Installation of chaos

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Introduction

chaos is, as you probably know, an operating system written totally from scratch by a bunch of Swedish (and others) hackers. Right now, we have not come as far as to write an installation program, so getting chaos onto your computer is not as straightforward as it could be. In this paper, you will be able to get some information about the different methods of setting things up. Hopefully, after reading this, you will find setting chaos up pretty trivial. In any way, please do not hesitate to mail staff@chaosdev.org if this information is wrong in any way.

Now, as you will see, there are several methods of trying out chaos. They have one chapter each, and are listed in order of complexity.

Chapter 1. Installing a floppy image

Using a floppy image to try out chaos is very easy. All you have to do is to download the floppy image (from our download page on http://www.chaosdev.org, or via anonymous FTP from ftp://ftp.chaosdev.org/chaos). Now, gunzip it if your web browser did not do it auto-magically (Netscape Navigator does that, and possible others too). If you do not have a program for decompressing gz files, get one from ftp://ftp.gnu.org/pub/gnu/gzip.

When you have decompressed the floppy image, get it onto a 1.44 3,5" floppy. If you are using DOS or Windows, get the rawrite2.exe program from ftp://ftp.chaosdev.org/dosutils. Write like this:

```
rawrite2 -f floppy.img -d a:
```

(Give the floppy image a letter within the 8.3 range to avoid problems; rawrite is a DOS program with no support for long file names.)

If you are using some kind of Unix (most probably Linux or some of the BSD systems. Anything else is probably out of the scope of this document, and if you are using such a system, you should be skilled enough to do such things anyway), do like this:

```
dd if=floppy.image of=/dev/fd0
```

If using BSD-derived systems, you will need to use /dev/fd0c instead. Anyway, that is all! Now, boot a computer with this floppy, and something magic will (hopefully) appear. Much joy!

Chapter 2. Compiling the source

Do you feel tired of waiting for us to update the floppy images, or do you feel to do some chaos hacking? If so, compiling the source is probably of interest. It is really not very difficult. First, get the sources, and decompress them. Do something like this:

```
tar xvIf chaos_snapshot-20001224.tar.bz2
```

(You must have a pretty recent GNU tar and a working bzip2 for this to work. If you are using an older version of tar, you might have to decompress the file manually first. Read the man pages for your bzip2 and tar programs for more information.)

Now, go to the newly created chaos directory, and read the file README.Linux. It will contain up-to-date instructions for building the system.

If everything works out fine, your chaos root (/mnt/chaos is the only possible choice right now -- sorry about that) will be filled with new, fresh stuff. It is not really more difficult than this.

Appendix A. Net-booting

The absolutely most elegant way to boot chaos, especially when developing the system, is to use the net-boot feature of GNU GRUB, our boot loader. It is a little tricky to get up, so we provide some information for your pleasure.

This chapter will tell you how to get GNU GRUB with net-boot installed on a floppy, but you should be able to do the same if you want to install GNU GRUB on your hard drive. The reason we are primarily focusing on doing a floppy is because it is easier, and it will make most people happy. In the future, it is very likely that we will extend this appendix to include information about installating onto hard drives.

First, you must choose which method you want to use to configure the IP address of the system you want to net-boot on (hereafter referred to as the client). This is used to select which software to install on the machine you want to boot from (hereafter called the server). The methods available in GNU GRUB right now are rarpd, bootp and DHCP. They all work pretty similarly, so if you are unsure of which one to choose, just pick anyone. If you happen to be on a network where a DHCP or bootp server already exists, you can be a little tricky and install a rarpd server, without risk of interfering with the other server. (You can find all the software you need for this at http://www.freshmeat.net/)

When you have got the IP configuration server up and running, it is time to install a TFTP server. TFTP is an acronym for Trivial File Transfer Protocol and is used by GNU GRUB to transfer the kernel and servers from the boot server. You can find TFTP servers at the same place as the rest of the software.

(I will not go into detail about how to configure the software here, but I will just mention one thing I would like you to avoid: GNU GRUB does not support "IP ranges" in the DHCP server configuration. You must have a host entry for the machine in question).

Okay, so you might have succeeded in getting rarpd/bootpd/dhcpd and tftpd installed, but where do we go from here? This is where it starts getting interesting. Unpack the GNU GRUB source, change to the newly created directory and write like this:

```
./configure --help | less
```

Now, make sure your network adapter is supported by GRUB. If it is, run configure again, with the correct parameter. For example, like this:

```
./configure --enable-rtl8139
```

Now, run the ’make’, which will compile the GRUB stage1 and stage2 files. For information about how to install the created files, check the GNU GRUB documentation. Basically, format the floppy (FAT or ext2 is just fine) and copy the stage1 and stage2 files there. Now, run the GRUB shell and write something like this:

```
install (fd0)/stage1 (fd0) (fd0)/stage2 (fd0)/menu
```

Now, create a file on the floppy, called menu. It should look like this:

```
timeout = 1
title = Netboot
dhcp
configfile (nd)/mnt/chaos/config/grub/menu
```

Substitute dhcp with bootp or rarp if you like. Now, boot with this floppy, and it will (hopefully) configure its IP address and load the second configuration file from the server.

Appendix B. Example GNU GRUB menu file

This is what I use on my net-boot server:

```
timeout = 2

title Net-chaos
root (nd)
kernel /mnt/chaos/system/kernel/storm
module /mnt/chaos/system/servers/keyboard
module /mnt/chaos/system/servers/vga
module /mnt/chaos/system/servers/console
module /mnt/chaos/system/servers/log
module /mnt/chaos/system/servers/cluido
module /mnt/chaos/system/servers/cluido
module /mnt/chaos/system/servers/cluido
module /mnt/chaos/system/servers/cluido
module /mnt/chaos/system/servers/initial_ramdisk
module /mnt/chaos/system/servers/fat
module /mnt/chaos/system/servers/virtual_file_system
module /mnt/chaos/system/servers/pci
module /mnt/chaos/system/servers/serial
module /mnt/chaos/system/servers/boot
module /mnt/chaos/system/servers/tornado
```

This is what I use when booting chaos locally:

```
title chaos
root (hd0,2)
kernel /mnt/chaos/system/kernel/storm
module /mnt/chaos/system/servers/keyboard
module /mnt/chaos/system/servers/console
module /mnt/chaos/system/servers/vga
module /mnt/chaos/system/servers/cluido
module /mnt/chaos/system/servers/log
module /mnt/chaos/system/servers/idle
module /mnt/chaos/system/servers/fat
module /mnt/chaos/system/servers/initial_ramdisk
module /mnt/chaos/system/servers/virtual_file_system
module /mnt/chaos/system/servers/ipv4
module /mnt/chaos/system/servers/3c509
module /mnt/chaos/system/servers/boot
```