audio file formats. These include the popular MP3 as well as the open Ogg Vorbis formats. To launch XMMS, select :

Main Menu --> Sound & Video --> Audio Player



Fig. XMMS Player

### Note:

XMMS may need additional plug-ins to be able to play some of the audio file formats. If these are not already installed on your system they can be downloaded from the Internet.

Again, you can control the XMMS player using the graphical knobs and buttons displayed. In addition, you can select the source of the audio files to play. To do this, right-click on the XMMS player and from the pop-up menu select Play File to select the audio file to play. If you want to be able to play an audio file from the Internet select Play Location and enter the Internet location of the file.

## XMMS Skins

Skins allow you to change the appearance of an application. Note that this change is cosmetic only and the functionalities of the application are unaffected. To change the appearance of the default XMMS Player, you can install the xmms-skins package which may be included in your Linux distribution CD. If it is not there then you will have to download it from the XMMS website. To change the skin of the XMMS player, start the XMMS application and then right-click on it and select,

Options --> Skin Browser

to choose the skin you want. Experiment until you find a skin to your liking.



**Fig XMMS Player using a Different Skin**

## PLAYING VCD AND DVD

There are several excellent applications readily available for you to use to play VCD and DVD media. Here we shall look at two of them: Xine and Mplayer. These can also play CD and digital audio music files.

### Xine

The xine application may be used to play VCD and DVD. You can start xine from the Main Menu:

Main Menu --> Sound & Video --> xine

The xine user interface is highly intuitive as it resembles a normal VCD/DVD player with all the basic control knobs and buttons.



**Fig. Xine Control Panel**

To play a VCD place the VCD into the CD-ROM drive and click on the VCDO button on the xine control panel.

To play a DVD place the DVD into the DVD drive and click on the DVD button on the xine control panel.

The volume control can be adjusted by clicking on the volume control button.

In the event that the xine control panel interferes with the playing screen image, you can hide it by right-clicking on the panel itself and select GUI visibility. This will hide the xine control panel. To bring back the xine control panel right-click on the playing screen and select GUI visibility again.

Xine is a very powerful multimedia application with many features. It can also play audio CDs as well as digital audio files.

### MPlayer

Mplayer is a popular movie player for Linux. In addition to being able to play VCD and DVD it is also able to handle a wide variety of audio and video file and streaming data formats. Hence it is useful to use Mplayer as the universal multimedia player. The Mplayer GUI can be started from the Main Menu,

Main Menu --> Sound & Video  
 --> More Sound and Video Applications  
 --> Movie Player

On start up, the main Mplayer control screen and the Mplayer video output screens are displayed.



**Fig. Mplayer Control Screen**



**Fig. Mplayer Video Screen**

The control screen enables you to control the operations of Mplayer while the video screen displays any video that is being played. In addition right-clicking on the mouse when it is inside either the control or video screens will also bring up a menu for controlling the use of Mplayer.

The Mplayer control screen enables you to perform the following:

- start, stop and pause play
- go to the next and previous stream
- jump to the first and last tracks
- adjust the sound balance
- adjust the volume and mute
- select files to play
- set up a playlist
- set the video and audio equalizer
- configure preferences
- exit the Mplayer application

All of the above functions are represented by intuitive knob, dial and button icons on the control screen making it very easy to use Mplayer.

To play a VCD, place the VCD in the CD-ROM drive, move the mouse over the control screen or video screen and right-click it. Select,

VCD --> Open disk

To play a DVD, perform the above for VCD but instead select,

DVD --> Open disk

The size of the video screen can be controlled by right-clicking on the mouse and selecting normal size, double size or full screen. When you are in the full screen mode, to return to normal size, right-click on the mouse and select normal size.

## EXERCISES

1. Play an audio CD using the CD Player
2. Play an audio digital music using xmms
3. Play a VCD using xine and mplayer

## GRAPHIC IMAGES ACCESS

Very often it is useful if we are able to view graphic image files on their own, or in thumbnail fashion if there are many of them. It is also useful if there are simple tools available which will enable us to manage these image files, e.g. catalog and classify them and recall them for viewing. In this section, we shall look at several tools available on your system which provide some of these functionalities.

## FILE MANAGER

The File Manager itself provides a simple and convenient means to access and view image files. To view an image file from the File Manager, navigate to the folder containing the file and double-click on it. If a folder contains image files, you may also set the "View as Image Collection" option from the View menu selection.



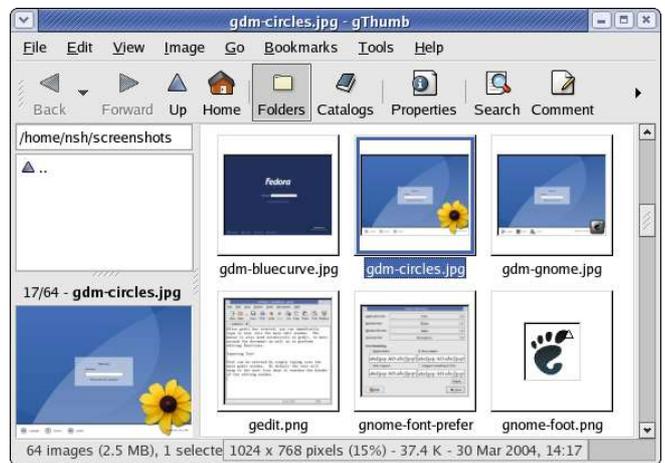
**Fig. Image Collection View in File Manager**

This will result in only the image files present in the folder being displayed. You can then select an individual image to view and also perform zoom in or zoom out views. If you want to view all the images in sequence, the Slide Show option may be invoked from the View menu.

## GTHUMB IMAGE VIEWER

The gThumb image viewer is a powerful tool for viewing, and organising graphic image files. To start this application perform:

Main Menu --> Graphics --> gThumb Image Viewer



**Fig. gThumb Image Viewer**

On start up gThumb by default will check your home directory for any image files and if detected the gallery panel will automatically generate thumbnails of the images.

### View

Once the thumbnails of the images in a folder have been generated by gThumb the simplest way to view an image is to double-click on the thumbnail and it will be displayed in full. You can also navigate to the next/previous image as well as go to full-screen viewing. The Zoom function can be used to zoom in or out of the image currently being displayed. Click on the Folders button at the top of the screen to go back to the thumbnail view. A preview of the image will be displayed in the preview area if you just select the thumbnail.

One useful feature of gThumb is the slide show. Clicking on this button will start a full screen slide show of the images in the folder.

### Image Manipulation

You can also manipulate the images under gThumb. Supported functions include rotation, flipping, resizing, colour balancing, brightness control. To access these functions select Image from the menu bar at the top.

### Libraries and Catalogs

gThumb allows you to organise your images in libraries and catalogs. Catalogs are logical views of a group of images and are an alternative to physical organisation in folders. A catalog enables you to group together images with a similar theme or category even though physically the image files may be in the same or different folders. For an even higher level of organisation you can create libraries and then place catalogs under a library.

Libraries and catalogs can be created and manipulated under the catalog view mode. Double-click on the Catalog icon to enter this mode. On entering this mode the folder list panel (at the top left), becomes the library/catalog list panel. From this panel you can access and navigate your catalogs and libraries.

To create a new library, select

File --> New Library

and enter the name of the library. The created library will be displayed in the catalog list panel.

To create a new catalog select

File --> New Catalog

and enter the name of the new catalog. The created catalog will be displayed in the catalog list panel.

To organise a catalog under a library, you can either create the new catalog directly under the library or create the

catalog first on its own and then move it under the library in question. The library/catalog list panel is used for navigating the library list.

To organise images into a catalog, go to the folders view mode (by double-clicking on the Folder icon), select the image(s) you want and then select

Edit --> Add to Catalog

The Choose a Catalog screen will pop up, choose a catalog from the list. If the catalog you want is under a library select the library first and then the catalog.

## **Convert Format**

The Convert function of gThumb allows you to convert your image files from one format to another. Supported formats are:

- Portable Network Graphics (PNG)
- Joint Photographic Experts Group (JPEG, JPG)
- Tag Image File Format (TIFF)
- TARGA format (TGA)

To use the Convert function, select an image first and then from the top menu bar, select,

Tools --> Convert Format

## **Help**

gThumb has many other useful features. The online help guide should be consulted for more details on how to use gThumb.

## **EXERCISES**

Use gThumb for the following:

1. View the images in the following folder:  
usr/share/backgrounds/images
2. View a slide show of the images in the folder above.
3. Copy one of the images from the above folder into your home directory and scale it down to 25% of its original size and save it.

# Chapter 7: Accessing the Internet

The Internet has revolutionised information usage and dissemination. It has made the global village a reality whereby almost anyone any where in the world is reachable if the person has an Internet connection. The most common way to get Internet connectivity is by using the PC, be it at home, in the place of work, the community hall or even a cybercafe.

In this chapter we shall examine some of the more common methods in which a PC can gain access to the Internet.

## THE INTERNET SERVICE PROVIDER (ISP)

For a personal or home user, before you can access the Internet you will need to sign up with an Internet Service Provider (ISP). The ISP usually has a network which is connected to the Internet by a permanent telecommunication link, i.e. one can view the ISP's network as part of the Internet. The ISP provides the necessary networking infrastructure to enable you to connect to its network. Thus once your PC successfully connects to the ISP's network, it can then access the resources and services provided by other computers on the Internet.

The Internet can be accessed from your system using a variety of methods, depending on the type of access methods supported by the ISP you sign up with and the type of networking devices you have installed in your system. Currently the most common methods of connectivity by a home or personal user to an ISP are:

- dial-up
- xDSL

## DIAL-UP CONNECTIVITY

The simplest way to access the Internet is to use a dial-up telephone line connection. Almost all ISPs provide dial-up access connectivity to the Internet using the existing telephone line in the home or office. To do this you will need the availability of a telecommunication device called a "modem". Most modern PCs come with a built-in dial-up modem card or if it does not, you can purchase an external dial-up modem and use the serial port available on your PC for connection.

Before you can dial up to your ISP and access the Internet, you have to configure your system to recognise the modem and then dial the correct number to your ISP. You will need to have at hand the following information needed for the modem configuration:

- telephone number to dial to the ISP for the Internet access
- Internet access login name and password provided by the ISP

## MODEM CONFIGURATION

To configure your modem for Internet access, start the "Internet Configuration Wizard" tool from the Main Menu:

Main Menu --> System Tools --> Internet Configuration Wizard

You will be prompted for the root password as this is an attempt to change the system settings and so only the system administrator is allowed to perform this. Enter the root password and the Internet configuration wizard main screen will be displayed.



Fig. Internet Configuration Wizard

1. Select modem connection. Click on the Forward button.
2. If your system cannot detect the modem you will be prompted to enter the modem device name and related communication information. You can choose as follows:

Modem device: /dev/modem  
Baud rate: 115200  
Flow control: Hardware (CRTSCTS)  
Modem volume: Medium

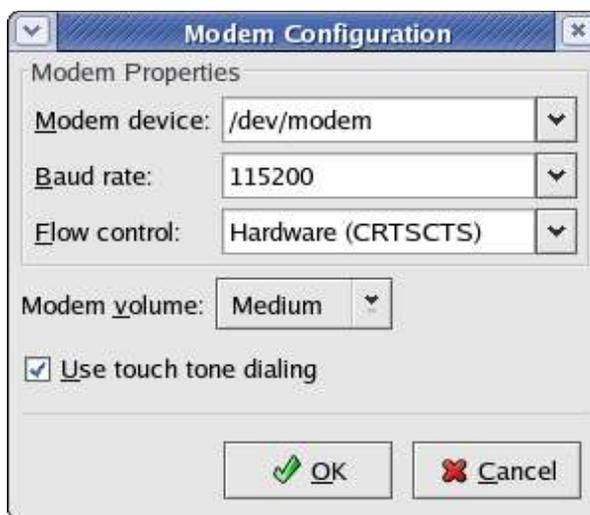


Fig. Select Modem Screen

Click on the Forward button.

3. Enter the phone number of the ISP (Internet Provider). If you need to use an area code and/or a dialling prefix to reach the ISP, you should enter them in the boxes provided, otherwise just enter the telephone number. Enter the name you want this connection to be known by, usually the name of the ISP is used (this is just a nickname provided by you so that you can recognise this connection). Enter the login name and the password in the boxes provided.



Fig. Filling in the ISP Provider Information

Click on the Forward button.

- For the IP Settings screen the default settings may be used if your ISP assigns IP addresses automatically (the default for most ISPs). Otherwise you will have to enable the "Statistically set IP addresses" button and enter your IP address and related information.



**Fig. Filling in the IP Settings**

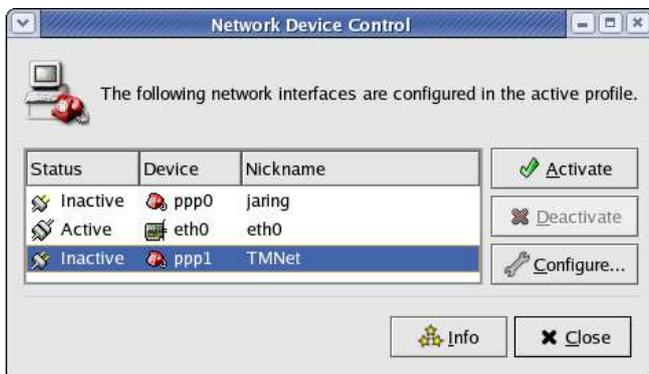
Click on the Forward button.

- Click on Apply to accept and end the set up.
- The Network Configuration window will pop up; exit from it.

## ACTIVATING THE MODEM

To test your modem and Internet connectivity, select the Network Device Control tool from the Main Menu:

Main Menu --> System Tools --> Network Device Control



**Fig. Activating the Modem**

Select the profile you have set up (remember the ISP nickname you used in the set up above?) by clicking on it and then click on the "Activate" button. The modem will start to dial and connect to the ISP and after awhile upon successful login the status of the profile in the Network Devices Control screen will change to "Active" from "Inactive". You are now connected to the Internet. You can now perform the web browsing and other services discussed in the next few chapters.

To disconnect from the Internet bring up the Network Devices Control window and select the profile which was activated above and click on the "Deactivate" button. You will be disconnected from the Internet and the status of the profile will be changed to "Inactive".

## EXERCISE

- Perform an Internet dial-up connection using the modem on the system
- Determine that you have Internet connectivity by accessing some well known websites
- Disconnect from the Internet

## xDSL CONNECTIVITY

The dial-up Internet connection discussed above provides ready and easy access for places which have telephone infrastructure in place. However, it has the disadvantage that the maximum data transmission speed which normal dial-up technology can provide is about 56 Kbits per second. While this speed may be adequate for email text transmission and web browsing for non-multimedia intensive web content, it is not practical for multimedia access. For heavy multimedia content access using the Internet, a high speed link is required. For the personal or home user, broadband xDSL technologies make this possible.

xDSL is an acronym used for the family of DSL (Digital Subscriber Line) technologies which enable high speed data transmission through telephone lines. There are different types of DSL and they include, ADSL, SDSL, IDSL. Collectively these are known as xDSL. ADSL (Asynchronous Digital Subscriber Line) is commonly used for the home.

## xDSL CONFIGURATION

There are two main types of xDSL configuration in use and most ISPs use either one of these:

- DHCP over Ethernet
- PPoE over Ethernet

Usually if you given a login id and password for your broadband xDSL connection then you should be using the PPoE configuration.

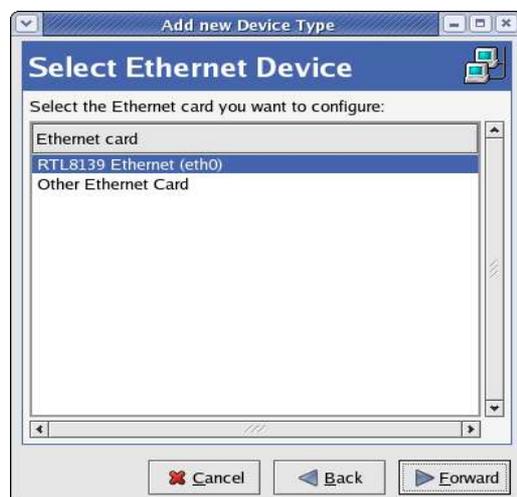
### DHCP over Ethernet

For this configuration, what is needed is just to obtain the IP configuration parameters using DHCP (Dynamic Host Configuration Protocol). To set up your xDSL customer premises equipment to perform this, the "Internet Configuration Wizard" tool from the Main Menu may be used:

Main Menu --> System Tools --> Internet Configuration Wizard

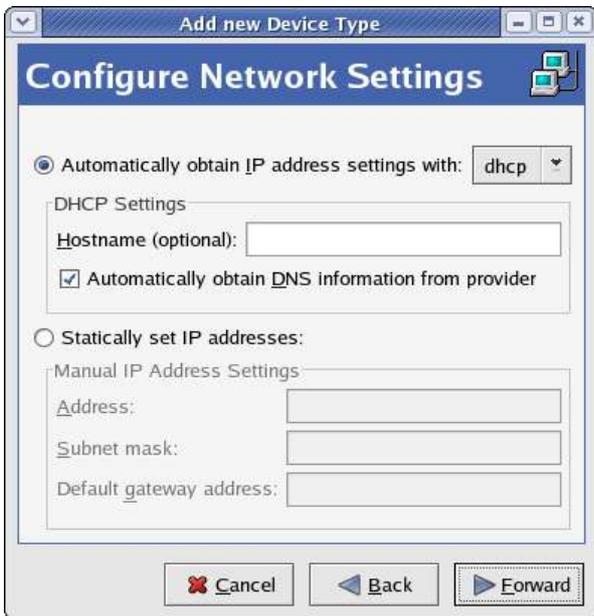
You will be prompted for the root password as this is an attempt to change the system settings and so only the system administrator is allowed to perform this. Enter the root password and the Internet configuration wizard main screen will be displayed as described in the section on dial-up modem configuration.

- Select Ethernet connection in the select device type screen and click on the Forward button. A screen showing the detected Ethernet card(s) on your system is displayed.



**Fig. Select Ethernet Device Screen**

2. Select the correct Ethernet device. (This is usually named *eth0* if you have only one Ethernet card installed on the system.) Click on the Forward button.
3. In the Configure Network Settings screen., click the button marked "Automatically obtain IP address settings with:" and ensure that "dhcp" is selected from the pull-down selection. Also check the box "Automatically obtain DNS information from provider". Click on the Forward button.



**Fig. Configure Network Settings Screen**

4. A summary of the configuration just entered is displayed. If something is incorrect, click on the Back button to go back and make the changes otherwise click on Apply to accept and end the set up.
5. The Network Configuration window will pop up; exit from it.

## PPoE OVER ETHERNET

For PPoE over Ethernet, start up the Internet Connection Wizard as described in the previous section and select xDSL

1. Select xDSL connection in the select device type screen and click on the Forward button. A screen showing the DSL configuration will be displayed.



**Fig. Configure DSL Connection**

2. The Ethernet device type will have been selected automatically (this is usually *eth0* unless you have more than one Ethernet card) and entered in the box for you. If this is incorrect select the correct Ethernet device in the pull-down selection. Enter the ISP provider name and the login name and password provided to you by the ISP. Click on the Forward button.
3. A summary of the configuration just entered is displayed. If something is incorrect, click on the Back button to go back and make the changes otherwise click on Apply to accept and end the set up.
4. The Network Configuration window will pop up; exit from it.

## ACTIVATING THE xDSL LINK

To test your xDSL link and Internet connectivity, select the Network Device Control tool from the Main Menu:

Main Menu --> System Tools --> Network Device Control

If you are using DHCP over Ethernet, select the Ethernet device name (usually this is *eth0*) you have used in the configuration set up by clicking on it and then click on the "Activate" button.

If you are using PPoE over Ethernet, select the ISP name you used in the configuration set up by clicking on it and then click on the "Activate" button.

The link will be established after a few seconds and the status of the profile in the Network Devices Control screen will change to "Active" from "Inactive". You are now connected to the Internet.

To disconnect from the Internet bring up the Network Devices Control window. For a DHCP over Ethernet setup select the Ethernet device which was activated above and click on the "Deactivate" button. For a PPoE over Ethernet setup select the ISP name which was activated above and click on the "Deactivate" button. You will be disconnected from the Internet and the status of the profile will be changed to "Inactive".

## EXERCISES

Perform the same Internet connectivity tests as done previously with the dial-up modem connection

# Chapter 8: The World Wide Web (WWW)

The Internet has much to offer in terms of information on almost any subject matter imaginable and interaction with people and organisations from all over the world. Much of this access and interaction make use of the environment which is popularly known as the World Wide Web (WWW) or web. The WWW is an interlinked network of systems, called web servers, offering multimedia services and information. A user can access these using what is known as a web browser software.

## THE MOZILLA WEB BROWSER (NAVIGATOR)

Mozilla is a full-featured integrated web browser, email client, news reader and web page composer program. Using Mozilla a user can be exposed to the richness and diversity of multimedia content and services available on the WWW.

To start Mozilla, click on the Mozilla icon on the panel or launch the application from the menu system:

Main Menu --> Internet --> Mozilla Web Browser



Fig. The Mozilla Web Browser

By default the web browser component of Mozilla (Navigator) will be executed and displayed. The Navigator window has the following main parts.

- the navigation toolbar
- the menu bar
- the side bar
- the display panel

(Mozilla Navigator has many features and only a a brief description of its main functionalities and features can be given here. The user should refer to the Help button on the menu bar for more details.)

## The Navigation Toolbar



Fig. The Navigation Toolbar

The navigation toolbar allows you to access a website by entering its Uniform Resource Locator (URL) or more informally known as its web address, e.g. <http://www.mozilla.org> in the address box provided. Actually you need to enter only the name of the host i.e. "www.mozilla.org" and Mozilla is smart enough to figure out that you want to access the web server on that host.

Clicking on the arrow at the right edge of the address box will open a pull-down menu showing a history of websites visited previously. You can click on an entry in the list to select that website to access.

Also present on the navigation toolbar are the Back, Forward, Reload and Stop buttons.

The Back button enables you to go back to the previous web page displayed.

The Forward button enables you to go forward to the next web page that you have already accessed.

The Reload button forces Mozilla to re-access the website and load the current web page.

The Stop button halts the loading of a web page that is currently proceeding.

Next to the address box in the navigation toolbar is the Search button. This button enables you to perform searches for relevant web pages on the Internet by making use of a search engine. To search for some particular information, you can enter the keywords for the search into the address box and then double-click on the Search button. The results of the search will be displayed in the display panel. You can configure the search engine to use by this search button in the Mozilla Navigator configuration setup (see Configuring Mozilla below).

## The Menu Bar



Fig The Menu Bar

The menu bar has several menu buttons. Clicking on one will open up a drop-down menu selection where selected operations can be performed.

The File button caters to the performance of file level operations like the printing and saving of web pages, the opening of web pages, files etc.

The Edit button allows you to find strings of text on the displayed page as well as to edit the Mozilla configuration to your personal preferences.

The View button allows you to control the viewing of the various toolbars as well as the zooming of text and full page display of the display panel. The HTML source code of the currently displayed page can also be viewed using the selection "Page Source" under this button.

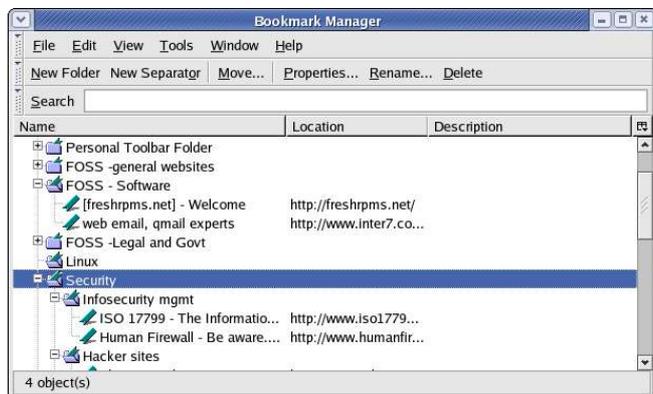
The Go button performs similar navigational functions as the navigation toolbar described earlier. A history of previously visited sites can also be accessed by this button. The pull-down menu shows a list of previously visited websites and you can click on one of these to open up the selected web page. Under the Go button, if you select the History item,



Fig. The History Pop-up Window

a pop-up window will be displayed showing in detail the browsing history (i.e. the list of sites visited) over the last few days (by default this period is 9 days; this number is configurable, see below).

The Bookmarks button enables you to manage your bookmarks and personal folder. You can add frequently visited sites to the bookmark and/or personal folder. To manage and organise your bookmarks you can select the "Mange Bookmarks" item in the drop-down menu.



**Fig. The Bookmark Manager Pop-up Window**

The bookmarks can be organised into folders by dragging and dropping them into the desired folder. New folders can be created by clicking on the New Folder button at the top. Folders can have a name and description. To separate and group together related folders, a separator line can be drawn by selecting the "New Separator" button.

The Window button enables you to navigate and move among the windows opened in Mozilla. You can also use this button to move from one open Mozilla application to another, e.g. to move from the Navigator application to the Mail (email) application.

The Help button contains the Mozilla help files arranged in user-friendly web page style and format.

### The Side Bar

By default a side bar is displayed on the left of the main display panel. This side bar contains some of the functions which we have discussed above from the main menu bar at the top. These include the Search, Bookmarks and History functions. The side bar also contains the "What's Related" function, which when selected will display in the side bar a list of links to webpages which contain similar topics to the page currently being displayed in the main browsing display area.

The side bar can be turned on/off by selecting from the main menu at the top,

View --> Show/Hide --> Sidebar

### The Main Display Panel

This is the area where the contents of a web page are rendered and displayed. This display area can be made full screen by either selecting the View --> Full Screen selection from the top menu bar or pressing the F11 key. To disable full screen display either press F11 again or click on the unmaximise window button on the top right corner of the menu bar.

### Navigation Tab Bar

Mozilla Navigator allows you to browse multiple websites within one browser window using navigational tabs. This overcomes the inconvenience of opening several windows under Mozilla to view multiple sites. To do this either choose under the menu bar:

File --> New --> Navigator Tab

or enter CONTROL-T.

If you open different web pages using this navigation tab feature, they will all be displayed under the same window. You can then use the tab bar to select between each tab screen.

## CONFIGURING MOZILLA NAVIGATOR

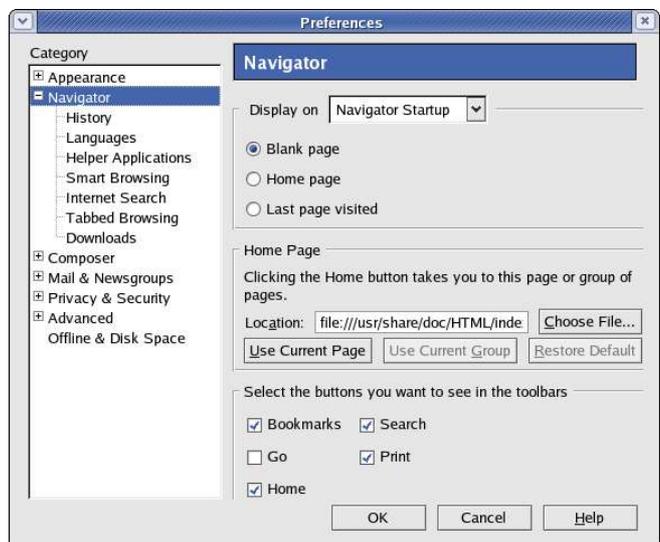
Mozilla is highly configurable. To configure Mozilla, select from the main menu selection,

Edit --> Preferences

The categories available for configuration are listed on the left panel of the main configuration window. Clicking on the + button on the left of each category will open up further available sub-categories for configuration.

The Appearance category allows you to configure the default fonts and colours used. Here you will also be able to set the theme and select the language to be used.

The Navigator category allows you to configure the Mozilla Navigator web browser itself.



**Fig. Navigator Configuration**

The main Navigator configuration allows you to select the page to display when the browser is launched. If you select "Home page", the website that is designated as the home page will be displayed. This home page location is set in the Home Page location box below. If you do not want the browser to display anything on startup select "Blank"..

The History sub-category allows you to set the number of days to keep the history list for the history windows and for the location bar history.

The Languages sub-category allows you to select the language to display web pages in (where available) and also the default character coding. To add another language for web page display, click on the "Add" button and select the desired language. The listed language to use for display is in order of preference, so you will need to move your preferred language to use to the top.

The Internet Search sub-category allows you to choose which search engine you want to use for your search function.

## EXERCISES

1. Start up the Mozilla browser and visit the websites listed below. Use the navigation tab bar feature so that you open up the websites all in the same window but under different tab pages.
  - www.mozilla.org
  - www.yahoo.com

- www.iosn.net
2. Bookmark the sites visited above.
  3. Configure the Navigator so that it starts with a blank page.

## FINDING INFORMATION ON THE INTERNET

The Internet is a treasure house of information. Virtually information on any topic under the sun (and more!) can be found on the Internet. However, while information is easily available it may not be so easy to find the information you want. This is because the information may be available from very many sites, often in varying details and varying aspects of the same piece of information. To assist us in finding information more effectively a search engine or Internet portal may be used.

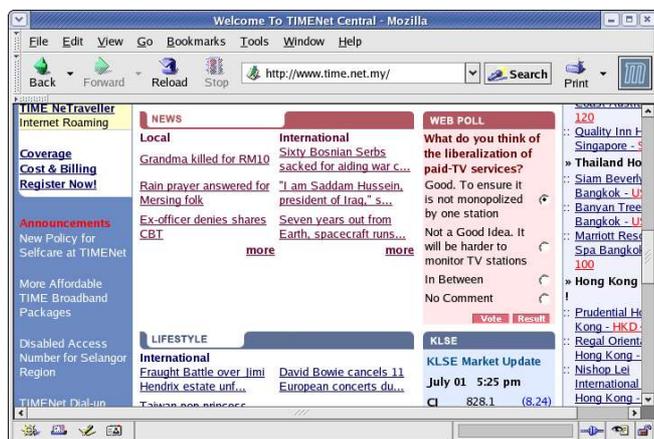
### Note:

*Information obtained from the Internet should be scrutinised carefully and not taken as "correct" in all cases. This is because due to its free flowing nature and easy means of access and creation, anyone can publish information on the Internet. As such, unless one is certain that the information is from an authoritative and reliable source, it should be verified by another source or means as far as possible.*

## USING A PORTAL

The term portal is used to denote a website that acts as a gateway for providing information about a subject area or group of subjects. From this portal site, information as well as links to other sites providing information about the topics in question may be found. Portals are useful starting places for new web users who do not know where and how to go and look for information about a specific topic or subject.

Many major ISPs provide portal-like information services for their subscribers so that if the latter make this their home page for their web browser, on launching their browser the ISP's portal page is opened. The subject areas covered by these ISP portals are typically subjects of general interest like shopping, local and foreign news, entertainment etc.



**Fig. Home Page for an ISP**

Other portals offering general information as well as links to other more subject-specific portals and websites include:

- Yahoo (www.yahoo.com)
- Netscape Network (www.netscape.com)
- Microsoft Network (www.msn.com)
- Angelfire (www.angelfire.lycos.com)

## USING AN INTERNET SEARCH ENGINE

While portals provide a guided and categorised means to access information, sometimes we want to be more specific about the topic we want to find and portals generally are not

able to provide this in a timely and efficient manner. An alternative is to utilise a search engine.

A search engine as the name implies, allows you to query it about some specific subject and it will try to retrieve links to web pages and resources which contain information about the subject matter being queried.

The popular search engines available are:

- Google (www.google.com)
- Altavista (www.altavista.com)
- Lycos (www.lycos.com)
- Yahoo (www.yahoo.com)

There are also sites which allow you to search using more than one search engines e.g.

- Search.com (www.search.com)
- Easysearcher (www.easysearcher.com)

## Search Basics

While each search engine will have its own technology, its utilisation to perform a simple and basic search is essentially the same irrespective of which search engine is used.

To use a search engine for basic searches, you just type in a few descriptive words about the item/subject you are searching for. It will return to you a list of links to web pages and resources which contain all the words in the query string. Note that common words like "the", "a", "how" etc. are usually ignored by the search engine unless specifically told not to. Words are also not case sensitive unless enclosed by quotation marks. To refine and narrow down your search, you will need to add more words to the search terms you have already entered. Your new query will return a smaller subset of the pages found.



**Fig. A Search Engine**

The basics of using current search engines is essentially keyword matching and so it is important to be able to identify appropriate keywords so that your search is more efficient and false hits are minimised. The keywords entered should be as specific as possible in order to get better results.

More details on how to use each particular search engine are available on their respective websites and they should be consulted so that you can make efficient use of them.

## EXAMPLE

In this section we shall show an example of how to use a search engine.

In this example, assume that we have heard from a friend that she has been diagnosed with a foot condition in which her forefoot is in pain and there is numbness as a result of poor blood circulation in one of the toes. We also remembered her telling us that the doctor named the

condition as Freiberg disease or some name which sounds like that since the telephone line was not too clear.

Initially we try entering the following keywords, *foot pain*, in the search engine.



Fig. Search using Common Keywords

As can be seen from the results of the search what we got back was very general and we need to go through each of these links to check if it contains relevant information or links to relevant information. We can narrow down the search if we are more specific about where in the foot the pain is, e.g. *forefoot pain*. This will give us better results but the list of hits is still long.



Fig. Search using Relevant Keywords

If we remember that the friend mentioned that the doctor gave the name of the condition as something sounding like Freiberg disease, we can try searching for this specific term. The search results improve immediately as can be seen below and in this particular example we have found several links which are directly related to the information we want.

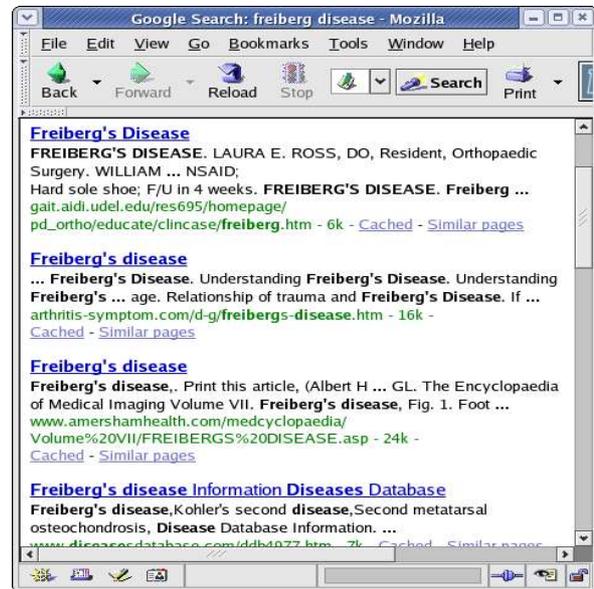


Fig. Refined Search using Specific Keywords

# Chapter 9: Internet Email

Internet email has become one of the most popular applications on the Internet. An Internet experience is not complete without the usage of email. In this chapter we shall be describing two commonly used email software: Evolution and Mozilla Mail.

## EMAIL REQUIREMENTS

There are two main types of Internet email systems: webmail and POP3. Webmail, as the name implies, makes use of a web browser to read, compose, send and manage your mail. POP3 email makes use of a POP3 email client to download your email from a server housing your email mailbox. The main difference between a webmail system and a POP3 email system is that for the former, generally, you have to be online to the server housing your mailbox to access and manage your mail. For the POP3 system, you need to be online to the server only to download your mail, after that you can go offline to read, reply and manage your local mail storage. You only need to go online again when you want to send out your email.

In addition to having a webmail account somewhere on the Internet, webmail needs only a web browser and Internet access to work. Examples of popular webmail services are those from Yahoo and Hotmail. Most ISPs also offer webmail services in addition to their traditional POP3 email services.

To use POP3 email you will need to have a POP3 email client software running on your computer. Both Evolution and Mozilla Mail support POP3 email. In addition, you will also need to know the name of the computer on which your POP3 mailbox is located - the POP3 server, as well as the name of the computer which allows you to send out (relay) mail through it - the SMTP server.

*Note:*  
Of course you will need to know your Internet email address irrespective of whether you are using webmail or POP3 email!

Since the usage of webmail involves using your browser mainly, we will not dwell on this form of email anymore here. Instead we will be looking at the POP3 setup and usage of Evolution and Mozilla Mail.

## EVOLUTION

Evolution can be launched either from the icon on the panel or from the Main Menu:

Main menu --> Internet --> Evolution Email

The first time you run Evolution, you will be placed in the welcome/setup screen to configure Evolution to send and receive email using your email account. Follow the onscreen instructions to fill in the information required about your email account. Some of the important items to fill in are: described below.

### Identity

For the identity screen the following have to be entered:

Email name: (fill in your name)  
Email address: (fill in your email address)



Fig: Evolution Email Identity

### Receiving Mail

For the receiving mail screen, the following have to be entered:

Server type: POP  
Host: (fill in name of your POP3 server)  
Username: (fill in username of your POP3 email account)



Fig: Evolution Email POP3 Setup

### Sending Mail

For the sending mail screen the following have to be entered:

Server type: SMTP  
Host: (fill in name of your SMTP server)



Fig: Evolution SMTP Setup

## Time Zone

Ensure that you select the correct time zone.

## Apply

After successfully filling in the configuration screens, click on the Apply button at the confirmation screen, Evolution will be started and the main Evolution screen is displayed.



Fig. Evolution Main Screen

Only a very brief description of the functionalities and features of Evolution are given here. The user should refer to the Help button on the menu bar for more details.

## Inbox Folder

The Inbox houses the email sent to you which you have downloaded from the POP3 server. To see what is in your Inbox click on the Inbox icon. If you have emails in your Inbox, they will be displayed here. To read an email select it by clicking on it in the Subject Window.

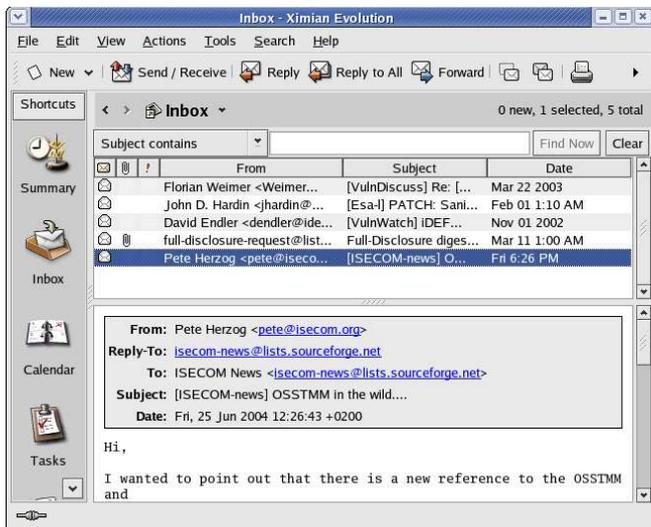


Fig. Evolution Inbox

## Composing Emails

To compose an email, from the Inbox screen, click on the New button.

Enter the email address of the recipient as well as the subject. The latter should be a few words describing the contents of the mail but it should also not be too long. If you need to CC the mail to another email address, click on the View button on the top Menu bar and select CC field which will be displayed. After composing the email, you can send it.



Fig. Evolution Composing Email

## Offline Mode

If you are on a dial-up connection, it is very likely that you will want to compose all the emails that you want to send offline first before actually going online to send them. To do this click on the File item on the menu bar at the top and select Work Offline

File --> Work Offline

(if the File menu shows the item Work Online then it means that you are already offline, i.e. It is a toggle between online mode and offline mode.)

In the offline mode, when you compose and send your mail they will not be sent out but rather they are stored temporarily in your Outbox folder. You can send them off later after connecting to the Internet by selecting the Send/Receive button.

## Sending and Receiving Emails

To send the emails you have composed, connect to the Internet first and then select Work Online from the File menu. Click on the Send/Receive button or click on the Tools button in the menu bar and select Send/Receive. Unsent mail in your Outbox will be sent out and any incoming new mail will be placed in your Inbox.

## Deleting Emails

Any mail deleted from your Inbox will be placed in the Trash folder. You should periodically empty the Trash by clicking on Actions from the menu bar and selecting Empty Trash.

## Folders

Mail messages in Evolution are organised in folders similar in concept to the File Manager. To view your Evolution folders, click on the View button in the menu bar and select Folder Bar.

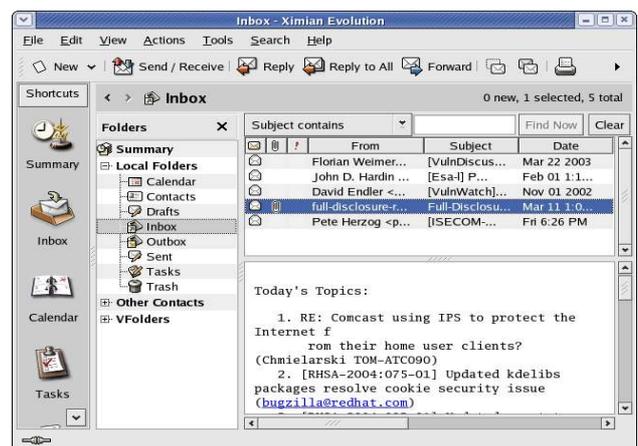


Fig: Evolution Folder View

By default the following email folders are created under the Local Folders: Inbox, Outbox, Sent, Drafts and Trash. You can create a new folder by right-clicking on Local Folders, selecting New Folder and enter the Folder name. You can move and copy mail messages between folders by right-clicking on the message in the Subject Window and selecting "Move to Folder" or "Copy to Folder".

## MOZILLA MAIL

As described in the previous chapter, Mozilla contains an email component in addition to the web browser. This email component is called Mozilla Mail. To invoke Mozilla Mail, you can start Mozilla in the usual way and then from the main menu bar at the top select,

Window --> Mail & Newsgroups

If this is the first time you are running Mail and the email configuration has not been done, Mail will invoke the Account Wizard to take you through the configuration. This is described briefly below.

### New Account Setup

In this screen choose Email account and click on Next

### Identity

Fill in the information regarding your name and email address to use. Click on Next to continue.

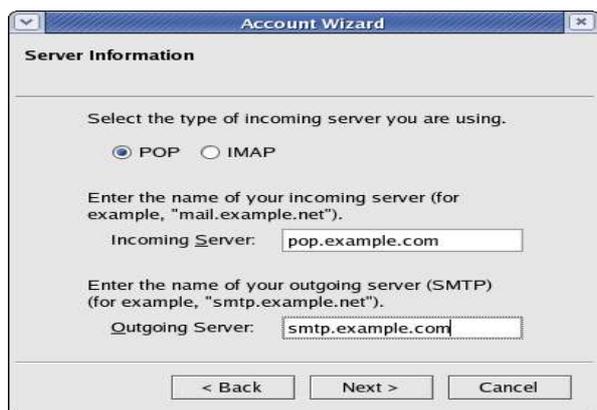


The screenshot shows the 'Identity' screen of the Account Wizard. It contains the following text: 'Each account can have its own identity, which is the information that identifies you to others when they receive your messages.' Below this, it says: 'Enter the name you would like to appear in the "From" field of your outgoing messages (for example, "John Smith").' There is a text input field labeled 'Your Name:' containing 'Kor Gee-lee'. Below that, it says: 'Enter your email address. This is the address others will use to send email to you (for example, "user@example.net").' There is a text input field labeled 'Email Address:' containing 'kgl@example.com'. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

Fig. Identity

### Server Information

Enter the server information in this screen. Select POP for the type of incoming server and enter the names of the incoming (POP3) server and outgoing (SMTP) server. These hostnames will be provided to you by your mail provider or ISP. Click on Next to proceed.



The screenshot shows the 'Server Information' screen of the Account Wizard. It contains the following text: 'Select the type of incoming server you are using.' There are two radio buttons: 'POP' (selected) and 'IMAP'. Below this, it says: 'Enter the name of your incoming server (for example, "mail.example.net").' There is a text input field labeled 'Incoming Server:' containing 'pop.example.com'. Below that, it says: 'Enter the name of your outgoing server (SMTP) (for example, "smtp.example.net").' There is a text input field labeled 'Outgoing Server:' containing 'smtp.example.com'. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

Fig. Server Information

### User Name

Enter the name of the id that you will need to login to retrieve your email. This name usually will be alpha or alphanumeric and should not contain blank spaces. This will have been given to you by your mail provider or ISP. Click on Next to continue.



The screenshot shows the 'User Name' screen of the Account Wizard. It contains the following text: 'Enter the user name given to you by your email provider (for example, "jsmith").' There is a text input field labeled 'User Name:' containing 'kgl'. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

Fig. User Name

### Account Name

Enter the name by which you will want this mail account to be known as. This is meant for your own Mozilla Mail internal usage to cater to the fact that more than one email account can be set up. The default account name is the email address you entered earlier. Click on Next to continue.



The screenshot shows the 'Account Name' screen of the Account Wizard. It contains the following text: 'Enter the name by which you would like to refer to this account (for example, "Work Account", "Home Account" or "News Account").' There is a text input field labeled 'Account Name:' containing 'kgl@example.com'. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

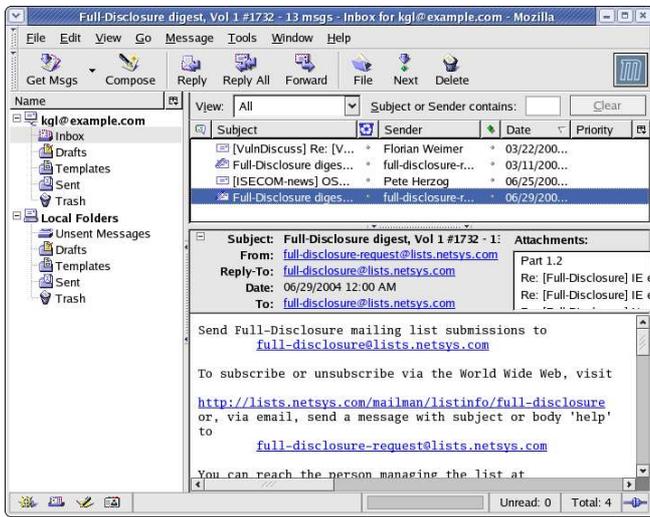
Fig. Account Name

The next screen allows you to review what you have configured and if something is incorrect you can click on the Back button to go and correct it. If all is fine, click on the Finish button. If you do not want Mail to download your mail immediately after finishing this configuration, uncheck the "Download mail now" box.

## USING MOZILLA MAIL

To start up Mozilla Mail, start Mozilla and from the main menu bar at the top select,

Window --> Mail & Newsgroups



**Fig. Mozilla Mail Startup Screen**

The default startup screen has three main sections:

- left panel displaying mail boxes and folders
- right main mail display panel
- top panel containing the main menu bar and buttons

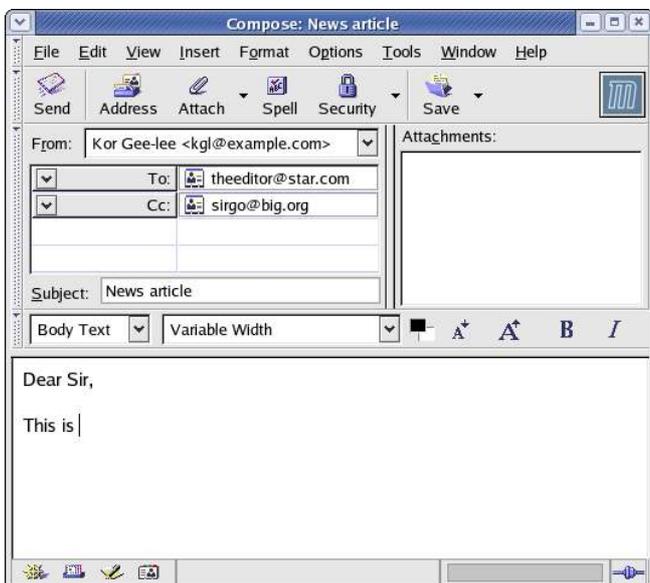
The left panel displays in a tree-directory format the email accounts that have been configured for the system and the mailboxes under it. The Local section contains the folders and messages that are not from any of the accounts created and associated with an Internet email account and thus considered local to the system. Note that this includes any unsent mail messages.

## Reading Mail

To read any email in your inbox, select the Inbox folder under the desired mail account in the left panel. A list of the messages in your Inbox will be displayed in the top part of the right panel showing the email sender and subject header. To view the mail content click on the desired message in the top right panel and the message body will be displayed in the bottom right panel. Scroll as required to read the entire message.

## Composing Mail

To compose a new email click on the Compose button at the top menu. Alternatively you can also click on the "Compose a new message" link in the right display panel. (Ensure that you have selected the appropriate email account on the system by clicking on the appropriate account name in the left display panel.)



**Fig. Composing Mail in Mozilla Mail**

The *From* field is automatically filled in for you from the email address you provided in the setup for the account currently being used.

The *To* field has to be filled in with the email address (es) of the recipient(s). If there is more than one recipient, separate the addresses by commas or you can fill them in one line at a time by entering the RETURN key after each address.

The other email header fields like *Cc* and *Bcc* can be selected by clicking on the *To* field button.

The *Subject* field should also be filled in with an appropriate subject header. You should avoid being too verbose for the subject header.

The mail message body can be entered in the right bottom panel provided and any file attachments can be added by clicking on the Attach button at the top and then selecting the file.

## Sending Mail

After composing the email, you can either send it off immediately if you are already online, send it later or keep it as a draft to be edited later.

To send it off immediately select the Send button. If the message was sent successfully it will be stored in the Sent folder.

To send it later, select from the main menu at the top,

File --> Send Later

The message will be stored under the Unsent Messages in the Local Folders section. In this way you can compose all the emails first and store them before sending them all in one go. Later on you can send all the unsent messages by selecting from the main menu at the top,

File --> Send Unsent Messages

This method of sending is especially useful if you are on a dial-up Internet connection where you can compose the messages offline and then dial-up later to send the messages.

To save it as a draft select from the main menu at the top,

File --> Save As --> Draft

The email message will be saved in the Drafts folder under the current account section. Later to edit the saved draft, select the Drafts folder under the account, click on the draft message to edit that is being displayed in the top right panel and select from the top menu,

Message --> Edit Message As New

After editing the message you can send it off as discussed above.

## Receiving Mail

To receive mail, click on the Get Msgs button at the top, enter your email password (POP3 password) when asked and the email will be downloaded from your Internet mailbox and stored into the Inbox folder. Of course you will have to be online to perform this.

## Deleting Mail

To delete mail messages, select the folder in which the messages are stored in, and in the top right display panel where the list of messages are displayed, select one or more messages by clicking on them and then click on the Delete button at the top.

The deleted mail is moved to the Trash folder in the account currently being used. To permanently delete them you can

either delete them from the Trash folder or click on the Trash folder and from the main menu at the top, select,

File --> Empty Trash

## **Folders**

The various folders allow you to organise your email so that you can group and file them under appropriate folders. By default when you create a new mail account, the Inbox, Trash, Drafts and Sent folders are created automatically for you. To create a new folder perform,

File --> New --> Folder

You can file or move your messages from one folder to another by clicking on the list of messages displayed in the top right panel when the source folder is selected and dragging and dropping them into the destination folder in the usual manner.

## **Account Configuration**

You can customise your account email settings by selecting,

Edit --> Mail & Newsgroups Account Settings

There are several important settings which you should be aware of.

### Account Settings

In this main configuration screen, you can configure your name, Internet email address and organisation name to use as well as the account name which refer to these settings under Mozilla Mail.

In particular, the "Compose messages in HTML format" box should not be checked if you want to compose and send your email messages using just plain text.

### Server Settings

Here you can configure the name of your POP3 mail server. You can also configure whether you want the mail to be deleted from the POP3 server after downloading them into your computer. Usually you will want them to be deleted and so you should ensure that the "Leave messages on server" box is **not** checked.

### Outgoing Server (SMTP)

This is where you can configure the outgoing mail server which will process your outgoing mail.

## **Global Configuration**

The account configuration affects only the account in question to enable you to configure multiple email accounts each with possibly its own servers.. The global configuration affects the entire mail subsystem. To access the global configuration, select,

Edit --> Preferences --> Mail & Newsgroups

Under this configuration, you can set global preferences which will affect all the accounts configured by you in Mozilla Mail. These will include the look and feel of Mail itself, the way messages are displayed, format for sending etc.

## **EXERCISES**

Start up either Evolution or Mozilla Mail and perform the following:

- download your email
- read them
- reply to two of them and BCC yourself in the reply
- compose a new email
- delete spam email
- empty your trash mailbox

# Using the OpenOffice.org Suite

## INTRODUCTION

OpenOffice.org (OOo) is a complete office suite, featuring a word processor (Writer), a spreadsheet application (Calc), and presentation software (Impress). Besides these fundamental office applications OOo also includes a vector drawing tool (Draw), allows database access, allows the publishing of documents in the Portable Document Format (PDF) and presentations in the Flash (SWF) format!

The OOo package is fully inter-operable with the Microsoft Office suite.

## GETTING AROUND THE PACKAGE

As a first stop for information, it is important to know how the Help system works. To get help:

Help --> Contents

The search function is very useful, and pay attention to the Options (where you can get help for the individual components in OpenOffice.org).

Setting up OpenOffice.org preferences so that it works the way you want it to is significant. The entire controls for this are available at:

Tools --> Options

Here you can setup settings like the default measurement units, font substitution, language types and many more options. Saving a document automatically is not setup by default, so turning this feature on might be helpful: you find it at the Load/Save option, under the General sub-section.

There are three important toolbars to know:

- Main toolbar – this is typically located right below the menus, and contains items like new document, save a document, exporting to PDF, copying & pasting, as well as access to the Navigator, Stylist, and Gallery.
- Object toolbar – this is right below the main toolbar, and has access to font control, and other attributes of objects.
- Function toolbar – located at the left-corner of the screen, and contains many options including quick table generation, insertion of objects, and many more.

## WRITER

This is a powerful tool for creating professional documents, reports, newsletters and so on – it is a word processor that allows easy integration of charts and pictures, as well as other OpenOffice.org-compatible documents. It can create everything from a simple letter to books, with professional layouts, with the use of styles.

Start it from the Main Menu by,

Main Menu --> Office --> OpenOffice.org Writer

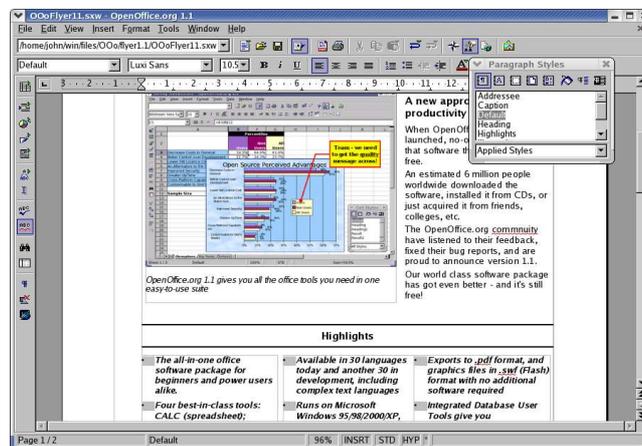


Fig. OpenOffice.org Writer

You are now presented with the word processing portion of OpenOffice.org, and the interface is rather similar to other word processing tools available. Rather than providing guidance throughout the entire package, we will just concentrate on a few tasks at hand.

## Common Functions

Functions of the word processor can be controlled via the toolbars located at the top of the screen. On the first row, file actions like opening and saving files can be performed, while on the second row, changing the font, size, and style (bold, underline, or italics) are located there.

They can also be controlled by the menus that are common through packages:

- File --> New --> Text Document - creates a new empty, untitled document for you to work on.
- File --> Open - opens the file.
- File --> Close - closes the document you are working on. If changes have been made since your last save, you will be prompted to save or discard those changes.
- File --> Save - saves the document you are currently working on.
- File --> Save As... - saves an updated version of a document in a different location, with a different name, from the previously saved version.

## Common Operations

For operations while writing, it is common to want to select a lot of text, copy it, maybe cut it from its current location and paste it elsewhere, or even undo an action. All this is possible with the office suite, and such options are available at the Edit menu. A few common options are:

- To copy text: select the text with the mouse, then select Edit --> Copy. Now the selected text is kept in memory for use elsewhere.
- To paste text: find the spot where text needs to be placed, place the cursor there, and then select Edit --> Paste.
- To cut text: this means that the selected text will be removed from the current location and kept in memory, to be placed elsewhere. Doing this is exactly like how a copy should be performed, except selection Edit --> Cut instead.
- To undo an action: Select Edit --> Undo. It will display the command that it is undoing at the moment.

By browsing the menu, there are also keyboard shortcuts located next to it. Once more proficient use of the package

occurs, it is much quicker to use keyboard shortcuts like Control+C for Copy, and so on.

## Formatting

Formatting text is as important as writing the text, and Writer provides many formatting options, including the Stylist. Individually, you can also format the character (current selected item, or even a whole word), the paragraph, or even the page.



Fig. Part of the Object toolbar (Writer)

Some of the quick format options include **bold**, *italics* and underline. These options are available at the toolbar at the top of the screen.

Text alignment plays a large role in controlling how portions of the document will look. For example, an address field at the top of your letter will have such details right-aligned, while the body and rest of the base text will be left-aligned. This is all controlled by the four-icons that are located next to the bold/italics/underline icons, providing such options as: right-align, centre-align, left-align and justified. When text is justified, it looks exactly like what you're reading now! (a more professional end-to-end stretch of the text.)

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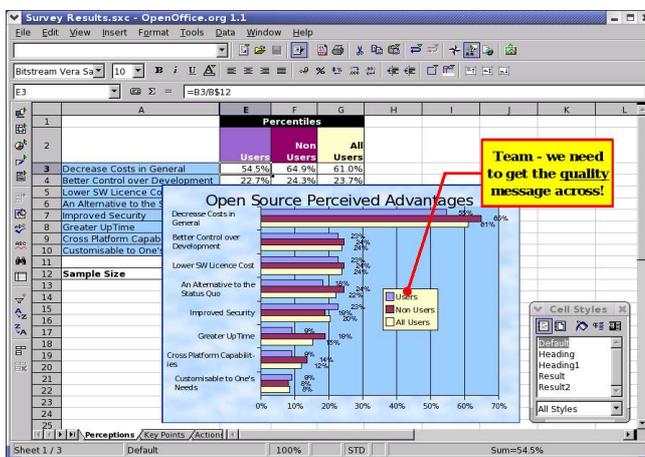


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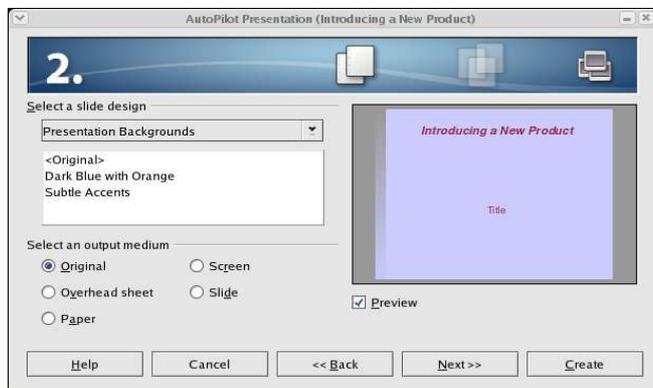
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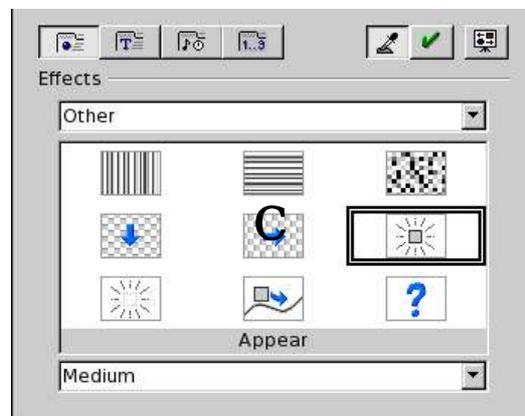
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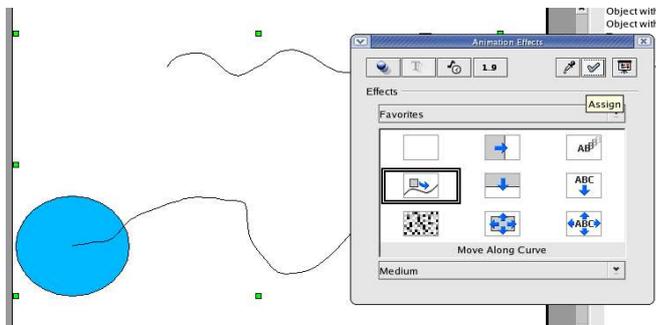
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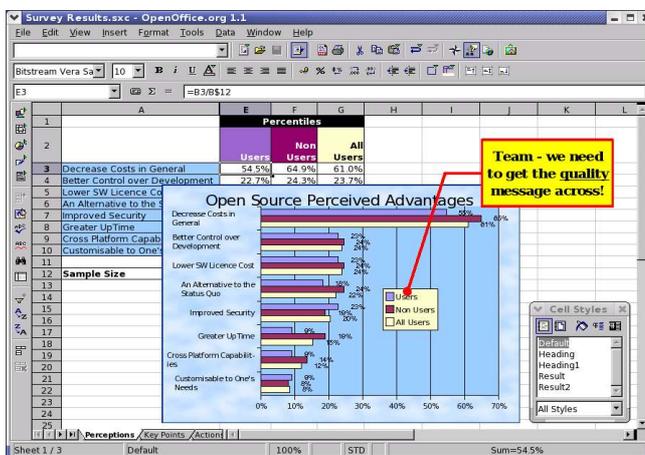


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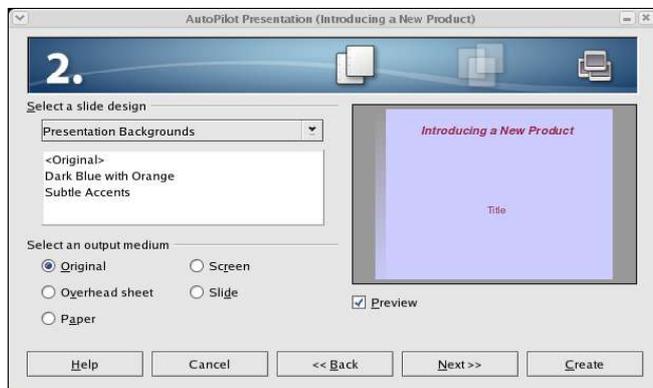
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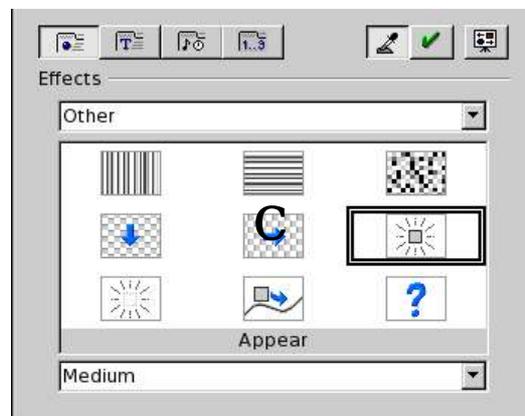
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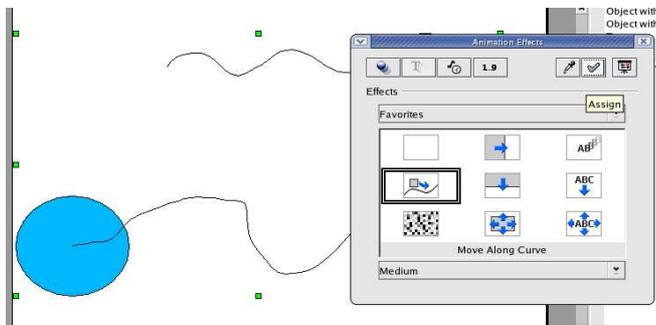
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# The Shell

## INTRODUCTION

The Linux/Unix shell refers to a special program that allows you to interact with it by entering certain commands from the keyboard; the shell will execute the commands and display its output on the monitor. The environment of interaction is text-based (unlike the GUI-based interaction we have been using in the previous chapters) and since it is command-oriented this type of interface is termed Command Line interface or CLI. Before the advent of GUI-based computing environments, the CLI was the only way that one can interact and access a computer system.

Up until now, there was never a need to type commands into a shell; and with the modernisation and creation of a lot of newer GUI-based tools, the shell is becoming increasingly un-required to perform many tasks. But that said, the shell is a very powerful place, and a lot is achieved through it. A lot of the front-end GUI methods of doing things have similar ways and means to get done with using the shell. Professional Linux and UNIX users find the shell very powerful, and an introduction to at least the basic shell usage is useful.

## GETTING TO A SHELL

Since it is most likely that you are in the graphical desktop environment now, the underlying shell that is available is not displayed. To access a shell, try the following key combination,

Control + Alt + F1

Where F1 can be replaced by F2, F3, and so on. The graphical desktop tends to run in F7 or F8, so to go back to your graphical desktop screen, just hit Control + Alt + F7. These are virtual terminals.

Alternatively, you could get to a Terminal application, so you can have a shell while your in the graphical desktop environment (this is much preferred, and will be used throughout this Chapter). To do this, go to:

Main Menu --> System Tools --> Terminal

Or right-click on the desktop, and click on the Open Terminal option. This terminal is equivalent to the virtual terminals mentioned earlier, except now you don't have to switch screens – you can just minimize or maximize the terminal (or if you're done, you can close it).

## SOME USEFUL COMMANDS

Now that you are at a terminal, you might as well input some commands. For example, when you start a shell, display such as below (or similar) will be seen (and this can be configured to your liking!):

```
[-(byte@hermione)-(pts/4)-(05:34pm:05/06/2004)-]  
[-(~)>
```

The cursor blinks, waiting for input. To this, some of the more used and useful commands include:

- ls – list files in the current directory.
- cd – change working directory. If your current path is /home/username/Trash for instance, typing “cd” will bring you back to /home/username.
- mkdir – make a new directory
- rmdir – delete a directory (must be empty)

- cp – invoked such as “cp currentFile newFile”, and is used to copy files.
- mv – invoked such as “mv currentLocation newLocation”. This is used to either move or rename files.
- rm – invoked such as “rm myFile”; it is used to delete files permanently.
- pwd – prints the working (current) directory.
- cat – concatenate files (can be used to join them together), and prints its output to standard output (the terminal screen). Used like: “cat myFile”.
- less – allows for file viewing in the shell, and is most useful for text files; invoked like “less myFile”.
- find – can be used to find files via the command line. Example usage could be: “find . -name toc”, which looks at the current directory (defined by “.”) for any files with the name “toc”.
- locate – picks entries from a database, that is updated regularly; invoked via “locate myFile”. Its much quicker than find (since it only searches a database), but might not be as quick to update as find (the update of the database might happen once every day only).
- date – display the current date! This can also be used to set the date of the system (but administrator privileges are required).
- history – built-in shell command for the BASH environment that shows the last run commands.

As always, these commands just begin to scratch the surface of the capability of the shell. There are thousands of such commands available on your system! And keep in mind that each and every command comes with options, that are usually executed via the *-flag* – again, the man pages list all useful commands. For instance the command

```
rm -i
```

will prompt when deleting a file, so you have to either say 'y' if you're sure, or 'n' if you do not want to delete the file.

```
[-(/tmp)> rm -i usr.bin  
rm: remove regular file `usr.bin'? y
```

## A FEW MORE CONCEPTS AND SHORTCUTS

Now that you've seen some commands that are useful in the shell, its important to know a few more concepts. For instance, the tilde (“~”) represents the home directory, so rather than typing /home/username it can be represented via a '~’. This means less typing for you.

```
[-(~/MyOSS-Stuff/IOSN)> pwd  
/home/byte/MyOSS-Stuff/IOSN  
[-(~/MyOSS-Stuff/IOSN)> cd ~  
[-(~)> pwd  
/home/byte
```

So in that example, I was located in /home/byte/MyOSS-Stuff/IOSN, and just by issuing a “cd ~”, the shell has brought the current working directory to /home/byte.

A dot “.” means the current directory. While “..” will mean the parent directory. This can be nested to include “../..” and so on, till it reaches the top level directory /.

## INPUT/OUTPUT REDIRECTION AND PIPES

Running a command by itself with a lot of output doesn't seem all that useful. For instance, if there are many files in a directory, running a command to list the directory like,

```
ls /usr/bin
```

will result in about 2100 lines being displayed on the screen! To actually get any useful information out of it, you might want to dump the output of the ls command to a file; or maybe use a utility like less to view it. All this is possible thanks to input/output redirection and pipes.

Input redirection is performed using < or <<, while output redirection is done via > or >>. A point to note is that when using >, it just recreates the file, even if the same filename exists, while >> concatenates the output to the same file, causing it to possibly be double in size (if its the same output).

A pipe (“|”) is used to pass the output of the command not to a file, or to the screen, but to the next utility. Pipes can be nested, so you can pass the data through several utilities before you can get the useful information that you want. Let's dive into some examples!

```
1. [-(/tmp)> ls /usr/bin >> usr.bin
2. [-(/tmp)> wc -l usr.bin
3. 2171 usr.bin
4. [-(/tmp)> ls /usr/bin >> usr.bin
5. [-(/tmp)> wc -l usr.bin
6. 4342 usr.bin
7. [-(/tmp)> ls /usr/bin > usr.bin
8. [-(/tmp)> wc -l usr.bin
9. 2171 usr.bin
```

**Note: the line numbers are added for clarity, and are not included in the shell output!**

In line 1, the output of the directory listing of /usr/bin gets placed in a file called usr.bin. On line 2, a new utility called 'wc' is used (this is used to print the number of lines in the file (as it gets passed the -l option) – its output is at line 3. The same command is then repeated on line 4, and now, the file is double the size as per line 6! That is because the >> output redirection was used, which has concatenated the two outputs together. Notice that in line 7, a single > is used, and in line 9, it shows that the file has been over-written with the new contents.

```
[-(/tmp)> ls /usr/bin | grep cancel
cancel
cancel.cups
```

The above is an example of how a pipe is used. After listing the files, the output is passed on to a utility called grep (which basically searches for a pattern, and prints the output) and the string being searched for is “cancel”. It comes back with two matches. Similarly, a command like:

```
ls /usr/bin | less
```

Will place the output of the directory listing into the less pager so that it can be scrolled through easily. And for another example as to how pipes can be nested, issuing:

```
[-(/tmp)> 'ls' /usr/bin | grep auto|wc -l
19
```

sends the output of the directory listing of /usr/bin to grep, which then searches for the string “auto”, and then wc prints how many times it occurs in lines.

A useful command string that a lot of systems administrators tend to use would be:

```
[root@hermione root]# tail -f /var/log/messages
Jul 5 12:04:02 hermione last message repeated 13
times
Jul 5 16:17:17 hermione last message repeated 17
times
Jul 5 16:17:28 hermione last message repeated 18
times
Jul 5 16:17:32 hermione
```

A 'tail' displays the last ten lines of the file, and the -f option means that if there are more logs, it gets displayed (via it being appended to the bottom).

## WHERE DO I GET HELP?

Rather than get frightened off the shell, there are some sources of help, in the event that you aren't sure what you're doing in the shell.

### Man Pages

These are manual pages, for each and every command that resides on your system. This is a first point of reference, and it is invoked by:

```
man command-name
```

e.g.

```
$ man man
```

The above runs man on itself, explaining a bit about the manual page system.

### Info Pages

This is the new GNU project method of distributing manuals, and info pages are a lot more comprehensive than man pages. It is invoked by:

```
info command-name
```

e.g.

```
$ info info
```

The above runs info on itself, and provides some useful information as to how info can be used, and how you can navigate info documents.

### Other Useful Commands (for help)

While still on the topic of help, there are a few more useful commands that you want to know about:

- whatis – invoked by “whatis package-name” and it provides information about the tool that whatis recognizes (and has in its database).
- apropos – invoked by “apropos string”, and it provides strings matching what is located in the whatis database. This is most useful when you don't know what command you want to run, but have an idea that as to what it should be dealing with (so apropos mail should provide all sorts of mail clients that are available on your system).

## CONCLUSION

This is the power of Linux and UNIX command lines. There is much more to learn, as there are different shells, and different shell syntaxes available. Also, regular expressions are useful, and there are plenty more utilities available, and if a liking towards the shell is taken, shell scripts can be written to perform a lot of tasks, including backing up directories and more!

## EXERCISES

1. Open up a shell on your Desktop and perform the following:
  - find the name of the directory you are in
  - list out the contents of the current directory
  - list out the contents of the directory /usr/bin
  - check the current date and time
2. Change directory to your home directory and make a new sub-directory there named Temp11 and change directory to it

- copy the following files from the */etc* directory to the directory *Temp11*: *services*, *motd*, *fstab*, *hosts*
- concatenate the files copied above into one single file called *file1*
- count the number of lines present in the file *file1*
- delete the four files listed above in the directory *Temp11*

# Package Maintenance and Update

## INTRODUCTION

While a simple piece of software may consist of only a single executable file, most of the software applications available and running on your system are more complex. A typical application or utility will consist of several executable files, configuration files, documentation notes and guides and possibly even libraries too. All these files and information about where to place them in the filesystem are put together in what is referred to as a package. So when we talk about the installation or upgrading of applications, we are referring to the installation and maintenance of these packages.

There are many packaging formats available in Linux, and some are easier to use than others. In this Chapter we shall cover tarballs, the RPM packaging format (RPM) and the Debian packaging format (DEB).

## TARBALLS

Tarballs are the standard, and are common with file extensions such as ".tar.gz" or ".tar.bz2". This is the generic, distribution-free method of distribution software packages in the Linux world. However, tarballs are not very user-friendly; for example, to get a tarball from the Internet running, one might have to issue the following commands from the command line in a shell,

```
# bunzip2 myapp.tar.bz2
# tar -xvpf myapp.tar
# cd myapp
# ./configure
# make
# make install
```

This is a tedious task, and involves getting the software to compile before being able to run. If know-how is lacking, this method will also cause a lot of grief, as sometimes during the "configure" stage, dependencies to get it running aren't met.

This is the aim of package management formats like RPM and DEB – to ease the burden of dependency resolution, so that the end-user will just install the software with ease, and if dependencies are required, they get installed along.

## KEEPING UP-TO-DATE

On Red Hat Linux/Fedora Core systems, there is a graphical front-end called up2date. It is invoked by the little icon at the bottom of the notification area (nearby where the clock is located).



Fig. Up2date Icon

It can also be accessed via,

```
Main Menu --> System Tools -->
Red Hat Network
```

When you run it, it will require that you enter the root password (as this affects the system, administrative rights are required). Once that is entered, an image like the one below is displayed.

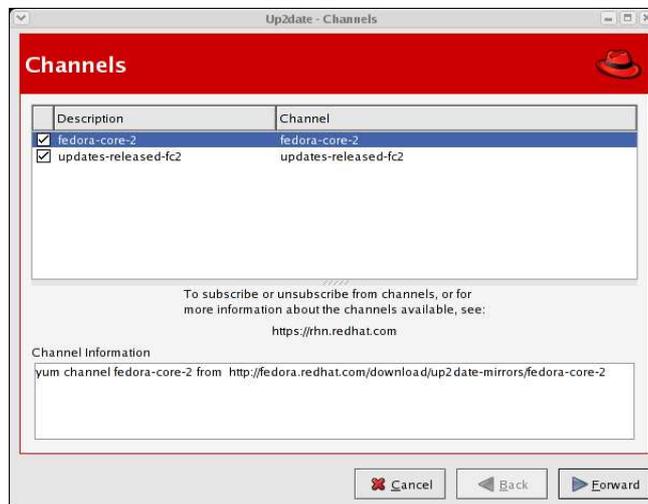


Fig. Up2date Channels Screen

Just click Next (make sure the Internet connection is enabled, if it is not enable it before proceeding further) – it will contact the online servers and find packages that are installed and need updating, and it will prompt you along the way. Once it is done, your system will be updated (and the blue icon with a tick will be displayed). If your system is not updated or the packages not kept up to date, a red icon with an exclamation mark will be displayed and it will be blinking.

On a Debian GNU/Linux system, a tool known as "apt-get" is available on the command line. On a default install, that is all that is provided, however, a good GUI front-end to it is Synaptic, which can be downloaded from the Internet via,

```
# apt-get install synaptic
```

Fedora also comes with another updating tool known as yum, and this can be invoked via the command line such as,

```
# yum update
```

To upgrade your current system,

```
# yum upgrade
```

can be invoked.

Keep in mind that keeping an updated system is very important, as when security holes or bugs are found in software and get fixed, you will always be kept abreast of such developments. A non-updated system can be an insecure system, and that is not good practice.

## INSTALLING NEW PACKAGES

If a package is available on your Red Hat Linux or Fedora Core CDROM, there's an Add/Remove Applications application that is useful. It is invoked via,

```
Main Menu --> System Settings -->
Add/Remove Applications
```

It will ask you for the root password, and once that is provided, it will display all applications that may be installed. Once you have ticked the applications that you want installed, you just need to click "Update" to install. Change the discs as you are prompted, and once this is done, you will have the software installed.

However, in the open source world where applications change quite often, and fixes are posted, this method might mean you get out-dated software. This is where tools like yum and apt come into play.

To search the yum database for a piece of software, you can invoke,

```
# yum search xargs
```

where xargs is an example of an application that needs to be installed. Yum will report if it finds xargs, and if its successful, performing,

```
# yum install xargs
```

will be all that is required. If xargs calls for any dependencies, it will be resolved automatically, and those packages get pulled in automatically too.

This is similar with Debian and apt.

```
# apt-cache search xargs  
# apt-get install xargs
```

If you want to install a downloaded RPM or DEB file manually, it can be performed like,

```
# rpm -ivh xargs.rpm
```

or

```
# dpkg -i xargs.deb
```

And if you're manually upgrading a package, use,

```
# rpm -Uvh xargs.rpm
```

The above command will upgrade the package if it is already installed or install it if it is not. To perform an upgrade only if the package is currently installed, use,

```
# rpm -Fvh xargs.rpm
```

There are many more options to pass to the rpm, dpkg, yum, apt-get and apt-cache tools, and the best way to learn more, would be to read their manual pages. It is also worthy to note that apt-get is available for RPM-based systems, so versions for Red Hat Linux or Fedora Core (or even SuSE or Mandrake) are available as a download from the Internet.

# Chapter 13: Getting More Info (and Help!)

The previous chapters have provided a guide on how to use the graphical desktop of a typical Linux system. However, they have just scratched the surface of the features and functions of the Desktop environment and the applications therein. In this section we shall look at the resources available to a user to get more information and help.

## ONLINE DOCUMENTATION

Much of the details on how to use and exploit further the software available is available as online documentation on the system itself. The online documentation is available in two types, the *Help* from the Main Menu and/or applications and the text-based Unix-style *man* and *info* commands.

## Desktop Help

The Desktop Help can be invoked from the Main Menu,

Main Menu --> Help

Invoking this will display the screen below.



Fig. GNOME Help Screen

The Help content is divided into several main categories. So you will need to select the appropriate category to view the help content of interest. Most of the information on how to use the Desktop can be found from the Help here. For example, to view the help information on the File Manager, select,

Desktop --> Nautilus File Manager



Fig. File Manager Help Screen

## Help Selection in Applications

Most of the Desktop applications have a Help button in their main menubar at the top. Selecting this will give you more information on how to use the application. The Help screen for the OpenOffice.org Writer application is displayed below.



Fig. OpenOffice.org Writer Help Screen

## Man and Info Pages

As discussed in Chapter 11, from the command line interface using a Shell, it is possible to access a comprehensive help system on the commands available via the *man* and *info* commands. For example, to find out more on how to use the directory listing command, *ls*, open up a shell (see Chapter 11) and at the command prompt enter,

```
$ man ls
```

More detailed information on certain commands may be found using the *info* command, e.g.

```
$ info ls
```

To learn how to use the *man* and *info* commands, make use of these commands themselves e.g.

```
$ man info
$ man man
$ info info
$ info man
```

## THE INTERNET (WWW)

There is a lot of information available on the WWW on all the software available on the system. These may be classified broadly as follows:

- Websites of specific software projects
- Websites of specific Linux distributions and/or vendors
- General Linux websites
- General Open Source websites

## Websites of Specific Software

Below are links to the websites of the software applications discussed in this guide.

- GNOME – [www.gnome.org](http://www.gnome.org)
- KDE – [www.kde.org](http://www.kde.org)
- The Freedesktop Project – [www.freedesktop.org](http://www.freedesktop.org)
- OpenOffice.org – [www.openoffice.org](http://www.openoffice.org)
- Mozilla – [www.mozilla.org](http://www.mozilla.org)
- Ximian Evolution – [www.novell.com/products/evolution/](http://www.novell.com/products/evolution/)
- gToaster – [gnometoaster.rulez.org](http://gnometoaster.rulez.org)
- Sane – [www.sane-project.org](http://www.sane-project.org)
- XSane – [www.xsane.org](http://www.xsane.org)
- MPlayer – [www.mplayerhq.hu](http://www.mplayerhq.hu)
- Xine – [xinehq.de](http://xinehq.de)

XMMS - [www.xmms.org](http://www.xmms.org)  
gThumb - [gthumb.sourceforge.net](http://gthumb.sourceforge.net)

## **Linux Distributions and/or Vendors**

Links to specific Linux distributions and vendors are listed below. In particular the website Distrowatch should be consulted for information and links to the hundreds of Linux distributions available today.

Fedora Linux - [fedora.redhat.com](http://fedora.redhat.com)  
Debian Linux - [www.debian.org](http://www.debian.org)  
Slackware Linux - [www.slackware.org](http://www.slackware.org)  
Redhat Linux - [www.redhat.com](http://www.redhat.com)  
SuSE Linux - [www.suse.com](http://www.suse.com)  
Mandrake Linux - [www.linux-mandrake.com](http://www.linux-mandrake.com)

...

...

... many. many, many more  
... (for links and information on many Linux and other OSS operating system distributions see the Distrowatch website below)

Distrowatch - [www.distrowatch.org](http://www.distrowatch.org)

## **General Linux Websites**

Resources catering to new Linux users can be found in many of the website links below.

Linux Online - [www.linux.org](http://www.linux.org)  
Linux.com - [www.linux.com](http://www.linux.com)  
Linux.net - [www.linux.net](http://www.linux.net)  
Linux Headquarters - [www.linuxhq.com](http://www.linuxhq.com)  
LinuxHQ.org - [www.linuxhq.org](http://www.linuxhq.org)  
Linu Today - [www.linuxtoday.com](http://www.linuxtoday.com)  
The Linux Documentation project - [www.tldp.org](http://www.tldp.org)  
Linuxquestions.org - [www.linuxquestions.org](http://www.linuxquestions.org)  
The Linux Standard Base Project - [www.linuxbase.org](http://www.linuxbase.org)  
Linux Journal - [www.linuxjournal.com](http://www.linuxjournal.com)  
Linux Gazette - [www.linuxgazette.com](http://www.linuxgazette.com)  
Linux Compatible - [www.linuxcompatible.org](http://www.linuxcompatible.org)

## **Free and Open Source Software Websites**

In this section, general information on Open Source and Free Software may be obtained as well as news and updates.

The Open Source Initiative - [www.opensource.org](http://www.opensource.org)  
The Free Software Foundation - [www.fsf.org](http://www.fsf.org)  
Sourceforge - [sourceforge.net](http://sourceforge.net)  
Freshmeat - [freshmeat.net](http://freshmeat.net)  
Newsforge - [www.newsforge.com](http://www.newsforge.com)  
Open Source Development Network - [www.osdn.com](http://www.osdn.com)  
Slashdot - [slashdot.org](http://slashdot.org)  
International Open Source Network - [www.iosn.net](http://www.iosn.net)  
The Asian Open Source Centre - [www.asiaosc.org](http://www.asiaosc.org)  
OSNews - [www.osnews.com](http://www.osnews.com)

# Appendix: KDE (The K Desktop Environment)

## INTRODUCTION

The focus for the large part of this guide has been with the GNOME Desktop. However, there is another popular graphical desktop environment out there known as the K Desktop Environment, affectionately known as KDE. It is included with most systems, and has a strong user-base, just like the GNOME Desktop. KDE offers an alternative desktop computing experience in that while the applications should all function in the same manner irrespective of the desktop environment chosen, the look and feel of the graphical desktop are different. Desktop-specific tools and applets may also be different from one environment to the next.

This section will briefly introduce KDE as well as highlight some of the more important differences from the user's perspective between the KDE and GNOME Desktops.

## LOGIN INTO KDE

To login to the KDE Desktop rather than the GNOME Desktop, at the graphical login screen, click on Sessions at the bottom, and then select the KDE option. Enter your username and password – there might be a pop-up warning asking if the change is for the current session or for all future sessions (this can be permanently changed using the programs “system-config-switchdesk” on a Fedora/Red Hat system and “switchdesk” on a Debian system.).

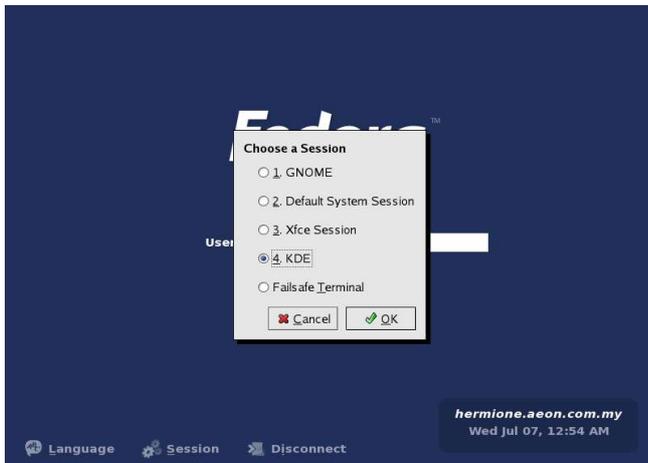


Fig. Choosing KDE at the Login Screen

After login, the KDE Desktop is displayed and as can be seen below is rather similar, but not identical, in appearance to the GNOME Desktop shown in Chapter 1.

## THE KDE DESKTOP

The KDE Desktop has similar components to the GNOME Desktop and their functionalities and usage do not differ much. So on the desktop we find the following familiar components: the Menu System, the Panel, the Desktop itself.

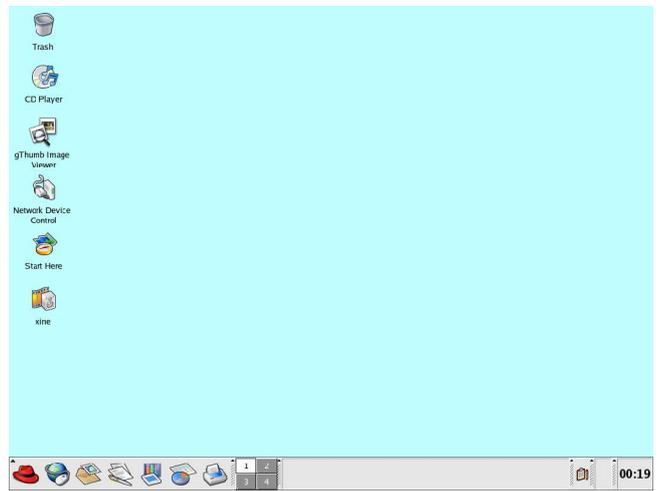


Fig. The KDE Desktop (Fedora Core)

On closer examination of the Desktop there are some subtle differences, For example, one of the things that set KDE apart from GNOME, would be the icon set. In contrast to GNOME, there is no “Computer” icon, but just some for your devices, and the usual “Start Here” set. KDE on systems other than Red Hat Linux or Fedora Core, will look a lot different, as the themes can be configured otherwise.



Fig. KDE Desktop Icon Set

Another item that you will notice is that if you right-click on the Desktop, the right-click pop-up menu differs from the GNOME offering. It allows you to create new documents, edit bookmarks (which are a handy feature to jump to places quickly with just a few clicks of the mouse button), and of course, run a command.

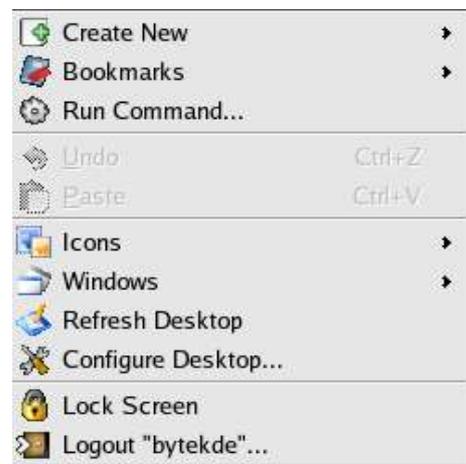


Fig. Right-click Menu in KDE

By clicking on the Main Menu, again, differences will be prevalent. But notice that the categories of applications are similar? It is just the look and feel, that seems to differ a little.



Fig. KDE Menus

## CONTROL CENTER

There is a central place where all the Desktop and system configuration can be set and viewed – the KDE Control Center.



Fig. KDE Control Center

The Control Center can be launched from the Main Menu,

Main Menu --> Control Center

This central place for configuration makes it very convenient for users and administrators alike. Using the Control Center is easy. To configure a particular setting or parameter, open up the section it is under and select the item to configure. For example, to change the background colour, select,

Appearance & Theme --> Background

## KLIPPER – CLIPBOARD APPLET

Klipper is a unique feature of KDE – it provides for clipboard access in the GUI application environment. It allows a

multitude of copying and pasting options, and works well between all applications. Using Klipper, one can cut and paste text seamlessly between applications running on KDE. To place Klipper on the Panel, right-click on the Panel,

Add --> Applet --> Klipper



Fig. Klipper

## KONQUEROR - FILE MANAGER AND WEB BROWSER

Lastly, one major difference between KDE and GNOME is the file manager. In KDE, Konqueror is the default file manager. Konqueror provides all the functionalities one will expect from a modern file manager, including navigation of the filesystem, file/folder copying, renaming, deletion and creation and application launching.

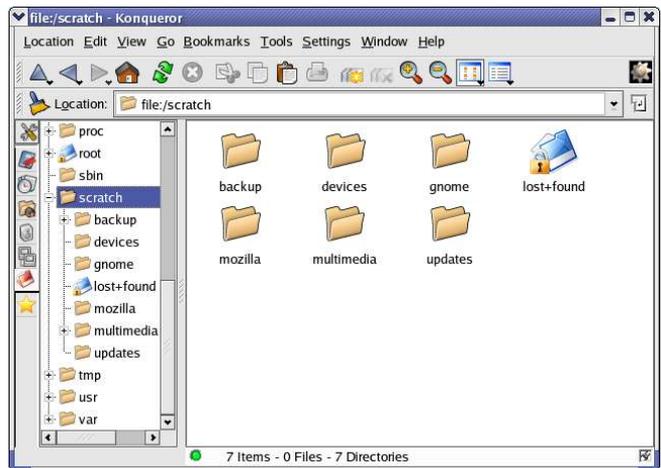


Fig. Konqueror File Manager

It is also able to display graphic image files and generate an image gallery web page from them. In addition, Konqueror is a standards-compliant web-browser and is perfectly capable of browsing the WWW on the Internet - just enter the website to go to in the Konqueror location bar.



Fig. Konqueror Web Browser

To learn more about the many features of Konqueror, see the online Konqueror documentation which can be invoked by selecting from the Konqueror main toolbar,

Help --> Konqueror Handbook

## THE HELP CENTER

One of the best ways to learn about how to use KDE effectively is through its online help documentation – the Help Center. This can be invoked from the Main Menu,

Main Menu --> Help

The Help Center covers the graphical desktop usage and configuration as well as the KDE applets and applications. Standard Unix/Linux manual and info pages can be accessed from here too.

The KDE Help Center should be consulted for more information about how to use KDE.

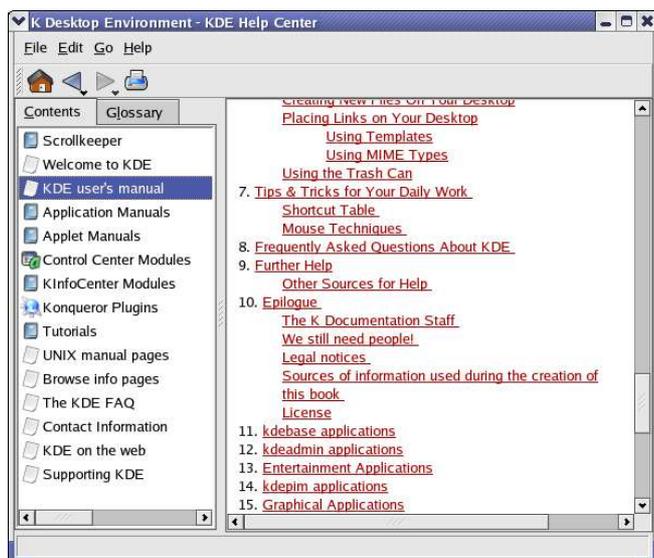


Fig. The KDE Help Center