

**Practical Training Seminar  
on  
Linux System Administration**



# Jawahar Shikshan Sansthan

- JSS is a government registered organization since 1969 and deals in organizing training and development programmes for the talented youth of the society.
- Has conducted free training camps sponsored by many govt. departments and Industries.
- Currently offering Industry based real time project oriented practical training for engineering students.



# Contents

- Overview of fedora
- Installing fedora
- About desktop
- Linux commands
- Linux system administration
- Connecting to the internet
- Setting up local area network
- Server setup and configuration
- Computer security issues



# Overview of fedora

- Operating system
- What is linux?
- Why use linux?
- Features of linux



# Installing fedora

- Beginning the installation
- Partitioning the drive
- Network configuration
- Firewall and security configuration
- Setting the time zone
- Creating the root passwords and user accounts
- Software selection and installation
- Shutting down

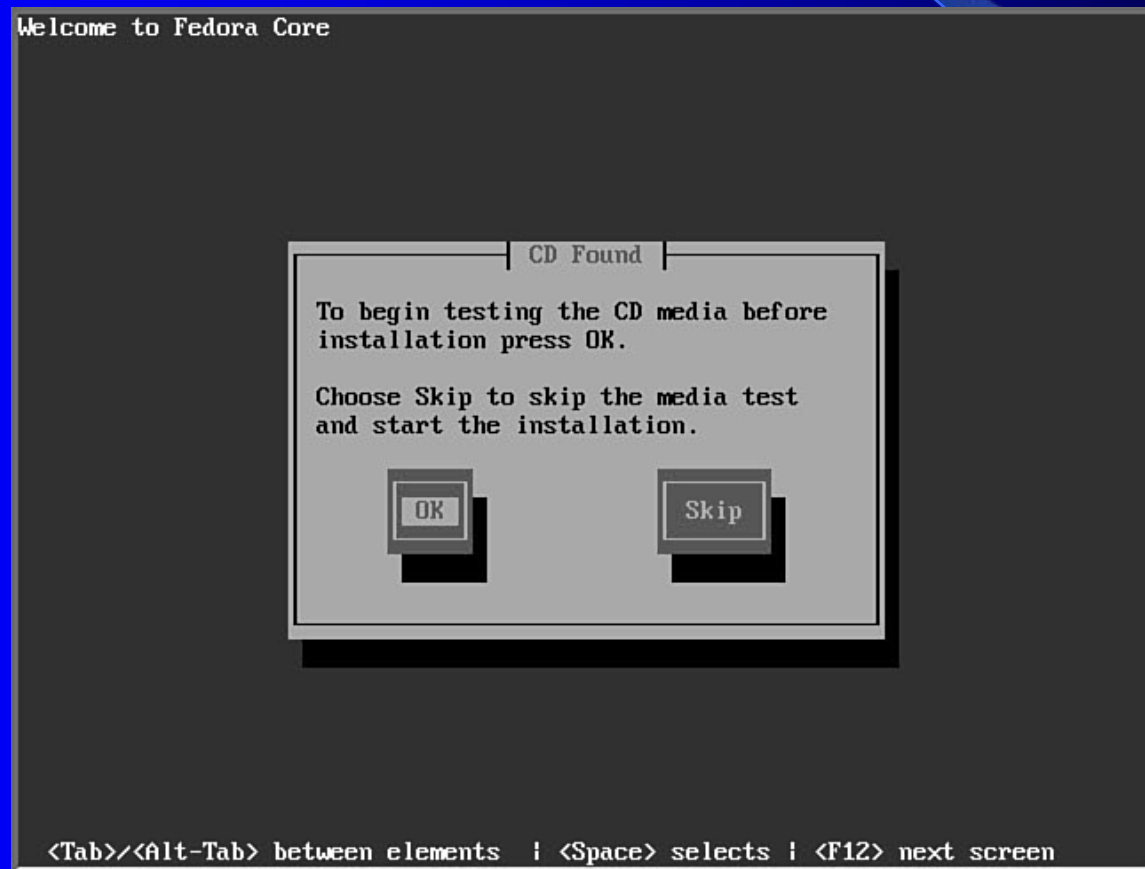
# Beginning the installation

**Fedora**<sup>™</sup>  
C O R E

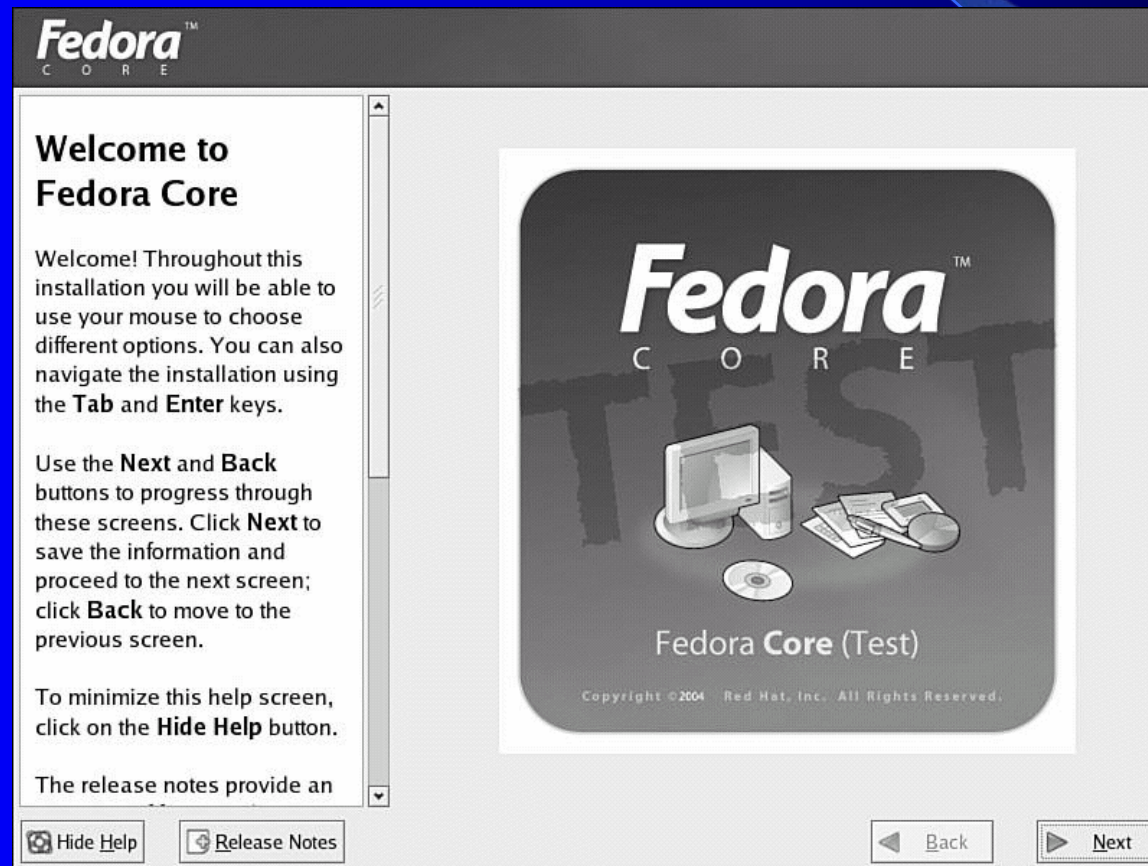
- To install or upgrade in graphical mode, press the <ENTER> key.
- To install or upgrade in text mode, type: linux text <ENTER>.
- Use the function keys listed below for more information.

[F1-Main] [F2-Options] [F3-General] [F4-Kernel] [F5-Rescue]  
boot: \_

# Check CD-ROM media before installation



# Read help or release notes before installing fedora

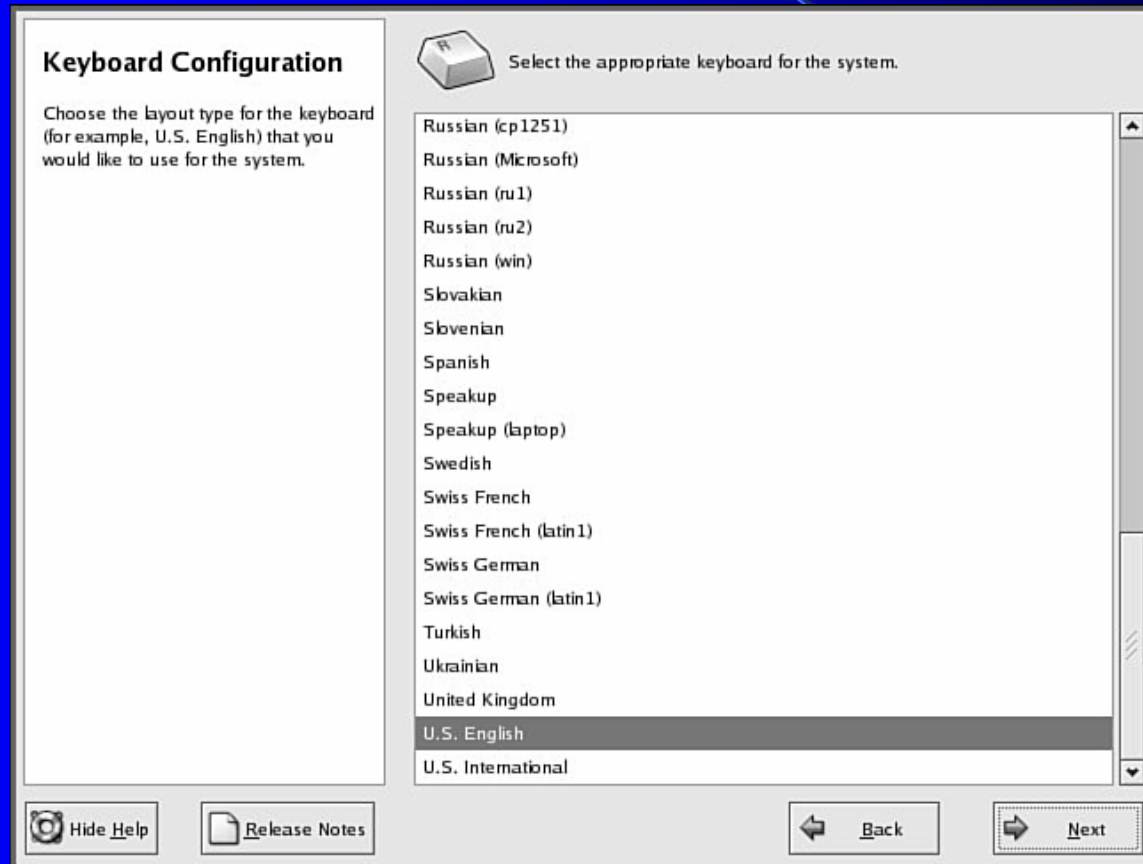




# Select language



# Select default keyboard




# Select installation type


## Installation Type


Choose the type of installation that will best meet your needs.


An installation will destroy any previously saved information on the selected partitions.


For more information concerning the differences among these installation classes, refer to the product documentation.


 **Personal Desktop**  
Perfect for personal computers or laptops, select this installation type to install a graphical desktop environment and create a system ideal for home or desktop use.


 **Workstation**  
This option installs a graphical desktop environment with tools for software development and system administration.


 **Server**  
Select this installation type if you would like to set up file sharing, print sharing, and Web services. Additional services can also be enabled, and you can choose whether or not to install a graphical environment.

 **Custom**  
Select this installation type to gain complete control over the installation process, including software package selection and partitioning.

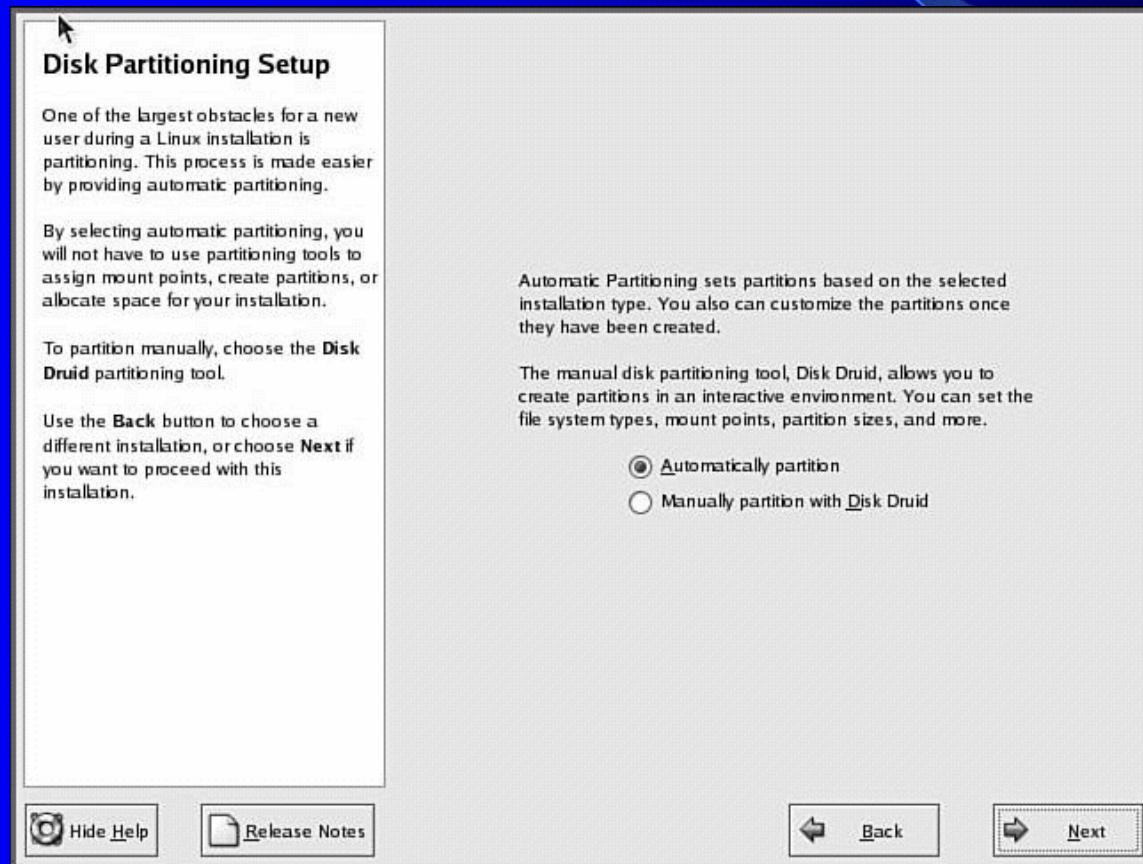
 Hide Help

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# Partitioning scheme



**Disk Partitioning Setup**

One of the largest obstacles for a new user during a Linux installation is partitioning. This process is made easier by providing automatic partitioning.

By selecting automatic partitioning, you will not have to use partitioning tools to assign mount points, create partitions, or allocate space for your installation.

To partition manually, choose the **Disk Druid** partitioning tool.

Use the **Back** button to choose a different installation, or choose **Next** if you want to proceed with this installation.

Automatic Partitioning sets partitions based on the selected installation type. You also can customize the partitions once they have been created.

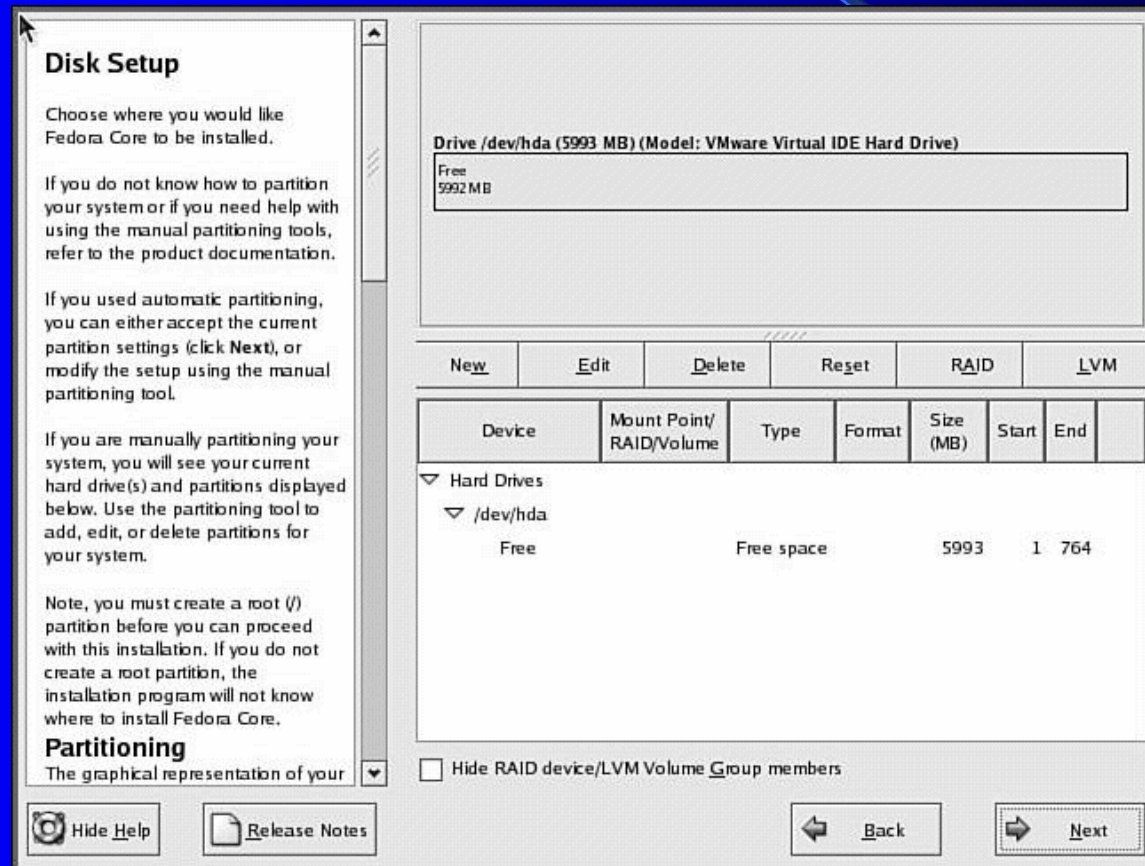
The manual disk partitioning tool, Disk Druid, allows you to create partitions in an interactive environment. You can set the file system types, mount points, partition sizes, and more.

Automatically partition

Manually partition with Disk Druid

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# Use disk druid for partition





# Review the partitioning scheme

**Disk Setup**

Choose where you would like Fedora Core to be installed.

If you do not know how to partition your system or if you need help with using the manual partitioning tools, refer to the product documentation.

If you used automatic partitioning, you can either accept the current partition settings (click Next), or modify the setup using the manual partitioning tool.

If you are manually partitioning your system, you will see your current hard drive(s) and partitions displayed below. Use the partitioning tool to add, edit, or delete partitions for your system.

Note, you must create a root (/) partition before you can proceed with this installation. If you do not create a root partition, the installation program will not know where to install Fedora Core.

**Partitioning**  
The graphical representation of your

Drive /dev/hda (5993 MB) (Model: VMware Virtual IDE Hard Drive)

Free  
5992 MB

New Edit Delete Reset RAID LVM

Device	Mount Point/ RAID/Volume	Type	Format	Size (MB)	Start	End
Hard Drives						
/dev/hda						
Free		Free space		5993	1	764

Hide RAID device/LVM Volume Group members

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# configure a boot loader

## Boot Loader Configuration

By default, the GRUB boot loader will be installed on the system. If you do not want to install GRUB as your boot loader, select **Change boot loader**.

You can also choose which OS (if you have more than one) should boot by default. Select **Default** beside the preferred boot partition to choose your default bootable OS. You will not be able to move forward in the installation unless you choose a default boot image.

You may add, edit, and delete the boot loader entries by selecting a partition with your mouse and then clicking on the appropriate button.

To enhance your system security, select **Use a Boot Loader Password**. Once selected, enter a password and then confirm it.

If you want to configure where the boot loader will be installed or if you want to add options to the boot

The GRUB boot loader will be installed on /dev/hda. [Change boot loader](#)

You can configure the boot loader to boot other operating systems. It will allow you to select an operating system to boot from the list. To add additional operating systems, which are not automatically detected, click 'Add.' To change the operating system booted by default, select 'Default' by the desired operating system.

Default	Label	Device
<input checked="" type="checkbox"/>	Fedora Core	/dev/hda1

[Add](#)  
[Edit](#)  
[Delete](#)

A boot loader password prevents users from changing options passed to the kernel. For greater system security, it is recommended that you set a password.

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

[Configure advanced boot loader options](#)

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[Hide Help](#) [Release Notes](#)

# Network configuration

## Network Configuration

Any network devices you have on the system will be automatically detected by the installation program and shown in the **Network Devices** list.

To configure the network device, first select the device and then click **Edit**. In the **Edit Interface** screen, you can choose to have the IP and Netmask information configured by DHCP or you can enter it manually. You can also choose to make the device active at boot time.

If you do not have DHCP client access or are unsure as to what this information is, please contact your Network Administrator.

If your system is part of a larger network where hostnames are assigned by DHCP, select **automatically via DHCP**. Otherwise, select **manually** and enter in an FQHN-based hostname for your system (such as name.example.com). If you do not, your system will be known as "localhost".

Hide Help   Release Notes

### Network Devices

Active on Boot	Device	IP/Netmask
<input checked="" type="checkbox"/>	eth0	192.168.2.55/255.255.255.0

[Edit](#)

### Hostname

Set the hostname:

automatically via DHCP

manually  (ex. "host.domain.com")

### Miscellaneous Settings

Gateway:	<input type="text" value="102"/>	<input type="text" value="168"/>	<input type="text" value="2"/>	<input type="text" value="31"/>
Primary DNS:	<input type="text" value="199"/>	<input type="text" value="45"/>	<input type="text" value="32"/>	<input type="text" value="43"/>
Secondary DNS:	<input type="text" value="199"/>	<input type="text" value="45"/>	<input type="text" value="32"/>	<input type="text" value="38"/>
Tertiary DNS:	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

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# Firewall configuration

**Fedora**  
C O R E

## Firewall Configuration

A firewall sits between your computer and the network, and determines which resources on your computer remote users on the network are able to access. A properly configured firewall can greatly increase the out-of-the-box security of your system.

Choose the appropriate security level for your system.

**No Firewall — No firewall** provides complete access to your system and does no security checking. Security checking is the disabling of access to certain services. This should only be selected if you are confident that your system is secure.

A firewall can help prevent unauthorized access to your computer from the outside world. Would you like to enable a firewall?

No firewall  
 Enable firewall

With a firewall, you may wish to allow access to specific services on your computer from others. Allow access to which services?

- Remote Login (SSH)
- Web Server (HTTP, HTTPS)
- File Transfer (FTP)
- Mail Server (SMTP)

Security Enhanced Linux (SELinux) provides finer-grained security controls than are available in a traditional Linux system. It can be set up in a disabled state, a state which only warns about things which would be denied, or a fully active state.

Enable SELinux?:

# Select time zone

## Time Zone Selection

Set your time zone by selecting your computer's physical location.

On the interactive map, click on a specific city (marked by a yellow dot) and a red X will appear indicating your selection. You can also scroll through the available list and choose a time zone.

You can also scroll through the city list and choose your desired time zone.

You can also select the **System Clock uses UTC** option. (UTC, also known as GMT, will allow your system to properly handle daylight-saving time.) Please select this if your computer's hardware clock is set to UTC (instead of being set to your local time).



Please select the nearest city in your timezone:



Location	Description
America/Winnipeg	
America/Nassau	
America/New_York	Eastern Time
America/Nipigon	Eastern Time - Ontario & Quebec - places that d
America/Nome	Alaska Time - west Alaska

System clock uses UTC

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# Creating the root password

## Set Root Password

Use the root account *only* for administration. Once the installation has been completed, create a non-root account for your general use and `su -` to gain root access when you need to fix something quickly. These basic rules will minimize the chances of a typo or incorrect command doing damage to your system.

 Enter the root (administrator) password for the system.

Root Password:

Confirm:

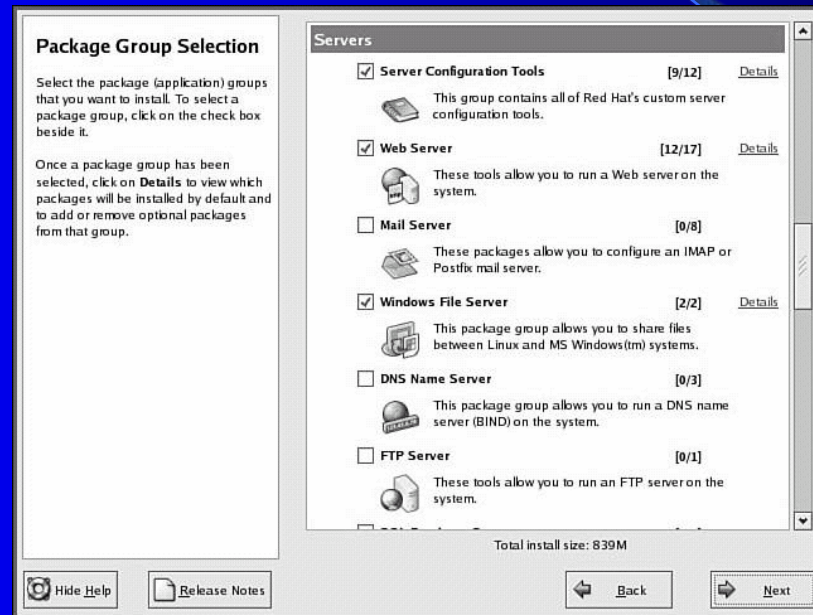
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# Software selection



# Create boot disk

## Boot Diskette Creation







To create a boot diskette, insert a blank diskette into your floppy drive, and click **Next** to continue.

The boot diskette allows you to boot your Fedora Core system from a floppy diskette. A boot diskette allows you to boot your system in the event your bootloader configuration stops working, if you chose not to install a boot loader, or if your third-party boot loader does not support Linux.

It is highly recommended you create a boot diskette.

Yes, I would like to create a boot diskette

No, I do not want to create a boot diskette

 Hide Help     Release Notes     Back     Next



# Boot fedora with GRUB





# About desktop

- Getting familiar with the desktop
- Using the Gnome desktop
- Exiting Gnome



# Linux commands

- The shell interface
- Checking the login session
- Checking directories and permissions
- Creating file and directories





# Linux system administration

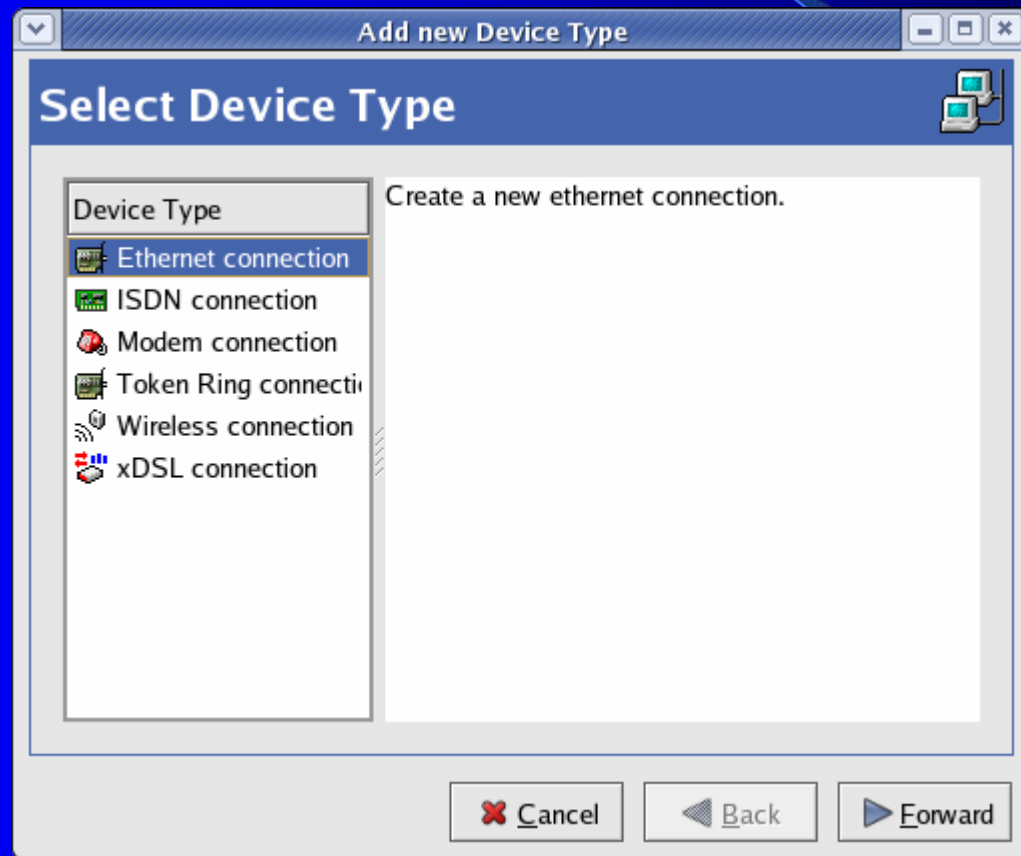
- Becoming super user
- Temporarily changing user identity with su command
- Using graphical administrative tools
- Administrative commands
- Administrative configuration files



# Connecting to the internet

- Setting up dial-up PPP
- Creating a dial- up connection with the internet configuration wizard
- Launching PPP connection
- Setting up linux as a proxy server
- Configuring mozilla or firefox to use as a proxy

# Creating a dial-up connection



# Configuring mozilla to use as a proxy

The screenshot shows the 'Connection Settings' dialog box in Mozilla. The title bar reads 'Connection Settings'. The main heading is 'Configure Proxies to Access the Internet'. There are three radio buttons: 'Direct connection to the Internet', 'Auto-detect proxy settings for this network', and 'Manual proxy configuration' (which is selected). Under 'Manual proxy configuration', there is a checked checkbox 'Use the same proxy for all protocols'. Below this are five rows of proxy settings, each with a label, a text input field, and a 'Port:' label with a text input field. The settings are: HTTP Proxy: 192.168.1.2, Port: 6588; SSL Proxy: 192.168.1.2, Port: 6588; FTP Proxy: 192.168.1.2, Port: 6588; Gopher Proxy: 192.168.1.2, Port: 6588; SOCKS Host: (empty), Port: 0. Below the SOCKS Host field are two radio buttons: 'SOCKS v4' and 'SOCKS v5' (which is selected). Below that is a 'No Proxy for:' label followed by a text input field containing 'localhost, 127.0.0.1'. Below this is an example text: 'Example: .mozilla.org, .net.nz, 192.168.1.0/24'. At the bottom of the dialog, there is an 'Automatic proxy configuration URL:' label, an empty text input field, and a 'Reload' button. At the very bottom are 'Cancel' and 'OK' buttons.

Connection Settings

Configure Proxies to Access the Internet

Direct connection to the Internet

Auto-detect proxy settings for this network

Manual proxy configuration

Use the same proxy for all protocols

HTTP Proxy: 192.168.1.2 Port: 6588

SSL Proxy: 192.168.1.2 Port: 6588

FTP Proxy: 192.168.1.2 Port: 6588

Gopher Proxy: 192.168.1.2 Port: 6588

SOCKS Host: Port: 0

SOCKS v4  SOCKS v5

No Proxy for: localhost, 127.0.0.1

Example: .mozilla.org, .net.nz, 192.168.1.0/24

Automatic proxy configuration URL:

Reload

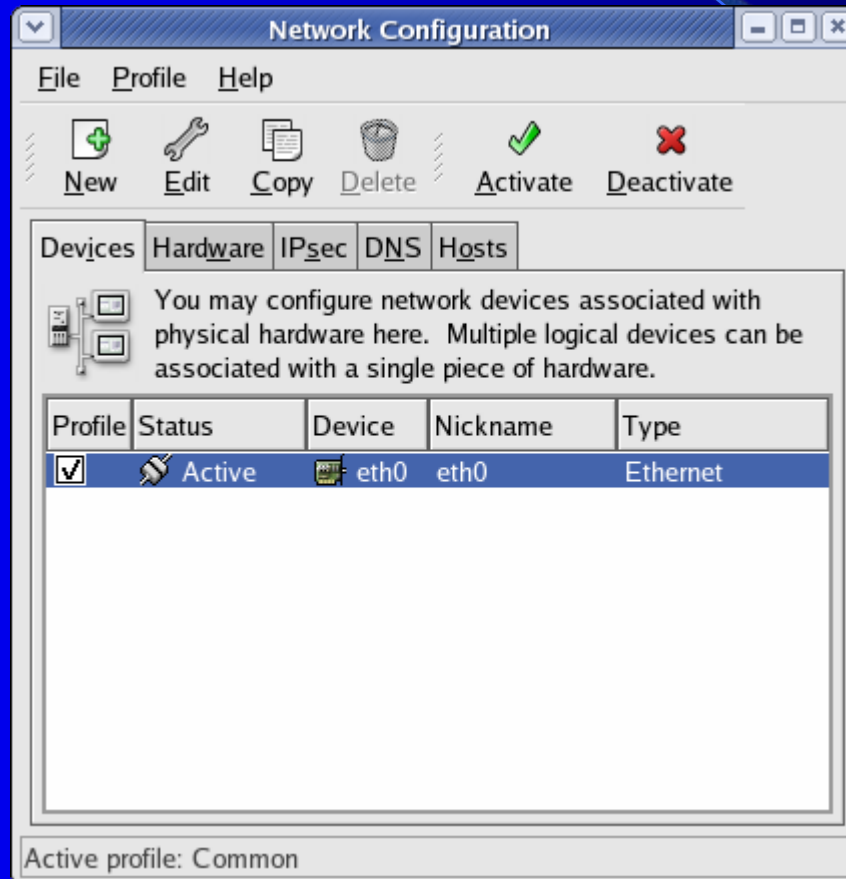
Cancel OK



# Setting up local area network

- LAN topologies
- LAN equipment
- Networking with TCP/IP
- Configuring TCP/IP
- Adding windows computer's to user LAN
- IP address classes

# Configuring TCP/IP



# NFS share

Windows dialog box titled "Add NFS Share".

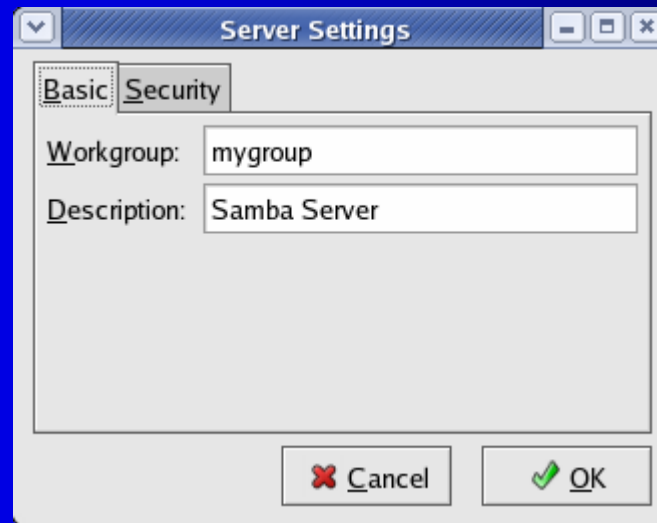
Tabbed interface with three tabs: "Basic", "General Options", and "User Access". The "Basic" tab is selected.

Fields and controls:

- Directory: [Text input field] [Browse... button]
- Host(s): [Text input field]
- Basic permissions:
  - Read-only
  - Read / Write

Buttons at the bottom: [Cancel] [OK]

# Samba server



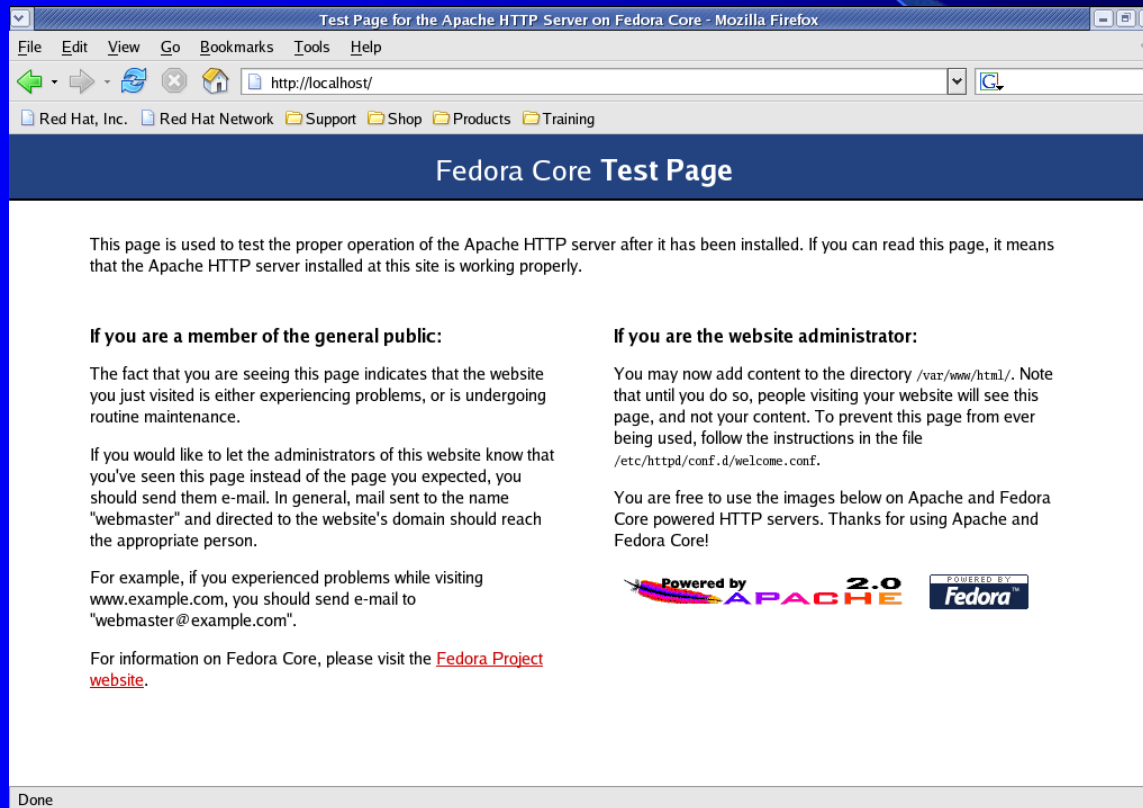




# Server setup and configuration

- Setting up NFS file server
- Setting up Samba file server
- The Apache web server
- Setting up FTP server

# Apache Web Server



Test Page for the Apache HTTP Server on Fedora Core - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://localhost/

Red Hat, Inc. Red Hat Network Support Shop Products Training

## Fedora Core Test Page

This page is used to test the proper operation of the Apache HTTP server after it has been installed. If you can read this page, it means that the Apache HTTP server installed at this site is working properly.

**If you are a member of the general public:**

The fact that you are seeing this page indicates that the website you just visited is either experiencing problems, or is undergoing routine maintenance.

If you would like to let the administrators of this website know that you've seen this page instead of the page you expected, you should send them e-mail. In general, mail sent to the name "webmaster" and directed to the website's domain should reach the appropriate person.



For example, if you experienced problems while visiting [www.example.com](http://www.example.com), you should send e-mail to "webmaster@example.com".

For information on Fedora Core, please visit the [Fedora Project website](#).

**If you are the website administrator:**

You may now add content to the directory `/var/www/html/`. Note that until you do so, people visiting your website will see this page, and not your content. To prevent this page from ever being used, follow the instructions in the file `/etc/httpd/conf.d/welcome.conf`.

You are free to use the images below on Apache and Fedora Core powered HTTP servers. Thanks for using Apache and Fedora Core!

Powered by  

Done



# COMPUTER SECURITY ISSUES

- LINUX security checklist
- Securing linux with IP table firewalls
- Configuring an IP table firewall
- Securing Linux features



Thanks !