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# Fedora 11

## Burning ISO images to disc

How to download ISO images and create CD and DVD media



### Fedora Documentation Project

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#### Abstract

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## 1. Introduction

The Fedora distribution is provided in the form of ISO 9660 standard filesystem images. You can copy these ISO images onto either CDROM or DVD media to produce a bootable disc.

Before you can install Fedora from disc on a computer, you must transfer, or *burn*, the ISO files to blank disc media (CD-R/RW or DVD-R/RW). This document describes the procedure for burning these files using a few common tools. This document assumes that you have no experience with Linux, and that you are using Microsoft Windows for the purpose of downloading and burning the files.



### The Fedora Project only supports software that is part of the Fedora distribution

Only software produced and shipped as part of Fedora is supported by the project. Other software mentioned in this article is intended to guide the user in the right direction. Fedora is not responsible for nor endorses those software packages, and their use is described here merely as a convenience for the reader. This is not intended to be a comprehensive guide to burning ISOs under every operating system.

## 2. Downloading

The ISO files are large, and it may take a long time to download them, especially using a dial-up modem. You may want to use a download manager.

### 2.1. Choosing CD or DVD

Fedora is distributed on multiple CD-sized ISO image files, or a single DVD-sized ISO image file. You can use the single DVD ISO file if your computer meets the following requirements:

- It has a DVD-writable or DVD-rewritable drive
- It has an NTFS drive with sufficient space to hold the image file

To write the DVD ISO file to a disc, your computer needs to have a drive that can write to DVD media. If your computer has a drive that only writes CD media and not DVD media, download the CD-sized files instead.

Some file systems cannot store files larger than 2 GB, such as the DVD image. The commonly-used NTFS file system does not have this limitation, but many other non-NTFS formats do, such as FAT32. To check the format of a drive under Windows such as **C:**, select the **Start** menu and then **My Computer**. Right-click the drive you want to check, and choose **Properties**. The resulting dialog displays the format for that file system. If you do not have an NTFS drive with enough free space, download the CD-sized files instead.

Create a new directory where you can download all of these files. You need approximately 700 MiB of free space available for each CD-sized ISO file, or approximately 3.5 GiB for the DVD-sized ISO file. This document assumes you have downloaded the files to the folder **C:\Documents and Settings\Owner\My Documents\My Downloads\Fedora**.

## 2.2. Choosing the ISO Files

The exact files you need from the download server depend upon your system and the version of Fedora you are downloading. The files you need are named in the form of **Fedora-<version>-<arch>-disc<count>.iso**, where "**<version>**" is the version of Fedora you wish to download, "**<arch>**" is your computer's processor architecture, and "**<count>**" is the disc number for each of the installation CDs. In the case of an installation DVD, **DVD** is used in the filename.

The computer processor architecture is usually **i386** for 32-bit PCs, including the Pentium and Athlon processor families. The architecture is usually **x86\_64** for 64-bit PCs, including the Athlon 64 processor family. The architecture is usually **ppc** for PowerPC computers, including most of Apple's Macintosh offerings before they began using Intel chips in the MacBook. If in doubt, your system probably requires the **i386** versions.

For example, if downloading Fedora 11 for a Pentium 4 computer, the correct file is **Fedora-i386-DVD.iso**. You may also need the **SHA1SUM** file to verify that the files you have downloaded are complete and correct.

## 3. Validating the Files

Errors can occur during the download, even if your download manager reports none. Therefore it is **very important** to check that the files have not been corrupted in any way. This is the purpose of the **SHA1SUM** file. It contains one line for each of the available ISO files with a content verification code called a *hash* computed from the original ISO files.



### BitTorrent Automatic Error Checking

**BitTorrent** automatically performs this error checking during downloads. If your **BitTorrent** application reports all files have been successfully downloaded, you can safely skip this step.

### 3.1. Validating in the Windows Graphical Environment

There are a number of no-cost products available for file validation and hashing that have point and click interfaces. Here are links to a few of them:

- HashCalc: <http://www.slavasoft.com/hashcalc/>
- eXpress CheckSum Calculator (XCSC): <http://www.irmis.net/soft/xcsc/>

Follow the instructions provided to install the program. When you run the program, use the file selection tools provided to select your downloaded ISO image files. Then select the SHA-1 algorithm for calculation, and run the tool. The program takes some time to complete, since it must read the entire ISO file.

Open the file **SHA1SUM** with a text editor, such as **Notepad**, to display its contents. Make sure the hash displayed by the hash tool for **each** of the downloaded ISO files **exactly** matches the corresponding hash in the **SHA1SUM** file.

If all of the hashes match, you can then burn the ISO files to media. If a file does not match, you may have to download it again.



### CAVEAT EMPTOR

The Fedora Project and Red Hat, Inc. have no control over external sites such as the ones listed above, or the programs they provide.

## 3.2. Validating at the Windows Command Prompt

To check the files using the command prompt, you need to download the program **sha1sum.exe**. For instructions and the link to download the program, refer to <http://lists.gnupg.org/pipermail/gnupg-announce/2004q4/000184.html>.

The **sha1sum.exe** program computes and displays hashes. To use it, save **sha1sum.exe** to the same directory as the ISO files. Select **Run...** from the Start menu and then enter **cmd** for the name of the program to start a **Command Prompt** window. Then change into the download directory. Run **sha1sum** with each ISO file like this:

```
cd "C:\Documents and Settings\Owner\My Documents\My Downloads\Fedora"  
sha1sum.exe Fedora-i386-DVD.iso
```

The program takes some time to complete, since it must read the entire ISO file.

Open the file **SHA1SUM** with a text editor, such as **Notepad**, to display its contents. Make sure the hash displayed by **sha1sum.exe** for **each** of the downloaded ISO files **exactly** matches the corresponding hash in the **SHA1SUM** file.

If all of the hashes match, the ISO files can be burned to media. If a file does not match, you may have to download it again.

## 4. Burning

The process of burning a CD is not always obvious to the users of Windows. Windows applications often let users burn data discs by simply dragging the source files into a box and clicking the **Burn** button.

In reality, though, the burning software performs two operations. First, it creates an ISO 9660 standard image, just like the ones used to install Fedora, from the source files that were dragged into the box. Second, it transfers that ISO file onto the blank CD. If the original source file was already an ISO image, the resulting CD is not usable for installation purposes.

To create the Fedora installation discs, **it is vital that you only perform the second step** with the Fedora ISO files. The steps required to do this using several popular CD burning applications are listed below.



### Disc Burning on Fedora

Information on how-to burn media using Fedora is covered in [https://fedoraproject.org/wiki/User\\_Guide-Using\\_Media](https://fedoraproject.org/wiki/User_Guide-Using_Media).

## 4.1. Using The ISO Recorder V2 Power Toy

Obtain and install the ISO Recorder power toy from the <http://isorecorder.alexfeinman.com/isorecorder.htm> web site.

1. In the file manager **Explorer**, right click on the first Fedora ISO file.
2. In the context menu, select **Copy image to CD**.
3. Follow the steps given by the **CD Recording Wizard** pop-up.
4. Repeat for the remaining ISO files.

## 4.2. Using Roxio Easy Media Creator 7

1. Start **Creator Classic**.
2. Select **Other Tasks**.
3. Select **Burn from Disc Image File**.
4. Choose the Fedora ISO file and burn it.

## 4.3. Using Nero Burning ROM 5

1. Start the program.
2. Open the **File** menu.
3. Select **Burn Image**.
4. Choose the Fedora ISO file and burn it.
5. Repeat the above steps for each of the other ISO files.

## 4.4. Using Nero Express 6

1. Start the program.
2. Select **Disc Image or Saved Project**.
3. An **Open** dialog appears. Select the first Fedora ISO file. Click **Open**.

4. Set the writing speed for your disc recorder. The optimal setting depends on your specific hardware.
5. Click Next to burn.
6. Repeat the steps above for the other ISO files.

## 5. Testing Your Discs

In order to be certain the CDs will work on your system, you may wish to burn only disc 1 and then perform the following process before burning the others:

1. Following the directions from your computer's manufacturer, make sure your computer's BIOS is set to boot from the CD drive.
2. Reboot the computer with the Fedora disc in the CD drive. The boot menu for the Fedora installer appears.
3. Press **Enter**.
4. Follow the directions on-screen until you are asked if you would like to perform a media check.
5. Conduct the check against the disc. If the check succeeds, your disc is correct. At this point the installer has changed nothing on your computer. Remove the Fedora installation disc and restart the system.
6. Continue burning any other media and be sure to check them before installation with the first disc that has already been proven good.

## 6. We Need Feedback!

If you find a typographical error in this manual, or if you have thought of a way to make this manual better, we would love to hear from you! Please submit a report in Bugzilla: <http://bugzilla.redhat.com/bugzilla/> against the product **Fedora Documentation**.

When submitting a bug report, be sure to mention the manual's identifier: *readme-burning-isos*

If you have a suggestion for improving the documentation, try to be as specific as possible when describing it. If you have found an error, please include the section number and some of the surrounding text so we can find it easily.

## A. Revision History

Revision      Fri May 01 2009  
11.0.0

Update for Fedora 11

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Revision      Fri Nov 07 2008  
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Update for Fedora 10

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