Gentoo Linux Install Reference

1. Quick Install Reference

The installation ISOs are on the Gentoo Mirrors. Detailed descriptions of the different CDs are available in the Gentoo Store. CD 1 contains everything you need to install Gentoo Linux quickly and without a connection to the Internet. CD 2 is optional and contains pre-compiled packages such as KDE, GNOME, OpenOffice, Mozilla, Evolution and more.

Boot from the first Gentoo CD. Press <F1> and/or <F2> to see what boot options are available. Press <ENTER> at the bootscreen to continue with the default kernel. You'll eventually receive a prompt.

Code Listing 1.1: Beginning settings

```
# date (Make sure your time and date is correct. If wrong, set it with date MMDDhhmmCCYY )
# modprobe module_name (Optional - Load any necessary modules)
# net-setup eth0 (Configure the network)
# fdisk /dev/hda (Partition your drive)
```

The recommended setup is a 64 meg boot volume with ext2, a swap partition twice the size of your available RAM, and the rest for your root partition using ReiserFS.

Initialise your partitions using mke2fs (Ext2), mke2fs -j (Ext3), mkreiserfs (ReiserFS), mkxfs.xfs (XFS), mkxfs.jfs (JFS) and mkswap (swap partition). For instance: mke2fs -j /dev/hda3.

Continue by mounting the partitions and extracting the appropriate stage file.

Code Listing 1.2: Preparing the Installation

```
(Activate the swap partition)  # swapon /dev/hdx
(Mount the root partition)    # mount /dev/hdx /mnt/gentoo
(Create the mountpoint)       # mkdir /mnt/gentoo
(Extract a stage tarball...)  # tar -xvjpf /mnt/cdrom/stages/stage?-*.tar.bz2
(Option: unpack a portage tree)  # lynx http://www.gentoo.org/main/en/mirrors.xml
(Option: copy over distfiles) # tar -xvjpf stage *
(Select a mirror)             # mirrorselect -a -s4 -o >> /mnt/gentoo/etc/make.conf
(Copy over nameserver information)  # cp /etc/resolv.conf /mnt/gentoo/etc/resolv.conf
(Mount the proc filesystem)   # mount -t proc none /mnt/gentoo/proc
(Chroot into the new environment) # chroot /mnt/gentoo /bin/bash
(Network-only, non-GRP: update Portage) # env-update; source /etc/profile
```

Now we install Gentoo:

Code Listing 1.3: Installing Gentoo

```
(Change USE, CFLAGS and CCXFLAGS. Stage1 can also change CHOST)  # nano -w /etc/make.conf
(Stage1 only: bootstrap system)  # cd /usr/portage; scripts/bootstrap.sh
(Stage1, Stage2 only: install base system)  # emerge system
```

Next we set up the necessary information:

Code Listing 1.4: Setting up Configuration Files

```
(Set timezone information)  # ln -sf /usr/share/zoneinfo/<path to time zone file> /etc/localtime
(Edit fstab file)  # nano -w /etc/fstab
```

Use the following as a template (don't copy verbatim) for /etc/fstab:

```
# <fs> <mountpoint> <type> <opts> <dump/Pass>
/dev/hdx            /boot      ext2   noauto, noatime 0 0
/dev/hdx            none       swap   sw              0 0
/dev/cdrom/cdrom0  /mnt/cdrom reiserfs noatime 0 0
none               /proc      proc   defaults 0 0
none               /dev/shm   tmpfs  defaults 0 0
```

Continue by installing the Linux kernel:
## Code Listing 1.6: Installing the Kernel

1. Install the kernel sources:

   ```
   # emerge <kernel-package-here>
   ```

2. Configure your kernel using genkernel:

   ```
   # emerge genkernel; genkernel --menuconfig all
   ```

3. Compile your kernel:

   ```
   # make dep & make clean bzImage modules modules_install
   ```

4. Copy over the kernel:

   ```
   # cp arch/i386/boot/bzImage /boot; cp System.map /boot
   ```

Now install other tools you might want:

## Code Listing 1.7: Install important system tools

1. Install system logger; choice: sysklogd, metalog, msyslog, syslog-ng

   ```
   # emerge syslog-ng
   ```

2. Have the systemlogger automatically started at boot:

   ```
   # rc-update add syslog-ng default
   ```

3. Install cron daemon; choice: vixie-cron, dcron, fcron

   ```
   # emerge vixie-cron
   ```

4. Have the cron daemon automatically started at boot:

   ```
   # rc-update add vixie-cron default
   ```

5. genkernel users only: install hotplug

   ```
   # emerge hotplug
   ```

6. genkernel users only: have hotplug automatically started at boot

   ```
   # rc-update add hotplug default
   ```

7. Non-ext2,ext3 users only; choice: reiserfsprogs, xfsprogs, jfsutils

   ```
   # emerge reiserfsprogs
   ```

8. Domain name init script

    ```
    # nano -w /etc/dnsdomainname
    ```

If you need specialised kernel ebuilds, now is a good time to install them:

## Code Listing 1.8: Install Specialised Kernel Ebuilds

1. Install networking; dhcp-users should set iface_eth0="dhcp"

   ```
   # nano -w /etc/conf.d/net
   ```

2. List modules to be loaded at startup

   ```
   # nano -w /etc/modules.autoload.d/kernel-<version>
   ```

3. Non-PCMCIA only: start networking automatically at boot

   ```
   # rc-update add net.eth0 default
   ```

4. Only if you have multiple network interfaces:

   ```
   # ln -s /etc/init.d/net.eth0 /etc/init.d/net.ethx
   ```

5. PCMCIA only: verify /etc/conf.d/pcmcia and load PCMCIA at boot

   ```
   # rc-update add pcmcia boot
   ```

Now install a bootloader.

## Code Listing 1.10: Set up Networking

1. Set root password

   ```
   # passwd
   ```

2. Create a user

   ```
   # useradd your_user -m -G users,wheel,audio -s /bin/bash
   ```

3. Set password for that user

   ```
   # passwd your_user
   ```

4. Set the system hostname

   ```
   # echo mymachine > /etc/hostname
   ```

5. Set the system domainname

   ```
   # echo mydomain.com > /etc/dnsdomainname
   ```

6. Set the hosts file, ex: "127.0.0.1 localhost mymachine"

   ```
   # nano -w /etc/hosts
   ```

7. Configure basic system settings; follow comments

   ```
   # nano -w /etc/rc.conf
   ```

Now install a bootloader.

## Code Listing 1.11: Install and configure GRUB

1. Install GRUB

   ```
   # emerge grub
   # grub
   ```

2. grub> root (hd0,0)

   ```
   grub> setup (hd0)
   ```

3. grub> quit

   ```
   # sbin/lilo
   ```

4. Setup networking; dhcp-users should set iface_eth0="dhcp"

   ```
   # nano -w /etc/conf.d/net
   ```

5. Non-PCMCIA only: start networking automatically at boot

   ```
   # rc-update add net.eth0 default
   ```

6. Only if you have multiple network interfaces:

   ```
   # ln -s /etc/init.d/net.eth0 /etc/init.d/net.ethx
   ```

7. PCMCIA only: verify /etc/conf.d/pcmcia and load PCMCIA at boot

   ```
   # rc-update add pcmcia boot
   ```

Now install a bootloader.

## Code Listing 1.12: Install and configure LILO

1. Install LILO

   ```
   # emerge lilo
   # lilo
   ```

2. Set title:

   ```
   title=Gentoo Linux
   root (hd0,0)
   ```

3. Add kernel command line:

   ```
   # genkernel users:
   kernel /kernel-<kernel version> root=/dev/ram0 init=/linuxrc real_root=/dev/hda3
   initrd /initrd-<kernel version>
   ```

4. Non-genkernel users:

   ```
   kernel /kernel-<kernel version> root=/dev/hda3
   ```

Now unmount all partitions and reboot into your new system:
Code Listing 1.13: Finishing off and installing GUI

(Exiting the chroot)
# exit; cd /
(Unmounting partitions)
# umount /mnt/gentoo/boot /mnt/gentoo/proc /mnt/gentoo
(Reboot; Remove the install CD from the tray)
# reboot
(After booting:)

(ADSL-users only)
(Reboot; Remove the install CD from the tray)
# adsl-setup

(GRP-users only)
(1) Mount CD2)
# mount /dev/cdrom /mnt/cdrom
(2) Copy over packages)
# cp -a /mnt/cdrom/packages/* /usr/portage/packages/
(3) Install extra software)
# USE="bindist" emerge -k xfree gnome kde mozilla openoffice-bin
(4) Configure your Xserver)
# /usr/X11R6/bin/xf86config

You can get more information from the Gentoo Documentation.

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