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# Fedora 8

## Release Notes



### Fedora Documentation Project

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## 1. Welcome to Fedora

The Fedora Project is a Red Hat sponsored and community supported open source project. Its goal is the rapid progress of free and open source software and content. The Fedora Project makes use of public forums, open processes, rapid innovation, meritocracy, and transparency in pursuit of the best operating system and platform that free and open source software can provide.



### Latest Release Notes on the Web

These release notes may be updated. Visit <http://docs.fedoraproject.org/release-notes/> to view the latest release notes for Fedora.



### Older Release Notes on the Web

If you are migrating from a release of Fedora older than the immediately previous one, you should refer to older Release Notes for additional information. You can find older Release Notes at <http://docs.fedoraproject.org/release-notes/>.

You can help the Fedora Project community continue to improve Fedora if you file bug reports and enhancement requests. Refer to <http://fedoraproject.org/wiki/BugsAndFeatureRequests> for more information about bugs. Thank you for your participation.

To find out more general information about Fedora, refer to the following Web pages:

- Fedora Overview (<http://fedoraproject.org/wiki/Overview>)
- Fedora FAQ (<http://fedoraproject.org/wiki/FAQ>)
- Help and Discussions (<http://fedoraproject.org/wiki/Communicate>)
- Participate in the Fedora Project (<http://fedoraproject.org/wiki/Join>)



### Document Links

Many links may not work properly from within the installation environment, due to resource constraints. The release notes are also available post-installation as part of the desktop Web browser's default home page. If you are connected to the internet, use these links to find other helpful information about Fedora and the community that creates and supports it.

## 2. Release Highlights



### Latest Release Notes on the Web

These release notes may be updated. Visit <http://docs.fedoraproject.org/release-notes/> to view the latest release notes for Fedora.

### 2.1. Fedora Tour

You can find a tour filled with pictures and videos of this exciting new release at <http://fedoraproject.org/wiki/Tours/Fedora8>.

### 2.2. New in Fedora

This release includes significant new versions of many key components and technologies. The following sections provide a brief overview of major changes from the last release of Fedora.

#### 2.2.1. Spins

Fedora includes several different *spins*<sup>1</sup>, which are variations of Fedora built from a specific set of software packages. Each spin has a combination of software to meet the requirements of a specific kind of end user. In addition to a very small **boot.iso** image for network installation, users have the following spin choices:

- A regular Fedora image for desktops, workstations, and server users. This spin provides a good upgrade path and similar environment for users of previous releases of Fedora.
- One of four Live images that can be run from a disc or USB flash device, and can be installed to hard disk as desired. See the "Live" section for more information about the Live images.

---

<sup>1</sup> <http://fedoraproject.org/wiki/CustomSpins>

More custom spins are available at <http://spins.fedoraproject.org>. Remember that these Live images can be used on USB media via the *livecd-iso-to-disk* utility available in the *livecd-tools* package.

### 2.2.2. Features

- This release features [GNOME 2.20](#)<sup>2</sup>. GNOME now includes mail notification in the **Evolution** mail client, the ability to fill in PDF forms in the **Evince** document viewer, improved file management, a revamped **Appearance** control panel applet, a revised help system, and many other enhancements.
- Online Desktop provides a desktop experience designed around online services. A preview of Online Desktop is provided via BigBoard, which is an optional sidebar in GNOME.
- KDE 3.5.8 is available in the KDE Live image as well as the regular DVD. The KDE 4 (Beta) Development Environment is available in the repository.
- Xfce 4.4.1 is available as part of this release.
- NetworkManager 0.7 provides improved wireless network management support. It includes support for multiple devices and provides the capability of system-wide configuration, among many other enhancements.
- [PulseAudio](#)<sup>3</sup> is now installed and enabled by default. PulseAudio is an advanced sound server compatible with nearly all existing Linux sound systems. PulseAudio allows for hot-switching audio outputs, individual volume controls for each audio stream, networked audio, and more.
- CodecBuddy is now included, and promotes free, superior quality, open formats to end users trying to play multimedia content under patent encumbered or proprietary formats.
- Compiz Fusion, the compositing window manager that re-merges Compiz and Beryl, is installed by default. To enable Compiz Fusion in GNOME, use the **System** → **Preferences** → **Desktop Effects** tool. Ongoing, long term [Xorg work](#)<sup>4</sup> continues to enable [Compiz](#)<sup>5</sup> by default.
- The completely free and open source Java environment called IcedTea is installed by default. IcedTea is derived from OpenJDK, includes a browser plugin based on GCJ, and is available for both x86 and x86\_64 architectures. GCJ is still the default on PPC architecture.
- OpenOffice.org 2.3, with many [new features](#)<sup>6</sup>, is available as part of Fedora 8.
- Bluetooth devices and tools now have better graphical and system integration.
- Laptop users benefit from the "quirks" feature in HAL, including better suspend/resume and multimedia keyboard support.
- There is now improved power management thanks to both a tickless kernel in x86 and x86\_64 architectures, and a reduction in unnecessary processor wakeups via *powertop*.
- This release of Fedora has a new look and feel, called [Infinity](#)<sup>7</sup>, from the Fedora Art team.
- [Nodoka](#)<sup>8</sup>, a fresh new GNOME theme created specially for Fedora, is available in this release.
- A new online browser home page, <http://start.fedoraproject.org>, appears in this release.
- Fedora continues to improve its many proactive [security features](#)<sup>9</sup>, and FORTIFY\_SOURCE has now been [enhanced](#)<sup>10</sup> to cover C++ in addition to C, which prevents many security exploits.

- A brand new graphical firewall configuration tool, *system-config-firewall*, replaces *system-config-securitylevel*.
- This release offers *Kiosk*<sup>11</sup> functionality via SELinux, among many new enhancements and security policy changes.
- The *glibc* package in Fedora 8 now has *support*<sup>12</sup> for passwords using SHA256 and SHA512 hashing. Before only DES and MD5 were available. The tools to create passwords have not been extended yet, but if such passwords are created in others ways, *glibc* will recognize and honor them.
- Secure remote management capability is now provided for Xen, KVM, and QEMU in Fedora 8 *virtualization*<sup>13</sup>.
- Eclipse 3.3 (Europa), a new release of the acclaimed development platform, is available as part of this release.
- In this release, the performance of **yum**, **Pirut**, and **Pup** have been significantly improved.
- The **Add/Remove Programs** tool, *pirut*, introduces a new graphical interface for managing software repositories. Use **Edit** → **Repositories** to enable/disable any of the installed software repositories.
- Live installations are faster and require a smaller root filesystem. The file system layout has also changed somewhat. System files for the Live images are now under **LiveOS/**, and a new **README** file has been provided as a short introduction to the live image.
- *Transifex*<sup>14</sup> provides a web-based translation interface to allow users to contribute translation work for Fedora hosted projects as well as being able to provide translations to upstream directly to any upstream project.
- Integration of unique build IDs into Fedora's software building infrastructure now provides enhanced debugging capabilities and core dumps.
- Fedora now offers easier rebranding of Fedora derivatives via a *generic-logos* software package. Changes in Fedora's mirror structure also make creation of derivatives easier.
- The `pam_console` module usage has been removed in favor of access control via HAL, which modernizes the desktop.
- Fedora 8 features a 2.6.23 based kernel.

## 2.3. Road Map

The proposed plans for the next release of Fedora are available at <http://fedoraproject.org/wiki/RoadMap>.

## 3. Feedback

Thank you for taking the time to provide your comments, suggestions, and bug reports to the Fedora community. By doing so, you help improve the state of Fedora, Linux, and free software worldwide.

### 3.1. Providing Feedback on Fedora Software

To provide feedback on Fedora software or other system elements, please refer to <http://fedoraproject.org/wiki/BugsAndFeatureRequests>. A list of commonly reported bugs and known issues for this release is available from <http://fedoraproject.org/wiki/Bugs/F8Common>.

### 3.2. Providing Feedback on Release Notes



#### Feedback for Release Notes Only

This section concerns feedback on the release notes themselves.

If you feel these release notes could be improved in any way, you can provide your feedback directly to the beat writers. Here are several ways to do so, in order of preference:

1. If you have a Fedora account, edit content directly at <http://fedoraproject.org/wiki/Docs/Beats>
2. Fill out a bug request using this template: <http://tinyurl.com/nej3u> - **This link is ONLY for feedback on the release notes themselves.** Refer to the admonition above for details.
3. Email [relnotes@fedoraproject.org](mailto:relnotes@fedoraproject.org)<sup>15</sup>

## 4. Installation Notes



#### Latest Release Notes on the Web

These release notes may be updated. Visit <http://docs.fedoraproject.org/release-notes/> to view the latest release notes for Fedora.



#### Fedora Installation Guide

To learn how to install Fedora, refer to <http://docs.fedoraproject.org/install-guide/>.



#### Installation issues not covered in these release notes

If you encounter a problem or have a question during installation that is not covered in these release notes, refer to <http://fedoraproject.org/wiki/FAQ> and <http://fedoraproject.org/wiki/Bugs/Common>.

**Anaconda** is the name of the Fedora installer. This section outlines issues related to **Anaconda** and installing Fedora 8.



#### Downloading Large Files

If you intend to download the Fedora DVD ISO image, keep in mind that not all file downloading tools can accommodate files larger than 2 GiB in size. Tools without this

limitations include **wget** 1.9.1-16 and above, **curl**, and **ncftpget**. **BitTorrent** is another method for downloading large files. For information about obtaining and using the torrent file, refer to <http://torrent.fedoraproject.org/>.

**Anaconda** tests the integrity of installation media by default. This function works with the CD, DVD, hard drive ISO, and NFS ISO installation methods. The Fedora Project recommends that you test all installation media before starting the installation process and before reporting any installation-related bugs. Many of the bugs reported are actually due to improperly-burned CDs or DVDs.

The **mediacheck** function is highly sensitive, and may report some usable discs as faulty. This result is often caused by disc writing software that does not include padding when creating discs from ISO files. To use this test, at boot time hit any key to enter the menu. Then press the **Tab** key, add the option **mediacheck** to the parameter list, and press **Enter**.

After you complete the **mediacheck** function successfully, reboot to return DMA mode to its normal state. On many systems, this results in a faster installation process from the disc. You may skip the **mediacheck** option when rebooting.



### BitTorrent Automatically Verifies File Integrity

If you use **BitTorrent**, any files you download are automatically validated. If your file completes downloading, you do not need to check it. Once you burn your CD or DVD, however, you should still use **mediacheck** to test the integrity of the media.

To perform memory testing before you install Fedora, press any key to enter the boot menu, then select **Memory Test**. This option runs the **Memtest86** stand alone memory testing software in place of **Anaconda**. **Memtest86** memory testing continues until you press the **Esc** key.



### Memtest86 Availability

You must boot from Installation Disc 1, the DVD, or a rescue CD in order to use this feature.

Fedora 8 supports graphical FTP and HTTP installations. However, the installer image must either fit in RAM or appear on local storage, such as Installation Disc 1. Therefore, only systems with more than 192MiB of RAM, or which boot from Installation Disc 1, can use the graphical installer. Systems with 192MiB RAM or less fall back to using the text-based installer automatically. If you prefer to use the text-based installer, type **linux text** at the boot : prompt.

## 4.1. Changes in Anaconda

- Improved Live images support
- Ability to install from Live image running from RAM or USB stick
- Improved IEEE-1394 (Firewire) support
- Use of **/dev/hdX** is deprecated on i386 and x86\_64 for IDE drives, and has changed to **/dev/sdX** except on PPC. See note about the importance of labeling devices for upgrades from FC6, and partition limitations.



## 4.2. Installation Related Issues

### 4.2.1. IDE RAID

Not all IDE RAID controllers are supported. If your RAID controller is not yet supported by *dmraid*, you may combine drives into RAID arrays by configuring Linux software RAID. For supported controllers, configure the RAID functions in the computer BIOS.

### 4.2.2. Multiple NICs and PXE Installation

Some servers with multiple network interfaces may not assign `eth0` to the first network interface as BIOS knows it, which can cause the installer to try using a different network interface than was used by PXE. To change this behavior, use the following in `pxelinux.cfg/*` config files:

```
IPAPPEND 2
APPEND ksdevice=bootif
```

The configuration options above causes the installer to use the same network interface as BIOS and PXE use. You can also use the following option:

```
ksdevice=link
```

This option causes the installer to use the first network device it finds that is linked to a network switch.

### 4.2.3. HP ProLiant DL360 with Smart Array

If you have difficulties with this installation not detecting the Smart Array card, try entering `linux isa` on the installer prompt. This lets you manually select the card.

### 4.2.4. Drivers Requiring Firmware

Currently, **Anaconda** is not able to load userland firmware. This means that any devices with a driver that relies on loaded firmware will not be supported at install time. This includes all QLogic storage controllers.

## 4.3. Upgrade Related Issues

Refer to <http://fedoraproject.org/wiki/DistributionUpgrades> for detailed recommended procedures for upgrading Fedora.

### 4.3.1. SCSI driver partition limits

Whereas older IDE drivers supported up to 63 partitions per device, SCSI devices are limited to 15 partitions per device. **Anaconda** uses the new `libata` driver in the same fashion as the rest of Fedora, so it is unable to detect more than 15 partitions on an IDE disk during the installation or upgrade process.

If you are upgrading a system with more than 15 partitions, you may need to migrate the disk to Logical Volume Management (LVM). This restriction may cause conflicts with other installed systems if they do not support LVM. Most modern Linux distributions support LVM, and drivers are available for other operating systems as well.

### 4.3.2. Disk partitions must be labeled

A change in the way that the linux kernel handles storage devices means that device names like **/dev/hdX** or **/dev/sdX** may differ from the values used in earlier releases. Anaconda solves this problem by relying on partition labels. If these labels are not present, then Anaconda presents a warning indicating that partitions need to be labelled and that the upgrade can not proceed. Systems that use Logical Volume Management (LVM) and the device mapper usually do not require relabeling.

#### 4.3.2.1. To check disk partition labels

To view partition labels, boot the existing Fedora installation, and enter the following at a terminal prompt:

```
/sbin/blkid
```

Confirm that each volume line in the list has a **LABEL=** value, as shown below:

```
/dev/hdd1: LABEL="/boot" UUID="ec6a9d6c-6f05-487e-a8bd-a2594b854406" SEC_TYPE="ext2"
TYPE="ext3"
```

#### 4.3.2.2. Update the file system mount entries

If any filesystem labels were added or modified, then the device entries in **/etc/fstab** must be adjusted to match:

```
su -c 'cp /etc/fstab /etc/fstab.orig'
su -c 'gedit /etc/fstab'
```

An example of a mount by label entry is:

```
LABEL=f7-slash / ext3 defaults 1 1
```

#### 4.3.2.3. Update the grub.conf kernel root entry

If the label for the **/** (root) filesystem was modified, the kernel boot parameter in the grub configuration file must also be modified:

```
su -c 'gedit /boot/grub/grub.conf'
```

A matching example kernel grub line is:

```
kernel /vmlinuz-2.6.20-1.2948.fc6 ro root=LABEL=f7-slash rhgb quiet
```

#### 4.3.2.4. Test changes made to labels

If partition labels were adjusted, or the **/etc/fstab** file modified, then boot the existing Fedora installation to confirm that all partitions still mount normally and login is successful. When complete, reboot with the installation media to start the installer and begin the upgrade.

### 4.3.3. Upgrades versus fresh installations

In general, fresh installations are recommended over upgrades, particularly for systems that include software from third-party repositories. Third-party packages remaining from a previous installation may

not work as expected on an upgraded Fedora system. If you decide to perform an upgrade anyway, the following information may be helpful:

- Before you upgrade, back up the system completely. In particular, preserve **/etc**, **/home**, and possibly **/opt** and **/usr/local** if customized packages are installed there. You may wish to use a multi-boot approach with a "clone" of the old installation on alternate partition(s) as a fallback. In that case, create alternate boot media, such as a GRUB boot floppy.



### System Configuration Backups

Backups of configurations in **/etc** are also useful in reconstructing system settings after a fresh installation.

- After you complete the upgrade, run the following command:

```
rpm -qa --last > RPMS_by_Install_Time.txt
```

Inspect the end of the output for packages that pre-date the upgrade. Remove or upgrade those packages from third-party repositories, or otherwise deal with them as necessary. Some previously installed packages may no longer be available in any configured repository. To list all these packages, use the following command:

```
su -c 'yum list extras'
```

## 5. Architecture Specific Notes



### Latest Release Notes on the Web

These release notes may be updated. Visit <http://docs.fedoraproject.org/release-notes/> to view the latest release notes for Fedora.

This section provides notes that are specific to the supported hardware architectures of Fedora.

### 5.1. RPM multiarch support on 64-bit platforms (x86\_64, ppc64)

**RPM** supports parallel installation of multiple architectures of the same package. A default package listing such as **rpm -qa** might appear to include duplicate packages, since the architecture is not displayed. Instead, use the **repoquery** command, part of the *yum-utils* package, which displays architecture by default. To install *yum-utils*, run the following command:

```
su -c 'yum install yum-utils'
```

To list all packages with their architecture using **rpm**, run the following command:

```
rpm -qa --queryformat "%{name}-%{version}-%{release}-%{arch}\n"
```

You can add this to **/etc/rpm/macros** (for a system wide setting) or **~/.rpmmacros** (for a per-user setting). It changes the default query to list the architecture:

```
%_query_all_fmt      %{name}-%{version}-%{release}.%{arch}
```

## 5.2. PPC Specifics for Fedora

This section covers specific information about Fedora and the PPC hardware platform.

### 5.2.1. Hardware Requirements for PPC

#### 5.2.1.1. Processor and memory

- Minimum CPU: PowerPC G3 / POWER3
- Fedora 8 supports only the "New World" generation of Apple Power Macintosh, shipped from circa 1999 onward.
- Fedora 8 also supports IBM pSeries, IBM iSeries, IBM RS/6000, Genesi Pegasos II, and IBM Cell Broadband Engine machines.
- Fedora 8 includes new hardware support for Genesi Efika, and for the Sony PlayStation 3.
- Recommended for text-mode: 233 MHz G3 or better, 128MiB RAM.
- Recommended for graphical: 400 MHz G3 or better, 256MiB RAM.

#### 5.2.1.2. Hard disk space

The disk space requirements listed below represent the disk space taken up by Fedora 8 after installation is complete. However, additional disk space is required during installation to support the installation environment. This additional disk space corresponds to the size of **/Fedora/base/stage2.img** (on Installation Disc 1) plus the size of the files in **/var/lib/rpm** on the installed system.

In practical terms, additional space requirements may range from as little as 90 MiB for a minimal installation to as much as an additional 175 MiB for an "everything" installation. The complete packages can occupy over 9 GB of disk space.

Additional space is also required for any user data, and at least 5% free space should be maintained for proper system operation.

### 5.2.2. 4 KiB Pages on 64-bit machines

After a brief experiment with 64KiB pages in Fedora Core 6, the PowerPC64 kernel has now been switched back to 4KiB pages. The installer should reformat any swap partitions automatically during an upgrade.

### 5.2.3. The Apple keyboard

The **Option** key on Apple systems is equivalent to the **Alt** key on the PC. Where documentation and the installer refer to the **Alt** key, use the **Option** key. For some key combinations you may need to use the **Option** key in conjunction with the **Fn** key, such as **Option+Fn+F3** to switch to virtual terminal tty3.

### 5.2.4. PPC installation notes

Fedora Installation Disc 1 is bootable on supported hardware. In addition, a bootable CD image appears in the **images/** directory of this disc. These images behave differently according to your system hardware:

- On most machines, the bootloader automatically boots the appropriate 32-bit or 64-bit installer from the install disc.

- **64-bit IBM pSeries (POWER4/POWER5), current iSeries models**

After using OpenFirmware to boot the CD, the bootloader, **yaboot**, automatically boots the 64-bit installer.

- **IBM "Legacy" iSeries (POWER4)**

So-called "Legacy" iSeries models, which do not use OpenFirmware, require use of the boot image located in the **images/iSeries** directory of the installation tree.

- **32-bit CHRP (IBM RS/6000 and others)**

After using OpenFirmware to boot the CD, select the **linux32** boot image at the boot : prompt to start the 32-bit installer. Otherwise, the 64-bit installer starts and fails.

- **Genesi Pegasos II**

At the time of writing, firmware with full support for ISO9660 file systems has not yet been released for the Pegasos. You can use the network boot image, however. At the OpenFirmware prompt, enter the following command:

```
boot cd: /images/netboot/ppc32.img
```

You must also manually configure OpenFirmware on the Pegasos to make the installed Fedora system bootable. To do this, set the boot-device and boot-file environment variables appropriately.

- **Genesi Efika 5200B**

To run Linux correctly on the Efika, download the "Device Tree Supplement" from <http://www.powerdeveloper.org/platforms/efika/devicetree> and install according to the documentation therein. At the time of writing, the firmware of the Efika has bugs which prevent correct operation of the **yaboot** bootloader. Genesi stated that a fixed firmware would be made available by April 2007. As of November 2007, it is not yet available.

- **Sony PlayStation 3**

For installation on PlayStation 3, first update to firmware 1.60 or later. The "Other OS" boot loader must be installed into the flash, following the instructions at <http://www.playstation.com/ps3-openplatform/manual.html>. A suitable boot loader image can be found on Sony's "ADDON" CD, available from <ftp://ftp.kernel.org/pub/linux/kernel/people/geoff/cell/>.

Once the boot loader is installed, the PlayStation 3 should be able to boot from the Fedora install media. Type **linux64 xdriver=fbdev** at the boot prompt, which will work around [https://bugzilla.redhat.com/show\\_bug.cgi?id=370761](https://bugzilla.redhat.com/show_bug.cgi?id=370761). Please note that network installation works best with NFS, since that takes less memory than FTP or HTTP methods. Using the **text** option also reduces the amount of memory taken by the installer.

For more information on Fedora and the PlayStation3 or Fedora on PowerPC in general, join the [Fedora-PPC mailing list](#)<sup>16</sup> or the #fedora-ppc channel on [FreeNode](#)<sup>17</sup>.

- **Network booting**

Combined images containing the installer kernel and ramdisk are located in the **images/netboot/** directory of the installation tree. They are intended for network booting with TFTP, but can be used in many ways.

The **yaboot** loader supports TFTP booting for IBM pSeries and Apple Macintosh. The Fedora Project encourages the use of **yaboot** over the **netboot** images.

### 5.3. x86 Specifics for Fedora

This section covers specific information about Fedora and the x86 hardware platform.

#### 5.3.1. Hardware requirements for x86

In order to use specific features of Fedora 8 during or after installation, you may need to know details of other hardware components such as video and network cards.

##### 5.3.1.1. Processor and memory

The following CPU specifications are stated in terms of Intel processors. Other processors, such as those from AMD, Cyrix, and VIA that are compatible with and equivalent to the following Intel processors, may also be used with Fedora.

Fedora 8 requires an Intel Pentium or better processor, and is optimized for Pentium 4 and later processors.

- Recommended for text-mode: 200 MHz Pentium-class or better
- Recommended for graphical: 400 MHz Pentium II or better
- Minimum RAM for text-mode: 128MiB
- Minimum RAM for graphical: 192MiB
- Recommended RAM for graphical: 256MiB

##### 5.3.1.2. Hard disk space

The disk space requirements listed below represent the disk space taken up by Fedora 8 after the installation is complete. However, additional disk space is required during the installation to support the installation environment. This additional disk space corresponds to the size of **/Fedora/base/stage2.img** on Installation Disc 1 plus the size of the files in **/var/lib/rpm** on the installed system.

In practical terms, additional space requirements may range from as little as 90 MiB for a minimal installation to as much as an additional 175 MiB for an "everything" installation. The complete packages can occupy over 9 GB of disk space.

Additional space is also required for any user data, and at least 5% free space should be maintained for proper system operation.

### 5.4. x86\_64 Specifics for Fedora

This section covers specific information about Fedora and the x86\_64 hardware platform.

### 5.4.1. Hardware requirements for x86\_64

In order to use specific features of Fedora 8 during or after installation, you may need to know details of other hardware components such as video and network cards.

#### 5.4.1.1. Memory requirements for x86\_64

- Minimum RAM for text-mode: 256MiB
- Minimum RAM for graphical: 384MiB
- Recommended RAM for graphical: 512MiB


#### 5.4.1.2. Hard disk space requirements for x86\_64

The disk space requirements listed below represent the disk space taken up by Fedora 8 after the installation is complete. However, additional disk space is required during the installation to support the installation environment. This additional disk space corresponds to the size of **/Fedora/base/stage2.img** on Installation Disc 1 plus the size of the files in **/var/lib/rpm** on the installed system.

In practical terms, additional space requirements may range from as little as 90 MiB for a minimal installation to as much as an additional 175 MiB for an "everything" installation. The complete packages can occupy over 9 GB of disk space.

Additional space is also required for any user data, and at least 5% free space should be maintained for proper system operation.

## 6. Fedora Live Images



### Latest Release Notes on the Web

These release notes may be updated. Visit <http://docs.fedoraproject.org/release-notes/> to view the latest release notes for Fedora.

The Fedora release includes several live ISO images in addition to the traditional installation images. These ISO images are bootable, and you can burn them to media and use them to try out Fedora. They also include a feature that allows you to install the Live image content to your hard drive for persistence and higher performance.

### 6.1. Available Images

There are four Live images available for Fedora 8.

#### Fedora Live (i686, x86\_64, ppc)

This image includes the GNOME desktop environment, integrates all supported Fedora locales, and features a basic set of productivity applications. Only the i686 version fits on a CD. The x86\_64 version has the same feature set and includes multilib packages.

#### Fedora KDE Live (i686, x86\_64)

This image includes the KDE desktop environment, with full support for English language only. Only the i686 version fits on a CD. The x86\_64 version has the same feature set and includes multilib packages.

### **Fedora Developer Live<sup>18</sup> (i686)**


This Live image is designed for software developers, and features the GNOME desktop environment. The toolkit includes the Eclipse integrated development environment, API documentation, and a variety of debugging and profiling utilities.

### **Fedora Electronic Lab (FEL) Live<sup>19</sup> (i686)**

This Live image is designed for engineers working on electronics, and includes a toolkit for electronic component design and simulation. The image fits on a CD.

## 6.2. Usage Information

To boot from the Live image, insert it into your computer and restart. To log in and use the desktop environment, enter the username `fedora`. Hit **Enter** at the password prompt, since there is no password on this account. The Live images do not automatically login so users can select a preferred language. After logging in, if you wish to install the contents of the live image to your hard drive, click on the **Install to Hard Drive** icon on the desktop.



### No i586 Support

The i686 Live images will not boot on an i586 machine.

## 6.3. Text Mode Installation

You can do a text mode installation of the Live images using the **liveinst** command in the console.

## 6.4. USB Booting

Another way to use these Live images is to put them on a USB stick. To do this, install the *livecd-tools* package from the development repository. Then, run the **livecd-iso-to-disk** script:

```
/usr/bin/livecd-iso-to-disk /path/to/live.iso /dev/sdb1
```

Replace `/dev/sdb1` with the partition where you want to put the image.

This is *not* a destructive process; any data you currently have on your USB stick is *preserved*.

## 6.5. Differences From a Regular Fedora Install

The following items are different from a normal Fedora install with the live images.

- Live images provide a subset of packages available in the regular DVD image. Both connect to the same repository that has all the packages.
- SSH is disabled by default and NetworkManager is enabled by default in the Live images. SSH is disabled because the default username in the Live images does not have any password. Installation to hard disk prompts for creating a new user name and password however. NetworkManager is enabled by default since Live images target desktop users.
- Live image installations do not allow any package selection or upgrade capability since they copy entire the filesystem from media to hard disk or USB disks. After the installation is complete



and rebooted, packages can be added and removed as desired with **yum** or the other software management tools.

- Live images do not work on i586 architecture.

## 7. Package Notes



### Latest Release Notes on the Web

These release notes may be updated. Visit <http://docs.fedoraproject.org/release-notes/> to view the latest release notes for Fedora.

The following sections contain information regarding software packages that have undergone significant changes for Fedora 8. For easier access, they are generally organized using the same groups that are shown in the installation system.

### 7.1. Yum Changes

The `installonlyn` plugin functionality has been folded into the core `yum` package. The **`installonlypkgs`** and **`installonly_limit`** options are used by default to limit the system to retain only two kernel packages. You can adjust the package set or the number of packages, or disable the option entirely to match your preferences. More details are available in the man page for **`yum.conf`**.

The **`yum`** command now retries when it detects a lock. This function is useful if a daemon is checking for updates, or if you are running **`yum`** and one of its graphical frontends simultaneously.

The **`yum`** command now understands a cost parameter in its configuration file, which is the relative cost of accessing a software repository. It is useful for weighing one software repository's packages as greater or less than any other. The cost parameter defaults to 1000.

### 7.2. Utility Packages

The `cryptsetup-luks` package has been renamed to `cryptsetup`.

The `i810switch` package has been removed. This functionality is now available through the **`xrandr`** command in the `xorg-x11-server-utils` package.

The `evolution-exchange` package replaces `evolution-connector`, and provides a capability under the old name.

The `system-config-firewall` and `system-config-selinux` packages replace `system-config-security-level`. The `system-config-selinux` package is part of the `polycoreutils-gui` package.

## 8. Linux Kernel



### Latest Release Notes on the Web

These release notes may be updated. Visit <http://docs.fedoraproject.org/release-notes/> to view the latest release notes for Fedora.

This section covers changes and important information regarding the 2.6.23 based kernel in Fedora 8. The 2.6.23 kernel includes:

- Tickless support for x86 64-bit systems (32-bit was added previously), which greatly improves power management.
- Some elements of the realtime kernel project.
- The kernel spec file is now named **kernel.spec** rather than **kernel-2.6.spec**.
- The kernel spec file has new macros that ease the kernel building process. Refer to <http://fedoraproject.org/wiki/Docs/CustomKernel> for further information.
- The kernel in Fedora 8 no longer loads modules by default for ISA sound cards. Load the module by hand using the command **modprobe module-name**, or put an entry in **/etc/modprobe.conf**. For example, for the Creative SoundBlaster AWE64, add the following entry:

```
install snd-sbawe
```

### 8.1. Version

Fedora may include additional patches to the kernel for improvements, bug fixes, or additional features. For this reason, the Fedora kernel may not be line-for-line equivalent to the so-called *vanilla kernel* from the kernel.org web site:

<http://www.kernel.org/>

To obtain a list of these patches, download the source RPM package and run the following command against it:

```
rpm -qpl kernel-<version>.src.rpm
```

### 8.2. Changelog

To retrieve a log of changes to the package, run the following command:

```
rpm -q --changelog kernel-<version>
```

If you need a user friendly version of the changelog, refer to <http://wiki.kernelnewbies.org/LinuxChanges>. A short and full diff of the kernel is available from <http://kernel.org/git>. The Fedora version kernel is based on the Linus tree.

Customizations made for the Fedora version are available from <http://cvs.fedoraproject.org>.

### 8.3. Kernel Flavors

Fedora 8 includes the following kernel builds:

- Native kernel, for use in most systems. Configured sources are available in the *kernel-devel* package.

- The kernel-PAE, for use in 32-bit x86 systems with more than 4GB of RAM, or with CPUs that have an NX (No eXecute) feature. This kernel support both uniprocessor and multi-processor systems. Configured sources are available in the *kernel-PAE-devel* package.
- Virtualization kernel for use with the Xen emulator package. Configured sources are available in the *kernel-xen-devel* package.

You may install kernel headers for all kernel flavors at the same time. The files are installed in the `/usr/src/kernels/version[-PAE|-xen|-kdump]-arch/` tree. Use the following command:

```
su -c 'yum install kernel{,-PAE,-xen,-kdump}-devel'
```

Select one or more of these flavors, separated by commas and no spaces, as appropriate. Enter the root password when prompted.



### x86 Kernel Includes Kdump

Both the x86\_64 and the i686 kernels are now relocatable, so they no longer require a separate kernel for kdump capability. PPC64 still requires a separate *kdump* kernel.



### Default Kernel Provides SMP

There is no separate SMP kernel available for Fedora on i386, x86\_64, and ppc64. Multiprocessor support is provided by the native kernel.



### PowerPC Kernel Support

There is no support for Xen or kdump for the PowerPC architecture in Fedora. 32-bit PowerPC does still have a separate SMP kernel.

## 8.4. Reporting Bugs

Refer to <http://kernel.org/pub/linux/docs/lkml/reporting-bugs.html> for information on reporting bugs in the Linux kernel. You may also use <http://bugzilla.redhat.com> for reporting bugs that are specific to Fedora.

## 8.5. Preparing for Kernel Development

Fedora 8 does not include the *kernel-source* package provided by older versions since only the *kernel-devel* package is required now to build external modules. Configured sources are available, as described [Section 8.3, “Kernel Flavors”](#).



### Custom Kernel Building

For information on kernel development and working with custom kernels, refer to <http://fedoraproject.org/wiki/Docs/CustomKernel>.

## 9. Fedora Desktop



### Latest Release Notes on the Web

These release notes may be updated. Visit <http://docs.fedoraproject.org/release-notes/> to view the latest release notes for Fedora.

This section details changes that affect Fedora graphical desktop users.

### 9.1. GNOME

This release features [GNOME](#)<sup>20</sup> 2.20.

The GNOME splash screen has been disabled upstream intentionally. To enable it, use **gconf-editor** or the following command:

```
gconftool-2 --set /apps/gnome-session/options/show_splash_screen --type bool true
```

The lock screen dialog theme is not connected to the selected screensaver in this release. To enable it, use **gconf-editor** or the following command:

```
gconftool-2 --set --type string /apps/gnome-screensaver/lock_dialog_theme "system"
```

### 9.2. KDE

This release features [KDE](#)<sup>21</sup> 3.5.8. In addition, the *kdepim* package has been updated to a version from the *kdepim/enterprise* branch, which includes many bugfixes and enhancements beyond the stock upstream *kdepim*.

Fedora 8 does *not* include the KDE 4 Desktop because the currently available prerelease versions are not ready for daily use. It does include the KDE 4 Development Platform, which can be used to develop, build, and run KDE 4 applications within KDE 3 or any other desktop environment. See the *Development* section for more details about what is included.

Since *knetworkmanager* does not work with the version of **NetworkManager** available in this release, the KDE Live images use **nm-applet** from *NetworkManager-gnome* as a replacement. The **gnome-keyring-daemon** facility saves passwords for these encryption technologies. The *knetworkmanager* package in this release is a script that calls **nm-applet**. The *knetworkmanager* package will be updated to provide a KDE frontend when a compatible version is available.

Due to the merge of **compiz** and **beryl** into **compiz-fusion**, KDE now uses **compiz**. To switch from **kwin** to **compiz**, use the helper provided in the menu under **Settings** → **Desktop Effects**.

### 9.3. Web Browsers

This release of Fedora includes version 2.0 of the popular **Firefox** web browser. Refer to <http://firefox.com/> for more information about Firefox.

---

<sup>20</sup> <http://www.gnome.org/start/2.20/>

<sup>21</sup> <http://kde.org/announcements/announce-3.5.8.php>

### 9.3.1. Enabling Flash Plugin

Fedora includes an experimental free and open source implementation of Flash called *gnash*. We encourage you to experiment with *gnash* before seeking out Adobe's proprietary Flash plugin software.

To install Adobe Flash plugin follow this procedure:

1. Visit [Adobe's download site](#)<sup>22</sup>.
2. Choose option 3, **Yum repository**.
3. Follow onscreen prompts to install the package.
4. Launch **Applications** → **Add/Remove Software**.
5. Choose the **Search** tab and enter **flash-plugin**.
6. Select the checkbox to install the package.
7. Close all **Firefox** windows, and then launch **Firefox** again.
8. Type **about:plugins** in the URL bar to ensure the plugin is loaded.

Users of Fedora x86\_64 must install the *nspluginwrapper.i386* package to enable the 32-bit Adobe Flash plugin in x86\_64 **Firefox** and the *pulseaudio-libs.i386* package to enable sound from the plugin..

1. Create the 32bit mozilla plugin directory using this command:

```
su -c 'mkdir -p /usr/lib/mozilla/plugins'
```

2. Install the *nspluginwrapper.i386*, *nspluginwrapper.x86\_64*, and *pulseaudio-libs.i386* packages:

```
su -c "yum -y install nspluginwrapper.{i386,x86_64} pulseaudio-libs.i386"
```

3. Install *flash-plugin* as shown above.
4. Run **mozilla-plugin-config** to register the flash plugin:

```
su -c 'mozilla-plugin-config -i -g -v'
```

5. Close all **Firefox** windows, and then relaunch **Firefox**.
6. Type **about:plugins** in the URL bar to ensure the plugin is loaded.

## 9.4. Mail Clients

The *mail-notification* package has been split. The **Evolution** plugin is now in a separate package called *mail-notification-evolution-plugin*. When you update the *mail-notification* package, the plugin is added automatically.

This release contains **Thunderbird** version 2.0, which has numerous performance improvements, folder viewing enhancements, and enhanced mail notification support.

### 9.5. Liberation Fonts

This release of Fedora includes a set of fonts called "Liberation." These fonts are metric equivalents for well-known proprietary fonts prevalent on the Internet. With these fonts, users will find better cross-platform viewing and printing support for a variety of documents. Future versions of these fonts will be fully hinted.

## 10. File Systems



### Latest Release Notes on the Web

These release notes may be updated. Visit <http://docs.fedoraproject.org/release-notes/> to view the latest release notes for Fedora.

Fedora 8 provides basic support for encrypted swap partitions and non-root file systems. To use it, add entries to **/etc/crypttab** and reference the created devices in **/etc/fstab**.



### Encrypted FS Support Unavailable During Install

Enable file system encryption after installation. **Anaconda** does not have support for creating encrypted block devices.

The following example shows an **/etc/crypttab** entry for a swap partition:

```
my_swap /dev/sdb1 /dev/urandom swap,cipher=aes-cbc-essiv:sha256
```

This command creates an encrypted block device **/dev/mapper/my\_swap**, which can be referenced in **/etc/fstab**. The next example shows an entry for a filesystem volume:

```
my_volume /dev/sda5 /etc/volume_key cipher=aes-cbc-essiv:sha256
```

The **/etc/volume\_key** file contains a plaintext encryption key. You can also specify **none** as the key file name, and the system instead asks for the encryption key during boot.

The recommended method is to use **LUKS** for file system volumes. If you are using LUKS you can drop the **cipher=** declaration in **/etc/crypttab**.

1. Create the encrypted volume using **cryptsetup luksFormat**.
2. Add the necessary entry to **/etc/crypttab**.
3. Set up the volume manually using **cryptsetup luksOpen** or reboot.
4. Create a filesystem on the encrypted volume.
5. Set up an entry in **/etc/fstab**.

## 11. Mail Servers



### Latest Release Notes on the Web

These release notes may be updated. Visit <http://docs.fedoraproject.org/release-notes/> to view the latest release notes for Fedora.

This section concerns electronic mail servers or mail transfer agents (MTAs).

### 11.1. Sendmail

By default, the **Sendmail** mail transport agent (MTA) does not accept network connections from any host other than the local computer. To configure **Sendmail** as a server for other clients, edit `/etc/mail/sendmail.mc` and change the **DAEMON\_OPTIONS** line to also listen on network devices, or comment out this option entirely using the **dn1** comment delimiter. Then install the *sendmail-cf* package and regenerate `/etc/mail/sendmail.cf` by running the following commands:

```
su -c 'yum install sendmail-cf'
su -c 'make -C /etc/mail'
```

## 12. Development



### Latest Release Notes on the Web

These release notes may be updated. Visit <http://docs.fedoraproject.org/release-notes/> to view the latest release notes for Fedora.

This section covers various development tools and features.

### 12.1. Tools

#### 12.1.1. GCC Compiler Collection

This release of Fedora has been built with GCC 4.1.2, which is included with the distribution.

##### 12.1.1.1. Code Generation

Starting with *gcc-4.1.2-25* and *glibc-2.6.90-14*, the **-D\_FORTIFY\_SOURCE=2** option protects not only C code, but also C++. There have been several security issues already which would have been unexploitable if this checking was in place earlier. Refer to this [announcement](https://www.redhat.com/archives/fedora-devel-announce/2007-September/msg00015.html)<sup>23</sup> for more details.

##### 12.1.2. Eclipse

This release of Fedora includes Fedora Eclipse, based on the [Eclipse](http://www.eclipse.org)<sup>24</sup> SDK version 3.3.0. You can read the "New and Noteworthy" page for the 3.3.x series of releases can be accessed at [http://](http://www.eclipse.org)

<sup>23</sup> <https://www.redhat.com/archives/fedora-devel-announce/2007-September/msg00015.html>

<sup>24</sup> <http://www.eclipse.org>

[download.eclipse.org/eclipse/downloads/drops/R-3.3-2007-06251500/whatsnew/eclipse-news.html](http://download.eclipse.org/eclipse/downloads/drops/R-3.3-2007-06251500/whatsnew/eclipse-news.html). Release notes specific to 3.3.0 are available at [http://www.eclipse.org/eclipse/development/readme\\_eclipse\\_3.3.html](http://www.eclipse.org/eclipse/development/readme_eclipse_3.3.html).

The Eclipse SDK is known variously as "the Eclipse Platform," "the Eclipse IDE," and "Eclipse." The Eclipse SDK is the foundation for the combined release of twenty-one Eclipse projects under the Callisto combined release umbrella (<http://www.eclipse.org/europa>). A few of these Europa projects are included in Fedora:

- CDT (<http://www.eclipse.org/cdt>, for C/C++ development;
- GEF (<http://www.eclipse.org/gef>), the Graphical Editing Framework; and
- Mylyn (<http://www.eclipse.org/mylyn>), a task-focused UI for Eclipse, along with task connectors for Bugzilla and Trac.

Other Eclipse projects available in Fedora include:

- Subclipse (<http://subclipse.tigris.org/>), for integrating Subversion version control;
- PyDev (<http://pydev.sf.net>), for developing in Python; and
- PHPEclipse (<http://www.phpeclipse.de/>), for developing in PHP.

Assistance in getting more projects packaged and tested with GCJ is always welcome. Contact the interested parties through `fedora-devel-java-list` (<http://www.redhat.com/mailman/listinfo/fedora-devel-java-list>) and/or `#fedora-java` on freenode.

Fedora also includes plugins and features that are particularly useful to FLOSS hackers, ChangeLog editing with `eclipse-changelog`, and Bugzilla interaction with `eclipse-mylyn-bugzilla`. Our CDT package, `eclipse-cdt`, includes a snapshot release of work to integrate with the GNU Autotools.

The latest information regarding these projects can be found at the Fedora Eclipse Project page: <http://sourceware.org/eclipse/>.

### 12.1.2.1. Non-packaged Plugins/Features

Fedora Eclipse allows non-root users to make use of the Update Manager functionality for installing non-packaged plugins and features. Such plugins are installed in the user's home directory under the `.eclipse` directory. Please note, however, that these plugins do not have associated GCJ-compiled bits and may therefore run slower than expected.

### 12.1.2.2. Alternative Java Runtime Environments

The Fedora free JREs do not satisfy every user, so Fedora does allow the installation of alternative JREs. A caveat exists, however, for installing proprietary JREs on 64-bit machines.

The 64-bit JNI libraries shipped by default on `x86_64` systems in Fedora do not run on 32-bit JREs. In other words, do not try to run Fedora's `x86_64` Eclipse packages on Sun's 32-bit JRE. They fail in confusing ways. Either switch to a 64-bit proprietary JRE, or install the 32-bit version of the packages, if available. To install a 32-bit version, use the following command:

```
yum install <package_name>.i386
```



Likewise, the 32-bit JNI libraries shipped by default on ppc64 systems do not run with a 64-bit JRE. To install the 64-bit version, use the following command:

```
yum install <package_name>.ppc64
```

## 12.2. KDE 4 Development Platform

Fedora 8 includes KDE 4.0 (beta) development libraries. The following new packages are provided:

- *kdelibs4*: KDE 4 libraries
- *kdepimlibs*: KDE 4 PIM libraries
- *kdebase4*: KDE 4 core runtime files

Use these packages to develop, build and run KDE 4 applications within KDE 3 or any other desktop environment.

The *kdebase4* package also includes a beta version of the **Dolphin** file manager as a technology preview. As this is a beta version, some issues may still be present. If you need a stable version of **Dolphin**, please install the *d3lphin* package, which is based on KDE 3 and can be safely installed alongside *kdebase4*.

These packages are designed to:

- comply with the Filesystem Hierarchy Standard (FHS), and
- be completely safe to install in parallel with KDE 3, including the *-devel* packages.

In order to achieve this, Fedora KDE SIG members made 2 changes to the *-devel* packages:

- The library symlinks are installed to `/usr/lib/kde4/devel` or `/usr/lib64/kde4/devel`, depending on system architecture.
- The **kconfig\_compiler** and **makekdewidgets** tools have been renamed **kconfig\_compiler4** and **makekdewidgets4**, respectively.

These changes should be completely transparent to the vast majority of KDE 4 applications that use **cmake** to build, since **FindKDE4Internal.cmake** has been patched to match these changes.

Note that *kdebase4* does not include the KDE 4 Desktop package *kdebase-workspace* and its components such as **Plasma** and **KWin** version 4. The *kdebase-workspace* package is still too incomplete and unstable for daily use and would conflict with KDE 3.

## 13. Security



### Latest Release Notes on the Web

These release notes may be updated. Visit <http://docs.fedoraproject.org/release-notes/> to view the latest release notes for Fedora.

This section highlights various security items from Fedora.

### 13.1. Security Enhancements

- Fedora continues to improve its many proactive [security features](#)<sup>25</sup>, and FORTIFY\_SOURCE has now been [enhanced](#)<sup>26</sup> to cover C++ in addition to C, which prevents many security exploits.
- A brand new graphical firewall configuration tool, *system-config-firewall*, replaces *system-config-securitylevel*.
- This release offers [Kiosk](#)<sup>27</sup> functionality via SELinux, among many new enhancements and security policy changes.
- The *glibc* package in Fedora 8 now has [support](#)<sup>28</sup> for passwords using SHA256 and SHA512 hashing. Before only DES and MD5 were available. The tools to create passwords have not been extended yet, but if such passwords are created in others ways, *glibc* will recognize and honor them.
- Secure remote management capability is now provided for Xen, KVM, and QEMU in Fedora 8 [virtualization](#)<sup>29</sup>.

### 13.2. General Information

A general introduction to the many proactive security features in Fedora, current status, and policies is available at <http://fedoraproject.org/wiki/Security>.

#### 13.2.1. SELinux

The SELinux project pages have troubleshooting tips, explanations, and pointers to documentation and references. Some useful links include the following:

- New SELinux project pages: <http://fedoraproject.org/wiki/SELinux>
- Troubleshooting tips: <http://fedoraproject.org/wiki/SELinux/Troubleshooting>
- Frequently Asked Questions: <http://docs.fedoraproject.org/selinux-faq/>
- Listing of SELinux commands: <http://fedoraproject.org/wiki/SELinux/Commands>
- Details of confined domains: <http://fedoraproject.org/wiki/SELinux/Domains>

## 14. IcedTea and java-gcj-compat



### Latest Release Notes on the Web

These release notes may be updated. Visit <http://docs.fedoraproject.org/release-notes/> to view the latest release notes for Fedora.

### 14.1. IcedTea

This release of Fedora includes the **IcedTea** environment. **IcedTea** is a build harness for Sun's OpenJDK code that replaces encumbered parts of OpenJDK with Free Software replacements. **IcedTea** provides a more complete, compatible environment than GCJ, including support for building and running bytecode up to the 1.6 level. Users of **IcedTea** should be aware of a few caveats:

- There is no ppc or ppc64 support. Users of ppc and ppc64 systems should continue to use GCJ.

- There is no support for the Java sound APIs.
- There are a few missing cryptographic algorithms.

## 14.2. Handling Java Applets

The Fedora **IcedTea** packages also include an adaptation of *gcjwebplugin* that runs untrusted applets safely in a web browser. The plugin is packaged as *java-1.7.0-icedtea-plugin*.

- The *gcjwebplugin* adaptation has [no support for the bytecode-to-Javascript bridge](#)<sup>30</sup>, so applets that rely on this bridge will not work.
- The *gcjwebplugin* adaptation has [no support for signed applets](#)<sup>31</sup>. Signed applets will run in untrusted mode.
- The *gcjwebplugin* security policy may be overly restrictive. To enable restricted applets, run **firefox -g** in a terminal window to see what is being restricted, then grant the restricted permission in `/usr/lib/jvm/java-1.7.0-icedtea-1.7.0.0/jre/lib/security/java.policy`.

## 14.3. java-gcj-compat

This release of Fedora includes *java-gcj-compat*. The *java-gcj-compat* collection includes a tool suite and execution environment that is capable of building and running many useful programs that are written in the Java programming language.

The java-gcj infrastructure has three key components: a GNU Java runtime (*libgcj*), the **Eclipse** Java compiler (**ecj**), and a set of wrappers and links (*java-gcj-compat*) that present the runtime and compiler to the user in a manner similar to other Java environments.

The Java software packages in this Fedora release use the *java-gcj-compat* environment. These packages include **OpenOffice.org Base**, **Eclipse**, and **Apache Tomcat**. Refer to the Java FAQ at <http://www.fedoraproject.org/wiki/JavaFAQ> for more information on the *java-gcj-compat* free Java environment in Fedora.



### Include Location and Version Information in Bug Reports

When making a bug report, be sure to include the output from these commands:

```
which java && java -version && which javac && javac -version
```

## 14.4. Handling Java and Java-like Packages

In addition to the *java-gcj-compat* free software stack, Fedora lets you install multiple Java implementations and switch between them using the **alternatives** command line tool. However, every Java system you install must be packaged using the JPackage Project packaging guidelines to take advantage of **alternatives**. Once these packages are installed properly, the root user may switch between **java** and **javac** implementations using the **alternatives** command:

```
alternatives --config java alternatives --config javac
```

A simpler way to switch Java alternatives is using the **sytem-switch-java** tool included in Fedora.

### 14.5. Fedora and the JPackage Java Packages

Fedora includes many packages derived from the JPackage Project, which provides a Java software repository. These packages are modified in Fedora to remove proprietary software dependencies and to make use of GCJ's ahead-of-time compilation feature. Use the Fedora repositories to update these packages, or use the JPackage repository for packages not provided by Fedora. Refer to the JPackage website at <http://jpackage.org> for more information on the project and the software it provides.



#### Mixing Packages from Fedora and JPackage

Research package compatibility before you install software from both the Fedora and JPackage repositories on the same system. Incompatible packages may cause complex issues.

Refer to the latest release notes pertaining to Eclipse at <http://fedoraproject.org/wiki/Docs/Beats/Devel/Tools/Eclipse>.

### 14.6. Maven (v2)

This release of Fedora includes *maven2*, a Java project management and project comprehension tool. Maven can be invoked by the **mvn** and **mvn-jpp** commands. The former makes Maven behave just like upstream Maven, while the latter calls **mvn** with additional properties that make off-line building easier.

The *maven2* package in Fedora is modified to work in a fully off-line mode. With no additional properties defined (the **mvn** command), **maven2** works exactly like upstream Maven. Users may define additional properties to facilitate off-line builds, or call **mvn-jpp**, a wrapper that defines the most commonly used properties for off-line building. The properties and their usage details are described in the `/usr/share/doc/maven2-2.0.4/maven2-jpp-readme.html` file, which comes from the *maven2-manual* package.

## 15. Multimedia



#### Latest Release Notes on the Web

These release notes may be updated. Visit <http://docs.fedoraproject.org/release-notes/> to view the latest release notes for Fedora.

Fedora includes applications for assorted multimedia functions, including playback, recording, and editing. Additional packages are available through the Fedora Package Collection software repository. For additional information about multimedia in Fedora, refer to the Multimedia section of the Fedora Project website at <http://fedoraproject.org/wiki/Multimedia>.

### 15.1. Multimedia Players

The default installation of Fedora includes **Rhythmbox** and **Totem** for media playback. The Fedora repositories include many other popular programs such as the **XMMS** player and KDE's **amaroK**. Both

GNOME and KDE have a selection of players that can be used with a variety of formats. Third parties may offer additional programs to handle other formats.

Fedora also takes full advantage of the Advanced Linux Sound Architecture (ALSA) sound system. Many programs can play sound simultaneously, which was once difficult on Linux systems. When all multimedia software is configured to use ALSA for sound support, this limitation disappears. For more information about ALSA, visit the project website at <http://www.alsa-project.org/>. Users may still experience issues when multiple users log into the system. Depending upon hardware and software configurations, multiple users may not be able to use the sound hardware simultaneously.

## 15.2. Ogg and Xiph.Org Foundation Formats

Fedora includes complete support for the Ogg media container format and the Vorbis audio, Theora video, Speex audio, and FLAC lossless audio formats. These freely-distributable formats are not encumbered by patent or license restrictions. They provide powerful and flexible alternatives to more popular, restricted formats. The Fedora Project encourages the use of open formats in place of restricted ones. For more information on these formats and how to use them, refer to the Xiph.Org Foundation's web site at <http://www.xiph.org/>.

## 15.3. MP3, DVD, and Other Excluded Multimedia Formats

Fedora software repositories cannot include support for MP3 or DVD video playback or recording. The MP3 formats are patented, and the patent holders have not provided the necessary patent licenses. DVD video formats are patented and equipped with an encryption scheme. The patent holders have not provided the necessary patent licenses, and the code needed to decrypt CSS-encrypted discs may violate the Digital Millennium Copyright Act, a copyright law of the United States. Fedora also excludes other multimedia software due to patent, copyright, or license restrictions, including Adobe's Flash Player and Real Media's Real Player. For more on this subject, please refer to <http://fedoraproject.org/wiki/ForbiddenItems>.

While other MP3 options may be available for Fedora, Fluendo now offers a free MP3 plugin for GStreamer that has the necessary patent license for end users. This plugin enables MP3 support in applications that use the GStreamer framework as a backend. Fedora does not include this plugin since we prefer to support and encourage the use of patent unrestricted open formats instead. For more information about the MP3 plugin, visit Fluendo's website at <http://www.fluendo.com/>.

## 15.4. CD and DVD Authoring and Burning

Fedora software repositories includes a variety of tools for easily mastering and burning CDs and DVDs. GNOME users can burn directly from the Nautilus file manager, choose the *gnomebaker* or *graveman* packages, or utilize the older *xcdroast* package from Fedora. KDE users can use the robust *k3b* package for these tasks. Console tools include *cdrecord*, *readcd*, *mkisofs*, and other popular applications.

## 15.5. Screencasts

You can use Fedora to create and play back *screencasts*, which are recorded desktop sessions, using open technologies. Fedora Package Collection software repository includes *istanbul*, which creates screencasts using the Theora video format. These videos can be played back using one of several players included in Fedora. This is the preferred way to submit screencasts to the Fedora Project for either developer or end-user use. For a more comprehensive how-to, refer to <http://fedoraproject.org/wiki/ScreenCasting>.

### 15.6. Extended Support through Plugins

Most of the media players in Fedora software repositories can use plugins to add support for additional media formats and sound output systems. Some use powerful multimedia frameworks, like the *gstreamer* package, to handle media format support and sound output. Fedora software repositories offer plugin packages for these backends and for individual applications. Third parties may provide additional plugins to add even greater capabilities.

## 16. Games and Entertainment



### Latest Release Notes on the Web

These release notes may be updated. Visit <http://docs.fedoraproject.org/release-notes/> to view the latest release notes for Fedora.

Fedora provides a selection of games that cover a variety of genres. Users can install a small package of games for GNOME (called *gnome-games*) and KDE (*kdegames*). There are also many additional games that span every major genre available in the repositories.

The Fedora Project website features a section dedicated to games that details many of the available games, including overviews and installation instructions. For more information, refer to <http://fedoraproject.org/wiki/Games>.

For a list of other games that are available for installation, use the **Pirut** graphical utility (**ApplicationsAdd/Remove Software**), or via the command line:

```
yum groupinfo "Games and Entertainment"
```

For help using **yum** to install the assorted game packages, refer to the guide available at:

<http://docs.fedoraproject.org/yum/>

### 16.1. Haxima

Fedora 8 includes version 0.5.6 of the Nazghul old-school role playing game engine and its companion game Haxima. This version is not compatible with saved games from previous Nazghul versions, so those with Haxima games in progress need to restart their games after updating to Fedora 8.

## 17. Virtualization



### Latest Release Notes on the Web

These release notes may be updated. Visit <http://docs.fedoraproject.org/release-notes/> to view the latest release notes for Fedora.

Virtualization in Fedora 8 supports both Xen and KVM virtualization platforms. The **libvirt** API and its corresponding tools, **virt-manager** and **virsh**, have been updated to support both KVM and Xen.

Users can choose which virtualization platform to install, and use the same tools without regard to that choice.

Xen in Fedora 8 is based on version 3.1.0.

KVM in Fedora 8 is based on version 36-2.

For more information on the differences between Xen and KVM, refer to <http://virt.kernelnewbies.org/TechComparison>. For more information on installing and using virtualization in Fedora 8, refer to <http://fedoraproject.org/wiki/Docs/Fedora8VirtQuickStart>.

## 17.1. Changes to the Virtualization Packages

The following improvements have been made in the virtualization packages in Fedora 8:

- Secure remote management of guest domains. Features include:
  - Secure remote management of guest VM lifecycle
  - Secure remote access to the guest virtual consoles
  - For more information on secure remote management, refer to <http://fedoraproject.org/wiki/Releases/FeatureVirtSecurity>.
- Introduction of **Virt Viewer**, a lightweight, minimal UI for interacting with the graphical console of virtual machines. **Virt Viewer** serves as a replacement for **vncviewer**.
- The LibVNCServer implementation has been removed from Xen and replaced with **QEMU**.
- Introduction of GTK-VNC, a GTK widget which provides a VNC client. For more information on GTK-VNC refer to <http://gtk-vnc.sourceforge.net/>.

## 18. X Window System (Graphics)



### Latest Release Notes on the Web

These release notes may be updated. Visit <http://docs.fedoraproject.org/release-notes/> to view the latest release notes for Fedora.

This section contains information related to the X Window System implementation, X.org, provided with Fedora.

### 18.1. X Configuration Changes

The X.org 7.2 X server has been modified to automatically detect and configure most hardware, eliminating the need for users or administrators to modify the `/etc/X11/xorg.conf` configuration file. The only hardware configured by default in the `xorg.conf` file written by anaconda is:

- The graphics driver
- The keyboard map

All other hardware, such as monitors (both LCD and CRT), USB mice, and touchpads should be detected and configured automatically.

The X server queries the attached monitor for supported resolution ranges, and attempts to pick the highest resolution available with the correct aspect ratio for the display. Users can set their preferred resolution in **System** → **Preferences** → **Screen Resolution**, and the default resolution for the system can be changed with **System** → **Administration** → **Display**.

If the `/etc/X11/xorg.conf` configuration file is not present, X also automatically detects the appropriate driver, and assumes a 105-key US keyboard layout.

## 18.2. Third Party Video Drivers

If you intend to use third party video drivers, refer to the Xorg third party drivers page for detailed guidelines:

<http://fedoraproject.org/wiki/Xorg/3rdPartyVideoDrivers>

## 19. Database Servers



### Latest Release Notes on the Web

These release notes may be updated. Visit <http://docs.fedoraproject.org/release-notes/> to view the latest release notes for Fedora.

### 19.1. MySQL

Fedora now provides MySQL 5.0.45. For a list of the enhancements provided by this version, refer to <http://dev.mysql.com/doc/refman/5.0/en/mysql-5-0-nutshell.html>.

For more information on upgrading databases from previous releases of MySQL, refer to the MySQL website at <http://dev.mysql.com/doc/refman/5.0/en/upgrade.html>.

#### 19.1.1. DBD Driver

The MySQL DBD driver has been dual-licensed and the related licensing issues have been resolved ([https://bugzilla.redhat.com/bugzilla/show\\_bug.cgi?id=222237](https://bugzilla.redhat.com/bugzilla/show_bug.cgi?id=222237)). The resulting `apr-util-mysql` package is now included in the Fedora software repositories.

### 19.2. PostgreSQL

This release of Fedora includes PostgreSQL 8.2.4. For more information on this new version, refer to <http://www.postgresql.org/docs/whatsnew>.



### Upgrading Databases

Before upgrading an existing Fedora system with a PostgreSQL database, it could be necessary to follow the procedure described at <http://www.postgresql.org/docs/8.2/interactive/install-upgrading.html>. Otherwise the data may be not accessible by the new version of PostgreSQL.



## 20. Internationalization (i18n)



### Latest Release Notes on the Web

These release notes may be updated. Visit <http://docs.fedoraproject.org/release-notes/> to view the latest release notes for Fedora.

This section includes information on language support under Fedora.

- Localization (translation) of Fedora is coordinated by the [Fedora Localization Project](#)<sup>32</sup>.
- Internationalization of Fedora is maintained by the [Fedora I18n Project](#)<sup>33</sup>.

## 20.1. Language Coverage

### 20.1.1. Language support installation

To install additional language support from the Languages group, use **Pirut** via **Applications** → **Add/Remove Software**, or run this command:

```
su -c 'yum groupinstall
<language>-support'
```

In the command above, *<language>* is one of **assamese**, **bengali**, **chinese**, **gujarati**, **hindi**, **japanese**, **kannada**, **korean**, **malayalam**, **marathi**, **oriya**, **punjabi**, **sinhala**, **tamil**, **thai**, or **telegu**.

Users upgrading from earlier releases of Fedora are strongly recommended to install *scim-bridge-gtk*, which works well with 3rd party C++ applications linked against older versions of *libstdc++*.

To add SCIM support to input a particular language, install *scim-lang-LANG*, where *LANG* is one of **assamese**, **bengali**, **chinese**, **dhivehi**, **farsi**, **gujarati**, **hindi**, **japanese**, **kannada**, **korean**, **latin**, **malayalam**, **marathi**, **oriya**, **punjabi**, **sinhalese**, **tamil**, **telugu**, **thai**, or **tibetan**.

### 20.1.2. Transifex

This release features [Transifex](#)<sup>34</sup>, a new tool designed to facilitate contributing translations to projects hosted on remote and disparate version control systems. Core packages in this release use Transifex to receive translations from numerous contributors.

Through a combination of [new Web tools](#)<sup>35</sup>, community growth, and better processes, translators can now contribute directly to any upstream project through one translator-oriented Web interface. Developers of projects with no existing translation community can easily reach out to Fedora's established community for translations. In turn, translators can reach out to numerous projects related to Fedora to easily contribute translations.

<sup>34</sup> <https://hosted.fedoraproject.org/projects/transifex/>

<sup>35</sup> <http://translate.fedoraproject.org/>

## 20.2. Fonts

In Fedora 8 fonts for all available languages are now installed by default on the desktop to give good default language coverage. Most of the fonts in generically named font packages have been moved to their own packages to reflect the upstream name and make font choices easier.

### 20.2.1. Arabic fonts

- The *kacst-fonts* and *paktype-fonts* packages have been split out of *fonts-arabic*.

### 20.2.2. Chinese fonts

- the *ckunifonts-fonts* package has been split out of *fonts-chinese* into two subpackages for the Uming and Ukai faces.
- The *taipeifonts* package has been split out of *fonts-chinese*.
- The *wqy-bitmap-fonts* package is now installed by default with Chinese support.
- The *wqy-unibit-fonts* package has been added.

### 20.2.3. Hebrew fonts

- The *culmus-fonts* fonts package has been split out of *fonts-hebrew*.

### 20.2.4. Indic fonts

- The *lohit-fonts* package has been split out of *fonts-indic*.

### 20.2.5. Japanese fonts

- The *sazanami-fonts* package has been split out of *fonts-japanese* into two subpackages for the Gothic and Mincho faces.
- The *jisksp16-1990-fonts* package has been split out of *fonts-japanese*.
- The *knm\_new-fonts* package has been split out of *fonts-japanese*.

*VLGothic-fonts* will become the new default Japanese font starting in Fedora 9.

### 20.2.6. Korean fonts

- The *baekmuk-ttf-fonts* and *baekmuk-bdf-fonts* packages have been split out of *fonts-korean*. The *baekmuk-ttf-fonts* package provides four subpackages for Batang, Dotum, Gulim and Headline typefaces.

### 20.2.7. Sinhala font

- The *lklug-fonts* package has been split out of *fonts-sinhala*.

## 20.3. Input Methods

### 20.3.1. Improved **im-chooser**

The user interface of **im-chooser** has been improved to be simpler and easier to understand.

Input methods only start by default on desktops running in an Asian locale. The current list is: as, bn, gu, hi, ja, kn, ko, ml, mr, ne, or, pa, si, ta, te, th, ur, vi, zh). Use **im-chooser** via **System** → **Preferences** → **Personal** → **Input Method** to enable or disable SCIM on your desktop. To make changes effective, you must restart the desktop session.

### 20.3.2. SCIM hotkeys

The following table lists the default SCIM trigger hotkeys for different languages:

Language	Trigger hotkeys
all	<b>Ctrl+Space</b>
Japanese	<b>Zenkaku_Hankaku</b> or <b>Alt+`</b>
Korean	<b>Shift+Space</b> or <b>Hangul</b>

### 20.3.3. Other input methods

This release adds support for the `nabi` input method for Korean Hangul.

## 21. Backwards Compatibility



### Latest Release Notes on the Web

These release notes may be updated. Visit <http://docs.fedoraproject.org/release-notes/> to view the latest release notes for Fedora.

Fedora provides legacy system libraries for compatibility with older software. This software is part of the **Legacy Software Development** group, which is not installed by default. Users who require this functionality may select this group either during installation or after the installation process is complete. To install the package group on a Fedora system, use **Applications** → **Add/Remove Software (Pirut)** or enter the following command in a terminal window:

```
su -c 'yum groupinstall "Legacy Software Development"'
```

Enter the password for the root account when prompted.

### 21.1. Compiler Compatibility

The `compat-gcc-34` package has been included for compatibility reasons:

<https://www.redhat.com/archives/fedora-devel-list/2006-August/msg00409.html>

## 22. Package Changes

For a list of which packages were updated since the previous release, refer to <http://fedoraproject.org/wiki/Docs/Beats/PackageChanges/UpdatedPackages>. You can also find a comparison of major packages between all Fedora versions at <http://distrowatch.com/fedora>.

## 23. Fedora Project

The goal of the Fedora Project is to work with the Linux community to build a complete, general-purpose operating system exclusively from open source software. The Fedora Project is driven by the individuals that contribute to it. As a tester, developer, documenter, or translator, you can make a difference. Refer to <http://fedoraproject.org/join-fedora.html> for details. For information on the channels of communication for Fedora users and contributors, refer to <http://fedoraproject.org/wiki/Communicate>.

The Fedora Project is driven by the individuals that contribute to it. As a tester, developer, documenter, or translator, you can make a difference. See <http://fedoraproject.org/wiki/Join> for details. For information on the channels of communication for Fedora users and contributors, refer to <http://fedoraproject.org/wiki/Communicate>.

In addition to the website, the following mailing lists are available:

- [fedora-list@redhat.com](mailto:fedora-list@redhat.com)<sup>36</sup>, for users of Fedora releases
- [fedora-test-list@redhat.com](mailto:fedora-test-list@redhat.com)<sup>37</sup>, for testers of Fedora test releases
- [fedora-devel-list@redhat.com](mailto:fedora-devel-list@redhat.com)<sup>38</sup>, for developers, developers, developers
- [fedora-docs-list@redhat.com](mailto:fedora-docs-list@redhat.com)<sup>39</sup>, for participants of the Documentation Project

To subscribe to any of these lists, send an email with the word "subscribe" in the subject to `<listname>-request`, where `<listname>` is one of the above list names. Alternately, you can subscribe to Fedora mailing lists through the Web interface at <http://www.redhat.com/mailman/listinfo/>.

The Fedora Project also uses several IRC (Internet Relay Chat) channels. IRC is a real-time, text-based form of communication, similar to Instant Messaging. With it, you may have conversations with multiple people in an open channel, or chat with someone privately one-on-one. To talk with other Fedora Project participants via IRC, access the Freenode IRC network. Refer to the Freenode website at <http://www.freenode.net/> for more information.

Fedora Project participants frequent the #fedora channel on the Freenode network, while Fedora Project developers may often be found on the #fedora-devel channel. Some of the larger projects may have their own channels as well. This information may be found on the webpage for the project, and at <http://fedoraproject.org/wiki/Communicate>.

In order to talk on the #fedora channel, you need to register your nickname, or *nick*. Instructions are given when you `/join` the channel.



### IRC Channels

The Fedora Project and Red Hat have no control over the Fedora Project IRC channels or their content.

## 24. Colophon

As we use the term, a *colophon*:

- recognizes contributors and provides accountability, and
- explains tools and production methods.

### 24.1. Contributors

- [Alain Portal](#) (*translator - French*)<sup>40</sup>
- [Amanpreet Singh Alam](#)<sup>41</sup> (translator - Punjabi)
- [Andrew Martynov](#)<sup>42</sup> (translator - Russian)
- [Andrew Overholt](#)<sup>43</sup> (beat contributor)
- [Anthony Green](#)<sup>44</sup> (beat writer)
- [Brandon Holbrook](#)<sup>45</sup> (beat contributor)
- [Bob Jensen](#)<sup>46</sup> (beat writer)
- [Chris Lennert](#)<sup>47</sup> (beat writer)
- [Dave Malcolm](#)<sup>48</sup> (beat writer)
- [David Eisenstein](#)<sup>49</sup> (beat writer)
- [David Woodhouse](#)<sup>50</sup> (beat writer)
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- [Piotr Drag](#)<sup>79</sup> (translator - Polish)
- [Rahul Sundaram](#)<sup>80</sup> (beat writer, editor)
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- [Yuan Yijun](#)<sup>94</sup> (translator - Simplified Chinese)
- [Zhang Yang](#)<sup>95</sup> (translator - simplified Chinese)

... and many more translators. Refer to the Web-updated version of these release notes as we add translators after release:

<http://docs.fedoraproject.org/release-notes/>

## 24.2. Production Methods

Beat writers produce the release notes directly on the Fedora Project Wiki. They collaborate with other subject matter experts during the test release phase of Fedora to explain important changes and enhancements. The editorial team ensures consistency and quality of the finished beats, and ports the Wiki material to DocBook XML in a revision control repository. At this point, the team of translators produces other language versions of the release notes, and then they become available to the general public as part of Fedora. The publication team also makes them, and subsequent errata, available via the Web.

