Red Hat Commercial Linux Installation HOWTO

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1 Introduction

This is the second edition of the Red Hat Commercial Linux Installation HOWTO. It is maintained by support@redhat.com. All comments or suggestions regarding this document should be sent to that address. To get updates to this document, check the ftp sites and/or the Red Hat mirror sites (`ftp://ftp.redhat.com/pub`, `ftp://ftp.pht.com/pub/linux/redhat`). For a complete list of mirror sites, get the RedHat-FAQ or the `MIRRORS` file, available from either of the above sites.

This HOWTO covers the installation of Red Hat 2.x.

2 Getting Red Hat Commercial Linux

2.1 Ordering a CD

The best way to get RHCL is on CD-ROM. The RHCL distribution is very large, on the order of 200MB of compressed binary packages. In addition the graphical install is most easily accomplished with a CD-ROM.

The official Red Hat Commercial Linux CD-ROM is available from many Linux distributors, and many CD-ROM vendors are pressing their own CD-ROMs, so you shouldn't have any trouble finding one at your favorite Linux reseller. You can always get the latest official version from Red Hat's retail division, the ACC Bookstore, which can be reached at:

```
phone: (203) 454-5500
       (800) 546-7274
fax:   (203) 454-2582
email: sales@acc-corp.com
WWW:   http://www.acc-corp.com
```

2.2 Getting it via FTP

If you don't have a CD-ROM or just want to try Red Hat Commercial Linux, you can FTP the distribution from any of the Red Hat mirror sites. The current list of official mirror sites is kept at `ftp://ftp.pht.com/pub/linux/redhat/MIRRORS`, and includes:

```
ftp://ftp.pht.com/pub/linux/redhat
ftp://sunsite.unc.edu/pub/Linux/distributions/redhat
ftp://ftp.cms.uncwil.edu/linux/redhat
ftp://ftp.wilmington.net/linux/redhat
ftp://ftp.caldera.com/pub/mirrors/redhat
ftp://ftp.lasermoon.co.uk/pub/distributions/RedHat
```

```
ftp://ftp.cc.gatech.edu/pub/linux/distributions/redhat
ftp://uiarchive.cso.uiuc.edu/pub/systems/linux/distributions/redhat
ftp://ftp.webnet.com.au/linux/redhat
ftp://ftp.ibp.fr/pub/linux/distributions/redhat
ftp://ftp.gwdg.de/pub/linux/install/redhat
```

3 Doing an Installation via FTP

You have two ways you can "FTP" install your system. If you have an Ethernet card and are connected to the Internet, you can download just the three boot images and start installing via the network. If you are not directly on the Internet, but you do have access to an account from which you can FTP the distribution, you can download everything to a DOS or ext2 partition and install from there.

3.1 Getting the Boot Images

FTP to one of the above sites. You will see several directories, but the only ones you are concerned with are `RedHat` and `images`. You may also need to get some of the files in the `dos` directory if you are doing this from DOS.

3.1.1 What to Get

First you will need to get a boot image. To do that, `cd` into the distribution directory and then into the `images/1213` directory. Now get the `image.idx` file. Exit ftp (or just escape back) and look at the `image.idx` file. You'll see something like the following:

```
0000; None; None; IDE/ATAPI or SCSI
0001; None; None; Mitsumi (not IDE/ATAPI), Sony CDU31A/CDU33A/CDU535
.
.
```

The file is separated by semi-colons into columns. The first column is a boot image number. The second column tells you what kind of SCSI support the kernel contains. The third column tells you what kind of Ethernet support the kernel contains. The fourth column tells you what kind of CD-ROMs the kernel supports.

Find the line that most closely matches your hardware and record the number. Then return to your FTP session where you found the `image.idx` file and download the corresponding boot image (`bootXXXX.img` where `XXXX` is the number you recorded).

Next go to the `images` directory and download both `ramdisk1.img` and `ramdisk2.img`.

You should now have the following:

```
bootXXXX.img
ramdisk1.img
ramdisk2.img
```

3.1.2 Make Your Boot and Ramdisks

To make the images under Linux, you should use `dd` as follows:

```
dd of=/dev/fd0 if=ramdisk1.img
[swap floppy disks and label]
dd of=/dev/fd0 if=ramdisk2.img
[swap floppy disks and label]
dd of=/dev/fd0 if=bootXXXX.img
```

Existing Linux users may also want to download and run the `savesetup.pl` Perl script after writing the boot floppy. It saves a number of TCP/IP parameters and XFree86 configuration to the boot floppy for use during the installation. To use it, mount your boot floppy disk somewhere, and run:

```
savesetup.pl [mountpoint]
```

Under DOS, you need to run `rawrite.exe` to make the disks. You can FTP this utility from the `dos` directory of the FTP site. Put it somewhere in your path. You can then run `rawrite` and tell it what file to write and which drive to write to. Do this for all three floppies labelling them as you go.

3.2 Installing Directly from the Internet

If you have an Ethernet card and are on the network, you can now do the install via the network. The only things you need are the three floppy disks you just created in the previous step. Note that this method of install will *NOT* work via PPP or SLIP – you *must* have a direct ethernet connection to the Internet. If you want to install via PPP or SLIP, you will have to first do a minimal install as described in the next section "Installing from a spare partition". Once up, you can use PPP or SLIP from linux to download anything else you might want.

Since you should have your boot disk and ramdisks, you are ready to do your Internet FTP install. Just boot the boot disk and insert the ramdisks as prompted. Hopefully your Ethernet card was detected at boot time. If not, you may have picked the wrong boot image for your hardware or you may need to specify hardware parameters at the `LILO` prompt.

Once your machine has booted and your hardware has been detected, continue by answering the normal questions and then by saying you want to do an FTP install. At that point, pick a site close to you (or choose "custom" and enter a FTP site and directory from the `MIRRORS` file) and you should be off! Your install should run from there just like any other install.

3.3 Installing from a Spare Partition

If your only access to the Internet for your target machine is via PPP or SLIP or even Zmodem or Kermit, you can download Red Hat 2.0 to a DOS or ext2 partition and install it from there. It isn't the fastest way, but it can be done.

The basic steps are as follows:

- Get the boot and ramdisk images and make floppies
- Set up a directory structure on your DOS or ext2 drive
- Download the series file and decide which series you need
- Download all the proper RPMs
- Download the contents of the `base` directory
- Boot the floppies and install

3.3.1 Boot and Ramdisk Floppies

Create the boot and ramdisk floppies as described in the "Getting the Boot Images" section.

3.3.2 Make the Directory Structure

At the "root" of your DOS or ext2 drive or partition, make a directory called `RedHat`. Then `cd` in there and make an `RPMS` directory and a `base` directory. Note that for a DOS drive, the capitalization of the `RedHat` is insignificant.

3.3.3 Download the Series File

From the FTP site, download the `RedHat/base/series` file and place it in your local `RedHat/base` directory. It will look something like:

```
0

1 Base
MAKEDEV
SysVinit
adduser
at
bash
bdflush
cpio
crontabs
dev
e2fsprogs
ed
etcskel
file
fileutils
findutils
gawk
getty_ps
```

```
gpm
.
.
end
```

This shows you most of the "base" series.

The `series` file describes all the series, and which packages they contain. The first line in each series contains a number and the name of the series; you can ignore the number. The series ends with the keyword "end". Everything inbetween is an RPM name.

For each series that you want you need to download all of the corresponding RPMs. It may not hurt to leave some RPMs out, but we *highly* recommend that you get all the RPMs for each series you select. At a minimum, you should get all the packages in the "base" series.

There is a directory `RedHat/sets` which contains subdirectories for each series in the series file. In each subdirectory there are symbolic links to the actual packages in `RedHat/RPMS`. This can be used for two benefits. One, you can download an entire series by going to the proper directory and getting everything in it, and two, if you are installing from DOS the filenames will fit the DOS 8.3 convention. The installation scripts do not care what the rpm package filenames are – so you don't have to worry about them being called `package.031` and so on.

With this, you can easily download everything you need to make a complete series. Just download everything in each subdir that you want into your RPMS directory on your local hard drive. Note: When you are done, all your RPM files should be in the RPMS directory.

In addition, if you will be installing the X Window System, you will need to get an XFree86 server package corresponding to your video hardware. These packages are:

```
XFree86-8514        XFree86-P9000
XFree86-AGX         XFree86-S3
XFree86-Mach32      XFree86-SVGA
XFree86-Mach64      XFree86-VGA16
XFree86-Mach8       XFree86-W32
XFree86-Mono
```

3.3.4 Downloading the Rest

`cd` to the `RPMS` dir on your local drive and download the RPMs that you need into it. If you are using a DOS drive, don't worry about the file names. Just download them and let whatever happens to the names happen. The installation actually examines the internals of each file directly to determine the full name and version of the package.

Now `cd` into the `base` directory that you created earlier and download `fsstnd.cgz` and `skeleton.cgz` to that directory.

You should now be ready to install! You may now skip ahead to the "Continuing the Install" section.

4 Doing a CD or NFS install

4.1 Preparing an NFS Server for Installs

To prepare an NFS server that can be used for Red Hat installations, you need to mirror the following parts of `redhat-2.0`, while maintaining the directory structure, from one of the Red Hat mirrors:

```
RedHat/RPMS
RedHat/base
images/
```

If you wish to use the X based installation you will also need:

```
RedHat/instimage
```

It is important that the exectuable permissions on the files in `RedHat/instimage` are preserved! An easy way to ensure this is to use the following in your mirror config:

```
mode_copy=true
do_deletes=true
make_bad_symlinks=true
```

which also preserves a number of important symlinks which might otherwise be improperly mirrored.

After mirroring you simply need to export the toplevel `redhat-2.0` directory.

4.2 Making Boot and Ramdisks

Making the boot and ramdisks from a CD-ROM or over NFS is almost exactly as described in the "Getting the Boot Images" section for the FTP install, but it is even easier if you are already running Linux.

If you are running Linux (or some form of UNIX) you can simply run the `mkfloppies.pl` Perl script, which prompts you for your hardware and creates the proper boot and ramdisks for you. It is as simple as that.

If you are making the floppies from DOS, you need to choose the proper `bootXXX.img` file and write the three floppies as described above in the FTP install section.

5 Continuing the Install (FTP, CD, or NFS)

Some notes: The install is a flowing process that is fairly easy to follow. One thing to remember is that you must use the `space-bar` to select the partitions to format. Anytime you see a list of items with `[ ]` to the left, you are REQUIRED to use the `space-bar` to select something.

5.1 Reboot to Start the Install

Place your *boot* disk in drive A (yes, you must have a 3.5" High Density drive as your A drive) and reboot your machine. You will see a screen of information pertaining to LILO parameters. If you know you need parameters to force the kernel to detect certain hardware devices, enter them now. Otherwise, just hit enter to auto probe.

Watch the messages as the system boots and see if all your hardware is detected. For example, if you have SCSI in your system and you see a message like "scsi: 0 hosts", you have a problem. Make sure you picked the right boot image first, and then try entering command line parameters. For more info on those, see the RedHat-FAQ (available at any Red Hat mirror). If everything goes well, insert the ramdisks as prompted.

5.2 Mounting the Install Media

One of the first things you have to do is mount your install media.

For a CD install, the process is very simple. Just pick CD, and it should mount your CD.

If you are doing an NFS install, you will need to setup your server properly to export the Red Hat CD-ROM or mirror. Then when prompted enter the hostname and directory of the exported filesystem.

For a true FTP install directly off the Internet, pick the FTP option. Nothing is mounted in this case. If your hardware was detected properly, everything should work fine.

For an install from your DOS or ext2 partition, pick the CD-ROM type install (instead of NFS). It will try and mount a CD and return an error that it couldn't mount one. Just hit `enter` to continue and the script will ask you what you want to do. Select "Enter Device Name" and hit `enter`. Enter the partition name of the partition on which you placed the files you downloaded and hit `enter`. Next enter the file system type of that partition, either `msdos` for a DOS partition, or `ext2` for a Linux ext2 partition, and hit `enter`. If you entered everything correctly, the parition will be successfully mounted.

5.3 Finishing

If you are doing a CD or NFS install, you can do an X based graphical install. If you are doing an install via FTP or from partition to which you've downloaded the Red Hat packages, you must do a text based install. At this point you can continue the install by simply answering the questions and you should be set!

6 Resolving Problems

Invariably, there are bugs that can creep into the system. If you think you've found one, try and replicate it. If you can, check the RedHat-FAQ and make sure it isn't mentioned there. *Then* and only then, email support@redhat.com with a report. When doing so, please use the format specified in the RedHat-FAQ to give a description of your problem.

If you think your problem could be resolved with more documentation, you can order the official Red Hat 2.0 Manual from Red Hat's retail division, the ACC Bookstore, which can be reached at:

```
phone: (203) 454-5500
       (800) 546-7274
fax:   (203) 454-2582
email: sales@acc-corp.com
WWW:   http://www.acc-corp.com
```


7 Additional Documentation and Resources

As stated, the official 120 page Red Hat 2.0 Manual is available from the ACC Bookstore. There is other documentation available for free, however, from the Red Hat mirror sites and the Red Hat WWW site `http://www.redhat.com`. These include the RedHat-FAQ, which contains lots of answers to frequently asked questions, and the RPM-HOWTO, which describes the use of the rpm packaging system used in Red Hat Commercial Linux.

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