

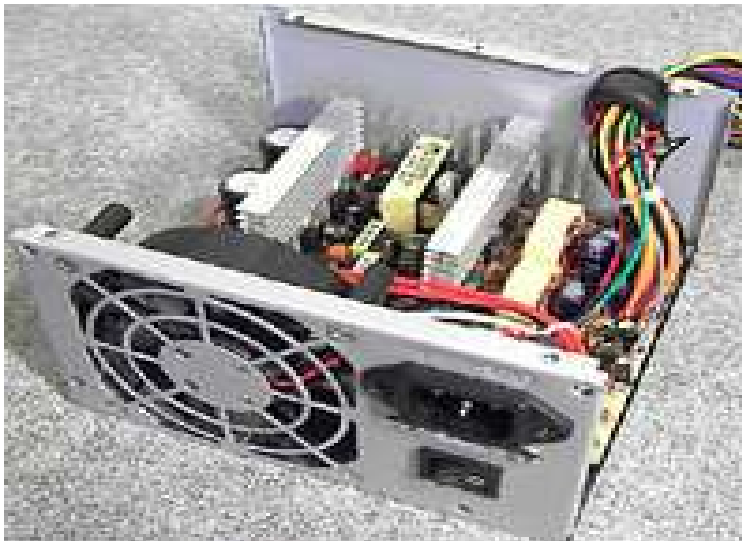
1. Study and measure voltages of SMPS (Switch Mode Power Supply)

The SMPS converts mains AC electricity to the DC voltages required by chips, motors and circuits in the PC.

SMPS contain potentially lethal mains voltages.

Unless specially trained, you must not dismantle a SMPS while it is powered.

In addition, with power removed some internal components store enough electrical charge to give a very painful shock.



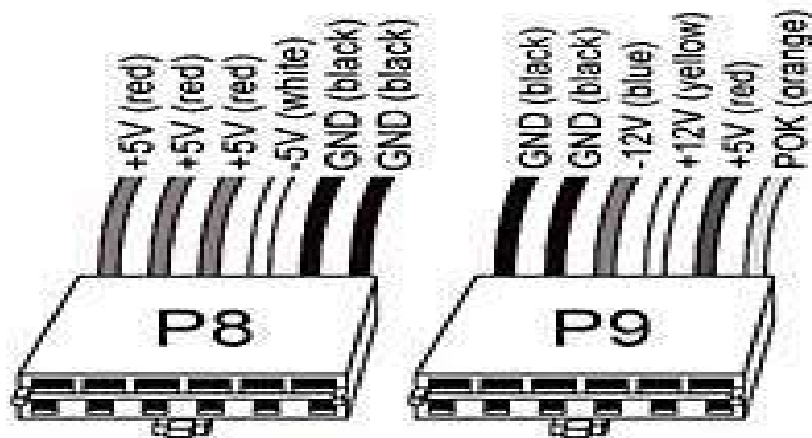
The switch-mode SMPS used in PCs work by switching larger voltages on and off rapidly to give a lower average voltage. These circuits rely upon feedback loops and are therefore difficult to fault-find without expert knowledge.

Voltages

There are five main DC voltages produced by SMPSs: +3.3V, +5V, -5V, +12V and -12V. The SMPS also provide the main system ground those current returns along. 3.3V is used by the processor, 5V by system board ICs, expansion cards and disk drives. The 12V levels typically power expansion cards and disk drive motors. Some SMPSs allow mains power to be passed through to the display screen.

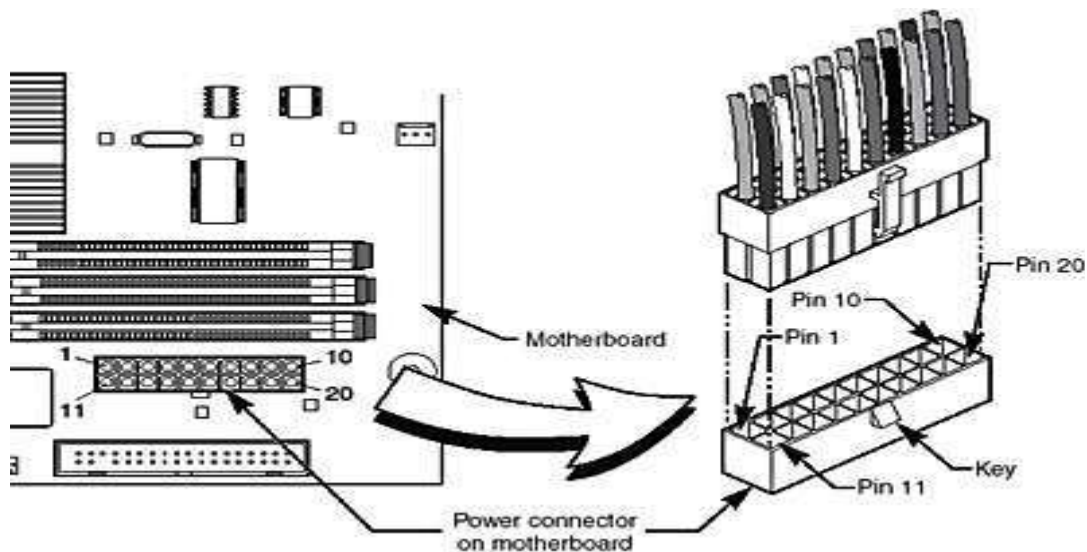
AT

The older supply used by AT systems has two 6-pin connectors (labeled P8 & P9) that connect to the system board. It is possible to connect P8 & P9 round the wrong way — if this happens then the system board will fry!



ATX

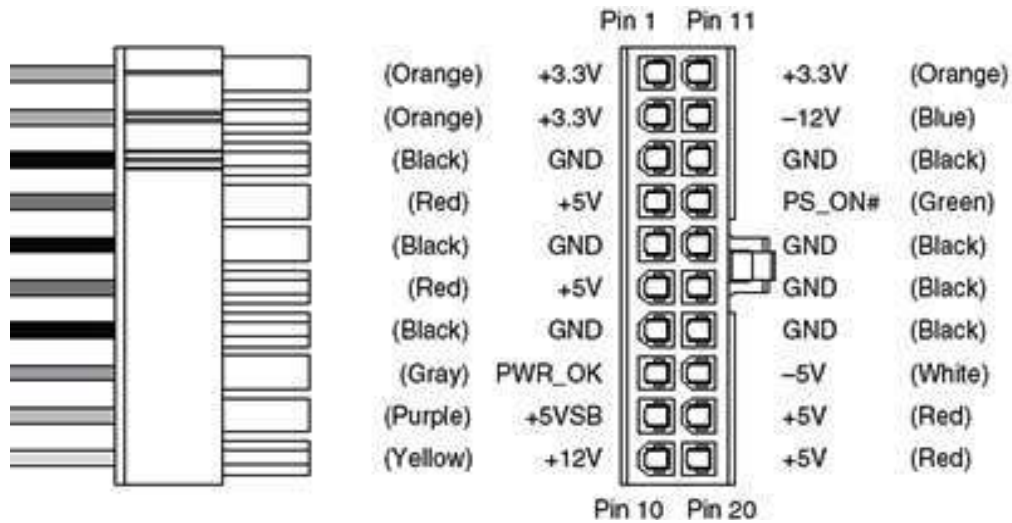
ATX style SMPSs use a single 20-pin adaptor, but may also sport auxiliary connectors for system boards requiring higher currents.



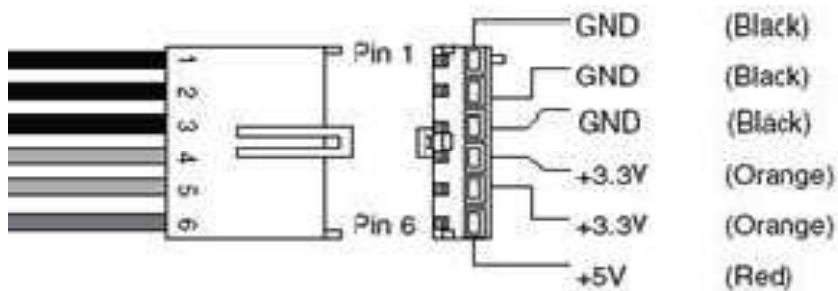
Some companies like Dell use their own custom designs for SMPS connection.

Voltages

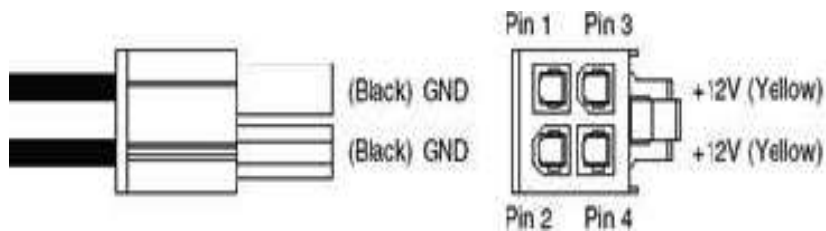
The main connector carries 12V, 5V and 3.3V supplies.



The first auxiliary connector looks like the old P8/P9 ones.



The second is a four-pin adaptor that supplies additional 12V lines.



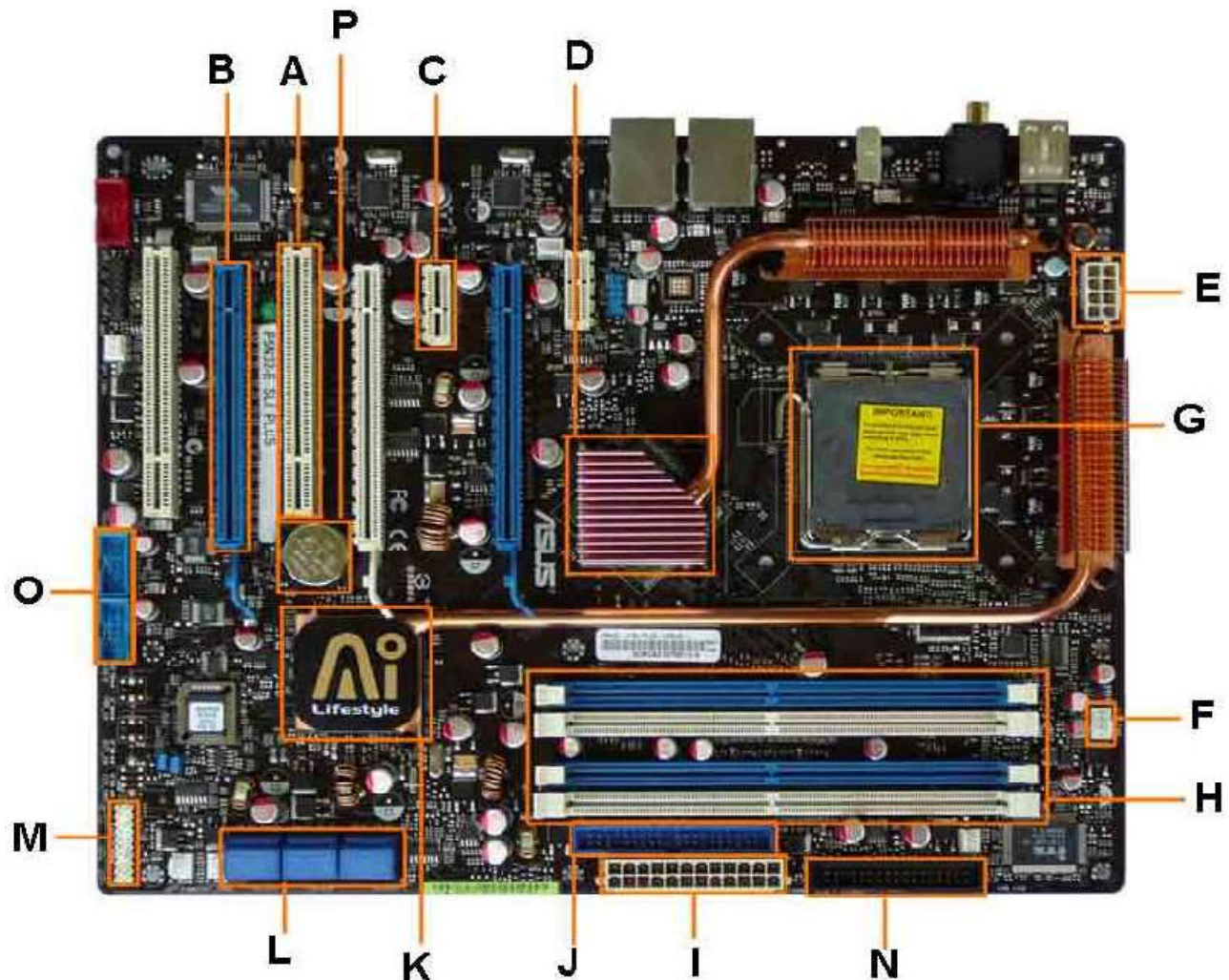
Soft power

The main difference between AT and ATX systems is that ATX is designed to be switched on and off by software control. To enable this, some parts of the system board are powered continuously, so that components can sense a wake-up signal (such as the power button at the front of the case).

Therefore, switch mains power off before removing expansion cards.

2. Drawing the motherboard layout (any latest processor) and studying the chipset through data books or Internet

A *computer motherboard diagram* is very useful for when you need to **replace motherboard**, do **motherboard upgrades**, **troubleshoot motherboard**, or **build your own computer**.



- A. **PCI Slot** - This board has 2 PCI slots. These can be used for components such as Ethernet cards, sound cards, and modems.
- B. **PCI-E 16x Slot** - There are 2 of them on this motherboard diagram, both are blue. These are used for your **graphics card**. With two of them onboard, you can run 2 graphics cards in SLI. You would only need this if you are a gamer, or working with

high end video / graphics editing. These are the 16x speed versions, which are currently the fastest.

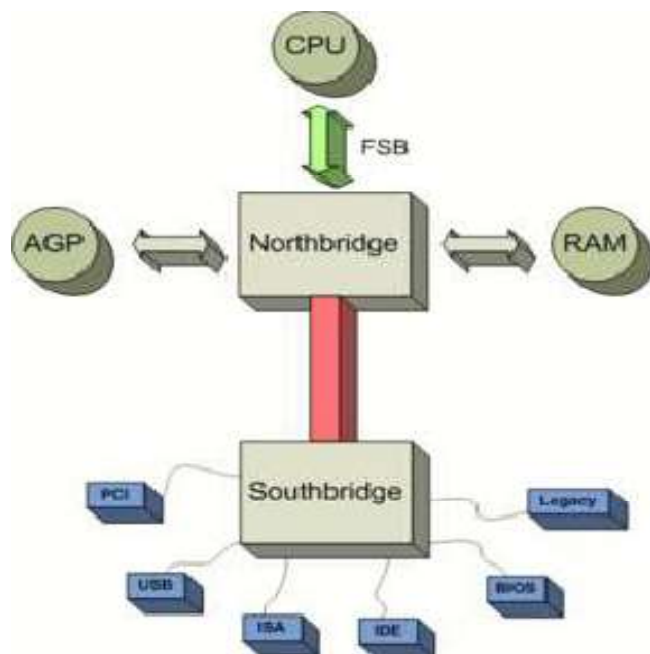
- C. **PCI-E 1x Slot** - Single slot - In the PCIe 1.x generation, each lane (1x) carries 250 MB/s compared to 133 MB/s for the PCI slots. These can be used for expansion cards such as Sound Cards, or Ethernet Cards.
- D. **Northbridge** - This is the Northbridge for this motherboard. This allows communication between the CPU and the **system memory** and PCI-E slots.
- E. **ATX 12V 2X and 4 Pin Power Connection** Power Connection - This is one of two power connections that supply power to the **motherboard**. This connection will come from your Power Supply.
- F. **CPU-Fan** Connection - This is where your CPU fan will connect. Using this connection over one from your power supply will allow the motherboard to control the speed of your fan, based on the CPU temperature.
- G. **Socket** - This is where your CPU will plug in. The orange bracket that is surrounding it is used for high end heat sinks. It helps to support the weight of the heat sink.
- H. **Memory Slots** - These are the slots for your **RAM**. Most boards will have 4 slots, but some will only have 2. The color coding you see on the motherboard diagram is used to match up RAM for Dual-Channel. Using them this way will give your memory a speed boost.
- I. **ATX Power Connector** - This is the second of two power connections. This is the main power connection for the motherboard, and comes from the Power Supply.
- J. **IDE Connection** - The IDE (Integrated Drive Electronics) is the connection for your hard drive or CD / DVD drive. Most drives today come with SATA connections, so you may not use this.
- K. **Southbridge** - This is the controller for components such as the PCI slots, onboard audio, and USB connections.
- L. **SATA Connections** - These are 4 of the 6 SATA connections on the motherboard. These will be used for **hard drives**, and **CD / DVD** drives.
- M. **Front Panel Connections** - this is where you will hook in the connections from your case. These are mostly the different lights on your case, such as power on, hard drive activity etc.

- N. **FDD Connection** - The FDD is the Floppy Disk controller. If you have a floppy disk drive in your computer, this is where you will hook it up.
- O. **External USB Connections** - This is where you will plug in external USB connections for your case or USB bracket.
- P. **CMOS battery** - This is the motherboard's battery. This is used to allow the CMOS to keep its settings.

Chipset

Chipset

A chipset is usually designed to work with a specific family of microprocessors, because it controls communications between the processor and external devices. It is a number of integrated circuits designed to perform one or more related functions. For example, one chipset may provide the basic functions of a modem while another provides the CPU functions for a computer. On most motherboards the "chipset" consists of two chips, the Northbridge and the Southbridge.



North & South Bridge

The PCI bus (see next section) requires a pairs of chips to manage communication between parts of a PC. These chips are known as the North Bridge (or memory controller) and South Bridge (or I/O controller).

The bridges are collectively known as the motherboard chipset (a term that sometimes includes the CPU) and this chipset forms the heart of a modern motherboard. Some chipsets include extra facilities, such as onboard graphics or wireless networking (e.g. Intel's Centrino chipset).

Older desktop Pentium designs feature a three-chip chipset: the third IC interfaces the ISA bus to the PCI bus.

3. CMOS setup of any latest PC

In order for the BIOS to control PC hardware it needs information about settings for attached devices, e.g. which hard disk to boot from, whether on-board sound is enabled, or whether to reserve specific IRQs for particular devices.

These settings are stored in *non-volatile BIOS memory*. This memory chip was traditionally battery powered (to keep it from forgetting settings when the main power is switched off) and thus used CMOS (Complimentary Metal Oxide Semiconductor) static RAM circuit designs, known for their low power requirements and ability to run on a range of voltages.

CMOS Settings

Del	Most common: American Megatrends (AMI); Award
F2	Second most common: Advanced Logic (ALR)
Ctrl+Alt+S Ctrl+Alt+Esc Ctrl+Alt+Ins	Some Award / Phoenix
F1	Some IBM & Hewlett Packard
Esc	Toshiba
F10	Compaq

Some *very* old equipment (e.g. IBM PS/2) needed a special setup program from disk.

The increasing use of custom boot displays may require you to press **Tab** or **Esc** before pressing the appropriate setup key.

Main settings

The main settings typically allow you to alter system date and time and disk drives.

PhoenixBIOS Setup Utility					
Main	Advanced	Security	Power	Boot	Exit
<div>System Date: [10:23:14] [03/08/2003]</div> <div>Legacy Diskette A: [1.44/1.25 MB 3½"] Legacy Diskette B: [Disabled]</div> <div>▶ Primary Master [None] ▶ Primary Slave [None] ▶ Secondary Master [CD-ROM] ▶ Secondary Slave [None]</div> <div>System Memory: 640 KB Extended Memory: 131071 KB Boot-time Diagnostic Screen: [Enabled]</div>				<div>Item Specific Help</div> <div><Tab>, <Shift-Tab>, or <Enter> selects field.</div>	
F1 Help	↑↓ Select Item	-/+ Change Values	F9 Setup Defaults		
Esc Exit	← Select Menu	Enter Select ▶ Sub-Menu	F10 Save and Exit		

There is usually a 'default' option that restores all CMOS settings back to their factory state.

Hard drives

The BIOS needs to know the hard drive size and drive settings (including number of sectors, cylinders and heads) to be able to boot correctly. This information is usually auto-detected; the setup screen will display the drive name and capacity. On older systems this auto-detection may need to be manually triggered.

IDE hard drives have the ability to lie about the number of sectors, cylinders and heads. This started when the number of cylinders and sectors grew too big for normal BIOS

parameters. *LBA* (logical block addressing) and *CHS / Large* mode are two common translation methods.

Boot sequence

Usually you can specify a specific order but some BIOSes restrict you to only a few options.

- 1 Floppy drive
- 2 Hard drive(s) — IDE or SCSI (note that SATA drives are often classed as SCSI by the BIOS)
- 3 CD or DVD drive(s)
- 4 Network — used by *thin clients*
- 5 USB

The BIOS also offers boot-block virus protection, stopping any program from attempting to write to a disk's MBR. This is usually left disabled because it interferes with installing operating systems and bootloaders such as BootMagic.

Advanced settings

1. **Motherboard** FSB speed
2. **CPU** speed and core voltage — often auto-detected
3. **Dynamic RAM** speed, timing and voltage
4. **PCI PnP** (plug'n'play) settings

Peripherals

1. **Parallel port** (IRQ & I/O address; enable, SPP / ECP / EPP)
2. **Serial ports** (IRQ & I/O address; enable)
3. **USB**, FireWire and IrDA (enable)
4. **On-board devices**, e.g. audio, video, network card (enable)

Security

You can specify two levels of BIOS password: a *user* password that is required at power-on, and a *supervisor* password that is required to access CMOS settings.

Clearing a BIOS password can usually be achieved by shorting the "clear CMOS" jumpers on the motherboard. However, this is not always practical or possible. Technicians often have special boot floppies (or bootable CDs) containing a CMOS clearing utility such as [KillCMOS](#). Removing the battery for a period may clear older CMOS memories but modern motherboards use EEPROM or Flash ROM instead.

Some manufacturers use a backdoor password that will always gain access. To find these, search on the World Wide Web for "BIOS backdoor passwords".

In extreme cases you may need to identify the RTC / CMOS chip and locate the manufacturer's data sheet. This will tell you how to clear the settings by connecting a specific pin to 0V. In high-security systems the chip may need to be physically replaced to clear the password.

Power management & hardware monitor

As part of the Advanced Power Management (APM) power management settings, the BIOS setup also allows you to specify which devices are allowed to "wake up" an ATX / WTX system.

The hardware monitor shows system voltages, temperatures and fan speeds. These are particularly useful when troubleshooting.

4. Fault findings: (a) Problems related to CPU (b) Problems related to RAM

PROBLEMS RELATED TO CPU

Power Problems.

The PSU or the Power Supply Unit is not giving the CPU sufficient power, or it has difficulty in maintaining continuous supply.

Heat Problems.

This means the processor is overheating or becoming too hot.

Motherboard related problems.

What happens here is that there is a component of the motherboard, such as MCH or Northbridge

PROBLEMS RELATED TO RAM

1. Do you hear a beep sound, a rapid beep sounds but no display in your monitor?

PC doesn't boot, a beep sound and display's nothing at all. This is the most common signs of RAM failure.

Cause: Dirty RAM, Loosen RAM and dusty RAM slot.

2. You hear no sound plus no display?

PC turns on, no sound and display. There are instances that a motherboard doesn't beeps, when it cannot detect the RAM. This is a rare RAM error, usually this involves video card, motherboard, processor or you just needed to reset your CMOS (Complementary meta-oxide-semiconductor).

Cause: Dirty RAM, Loosen RAM and dusty RAM slot.

3. When you install certain software an error pops-up?

When installing a software suddenly it stops and cannot continue. This signs of RAM issue often mistaken as faulty hard drive.

Cause: Dirty RAM, Loosen RAM, dusty RAM slot and worst the RAM itself.

4. Is your PC running so slow?

Your PC displays a various errors and affects its performance especially in speed.

Cause: Dirty RAM, Loosen RAM, dusty RAM slot and worst the RAM itself.

5. Your PC restarts automatically?

Your PC turns off and restarts automatically. This sign of RAM trouble sometimes mistaken as processor overheating, power supply and low voltage.

Cause: Dirty RAM, Loosen RAM, dusty RAM slot and worst the RAM itself.

5. Disassembly and Assembling of PC and Installation of Operating System

a) Windows b) Linux. Perform dual booting also.

Assembling of PC

1. Tools and equipment

Basic tools

Before you begin building or refitting a computer, you should have some basic tools:

1. #2 Phillips-head (cross-shaped) screwdriver
2. Needle-nose pliers
3. Anti-static Wrist Strap
4. A large level working space

2. The Components

1. Case and power supply
2. Video card
3. CPU
4. Motherboard
5. Memory
6. Fan and heat sink
7. Hard drive

3. Installing the Motherboard

Check the backplane template. It's the plate through which the connectors for the keyboard, mouse, etc show through. Lay the case on its side. Place the motherboard in the case. Make sure that all connectors on the backplane are properly exposed through the backplane template. Fasten with 6 screws.

4. Install the CPU

Make sure that you are grounded.

Open (lift) the CPU socket lever. Look carefully at the pin arrangement on the CPU and the CPU socket. And insert CPU to the socket lever and press in and under to latch it. Attach the heat sink and fan.

5. Attach the power Supply and other connectors

The power supply has a single, large, rectangular connector. Insert this in the power connector on the motherboard. Match the wires from the case to the connectors on the motherboard and connect.

6. Install Hard Disk and CD ROM and other devices

Place the hard disk drive in the case and fasten with 4 screw and Set the jumper on the drive (next to the connector) to select "Master. Connect the hard disk to the motherboard to IDE slot 1. Connect one of the power supply cables to the CD-ROM drive and connect IDE cable from motherboard to CD ROM. Identify the AGP (Video card) connector slot in the motherboard. Refer to the diagram in the motherboard manual. Remove the backplane connector cover for the AGP slot. Press the video card into the AGP slot. Secure it to the back plane with a screw.

Close the case.

Check to determine that the power selector on the case is set correctly. In the India, at least, it should be at 230V. Attach connectors to the backplane for your mouse, keyboard, monitor, and power.

Power it up.

Press the Delete key to enter the BIOS setup. Review the BIOS settings. Here are a few that you may want to pay attention to:

Time and date.

Boot devices.

Disassembling of PC

1. Unplug every cable that's plugged in to your compute.
2. After unplugging the all cable, unscrew the four screws on the back of the computer.
Once the screws are removed, you can remove the side panels.
3. The front panel clips on to the metal frame with four tabs, so you must push them in and slide the whole panel forward.
4. Now that the case is off, so remove the system fan, which is located at the back side and then unplug the cable of system fan and then remove the CPU heat sink fan
5. Now unplug the all cable of SMPS and unscrew the 4 screw holding the power supply and then remove the SMPS.

6. Unplug the ribbon the back of the CD Drive and card drive Hard disk drive, Once that is completed, pull on the tab securing the drive in place, then push it out from the inside.
7. Remove the expansion card like Ethernet, Wireless card, TV(Remove the screws on the occupied card slots. Once the screws are removed, you should be able to remove the cards by pulling them carefully upward)
8. Remove the RAM from ram slot by push down on both tabs holding the RAM in place
9. Remove the power button; power LED and hard drive LED are all within plastic "Chassis".
10. Lastly remove motherboard m which has seven screws holding it to the frame, which are indicated by large white circles around them. Remove those seven, and then lift the motherboard out of the frame.

Installation of WINDOWS -7

1. Enter into computer's BIOS by pressing DEL key.
2. Find your BIOS's boot options menu.
3. Select the CD-ROM drive as the first boot device of your computer.
4. Save the changes of the settings.
5. Shut off your computer.
6. Power on the PC and the insert the Windows 7 disc into your CD/DVD drive.
7. Start your computer from the disc.

Steps:

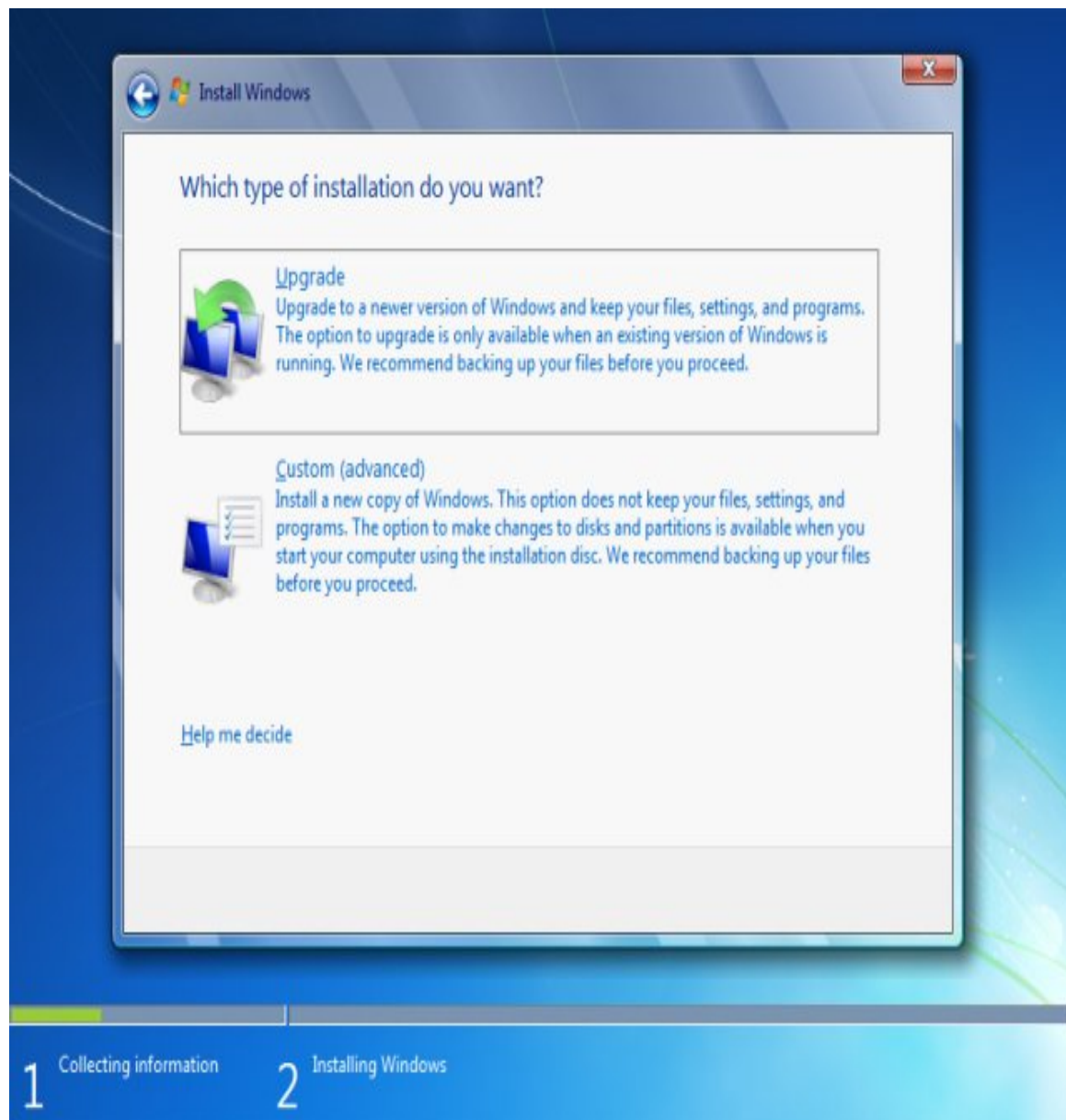
Step1: Turn on your pc and press 'F2' continuously . There will come up and option to boot through CD/DVD. Select that option windows will start loading its files.



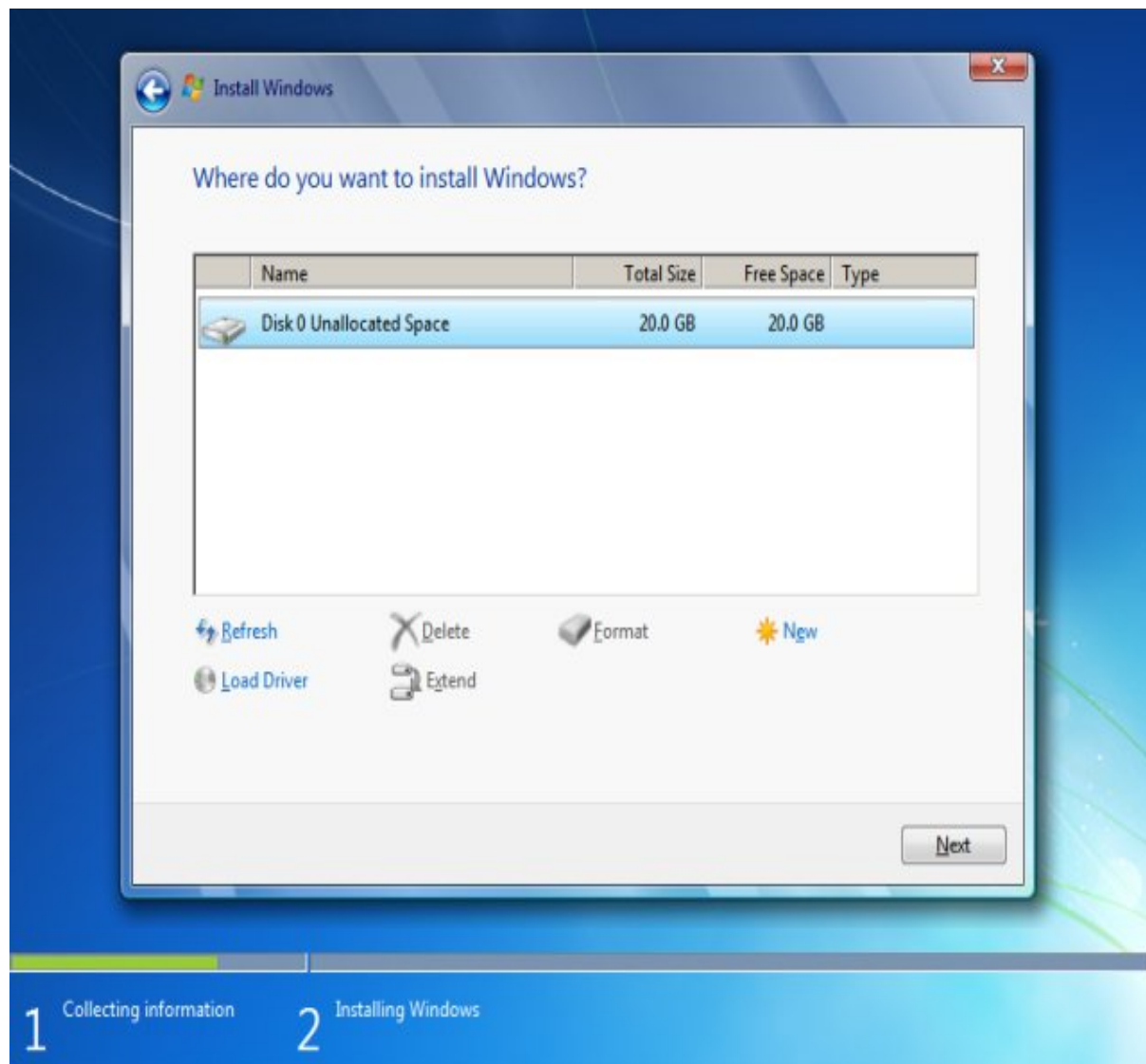
Step2: Now you will get the windows. This is the part to select language for your windows. 'select' English' and click Next also there will be a 'INSTALL NOW' button click on it and proceed to next step.



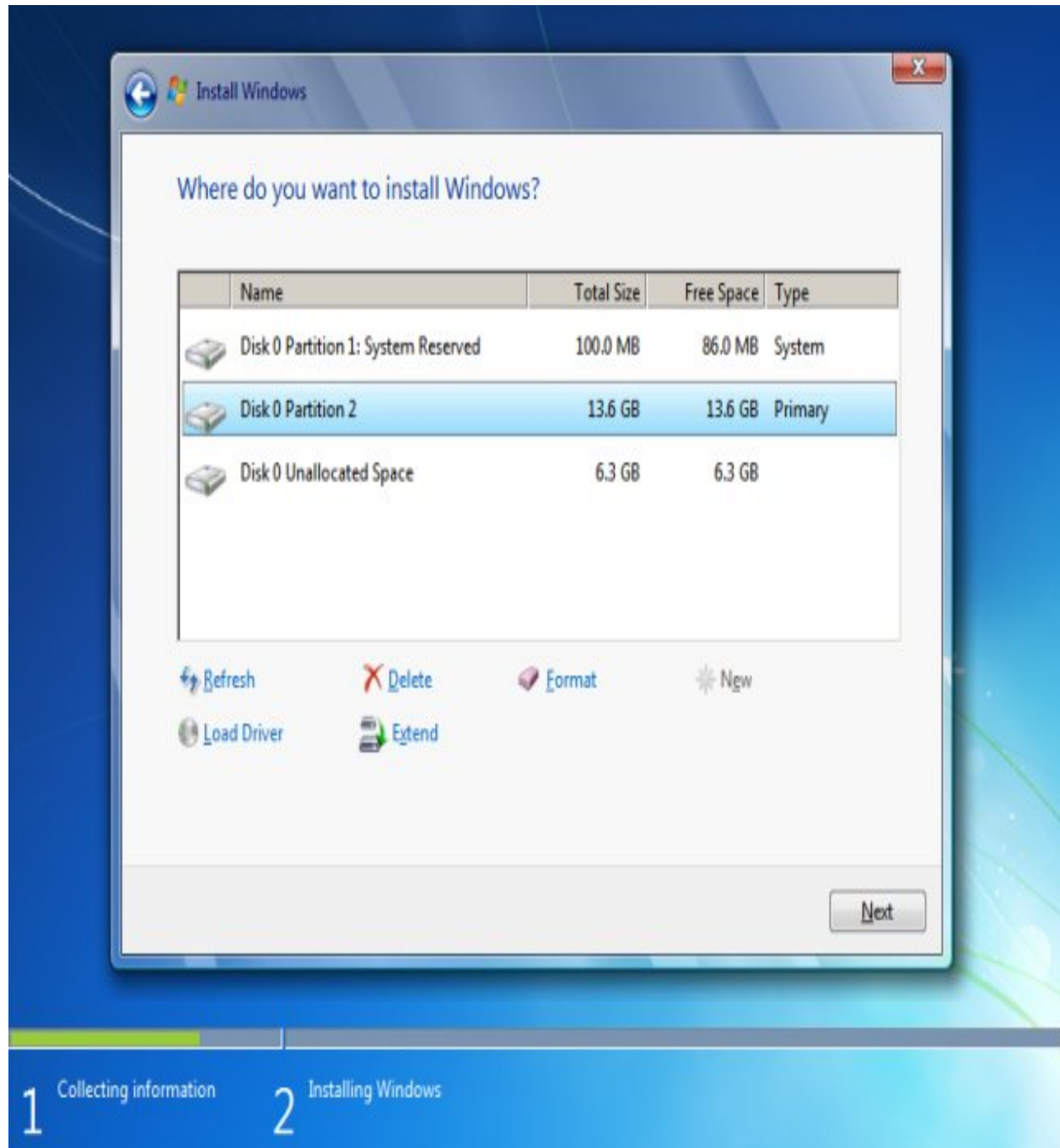
Step3: There will be license agreement. check on 'I ACCEPT' and proceed to NEXT. After that there will be an option to install windows. 'UPGRADE' and 'CUSTOM'. Right now we are installing a clean version so click on CUSTOM.



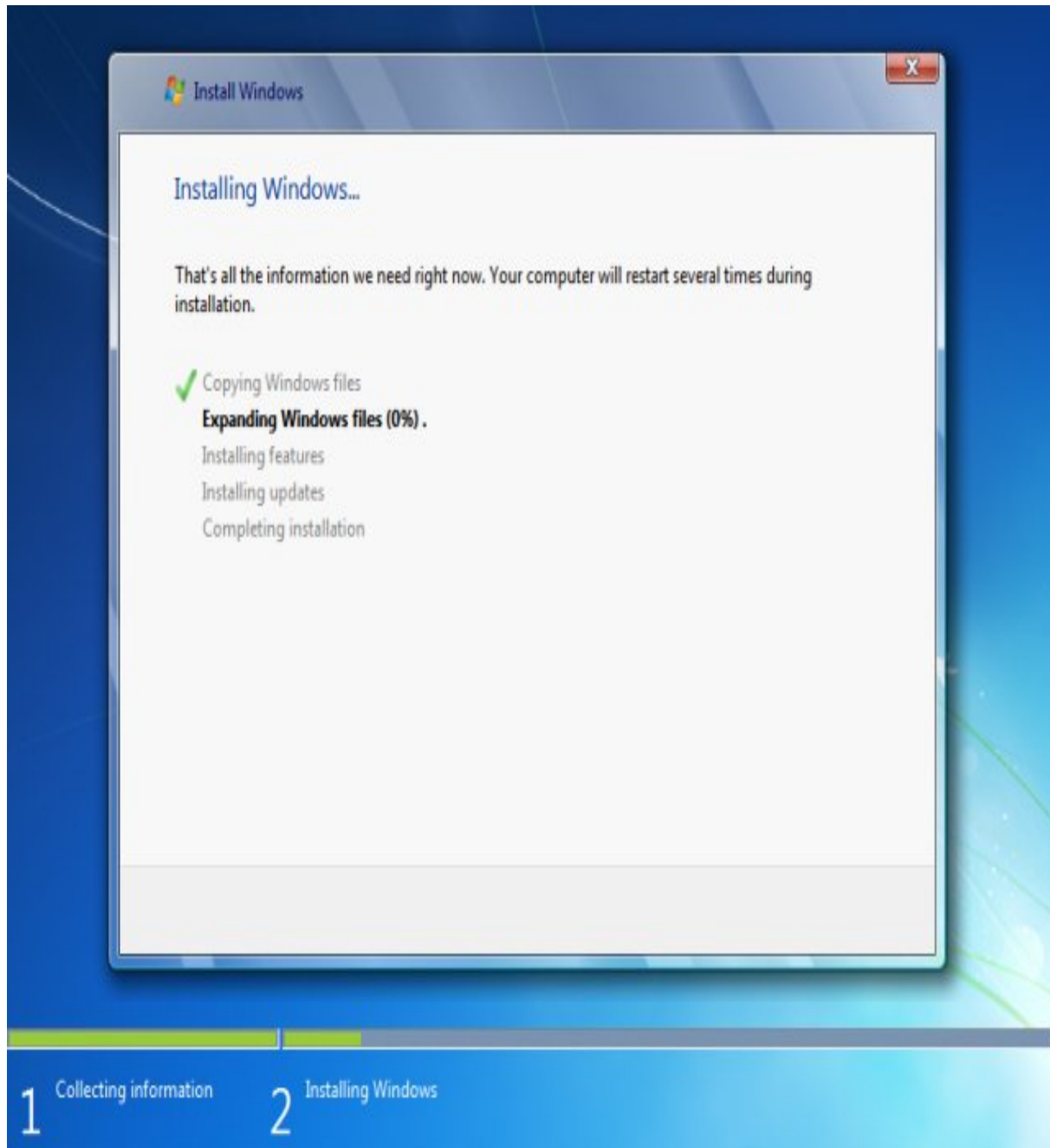
Step4: In this step you will do partitioning of your device. Be careful, this is the most important part of the installation. In this you will allocate spaces to your drive. If you want to create a new drive, simply click on a drive and then click “NEW” . A new drive will be created.



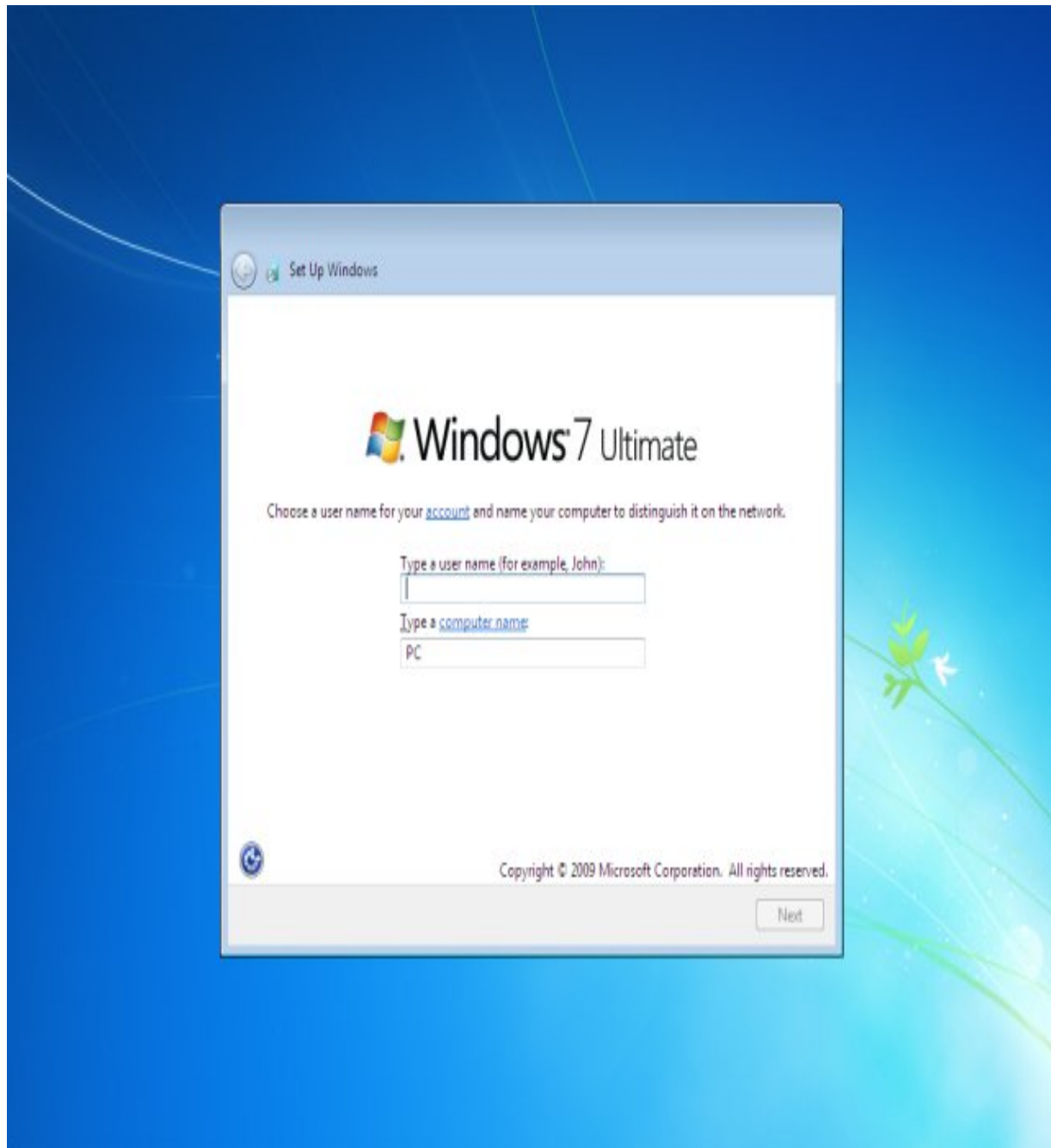
Step5: When you have created the drives, simply select the drive in which you want to install windows. Click ‘Format ‘, this will erase all the Previous data on that drive. Click on ‘NEXT’ to proceed.



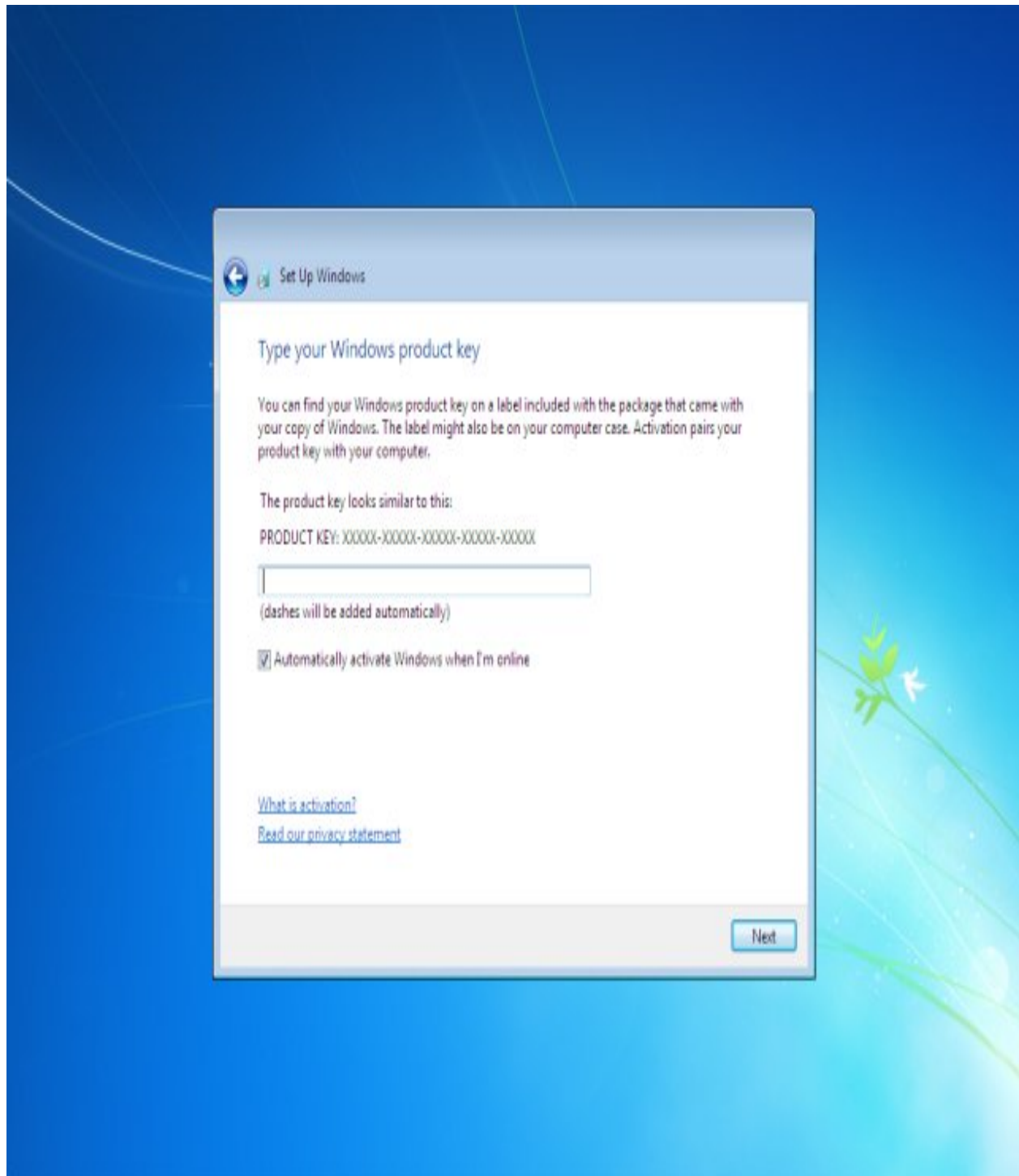
Step6 : Now windows will start installing its files. During this process don't plug in or off your device. It might cause interruption and you might cause loose your data and have to begin the process all over again.



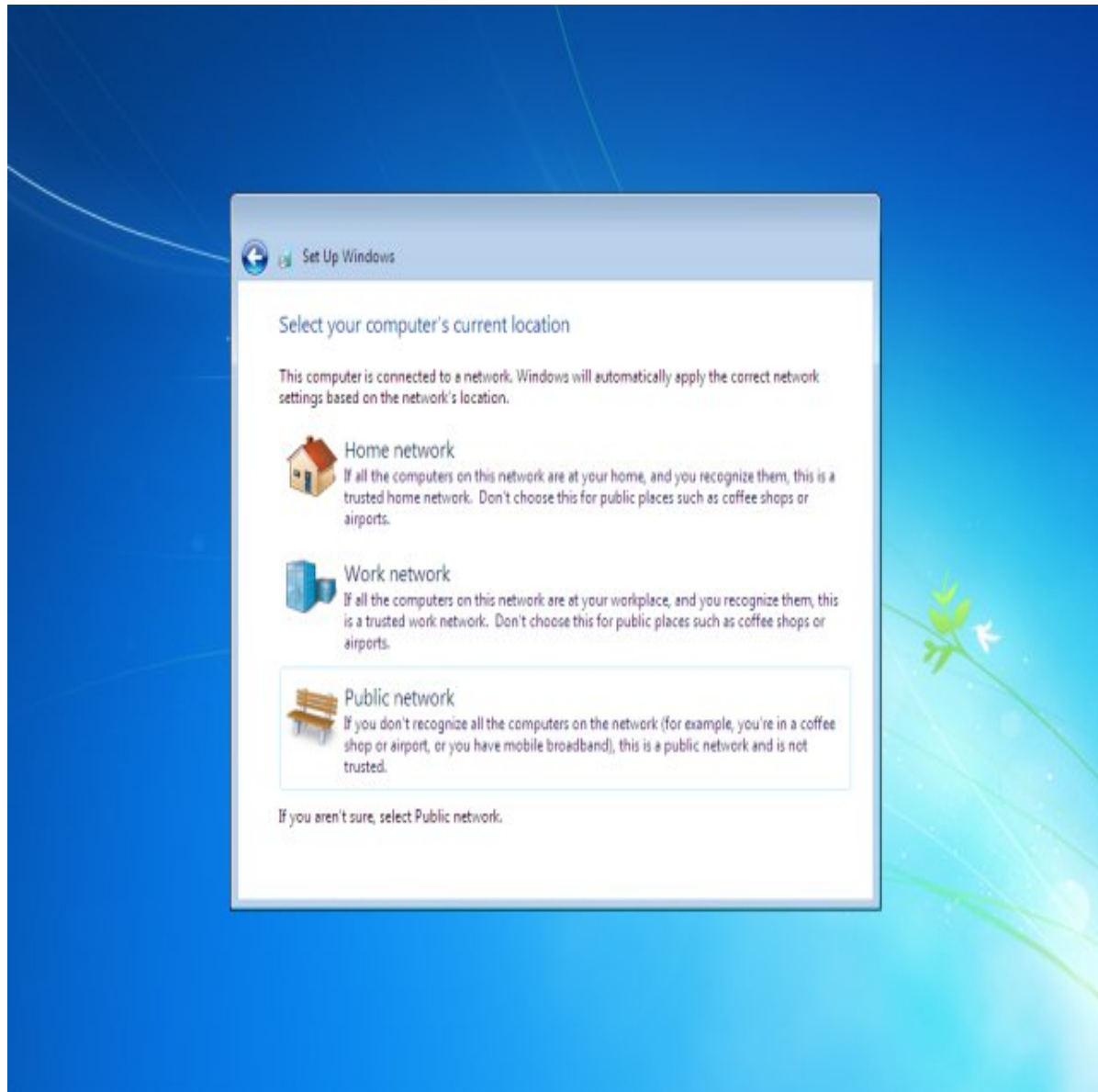
Step7 : Now when your files are installed . Your pc will be rebooted and now you will see a ‘User settings’ screen. Simply add your name and password and proceed to ‘NEXT’.



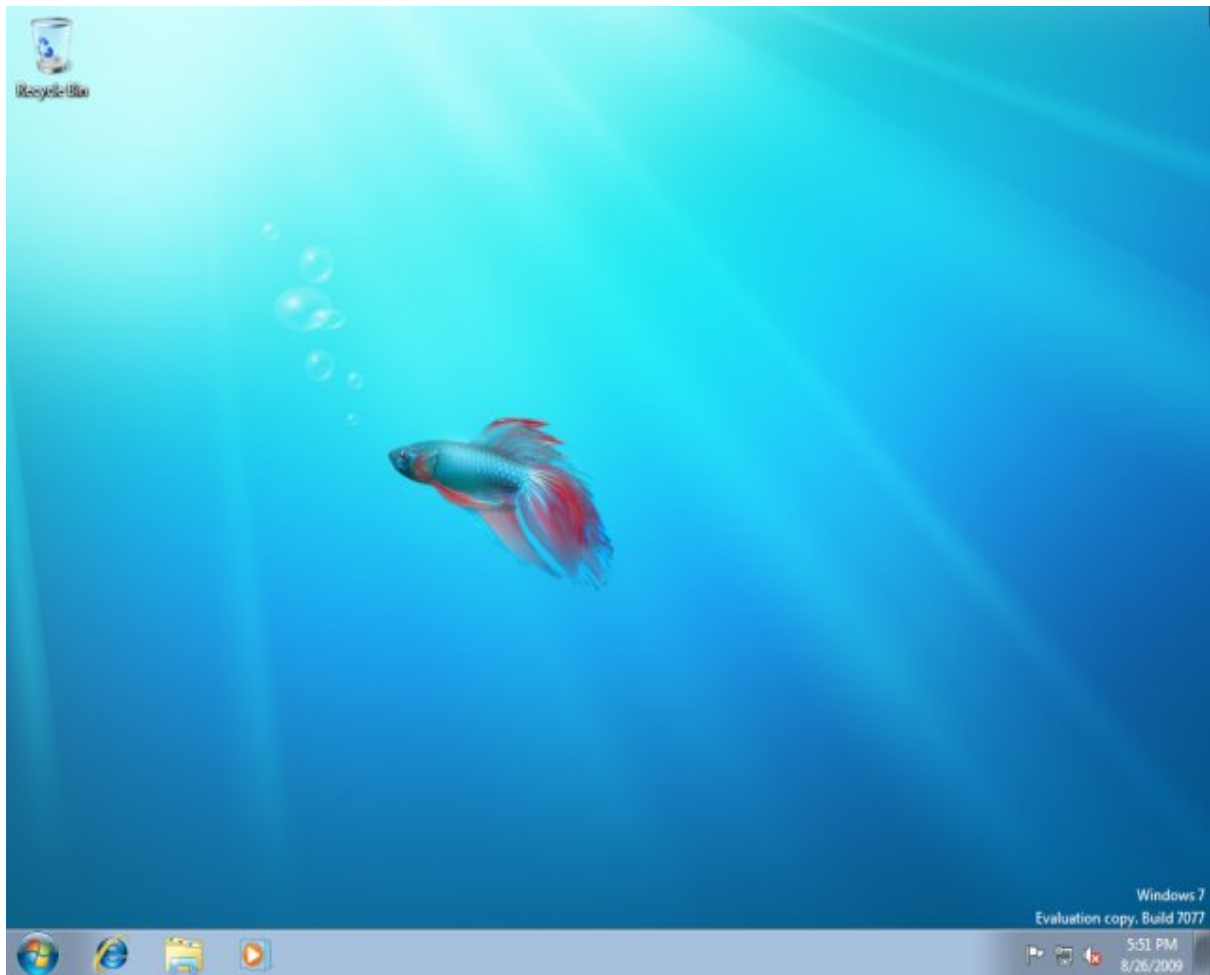
Step8 : In this step you have to activate your windows. Simply look at the back of your windows CD/DVD cover there will be a PRODUCT KEY. Add this key into your PC and click ‘NEXT’.



Step9 : Now you have Installed your windows. Give the desired information the windows step guide will ask, like time zone , Update timing and your computers location. There are three types of location. 'WORK ' , 'PUBLIC' , 'HOME' . Select on anyone of them according to your location. If only add sharing security according to your location.



Last step : congratulations :- You have installed your windows. Now you can see is your desktop. It is simple to use, Setup your desktop and enjoy !!!!



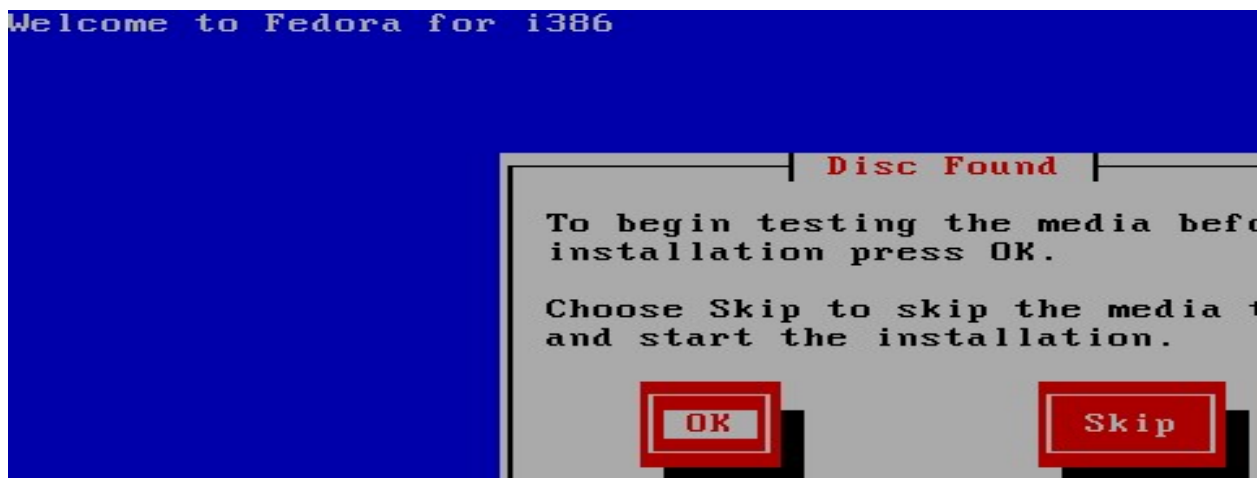
Installation of Fedora 13:

Step-11: Configure BIOS setup to boot from DVD drive. Inset Fedora 13 installation DVD disc and boot your system, and wait for Fedora Installation menu screen as show on figure below appear...



Action: Use up and down keyboard key to choose the selection from the installation menu. Please note that this step by step Fedora 13 installation use the **Install a new system or upgrade an existing system** from the installation menu to install Fedora 13... then and hit 'Enter' key to proceed with the installation process.

Step-2:Then the Fedora 13 installation screen prompt you with the option to check Fedora installation media (Fedora disc) - **test installation media**.

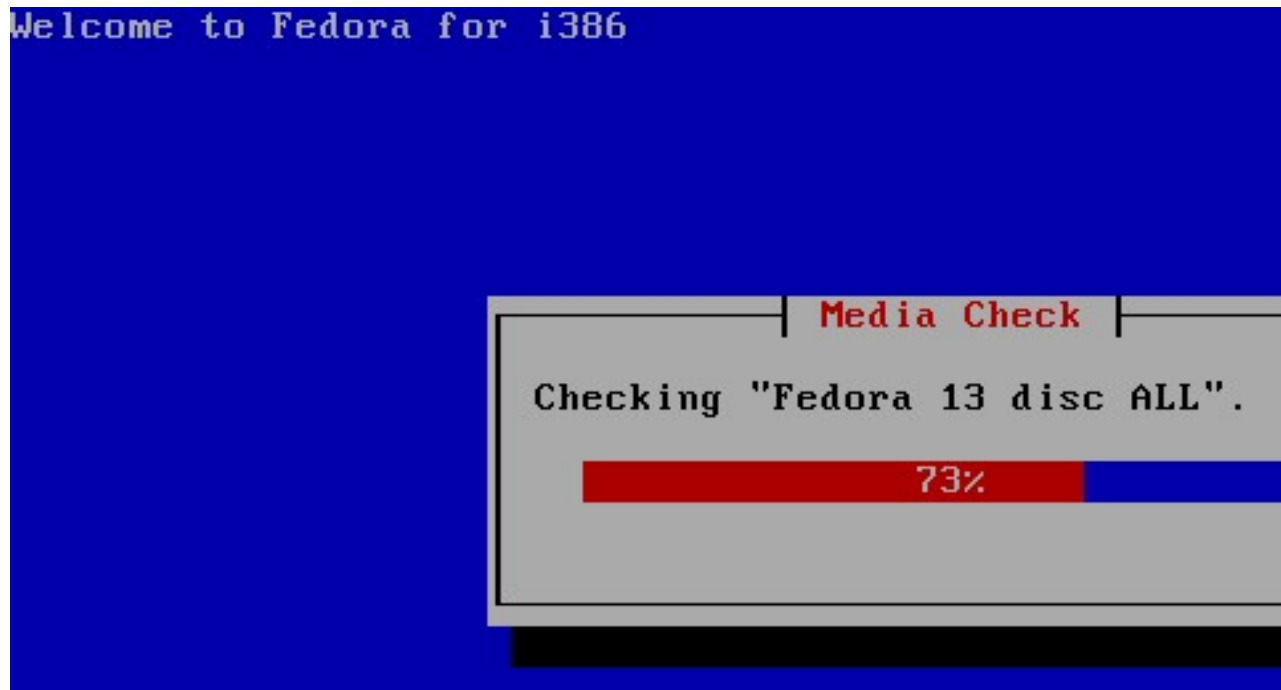


Step-3: Installation Disc Test

Then hit Enter key on Test button to start **Fedora 13 installation disc test**, this installation disc test only test the Fedora 13 installation DVD-ROMs Now hit the **Enter** key on **Test** button to start test the Fedora 13 installation disc.



Check Installation Disc Screenshot



Installation disc OK to Install

The screen below show the result of Fedora 13 disc checking from Media Check. The screen below show that our Fedora 13 installation disc successfully tested by Media

Installation disc OK to Install Screenshot



Step-4 Anaconda Installer:

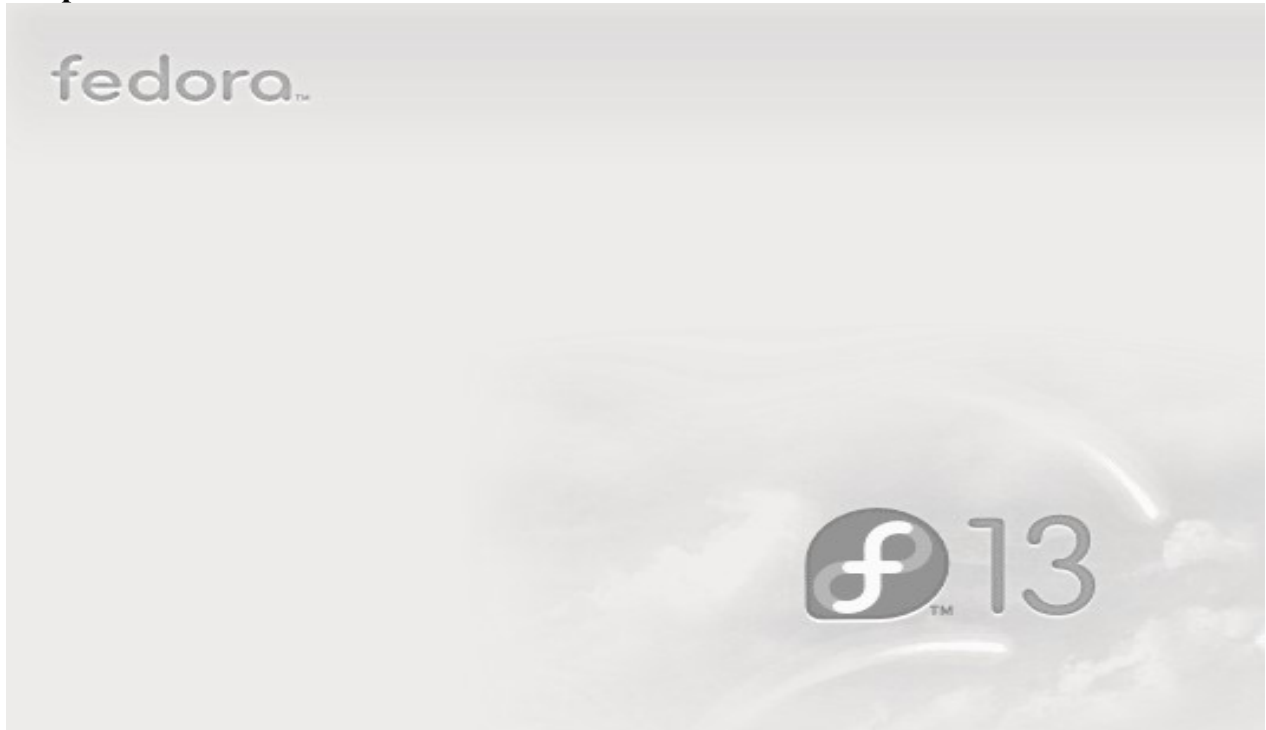
Then the installation proceed with the initialization of Anaconda the Fedora system installer. Just wait for Anaconda to initialize and give you the Fedora 13 graphical system installer.



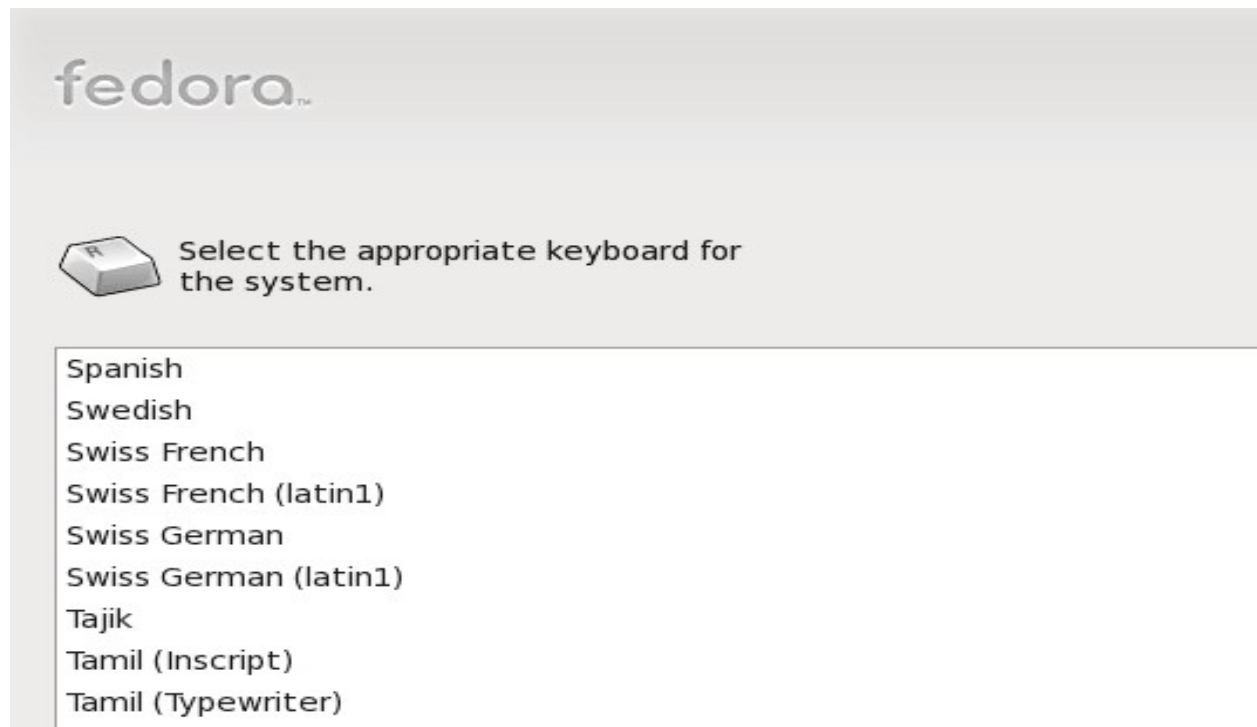
Graphical Installation

Fedora 13 graphical installation screen, this is the start of Fedora 13 graphical installation setup. Start from this screen and onward, you can use mouse to click on screen button. Please note that you need to do nothing here... just click 'Next' button to proceed with the installation process

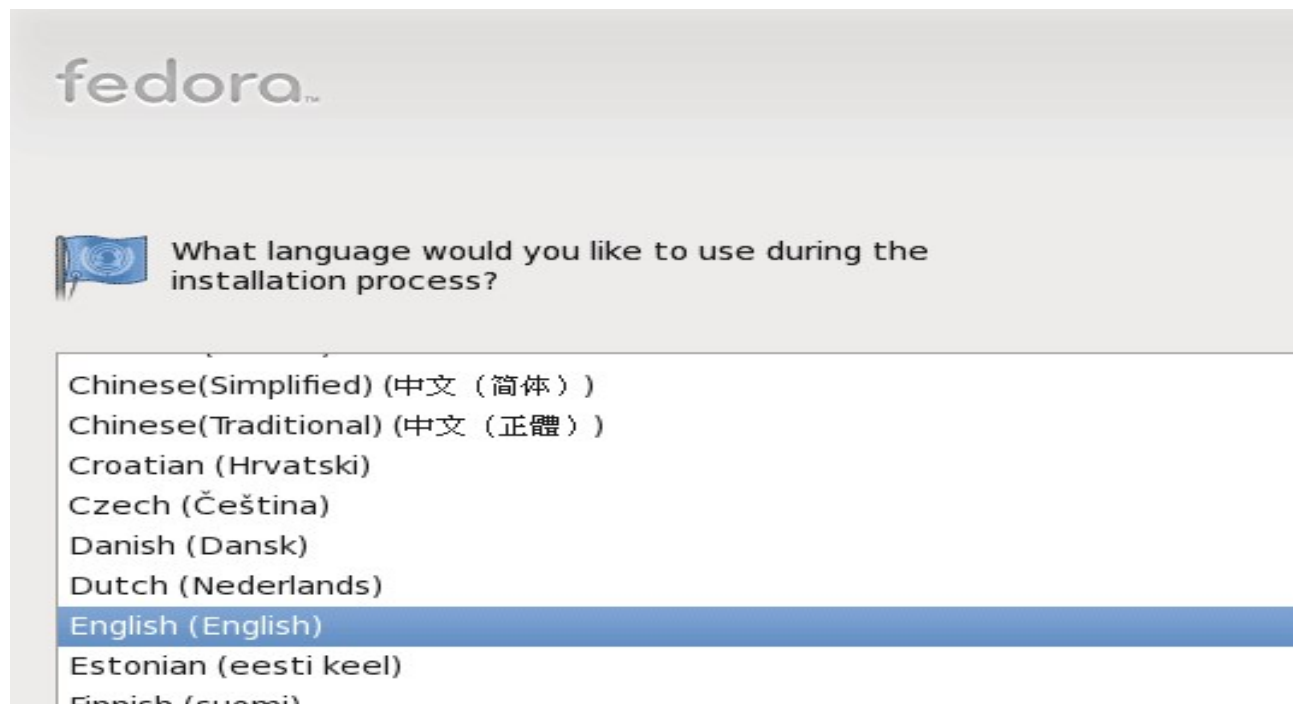
Graphical Installation Screenshot



Step-5: Choose Appropriate Keyboard Layout Setting



Step-6: Select appropriate Language



Step-7: Select type of Storage Device




What type of devices will your installation involve?


☒ **Basic Storage Devices**
Installs or upgrades to typical types of storage devices. If you're not sure which option is right for you, this is probably it.

☐ **Specialized Storage Devices**
Installs or upgrades to devices such as Storage Area Networks (SANs) or mainframe devices (DASD), usually in an enterprise environment

Step-8: Change Hostname

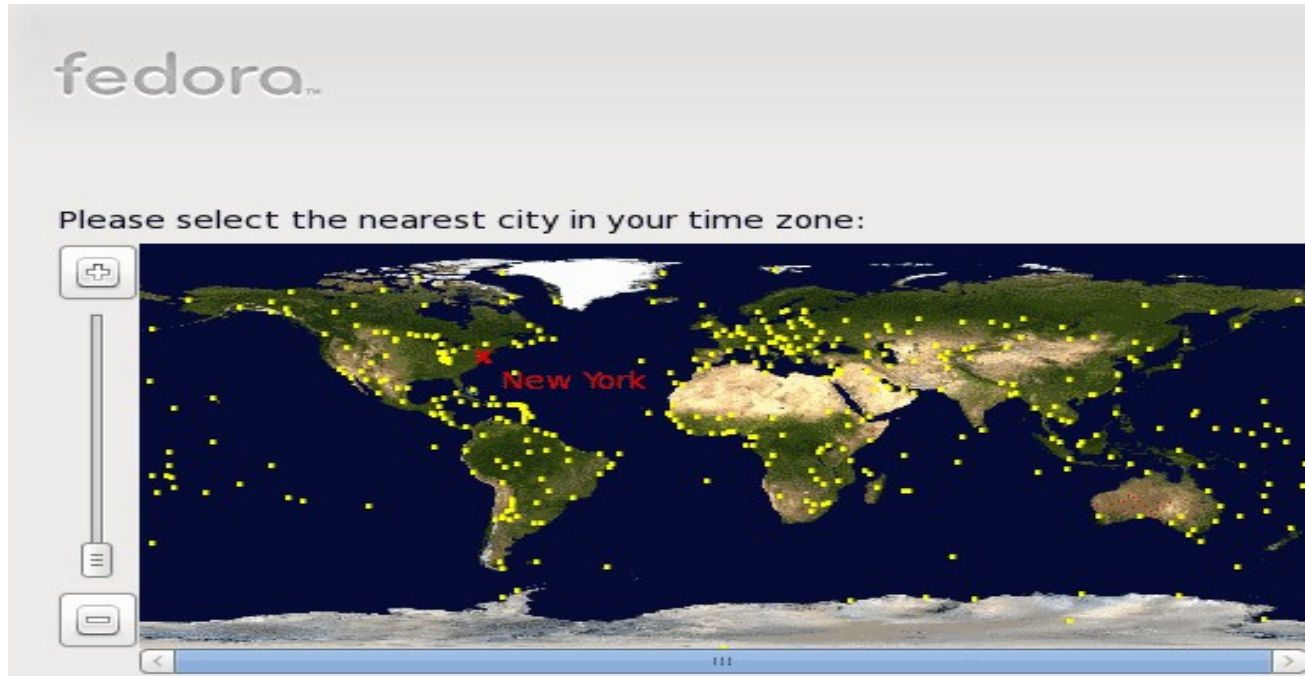
The default hostname that display on the hostname box is "**localhost.localdomain**"... you can change the Fedora 13 hostname by type in new hostname on the hostname box. .



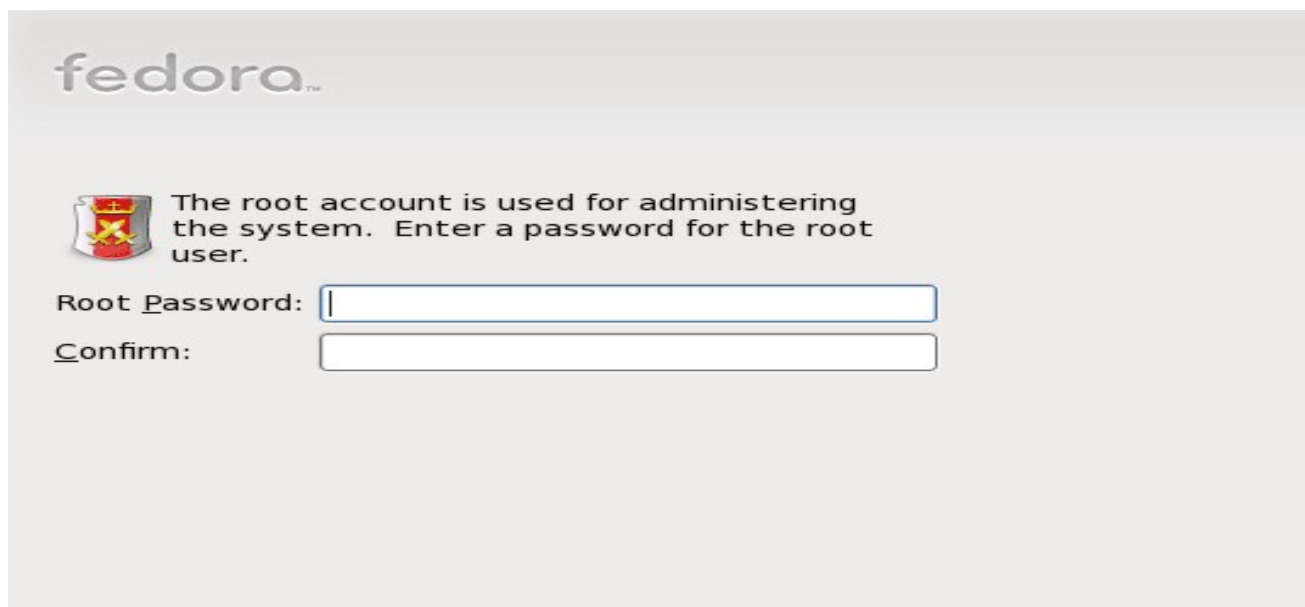
 Please name this computer. The hostname identifies the computer on a network.

Hostname:

Step-9 : select Time Zone




Step-9 : Set Root Password

The image shows the Fedora installer's root password setup screen. At the top left is the 'fedora' logo. Below it, there is a red shield icon with a yellow cross. To the right of the icon, the text reads: 'The root account is used for administering the system. Enter a password for the root user.' Below this text are two input fields. The first field is labeled 'Root Password:' and the second field is labeled 'Confirm:'. Both fields are empty and have a light blue border.


Step-10: Create Partition

fedora™


Which type of installation would you like?


☐  **Use All Space**
Removes all partitions on the selected device(s). This includes partitions created by previous operating systems.

Tip: This option will remove data from the selected device(s). Make sure you have backed up any data you want to keep.

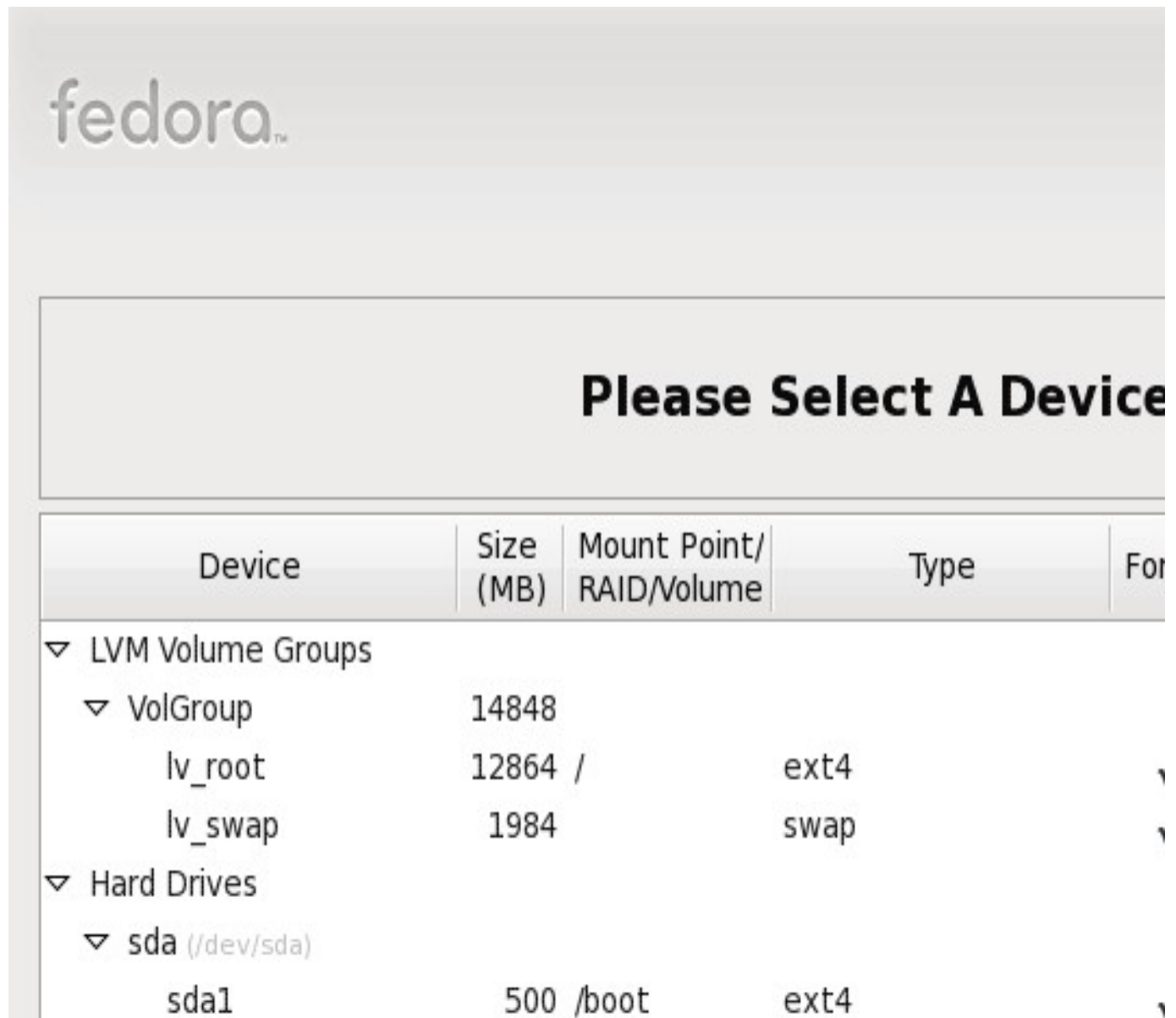
☒  **Replace Existing Linux System(s)**
Removes all Linux partitions on the selected device(s). This does not remove partitions from other operating systems (such as VFAT or FAT32).

Tip: This option will remove data from the selected device(s). Make sure you have backed up any data you want to keep.


☐  **Shrink Current System**
Shrinks existing partitions to create free space for the default layout.


☐  **Use Free Space**
Retains your current data and partitions and uses only the unpartitioned space.

Step-11 : Select Create Custom layout

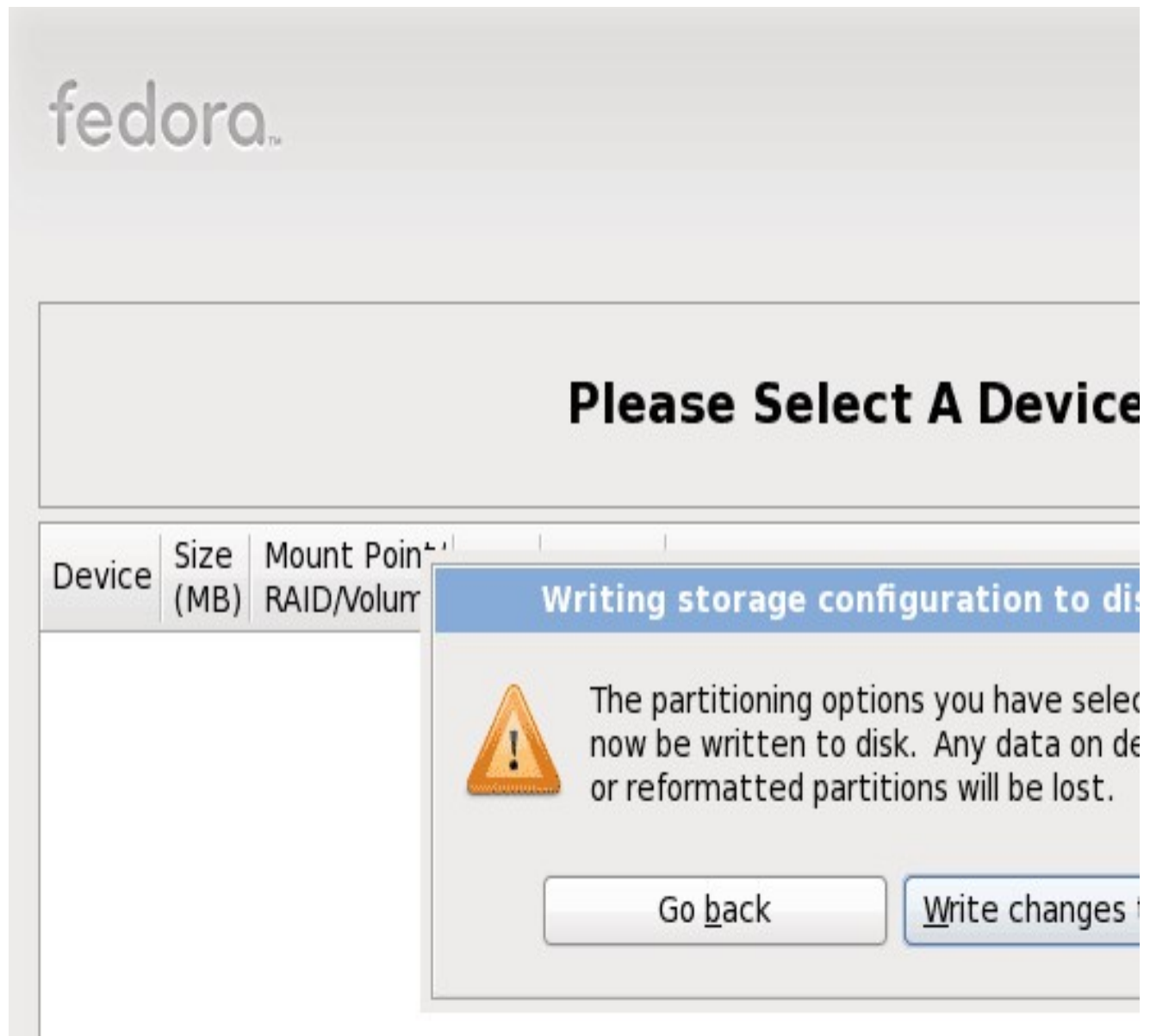


Step-11: Format Partition Warning



	Format Warnings
	<div></div> <div>The following pre-existing devices have been be formatted, destroying all data.</div>
Device	/dev/sda partition table (MSDOS)
▼ LVM Volume Group	
▼ VolGroup	
lv_root	
lv_swap	
▼ Hard Drives	
▼ sda (/dev/sda)	
sda1	

Step-12: Write Partition to Hard Disk



Formatting Filesystem

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Please Select A Device

Device	Size (MB)	Mount Point/ RAID/Volume	Type	Format
<div>Creating ext4 filesystem on /dev/sda1</div> <div></div>				

Step-13:Boot Loader Installation

fedora™


☒ Install boot loader on /dev/sda. [Change device](#)

☐ Use a boot loader password [Change password](#)

Boot loader operating system list

Default	Label	Device
<input checked="" type="radio"/>	Fedora	/dev/mapper/VolGroup-lv_root

Step-14: starts Installation Repo



☒ Install boot loader on /dev/sda. [Change device](#)

☐ Use a boot loader password [Change password](#)

Boot loader operating system list

Default	Label	Device
<input checked="" type="radio"/>	Fedora	/dev/m

Retrieving installation information for Installatio

Step- 15:Software Installation

fedora™

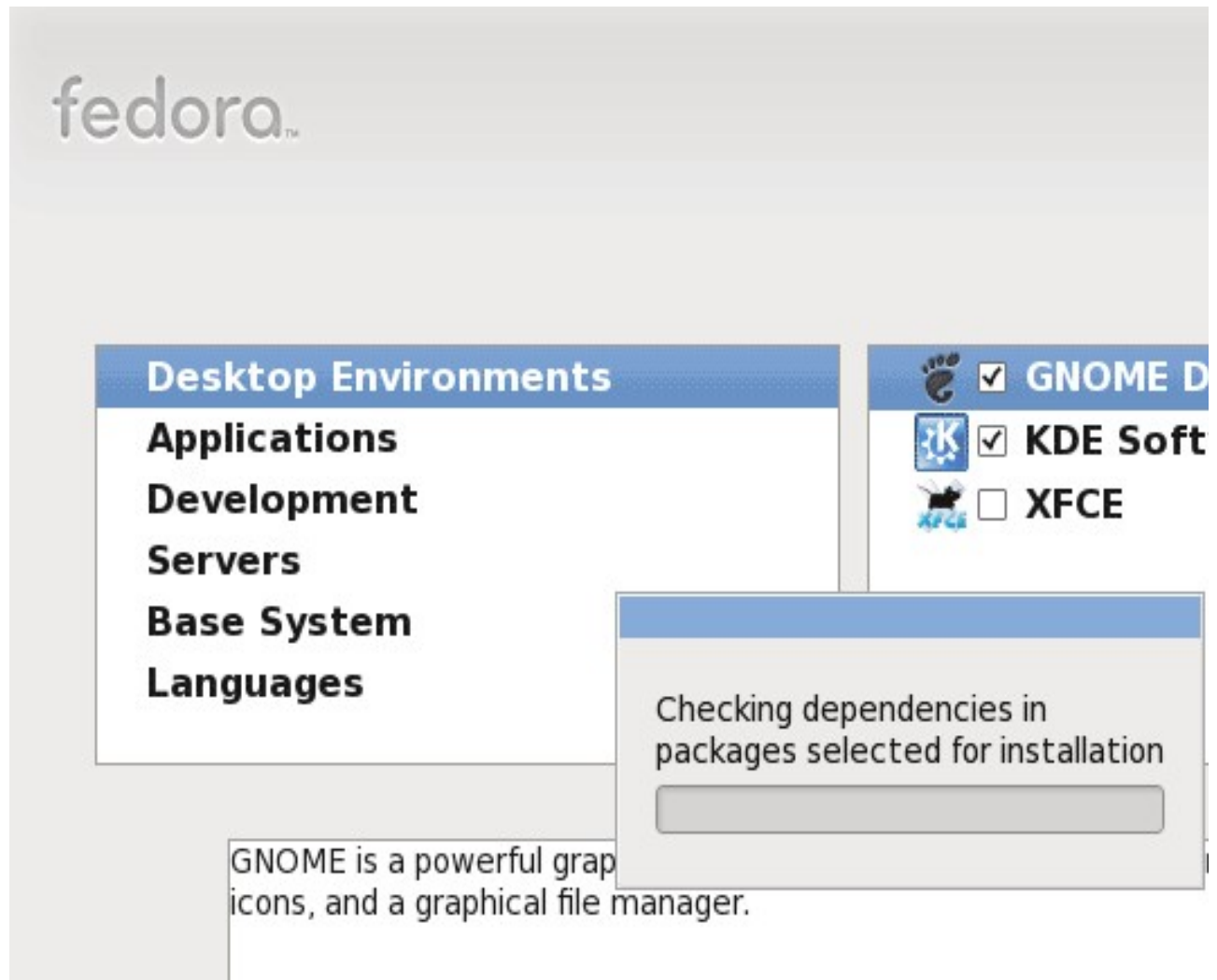
The default installation of Fedora includes a set of software applicable for general internet usage. You can optionally select a different set of software now.

- ☒ Graphical Desktop
- ☐ Software Development
- ☐ Web Server
- ☐ Minimal

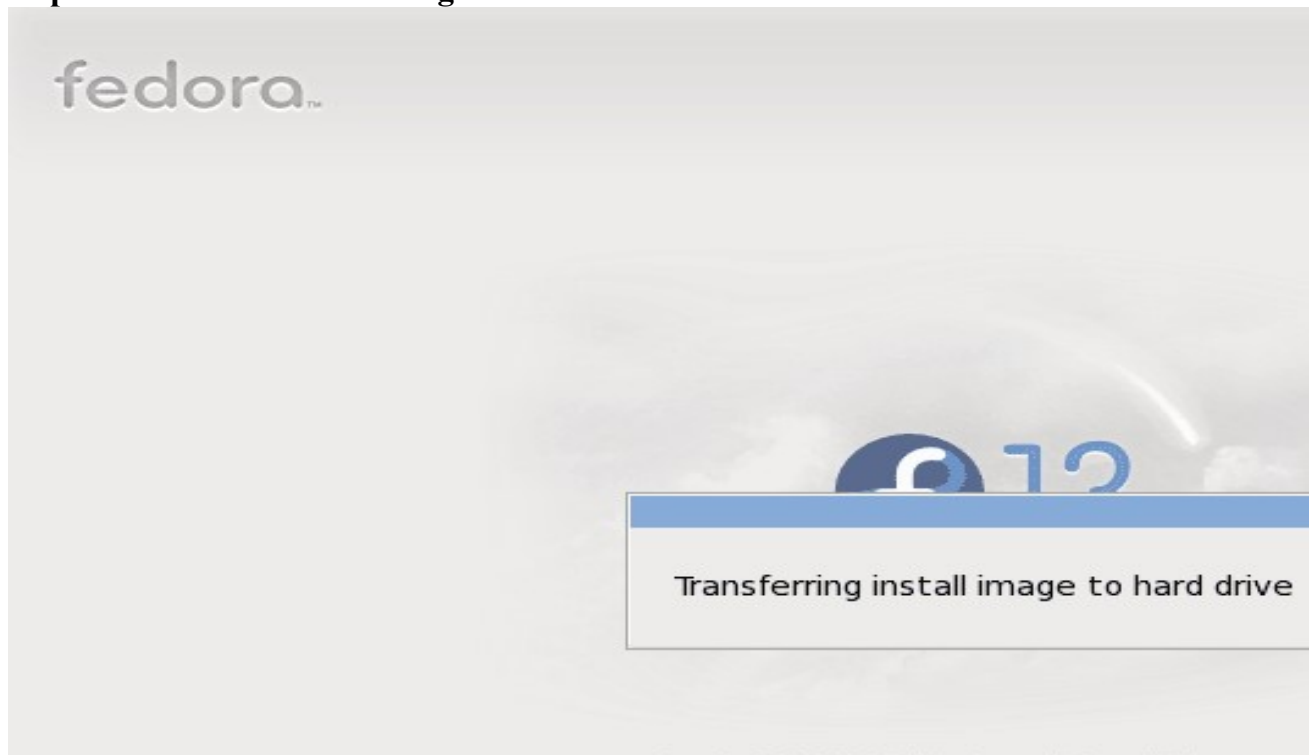
Please select any additional repositories that you want to use for software

- ☒ Installation Repo
- ☐ Fedora 13 - i386
- ☐ Fedora 13 - i386 - Test Updates
- ☐ Fedora 13 - i386 - Updates

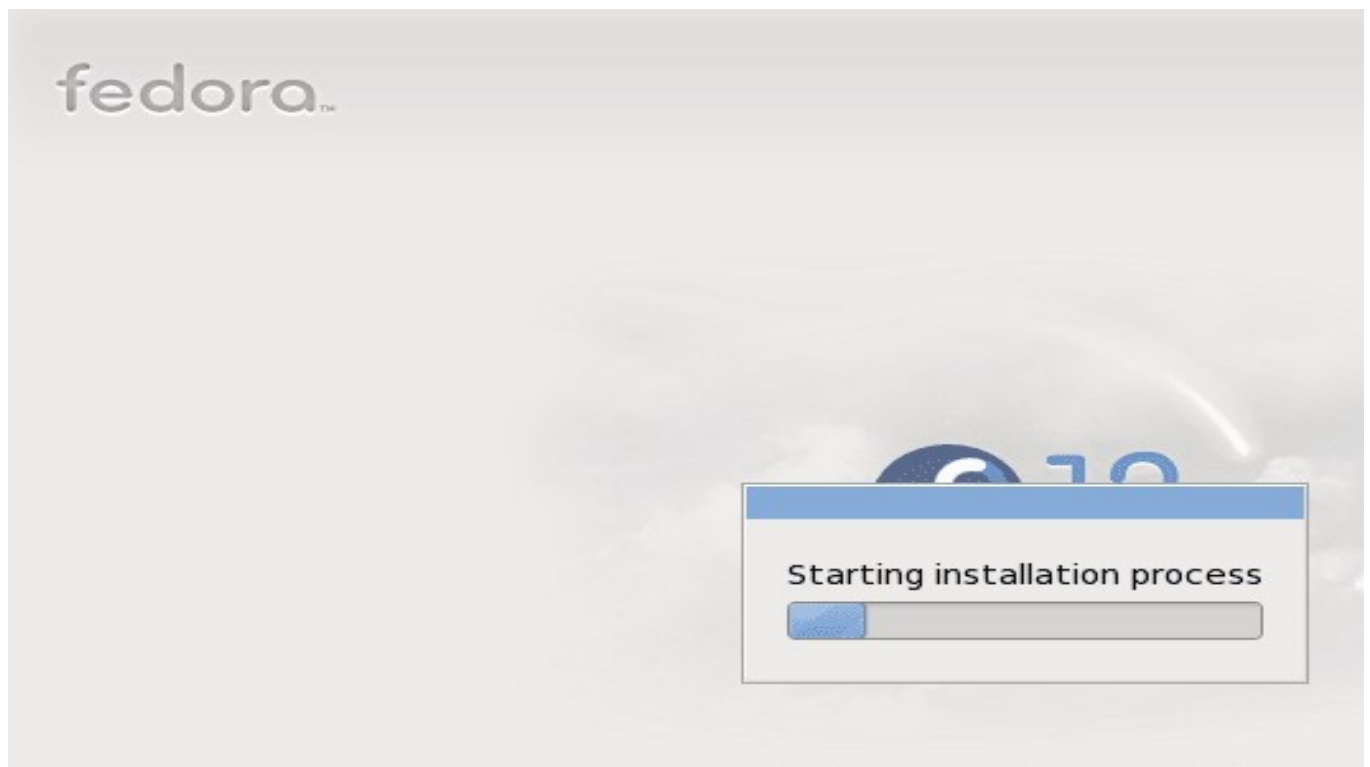
Step-16: Starts checking for Software Dependencies



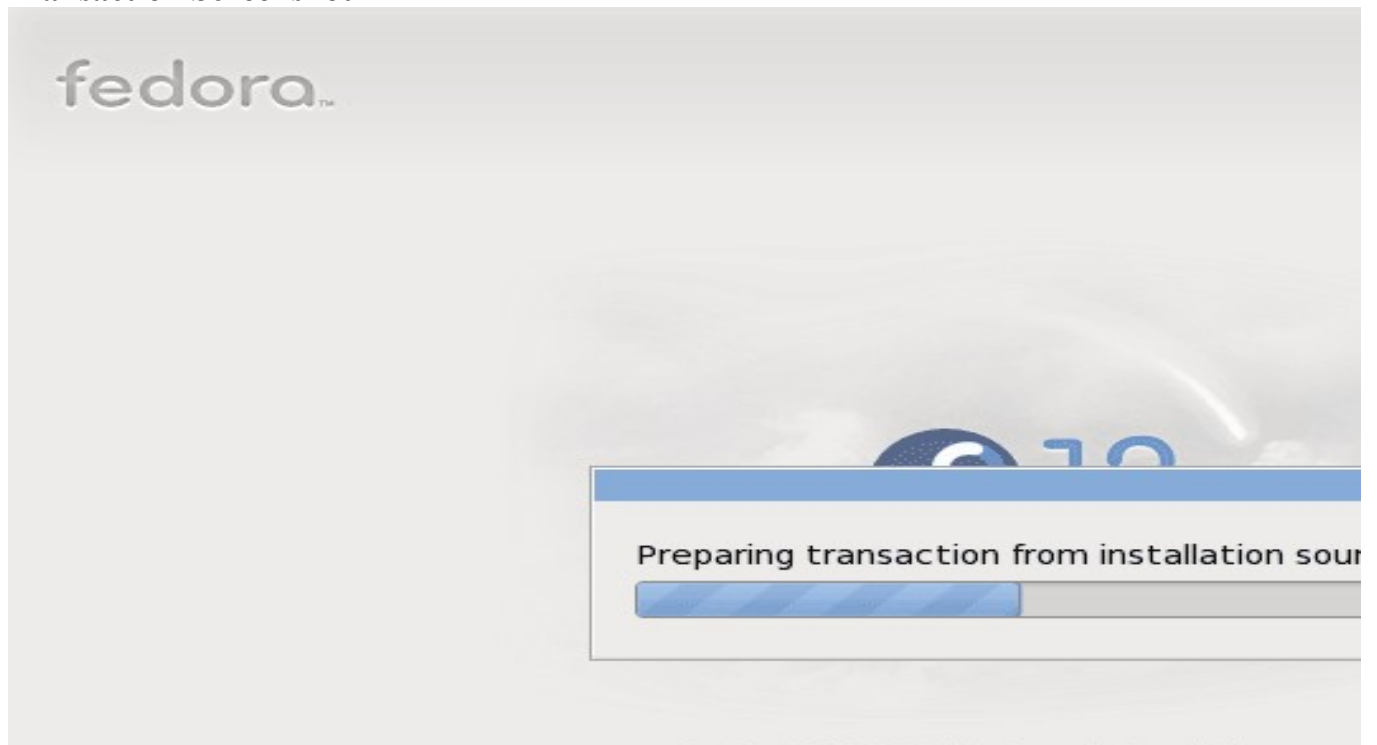
Step-17: Transfer Install Image Screenshot



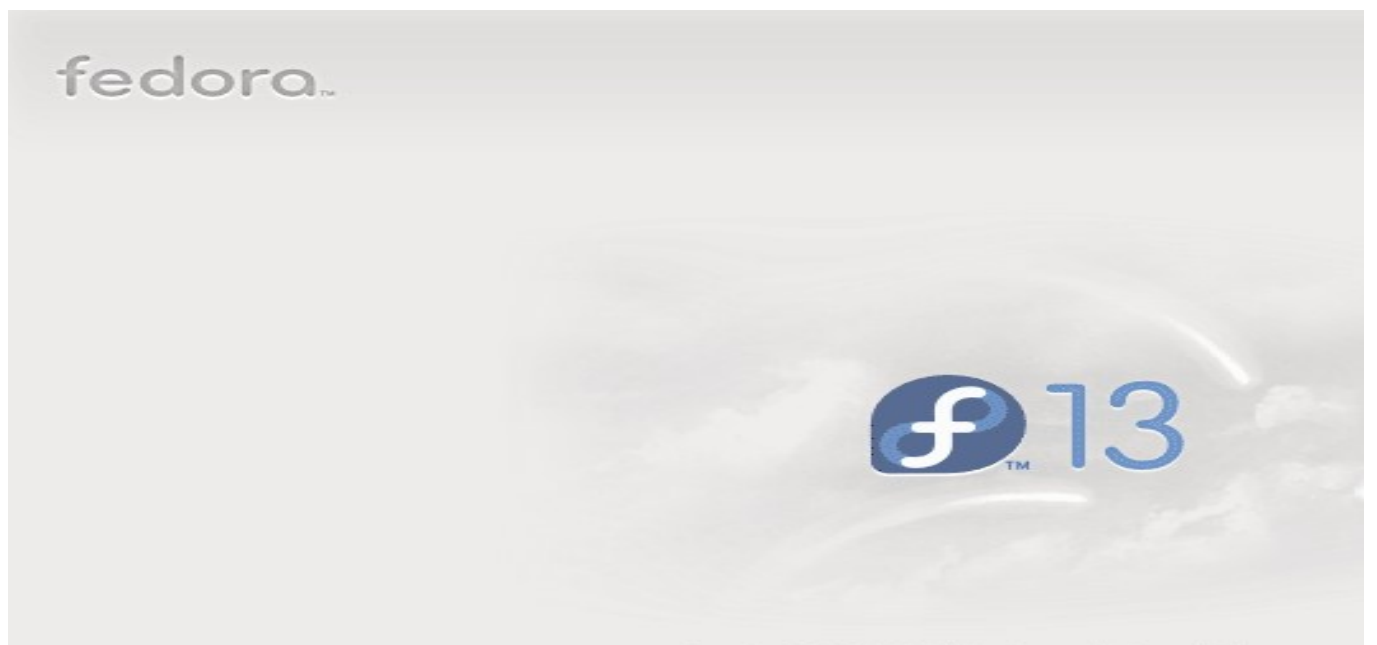
Starts Installation Process



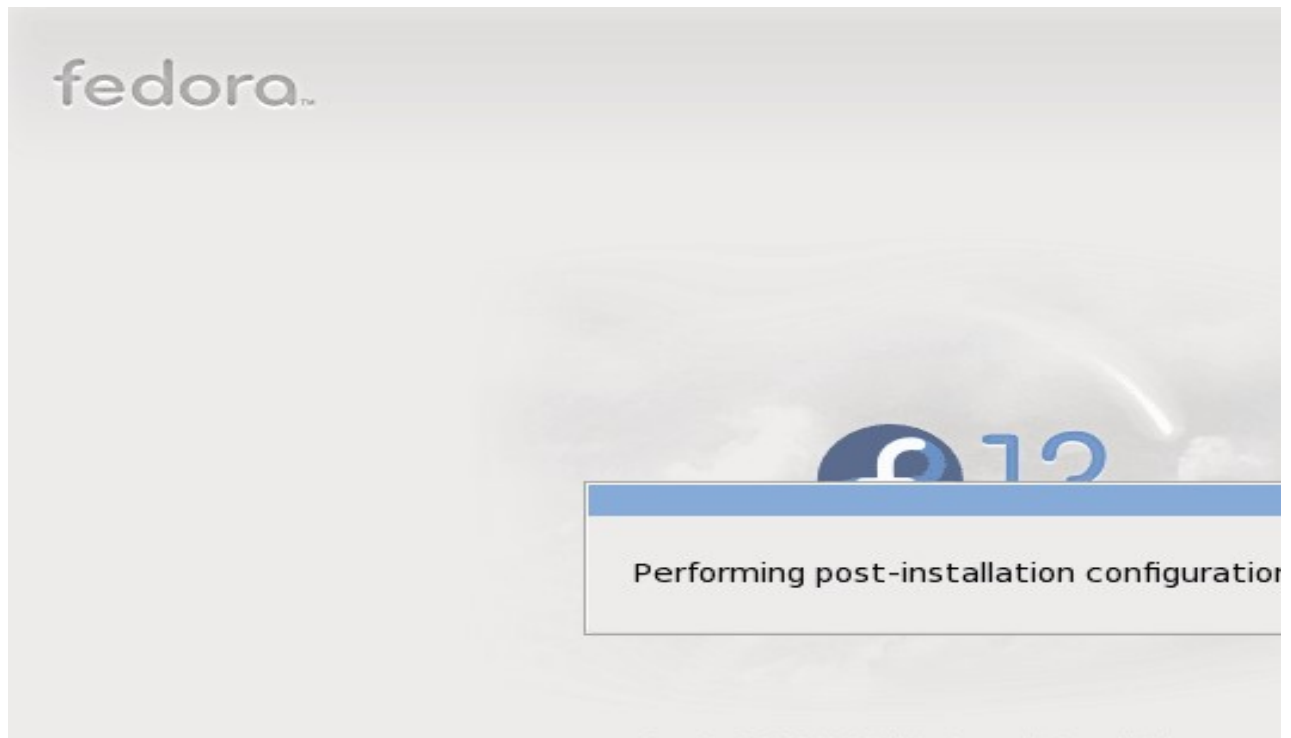
Transaction Screenshot



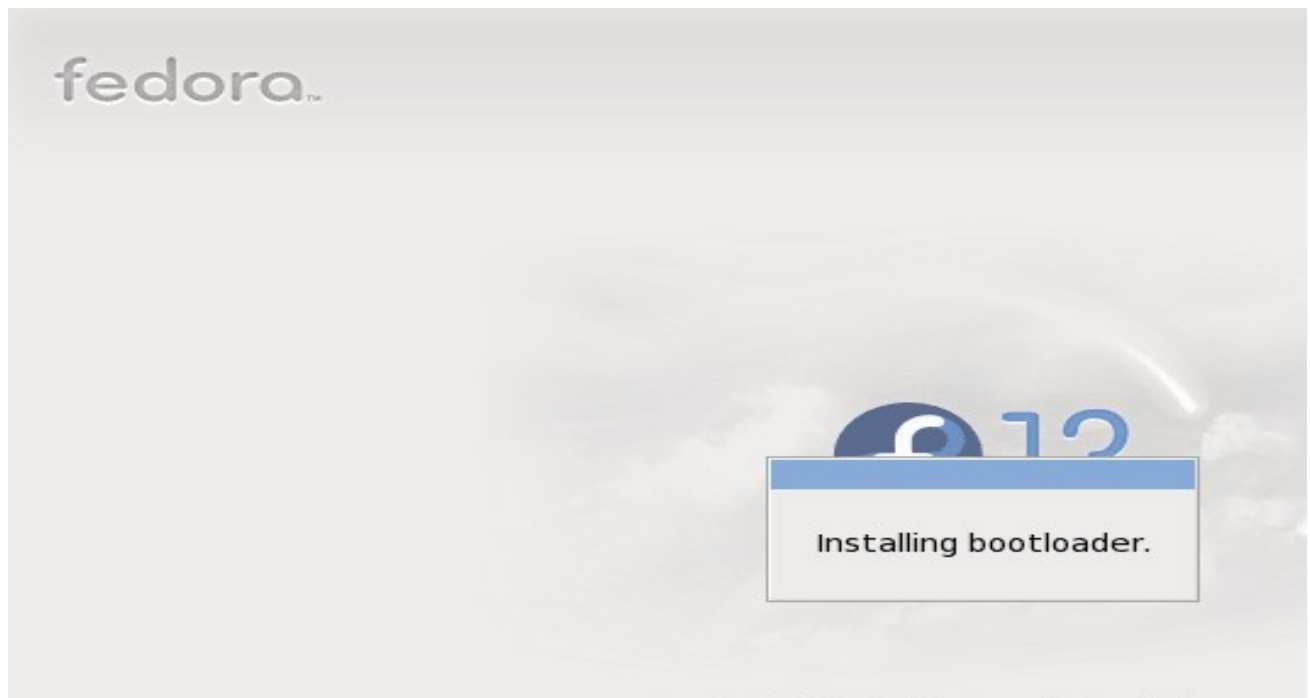
Installing Software Packages



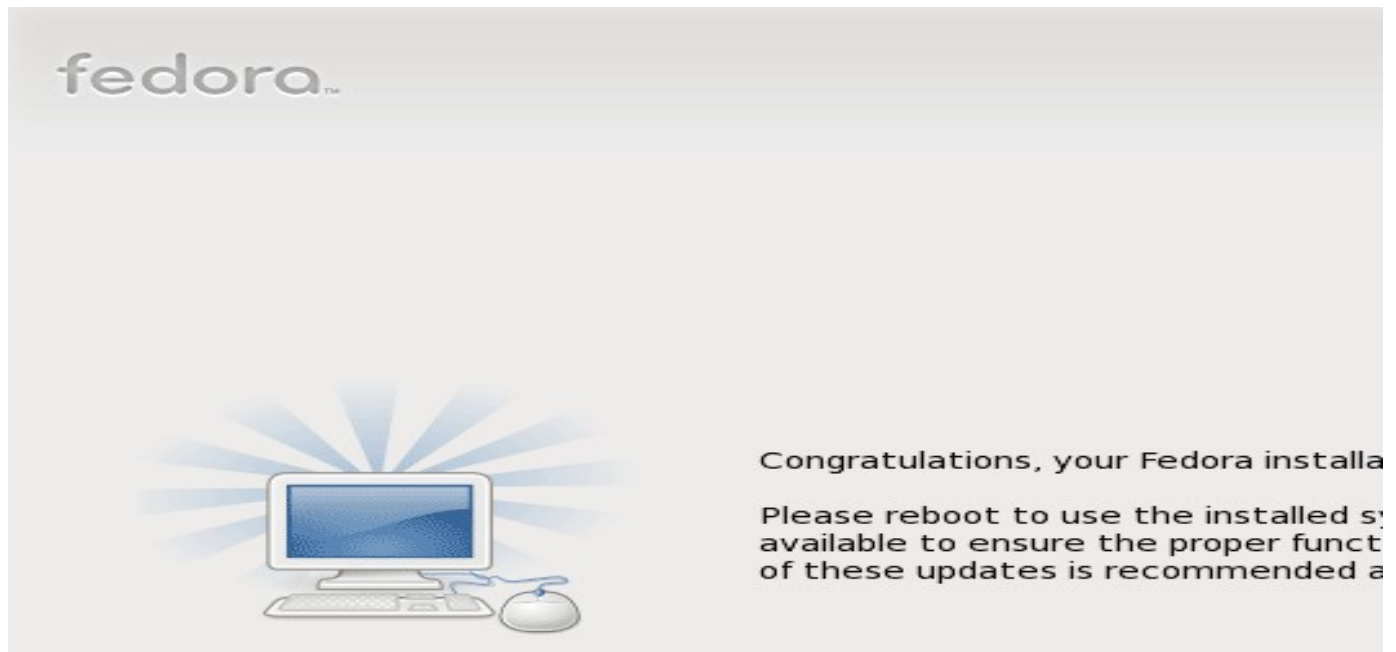
Post Installation



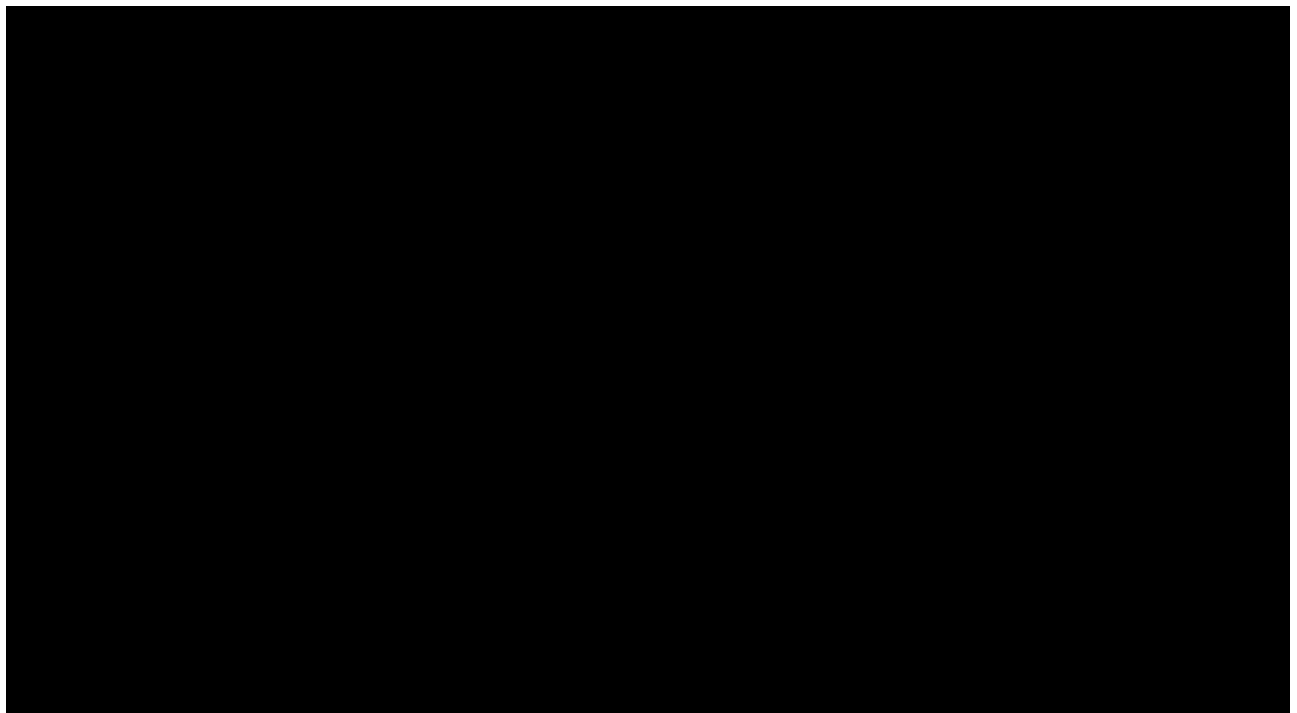
Installing Bootloader



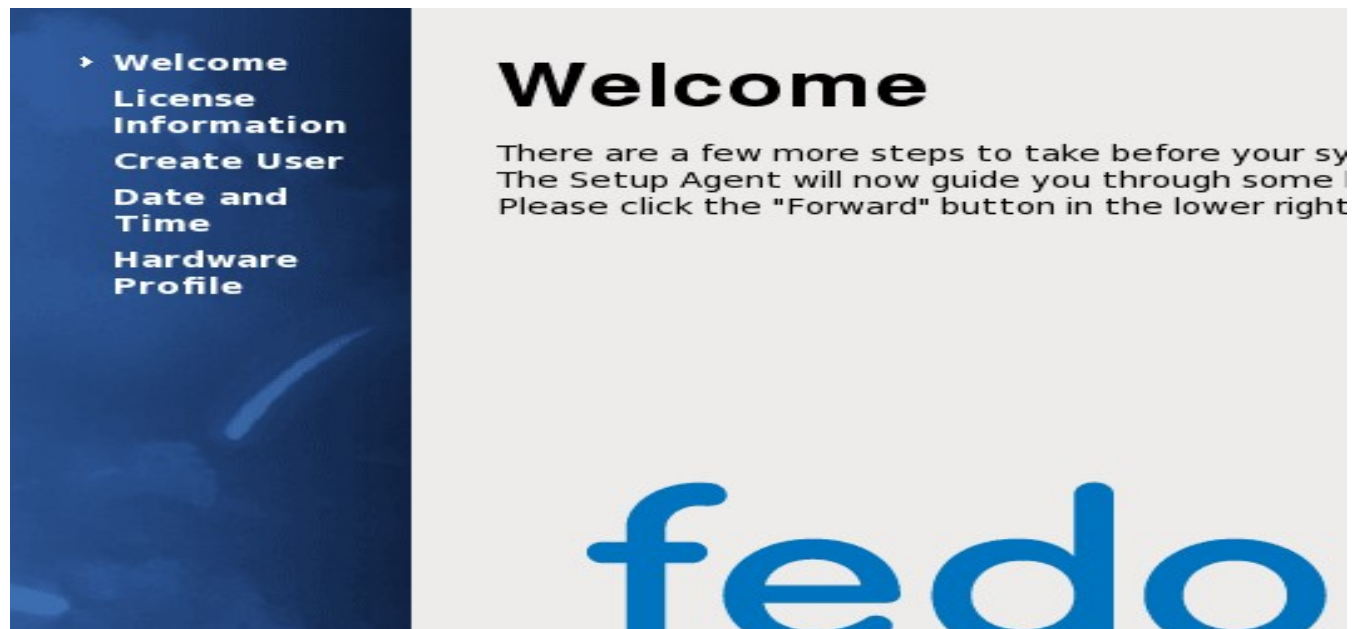
Step-18: Installation Complete



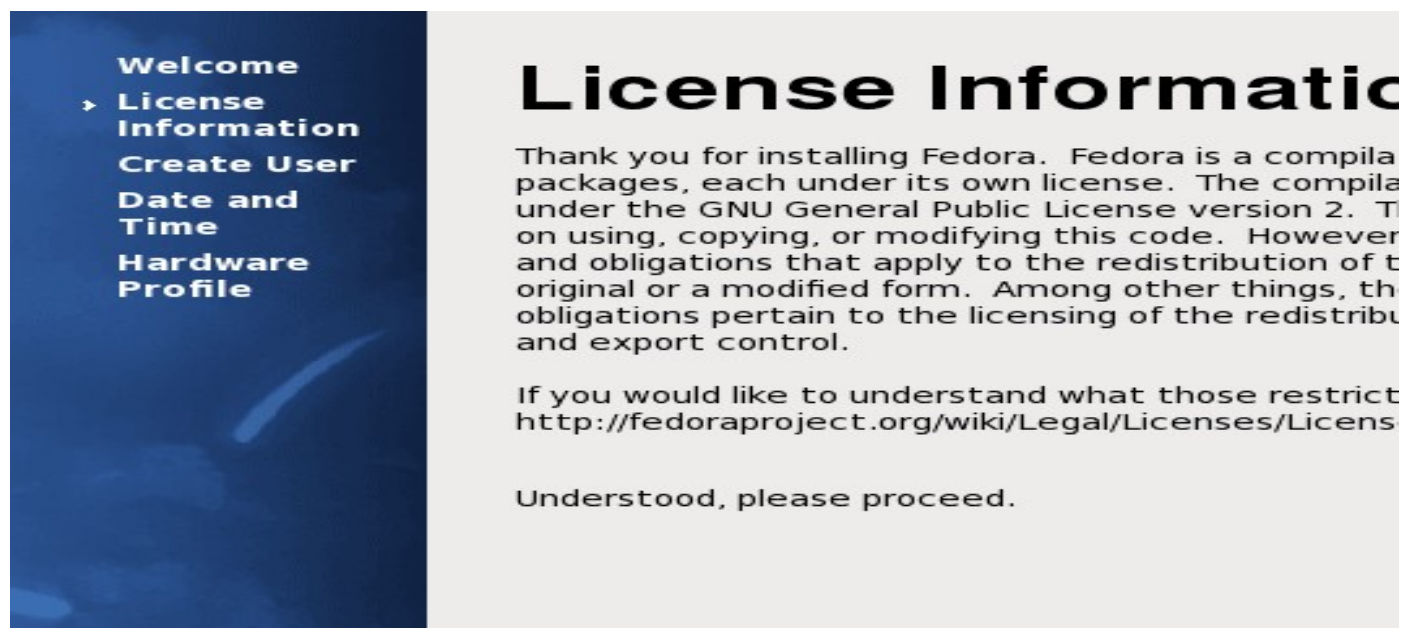
BootUp



Firstboot Configuration



License Information



Step-19: Create User

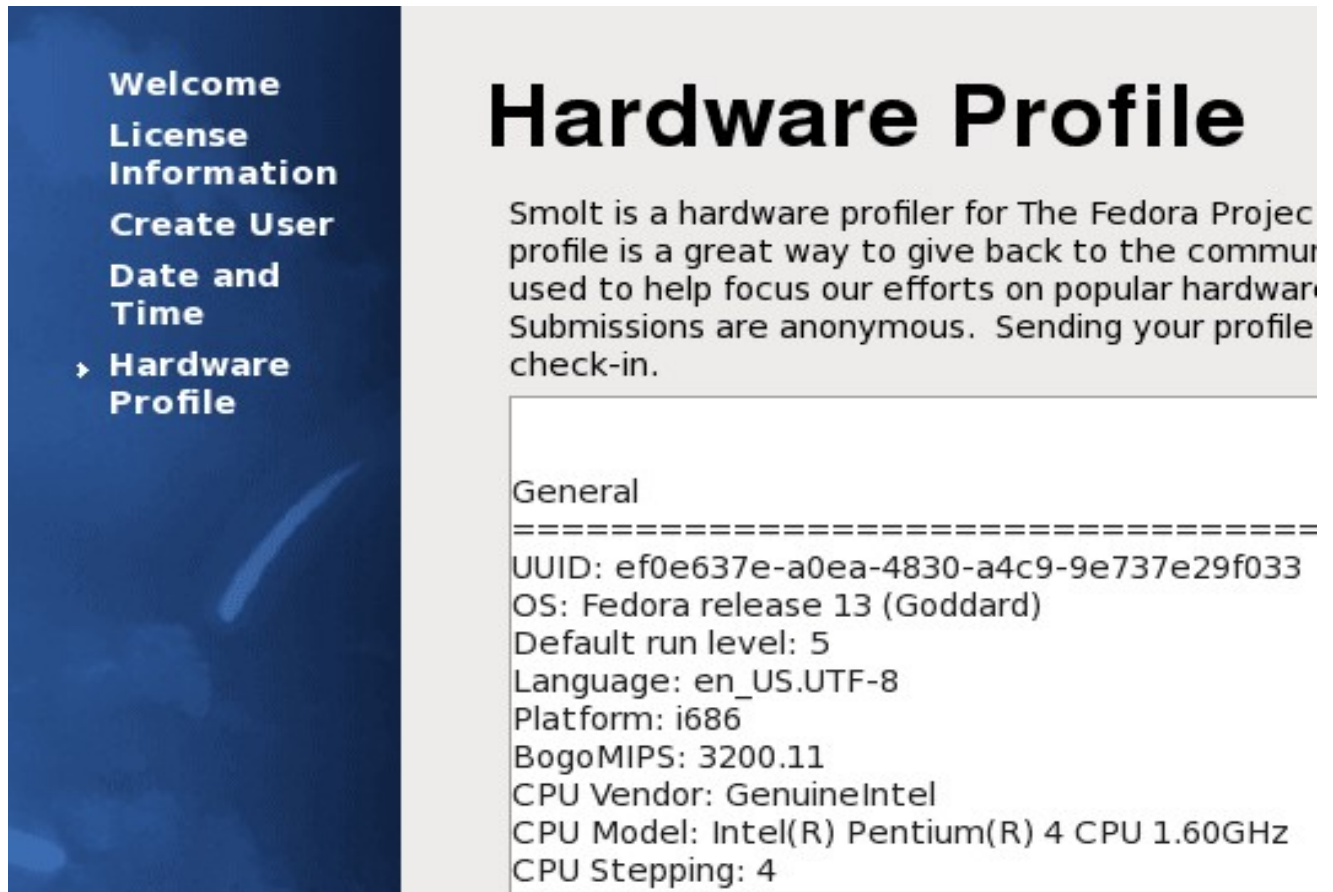
Step-20: Set Date and Time

Date

< October >							< 2010 >
Sun	Mon	Tue	Wed	Thu	Fri	Sat	
26	27	28	29	30	1	2	
3	4	5	6	7	8	9	
10	11	12	13	14	15	16	

Time

Step-21: Displays Hardware Profile



The screenshot shows the 'Hardware Profile' window. On the left is a dark blue sidebar with a list of options: 'Welcome', 'License Information', 'Create User', 'Date and Time', and 'Hardware Profile' (which is highlighted with a white arrow). The main area has a light gray background with the title 'Hardware Profile' in large black font. Below the title is a paragraph of text explaining that Smolt is a hardware profiler for The Fedora Project and that submitting a profile is a way to give back to the community. Below this text is a box containing the 'General' profile information, which is separated from the title by a line of equals signs. The profile information includes: UUID, OS version, default run level, language, platform, Bogomips, CPU vendor, CPU model, and CPU stepping.

Welcome
License Information
Create User
Date and Time
➤ **Hardware Profile**

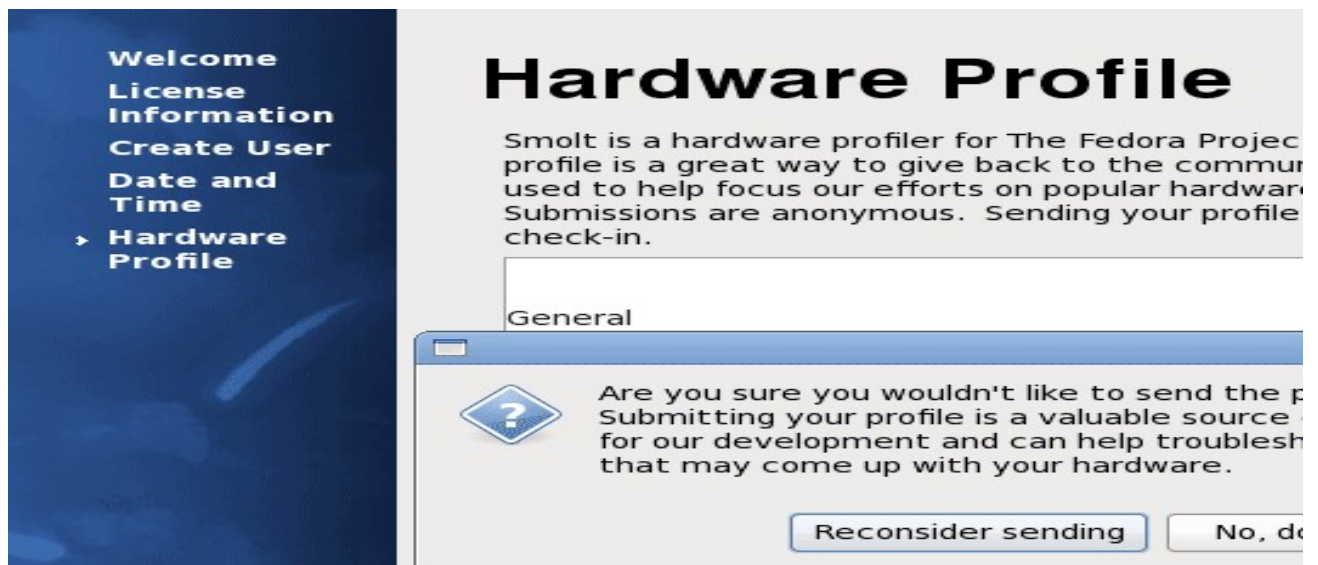
Hardware Profile

Smolt is a hardware profiler for The Fedora Project. Submitting your hardware profile is a great way to give back to the community. Your profile is used to help focus our efforts on popular hardware. Submissions are anonymous. Sending your profile check-in.

General
=====

UUID: ef0e637e-a0ea-4830-a4c9-9e737e29f033
OS: Fedora release 13 (Goddard)
Default run level: 5
Language: en_US.UTF-8
Platform: i686
BogoMIPS: 3200.11
CPU Vendor: GenuineIntel
CPU Model: Intel(R) Pentium(R) 4 CPU 1.60GHz
CPU Stepping: 4

Sending Hardware Profile



This screenshot is similar to the previous one, but it includes a confirmation dialog box in the foreground. The dialog box has a blue title bar and a question mark icon. It asks the user if they are sure they want to send their profile, stating that submitting the profile is a valuable source of information for development and can help with troubleshooting. At the bottom of the dialog are two buttons: 'Reconsider sending' and 'No, do not send'.

Welcome
License Information
Create User
Date and Time
➤ **Hardware Profile**

Hardware Profile

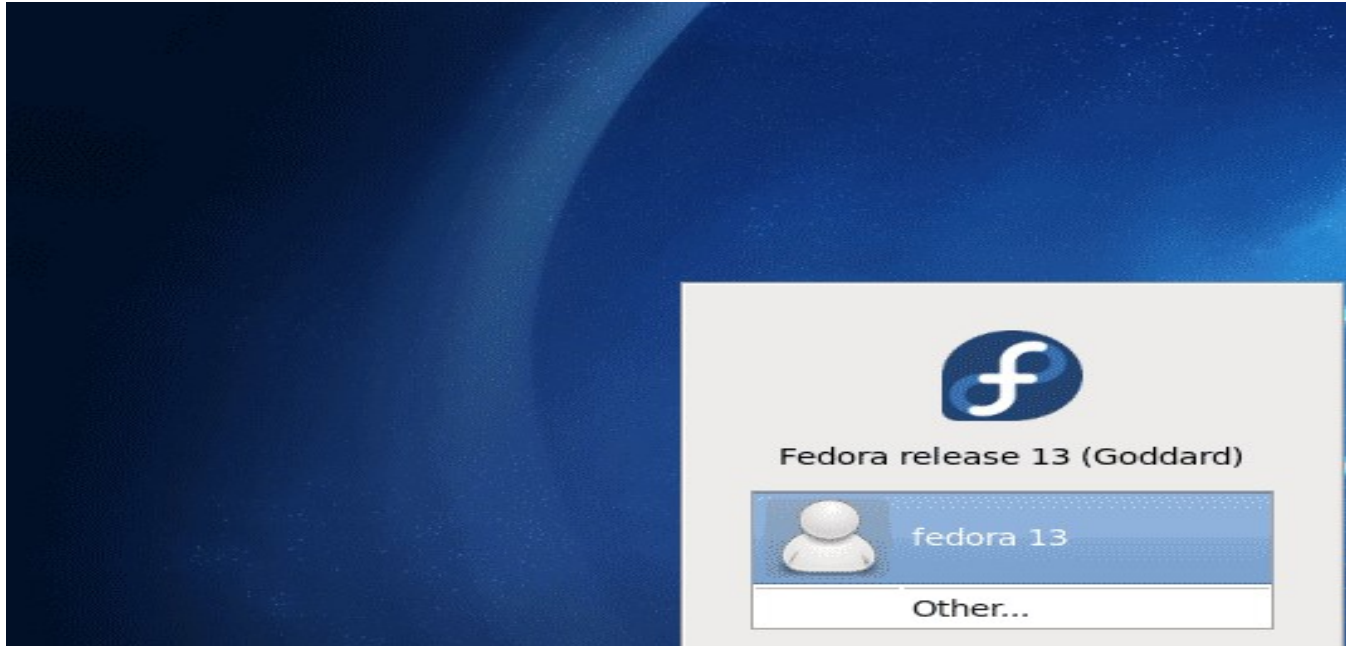
Smolt is a hardware profiler for The Fedora Project. Submitting your hardware profile is a great way to give back to the community. Your profile is used to help focus our efforts on popular hardware. Submissions are anonymous. Sending your profile check-in.

General

Are you sure you wouldn't like to send the profile? Submitting your profile is a valuable source of information for our development and can help troubleshoot issues that may come up with your hardware.

Reconsider sending No, do not send

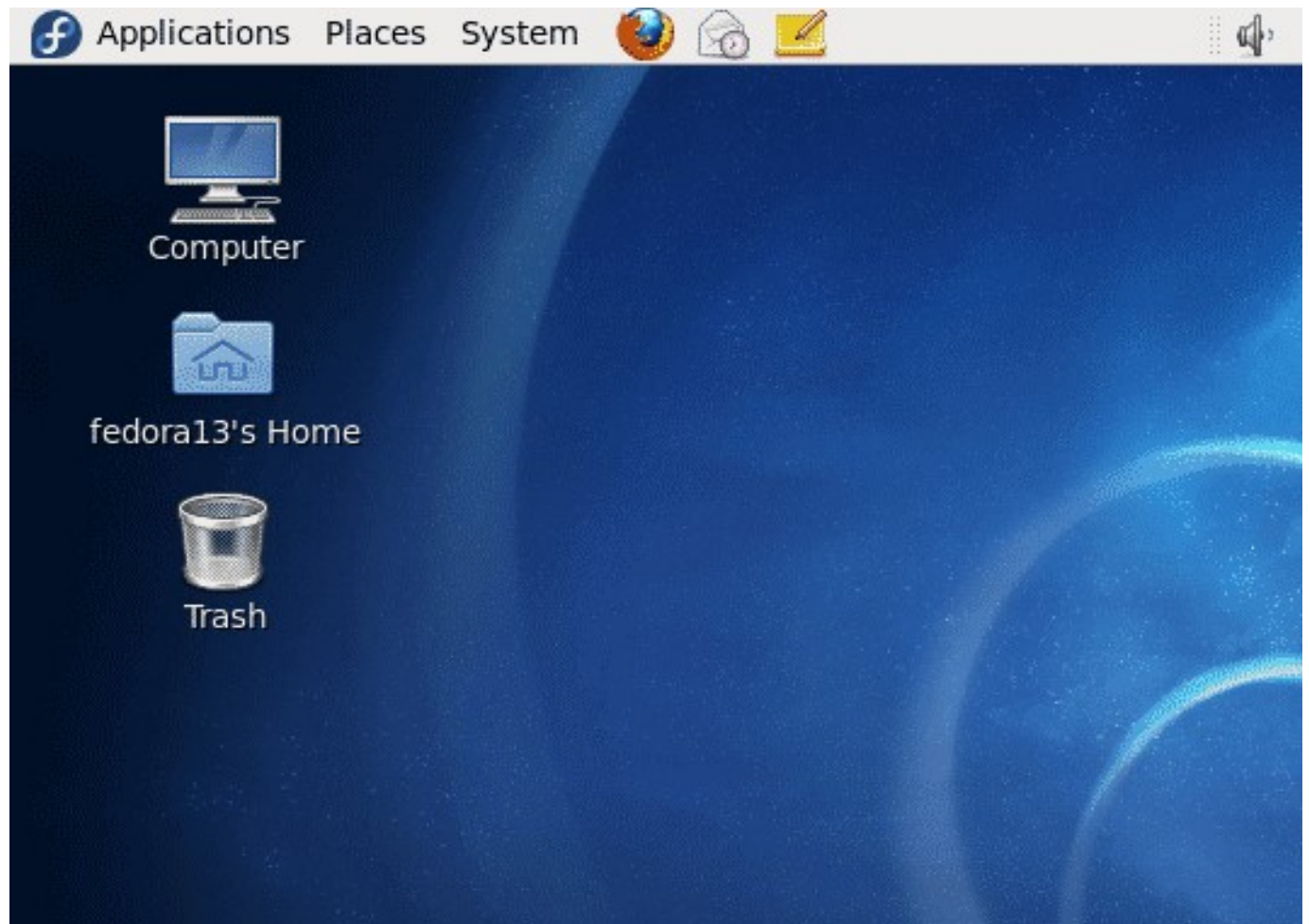
Step-22: Select Login Name



Step-23: Enter Password



Fedora 13 Desktop



6. Learn parallel port, serial port and USB port testing and Installation of Scanner, Printers and ADSL/DSL Modems

Parallel port is a parallel interface for connecting an external device such as a printer. Most personal computers have both a parallel port and at least one serial port.

PC Parallel Ports

On PCs, the parallel port uses a 25-pin connector (type DB-25) and is used to connect printers, computers and other devices that need relatively high bandwidth. It is often called a Centronics interface after the company that designed the original standard for parallel communication between a computer and printer. (The modern parallel interface is based on a design by Epson.)

A newer type of parallel port, which supports the same connectors as the Centronics interface, is the *EPP (Enhanced Parallel Port)* or *ECP (Extended Capabilities Port)*. Both of these parallel ports support bi-directional communication and transfer rates ten times as fast as the Centronics port.

Historically PC line printer ports are given the device names **LPT1, LPT2**, etc.



Testing of Parallel Port (Printer)

1. For testing of parallel port, first need to connect the port on both end (PC and Printer).
2. If it is shows new device found in PC window then port is working,
3. After installing port if it not shows device founded message then reconnect or change the parallel port.
4. Inspect the port for bent pins. Certain pins must be absolutely straight in order for the device to work properly.

Serial Port

Serial port is a connector by which a device that sends data one bit at a time may be connected to a computer. Serial communications, which are conducted through serial ports, involve sending bits in a serial fashion, one bit at a time. Most serial devices are external devices that plug into the PC via a *serial port*. Serial ports are also called *COM ports*, or *RS-232 ports*. The external connector for a serial port can be either 9 pins or 25 pins.



Testing Of Serial Port

Inspect the port for bent pins. Certain pins must be absolutely straight in order for the device to work properly.

Ensure that the cable is the appropriate cable for the device. Some serial devices can't use a straight-through or null modem cable.

Check the Windows Device Manager for system resource conflicts. An IRQ conflict is the most common error in this area. Remember, only one customer to an IRQ at a time.

Be sure that the serial cable is not more than 50 feet long. Beyond this distance, you lose data integrity, which shows up any number of ways, none of which are good.

USB Port

Universal Serial Bus has become the predominant connection system for PCs, laptops, many peripherals and a range of home entertainment systems. The heart of the USB bus is the host controller (root hub) inside the PC. It connects to peripherals directly, or via *hubs* or by daisy-chaining. Up to 127 peripheral devices (including hubs) can be connected to a single host; modern PCs usually contain several host controllers

Types of USB:

USB A (*left*) — this is the type that most users will be familiar with. It is at the end of the lead that connects to a PC

USB B (right) — this type is used at the peripheral end, allowing the cable to be disconnected.



Installation of Printer

1. Click on start then click on “Devices and printers-Then you get Printers page.
2. Then go top and find “add a printer” menu, Click on “add a printer”.
3. Now you got a printer setup wizard front of you and asking to “how do you want to install your printer” with USB cable(Local printer) or Wireless/Network.
4. Under Local printer you can install printer with LPT port and with the USB cable
5. Select the USB port and Select “USB001(Virtual port for USB printer)” and then click on next.
6. Now in the next windows pick your appropriate drivers for this particular printer
7. After that you get your printer driver successfully installed

Installation of Scanner

1. Manually Connect the USB port to both (PC and scanner) ends.
2. Insert the compatible related scanner driver CD to CD drive.
3. Click on Setup.exe file, accept the license agreement, and then click next and the select the appropriate option and click next.
4. Click next until finish button appears. Then click finish to install scanner.

Installation of ADSL/DSL modem

ADSL (Asymmetric Digital Subscriber Line) is a type of digital subscriber line technology, a data communications technology that enables faster data transmission over copper telephone lines than a conventional voice band modem can provide. DSL filter,

allows a single telephone connection to be used for both ADSL service and voice calls at the same time. The installation process of a DSL modem is divided into two steps: connecting the DSL modem and setting up the DSL connection.

Installation steps of ADSL/DSL Modem

Instructions to Connecting a DSL Modem in Windows 7

- 1) Ensure that you have all necessary equipment to connect the broadband modem. This includes the broadband modem, CD ROM with manual, Ethernet cable, telephone cord (in case of an ADSL modem) and power adapter.
- 2) If you have an ADSL connection, connect the telephone cord to the ADSL line port of the broadband modem. For all other broadband connections, your Internet service provider (ISP) will install a CAT5 or CAT6 cable that should be connected to the internet port of the broadband modem.
- 3) Connect the Ethernet cable from any of the Ethernet ports on the broadband modem to the LAN/Ethernet port of your computer.
- 4) Attach the power adapter to the modem, plug it in and switch it on. Verify the connectivity of all the devices before you begin the set up process.

Setting up the DSL Modem

Choose your internet connection type. There are four types of broadband Internet connections-Dynamic IP Address, Static IP Address, PPPoE/PPPoA and Bridge mode.

1. Click on the Start Menu button and select '**Control Panel**'
2. In the Control Panel, select Network and Internet Connections
3. From the Internet Connections screen, choose "**Setup new connection or network**"
4. Choose '**Connect to Internet**' and then click **Next**
5. Select "**Create new Connection**" and then click **Next**.
6. Select "Broadband(PPPoE) and then click **Next**
7. Enter **username and password** given by ISP, click **Connect**.

7. Crimping of RJ45: Straight and Cross.

- a) **Punching Cat 6 cable to I/O Box. Use punching tool.**
- b) **Check connectivity using LAN tester.**

Following are the required materials for preparing straight through or cross over cable.

1. Cat-6 Ethernet cable
2. RJ-45 connectors
3. Crimper Tool - capable of crimping 8 wire (RJ-45) and 6 wire (RJ-11). Most tools have built in cutters too.
4. Stripper Tool
5. Scissors - I
6. Cable Tester - For testing that your cable connections are good and there are not any open or crossed wires

a scissors, a crimping tool, and a stripping tool



cable testers



Cat-6 Ethernet cable and RJ-45 connectors



Steps in preparing cat-6 cable:

1. Strip a half inch to an inch of the outer jacket away from the cable using either stripper or scissor
2. inspect the newly revealed wires for any cuts or scrapes that expose the copper wire inside.
3. Untwist the pairs so they will lay flat between your fingers
4. Arrange the wires based on the wiring specifications you are following. There are two methods set by the TIA, 568A and 568B. Which one you use will depend on what is being connected. A straight-through cable is used to connect two different-layer devices (e.g. a hub and a PC). Two like devices normally require a cross-over cable. The difference between the two is that a straight-through cable has both ends wired identically with 568B, while a cross-over cable has one end wired 568A and the other end wired 568B.^[1] For our demonstration in the following steps, we will use 568B, but the instructions can easily be adapted to 568A.

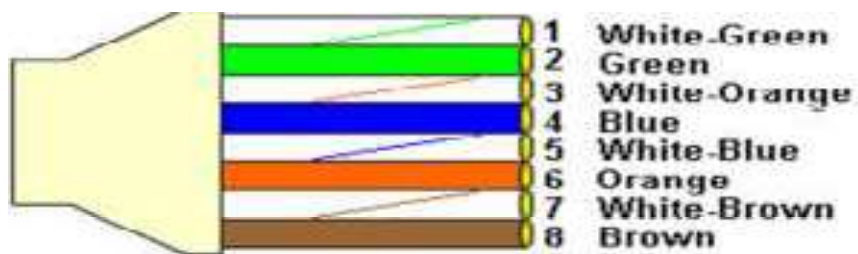
568B - Put the wires in the following order, from left to right:

- white orange
- orange
- white green
- blue
- white blue
- green
- white brown
- brown

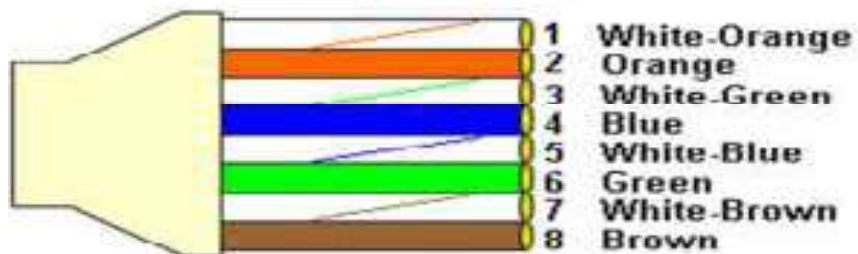
568A - from left to right:

- white/green
- green

- white/orange
 - blue
 - white/blue
 - orange
 - white/brown
 - brown
5. Press all the wires flat and parallel between your thumb and forefinger. Verify the colors have remained in the correct order. Cut the top of the wires even with one another so that they are 1/2" (12.5 mm) long from the base of the jacket.
 6. Keep the wires flat and in order as you push them into the RJ-45 plug with the flat surface of the plug on top.
 - 7 Place the wired plug into the crimping tool.
 - 8 Repeat all of the above steps with the other end of the cable.
 - 9 Test the cable to ensure that it will function in the field.



568A CABLE END



568B CABLE END

8. Install NIC Switch and Wireless router:

Before installing any switch or router, a PC must have NIC(Network Interface Cord)with RJ-45 or Wireless.

Installation of NIC:



RJ-45 NIC



Wireless NIC

Steps in installing NIC:

1. **Open the PC case.** The power should be off when you do this.
2. **Ensure that you have an antistatic wrist strap attached to your wrist and grounded to the PC when working with it**

3. **Now take the NIC card and install it into one of the PCI slots by aligning the guide notches with the PCI slot.**
4. **Press straight down with gentle pressure until the card snugly fits into the PCI slot.**
5. **Secure the card with a single screw used to attach the card to the PC.**
6. **Check the card whether it moves from its position.** If it does, it could damage itself when the PC is turned on.
7. **Close the PC case and turn on the power.**
8. **Install Corresponding driver for NIC by using driver provided in CD.**
9. **Check if the internet works or not.** If not then check the connections and repeat the above steps

Steps to install Switch (D-link)

1. Power up the D-Link switch. Plug one end of the AC power adapter into the DC power jack on the right hand side of the back of the switch. Plug the other end of the adapter into an electrical wall outlet. This powers up the switch.
2. Confirm that the D-Link switch is receiving power. The power indicator LED on the front of the switch lights up when the device is powered.
3. Connect a computer to the switch. Plug one end of an ethernet cable into the ethernet adapter on the computer and the other end into any unused, numbered ethernet port on the back of the D-Link switch. When the switch recognizes the computer, the correspondingly numbered LED on the front of the switch will light up.
4. Continue adding computers to the D-Link switch. Follow the same procedure as for the first computer. The switch can connect up to five computers.
5. Communicate between computers. Use the networking support built in to your particular operating system. For example, in the Windows 7 operating system, you would use the File and Printer sharing feature.

9. Study different IP class (A, B, C) addressing. (Manual & Dynamic). Check connectivity for peer-to-peer

IP addresses

The IP address is a 32-bit binary number, split into four bytes (or octets, which is the preferred term in networking). The address is written or displayed in dotted decimal: that is, each octet's value is given in decimal, separated by dots. For example: IP address 11000000 10101000 00000000 00000100 = 192.168.0.4

Classes of address

Classes A, B & C

Class A addresses (1.x.x.x – 126.x.x.x) are used for large networks owned by Governments, major ISPs or multinational companies. Although they are capable of containing over 16 million individual hosts, they are usually broken into smaller subnets.

Format: N.H.H.H Higher Order bits: 0

N=Network, H= Host

Class B addresses are in the range 128.0.x.x – 191.255.x.x, each covering up to 65,534 hosts. These are typically allocated to ISPs and large organisations.

Format: N.N.H.H Higher Order bits: 10

Class C addresses range from 192.0.0.x – 223.255.255.x and they allow for up to 254 hosts. These are allocated to small organisations.

Format: N.N.N.H Higher Order bits: 110

Classes D & E

Class D addresses start with the binary bits 1110 (224.0.0.1 – 239.255.255.254) and are used for multicasting (where many machines read data sent to a common IP address)

Class E addresses start with bits 1111 (240.0.0.1 – 255.255.255.254) and are used for experimental purposes only.

Special addresses

0.0.0.0 is the default network, i.e. the current network's address.

127.0.0.1 is the local host, i.e. the current host. It is used for loopback NIC tests.

255.255.255.255 is a broadcast address for all hosts. For obvious reasons, this is disallowed by most Internet routing equipment.

Private (internal) addresses

Certain ranges are set aside for private use (i.e. internal within an organization). These are:
10.x.x.x,
172.x.x.x, and 192.168.x.x.

Static /Dynamic

Each device in an IP network is either assigned a permanent address (**static**) by the network administrator or is assigned a temporary address (**dynamic**) via DHCP software

DHCP

DHCP stands for Dynamic Host Configuration Protocol. This protocol assigns network IP addresses to clients on the network at startup. With DHCP, each client workstation does not need to be set up with a static IP address. DHCP is recommended on large networks. It would be very time consuming to manually assign a static IP address to every workstation on your network.

Follow below steps to begin setting up the network:

1. Click Start , and then click Control Panel.
2. Under Network and Sharing center.
3. click Change advanced sharing settings.
4. Turn on network discovery and file and printer sharing.
5. Click Save changes.

Repeat above steps for all the systems which are to interconnected.

Set Computer Name and WorkGroup for all the computers. To do this follow the steps given below.

1. Right Click on “Computer”
2. Click on “Advanced System Setting”
3. Click on “Computer Name”
4. Click on “Change”.
5. Change Computer Name and Workgroup(Workgroup must be same for all the systems and computer name must unique) and restart the machine to reflect changes.

Now Click on network. It displays all the Computers which are interconnected.

Sharing Drives/Folder in Windows 7

- 1) Right click on a drive/folder which is to be shared.
- 2) Click on Properties
- 3) Click on sharing
- 4) Click on Advanced Sharing
- 5) Check Mark “Share this folder”. Then Click on Apply and Ok

Sharing of Printer in Windows 7:

- 1) Open Control panel. Click on Devices and Printers.
- 2) Right click on the Printer which is to shared.
- 3) Click on Printer Properties.
- 4) Click on sharing.
- 5) Check Mark" Share this folder".

Once the printer has been shared. Follow the steps given below to install network printer.

- 1) Open Control Panel.
- 2) Click on Devices and Printers.
- 3) Click on "Add Printer".
- 4) Click on "Network Printer".
- 5) It will search for the shared printer. Once the shared printer is found.
- 6) Select and Install the shared printer.