Linux

Linux for Kids

Linux in a nutshell

Writing only a little and making the understanding of Linux as simple as possible is no easy task. One may wander why I thought of writing this little note book. There are many reasons. One major factor is that the documentation in Linux is vast and the written books in Linux are huge for an average student to master in the spare time he/she may has. Unfortunately, the standard of English and the reading habits are poor enough for even to attempt to read an English book on computer basics, let alone experimenting with an operating system like Linux.
Students generally fear treading into the unknown.
I had the same uneasy feeling not because reading a large book (having to read large textbooks was the rule not the exception in our time) was a problem for me but the fear of the unknown. What matters is not reading a book from cover to cover. If one reads a chapter or two and then use that information to benefit his or her hidden talents that is what is necessary. Just like a doctor making a diagnosis given the information at hand, the theoretical information of computer science should be useful to solve a given problem. One does not need to read everything in this note book but read only what is useful for solving given day to day practical problem.
With that in mind I intend to introduce Linux in a more practical way assuming that the resources are limited in time and money for an average student.
I concentrate on the low end of the scale and believe that a student with a mini budget of less than Rs.30, 000 would have a working Linux Box at his disposal and with little time and effort could master all its basic features that is freely available.
First of all, what one has to do is to get rid of the fear spread by false propaganda. There is lot of false views generated against the use of Linux and unfortunately most of it is spread by people who have never tried it or tested its capabilities. I donÃƒ????Ãƒ???Ãƒ??Ãƒ?Ã‚Â??t believe anybody who has tried it will have the same opinion or spread any false propaganda.
It is unfortunate that one misses a lot by not having an understanding of a stable and all purpose operating system, what Linux is. It is especially so for one who wants to develop skills in computer science and programming. If having read this little note book one is inclined to try and experiment with Linux, my primary objective is met fully.
Depending on the response this note book may gets, a bigger or perhaps much smaller version in electronic format may appear on the web for free perusal.
It took many months of reading (basic understanding of the working of Linux) and courage Ãƒ????Ãƒ???Ãƒ??Ãƒ?Ã‚Â??to have a goÃƒ????Ãƒ???Ãƒ??Ãƒ?Ã‚Â?? at it head on and make Linux working for me favorably, especially because I never had a Guru to guide me through rough passage. My admiration of a simple university student called Linus Torvalds was the major reason for taking the plunge and the experiment. If he could take the learned professor to task and proved that he could do it simple and better is the object lesson one has to learn. The community spirit that went with his simple but robust operation system changed the way computer world shaped up in the present century. If not for him many of us would never have the chance or the freedom to use a computer as we do it today.

First Lesson in Linux
Finding a distribution
When I started, I could not find a single distribution. Having found one distribution, in the possession of a somewhat nasty individual my polite request was briskly turned down, I was heart broken. Finally I happened to find not one but three distributions in a book named Using Linux by QUE publications by Jack Tackett and Steven Burnett. I read parts of this book (not cover to cover) that gave me an insight into the working of Linux core features but never tried any of the distributions (Debian 2.1, Caldera OpenLinux 2.3 and Redhat 6.0) in fear of harming the windows computer.
But then I found a copy of Redhat 8 (three CDS) available with a software vender mostly selling pirated copies. But having tried 21 badly copied CDs without any success, only on the 22nd attempt I managed to get the Redhat running in my 233 Pentium II with 64 MB of RAM.
ThatÃƒ????Ãƒ???Ãƒ??Ãƒ?Ã‚Â??s it.
Dual booting with Win 98, I was born again, fully involved with Linux since then.
With a good and healthy dose of theoretical understanding of Linux having read a couple of books on Linux, by now I was in full flight and speed as a newbie in Linux. That was the beginning of the healthy association with Linux. Then, there was a proliferation of long line of books by Redhat with some of them including the PublisherÃƒ????Ãƒ???Ãƒ??Ãƒ?Ã‚Â??s copy of Redhat 8, 9 and Redhat Fedora.
My happy association with a clever software vender in Colombo who traveled to Singapore regularly and who made sure that I got a regular supply of various Linux distributions from abroad I was all but self sufficient in Linux. The distribution
included were ASP Linux, Lycoris DesktopX Linux, Corel Linux, Xandros Open Linux 1, Mandrake 9, TurboLinux 4 and 6, SOT Linux, SuSe 8.1, 9.1, Knoppix and Sinhala Linux.
These distributions kept me occupied fully for the past ten years but my real Guru is Christopher Negus who regularly updates his book titled Linux Bible. Having a copy of the latest edition (over Rs.2000=) is the only resource book one should have if one wants to delve deeper into Linux (a complete reference book). The starting point for learning Linu x is to have a Linux distribution at hand. Unlike me, you have no difficulty of finding a copy of Linux. It is freely available in the World Wide Web. Please designate one of your Linux Fans to download a Linux free distribution for you or go to a Web-CafÃƒ?????Ãƒ????Ãƒ???Ãƒ??Ãƒ?Ã‚Â© and request the administrator to download a copy of your fancied distribution, if you donÃƒ????Ãƒ???Ãƒ??Ãƒ?Ã‚Â??t have an internet connection.

It is simple as that.

1. You could use bit torrent or something similar download (facility) utility.
2. Go to Google search and type download Linux.
3. Access a Linux site and download either as a DVD copy or CD copy of the image of the Linux distribution.
4. Pick and choose what you like the most.

There are many.
Debian,
SuSe,
Mandriva,
Fedora,
Slakware
Linspire
TurboLinux
Ubuntu or
Puppy Linux

Download whatever you may want but read carefully about the distribution and its total (capacity) number of CDs before you download.
5. Depending on the distribution it may take a few hours to three days to download (depending on the speed of the internet connection and the total megabyte capacity of the distribution).
6. It is better to download CD version which is fast.
7. Before you install the distribution read and understand
the GNU agreement and its policy and the general disclaimer liability.

Rest is simple.

Good Luck.

Second Lesson in Linux
The hardware requirements and Hardware Compatibility
Finding a suitable hardware is the next stage of running a Linux Box. Any old machine would do. Go and buy a second

hand machine under Rs.20, 000/=. But before you buy it load and boot the Linux distribution you have already downloaded or borrowed from one of your friends to see that it can handle the Graphic Card and the Sound.

1. Linux was designed for servers (big and small) and servers do not need much graphic function and server administrators are trained to configure its activities using a terminal with text messages (in command form). Fine graphic features were not required to handle these functions. The strongest plus point of Linux is its ability to customize and configure its functions unlike windows Old distributions could handle up to 64 processes and many more processes can be handled with the new versions. The old distributions did not port with graphic card functionality and the installations were done in text mode. But this is not true with newer versions of Linux especially SuSe, my favorite now.
2. Linux has problem with the graphic cards since many OEM guys did not support (only supported Microsoft) Linux. But new versions have found a way to overcome this with more and more features (modules) added at boot time.
3. Sound (some) card also may give some problems but ALSA has a way of dealing with this problem.
4. Having a DVD writer or Combo drive is handy since one DVD would do the job instead of changing at least 3 to 4 CDs.
5. Playing with an old machine is the best choice if one who is a newbie to Linux. Beware you may burn the VGA card or the Monitor if you do not read up the Hardware Compatibility List in the website of the distribution. Once you find a compatible VGA card, the rest is very simple.
6. With new Linux versions which are graphic intensive at least 256 RAM is essential. Even the current version of Ubuntu 8.1 needs 256 of RAM. More the RAM one has better it is. If you are an impatient guy you may burn a few of your RAM. So do take care with the hardware compatibility. I in fact I burnt 3 of my old RAMs in one night. I wanted to go to sleep and typed kill-all (drop dead in Linux terminology). I do not want you to do the mistakes I did a few years ago

Of course, one should inadvertently do this type of mistakes to become a savvy Linux guy like me but beware.

Now of course I experiment with every possible combination for at least a week or so before accepting my own configurations. I have at least three versions running at a time in my computer.
My old 233 is still running and it has several Dos partitions for posterity and has Mandrake 9 and Xandros 3 version running with only 4MB of graphic capability.

7. Sky is the limit for Linux but pocket is the limit for me.
8. Do not spend unnecessary bucks except for RAM.
9. Most important asset if you are a newbie is to be patient and record the steps one has done wrong in a piece of paper.
10. Write down a list of hardware you have with their manufactures names and numbers and compatibilities and capabilities.

Next will be pre-installation but a little verse for relaxation and some critical analysis of laptops is placed in between as an intermission.

Linux in Need
Linux is a friend
In need of discovery
But very few of us
Have ventured into
Its inner core of strength

There are many
Tools and utilities
In very simple form
If one wants to say
Drop dead
One simply types dd
In Vi command form

Then if one wants to
Bring to life
The dead

One types n (for new life)
And before one takes
The finger off
From the keyboard
The dead is back to life
Even the god would be
Proud of its achievements

If one wants to
Get the current date
Simply type date

If one wants get
The Calendar of yesteryear
Type simply cal 1752
If one wants to get
The present Calendar
Type cal 2008
And press enter

Then if one wants
To get
The present Calendar
In a file
Type cal >2008 >2008
And press enter

In a flash
In the home partition
One has a Calendar
With a simple click of button
Comes into display

One does not need a Calendar
If he or she is
Working on Linux or Unix
That is the beauty
Of its utilities

I can take
SMS words
Into task
With the array of commands
Why one needs English
As a language
Is in serious doubt
In my mind

If one wants to
Do some eves dropping
Simply type
WHO and all the guys
Logged on are on display
But one cannot look into
Their filesÃƒ????Ãƒ???Ãƒ??Ãƒ?Ã‚Â?? contents
Unless one has
The mutual agreement
With the guys

Sending mail to
One of your friends

In the net
One does not need
An email
If he has a Linux Box
Connected to www, http or ftp

Linux indeed
Is a handyman
With many tools
Big and small
To be discovered
Come this summer
And the next summer
With many flavours
To test you senses
From stone age
To present day ballyhoo

What come it may
With Visa or Vista
It is robust and elegant
Enough to stand alone
On its own ground
Not shaken by
The market hypes

Linux on a Laptop
A decade or so ago I used to argue with my friends who were carrying laptops with many accessory gadgets (handicap to free mobility). Then there were no CD writers for the laptop and sometimes not even a floppy and wireless Wi Fi. Blue-tooth was not heard of. I used to tell them I can assemble three desktops for the price of one laptop, one at home, one at office and one for the kids and my hands are free on the move.
I actually did what I said but never bothered to make an assessment of the real price of a laptop motherboard (chip) frame and the LCD console. I was also annoyed why one is not been able to assemble a laptop like a desktop given a motherboard and a visual console.
In the back of my mind (except for the LCD) I felt that the components of the laptop should be less expensive than an average Hi FI setup, perhaps less. That is without the processor, hard disk, RAM and the CD ROM. These chips (laptop) are mass produced and actually do not cost more than Rs.10, 000. The rest of the components cost only another 10,000. So for the price of 20, 000 one has the hardware but it costs three to four times for the operating system and minimum of applications.
I believed before my search that they were fifty / fifty. I was wrong.
Another interesting finding is that the chip makers especially the Intel do not support Linux as a deliberate ploy to stand as a monopoly in the computer business. Only ASUS has broken away recently from these industrial manipulations (to subjugate Linux). ASUS is producing comparatively cheap laptops with Linux on board. The operating system and applications are free because of open source origin. Not only that they (ASUS) are going to market a motherboard with basic Linux on board having (probably) tools to link to the internet without even an operating system running. It is interesting to see whether China (probably Taiwan, too) is entering this market with Linux support and the western domination (including Japanese) of laptop industry would be numbered in years. Till then I would make three durable desktop computers for the price of one laptop with Linux as an operating system.
I hope the customers in the Asian continent make enough pressure for the chip makers to support Linux. It is possible to make robust laptop for kids with multimedia application for a price of Rs.20, 000/=.

Third Lesson in Linux
Making partitions available for Linux
Linux uses different partition formats for its installation unlike Microsoft windows. It is very important to understand this at the beginning before installing a distribution. Instead of writing in detail about partitions I would describe the functionality of them but give few details about the boot partition in particular and Partition Magic software.
What is a partition?
A partition is a contiguous set of blocks on a drive (disk) that is treated as an independent disk. A partition table is an index that relates sections of the hard drive to partitions. There ought to be no gaps between partitions. In other words there should be no overlaps of partitions. Each partition should be independent of the others. A physical disk need not be partitioned completely. One can decide to leave some un-partitioned space at the end of the disk and partition it later.

Why have multiple partitions?
This is an important question to answer. In early days of hardware technology the partitions of a hard disk was very small and there was no need for redistribution of programmes, operating systems and data. In additions the boot partitions could not access more than 1024 cylinder and beyond. As the technology developed and hard disks became bigger and bigger some form of rearrangement of the physical disk sectors was necessary. Microsoft handles this problem by dividing the disk to virtual disks C, D, E or F. This rearrangement especially DOS partitions made lot of redundancy and waste of disk space.
Linux addressed this problem by an organized hierarchy of disk partitions for easy handling and management. In addition in later versions of ext 3 partition, a journalized index was designed for formatting and indexing. This made it possible to have several operating systems running in the same machine which Microsoft cannot handle on its own. In Microsoft one version takes over the other and old version cannot be run on a version running new. In Linux one can have an old version running parallel with a new or complexly different version of Linux side by side without harming the other. In fact they can cohabit with Microsoft. Disks do not care what partition they have as long as the portioning is done in an organized way. It is the operating systems that have special requirements. In one disk one may have fat, NTFs, Ext 3 partitions or ReiserFS partitions.

What partitions do I need?
Everything in Linux file system can go in a single partition but given its enormous resources that is not the best way to set about installing Linux. If one has a small hard disk this can be acceptable but with bigger and bigger hard disks entering the market partitioning is an essential prerequisite before installing especially if one is installing Windows along with Linux.
Primary Boot Drive
1. One primary partition
2. One or more Swap partitions
3. Zero or more primary / logical partitions
Slave Disk
1. One or more primary or logical partitions
2. Zero or more swap partitions.
Primary Partitions
A disk can have only 4 primary partitions. Each primary partition can have many logical (extended) partitions. With Linux you can have up to 63 partitions on an IDE hard disk. A SCSI hard disk can have up to 15 partitions (including dos partitions). Newer versions of Linux (SuSe) simulate even IDE hard disks as SATA hard disks so do not have more than 15 partitions in a drive.
Linux Partitions for installation
Linux needs at least 3 partitions for its stable use. I generally use 4-6 partitions that includes a boot partition
The three partitions generally used are
1. Root Partition
2. Swap Partition
3. Home Partition
In this set up boot loader can reside either on MBR (Master Boot Record) or root partition or on both partitions. I choose MBR for simplicity but one can experiment with various combinations and edit the boot file in windows with various options available. That is when one is comfortable with (that comes with experience) the command line editing. I will include a few tips but taking simple option is time saving.
If one is scared to experiment with he or she can let the operating installing system to decide. This is what happens with Ubuntu which has simplified installation by graphic mode like with Windows, and it leaves very little room for changing and configuring.
Configuring is the bare bones of Linux Computing and one has to master it from the very beginning.
I would encourage one with a bigger hard disk have several more options for good reasons.
In additions to the above add
1 Boot Partition
2. Var Partition
3. Usr Partition
4. Tmp partition
(Please note that Linux uses simple letters for partition labeling)
Boot partition lets one edits (if correctly done in the first instance it is rarely necessary to edit it) the file in Linux command mode.
Var partition has a tmp folder where one can download and have all your images of various distributions stored for future writing to a CD which is very handy.
Usr partition (short for user) is a very important in a community / school / university set up. It is read only (use only) partition with out write option to file system. This prevents an intruder / hacker to enter the system files and modify its system files or fill up a hard disk with junk. In addition, by limiting space for each individual in MBs (50 to 100 for an individual) a system with a small hard disk can accommodate many users to share limited resources. Tmp file is my

favorite since one can put all the junk there when using the system and make the system to delete all junk at boot time. (Linux system has a log file which records every instance and activity by seconds, and if the system fails one can read this file in emergency mode and see what went wrong / when the hacker entered and what he did to the system. Additionally the system administrator can monitor this file to see what sites a user uses and if one is using prohibited site he can easily block it by a simple script).
One should make a distinction of partitions and file systems. Whereas, a distribution has limited options for partitions there is wide variety of file and folder system. Within the partitions there are folders that add functionality to the system files and they cannot be loaded to a partition independently / separately but only as a part of the overall system. The file systems are standard and there is /mnt and /media to mount various file systems and equipments either in read mode / write mode or both modes.
One does not need to worry about all these except for /var /ect /mnt /tmp and /media and depending on the distribution their placement may vary.

Fourth Lesson in Linux
How is partitioning done?
Now I have come to the stage where theory is put into practice. I will try to explain the simplest way to do it rather than the more tedious way. Linux experts may disagree with me on this point but that is the beauty of Linux.
Linux has everything one needs and more if one likes to delve into deep core of Linux kernel. All that is necessary is one installation. Updates are readily available in the web. No more changes, even for a few years. If the planning is done well in advance one only needs to worry about the day to day maintenance. Therefore, pre-installation is very, very important and depends on the user. For an example one is doing lot of downloads var and tmp partitions need to be substantially big in comparison to root partition and home partition.
To begin with disk has to be at least 20GB in size and 5 will be reserved for Win 98 and the rest for Linux. In good all days with 386 machines 32 MB was all that was necessary for Linux but now with more and more graphic intensive Linux desktops in the market more space one has better it is.
If you are scared that the data in the Windows may be destroyed go for another hard disk saving the Master hard disk for Windows and Slave hard disk for Linux. Linux can sit anywhere you want it to be and it is flexible enough to creep into any smaller space available without losing functionality.
Before that a few words about swap space and the boot partition.
Swap Partition / Swap Space
Managing swap space is important aspect of system administration. With good planning and proper use of swapping can provide many benefits. DonÃƒ????Ãƒ???Ãƒ??Ãƒ?Ã‚Â??t be afraid to experiment to get the best result you need. When computer needs to run programs that are bigger than the available physical (RAM) memory space most modern operating systems use a technique called swapping, in which chunks of memory are temporarily stored on the hard disk while other data is moved into physical memory. Linux divides physical memory in RAM (Random Access Memory) into chunks of memory called pages. Swapping is the process whereby a page of memory is copied to the preconfigured space (reserved for this function) on the hard disk called Swap Space, to free up that page of memory. The combined size of the physical memory and the swap space is the amount of virtual memory available.
Swapping is necessary for two reasons. First, when the system requires more memory than physically available, the kernel swaps out less used pages and gives memory to the current application (process) in need of memory immediately. Secondly, a significant number of pages used by an application during startup phase may only be used for initialization and then never used again. The system can swap out those pages and free the memory for other application or even for the disk cashe. However, compared to physical memory disk space are slow to respond.
Linux has two forms of swap, the swap space and swap file. The swap space is an independent section of the hard disk used solely for swapping and no other files can reside there and use it. The swap file is a special file in the file system that resides among the system and data files.
How big should be the swap space?
The rule of thumb is as follows.
1. For a desktop system, use a swap space of double the system memory (RAM) as it will allow it to run a large number of applications making more RAM available for active applications. For older machines with say 128MB RAM allow much swap space as much as 1GB. If there are two disks make sure that the second device also has swap space allocated so that the system swaps between the two disks making swapping to be faster and efficient.
2. For a Server, have a smaller amount of swap available (say half the swap space) so that some flexibility for swapping is there when needed.
Boot Partition
Boot partition is not really necessary for actual function of a single system but it may come handy if one is using several Linux systems in the same computer. Booting one of the operating at boot time is a task Linux find it very difficult due to several reasons. It can mount the windows and the native system. But when it comes to a different kernel it goes into panic mode very often. This is one of the weaknesses of Linux that I have tried to live with. With several hours of experimentation I have found a way out but I will describe only the easy way out not the complicated way of doing it. Most Linux distributions find it difficult to figure out how the other kernel should be loaded in spite of two boot loaders called GRUB and LILO.

The size of the boot partition can be very small as small as 8 to 12 MBs but I leave a space of about 200MBs. The kernel image, initrd, the map file and menu reside in this partition (and also in the beginning of the root partition) and are activated at different stages of booting that vary depending on the type of boot loader and cycle.
It is advisable to follow the instructions that come with each distribution before changing any boot options. Until one is comfortable with the system and the distribution donÃƒ????Ãƒ???Ãƒ??Ãƒ?Ã‚Â??t try to change what is offered. But feel free to experiment, worse one has to do (if a mistake is made) is to re-install the distribution, relearn the basics.
All the problems are related to the way how the Master Boot Record is configured by the manufacturers.
Linux has its own way of answering this problem independently with its popularity increasing mother board manufacturers may in time to come introduce mother boards configured with Linux Boot options eventually. Coreboot (formerly known as LinuxBIOS) is a Free Software Project in replacing the proprietary BIOS that comes with the Original Equipment Manufacturers (OEM).
How to partition the hard disk?
There is a variety of partition software. Assuming one is using dual boot option with Windows the best option available is Partition Magic (not Partition Manger which can be very destructive to data and Master Boot Record-MBR).
Steps of partitioning
1. Get the Windows 98 running in the C: > Drive.
2. Install your packages of software.
3. Install Partition Magic.
4. Assuming that you have at least three partitions named C: D: and E: run the Partition Magic.
5. Go to its graphic mode of Partition Magic.
6. Look at the partition table.
7. Delete the last partition if it does not have any data.
8. Transfer data to other drives if necessary.
9. Create a boot partition, root partition, home partition, var partition, tmp partition and a usr partition up to the upper limit of 15 (SATA) in total including the extended partition and Windows partitions. It is better to delete the last partition and donÃƒ????Ãƒ???Ãƒ??Ãƒ?Ã‚Â??t leave any gaps for example between C: and E:
10. Let the Partition Magic automatically do the job and format them. Do not commit to partitioning until you are sure that is what you want. You can always undo before committing to partitioning. Partition Magic do all there actions non-destructively but donÃƒ????Ãƒ???Ãƒ??Ãƒ?Ã‚Â??t make more than 3 to 5 actions at a time. If there are more than 10 actions in the list more likely you are making mistakes. So undo, cancel and redo it in small steps.
11. In the alternative delete the last partition with enough space for the Linux and exit from Partition magic.
For Windows-XP the procedure is much simpler.
1. You may install Partition Magic and use it as above.
2. Go to control panel and then to Administrative tools.
3. Then to Computer Management and then to Disk management.
4. Delete the last partition or last two partitions that would give enough space for the Linux distribution.
5. Exit and reboot with Linux CD.
Please make a note of all the changes you made in a piece of paper and nobody can remember the steps by heart unless you have done the procedures hundred of times.
When one is in difficulty these little notes are very helpful
Example of a partition table
1./dev/had1 or sda1 dos1(Primary Partition) Xandoos
2. /dev/ sda2 /boot (Primary Partition) Mandriva
3. /dev/ sda3/root (Primary Partition)
4. /dev/ sda4 Extended (Logical Partition)
5. /dev/ sda5/swap
6. /dev/ sda6/var
7. /dev/ sda7/tmp
8. /dev/ sda8/dos2 Win-xP
9. /dev/ sda9/swap
10. /dev/ sda10/boot SuSe
11. /dev/ sda11/root
12. /dev/ sda5/home
13. /dev/ sda5/dos3 (E)
14. /dev/ sda5/home
15. /dev/ sda5/dos4 (F)
That is similar to how my hard disk may look like but instead of windows I have Xandros that looks almost like Windows. My advice for you to have about 10 partitions and leave a big space empty for experimenting.

Fifth Lesson in Linux
Installing
If you have made the partitions in advance the rest of installation is easy and depends on the distribution at hand. I will

go from the simple to complex for the five distributions mentioned below. I would expect you to experiment with at least two of them before deciding on what you may install in your machine.
My favourites are Xandros, Mandriva and Suse the best.
1. Ubuntu
2. Xandros
3. Redhat Fedora
4. Mandriva
5. SuSe
There are many others
1. Debian for the specialist
2. Genito the minimalist
3. Slakware for crazy
4. Linspire
5. TurboLinux,
6. 6. Damn Small Linux
7. Puppy Linux

1. Installing Ubuntu
Demo and Full Installation

Try Ubuntu without installing. Simply reboot the machine with CD in the tray. You may perform a full installation from within the demo to install Ubuntu either alongside Windows or as the only operating system.
Learn more

Install and uninstall Ubuntu like any other application, without the need for dedicated partition. You will be able to boot either Windows or Ubuntu. Hibernation is not enabled in this mode and disk performance is slightly reduced.
Install inside Windows

Ubuntu is free, community developed, Linux-based operating system complete with a web browser, productivity software, instant messaging and much more. These are the instructions that appear when the CD is run in windows. All what you have to do is follow the instruction. I donÃƒ????Ãƒ???Ãƒ??Ãƒ?Ã‚Â??t recommend installing within windows because it makes the system to hang and pretty slow to operate. Do the learning first and then the demo and when you are confident install either in the available space or the partitions that you have already created. I have not used this except for demonstration, simply because it lacks many functions including server function but for a newbie this is the beginning. Having said that Ubuntu has done a lot in Africa to promote Linux and its efforts should be supported with full enthusiasm especially by critically analyzing its functionality and suggesting improvements to suit local requirements.

2. Installing Xandros
What you see when you load the installation disk is as follows.
 Thanks for choosing Xandros Desktop.

Back Next Cancel

Installing Xandros Desktop is easy and only requires you to answer a few questions. Since you are installing a new operating system, most of the installation process will take place outside of Windows.
Click next to begin installation
Read me HTML document describes known issues with Xandros desktop. Read it before installing.
Next screen let you create a Boot Floppy or Boot with CD.
Click Restart to begin installing.
Provided that you have changed the BIOS setup to boot from CD, the installation begins with a comment for each action Xandros is performing.
This is the one I recommend for one who is migrating from Windows because it has the best functioning boot loader with very impressive graphic display of its capabilities.
It has both the Open version and the Commercial version which you can buy.

It boots Lilo
1. Loads the Kernel in Graphic Mode
2. Initialize the kernel
3. Loads the module

4. Search for CD
5. Access the CD
Then finally detect the Hardware before installing and displays the Install Wizard for you to pick the choices
1. Welcome
2. License Agreement
3. Administration
4. User accounts
5. Summary
6. Installation

Assuming that you have chosen the custom installation first step let you select the software which Ubuntu does not let you do.
1. Select Software
2. Next stage is to customize the disk partitions. It has many choices
Take over the disk or partition
Resize Windows
Manually set up disk partitions
Unlike Ubuntu you can choose the partition such as /root, /home and /boot partitions. Please make sure that use ReiserFS file format OR Ext 3 and not Ext2 (Ext2 does not have journalizing facility which may interfere with Linux that is running on Ext 3).
You can assign and un-assign partition depending on your partition strategy during pre-installation.
3. Next it shows the disk configuration. If you are happy click next.
4. Then you have to select the boot manger. Use the Master Boot Record. It automatically selects Windows and other Linux distributions. This is the plus side of Xandros.
5. Then it gives the opportunity to you to configure your network. You may skip this if not connected to the internet.
6. Then you should select a root password. It lets you add any number of uses with passwords.
7. It displays the install summary. If you are happy you say yes to install OR no if you decide to change your mind and have another go.
8. Installation does not take more than half an hour and it displays all it features while installing and when you are ready it allows you to change the first time configuration at first boot up.
It has a lovely start up logo.
Go ahead and install and enjoy its features which include Skype.
If you decide to use other Linux distribution install them before Xandros and IÃƒ????Ãƒ???Ãƒ??Ãƒ?Ã‚Â??ll tell why you should have this approach later when I discuss about the boot loaders.

3. Installing Redhat Fedora /Redhat RHE
Installing Redhat Fedora is easy even though I have fallen out of its favour lately after the Fedora Project. Redhat left me and the community high and dry with Fedora Project with limited support. If you have money to spare go and buy the Redfhat Enterprise Edition (RHE) without fiddling with the Fedora and that is my advice.
But I have to pay the gratitude for the people who wrote all those lovely books on Redhat without which I would not have come this far. In that sense Redhat is academic and educational. I have Redhat 9 in my old 233 for trying out academic exercises in Linux.
Few words about Redhat are necessary. Redhat had a fare share of litigation in the beginning and it burnt its fingers before it came to where it is today. Redhat is the standard flag bearer of Linux. Without its commercial attitude Linux would have died a natural death in its infancy. People who disagreed with Redhat went ahead and started Mandrake which produced a Globe Trotter and power pack editions. Now aligned with Lycoris Desktop / LX is a market leader in its own right. Globe Trotter has now given itself to PendriveLinux (Flash).
Marketing Linux is has mutual benefiting (customers and the company) exercise. I was never against marketing practices but what I am against are the bullying tactics, overtly aggressive behavior and monopoly which could be attributed only to Microsoft.
My disagreement like who left Redhat for Mandrake is the way Redhat handled the Fedora project which in my view is a market failure.
Having said that if one wants to rise up to the challenge, go and join the Redhat Team not Fedora.
Redhat standardized everything including installation for others to follow.

When one boots the Redhat / Fedora boot CD following terminal and instructions appear.
To install or upgrade in Graphic Mode,
Press <ENTER> key
To install or upgrade in Text Mode,
type linux text,
Press <ENTER> key

Use following keys listed below for more information
F1 Main, F2 Options, F3 General, F4 Kernel, F5 Rescue

You should select the Graphic Mode
You are given the option to test the media which one should do without skipping and once the media are checked and in good order press the <ENTER> key and the Anaconda installer starts the installation process.
It probes for mouse, Graphic Card and the Monitor.
Each press of the next tab with mouse leads you to following screens
1. The welcome to the Fedora Core and release notes appear on the screen
2. Select the Language
3. The Key Board Type
4. Selection options
a. Personal desktop
b. Workstation
c. Server
d. Custom

This is different from the other distributions. The server function is lacking in Ubuntu.
5. Then the most important partition selection appear
a. Automatically Partitioning
b. Manual Partitioning with Disk Druid
It has all the following options but cannot resize the windows partitions.

Ideally partitions should be prepared as I have mentioned with Partition Magic.

Then what you have to do is to select and edit the partition as you please from the graphic menu. I found this strategy easy and non-intrusive.

It has
New
Edit
Delete
Reset
Raids
LVM

Select a partition and edit as /boot. /root /home, /var, /tmp and /usr the way you like it to be.
And select also format option.
6. Once you have selected your partition option you are moved to the Boot Loader Menu which is one of the best available and simple to manipulate.

I go for the GRUB (not LiLo)

By default it will select Redhat as default and windows as optional.

If you have any other operational system, just go to the menu options add and then select the boot partition where the kernel of the other operation system resides and select it (e.g. /dev/ had 10) and it chain loads that system automatically, which many other Linux operation systems find difficult to figure out (Mandriva and SuSe to name a few). So if you intend to install other operation systems install them before Redhat. When you install Redhat as the last operation you can select other Linux operation systems as booting options when you come to this stage.

Similarly, windows should be installed first but not as the last option.
You can use boot loader password and change the boot option.

Select Master Boot Record

7. Configure the Network

8. Select the Firewall
9. Select additional language for example, French, German and Spanish
10. Select the Country
11. Root password
12. Next come the package information and select the default option

If you are ready now you can allow the installer to install Redhat or go back and make any changes you may like best.

It will finish installing and restart for first time configuration and to register a user account.

4. Installing Mandriva

Once the system boots up with the CD/DVD in Graphic Mode the screen appears which looks like

1. Boot from Hard disk
2. Installation
3. Vgalo Graphic Low
4. Vgahi Graphic High
5. Vga16 VGA 16 Colours
6. Text Installation Text Mode
7. Patch
8. Rescue System
9. Install ACPI Disabled (Advanced Configuration Power Interface Disabled)
10. Alto

F1 Help, F2 Language, F3 Other Options, F4 CD Rom, F5 Drive

When new installation is selected, installation takes over requesting for the 1. Language option (English)

2. License Agreement
3. Security Standard, High, Very High, Paranoid
4. Then the Partitioning

This one of the easiest and best partition tool available if the space is left for partitioning and also resize the windows as well as Linux partitions. You get a chance to change the partitions if mistakes were made with Partition Magic

Using existing partition
Erase entire disk
Use the free space in Windows
Custom Disk Partition

It can delete, resize windows and Linux partitions, partitions and create and mount partition or autoallocate as required.Portioned include /root, /boot, /home, /tmp, /usr, /var, /ftp,/var /www and /mnt/windows

5. Installation both KDE and Genome can be selected
6. Installation takes place
7. Root (administrator) password

8. User and passwords
9. Installation of Boot Loader (Choose GRUB)

First sector of Master Boot Record (select MBR)
First sector of root partition
On Floppy
Skip\

10. Summary of configurations
11. Updates if connected to internet
12. Exit for

As a distribution it has made vast improvement to the Redhat it originated from. It easily rivals SuSe as an attractive Linux distribution.

5. Installing Suse

Once the system boots up with the CD/DVD in Graphic Mode the screen appear looks like

1. Boot from Hard disk
2. Installation
3. Repair Installation System
4. Rescue System
5. Firmware test

6. Memory text

F1 Help, F2 Language, F3 Video Mode, F4 Source, F5 Kernel F6 Drives

F2-English, F3 -024x768, F4-DVD, F5-Default and F6 NO

F4 -SLP.FTP, HTTP, NFS, SMB, DVD and HD

When selected installation it frees the RAM, loads the kernel and drivers, activate the mouse then search and access the CD/DVD.

It scans the CD and search for online repository for download and sometimes (hangs up) freezes because (if you have an internet card in the system).
If this happens eject the DVD, switch off the computer and reboot this time fast enough so that the DVD is running smoothly. It will skip the online repository and boot from the DVD ready for installation.
If you press Ctrl + Alt and F1 to F8 what is happening in the background is shown in a black terminal. Pressing Ctrl + Alt and F7 will return you to Graphic Mode.

Ctrl + Alt and F1 Initial set up procedure
Ctrl + Alt and F2 Kernel available for rescue operation
Ctrl + Alt and F3 Installation sequence
Ctrl + Alt and F4 Log file
Ctrl + Alt and F5 Kernel available for rescue operation
Ctrl + Alt and F6 Kernel
Ctrl + Alt and F7 Graphic Mode
Ctrl + Alt and F6 Kernel available for rescue operation
Installation sequence follows in an organized manner.
1. Start Up
2. Language in English
3. Media Check
Make sure you check your media before installation
4. License Agreement
5. System Probing and stops at screen for installation
6. Installation
a. New Installation
b. Upgrade
c. Other
OptionsÃƒ????Ãƒ???Ãƒ??Ãƒ?Ã‚Â¢?Ãƒ????Ãƒ???Ãƒ??Ãƒ?Ã‚Â¦Ãƒ????Ãƒ???Ãƒ??Ãƒ?Ã‚Â¢?Ãƒ????Ãƒ???Ãƒ??Ãƒ?Ã‚Â¦.Repair or Boot from system
d. Add online repositories before installation
e. Include add on product from separate media
7. Scan again for CD/DVD and online repositories before installation
8. Activate Package manager
9. Clock Time Zone
10. X Window system
a. Genome
b. KDE
c. Other
Select KDE which is feature filled X-Window system
Next window will show you the selection as an overview or expert mode.
If you are happy with the selection let it install the SuSe on your system.
In expert mode lot can be done which include partition deleting creating, resizing, mounting different file systems, configuring boot loader and adding other languages. Except for adding other languages if you are a newbie do not fiddle with these especially boot loader and partition table.
It will resize, format and install packages and depending on the speed and the packages selected it will be ready for configuration when it boots next time from the hard disk.
Up to install you can abort the installation. If you are not happy redo the process and learn as much before committing to install. That is the beauty of SuSe. It lets you learn the inside working before you install and you can go back as far as the start point at any moment.
That is why I recommend this to newcomers (Linux experts are annoyed by these graphic features) and it easier than Windows to learn on the job and the final product is no different to windows.

If you are Linux convert press F2 and go to Linux mode.
Expert mode let you change
1. System requirements
2. Key board
3. Partitions
4. Software selection
5. Booting Options
6. Time Zone
7. Additional Languages
8. Define run level (0 to 6; and 0-shutdown, 5= display Manger, Network and multiuser environments).
When it boots up it requests for a root password and start configuring the network. Network access, DNS setting and default gateway are configured and it tests your connection and if so desired you can update your SuSe online.
If you are not connected to you can skip this part of the installation
Finals stages of the installation can be summarized as
1. Root password
2. Network
3. Online update
4. User and their passwords
5. Clean up
6. Release notes
7. Devise configuration.
SuSe or YAST (Yet Another System Tool) will configure your hardware and in few moments you are up and running a new system (I called it the Yet Another Setup and Teaching Tool for a newbies).
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Go ahead and enjoy the freedom of Linux.

Puppy Linux

This part of document was done on Puppy Linux on abiword and saved on my dos partition with a puppy file extension of abiword. When I started Linux a few years ago abiword did not have any colour fonts. This document now I am working with has blue colour. It has an extension for WiKi encyclopedia if the computer is connected to the Internet. It has puppy reference, my applications, and my documents.
I have reserved 512 MB of my fat partition (can be on a Linux partition) for puppy Linux. Mind you this is the fourth Linux distribution in addition to Xandos, SuSe and Mandriva if any of them fail to boot up I can use my puppy guard to do the job on the trot till I find (not that Linux gives problems).
Only drastic thing I do sometime is to erase the Master Boot Record accidentally.
This little fellow mounts all the partitions in read mode and I can see which file is corrupt and even consider (dare not) editing them.
I may have to say Good Bye to Damn Small Linux because this fellow has eye pleasing graphic capabilities.
New software can be added to it.
They include wine, thunderbird, opera and open office 3.
The puppy can grow into a robust doggy in time.
This is something newbies should experiment instead of Ubuntu.
I fiddled with the programs and installed and booted puppy on a Flash Drive in no time and the CD and flash drive fit my shirt pocket. For safety I can encrypt my files so nobody can read them.
I don't have to worry about thieves who go for the notebooks (laptops) and cell phones.
Mobility and freedom assured.
I can have my day planner and email also attached with the Puppy Linux and this clever guy(s) developing the tiny utilities at a time of global credit crunch deserves a Nobel Prize but sadly nobody thought about him this time around.
He has been operating Puppy Linux for the last 5 years and the big people donÃƒ????Ãƒ???Ãƒ??Ãƒ?Ã‚Â??t notice this puppy except their own puppies.
Nobel Prize donors cannot think that "small is beautiful".
I think they have given a prize for an economist'What a waste of resources?
Guys don't make Linux any smaller than puppy because my eye sight is failing with age.
Now that Linux is in a match box (Flash Drive) don't put it in match stick, these terrorist guys might use it to load dynamite!
I have lot of chocolate for these guys (or lots of vines) come this Christmas.
20th October. 2008

Contents

1. Linux for Kids

Just read through!