Downloading and Burning ISOs

A reliable method for downloading ISO images and burning them onto CD-R is presented.

The information in this document is targeted primarily toward the RFPK Software Team and associates and is specific to the computer systems and network installed in the RFPK Laboratory of the Department of Bioengineering of the University of Washington. RFPK is the Resource for Population Kinetics. Its work is supported, in part, by grant P41 EB-001975 of the National Institutes of Health (NIH) of the U.S. Department of Health and Human Services.

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Introduction

The RedHat Linux operating software and many other software products are made available for download as a set of ISO images. Each image, typically presented as a file whose name ends with the suffix `.iso`, represents the contents of a CDROM. If the installation set for the product consists of four CDROMs, you need to download four ISO image files and then burn each of them onto CD-R. Because these files are so large, an efficient process is required. Because the reliability of the software to be installed from these ISOs is of critical importance, there must be a way to test that the process of downloaded and burning was error-free. This document presents a reliable method for creating installation CDROMs from downloaded ISOs.

Downloading

The files are first downloaded from a web site or from an ftp server. The ftp protocol is normally used, although other protocols, including html, are often available and can do the job.

At the download site, you need to find two pieces of information:

1. The file or files to be downloaded. The file name typically indicates the name of the product and the version, and the suffix is normally `.iso`.
2. An MD5 checksum for each file.

Proceed to download the file or files. After the download is complete, use *md5sum* to compute the MD5 checksum for each file you have received. For example, if a file that was downloaded was called `KNOPPIX_V3.6-2004-08-16-EN.iso`, you would compute the checksum as follows:

```
md5sum KNOPPIX_V3.6-2004-08-16-EN.iso
```

In this example based on Knoppix, a version of Linux contained on a single bootable CDROM, the MD5 checksum at the download site is actually in a file called `KNOPPIX_V3.6-2004-08-16-EN.iso.md5`, which can be easily downloaded and checked against the value computed by *md5sum*.

Burning

Once you have downloaded your ISOs and have verified their integrity using *md5sum*, you are ready to burn CDROMs. In the following example, we burn the single Knoppix CDROM:

1. Place a blank CDR in your CD burner.
2. If a GUI cd burning program starts automatically, close the window. We will use *cdrecord* from the command line.
3. Open a shell window and use **su** to become the root user.
4. Enter the following command at the commandline prompt:

   ```
   cdrecord -v dev=0,0,0 speed=40 driveropts=burnfree -dao -eject /opt/incoming/KNOPP
   ```

   Note that the device triplet, *0,0,0* may not be correct for your system. Determine the correct values by running the command **cdrecord --scanbus**

   Note that the following options are essential:

   - *driveropts=burnfree* enables buffer underflow protection in the drive.
   - *-dao*, or "disk at once", causes the entire disk to be written. Without this, subsequent running of *md5sum* on the device may hang.

   You will, of course, change the filename at the end of the command to whatever is appropriate for the software you have downloaded. You may also want to change the speed to accord with the lesser of the speed of your cd burner and the speed capability of your blank CDR.

5. If all goes well, your CDROM will be written without any error detected by *cdrecord* and the disk will eject.
6. Without removing the CDROM you have just burned, close the drive.

   Compute the MD5 checksum for the CDROM:

   ```
   md5sum /dev/cdrom
   ```

   This may take five minutes or more, because the entire CDROM must be read.

   The value computed must be identical to that obtained previously from the ISO and to that published on the download site.

7. Unmount the CDROM. If the checksum was correct, the CDROM is ready to use.

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Notes

1. http://www.opencontent.org/openpub/