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| Bochs User Manual | | |
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3.3. Installing a Binary

This section is divided up by platform, since installing a binary package is different on different platforms.

3.3.1. Windows

The Bochs binaries for Windows are distributed in an EXE installer package. The Bochs installer can be started like any other Windows program and it brings up the installation wizard. Here you can select the destination folder and the installation options. The wizard installs the files and creates the registry keys, start menu and desktop links.

Previous releases of Bochs were distributed as ZIP packages, too. These packages contained the same set of files as the installer package from the same version.

If you are new to Bochs you should try out the DLX Linux demo distributed with Bochs. The installation wizard has created a link on the desktop if you decided to install the demo. If you doubleclick the icon two windows will appear: one is the Bochs Display window, and the other is text window that is used for the runtime configuration and for log messages if no logfile is specified.

You can find more information on the DLX Linux demo in the next section below the DLX Linux screenshot.

**Table 3-3. Files in Bochs directory (Windows version)**

|  |  |
| --- | --- |
| File | Description |
| BIOS-bochs-latest | default ROM BIOS image for Bochs |
| BIOS-bochs-legacy | ROM BIOS image without 32-bit init code |
| bios.bin-1.7.5 | SeaBIOS ROM image |
| bochs.exe | the main Bochs executable |
| bochs.ico | the Bochs icon (used for links in start menu and on the desktop) |
| bochsdbg.exe | the main Bochs executable with debugger enabled |
| bochsrc-sample.txt | sample Bochs configuration file |
| bximage.exe | tool for manipulating disk images |
| CHANGES.txt | what has changed between versions |
| COPYING.txt | copy of the LGPL license |
| LICENSE.txt | Bochs license information |
| README.txt | the read-me file from the source distribution. |
| TODO.txt | the TODO file from the source distribution. |
| niclist.exe | tool to find out the network interface name |
| penguin.ico | the Linux logo (used for the DLX link in start menu) |
| sb16ctrl.exe | tool to control sb16 in Bochs |
| sb16ctrl.txt | examples of sb16ctrl commands |
| SeaBIOS-README.txt | README for SeaBIOS ROM image |
| VGABIOS-elpin-2.40 | VGA BIOS image for Bochs |
| VGABIOS-elpin-LICENSE.txt | license for VGA BIOS |
| VGABIOS-lgpl-latest | LGPL'd VGA BIOS image for Bochs |
| VGABIOS-lgpl-latest-debug | LGPL'd VGA BIOS image for Bochs with debug output to the logfile |
| VGABIOS-lgpl-latest-cirrus | LGPL'd VGA BIOS image for Bochs with the Cirrus extension enabled |
| VGABIOS-lgpl-latest-cirrus-debug | LGPL'd VGA BIOS image for Bochs with the Cirrus extension enabled and debug output to the logfile |
| VGABIOS-lgpl-README.txt | readme for the LGPL'd VGA BIOS |
| uninstall.exe | uninstall program for Bochs (created by the installation wizard) |
| dlxlinux\ | directory containing DLX linux sample disk image and configuration files |
| dlxlinux\readme.txt | description of DLX linux |
| dlxlinux\bochsrc.txt | Bochs configuration file for DLX |
| dlxlinux/hd10meg.img | disk image file (10 meg) |
| dlxlinux\start.bat | Run this BAT file to try out DLX Linux inside Bochs! |
| dlxlinux\testform.txt | Form for reporting success or failure |
| doc\index.html | a local copy of all Bochs documentation ([online copy](http://bochs.sourceforge.net/doc/docbook/index.html)) |
| keymaps\\*.map | keymap tables (on Windows used for the paste feature only) |

3.3.2. Linux RPM

RPM stands for "RedHat Package Manager." An RPM is a compressed file containing files to be installed on your system. Many Linux distributions, not just RedHat ones, can install files from an RPM. First, download the Bochs RPM for your architecture to your computer. For example, if you have an Intel-compatible computer, be sure to get the RPM that says "for Linux x86 distributions" or "i386". Once you have the package on your local disk, you should become the root user and install it as follows[[1]](#4d34og8):

**Figure 3-2. Installing an RPM in Linux**

user$ **su**  
 Password:  
 root# **ls -l bochs-2.5.x86\_64.rpm**  
 -rw-r--r-- 1 user users 2628643 Nov 27 17:20 bochs-2.5.x86\_64.rpm  
 root# **rpm -i bochs-2.5.x86\_64.rpm**  
 root# exit  
 user$ \_

All RPM installations are done as the root user because they require permission to update system files and directories. If you do not have root access you need to compile Bochs in your home directory.

RPM installation can fail for a few reasons. It will fail if you already have a Bochs package installed. In this case, try upgrading the old package to the new package with **rpm --upgrade NAME.i386.rpm**. Another potential problem is missing RPM dependencies. If you are getting errors about missing files or RPMs, then first you should try to install the RPMs that provide the missing pieces. If that cannot be done, download the source RPM and build a new binary RPM that is appropriate for your platform. The command is **rpmbuild --rebuild NAME.src.rpm**. As a last resort, you can run rpm with the **--nodeps** option to ignore dependencies and install it anyway, but if it is missing important pieces it may not run properly.

The Bochs RPM installs five new commands and associated manual pages: bochs, bochs-dlx and bximage. First, let's try out the DLX Linux demo by typing **bochs-dlx**.

user$ bochs-dlx  
 ---------------------------------------------------------------  
 DLX Linux Demo, for Bochs x86 Emulator  
 ---------------------------------------------------------------  
 Checking for bochs binary...ok  
 Checking for DLX linux directory...ok  
 Checking for /bin/gzip...ok  
 Checking for /usr/users/bryce/.bochsdlx directory...  
 ---------------------------------------------------------------  
 To run the DLX Linux demo, I need to create a directory called  
 /usr/users/bryce/.bochsdlx, and copy some configuration files  
 and a 10 megabyte disk image into the directory.  
 ---------------------------------------------------------------  
 Is that okay? [y/n]  
 y  
 Copying /usr/share/bochs/dlxlinux/bochsrc.txt -> /usr/users/bryce/.bochsdlx/.  
 Copying /usr/share/bochs/dlxlinux/README -> /usr/users/bryce/.bochsdlx/.  
 Copying /usr/share/bochs/dlxlinux/testform.txt -> /usr/users/bryce/.bochsdlx/.  
 Uncompressing /usr/share/bochs/dlxlinux/hd10meg.img.gz -> /usr/users/bryce/.bochsdlx/hd10meg.img  
 Entering /usr/users/bryce/.bochsdlx  
 Running bochs  
 ========================================================================  
 Bochs x86 Emulator 2.4.6.svn  
 Build from SVN snapshot, after release 2.4.6  
 Compiled on Oct 20 2011 at 19:40:05  
 ========================================================================

Then you get a new X11 window containing the VGA display of the simulated machine. First you see the VGA BIOS screen, then Linux uncompresses and boots, and you get a login prompt. Type "root" and ENTER to log in to DLX linux.

**Figure 3-3. Screenshot of Bochs running DLX Linux**

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Booting is complete when you see "dlx login:" and a cursor. At this login prompt, type "root". On UNIX systems, root is the system admin user. There is no password for root on this sample disk image, so it lets you log in without typing any password. Now you should see a UNIX prompt, and you can begin to type UNIX commands.

Welcome to DLX V1.0 (C) 1995-96 Erich Boehm  
 (C) 1995 Hannes Boehm  
  
 dlx login: **root**  
 Linux 1.3.89.  
 dlx:~# **pwd**  
 /root  
 dlx:~# **cd /**  
 dlx:~# **ls**  
 bin/ etc/ lost+found/ root/ usr/  
 boot/ fd/ mnt/ sbin/ var/  
 dev/ lib/ proc/ tmp/ zip/  
 dlx:/# **df**  
 Filesystem 1024-blocks Used Available Capacity Mounted on  
 /dev/hda1 10060 2736 6005 29% /  
 dlx:/# \_

When you get tired of playing with DLX Linux, just type "reboot" in the Bochs window to shut down the DLX Linux operating system, and when it starts to reboot again press the "Power" button at the top of the Bochs display to end the application.

Here is a list of the files that are installed by the RPM, and a brief description of each one.

**Table 3-4. Files in RPM package**

|  |  |
| --- | --- |
| File | Description |
| /usr/share/doc/bochs/CHANGES | what has changed between versions |
| /usr/share/doc/bochs/COPYING | copy of the LGPL license |
| /usr/share/doc/bochs/LICENSE | Bochs license information |
| /usr/share/doc/bochs/README | the read-me file from the source distribution. |
| /usr/share/doc/bochs/TODO | the TODO file from the source distribution. |
| /usr/bin/bochs | the main Bochs executable |
| /usr/bin/bximage | tool for manipulating disk images |
| /usr/lib/bochs/plugins/\* | device and gui plugins for Bochs (plugin version only) |
| /usr/share/doc/bochs/bochsrc-sample.txt | sample Bochs configuration file |
| /usr/share/man/man1/\* | man pages for bochs, bochs-dlx and bximage |
| /usr/share/man/man5/\* | man page for bochsrc |
| /usr/share/doc/bochs/index.html | a local copy of all Bochs documentation ( [Online copy](http://bochs.sourceforge.net/doc/docbook/index.html) ) |
| /usr/share/bochs/BIOS-bochs-latest | default ROM BIOS image for Bochs |
| /usr/share/bochs/BIOS-bochs-legacy | ROM BIOS image without 32-bit init code |
| /usr/share/bochs/bios.bin-1.7.5 | SeaBIOS ROM image |
| /usr/share/bochs/SeaBIOS-README | README for SeaBIOS ROM image |
| /usr/share/bochs/VGABIOS-elpin-2.40 | VGA BIOS image for Bochs |
| /usr/share/bochs/VGABIOS-elpin-LICENSE | license for VGA BIOS |
| /usr/share/bochs/VGABIOS-lgpl-latest | LGPL'd VGA BIOS image for Bochs |
| /usr/share/bochs/VGABIOS-lgpl-latest-debug | LGPL'd VGA BIOS image for Bochs with debug output to the logfile |
| /usr/share/bochs/VGABIOS-lgpl-latest-cirrus | LGPL'd VGA BIOS image for Bochs with the Cirrus extension enabled |
| /usr/share/bochs/VGABIOS-lgpl-latest-cirrus-debug | LGPL'd VGA BIOS image for Bochs with the Cirrus extension enabled and debug output to the logfile |
| /usr/share/bochs/VGABIOS-lgpl-README | readme for the LGPL'd VGA BIOS |
| /usr/bin/bochs-dlx | run this script to try out DLX Linux inside Bochs! |
| /usr/share/bochs/dlxlinux/ | directory containing DLX linux sample disk image and configuration files |
| /usr/share/bochs/dlxlinux/readme.txt | description of DLX linux |
| /usr/share/bochs/keymaps/\*.map | keymap tables for X11, SDL and SDL2 |

3.3.3. MacOS X DMG

This was contributed by Aard Vark in January 2003

The MacOS X binary distribution is a mountable disk image (.dmg file). Once you've downloaded the binary distribution file, just double click on it to automatically unpack the archive and mount the volume on the desktop. An icon will appear exactly as if you'd inserted a CD-ROM or removable storage device, and a finder window containing the volume should automatically open. It is likely to have an odd name such as \_dmg\_top, but don't worry about that.

Copy the Bochs-2.0 (or whatever version) folder from the disk image onto your hard disk. Either Home or Applications would be sensible places to put it. Because the disk image is mounted read only, you can't run the included dlxlinux guest OS until you've copied it to the hard disk.

Once you've installed the binaries, it's probably a good idea to drag the \_dmg\_top volume to trash to unmount it, so you don't get confused and try to run bochs from there. Then open the bochs folder from wherever you installed it.

The MacOS X version of bochs requires a terminal window to run. If you just double click on the Bochs icon, you'll get an error message telling you to double click on "bochs.scpt" to start Bochs in a new terminal window. You'll need to configure Bochs before you will get very far with the bochs.scpt in the top folder, so to try out bochs open the dlxlinux folder and double click on the bochs.scpt icon inside.

This will open a new terminal window which will contain the Bochs startup messages, and a configuration menu. The default option is [5], which starts the simulation, so press enter to do so. You will then get a new window containing the VGA display of the simulated machine. The new window will probably appear behind the current terminal window, so either click on the bochs icon in the dock or the simulation window to bring it to the front. If you're quick enough you'll then see the VGA BIOS screen, then Linux uncompresses and boots, and you get a login prompt. Type "root" and ENTER to log in to DLX Linux.

Once you've finished playing with DLX Linux, just type "reboot" in the Bochs window to shut down the DLX Linux operating system, and when it starts to reboot again press the "Power" button in the "MacBochs Hardware Controls" window (it's the circle containing a vertical bar at the far right - have a look at the Linux screenshots, since the Mac version doesn't seem to have descriptions or tool-tips).

### Notes

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| [[1]](http://docs.google.com/install-binary.html#AEN739) | Many distributions have their own RPM installer program, often graphical, and they should work ok. It is helpful to be able to see the text output from RPM, so if you use a fancy RPM installer, be sure to find the text output and check that it looks correct. |

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| [Prev](http://docs.google.com/get-src-svn.html) | [Home](http://docs.google.com/index.html) | [Next](http://docs.google.com/compiling.html) |
| Tracking the source code with SVN | [Up](http://docs.google.com/installation.html) | Compiling Bochs |