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Installing Fedora

*Thou crownest the year with thy goodness.
Psalm 65:11*

Before you begin

Before you begin installing Fedora Core 3, there are a few requirements, a checklist if you may, to make sure that your experience with Fedora is fruitful, and enjoyable. Linux is not like Windows, so there are definitely stark differences between the installation procedures, as well as the way hardware is handled.

Compatible Hardware

Is your hardware compatible? In today's world, it is relatively safe to say that most hardware out there is supported by Linux (this might have been untrue a decade ago!). However, it is always useful to know what kind of hardware you have, so that during the installation, in case something is not automatically detected, you will be armed with information to step in.

Minimum Requirements

There are some Linux distributions that run comfortably on the 486-based machine sitting in one's garage; Fedora Core is not one of them. With its cutting edge emphasis on new technology, as well as giving the end-user an excellent experience, it's hardware requirements are a lot higher than that. The table below shows the minimum, and recommended hardware requirements for Fedora Core.

<i>Hardware</i>	<i>Minimum</i>	<i>Recommended</i>
Memory (RAM)	128-256MB (text-graphical)	512MB (for graphical)
CPU	200MHz Pentium-class or better	400MHz Pentium-class or better
Free hard disk space	900MB	7.5GB or greater
Video card	1-2MB	16-32MB or better
CD-ROM	Bootable	Bootable
Mouse	2-button (for graphical)	3-button (or greater) preferred

Disk Space Requirements

When installing Fedora Core, you will have to work with disk partitions, either be it by automatically agreeing with the installer, or by manually working it. First, you need to decide if your Fedora Core system will share the hard disk with another operating system, or if it will be a stand-alone installation (the latter being a lot easier).

*Note: It is worthwhile to **backup** your system before playing with partitions, as once data is written, its usually unrecoverable. So if there is data you care about, **back your system up now**.*

Help! Booting from the CD-ROM Drive Fails!

On certain older systems, the computer's BIOS did not allow booting from the CD-ROM drive. The first boot device would be the floppy disk, and the next the primary hard disk. If this sounds like the computer you have (where the CD refuses to boot, giving you the Fedora Core installer), you can use a tool called SmartBootManager. It is not provided within Fedora Core, but is available from its website at <http://btmgr.sourceforge.net/>.

Installing Fedora Core 3

Beginnings

Now that all the hard work has been done, its time to start the Fedora Core installation! Once the CD is booted, the default boot method is a graphical installer, which you get by hitting the Enter key. You can also type:

```
linux
```

and it will automatically load the graphical installer. If you graphics hardware isn't up to scratch, or you prefer a text based installation, the:

```
linux text
```

option is what you will use. Through this guide however, we will only go through the graphical installation. The text-based installation is similar, it just makes use of the Tab key and the Space bar, as opposed to the mouse, for navigation. There is now an option to test the media that you have – this is a completely optional step, but will assist you in making sure that your media is good. If you select **OK** then follow the prompts, otherwise just **Skip** it.

The Welcome Screen

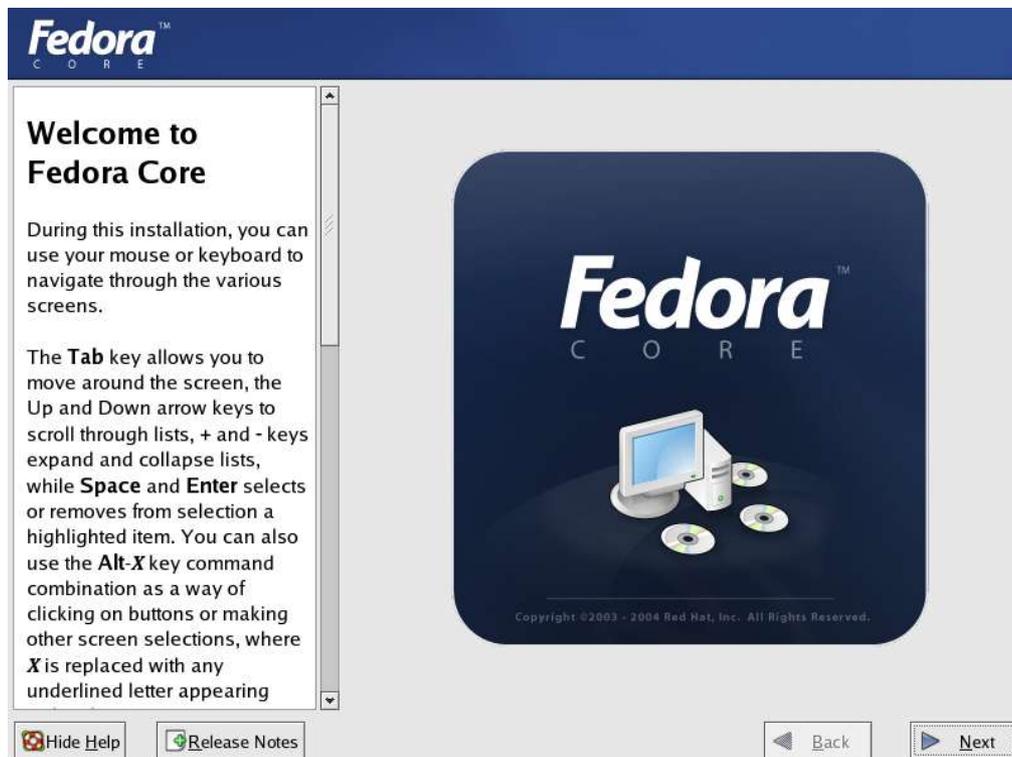


Figure 1. Anaconda – the Fedora Core installer

When the installation starts as in Figure 1, the installation screen has instructions as to what needs to be done, to make the installation as easy as possible. The left-pane on the screen is the Help pane, while the right-pane consists of options, where most of the user input will occur. It is notable to mention that Anaconda is fully localized in many languages.

If you haven't already read the release notes, the **Release Notes** button is a good one to click (Figure 2). Release notes contain information, about what has changed since the last release of Fedora Core, including anything that might imply different usage for instance. The release notes are always available throughout the installation, just like the help pane.

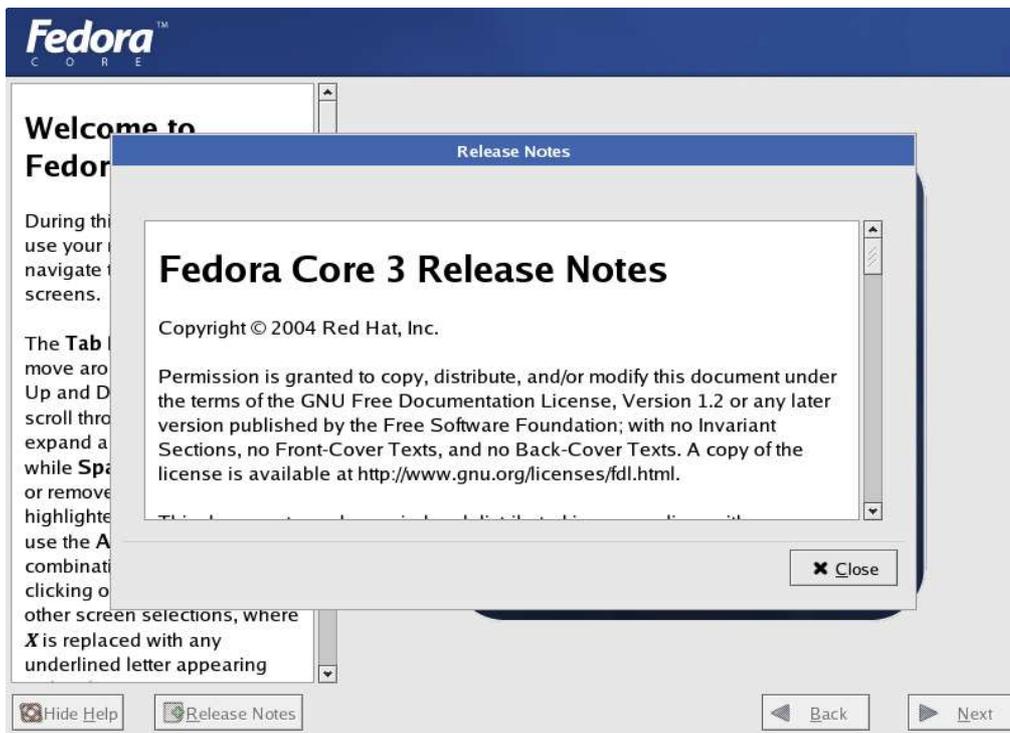


Figure 2. Anaconda displays the current release notes

To continue with the installation, you select the **Next** button, at the lower-right hand corner of the screen. However, if at anytime during the installation you wish to go back, to possibly change an option, you can click the **Back** button.

Language Selection

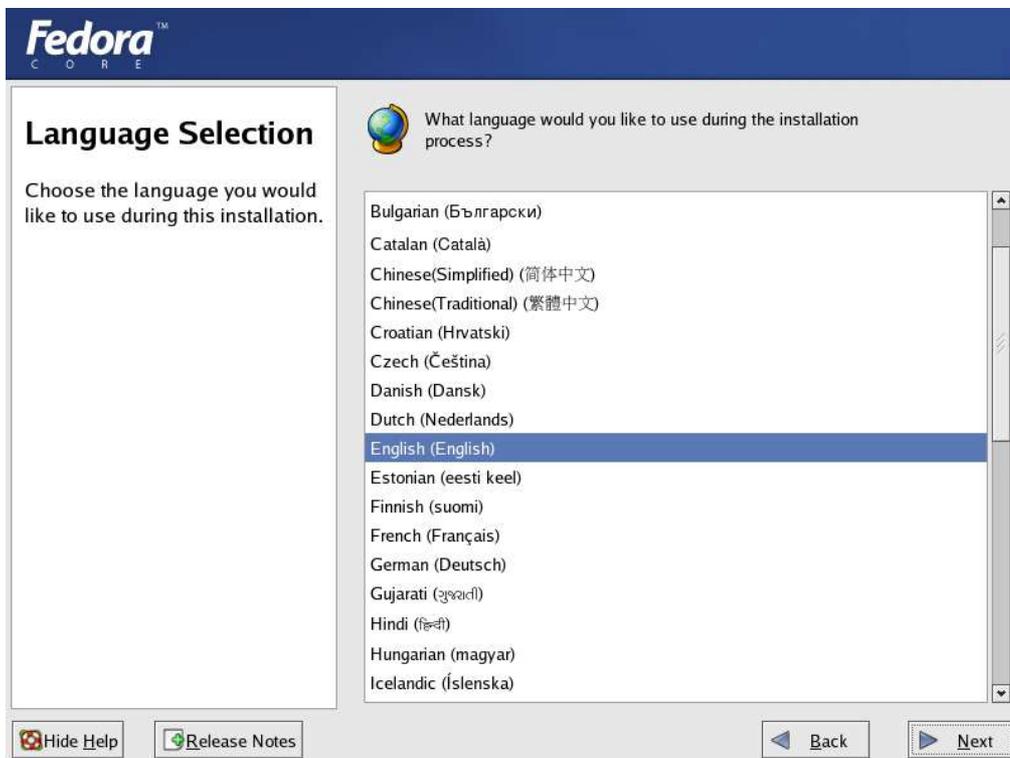


Figure 3. Language selection for the installation

Now, you are given an option to select the language that the installer should use. Since 41 languages are supported, there's a good chance that the one you're looking for, besides English, is available. After selecting the language, click the **Next** button.

Keyboard Configuration

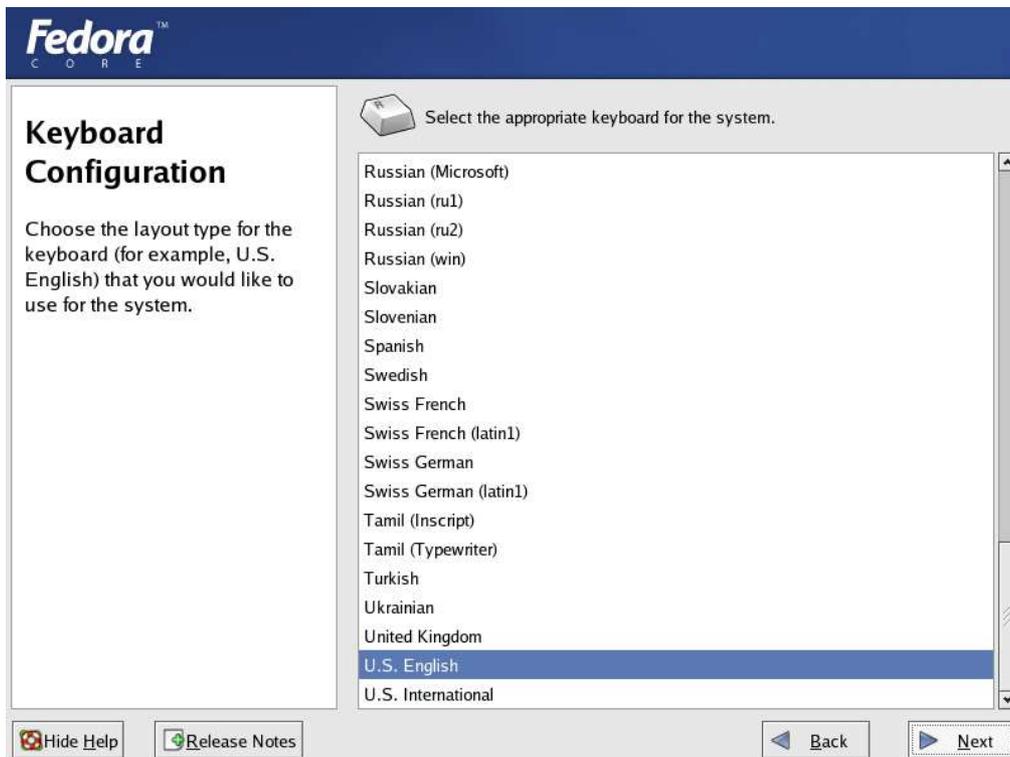


Figure 4. Keyboard Configuration during installation

You are now asked to choose the appropriate keyboard configuration. U.S. English is a regularly common type of keyboard (in my location!), but if you do use another keyboard, it would be wise to choose one from the list here. Otherwise, incorrect keymaps may get loaded, impacting your installation. Click **Next** once the choice is made.

Upgrade Examine

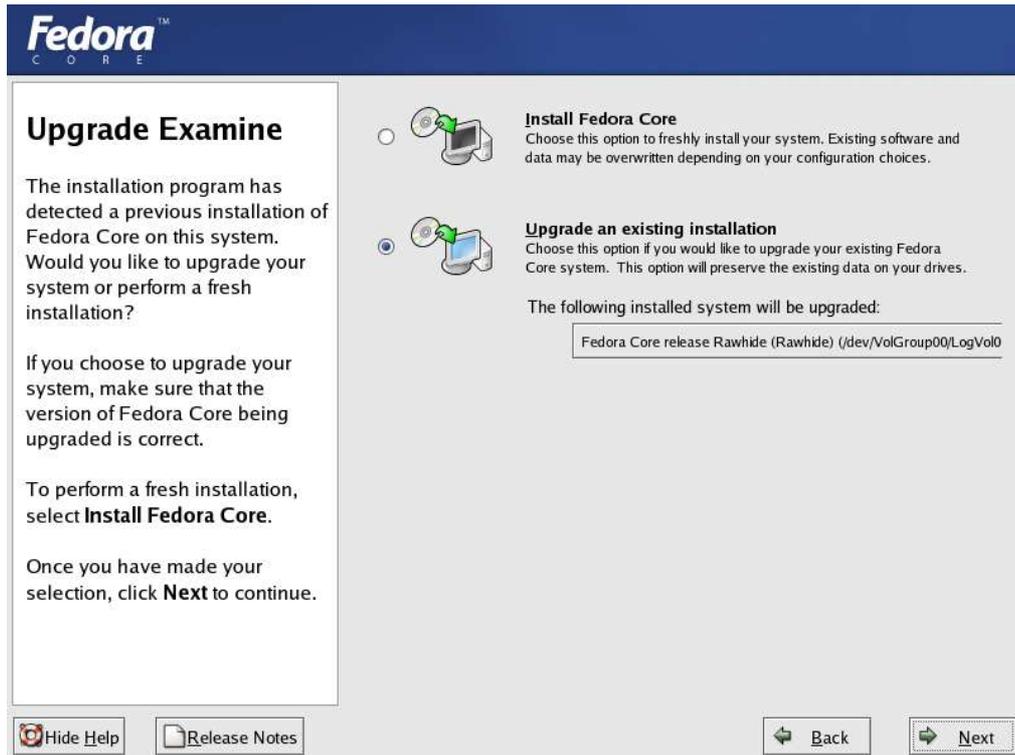


Figure 5. Anaconda – Install or Upgrade an installation

Anaconda now searches for previous installations, and if Anaconda detects an existing Fedora Core installation on your disks, or even an existing Red Hat Linux installation, it will offer to upgrade the installation for you. While upgrades are an available option, upgrading from say Red Hat Linux 8.0 to Fedora Core 3 might not exactly be recommended! A better upgrade path is from say Fedora Core 2 to Fedora Core 3, for instance. We shall go through a fresh installation of Fedora Core.

Installation Type

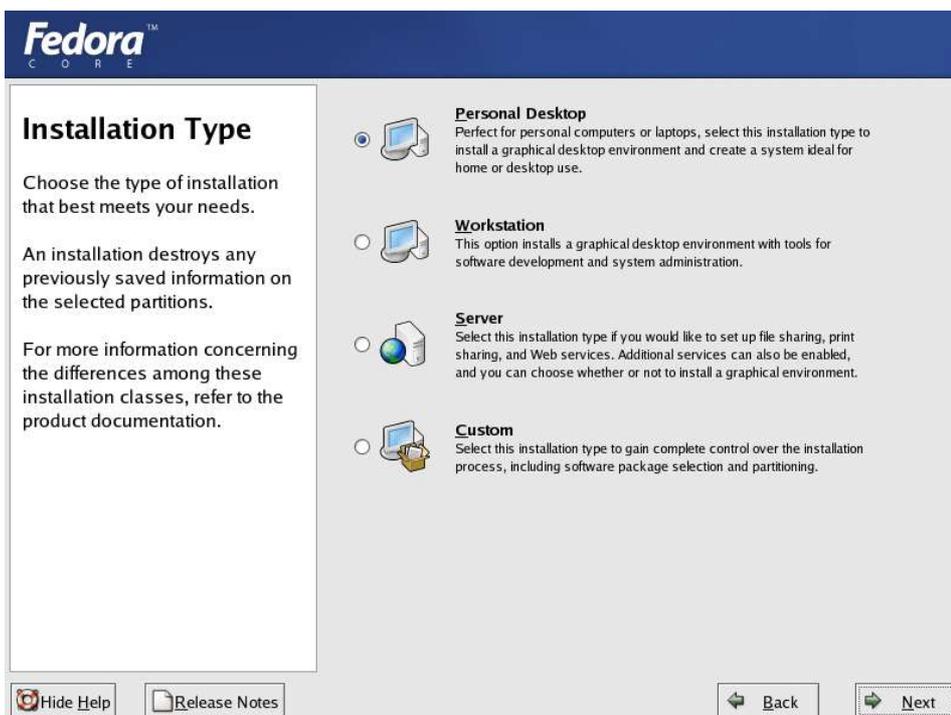


Figure 6. Anaconda – Installation Type Options

Figure 6. Installation type options

Now faced with the installation types, it would help to understand what each option entails, from the varying uses, to the varying disk space requirements that are required. They are:

- **Personal Desktop** – 2.3GB of space is required for packages, and a graphical environment (The GNOME Desktop) is installed, and this is a suitable environment for new or home users.
- **Workstation** – 3.0GB of space is required for packages, it installs everything that the Personal Desktop has, but with additional tools for software development. This installation is ideal for developers, or system administrators.
- **Server** – 1.1GB of space is required for the packages that enable you to run Fedora Core as a server. This installs common server programs such as a Web server and FTP server.
- **Custom** – With options for a minimal installation or an “everything” install (which installs all the packages available on the 4 CDs), you get a full custom set of software to install.

So which is the right option for you? It depends on the usage of your Fedora Core system. For our purposes, we will go through a Personal Desktop installation, as we can add additional software packages later, once the system is installed.

Disk Partitioning

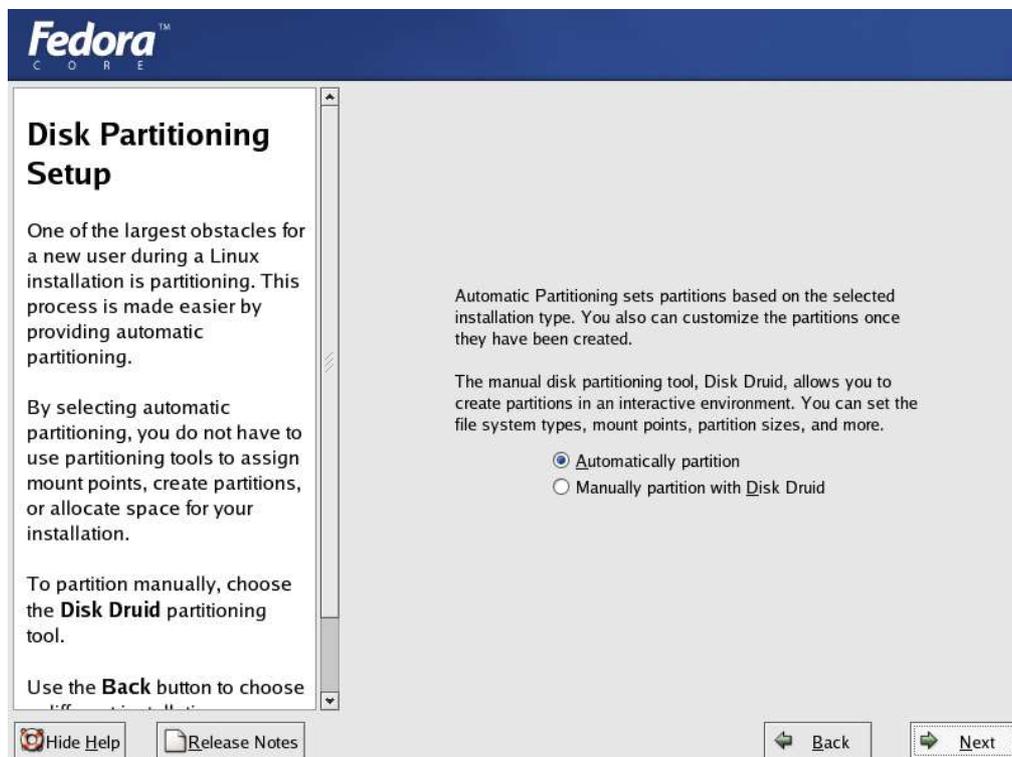


Figure 7. Anaconda – Disk Partitioning setup

Next comes disk partitioning. This is important, as data is stored in partitions on your disk. You need a minimum of two partitions for Fedora Core to work - / (**root partition**) and **swap**. If dual-booting, it entails that there must already be free space available on the disk, otherwise, making space for Linux will be destructive to your current data. Anaconda provides the options to either automatically partition the hard disk, or manually partition it with Disk Druid, a utility that allows partitioning graphically! If you have never dealt with disk partitions before, it might be a good idea to not manually partition the disk, and you can do this by choosing the **Automatically partition** option at the screen above.

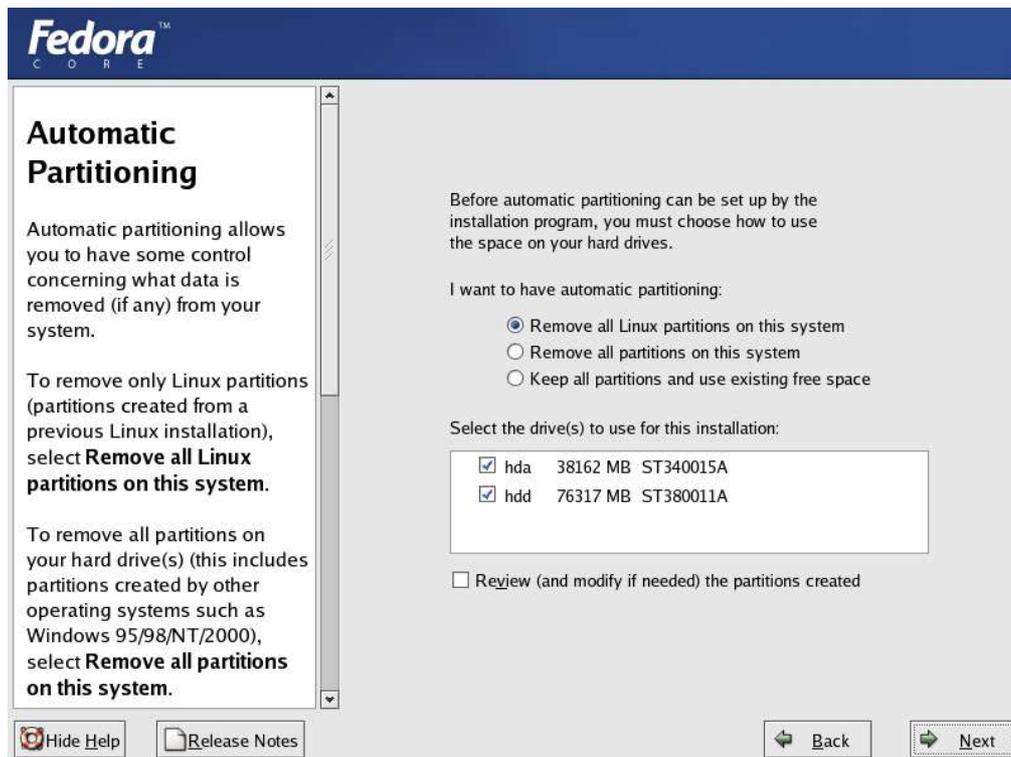


Figure 8. Anaconda has several automatic partitioning options

When choosing the automatic partitioning option, there are three options to consider:

- Remove all Linux partitions on the system – this will only detect Linux based partitions, from previous versions of Linux or other Linux installations on the system. Anaconda will then free up space based on that. This option will not be useful if there were no Linux partitions on the system before.
- Remove all partitions on this system – this will remove **all** partitions on the system, including those that belong to operating systems like Microsoft Windows. Use this carefully, only if you are absolutely sure that the data on your hard disk is not important to you!
- Keep all partitions and use existing free space – this option works as long as your disk has been partitioned before, to make free space available for Linux.

Note: Fedora Core supports resizing partitions, via using the `fips` utility in the `dosutils/` directory on the CD 1. It should be noted that `fips` does not resize NTFS partitions, which include most of Microsoft Windows NT, 2000 and XP installations. It is a text-based utility, and has documentation in `dosutils/fipsdocs` – read the documentation if you want to go this way. It is not recommended for new users.

Also notice, that if you have more than one hard disk on the system, Anaconda will ask which device is appropriate to use for installation. You can also use more than one disk, and separate the partitions over that, for instance. Lastly, even with the automatic partitioning, you **can** review the partitions that Anaconda thought was right to create for you, after it does so – that is, you get to review the proposed partition choice. To do this, select the **Review (and modify if needed) the partitions created** option. If you do select this option, Figure 9 will be displayed, otherwise you can skip over this next section.

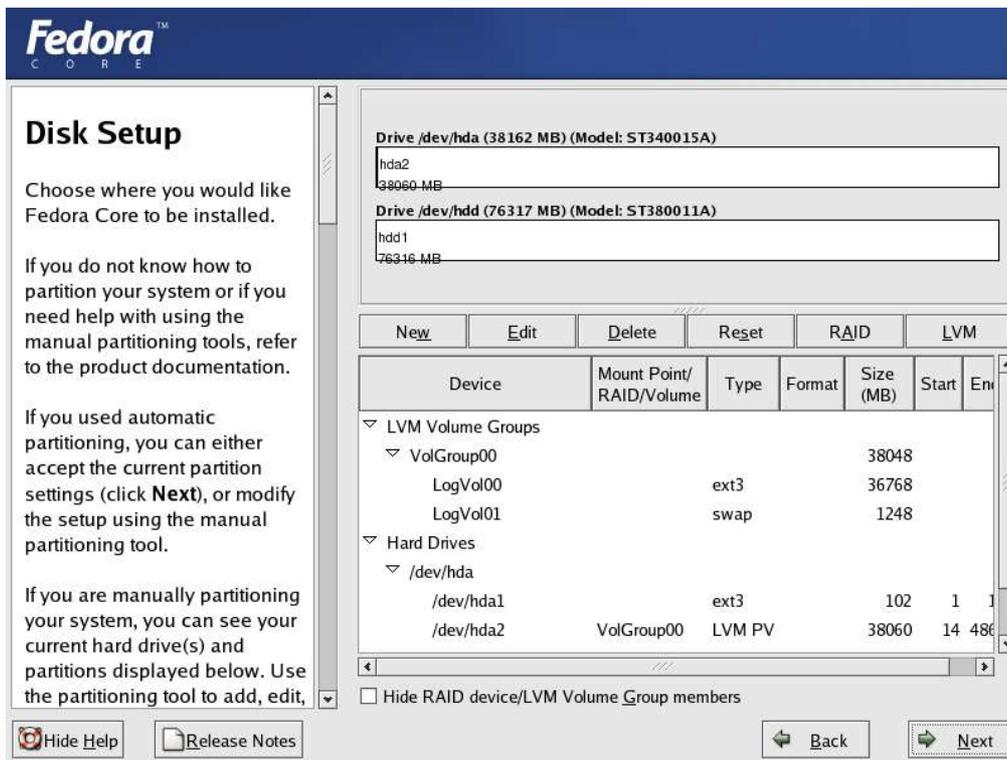


Figure 9. Anaconda's Disk Druid displaying partition information

This is where confirmation in regards to disk partitions for Fedora Core are decided (and anything else that may reside on your system). If the Automatic Partitioning option is chosen, it's as simple as clicking **Next** here, as the installer would have chosen sane defaults for the system installation. If however, there is a need to perform some changes, or you wish to modify the partition style, this is where it can be done.

Boot Loader Setup

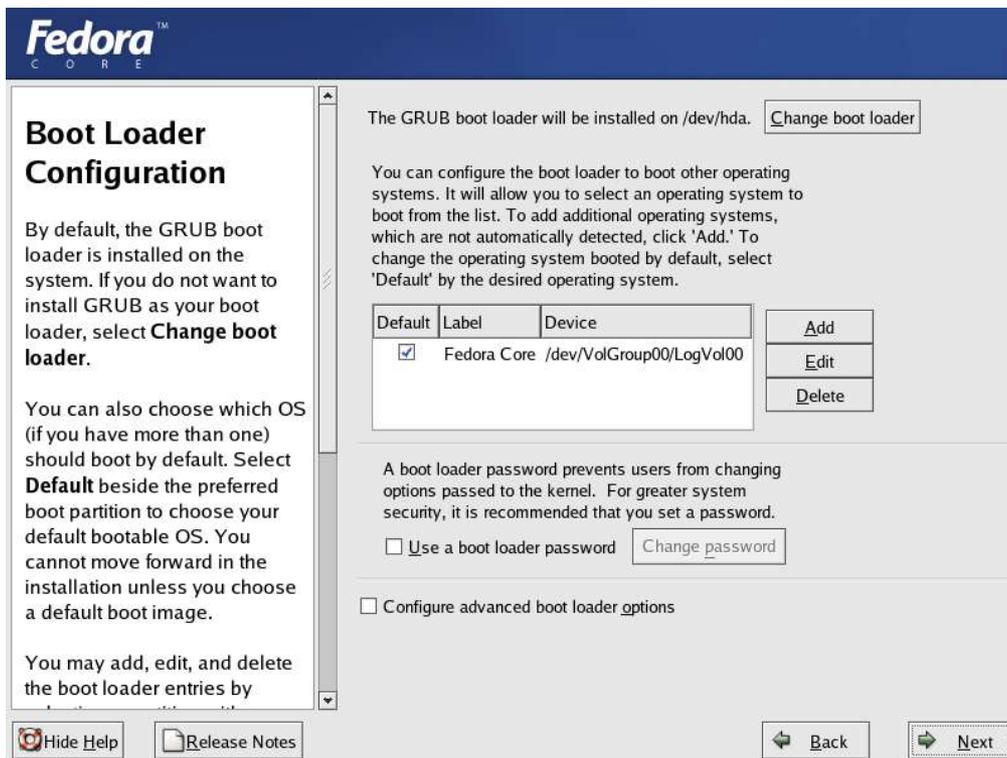


Figure 10. Anaconda Boot Loader Configuration

There was a time when being at the boot loader configuration screen meant choosing over LILO or GRUB as a default boot loader. This however is not necessary any longer, as Fedora only ships with the GRUB boot loader. All systems require a boot loader – it is what gets first control after the BIOS of a computer has been through its checks and initialized.

However, if you have more than one OS, you might choose to not install a boot loader, favoring that the boot information be handled by your other OS. To do this, you select the Change boot loader option, and select not to install GRUB as your boot loader.

Like many whom prefer to dual-boot, i.e. have Windows and Linux on the same computer (and most likely on the same hard disk), Anaconda's boot loader offers one to Add additional operating systems to the GRUB boot menu.

Network Configuration

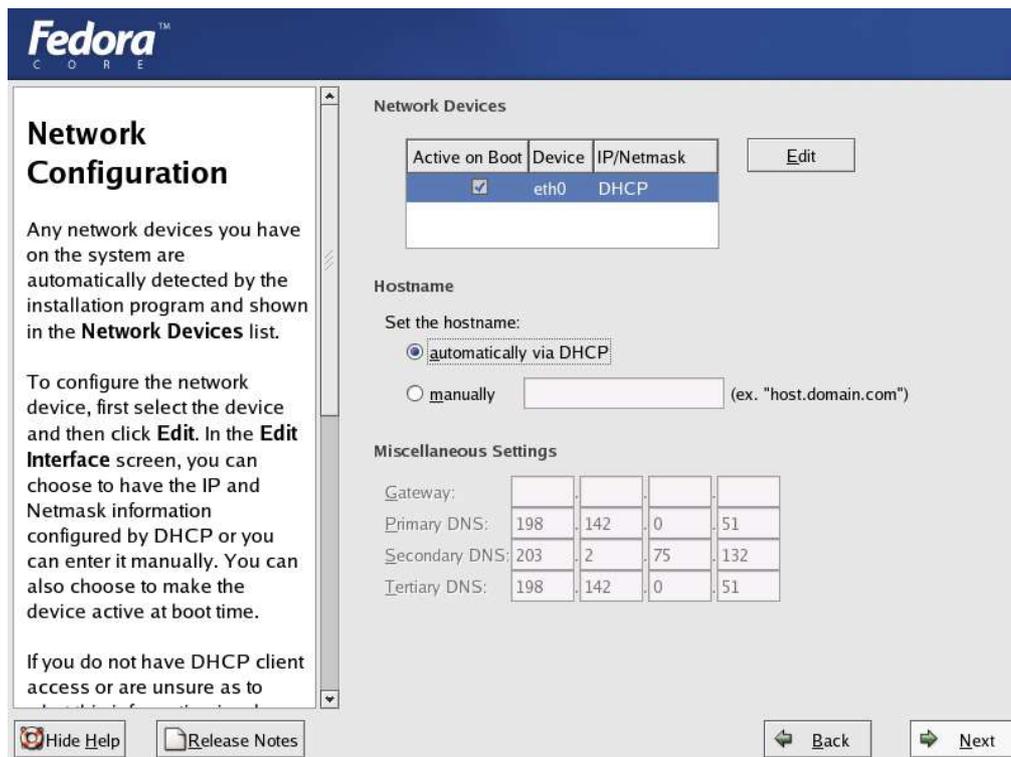


Figure 11. Anaconda's Networking Configuration

Anaconda will try to detect all networking devices on the system and provide it in the network devices listing. eth0 refers to “Ethernet 0”, or the first networking interface that the computer has – this is usually a wired 10/100mbps network card. Most laptops nowadays tend to have wireless built-in – these types of cards will then be detected as the next Ethernet device (and will get a similar device name like eth1).

The option to activate the card(s) on boot can be enabled here. This means that when the system is starting up, Fedora Core will attempt to bring up the networking automatically. The DHCP option is what's selected if available – to make use of this, a DHCP server needs to be available on your network to dish out IP addresses and other information, like the machine name. If you don't know much about DHCP, the settings are probably correct.

If however, you have a network without a DHCP server, you might find it necessary to setup static IP addresses. The hostname setting is that of a machine name – the default is to get it via DHCP, and if your DHCP server does not provide one, your machine's name will be “localhost.localdomain”. You can however set this manually, to something of your fancy, like “laptop.home”. Click Next once satisfied, to be presented with the Firewall Configuration.

Firewall Configuration

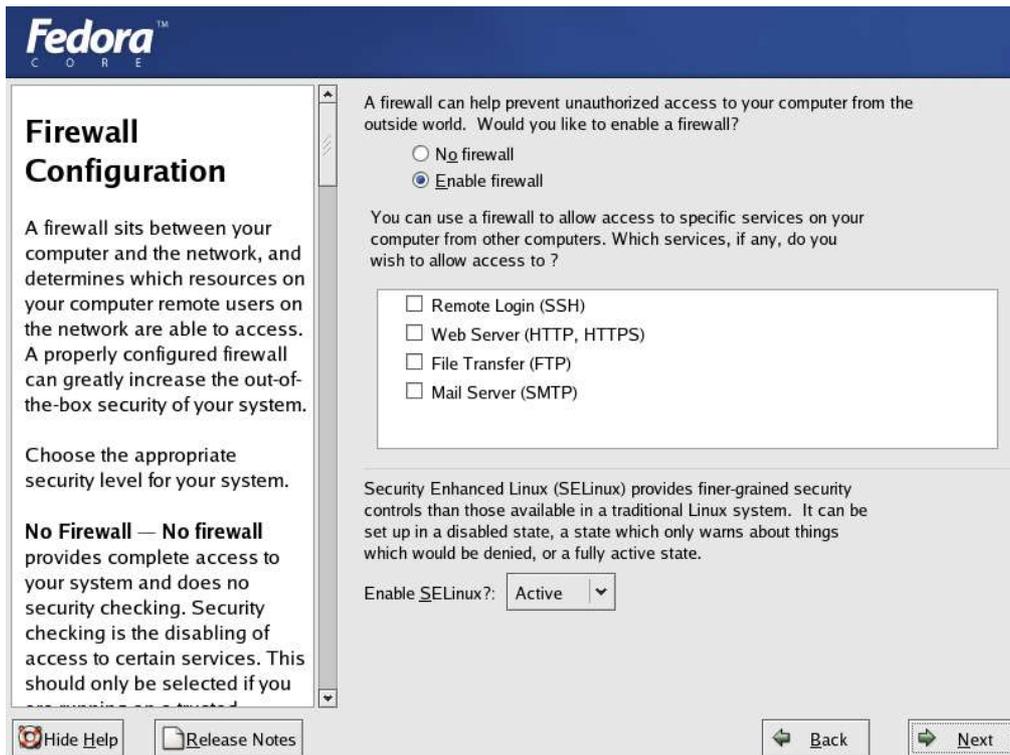


Figure 12. Anaconda's security settings

With the implementation of SELinux, it would seem this is not just the firewall settings screen but the overall security settings screen. Especially if your machine is connected to the Internet, it makes sense to enable the firewall, and this is the Fedora Core default. You can however, add specific services to allow, and the more popular ones are for the Secure Shell (SSH), which is a secure remote login implementation, the web server (provided by Apache), the File Transfer Protocol (FTP) provided by vsftpd or even mail services (provided by either Sendmail or Postfix).

The new addition is to the question: **Enable SELinux?** and it defaults to being set to Active. This means that daemons (little programs that run in the background) are restricted by security contexts, making the overall likelihood of your system being broken into and compromised a lot less. The Active, targeted policy, has been tested to make sure that the end-user experience is not affected in any way, so enabling SELinux is probably a good idea.

Additional Languages

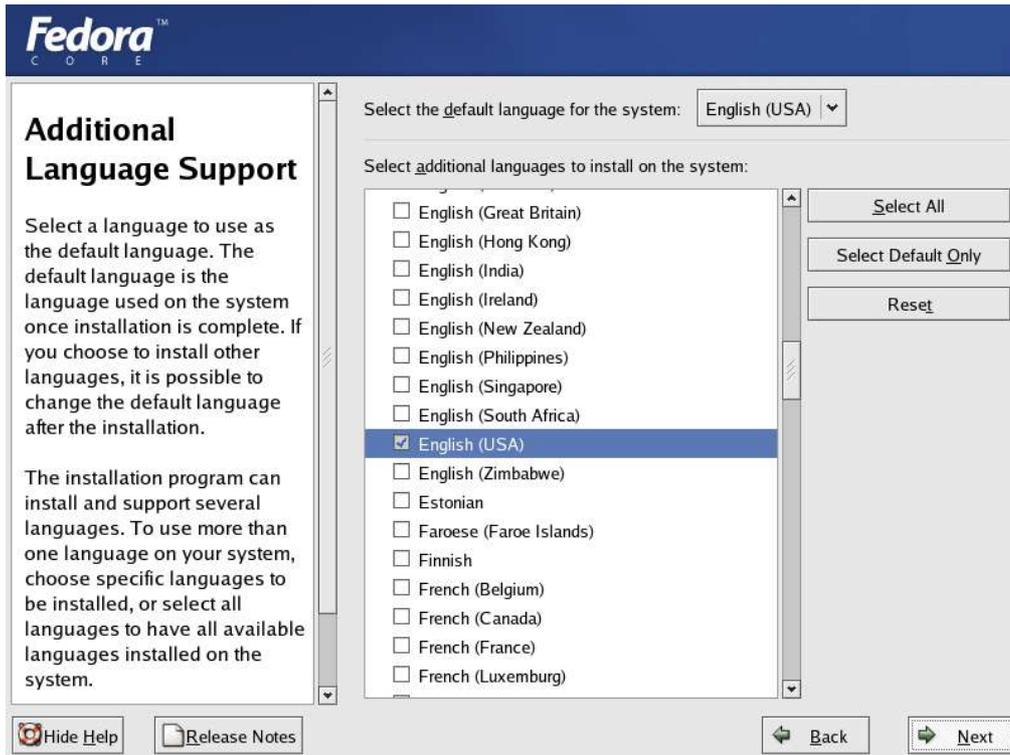


Figure 13. Choosing an additional language

Fedora Core allows you to have more than one installed language on the system, and while the default language might be English, as selected in Figure 13, one can choose to install additional language packs. This means that if a user on the system wishes to use their desktop in French, its possible – just tick the check-box next to the French language, and select Next. This can be repeated for other languages as well, as Fedora Core currently supports 41 languages.

Time Zone Information



Figure 14. Anaconda's Time Zone selection

The system time can be configured when you are at the screen depicted in Figure 14. All the locations with yellow dots are major cities where if your mouse pointer clicks on any of them, it will select the Location and Description automatically for you. It however might not be correct, but the Location will be a lot more narrowed down, so its easier to choose your location with the little menu at the bottom. Clicking the “**System clock uses UTC**” option is only useful if your BIOS is configured to use UTC time – on systems that dual-boot with Windows, this might not be the case.

Root Password setup



Figure 15. Setting the system administrator's password

The concept of having an administrator as well as *regular* users is very common in the Unix world, and Fedora Core makes no exception to that. A user is only meant to use the root account for administrative purposes, which include installing new system-wide software, or fixing the disk in the event that there's a crash with an unrecoverable error. For most day-to-day activity, the root user account is not required – so enter an appropriate password, and click Next. User account creation will come later, when you first boot the system after installation.

Package Installation



Figure 16. Package installation defaults

Now the option is provided to actually allow the software packages that Fedora Core 3 thinks is appropriate to install as a default in a Personal Desktop installation. It includes the GNOME Desktop, OpenOffice.org for office productivity, the basic Internet packages (browser, e-mail, instant messengers), some sound and video applications and a few others. If you accept the current install choices, the following screen will not apply.

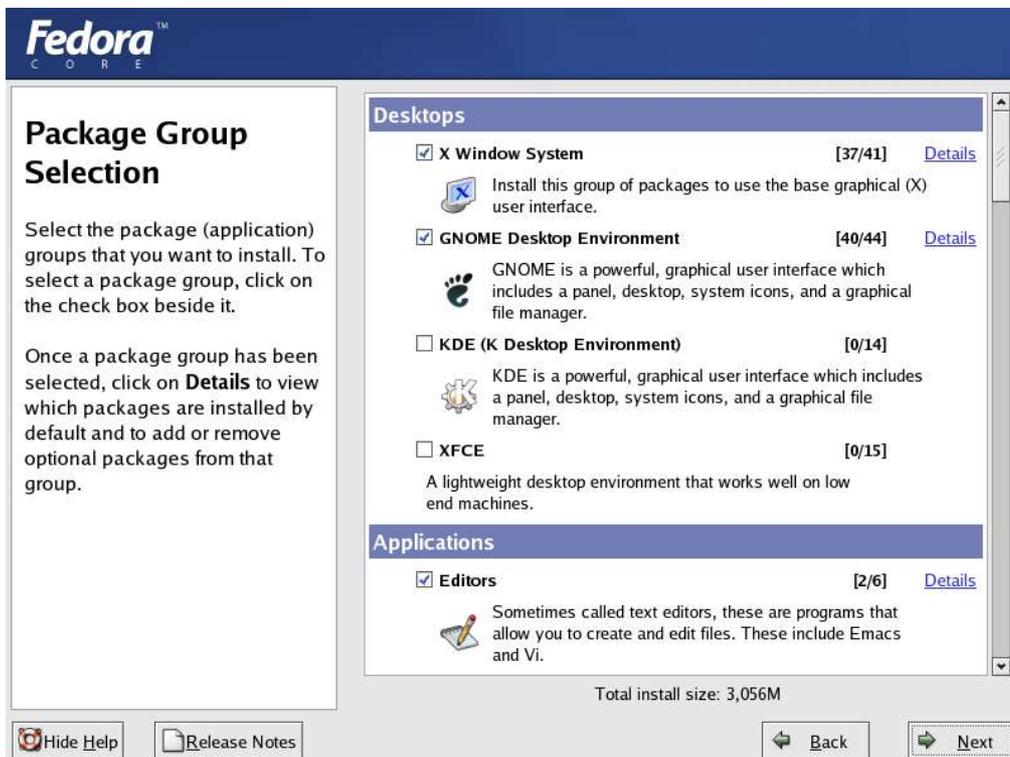


Figure 17. Select more packages to be installed

In the screen in Figure 17, titled Package Group Selection, you can customize the installation defaults. Presuming you do not want the GNOME Desktop to be installed, but prefer to have KDE, you can un-tick GNOME here, and tick the KDE option. You can also perform a minimal installation at this screen, as well as an everything installation. For more fine-grained tuning of the packages within a package set, clicking on the Details will bring a pop-up dialog, allowing you to select more packages, as in Figure 18.

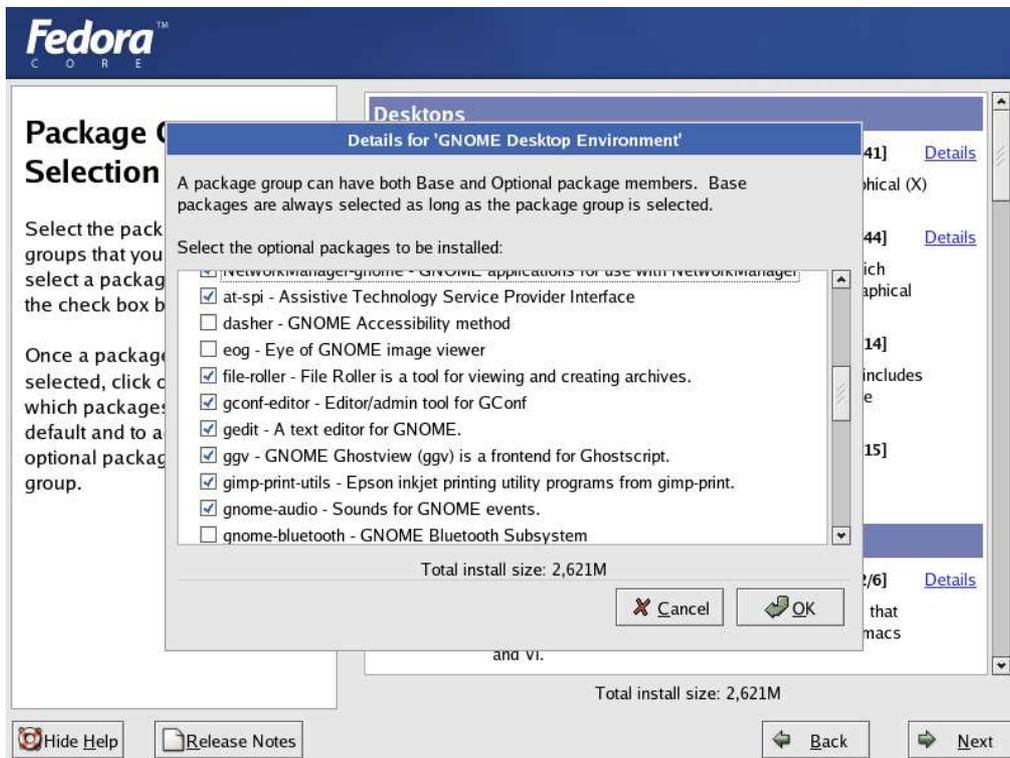


Figure 18. Getting to the details within a package installation set

The installation starts

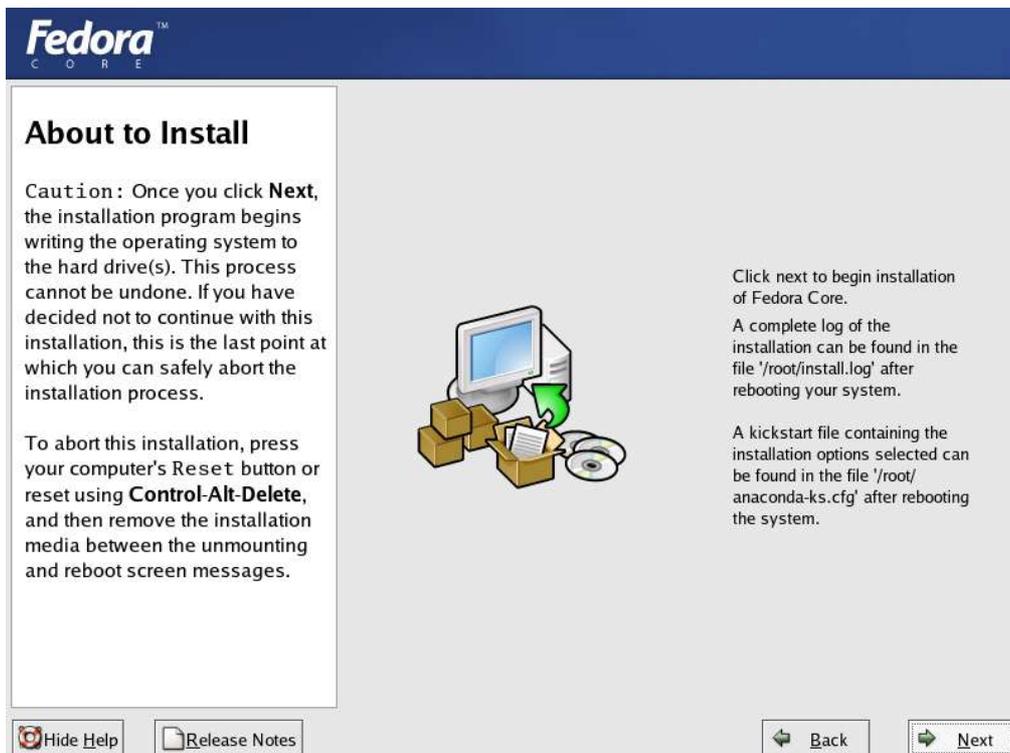


Figure 19. The installation will begin!

Seeing the screen depicted in Figure 19 means that Fedora Core is about to install itself. After answering all those questions, the task of installing your Linux system is just about over. When **Next** is clicked here, all you have to do is sit back and relax while Fedora Core gets itself installed. You will need to change discs when the installer prompts, but otherwise, there will be no user interaction required. The installer will warn you that you how many CDs you will require if that is the installation media of your choice (Figure 20) – make certain that all these CDs are available.



Figure 20. The media you will require



Figure 21. Anaconda installing packages

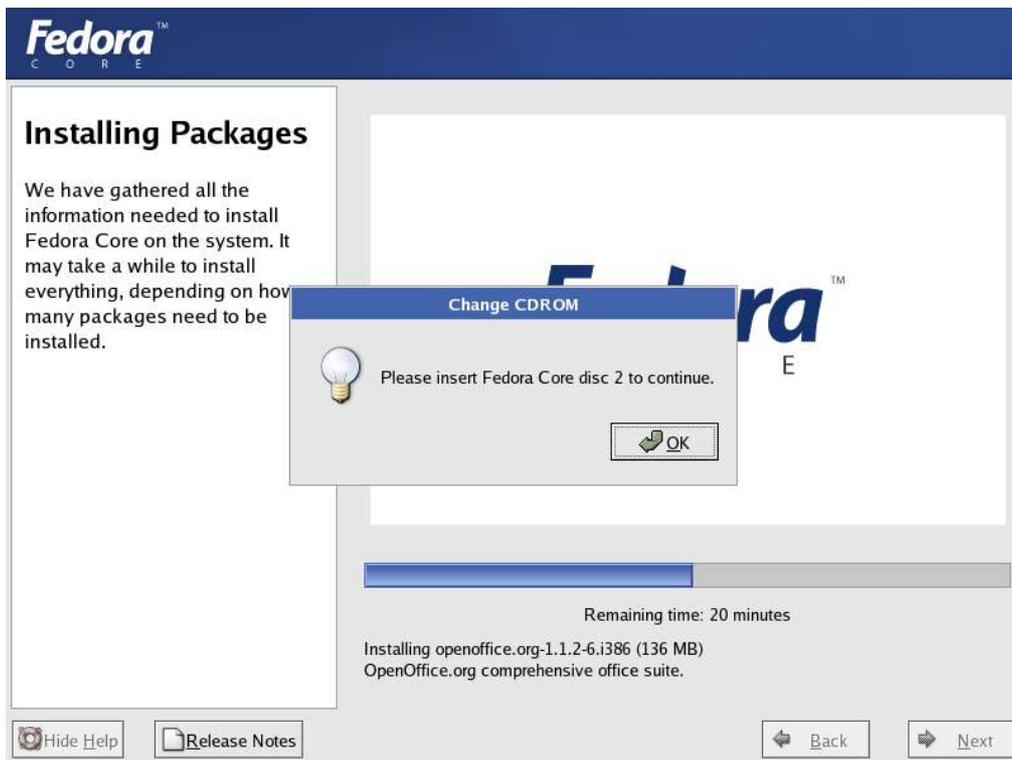


Figure 22. Prompt to insert media (if required)



Figure 23. The installation is complete

Yes, that's right, the installation is complete! Remove the media from your drive, and click the **Reboot** button.