
Fast Track Course

Introduction To Linux

with

Fedora Core 4

Official Arinet Course Book
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Preface

During 2005, there were many significant things happened in Indonesia IT sector. Started in the beginning of the year when police raided internet cafes and businesses who used illegal copy of MS Windows and related softwares. This raid is based on the Indonesia Intellectual Property Rights No. 19/2002. There was a polemic though, that some internet cafes who have used legal copies were still raided. It turned out that the EULA of MS Windows prohibits the rental of it's software. Luckily it then can be solved after MS agreed to modify it's EULA specifically for Internet cafes. Well, this enforcement left two choices: either buy the software legally, or use Open Source software. For those who wanted to buy it, better prepare to dig deep into the wallet. Therefore, from licensing point of view, of course using Open Source Software is the most logical and economical solution, especially in the ever rising cost of living in developing country like Indonesia.

From the migration party, even in low profile and not known publicly, some groups of big companies are planning or already migrating to Open Source. This is of course not an easy thing and needs very well prepared planning. And also the number of skillful person in Open Source is still very limited.

So, in order to help Open Source movement from human resources aspect, this Fast Track Introduction to Linux course material is made. And also to upheld the spirit of Open Source, this training material is licensed according to Creative Commons like the one stated at <http://creativecommons.org/licenses/by-nc-sa/2.0/> whose points: 1). Must be attributed according to the writer, 2). Not for commercial use, 3). Share alike, that is all resulting work and modification must be licensed identically like this one. Therefore, hopefully the openness of this document will stay the same and can be benefited for all people who need it, especially for educational purposes.

Thank you to Mr. Onno W. Purbo and Mr. I Made Wiryana for giving me inspiration to share with everyone, and also to Mr. Bambang Gunawan whom I admire and respect like my own father, and last but not least, thank you to all friends in the Open Source movement, our togetherness is really something.

Viva Liberty!
Fajar Priyanto
Knowledge Belongs to Everyone

GETTING STARTED

1. What is Linux?

In general meaning, it is an Operating System. Operating System is a software whose function to manage the software and hardware of a computer. Similar like other OS we have known all this time such as Microsoft Windows.

To be precise, Linux is a kernel. It is the heart of the OS.

2. The history of Linux.

On October 5, 1991, **Linus Benedict Torvalds**, a graduate student in University of Helsinki – Finland, made an announcement in an Usenet newsgroup (comp.os.minix) that he had made an OS similar to Minix.

Maybe some of us think that with that announcement, it meant that it was Linux 0.01, but it was not. Linux 0.01 had never been announced, because it was inoperable. Linus provides the 0.01 version at the first Linux FTP site at <ftp://nic.funet.fi>. That October 5 announcement was meant for kernel version 0.02 which capable to run bash shell and gcc. Later after the 0.02 version, came version 0.03, then jumped to 0.10. Version 1.0 was released in March 1992. Today, Linux kernel has reached version 2.6.

3. Linux dan General Public License

The rapid development of Linux is closely related to the fact that Linus releases the kernel using **GPL (General Public License)**, which is published by the **Free Software Foundation** (www.fsf.org).

GPL assures this 4 Freedom:

- Freedom to Use.
- Freedom to see the source code.
- Freedom to modify.
- Freedom to distribute.

Software that use GPL are often called Open Source Software, which are the opposite of Close Source Software or proprietary software (such as Microsoft Windows, etc).

Open Source software seems to be less glamorous than Close Source one, but in reality, there are facts that Open Source Software are better in quality. This is not surprising since the method of developing Open Source Software often done by numerous independent programmers from around the world. So, if there are some code that are not good or suspicious, other programmers can spot it and report it and offer some fixes to the lead maintainer. On the close source software, this environment is not always present, and all development is done entirely by in-house programmers.

4. Various Linux Distros

The first question is: What is Linux Distro? As we have read earlier that Open Source Software is free to be distribute. Therefore, there are some companies or community that get Linux kernel, and add numerous packages onto it, making it a fully featured Operating System.

RedHat, Mandriva (was Mandrake), Debian, Slackware, Suse are some of well-known Linux distribution companies. Each with their own characteristic. It is their products that we know as 'Linux distros'.

Then one must be wondering, which distro is the best? This question is actually not quite right, because:

1. All Linux distros are made from the same kernel. The version might be different (depends on the characteristic of the company, whether their distro is lean towards bleeding edge features with the newest kernel, or they prefer to be based on rather old but very stable and proven), but still, in essence the kernel is the same. We can download the newest kernel from <http://www.kernel.org>.
2. Distro companies then add many features based on the kernel. This features are like: easy installment, Xwindow and all the components, Office suite, etc.

So, back to the question, the more appropriate question would be: "WHICH DISTRO THAT I LIKE?" Thus, if we speak about distro preference, the important thing is: TASTE.

Ok, you must be asking by now, "Then, how do I know which distro is best suited for my taste?"

Well, the answer would be: try them by yourself. "Oh man! I don't have enough money to buy all those distros." Don't worry, we will discuss some of well-known distros very soon.

Redhat Linux (<http://www.redhat.com>)



RedHat Linux is arguably the most popular distros. This is understandable because they innovate the RPM (Redhat Package Manager), which makes it easier for people to install and remove packages. Since the end of 2003, Redhat stop the development of it's free version, but after some heavy protest from it's users, they continue it using Fedora Core brand name.

Linux Mandrake / Mandriva (<http://www.mandriva.com>)



Linux Mandrake was build originally using Redhat brand, but then they had to change it after Redhat complained. Mandrake is known to be an 'aggressive' distro, partly

because they always ship their Distro using the latest kernel at the time. This could mean a good thing, because newer kernel usually means more hardware support, but this could be bad too, because there could be undetected (yet) bugs in the kernel. Mandrake is also known to be a friendly distro. They try hard to provide an easy to use GUI and tools for novice users.

Debian (<http://www.debian.org>)



Debian Linux is the diamond of many Linux volunteer around the world for non-commercial purposes (note the .org domain name). According to the How-To, there are around 400 developers from around the world that are working on more than 1500 packages for Debian. The release of the long-awaited Debian ‘Sarge’ 3.1 is highly appraised by the Linux community. It also has a very good (almost magically – they say) package management system called ‘apt-get’.

Slackware (<http://www.slackware.com>)



Slackware has a text-mode installation which is very simple and easy to follow. It also can be setup to be a very powerful and suitable to our liking. But, as the negative side, we need to invest more time to learn all the features. A worthy effort.

SuSE (<http://www.suse.com>)



Suse Linux can be seen as “Europe Redhat”, because it is very well-known in Europe, made by Dr. Suse. It has Yast, a hardware detection system, hardware configuration tools, and system management that is very good. It is known that Yast was able to setup many new hardware whereas other distros couldn’t. Suse has been acquired by Novell in 2003.

Why Fedora Core?



Arguably, Redhat is the most popular distro in the world. It is also known that they are the pioneer to be providing professional support, and they manage to prove that it is feasible to build a business around Linux. For their professionalism, Redhat managed to attract many big vendor to port their product into Linux, such as Oracle. Redhat and Suse are the only officially supported distro by Oracle.

Then, how about Fedora? Well, Fedora is the reminiscent of Redhat in the open source world. One

must be wondering whether Fedora has an inferior quality than that of Redhat. The answer is simply No. The name change from Redhat to Fedora is merely a brand name change. Most of the development process is still the same, many Redhat engineers are still involved in Fedora Core project.

By learning Fedora, we will have the skill that is highly appreciated in business world. If we are joining a company which is using Redhat Enterprise Linux, we will be already familiar with the system, because Fedora is the 'development version' of RHEL.

Fedora Core 4 Installation



Illustration 1: Put CD #1 into the CDROM drive and boot the PC. You will see the above screen. Press [ENTER] to start the installation process.

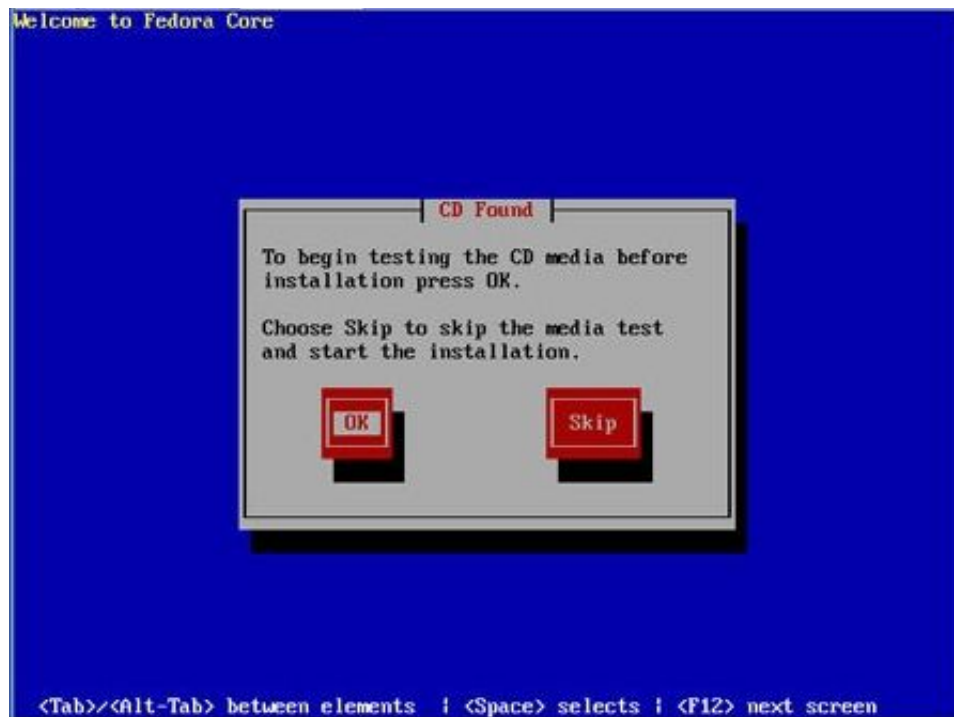


Illustration 2: Fedora will ask whether we want to check the CD first. We can just SKIP if we want to.



Illustration 3: Welcome screen

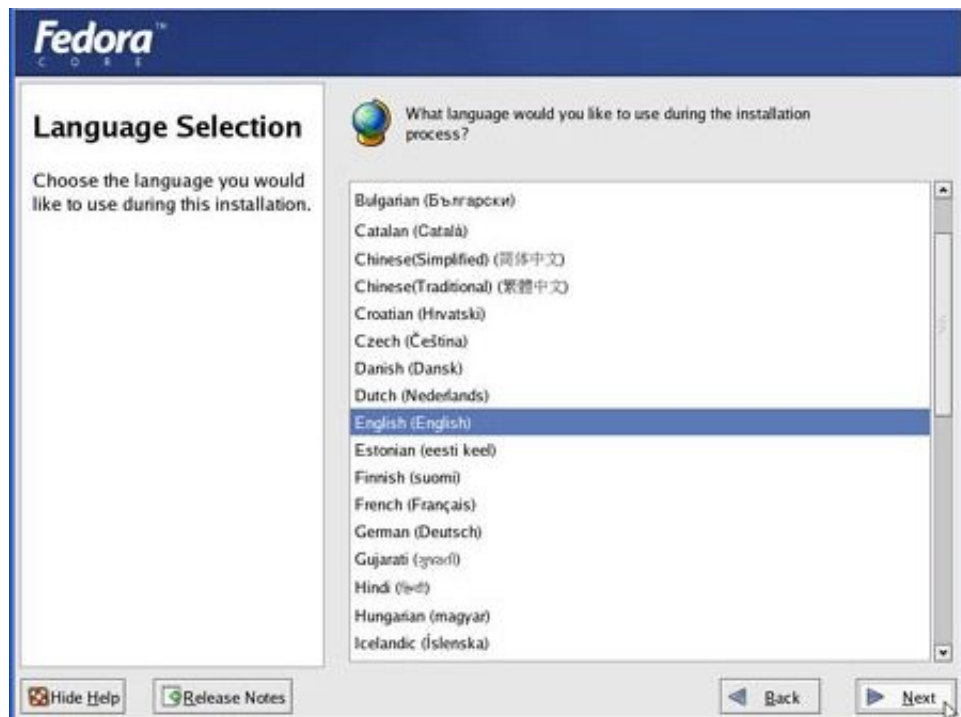


Illustration 4: Language Selection



Illustration 5: Keyboard Selection. Choose the one that best match your language requirement.



Illustration 6: There are several standard choices for easiness. But, since we are learning here, let's choose 'Custom'.



Illustration 7: We are asked if we want to use automatic or manual partition. Let's learn the manual way.



Illustration 8: Warning Partitioning. We are asked if we really want to partition our harddisk. Click [YES]

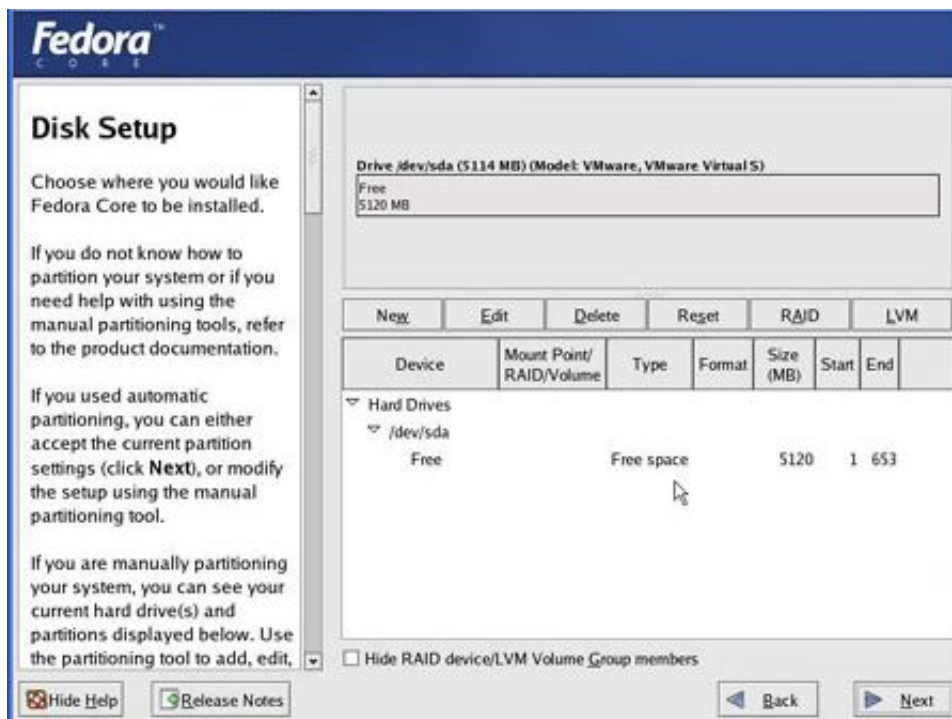


Illustration 9: Initial harddisk partition. We can see the size of our harddisk and whether there are any partition yet



Illustration 10: Click on the top bar (the one that resembles our harddisk), then click [NEW]. Choose the Filesystem (better yet use ext3, the standard), then choose the mount point.



Illustration 11: Repeat the above step for other mount point. Linux requires the minimal to be / (root), and swap

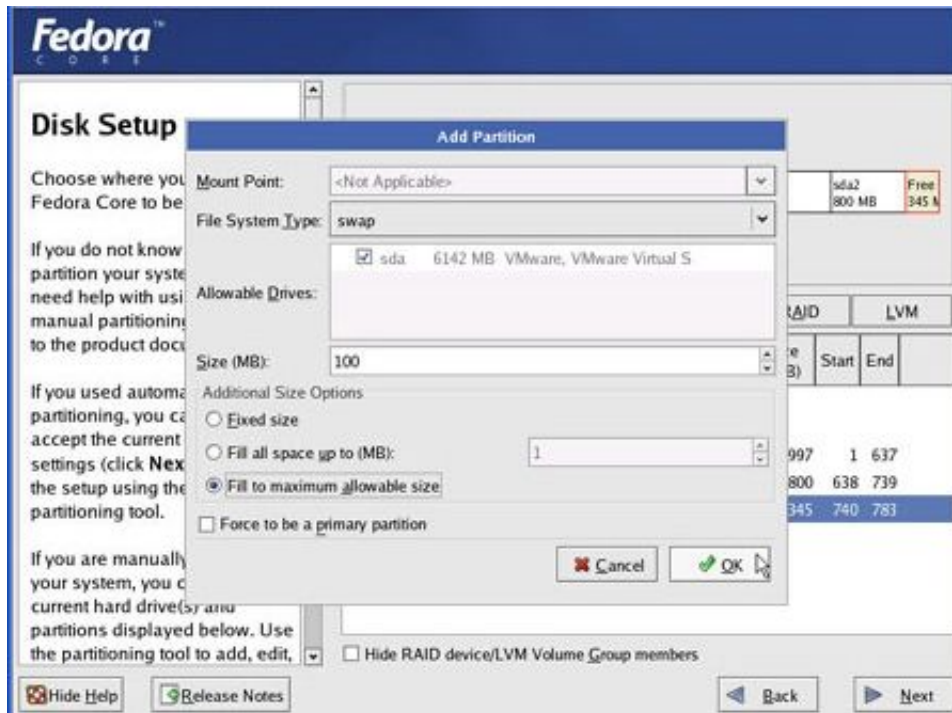


Illustration 12: Making swap partition. Swap is virtual memory, so when Linux is low on free physical memory, it will write the needed memory on the harddisk. Take note that since we have finish allocating all the other partitions, we can allocate the remaining harddisk space for swap (Fill to maximum allowable size)

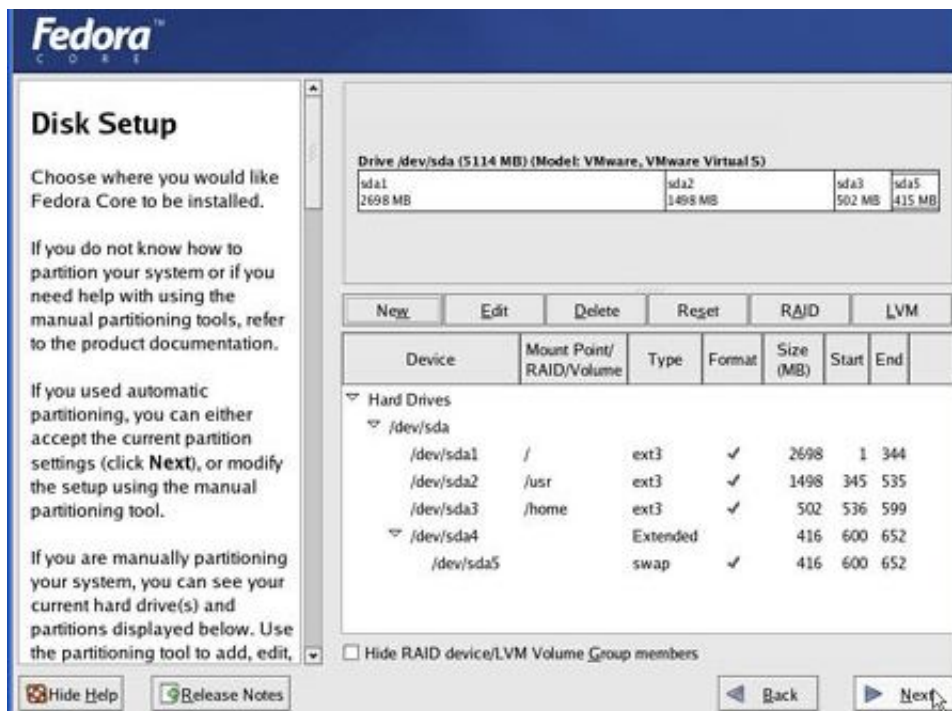


Illustration 13: After we finish making partition, we are presented the summary. Click [NEXT] to the next step

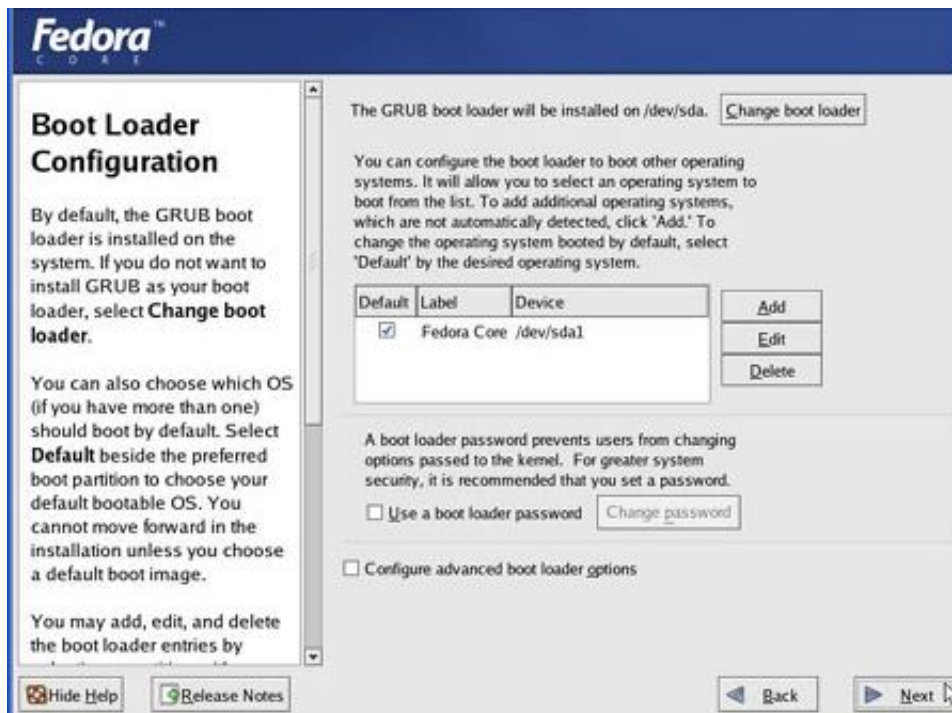


Illustration 14: Boot loader setup. Let's use the standard option

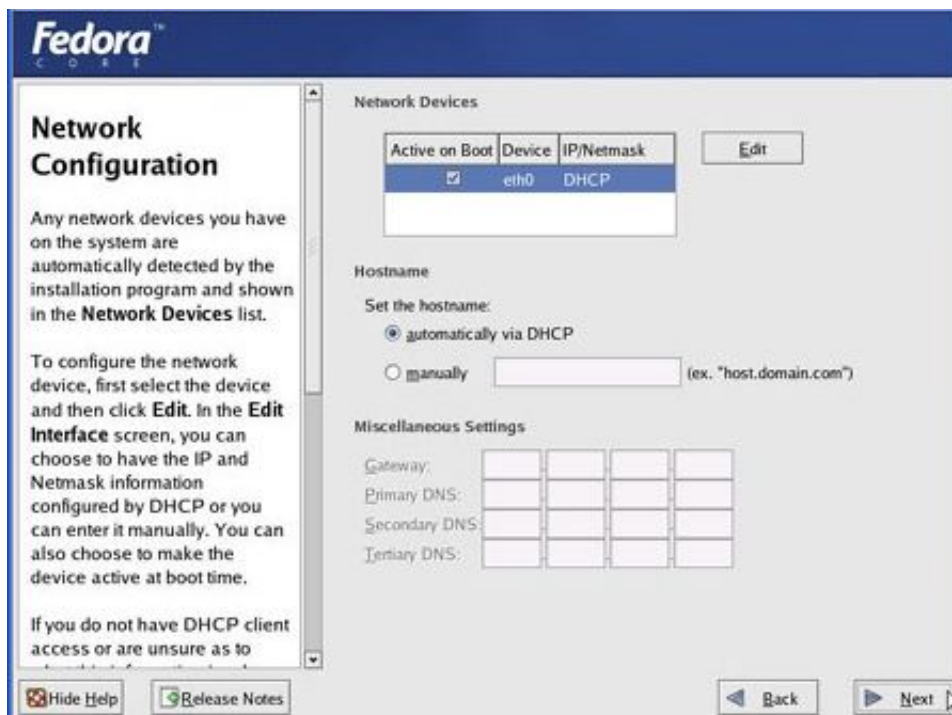


Illustration 15: Network Configuration. Edit eth0 if we want to use manual IP. Also it's better we set the hostname, any name, such as fc4.mine.home

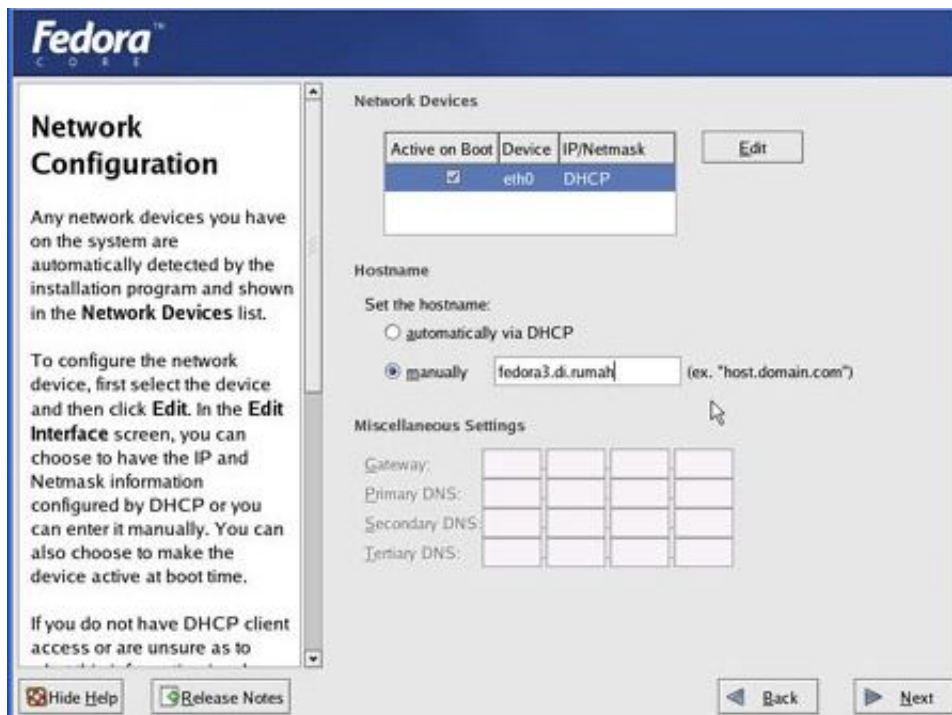


Illustration 16: Setting Hostname

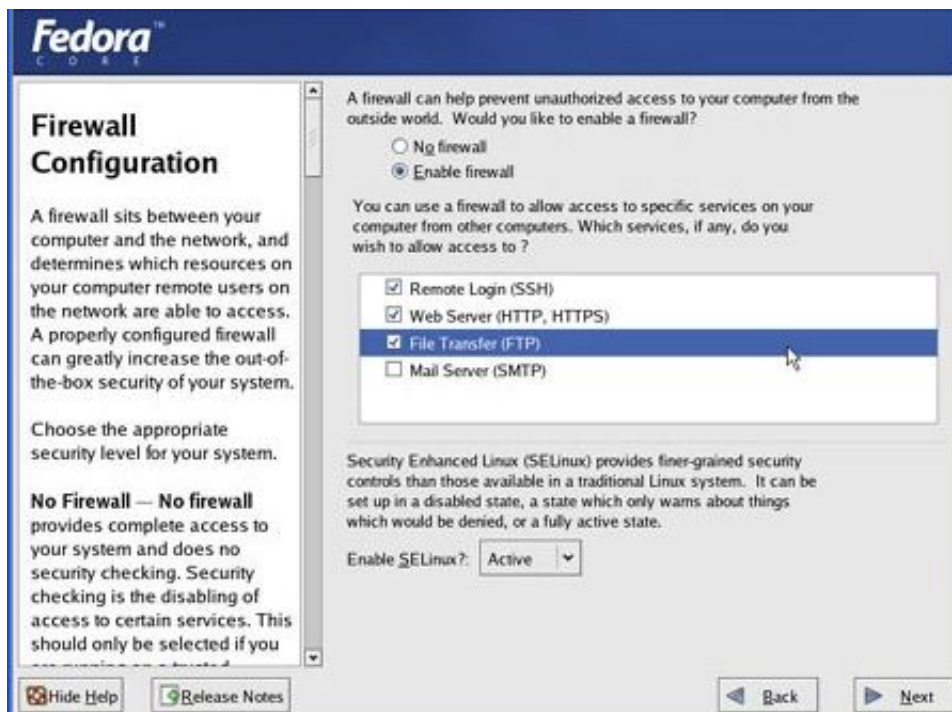


Illustration 17: Firewall configuration. We can start or stop firewall, and we can also determine which services are allowed/not through our firewall. About SELinux, we'd better turn it off for now, since it requires additional settings later.



Illustration 18: Additional Language Support



Illustration 19: Time Zone Configuration. Move the arrow to the city we are living. If it's not there, choose the nearest city with the same time zone. I'm in Jakarta



Illustration 20: Root Password Configuration. Type in the desired root password. Root is the super user, so choose a secure password that is not easy to guess. Better use a combination of number and letter, capital and lowercase.

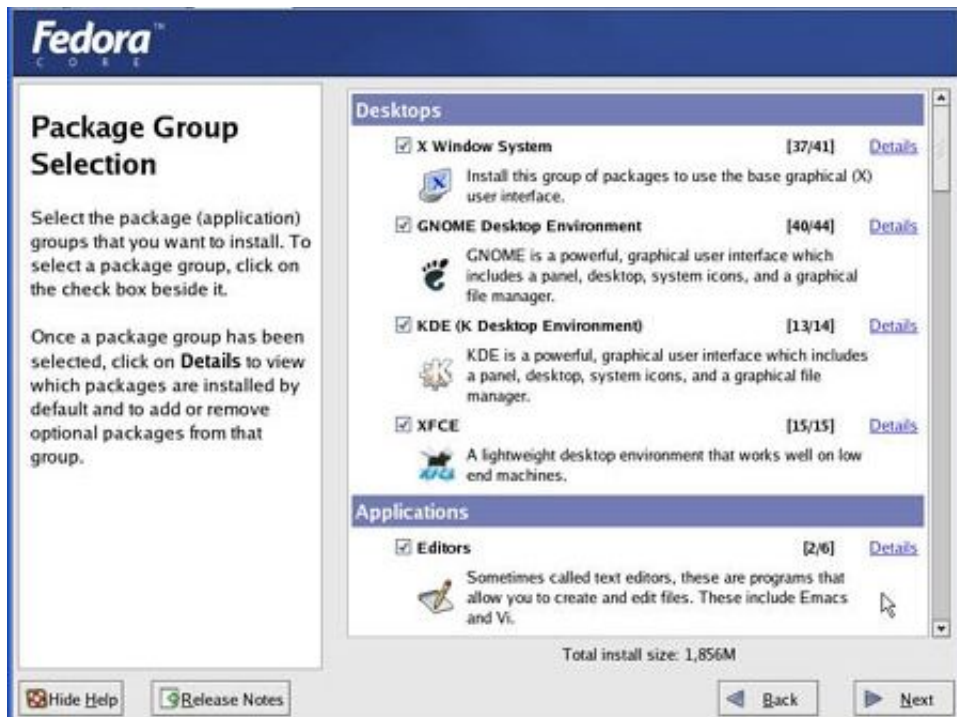


Illustration 21: Choose the packages we want to install. Note: if we want use Linux just for Desktop usage, it's better if we don't install server packages, and vice versa.



Illustration 22: Ready to install. Click [NEXT] if we have finished choosing the packages.



Illustration 23: CD Confirmation. Fedora will ask whether we have the needed CDs available during the installation



Illustration 24: Installation Process. Depends on the spec of the PC and the amount of installed packages, the process could take around 20-60 minutes.



Illustration 25: First Bootup. After all the packages are installed, remove the installation CD from the CDROM drive, and the computer will be rebooted



Illustration 26: Graphical Booting. We can see the detailed process by clicking on the 'Show Details' (see the next picture)



Illustration 27: Graphical Booting.



Illustration 28: Welcome Screen after the first boot



Illustration 29: License Agreement. Please take a look at it. And if you agree, click [Yes, I agree....] then [NEXT]

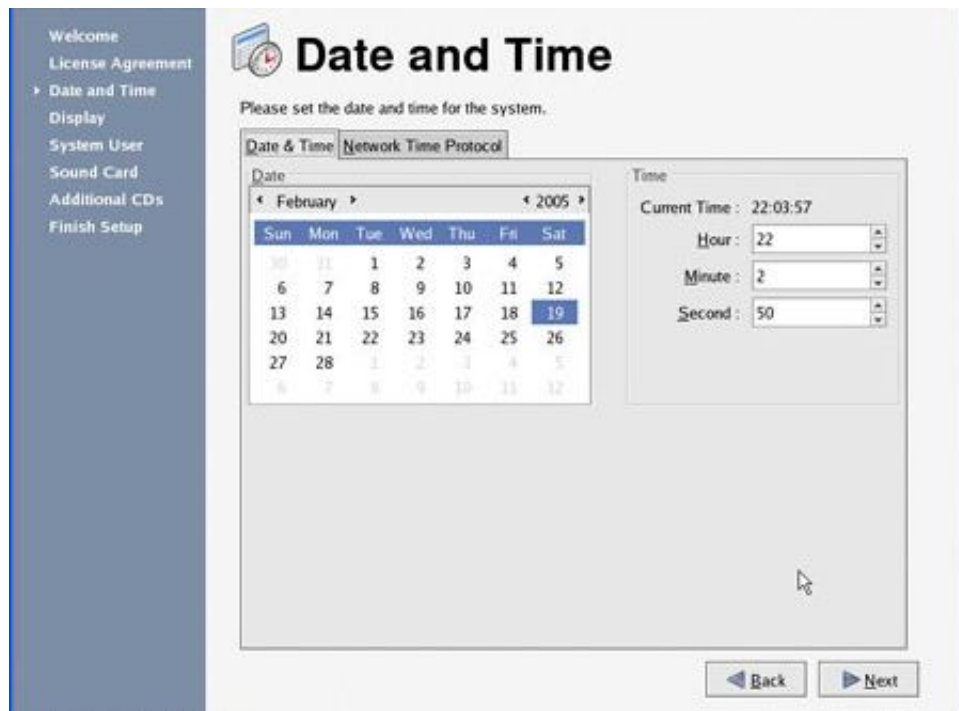


Illustration 30: Setting Time and Date. We can also get synchronized with a respective time server over the internet by using Network Time Protocol.



Illustration 31: Display Configuration. First we choose the type of our monitor, then the resolution. This is the correct way.



Illustration 32: User Configuration. Even though already have the root account, it is highly recommended that we use ordinary user account for daily use, this is for the sake of security.



Illustration 33: Additional CD. If we have additional CD from Redhat, we can use it in this part, usually the CD contains additional packages such as commercial ones or updates.

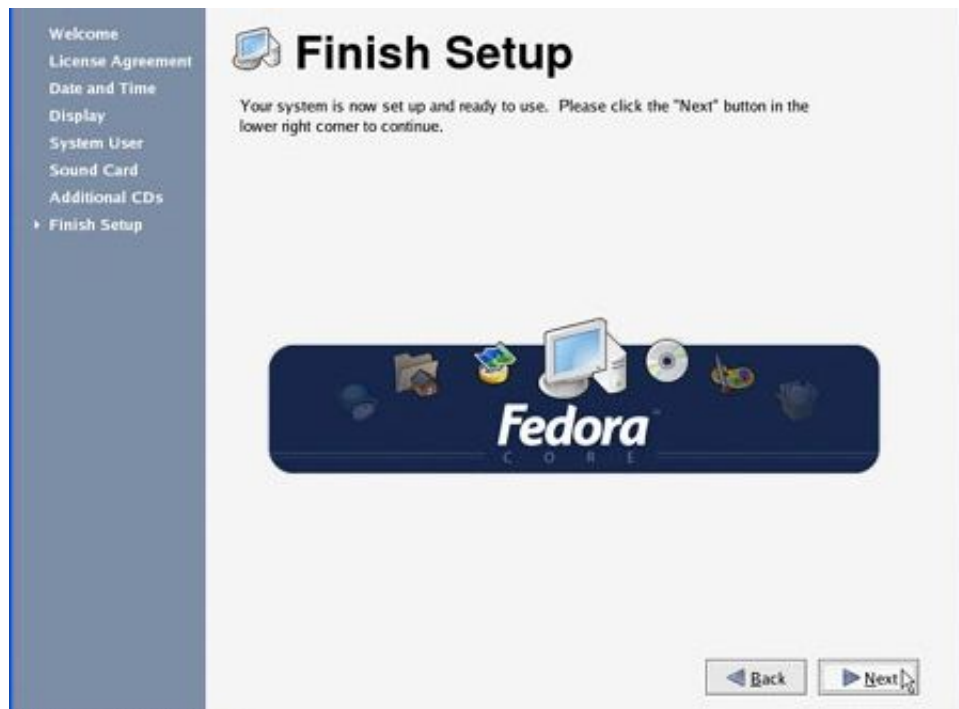


Illustration 34: Setup is done. Click [NEXT].

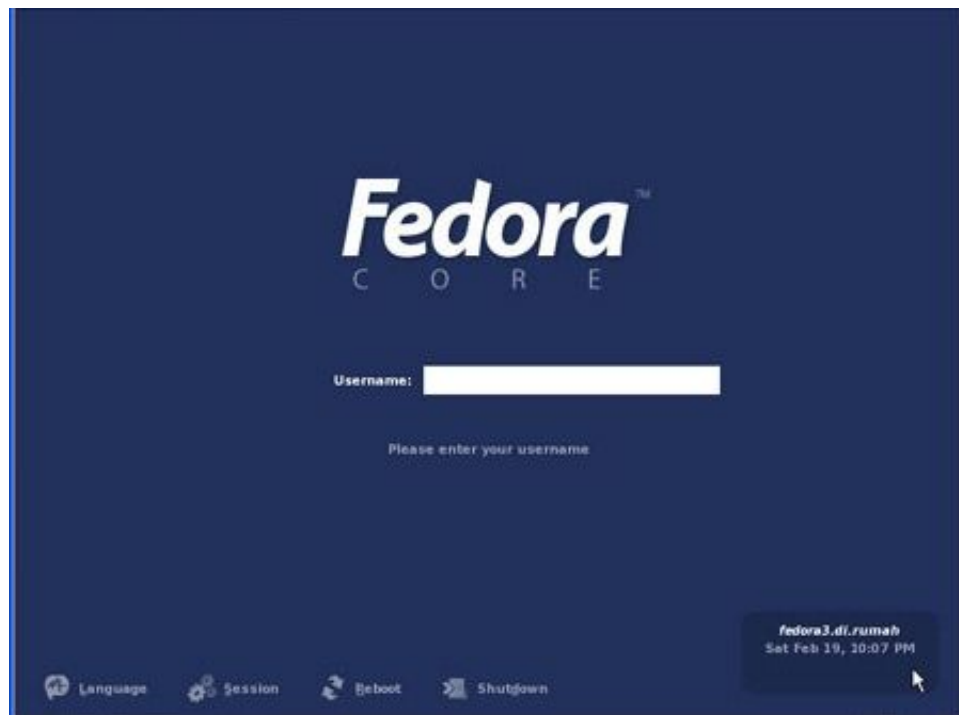


Illustration 35: Login Screen. Type in the username and then the password (case sensitive). On the Session icon at the bottom, we can choose which session we want to logon into, such as Gnome (default), KDE, or others. We can see the hostname of our Linux at the bottom right.



Illustration 36: Login Process.

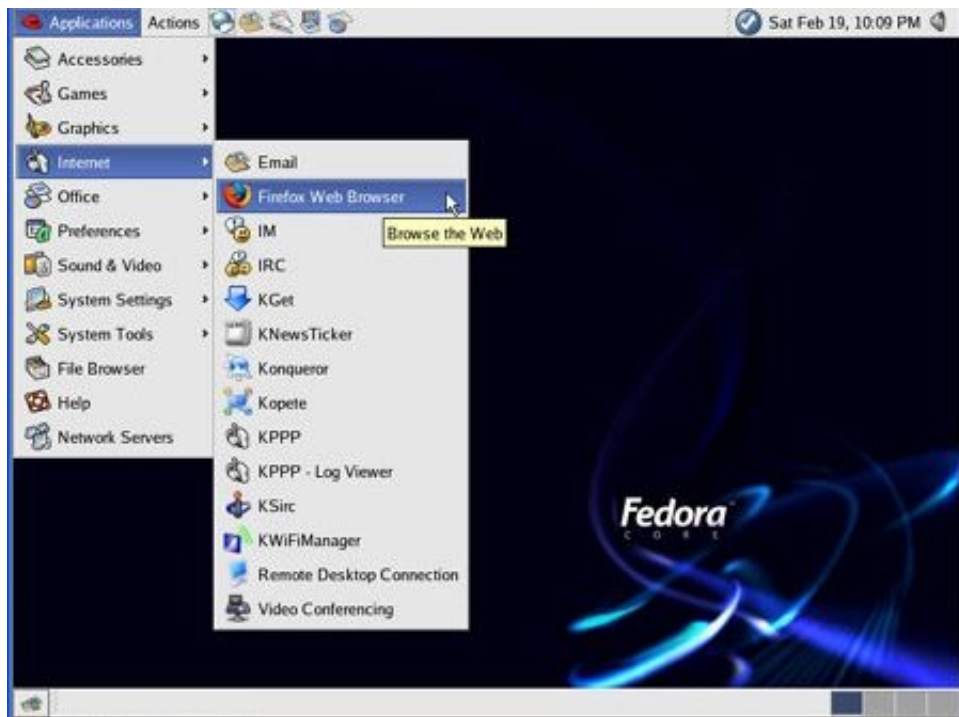


Illustration 37: Gnome Desktop. After the login process, we will see the desktop screen. The Start Menu is on the top-left with Fedora icon. Next, for those who are familiar working in graphical environment the atmosphere is certainly familiar. Congratulations! You have successfully installed Fedora Core 4.

XWINDOW SYSTEM

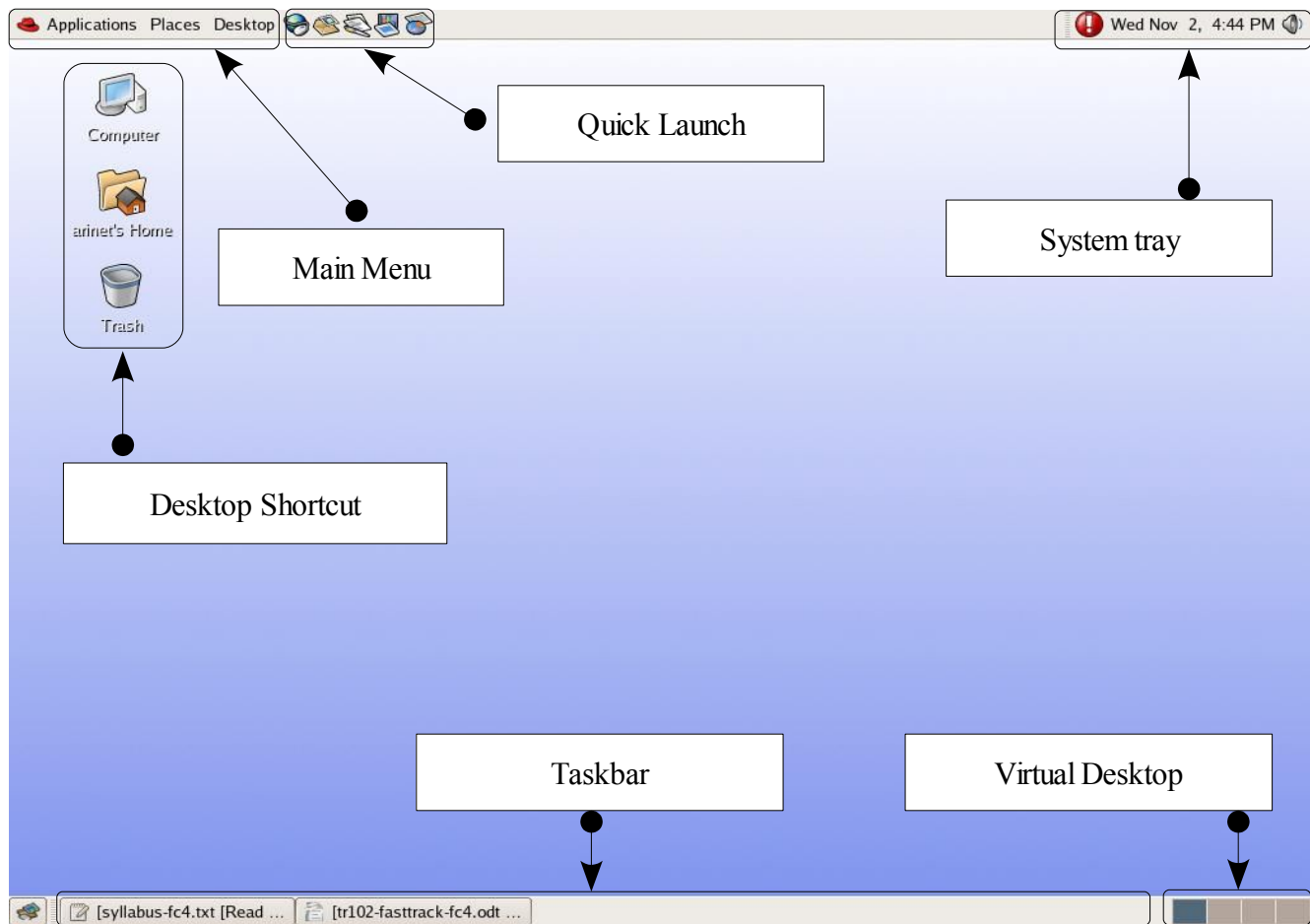
Getting to know it

Certainly one might ask why we use the term ‘Xwindow System’, this is because basically Linux system is text based, so even though without the GUI (Graphical User Interface) Linux system is already fully functioning. Xwindow System is the GUI to help user to use Linux without having to know all available commands in CLI (Command Line Interface). So, Xwindow System is completely a separate system.

Day by day, the Xwindow System is getting matured, that makes Linux getting solid for Desktop usage, such as word processing, spreadsheet, email, graphics, etc. There is a movement called Desktop Linux Initiatives which is established by Linus Torvalds in 2003 to accelerate the readiness of Linux as a solid Desktop System.

Because of the nature of Linux as Open Source, there are many Xwindow System that we can choose. The two most popular are KDE and Gnome. The others are XFCE, Enlightenment, Windowmaker, etc. Each with their own characteristic. KDE is used mostly in Europe such as Suse and Mandriva, whereas Gnome is used by Redhat and Debian.

And since we are using Fedora Core, let’s get to know it better, shall we?



Drawing 1: Gnome Desktop. As we can see, the place of icons are a bit different, but not too different. Main menu [usually] consists of: Applications, Places, Desktop. On the right is Quick Launch icons which we can add/remove. On the far right is System Tray area where date and time, and other system indicators located. On the center bottom is Taskbar, where opened application windows are located. On the right of it is Virtual Desktop switcher.

Main Menu



There are several categories in the Main Menu > Applications, such as: Accessories, Applications, Edutainment, Games, Graphics, Internet, Office, Programming, Sound & Video, System Tools. Please take a time to explore those categories. Run Application at the bottom is where we can run an application manually from command line.

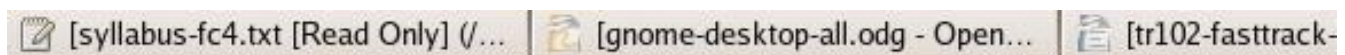
In Main Menu > Places, there are shortcuts to several location in our computer, such as Home Folder, Desktop, and Network. We can also look for Files in Search for Files. Recent Documents contains shortcut to

recently opened documents in our computer.



Main Menu > Desktop consists several important menu. That is Preferences and System Settings. Through this menu we can setup our Linux to our need. There is also a menu where undoubtedly will be used often that is Log Out.

Taskbar



Taskbar is the place where our opened applications windows are located. We can set it up whether it will show all window from all Workspace (we'll get into it after this), or not. Also we can opt whether to Group Windows when the space on the taskbar is limited, or always group, or never.



Virtual Desktop / Workspace



Well, hold on, we are now going to learn one of the cool things in Linux desktop, that is

Virtual Desktop (Workspace). As we logon into Linux, we will see the Gnome Desktop. Then when we start opening several applications, the windows of those application will start appearing on the taskbar, right? Well. What would happen if we open so many applications? This will make the Taskbar to be crowded by applications windows. The more we open, the smaller the applications windows to be. Of course we can try to group windows from the same application, but still it will be hard to inefficient to access all those windows.

With Virtual Desktop, we can arrange so that for example, the first Desktop is for Office application

such as word processor, spreadsheet, etc. The second Desktop is for Internet applications such as browser and email. The third Desktop is for shell access, etc. This way, the we can work effectively because we can easily access the windows that we want with a spacious workspace.

WORKING WITH LINUX

Introduction

What is super user or root?

In Linux there are 2 types of user, that is **ordinary user** and **super user** known as '**root**'. The difference between those two lies in power and privilege. Ordinary user cannot affect anything that is located outside of his home directory unless specifically set to be his own. So, he cannot for example delete a file/directory other than that is located in his home directory. Even the running programs can only perform and affect Linux system to be as much as it is intended for it. So, if an ordinary user tries to run a program that is set to delete something, it will only be able to delete files that is own by the user, this means usually files that are located in the home directory of the user.

Super user or root on the contrary, he can do ANYTHING to Linux, including deleting it. So, please be very careful when working with root account.

When to use root account

We must use root account when we are working with things that affect Linux system as a whole, such as: adding/deleting user, adding printer, start/stop/restarting a service, adjusting date and time, add/remove programs, etc.

How to use root account?

Linux will automatically ask for root password if we are trying to access menu that require root privilege.

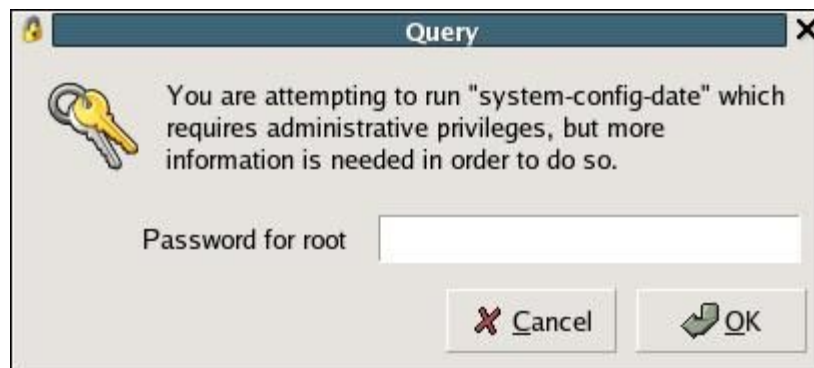


Illustration 38: Linux will ask for root password for some menu

We can also become root in the console or shell terminal (when using CLI, Command Line Interface) by typing: `su -` (su dash). After that, enter the root password.

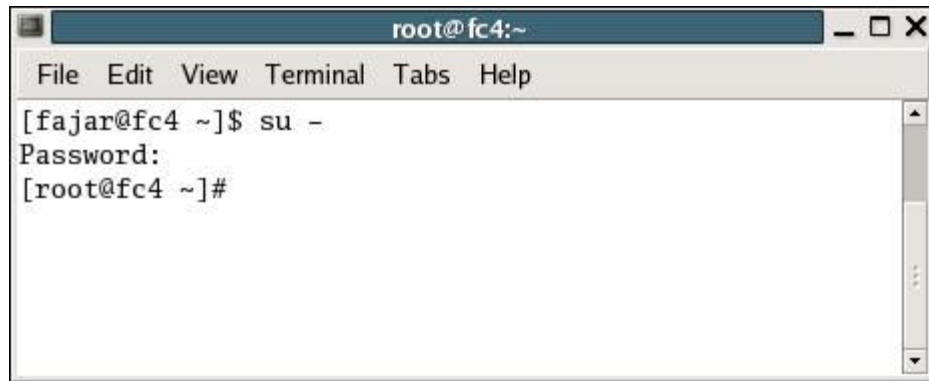


Illustration 39: Becoming root in console

Creating User

In the installation process we have created a user. Now, how do we create user once we are inside Linux? There are 2 ways to do it, first using the GUI by opening menu: Desktop > System Settings > Users and Groups.

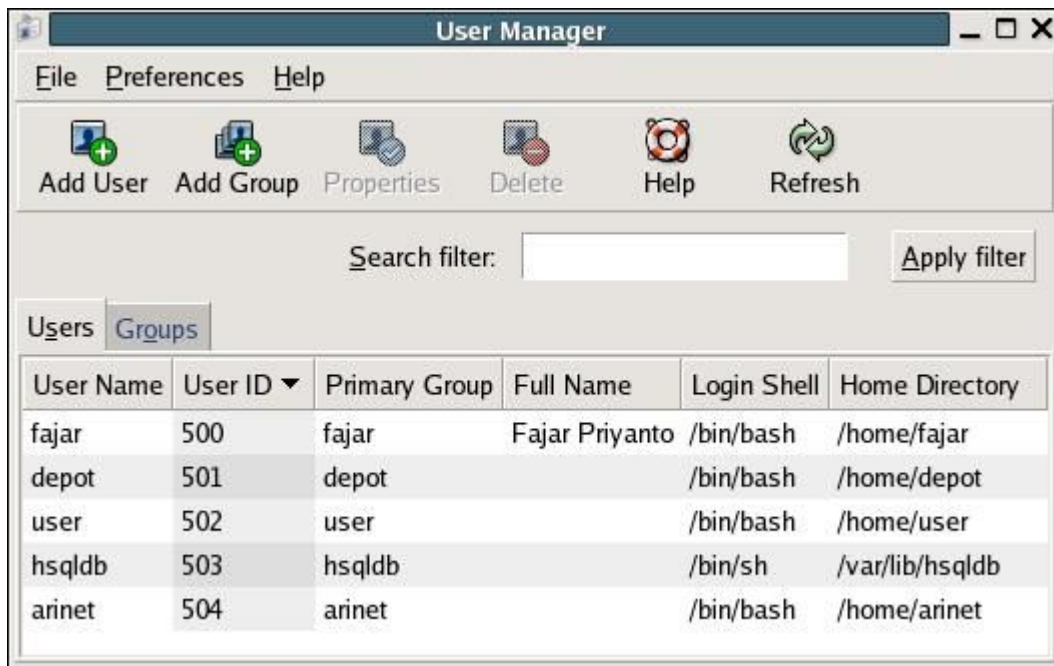


Illustration 40: Add User GUI

Illustration 41: Add User GUI. Type in the User Name in one word. We can type in 2 words in Full Name. Login Shell is the type of shell wanted, either bash (default), sh, tch, etc. And whether we want the user to have his/her own home directory.

Secondly, if we want to use CLI, it's very simple, as root, type the following command:

```
useradd [name]
passwd [name]
```

Example:

```
[root@fc4 ~]# useradd anto
[root@fc4 ~]# passwd anto
Changing password for user anto.
New UNIX password:
BAD PASSWORD: it's WAY too short
Retype new UNIX password:
passwd: all authentication tokens updated successfully.
```

As we can see, Linux will give warning if we are typing a too short password. The minimal length of a password is 6 characters. After the user is created we can login into Linux using the username.

LAN Setting

In order to be able to communicate in network, a PC needs the following configuration, either obtain by DHCP or manually:

1. IP Address
2. Subnet Mask
3. Gateway
4. DNS

We set this up through menu:

Desktop > System Settings > Network

Type in the root password when asked.

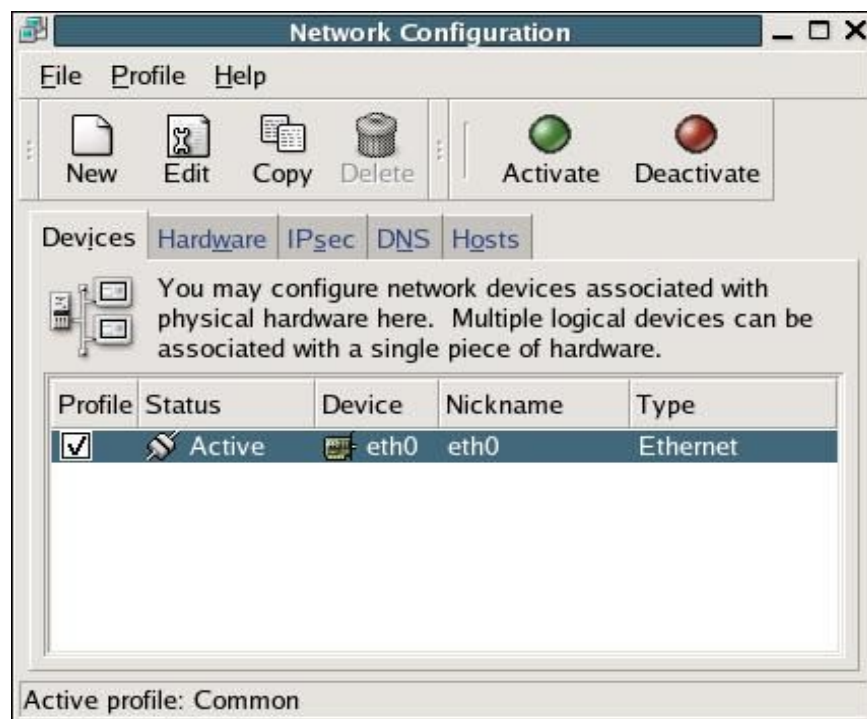


Illustration 42: Network Configuration. Click the Edit button to configure it.

The screenshot shows a window titled "Ethernet Device" with three tabs: "General", "Route", and "Hardware Device". The "General" tab is active. It contains the following fields and options:

- Nickname: `eth0`
- ☐ Activate device when computer starts
- ☐ Allow all users to enable and disable the device
- ☐ Enable IPv6 configuration for this interface
- ☐ Automatically obtain IP address settings with: `dhcp` (dropdown menu)
- DHCP Settings**
 - Hostname (optional):
 - ☐ Automatically obtain DNS information from provider
- ☒ Statically set IP addresses:
 - Manual IP Address Settings**
 - Address: `10.0.0.3`
 - Subnet mask: `255.255.255.0`
 - Default gateway address: `10.0.0.2`

At the bottom right are "OK" and "Cancel" buttons.

Illustration 43: Eth0 configuration. Type in IP Address, Subnet mask, and Default Gateway.

Getting to know Web browser in Linux: Firefox and Konqueror



Firefox is a fork of Mozilla browser. Dave Hyatt and Blake Ross started this project in around 2002, because they thought the Netscape sponsored Mozilla, and also because of the developers driven development process made Mozilla too bloated. In the beginning Firefox used the

name Phoenix, but then Phoenix BIOS maker complained on it at the end of 2003. So, then the browser changed name to Mozilla Firebird, but then the name got complained by database maker Firebird. In the end, on February 9, 2004, the browser officially called Mozilla Firefox, or Firefox for short. Firefox has a phenomenal achievement, only in 99 days since released, it has been downloaded 25 million times. On October 19, 2005 Firefox has been downloaded 100 million times, it means it only takes 344 days since the release of version 1.0. On March 10, 2005, Mozilla Foundation decided to make Firefox their main browser, thus the last version of Mozilla browser is 1.7.x version. However, the browser will still be supported by Mozilla Foundation because there are still many corporate users that are using it and also many software maker are bundling it with their products. Please take a look at <http://www.mozilla.org/products/firefox/>



Illustration 44: Mozilla Firefox Browser



Konqueror is part of KDE, it has several functions as Internet Browser, File Manager, and File Viewer. It was originally called Navigator, then Explorer, until at last is called Konqueror (following the pattern of KDE family whose

name started with the letter K). As an integrated product of KDE, it can open files created by other KDE packages such as Koffice, or any other software that uses Kparts module. Konqueror website is at <http://konqueror.kde.org/>

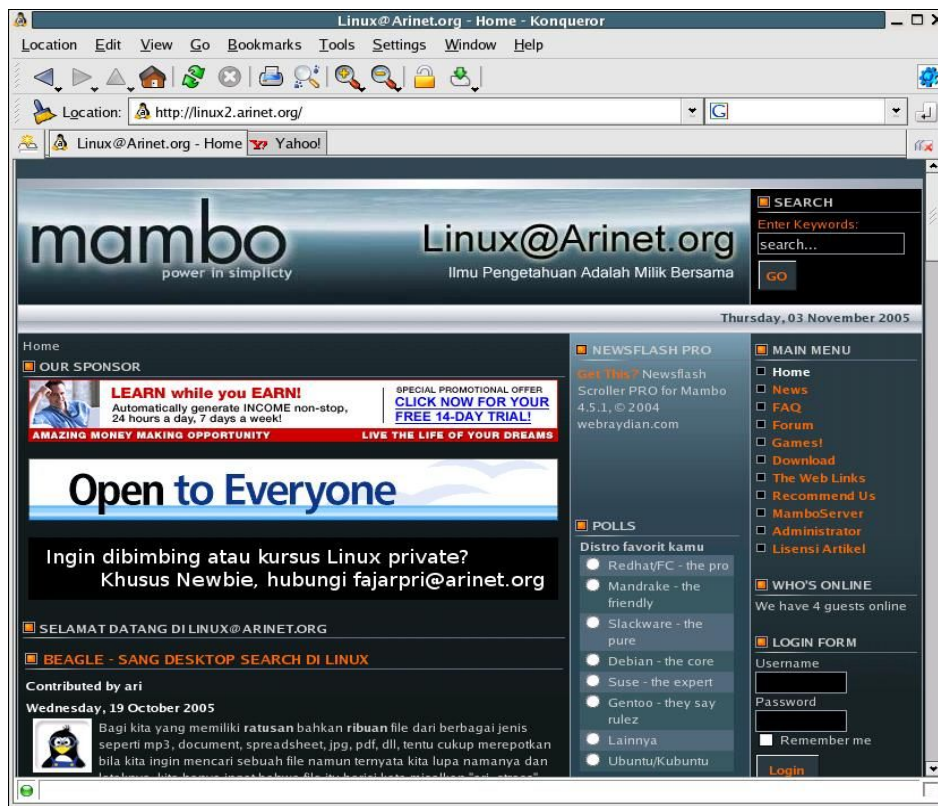


Illustration 45: Konqueror Browser

What are cool features that Firefox and Konqueror have? The coolest is **Tab Browsing**. With it, we can open many webpage in one browser window. As we can see in Drawing 2, linux2.arinet.org and yahoo.com appear in 1 browser window. So, we don't have to be confused with all those applications window scattering on the Taskbar when we open many webpage.

Beside that there is also a cool feature called **Integrated Search Engine**, such as Google (the default), Yahoo, Amazon.com, eBay, Creative Commons, Dictionary.com, etc. Konqueror even has more of it. With this integrated search engine, we don't have to go to the above mentioned search engine webpage, we just type in the keyword we want to search in the search field. Very handy!



Drawing 2: Tab Browsing dan Integrated Search Engine feature in Firefox

Getting to know Email client in Linux: Kmail dan Evolution

For us who are familiar with Microsoft Outlook Express or Outlook, we don't have to worry because Fedora have several email clients that have similar feature and menu. There is even a very interesting fact if we use Linux for our email activity, that is we don't have to be afraid of any email viruses. So far there hasn't been any email viruses in Linux.

We will get to know 2 email clients in Linux that is Kmail and Evolution. Kmail is a part of KDE, and Evolution from Gnome. Which one is the best? Well, this depends on our liking, try them both and let yourself decide. I myself even though I'm on Gnome, I use Kmail.

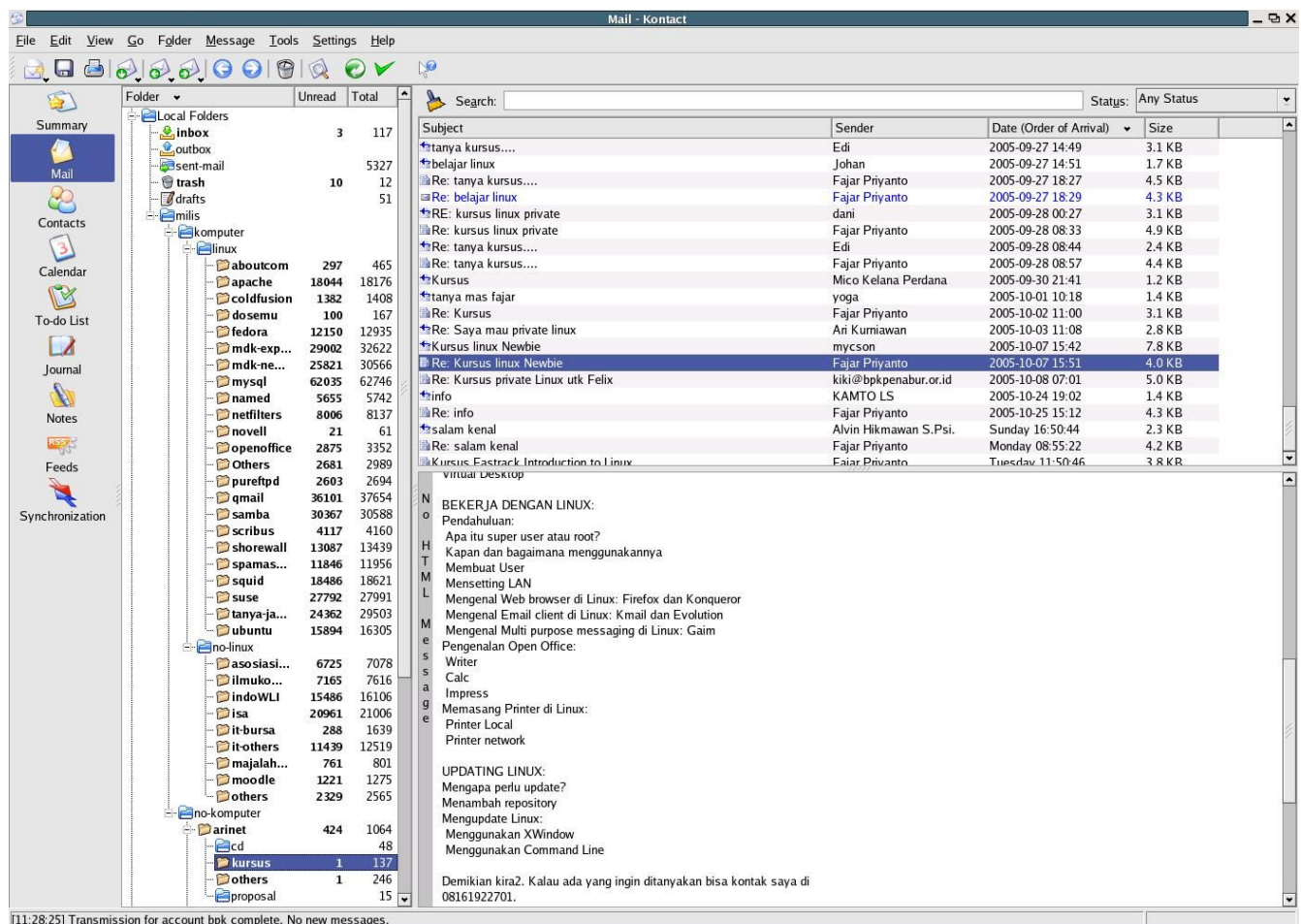


Illustration 46: Kmail, email client from KDE, it is a part of KDE's PIM (Personal Information Management), which includes Kontact, Calendar, To-do List, Journal, Notes, Feeds, and Synchronization.

In addition to virus-free, Kmail has a feature called **Threaded View**. What is it? For those who are subscribe to an active mailing list, there are times when it is difficult to follow the discussion in a particular topic because of the high volume list traffic. With this Threaded View, those emails will be grouped based on the topic. As we can see in Illustration 47 below, the topic "Calc time format bug or user error" are neatly structured with each corresponding replies.

Subject	Sender	Date (Order of Arrival)	Size
[users] problem with OOo V2.0 and thunderbird addressbook	Peter Maguire	Tuesday 16:34:43	2.6 KB
[users] Calc time format bug or user error?	Derek J. Carr	Tuesday 19:03:55	2.9 KB
Re: [users] Calc time format bug or user error?	Joe Conner	Tuesday 22:01:31	2.9 KB
Re: [users] Calc time format bug or user error?	Anthony Chilco	Tuesday 22:23:44	3.8 KB
Re: [users] Calc time format bug or user error?	Anthony Chilco	Yesterday 00:56:40	15.7 KB
Re: [users] Calc time format bug or user error?	Derek J. Carr	Yesterday 22:09:20	5.2 KB
Re: [users] Calc time format bug or user error?	Anthony Chilco	Yesterday 22:50:08	3.6 KB
Re: [users] Calc time format bug or user error?	Joe Conner	Yesterday 01:55:16	4.3 KB
Re: [users] Calc time format bug or user error?	Anthony Chilco	Yesterday 02:49:18	4.9 KB
Re: [users] Calc time format bug or user error?	Joe Conner	Yesterday 06:17:45	5.6 KB
Re: [users] Calc time format bug or user error?	Anthony Chilco	Yesterday 08:25:26	6.2 KB
Re: [users] Calc time format bug or user error?	Syrbal	Yesterday 22:18:54	6.3 KB
Re: [users] Calc time format bug or user error?	Syrbal	Yesterday 22:13:57	5.0 KB
Re: [users] Calc time format bug or user error?	Syrbal	Yesterday 22:05:22	4.6 KB
Re: [users] Calc time format bug or user error?	Syrbal	Yesterday 22:02:30	3.6 KB
Re: [users] Calc time format bug or user error?	G. Roderick Singleton	Tuesday 19:51:18	3.1 KB
Re: [users] Calc time format bug or user error?	Derek J. Carr	Yesterday 22:00:55	3.5 KB
Re: [users] Calc time format bug or user error?	Joe Conner	Today 01:01:58	3.5 KB
Re: [users] Calc time format bug or user error?	RLShadow@aol.com	Today 07:33:50	2.7 KB
[users] Re: Calc time format bug or user error?	Randomhots	Today 10:25:15	3.5 KB

Illustration 47: Threaded View in Kmail, makes it easier to follow discussion in mailing list.

Evolution has similar feature as Kmail. The real difference between the two is on the email storage format. The default format in Kmail is Maildir, whereas in Evolution is Mbox. Maildir is a format in which individual mails are stored in separate files. So there will be many files. Mbox on the contrary, stores all emails in one large file.

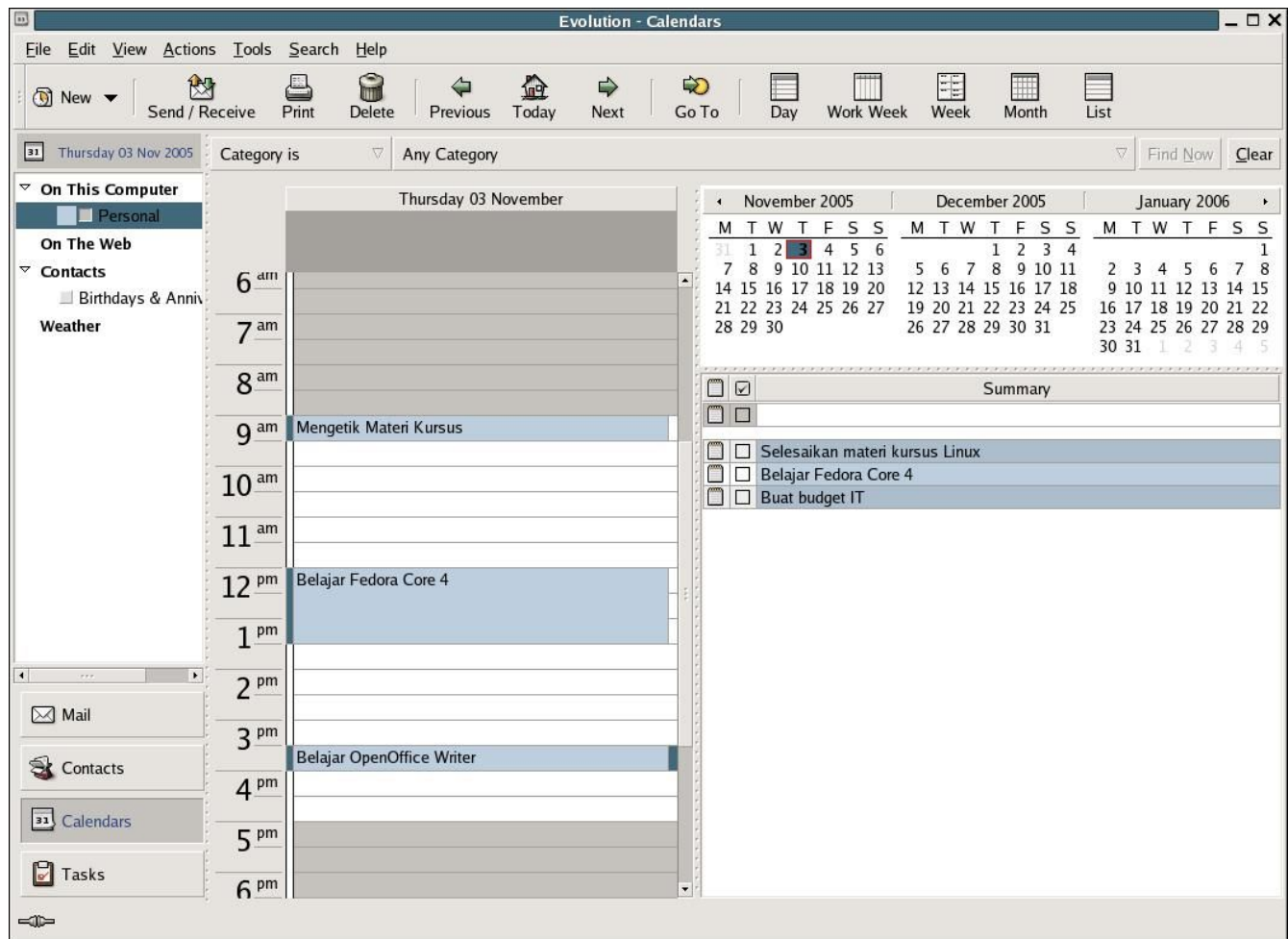


Illustration 48: Calendar feature in Evolution. We can manage our schedule, along with the reminder.

Getting to know Multi purpose messaging in Linux: Gaim



Have you ever heard the word 'Instant Messaging' ? It is a program to send messages in internet in real time. The history of instant messaging starts in the beginning of 70s. Next, 'talk' program was very popular in Unix System in the 80s and 90s. ICQ was the first program that was available for non-Unix system in 1996. ICQ inspires others to make similar program, each with their own protocol. As the result, user must install several instant messaging programs to be able to have a chat with friends who use those different programs. Looking at this difficulty, multi-protocol instant messaging program was born, such as Gaim, Kopete, Jabber, Trillian, etc.

Gaim supports the following protocols: AOL, Gadu-gadu, ICQ, IRC, Jabber, Lotus Sametime, MSN Messenger, Novell GroupWise, OpenNAP, Yahoo Messenger, Zephyr, SILK, Google Talk, QQ.

To start using Gaim is very easy, as long as we already have the account on the above mention protocol. The steps are as follows:

1. Start Gaim, then open the menu: Tools > Accounts > Add.
2. Choose the protocol we want to.
3. Type in the username and password that we get from the protocol we register, usually this means we must register first from the protocol website.
4. Save.



After we have setup the account(s), we then can choose whether we want to go online now, and also whether to automatically online when we start Gaim.

Illustration 51: Option account in Gaim

Getting to know OpenOffice.org

Actually there are several office suites in Linux, such as Koffice (from KDE), Abiword, Gnumeric, etc. But, so far the most complete suite is **OpenOffice.org** package (OOo for short). The OOo suite consists of **Writer** (word processor), **Calc** (spreadsheet), **Impress** (presentation), **Math** (equation editor), **Draw** (drawing tools), and **Base** (database, similar to MS Access).

OpenOffice.org is based on Sun Microsystem's StarOffice code, collaborating with community around the world. StarOffice is the commercial version of OpenOffice.org, with many additional templates, and third-party components. OOo can open most MS Office files. Even in several cases, OOo is able to open old MS Office files which cannot be opened by newer MS Office suite out of incompatibility.

With the release of OOo version 2.0 on October 20, 2005, OOo is getting itself as full-fledge, stable, and mature Open Source office suite, even for corporate usage. Especially OOo Base, which is a direct competitor of MS Office.

OOo Writer

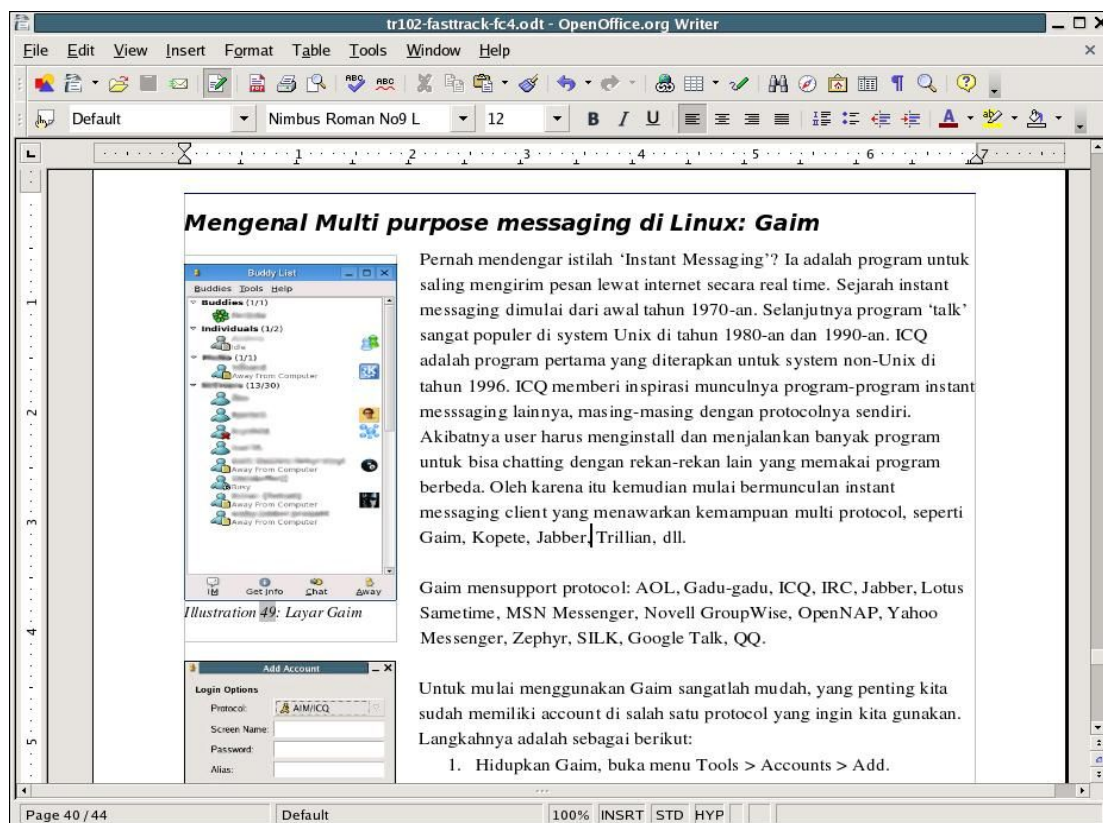


Illustration 52: OOo Writer, word processor application from OpenOffice.org

OOo Calc

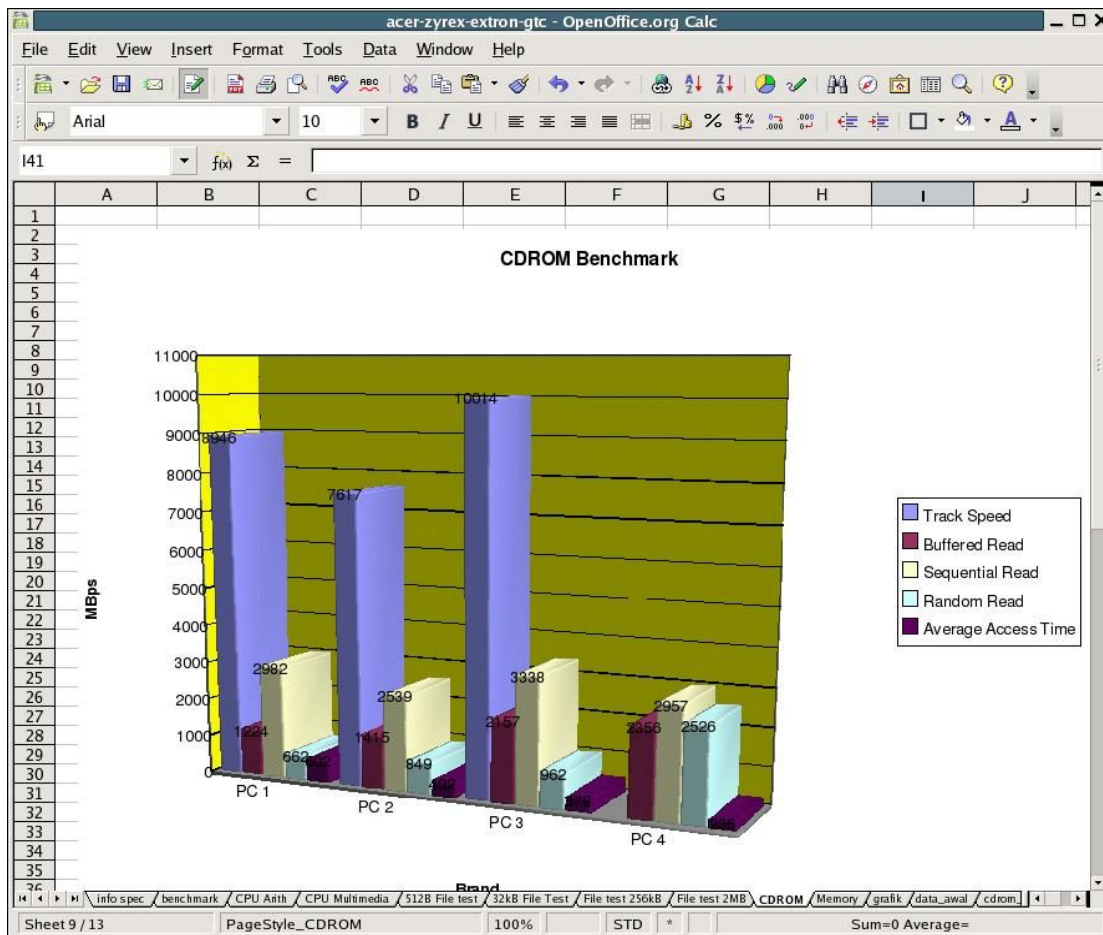


Illustration 53: OOo Calc, spreadsheet application from OpenOffice.org

OOo Impress

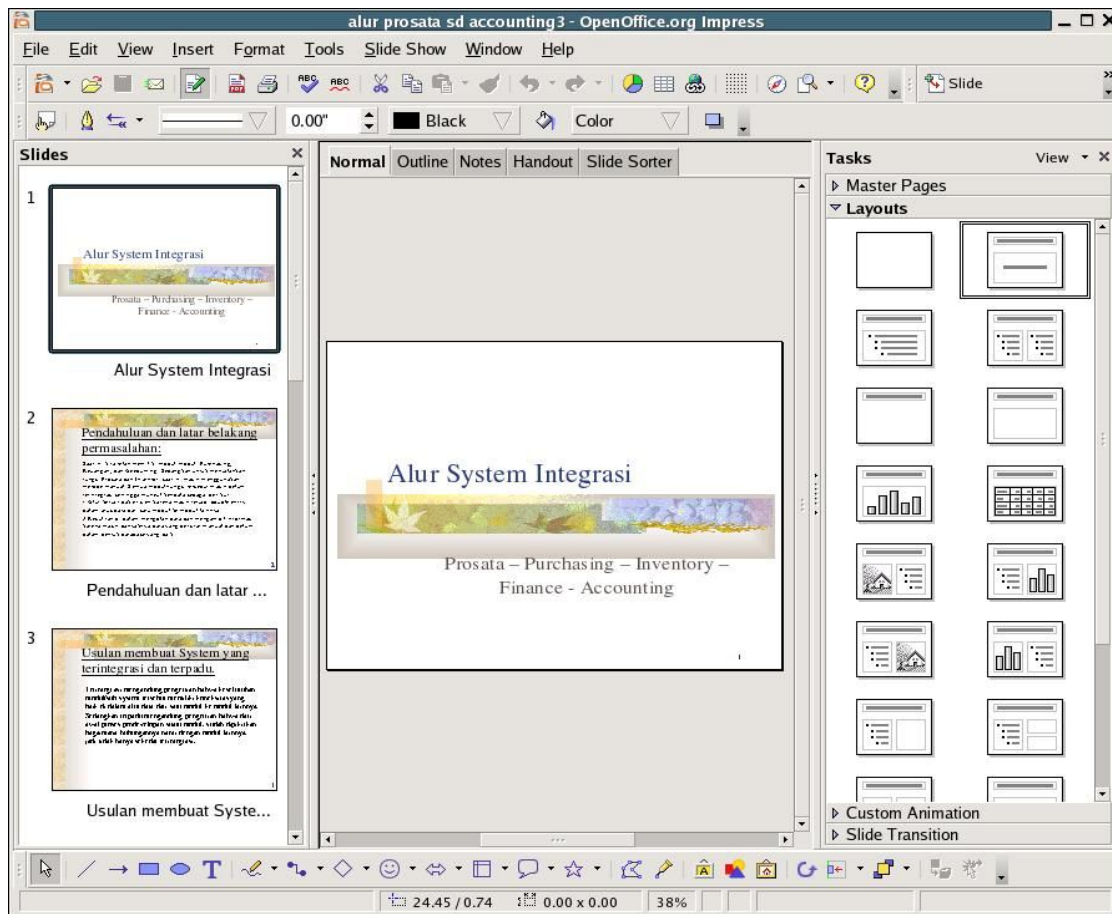


Illustration 54: OOo Impress, presentation application from OpenOffice.org

Adding Printer in Linux

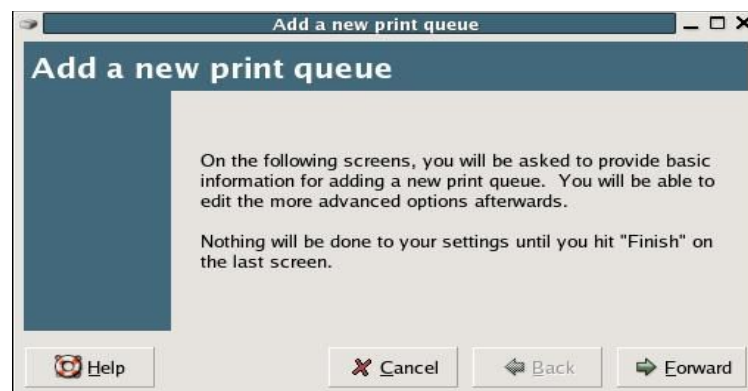
The main problem faces Linux in printing is the availability of printer drivers. Several printer vendors are still unwilling to provide drivers for Linux, or release their printers specification so that Linux developers can make the driver. This circumstances sometimes force them to make the driver by a process called 'reversed engineering', that is they capture the data flowing between the printer and the PC, and then guess how it works. There is one case, when a Linux fan setup a website urging people to boycott a prominent printer maker because they refused to provide his scanner and printer Linux driver. But, it was a few years ago, during the last year, the support from many big printer vendors have been very good, especially Epson and HP.

Ok, let's start learning how to add printer in Linux, either local printer or network one. The steps are mainly the same.

Open the menu from: Desktop > System Settings > Printing.
Type in the root password when asked.



Illustration 55: Add printer, click [New]



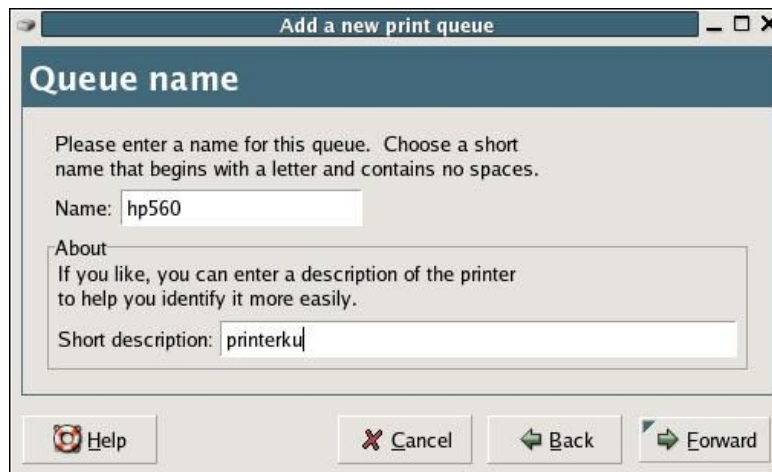


Illustration 56: Type in the name of the printer you want it, and also the description as desired.

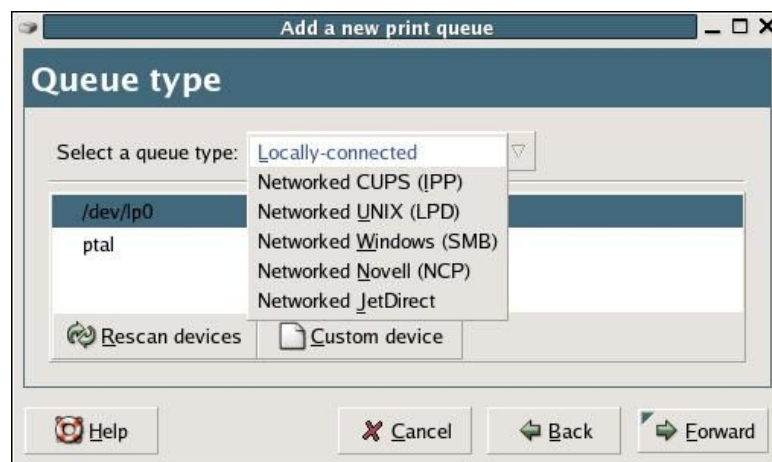


Illustration 57: Printer Type. Well, this is the difference in steps setting up a locally connected printer and a network printer. For local printer, choose the type: Locally-connected, and if it's a network one, choose the type of the network, for MS Windows shared, it is Windows (SMB)

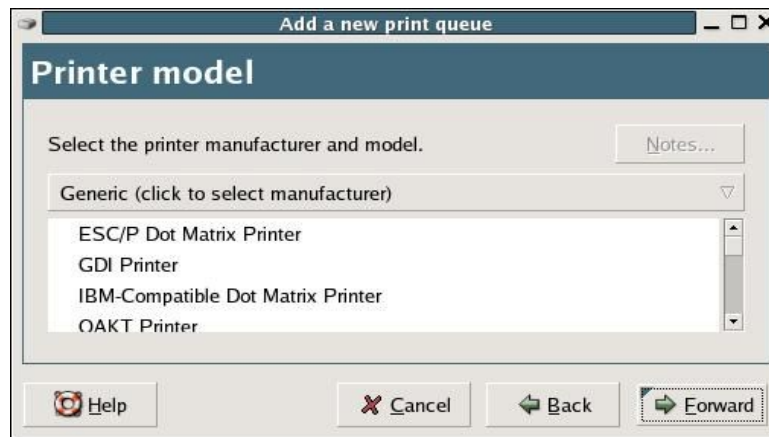
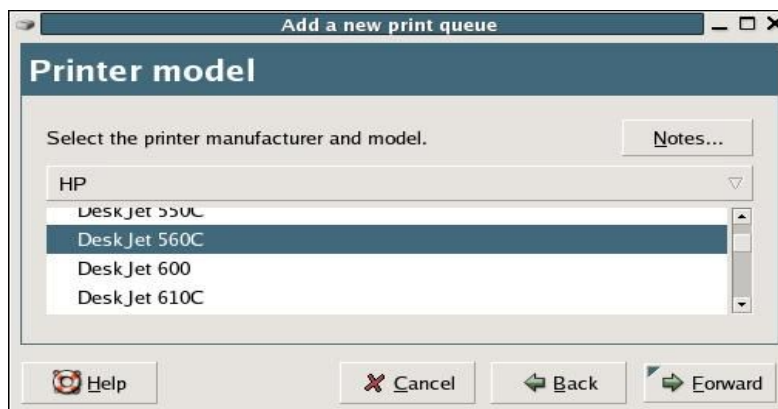


Illustration 58: Printer Model. Click on “click to select manufacturer” to choose the brand and type of the printer.



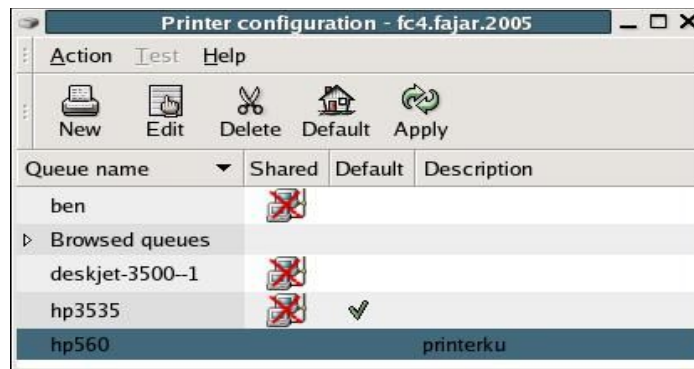
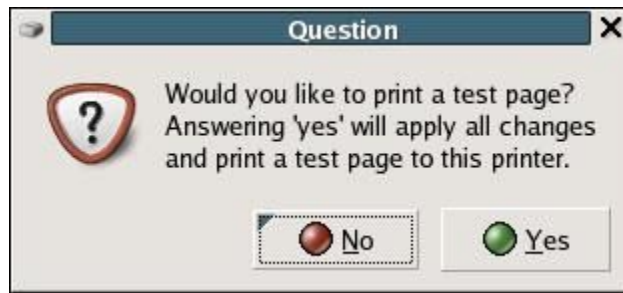


Illustration 59: Apply the printer setting by clicking on [Apply] button

UPDATING LINUX

Why we need update?

In general, people need to update their Linux because:

1. **New Features.** Programs get improved everyday, and usually most of us want to be able to use the new improvements and features as well
2. **Performance improvements.** Sometimes programs get their overhaul in the codes and it's structure to improve the performance.
3. **Security anticipation.** As time goes by, new bugs or security holes are found, and therefore the update is needed to address the security risk. This is very important, especially if we run some services such as web server, mail server, firewall, etc that is connected to the internet.

Adding repository

In default, Fedora Core 4 provides 3 official repositories, that is:

1. Base. The main packages of Fedora.
2. Updates. Contains updates for all packages.
3. Extra. Contains additional packages.

However, sometimes we want to install packages that are not included in the official Fedora Core repositories. The reason why Fedora doesn't include them officially usually because of licensing matters that prohibit Fedora to include them officially in the distro, for example: mp3 libraries, certain dvd libraries, some servers packages, etc.

For those packages, there are some independent repositories that provide them. These repositories are built by Fedora enthusiasts that with their dedication and expertise compile those packages from source code to the binary forms for easy installment in Fedora.

Some of those repositories are:

1. Freshrpms.net
2. Livna.org (recommended)
3. Dries
4. City-fan.org
5. Jpackage.org
6. etc.

To add the repositories is very easy. For example we want to add livna.org repository:

As root, create a file called livna.repo in /etc/yum.repos.d/ directory.

The content of livna.repo file:

[livna]

name=Livna for Fedora Core \$releasever - \$basearch - Base

baseurl=http://rpm.livna.org/fedora/\$releasever/\$basearch/RPMS.lvn/

#baseurl=http://livna.cat.pdx.edu/fedora/\$releasever/\$basearch/RPMS.lvn/

```
enabled=1
gpgcheck=1
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-livna
```

Updating Linux

To update Linux, we use a command called **yum**. Yum is short for Yellowdog Update Manager. To use it is very simple.

As root we type this command:
`yum check-update`

Example:

```
[root@fc4 yum.repos.d]# yum check-update
Setting up repositories
dries                100% |=====| 951 B    00:00
livna                100% |=====| 951 B    00:00
extras              100% |=====| 1.1 kB    00:00
updates-released    100% |=====| 951 B    00:00
base                100% |=====| 1.1 kB    00:00
Reading repository metadata in from local files
primary.xml.gz       100% |=====| 153 kB    00:05
livna : ##### 539/539
Added 16 new packages, deleted 59 old in 1.96 seconds

HelixPlayer.i386      1:1.0.6-1.fc4.2      updates-released
ImageMagick.i386      6.2.2.0-3.fc4.0      updates-released
MyODBC.i386           2.50.39-25.FC4.1     updates-released
NetworkManager.i386   0.4-20.FC4.1         updates-released
NetworkManager-gnome.i386 0.4-20.FC4.1         updates-released
alsa-lib.i386         1.0.9rf-2.FC4        updates-released
alsa-utils.i386       1.0.9rf-2.FC4        updates-released
apr.i386              0.9.6-3.1            updates-released
arts.i386             8:1.4.2-0.fc4.1      updates-released
audit.i386            1.0.4-1.fc4          updates-released
audit-libs.i386       1.0.4-1.fc4          updates-released
bind.i386             24:9.3.1-14_FC4      updates-released
bind-chroot.i386      24:9.3.1-14_FC4      updates-released
bind-libs.i386        24:9.3.1-14_FC4      updates-released
bind-utils.i386       24:9.3.1-14_FC4      updates-released
binutils.i386         2.15.94.0.2.2-2.1    updates-released

[cut]

xine.i386             0.99.4-1.2.fc4.rf    dries
xine-lib.i386         1.1.0-0.lvn.6.4      livna
xinitrc.noarch        4.0.18.1-1           updates-released
xorg-x11.i386         6.8.2-37.FC4.49.2    updates-released
xorg-x11-Mesa-libGL.i386 6.8.2-37.FC4.49.2    updates-released
```

xorg-x11-Mesa-libGLU.i386	6.8.2-37.FC4.49.2	updates-released
xorg-x11-deprecated-libs.i386	6.8.2-37.FC4.49.2	updates-released
xorg-x11-font-utils.i386	6.8.2-37.FC4.49.2	updates-released
xorg-x11-libs.i386	6.8.2-37.FC4.49.2	updates-released
xorg-x11-tools.i386	6.8.2-37.FC4.49.2	updates-released
xorg-x11-twm.i386	6.8.2-37.FC4.49.2	updates-released
xorg-x11-xauth.i386	6.8.2-37.FC4.49.2	updates-released
xorg-x11-xdm.i386	6.8.2-37.FC4.49.2	updates-released
xorg-x11-xfs.i386	6.8.2-37.FC4.49.2	updates-released
xpdf.i386	1:3.01-0.FC4.2	updates-released
yelp.i386	2.10.0-1.4.2	updates-released
ypserv.i386	2.13-7	updates-released
yumex.noarch	0.42-9.0.fc4	extras
zlib.i386	1.2.2.2-5.fc4	updates-released
zlib-devel.i386	1.2.2.2-5.fc4	updates-released

If then we want to update certain packages, we type the following command:
yum update package1 package2

Example:

```
[root@fc4 yum.repos.d]# yum update yumex
Setting up Update Process
Setting up repositories
dries          100% |=====| 951 B    00:00
livna          100% |=====| 951 B    00:00
extras         100% |=====| 1.1 kB   00:00
updates-released 100% |=====| 951 B    00:00
base           100% |=====| 1.1 kB   00:00
Reading repository metadata in from local files
primary.xml.gz 100% |=====| 334 kB    00:12
updates-re: ##### 981/981
Added 2 new packages, deleted 4 old in 3.47 seconds
Resolving Dependencies
--> Populating transaction set with selected packages. Please wait.
---> Downloading header for yumex to pack into transaction set.
yumex-0.42-9.0.fc4.noarch 100% |=====| 12 kB    00:00
---> Package yumex.noarch 0:0.42-9.0.fc4 set to be updated
--> Running transaction check
```

Dependencies Resolved

Package	Arch	Version	Repository	Size
Updating:				
yumex	noarch	0.42-9.0.fc4	extras	180 k

Transaction Summary

```
=====
Install      0 Package(s)
Update       1 Package(s)
Remove       0 Package(s)
Total download size: 180 k
Is this ok [y/N]: y
```

```
Downloading Packages:
(1/1): yumex-0.42-9.0.fc4 100% |=====| 180 kB    00:06
Running Transaction Test
Finished Transaction Test
Transaction Test Succeeded
Running Transaction
  Updating      : yumex                      ##### [1/2]
  Cleanup       : yumex                      ##### [2/2]

Updated: yumex.noarch 0:0.42-9.0.fc4
Complete!
```

Well? It was cool right? :)

Using Xwindow (GUI)

Do you want to use GUI? No problem. There is a package called **Yumex** (short for Yum Extender). It is a frontend for yum. We must install it first, by using the above method:

```
yum install yumex
```

After it's installed, we can access it from the menu:

Applications > System Settings > Yum Extender

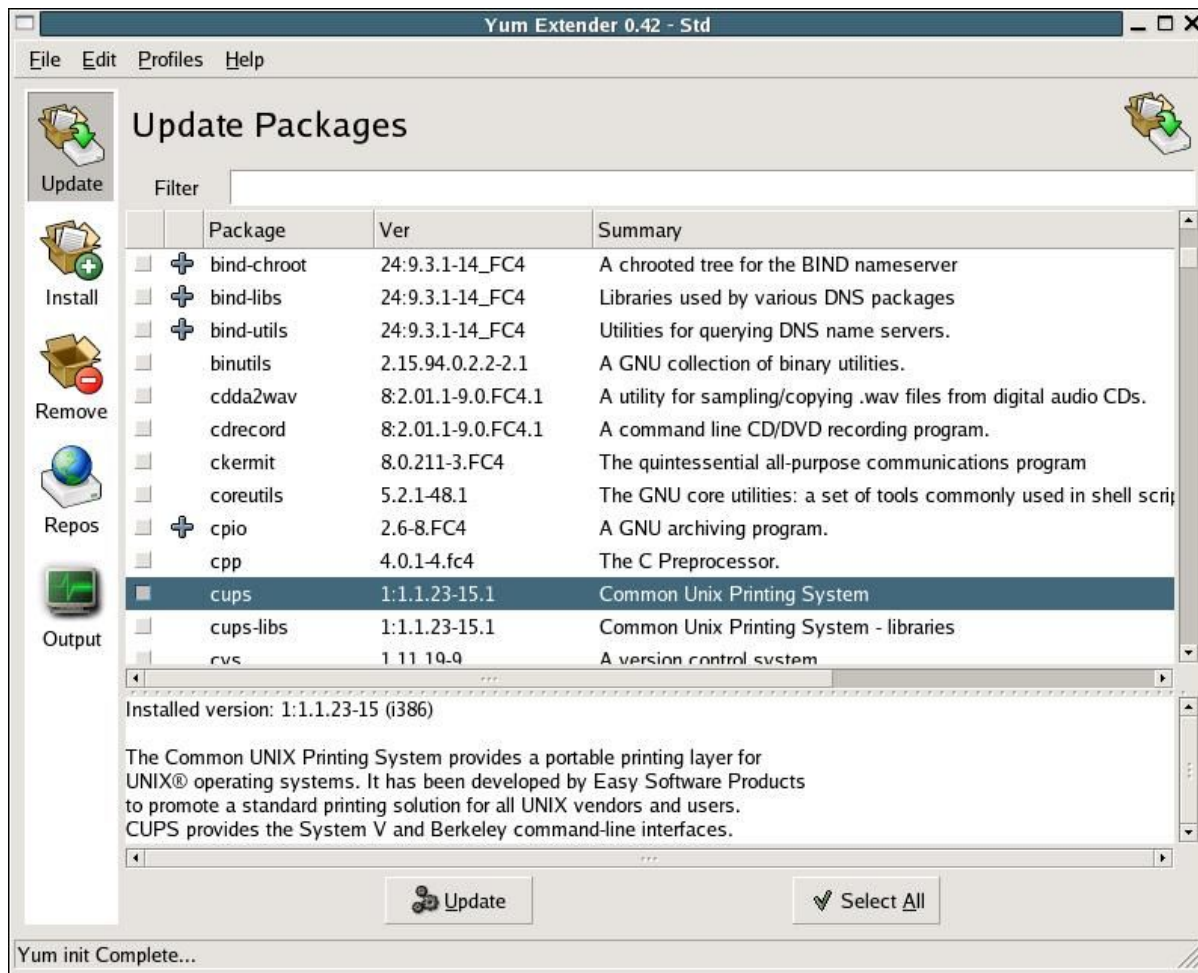


Illustration 60: Yum Extender. The GUI for package management in Fedora Cor. To see what updates are available, click [UPDATE]

Some points to be considered in updating are:

1. Close all programs that we want to update during the update process.
2. Some updates will be in effect after we restart the related programs, and some requires Linux to be restarted. These are usually packages such as kernel update, security packages, etc. As for some services such as web server, ftp server, etc, we usually don't need to restart Linux, only the related services.

SOME ENDING WORDS

Well, that's all for the Fast Track Course – Introduction to Linux using Fedora Core 4. Hopefully the subjects that we have learn will give enough guidance in exploring the wonderful world of Linux further.

There is saying: **Knowledge is Power**, and in this digital world of ours, it is so true. However, I hope we all can keep sharing that knowledge to others. As the motto's **Knowledge Belongs to Everyone**, I hope this material will be beneficial for all of us.

Thank you,
Bukit Sentul – Indonesia
November 2005

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