Gentoo Linux Installation Guide

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This guide shows you how to install Gentoo Linux 1.0_rc4_pre2. Right now, Gentoo Linux installation is geared towards intermediate to advanced developers and system administrators. The process itself is not incredibly complex, but you must know how to set up partitions, manually create filesystems, and extract tarballs. If you know how to do this, then you're ready to install the Gentoo Linux release candidate.

1. Getting started

Install Methods

Rather than provide a special system installer program, we've chosen to provide you with a real Linux shell prompt. From this prompt, you can perform all the steps necessary to install Gentoo Linux, and get everything set up exactly as you need it. People often ask whether we're going to provide a fancy install program in the future. Yes, we'd like to do this, but there will always be a relatively simple "manual" install method for those who need it. By having a manual install method, we not only cater to Linux experts, but also make it easy for people building a special-purpose product out of Gentoo Linux. Because our install process is "out in the open", it's easy for others to customize, automate or beautify to their liking.

Partition layout

Here's a quick overview of the standard Gentoo Linux partition layout. We're going to create at least three partitions: a swap partition, a root partition (to hold the bulk of Gentoo Linux), and a special boot partition. The boot partition is designed to hold GRUB boot loader information as well as your Linux kernel(s). The boot partition gives us a safe place to store everything related to booting Linux. During normal day-to-day Gentoo Linux use, your boot partition should remain unmounted. This prevents your kernel from being made unavailable to GRUB (due to filesystem corruption) in the event of a system crash, preventing the chicken-and-egg problem where GRUB can't read your kernel (since your filesystem is corrupted) but you can't run fsck to uncorrupt your filesystem (since you can't boot!)

Partition selection

Now, on to filesystem types. We recommend that you install Gentoo Linux on a ReiserFS filesystem because they're much faster and generally more reliable than their ext2 counterparts. We've been using ReiserFS for a long time now and we believe it's not only "stable enough", but perfect for use in production environments. However, if you want to use ext2 for your root and boot filesystems, we support this as well. Support will likely be added for JFS in the near future, as well as XFS – as soon as it's ready. Here are our recommended filesystem sizes and types:

1.

Partition	Size	Type
boot partition, containing kernel(s) and boot information	~100 Megabytes	>ReiserFS recomme
root partition, containing main filesystem (/usr, /home, etc)	>=1.5 Gigabytes	ReiserFS recommen
swap partition (no longer a 128 Megabyte limit)	>=128 Megabytes	Linux swap

Getting what you need

In this install guide, I'm going to be stepping you through the Gentoo Linux CD-based installation process. To perform the CD install, you'll need the Gentoo Linux 1.0_rc4_pre2 CD ISO image, available here [http://www.ibiblio.org/gentoo/gentoo-iso-images/] (~550Mb download.) It's also possible to install Gentoo Linux from an existing Linux installation. If you'd like to do this instead, you'll need to download the 1.0_rc4_pre2 sys.tbz2 file, available from here [http://www.ibiblio.org/gentoo/gentoo-x86-distro/gentoo-1.0_rc4_pre2/packages] (~67Mb download.) If you choose to install Gentoo Linux from another Linux distribution, you'll need to have the tools to unpack a bzip'd tarball (nearly all distributions do.) However, at this time, most distributions don't have the ability to create and mount ReiserFS partitions. If you don't have this ability, you may need to ReiserFS-enable your current system if you'd like to use ReiserFS. Another possibility is to use ext2 filesystems for Gentoo Linux, or alternatively just download and burn our CD image, which has all the tools you need for ReiserFS.

2. Installation

Booting the CD

Once you've downloaded the ISO image and burned your own Gentoo Linux CD, go ahead and boot your system from the CD. You'll be presented with a GRUB menu that looks like this:

Go ahead and select the first option to continue the CD boot process. Linux will boot and the Gentoo Linux CD detector will start up and detect and mount a minimal Gentoo Linux system included on the CD. When the boot process is complete, you'll be presented with a login prompt. To log in, go ahead and type "root" and hit Enter. You won't be prompted for a password.

Step 1: Create and format your partitions

The first step is to create your boot, root (plus optional /home, /usr, /var) and swap partitions using fdisk (type "fdisk /dev/hd?" to start it up.) Your boot and root partition should be tagged as a "Linux" partitions (type 83) even if you're using ReiserFS. Your swap partition should be tagged as "Linux swap" (type 82). Here's a screenshot of an example partition layout. In this example, /dev/hda1 is the boot partition (256Mb), /dev/hda2 is the swap partition (256Mb), and /dev/hda3 is the root partition (1.5Mb). Notice that /dev/hda1 has the bootable flag set (you can set this with the "a" option.) Once you've created your partitions, remember to write your changes with the "w" option.

Step 2: Create and mount filesystems

The second step is to create your filesystems. Use the commands mke2fs, mkreiserfs and mkswap for this. For example, to create a new ReiserFS filesystem on the partition /dev/hda1, type:

```
# mkreiserfs /dev/hda1
```

For my example partition layout above, I typed in the following commands:

```
# mkreiserfs /dev/hda1
# mkswap /dev/hda2
# mkreiserfs /dev/hda3
```

Now that the filesystems have been created, it's time to get your boot and root (and optionally your /var, /usr and /home partitions) mounted. For my example partition layout, I typed in the following:

```
# mount /dev/hda3 /mnt/gentoo
# mkdir /mnt/gentoo/boot
# mount /dev/hda1 /mnt/gentoo/boot -o notail
```

(note: the "notail" option is required if you're installing GRUB as a secondary boot loader. It also doesn't hurt to include it if you're not.)

Notice that I had to create the /mnt/gentoo/boot filesystem before mounting /dev/hda1. If you've created additional non-root filesystems (/var, /usr, /home, etc), you'll need to create the appropriate directories under /mnt/gentoo and then mount all your filesystems at the correct locations. Once all your filesystems are mounted, we're ready to extract the sys.tbz2 tarball – the file that contains the Gentoo Linux base system.

Note for those installing from an existing Linux distro: If you're installing from an existing Linux distribution, make sure that all your filesystems are mounted at the /mnt/gentoo mountpoint just like I described above. From this point on, you should be able to follow our install instructions word for word.

Step 3: Extract the sys.tbz2 tarball

Now, it's time to extract the sys.tbz2 tarball to /mnt/gentoo. You'll find the tarball at /mnt/distcd/packages/sys.tbz2. Extract it by typing:

```
# tar xjvf /mnt/distcd/packages/sys.tbz2 -C /mnt/gentoo
```

If you're installing from another Linux distribution and your version of tar doesn't have the -j (bzip2) option, the following pipeline should do the exact same thing:

```
# cat /path/to/sys.tbz2 | bzip2 -d | tar -xvf - -C /mnt/gentoo
```

3. How to really end

step 3

This is how you really end things.

Really....