NAME

INSTALL — Installation procedure for NetBSD/hp700.

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DESCRIPTION

About this Document

This document describes the installation procedure for NetBSD 3.1.1 on the *hp700* platform. It is available in four different formats titled `INSTALL.`*`ext`*, where *`.ext`* is one of `.ps`, `.html`, `.more`, or `.txt`:

`.ps` PostScript.

`.html` Standard Internet HTML.

`.more` The enhanced text format used on UNIX -like systems by the `more`(1) and `less`(1) pager utility programs. This is the format in which the on-line *man* pages are generally presented.

`.txt` Plain old ASCII.

You are reading the *PostScript* version.

What is NetBSD?

The NetBSD Operating System is a fully functional Open Source UNIX -like operating system derived from the University of California, Berkeley Networking Release 2 (Net/2), 4.4BSD-Lite, and 4.4BSD-Lite2 sources. NetBSD runs on fifty four different system architectures (ports), featuring seventeen machine architectures across fifteen distinct CPU families, and is being ported to more. The NetBSD 3.1.1 release contains complete binary releases for many different system architectures. (A few ports are not fully supported at this time and are thus not part of the binary distribution. For information on them, please see the NetBSD web site at *.:* **http://www.NetBSD.org/**)

NetBSD is a completely integrated system. In addition to its highly portable, high performance kernel, NetBSD features a complete set of user utilities, compilers for several languages, the X Window System, firewall software and numerous other tools, all accompanied by full source code.

NetBSD is a creation of the members of the Internet community. Without the unique cooperation and coordination the net makes possible, it's likely that NetBSD wouldn't exist.

Changes Between The NetBSD 3.1 release and 3.1.1 update

The NetBSD 3.1.1 update is the first security/critical update of the NetBSD 3.1 release branch. This represents a selected subset of fixes deemed critical in nature for stability or security reasons.

These fixes will also appear in future releases (NetBSD 3.2 etc), together with other less-critical fixes and feature enhancements.

Specific updates are as follows:

Supported devices

- `wd`(4): fix broken Seagate drive ST3160811A.

Kernel

- Don't accept a compressed `vnd`(4) image with block size 0 to avoid a kernel panic.

Networking

- Fix get-lease-hostnames option in `dhcpd.conf`(5) to make `dhcpd`(8) use the DNS hostname as the DHCP hostname given to the client.
- Fix TCP window scaling in `ipfilter`(4).

File system

- Prevent a kernel panic when creating snapshots on filesystems which use quota's.
- Fix a coredump in `dump`(8) when using -X (filesystem internal snapshots).
- Fix a panic when one user has 65536 active vnodes on a quota-enabled file system.

Security

- Fix a buffer overflow in `glob`(3), which affected `ftpd`(8) and possibly other programs (SA2006-027).
- X11: fix an integer overflow in the Render and DBE extensions (SA2007-002).
- BIND: fix multiple Denial of Service vulnerabilities (SA2007-003).
- Fix a buffer overflow in `iso`(4) which could potentially lead to a local root compromise (SA2007-004).
- Fix an integer underflow in `file`(1) which could lead to an exploitable heap overflow.
- X11: fix a number of possible memory corruptions due to integer overflows (CVE 2007-1003, 1351, 1352, 1667).
- Fix a denial of service vulnerability in `racoon`(8) which could allow an attacker to disrupt a connection between IPSec peers.
- Disable processing or routing header type 0 (RH0) IPv6 packets since they can be used for DoS attacks (CVE-2007-2242). Provide a sysctl (net.inet6.ip6.rht0) to re-enable them. Note: the sysctl may be removed completely in future NetBSD releases.
- Two `veriexec`(4) flaws have been fixed: users can no longer rename a file to a veriexec protected file or run unfingerprinted files at strict level two or above.
- `file`(1) has been updated to version 4.21, including and integer underflow and an integer overflow fix (CVE-2007-1536 and CVE-2007-2799).

Miscellaneous

- Fix some problems with `etcupdate`(8) for upgrading.
- Update time zoneinfo to tzdata2007f.
- Set /etc/postfix/post-install mode 555 (executable) instead of 444.
- `passwd`(1): display a message indicating who's password is being changed, to avoid confusion after `su`(1).
- The /etc/daily, weekly, monthly and security scripts now use $TMPDIR instead of /tmp.

alpha specific

- Fix alignment problems causing regular panics on NetBSD/alpha and NetBSD/sparc.

mac68k specific

- Avoid a kernel panic before reboot.

sparc specific

- Fix alignment problems causing regular panics on NetBSD/alpha and NetBSD/sparc.

xen specific

- Prevent xennet from occasionally becoming unable to receive packets for several minutes when under certain types of load.
- Don't try to handle xbd interrupts if the device is not yet connected, to fix a Xen3 xbd panic at boot when more than one xbd device is configured.
- Fix Xen console hangs.

- Fix occasional panics in NetBSD domU's caused by a race condition.
- Avoid block I/O stalls in Xen 3 guests on SMP systems.

This is the second major release of NetBSD for the HP 9000/700 series of computers.

The Future of NetBSD

The NetBSD Foundation has been incorporated as a non-profit organization. Its purpose is to encourage, foster and promote the free exchange of computer software, namely the NetBSD Operating System. The foundation will allow for many things to be handled more smoothly than could be done with our previous informal organization. In particular, it provides the framework to deal with other parties that wish to become involved in the NetBSD Project.

The NetBSD Foundation will help improve the quality of NetBSD by:

- providing better organization to keep track of development efforts, including co-ordination with groups working in related fields.
- providing a framework to receive donations of goods and services and to own the resources necessary to run the NetBSD Project.
- providing a better position from which to undertake promotional activities.
- periodically organizing workshops for developers and other interested people to discuss ongoing work.

We intend to begin narrowing the time delay between releases. Our ambition is to provide a full release every six to eight months.

We hope to support even *more* hardware in the future, and we have a rather large number of other ideas about what can be done to improve NetBSD.

We intend to continue our current practice of making the NetBSD-current development source available on a daily basis.

We intend to integrate free, positive changes from whatever sources submit them, providing that they are well thought-out and increase the usability of the system.

Above all, we hope to create a stable and accessible system, and to be responsive to the needs and desires of NetBSD users, because it is for and because of them that NetBSD exists.

Sources of NetBSD

Refer to .: **http://www.NetBSD.org/mirrors/**

NetBSD 3.1.1 Release Contents

The root directory of the NetBSD 3.1.1 release is organized as follows:

`.../NetBSD-3.1.1/`

`CHANGES`	Changes since earlier NetBSD releases.
`LAST_MINUTE`	Last minute changes.
`MIRRORS`	A list of sites that mirror the NetBSD 3.1.1 distribution.
`README.files`	README describing the distribution's contents.
`TODO`	NetBSD 's todo list (also somewhat incomplete and out of date).
`patches/`	Post-release source code patches.

`source/` Source distribution sets; see below.

In addition to the files and directories listed above, there is one directory per architecture, for each of the architectures for which NetBSD 3.1.1 has a binary distribution.

The source distribution sets can be found in subdirectories of the `source` subdirectory of the distribution tree. They contain the complete sources to the system. The source distribution sets are as follows:

gnusrc This set contains the "gnu" sources, including the source for the compiler, assembler, groff, and the other GNU utilities in the binary distribution sets.
79 MB gzipped, 367 MB uncompressed

pkgsrc This set contains the "pkgsrc" sources, which contain the infrastructure to build third-party packages.
24 MB gzipped, 200 MB uncompressed

sharesrc This set contains the "share" sources, which include the sources for the man pages not associated with any particular program; the sources for the typesettable document set; the dictionaries; and more.
5 MB gzipped, 20 MB uncompressed

src This set contains all of the base NetBSD 3.1.1 sources which are not in **gnusrc**, **sharesrc**, or **syssrc**.
37 MB gzipped, 176 MB uncompressed

syssrc This set contains the sources to the NetBSD 3.1.1 kernel for all architectures; `config`(8); and `dbsym`(8).
26 MB gzipped, 140 MB uncompressed

xsrc This set contains the sources to the X Window System.
84 MB gzipped, 450 MB uncompressed

All the above source sets are located in the `source/sets` subdirectory of the distribution tree.

The source sets are distributed as compressed tar files. Except for the **pkgsrc** set, which is traditionally unpacked into `/usr/pkgsrc`, all sets may be unpacked into `/usr/src` with the command:

```
# ( cd / ; tar -zxpf - )  set_name.tgz
```

In each of the source distribution set directories, there are files which contain the checksums of the files in the directory:

`BSDSUM` Historic BSD checksums for the various files in that directory, in the format produced by the command:
cksum -o 1 *file*.

`CKSUM` POSIX checksums for the various files in that directory, in the format produced by the command:
cksum *file*.

`MD5` MD5 digests for the various files in that directory, in the format produced by the command:
cksum -m *file*.

`SYSVSUM` Historic ATT System V UNIX checksums for the various files in that directory, in the format produced by the command:
cksum -o 2 *file*.

The MD5 digest is the safest checksum, followed by the POSIX checksum. The other two checksums are provided only to ensure that the widest possible range of system can check the integrity of the release files.

NetBSD/hp700 subdirectory structure

The hp700-specific portion of the NetBSD 3.1.1 release is found in the `hp700` subdirectory of the distribution: `.../NetBSD-3.1.1/hp700/`. It contains the following files and directories:

`INSTALL.html`
`INSTALL.ps`
`INSTALL.txt`
`INSTALL.more` Installation notes in various file formats, including this file. The `.more` file contains underlined text using the `more`(1) conventions for indicating italic and bold display.

`binary/`
`kernel/`
`netbsd-GENERIC.gz`
A gzipped NetBSD kernel containing code for everything supported in this release.
`sets/` hp700 binary distribution sets; see below.

`installation/`
`misc/`

Binary distribution sets

The NetBSD hp700 binary distribution sets contain the binaries which comprise the NetBSD 3.1.1 release for the hp700. The binary distribution sets can be found in the `hp700/binary/sets` subdirectory of the NetBSD 3.1.1 distribution tree, and are as follows:

base The NetBSD 3.1.1 hp700 **base** binary distribution. You *must* install this distribution set. It contains the base NetBSD utilities that are necessary for the system to run and be minimally functional. It includes shared library support, and excludes everything described below.
20 MB gzipped, 67 . MB uncompressed

comp Things needed for compiling programs. This set includes the system include files (`/usr/include`) and the various system libraries (except the shared libraries, which are included as part of the **base** set). This set also includes the manual pages for all of the utilities it contains, as well as the system call and library manual pages.
9 MB gzipped, 42 . MB uncompressed

etc This distribution set contains the system configuration files that reside in `/etc` and in several other places. This set *must* be installed if you are installing the system from scratch, but should *not* be used if you are upgrading.
1 MB gzipped, 1 MB uncompressed

games This set includes the games and their manual pages.
-unknown- MB gzipped, -unknown- MB uncompressed

kern-GENERIC
This set contains a NetBSD/hp700 3.1.1 `GENERIC` kernel, named `/netbsd`. You *must* install this distribution set.
-unset- MB gzipped, -unset- MB uncompressed

man This set includes all of the manual pages for the binaries and other software contained in the **base** set. Note that it does not include any of the manual pages that are included in the other sets.
8 MB gzipped, 30 MB uncompressed

misc This set includes the (rather large) system dictionaries, the typesettable document set, and other files from `/usr/share`.
3 MB gzipped, 9 MB uncompressed

text This set includes NetBSD's text processing tools, including `groff`(1), all related programs, and their manual pages.
-unknown- MB gzipped, -unknown- MB uncompressed

NetBSD maintains its own set of sources for the X Window System in order to assure tight integration and compatibility. NetBSD/hp700 currently does not ship with an X server or X clients. Binary sets for the X Window System are distributed with NetBSD. The sets are:

xbase The basic files needed for a complete X client environment. This does not include the X servers.
-unknown- MB gzipped, -unknown- MB uncompressed

xcomp The extra libraries and include files needed to compile X source code.
-unknown- MB gzipped, -unknown- MB uncompressed

xfont Fonts needed by X.
-unknown- MB gzipped, -unknown- MB uncompressed

xetc Configuration files for X which could be locally modified.
0.03 MB gzipped, 0.17 MB uncompressed

xserver The X server.
-unknown- MB gzipped, -unknown- MB uncompressed

The hp700 binary distribution sets are distributed as gzipped tar files named with the extension **.tgz**, e.g. `base.tgz`.

The instructions given for extracting the source sets work equally well for the binary sets, but it is worth noting that if you use that method, the filenames stored in the sets are relative and therefore the files are extracted *below the current directory*. Therefore, if you want to extract the binaries into your system, i.e. replace the system binaries with them, you have to run the **`tar -xpf`** command from the root directory (`/`) of your system. This utility is used only in a Traditional method installation.

Note: Each directory in the hp700 binary distribution also has its own checksum files, just as the source distribution does.

NetBSD/hp700 System Requirements and Supported Devices

Since NetBSD/hp700 is an experimental port, the hardware support is in a constant state of flux. Check the `port-hp700@NetBSD.org` mailing list and the NetBSD/hp700 port homepage for an up-to-date list of known supported hardware. **http://www.NetBSD.org/Ports/hp700/**

NetBSD/hp700 3.1.1 does not have any local disk support, so you must netboot and run diskless.

Supported hardware

Unknown.

Unsupported hardware

Unknown.

Getting the NetBSD System on to Useful Media

Because NetBSD/hp700 must run diskless, the distribution must be installed to a remote machine that NFS exports to the hp700 machine. As a result, there is no automated install procedure. Begin by retrieving the NetBSD set files onto the serving machine. These can be found at ftp.NetBSD.org. You may want to keep the following information handy:

```
IP Address: ftp.NetBSD.org
Login: anonymous
Password: your e-mail address
```

```
Server path: /pub/NetBSD/NetBSD-3.1.1/hp700/binary/sets
```

Preparing your System for NetBSD installation

Get to the Boot Administration prompt

All hp700 workstations have a Boot Administration command line utility in their Boot ROM which lets you configure various settings. For example, you can set whether the system automatically boots an OS, which device to try booting from first, determine the ethernet MAC address, set up a serial console, and possibly do some low level hardware access.

To get to the BOOT_ADMIN prompt, you must press the ESCAPE key before it tries to boot an OS. Since these machines often take a long time between powering on and the brief window of time where you can hit the ESCAPE key, you must pay attention. Depending on how much RAM your system has, it may take over a minute after pressing the power button before anything will show up on screen.

Once you have escaped out of the Selecting a system to boot and Searching for Potential Boot Devices you need to type the 'a' key to get to the BOOT_ADMIN prompt. Now, use the online help with the **help** command.

Write down the ethernet address. You will need this later to configure the netboot server for your NetBSD/hp700 system.

```
Selecting a system to boot.
To stop selection process, press and hold the ESCAPE key.
ESC
Booting from:     scsi.6.0     SEAGATE ST3600N

Selection process stopped.

Searching for Potential Boot Devices.
To terminate search, press and hold the ESCAPE key.

Device Selection      Device Path              Device Type
------------------------------------------------------------------------------

P0                    scsi.6.0                 SEAGATE ST3600N
ESC
Search terminated.


b)    Boot from specified device
s)    Search for bootable devices
a)    Enter Boot Administration mode
x)    Exit and continue boot sequence
?)    Help
```

Select from menu: **a**
BOOT_ADMIN **lan_addr**
LAN Station Address: 080009-123456
BOOT_ADMIN **help**

Change the configuration parameters to netboot

The command syntax is different on the various models. Use the **help path**, **help lan**, and **help autoselect** commands to learn about how to configure your system. On a 735/99, you would type:

```
BOOT_ADMIN path primary lan
BOOT_ADMIN autoselect on
BOOT_ADMIN reset
```

The first command sets the primary boot device to be the network interface, and the second command sets the system to always try booting from the primary boot path when it is reset or powered on. The last command stores the new settings and resets the machine.

To return to using the SCSI disk at ID 6 as your primary boot device, you would use something like the following command:

```
BOOT_ADMIN path primary scsi.6.0
```

Determine netboot method

Most older Series 700 workstations (with PA-7000 (PCXS), PA-7100 (PCXT), or PA-7150 (PCXT)) use the RMP (Remote Maintenance Protocol) to netboot. Specifically, they retrieve their boot program from an `rbootd`(8) server. The following list of RMP-only Series 700 workstations is probably complete, but has not been tested:

- 705
- 710
- 715/33, 715/50, 715/75
- 720
- 725/50, 725/75
- 730
- 735
- 745i
- 747i
- 750
- 755

Newer Series 700 workstations retrieve their boot program from a server running `dhcpd`(8) in `bootpd`(8) compatible mode and `tftpd`(8). The following list of BOOTP-only Series 700 workstations is probably complete, but has not been tested:

- 712
- 715/64, 715/80, 715/100, 715/100XC
- 725/64, 725/100
- newer models, such as the B, C, and J class systems

Installing the NetBSD System

1. Introduction

   To netboot a hp700, you must configure one or more servers to provide information and files to your hp700 (the 'client).' If you are using NetBSD (any architecture) on your netboot server(s), the information provided here should be sufficient to configure everything. Additionally, you may wish to look at the `diskless`(8) manual page and the manual pages for each daemon you'll be configuring. If the server(s) are another operating system, you should consult the NetBSD Diskless HOW-TO, which will walk you through the steps necessary to configure the netboot services on a variety of platforms.

   http://www.NetBSD.org/Documentation/network/netboot/

Briefly, the netboot process involves discovery, bootstrap, kernel and file system stages. In the first stage, the client discovers information about where to find the bootstrap program. Next, it downloads and executes the bootstrap program. The server contains one large file (a LIF file system) with the bootloader and the kernel. The bootstrap program simply loads the kernel from the LIF image. Once the kernel is loaded, it starts executing. The kernel tries to mount the NFS share that had the kernel and starts executing `init`(8). Early hp700 systems use HP's proprietary RMP (the `rbootd`(8) daemon) for the discovery stage, bootstrap download, and kernel download stages. Later hp700 systems use BOOTP for the discovery stage and TFTP for the bootstrap and kernel download.

We will use '`CC:CC:CC:CC:CC:CC`' as the MAC address (ethernet hardware address) of your netboot client machine. You should have determined this address in an earlier stage. In this example, we will use '`192.168.1.10`' as the IP address of your client and '`client.test.net`' as its name. We will assume you're providing all of your netboot services on one machine called '`server.test.net`' with the client's files exported from the directory `/export/client/root`. You should, of course, replace all of these with the names, addresses, and paths appropriate to your environment.

You should set up each netboot stage in order (i.e. discovery, bootstrap, kernel, and then file system) so that you can test them as you proceed.

If your system uses RMP to netboot, you must set up `rbootd`(8) but can skip `dhcpd`(8) and `tftpd`(8). If your system uses BOOTP to netboot, then you must set up `dhcpd`(8) and `tftpd`(8) but can skip `rbootd`(8).

2. `rbootd`(8)

   Get `SYSNBSD` from the `installation/misc` directory of the distribution.

   ```
   # mkdir -p /usr/mdec/rbootd
   # cp SYSNBSD /usr/mdec/rbootd
   # chmod -R a+rX /usr/mdec/rbootd
   ```

   Create `/etc/rbootd.conf` with the following line:

   ```
   CC:CC:CC:CC:CC:CC SYSNBSD
   ```

   You will need to start the **rbootd**. If it's already running, you will need to restart it to force it to reread its configuration file. If the server is running NetBSD, you can achieve this with:

   ```
   # /etc/rc.d/rbootd restart
   ```

3. `dhcpd`(8) in `bootpd`(8) compatible mode

   Put the following lines in your `/etc/dhcpd.conf` (see `dhcpd.conf`(5) and `dhcp-options`(5) for more information):

   ```
   ddns-update-style none;
                   # Do not use any dynamic DNS features
                   #
   allow bootp;    # Allow bootp requests, thus the dhcp server
                   # will act as a bootp server.
                   #
   authoritative;  # master DHCP server for this subnet
                   #
   subnet 192.168.1.0 netmask 255.255.255.0 {
                   # Which network interface to listen on.
                   # The zeros indicate the range of addresses
                   # that are allowed to connect.
   ```

```
}
group {
                # Set of parameters common to all clients
                # in this "group".
                #
        option broadcast-address        192.168.1.255;
        option domain-name              "test.net";
        option domain-name-servers      dns.test.net;
        option routers                  router.test.net;
        option subnet-mask              255.255.255.0;
                #
                # An individual client.
                #
        host client.test.net {
                hardware ethernet       CC:CC:CC:CC:CC:CC;
                fixed-address           192.168.1.10;
                #
                # Name of the host (if the fixed address
                # doesn't resolve to a simple name).
                #
                option host-name        "client";
                #
                # Name of the bootloader or kernel
                # to download via tftp.
#
                filename                "SYSNBSD";

                #
                # The path on the NFS server.
                #
                option root-path "/export/client/root";

                #
                # If your DHCP server is not your NFS server, supply the
                # address of the NFS server. Since we assume you run everythi
                # on one server, this is not needed.
                #
                # next-server server.test.net;
        }
 #you may paste another "host" entry here for additional
 #clients on this network
}
```

You will need to make sure that the `dhcpd.leases` file exists.

```
# touch /var/db/dhcpd.leases
```

You will need to start the **dhcpd**. If it's already running, you will need to restart it to force it to re-read its configuration file. If the server is running NetBSD, you can achieve this with:

```
# /etc/rc.d/dhcpd restart
```

4. tftpd(8)

   The default configuration of the TFTP server is to run in a chroot(8) environment in the /tftpboot directory. Thus, the first order of business is to create this directory:

   ```
   # mkdir -p /tftpboot
   ```

   Next, edit /etc/inetd.conf and uncomment the line with the TFTP daemon:

   ```
   tftp  dgram  udp  wait  root  /usr/libexec/tftpd tftpd -l -s /tftpboot
   ```

   Now, restart inetd(8). If the server is running NetBSD, you can achieve this with:

   ```
   # /etc/rc.d/inetd restart
   ```

   Now, you need to copy the bootloader for your hp700 machine to /tftpboot. Get SYSNBSD from the installation directory of the distribution.

   ```
   # cp SYSNBSD /tftpboot
   ```

   Just to be sure, let's make everything readable.

   ```
   # chmod -R a+rX /tftpboot
   ```

   Sometimes, the arp(8) table gets messed up, and the TFTP server can't communicate with the client. In this case, it will write a log message (via syslogd(8)) to /var/log/messages saying: 'tftpd: write: Host is down'. If this is the case, you may need to force the server to map your client's ethernet address to its IP address:

   ```
   # arp -s client CC:CC:CC:CC:CC:CC
   ```

5. nfsd(8), mountd(8), and rpcbind(8)

   Now your system should be able to load the bootstrap program and start looking for the kernel. Let's set up the NFS server. Create the directory you are exporting for the netboot client:

   ```
   # mkdir -p /export/client/root
   ```

   Put the following line in /etc/exports to enable NFS sharing:

   ```
   /export/client/root -maproot=root client.test.net
   ```

   If your server is currently running an NFS server, you only need to restart mountd(8). Otherwise, you need to start rpcbind(8) and nfsd(8). If the server is running NetBSD, you can achieve this with:

   ```
   # /etc/rc.d/rpcbind start
   # /etc/rc.d/nfsd start
   # /etc/rc.d/mountd restart
   ```

6. NetBSD kernel

   You do not need to place a kernel in /export/client/root since the kernel is contained inside SYSNBSD.

7. Client file system

   You need to extract and set up the client's installation of NetBSD. The Diskless HOW-TO describes how to provide better security and save space on the NFS server over the procedure listed here.

   http://www.NetBSD.org/Documentation/network/netboot/nfs.html

   - Extracting distribution sets

     ```
     # cd /export/client/root
     # tar -xpzf /path/to/files/base.tgz
     # tar -xpzf /path/to/files/etc.tgz
     ```

Continue with the other non-essential distribution sets if desired.

- Set up swap

```
# mkdir /export/client/root/swap
# dd if=/dev/zero of=/export/client/swap bs=4k count=4k
# echo '/export/client/swap -maproot=root:wheel client.test.net' | cat  /et
# /etc/rc.d/mountd restart
```

This creates a 16 MB swap file and exports it to the client.

- Create device nodes

```
# cd /export/client/root/dev
# ./MAKEDEV all
```

This procedure only works on NetBSD hosts.

- Set up the client's `fstab`(5)

Create a file in `/export/client/root/etc/fstab` with the following lines:

```
server:/export/client/swap   none  swap  sw,nfsmntpt=/swap
server:/export/client/root   /     nfs   rw 0 0
```

- Set up the client's `rc.conf`(5)

Edit `/export/client/root/etc/rc.conf`

```
rc_configured=YES
hostname="client"
defaultroute="192.168.1.1"
nfs_client=YES
auto_ifconfig=NO
net_interfaces=""
```

Make sure rc does not reconfigure the network device since it will lose its connection to the NFS server with your root file system.

- Set up the client's `hosts`(5) file.

Edit `/export/client/root/etc/hosts`

```
::1                     localhost
127.0.0.1               localhost
192.168.1.10 client.test.net client
192.168.1.5  server.test.net server
```

8. Setting up the server daemons

You need these services to start up every time you boot your server, make sure the following lines are present in your `/etc/rc.conf`:

```
rbootd=YES        rbootd_flags=""
dhcpd=YES         dhcpd_flags="-q"
nfs_server=YES          # enable server daemons
mountd=YES
rpcbind=YES       rpcbind_flags="-l"   # -l logs libwrap
```

Also, you'll need to make sure the `tftpd` line in `/etc/inetd.conf` remains uncommented.

Post installation steps

Once you've got the operating system running, there are a few things you need to do in order to bring the system into a properly configured state, with the most important ones described below.

1. Configuring `/etc/rc.conf`

   If you or the installation software haven't done any configuration of `/etc/rc.conf` (**sysinst** usually will), the system will drop you into single user mode on first reboot with the message

   ```
   /etc/rc.conf is not configured. Multiuser boot aborted.
   ```

   and with the root file system (`/`) mounted read-only. When the system asks you to choose a shell, simply press `RETURN` to get to a `/bin/sh` prompt. If you are asked for a terminal type, respond with **vt220** (or whatever is appropriate for your terminal type) and press `RETURN`. You may need to type one of the following commands to get your delete key to work properly, depending on your keyboard:

   ```
   # stty erase '^h'
   # stty erase '^?'
   ```

   At this point, you need to configure at least one file in the `/etc` directory. You will need to mount your root file system read/write with:

   ```
   # /sbin/mount -u -w /
   ```

   Change to the `/etc` directory and take a look at the `/etc/rc.conf` file. Modify it to your tastes, making sure that you set `rc_configured=YES` so that your changes will be enabled and a multi-user boot can proceed. Default values for the various programs can be found in `/etc/defaults/rc.conf`, where some in-line documentation may be found. More complete documentation can be found in `rc.conf`(5).

   If your `/usr` directory is on a separate partition and you do not know how to use **ed**, you will have to mount your `/usr` partition to gain access to **ex** or **vi**. Do the following:

   ```
   # mount /usr
   # export TERM=vt220
   ```

   If you have `/var` on a separate partition, you need to repeat that step for it. After that, you can edit `/etc/rc.conf` with `vi`(1). When you have finished, type **exit** at the prompt to leave the single-user shell and continue with the multi-user boot.

   Other values that need to be set in `/etc/rc.conf` for a networked environment are *hostname* and possibly *defaultroute*, furthermore add an *ifconfig_int* for your ⟨int⟩ network interface, along the lines of

   ```
   ifconfig_ie0="inet 123.45.67.89 netmask 255.255.255.0"
   ```

   or, if you have *myname.my.dom* in `/etc/hosts`:

   ```
   ifconfig_ie0="inet myname.my.dom netmask 255.255.255.0"
   ```

   To enable proper hostname resolution, you will also want to add an `/etc/resolv.conf` file or (if you are feeling a little more adventurous) run `named`(8). See `resolv.conf`(5) or `named`(8) for more information. Instead of manually configuring network and naming service, DHCP can be used by setting `dhclient=YES` in `/etc/rc.conf`.

   Other files in `/etc` that may require modification or setting up include `/etc/mailer.conf`, `/etc/nsswitch.conf`, and `/etc/wscons.conf`.

2. Logging in

   After reboot, you can log in as `root` at the login prompt. Unless you've set a password in **sysinst**, there is no initial password. If you're using the machine in a networked environment, you should create an account for yourself (see below) and protect it and the "root" account with good passwords. By

default, root login from the network is disabled (even via ssh(1)). One way to become root over the network is to log in as a different user that belongs to group "wheel" (see group(5)) and use su(1) to become root.

Unless you have connected an unusual terminal device as the console you can just press RETURN when it prompts for `Terminal type? [...]`.

3. Adding accounts

   Use the useradd(8) command to add accounts to your system. Do not edit /etc/passwd directly! See vipw(8) and pwd_mkdb(8) if you want to edit the password database.

   Don't forget to add /usr/X11R6/bin to your path in your shell's dot file so that you have access to the X binaries.

4. Installing third party packages

   If you wish to install any of the software freely available for UNIX -like systems you are strongly advised to first check the NetBSD package system. This automatically handles any changes necessary to make the software run on NetBSD, retrieval and installation of any other packages on which the software may depend, and simplifies installation (and deinstallation), both from source and precompiled binaries.

   - More information on the package system is at
     http://www.NetBSD.org/Documentation/software/packages.html
   - A list of available packages suitable for browsing is at
     ftp://ftp.NetBSD.org/pub/NetBSD/packages/pkgsrc/README.html
   - Precompiled binaries can be found at ,:
     ftp://ftp.NetBSD.org/pub/NetBSD/packages/
     usually in the 3.1.1/hp700/All subdir. You can install them with the following commands under sh(1):

     ```
     # PKG_PATH=ftp://ftp.NetBSD.org/pub/NetBSD/packages/3.1.1/hp700/All
     # export PKG_PATH
     # pkg_add -v tcsh
     # pkg_add -v bash
     # pkg_add -v perl
     # pkg_add -v apache
     # pkg_add -v kde
     # pkg_add -v mozilla
     ...
     ```

     If you are using csh(1) then replace the first two lines with the following:

     ```
     # setenv PKG_PATH ftp://ftp.NetBSD.org/pub/NetBSD/packages/3.1.1/hp700/All
     ...
     ```

     The above commands will install the Tenex-csh and Bourne Again shell, the Perl programming language, Apache web server, KDE desktop environment and the Mozilla web browser as well as all the packages they depend on.

   - Package sources for compiling packages on your own can be obtained by retrieving the file
     ftp://ftp.NetBSD.org/pub/NetBSD/NetBSD-current/tar_files/pkgsrc.tar.gz
     They are typically extracted into /usr/pkgsrc (though other locations work fine), with the commands:

     ```
     # mkdir /usr/pkgsrc
     # ( cd /usr/pkgsrc ; tar -zxpf - )  pkgsrc.tar.gz
     ```

After extracting, see the `README` and `doc/pkgsrc.txt` files in the extraction directory (e.g. `/usr/pkgsrc/README`) for more information.

5. Misc

   - Edit `/etc/mail/aliases` to forward root mail to the right place. Don't forget to run `newaliases`(1) afterwards.
   - The `/etc/mail/sendmail.cf` file will almost definitely need to be adjusted; files aiding in this can be found in `/usr/share/sendmail`. See the `README` file there for more information. If you prefer postfix as MTA, adjust `/etc/mailer.conf`.
   - Edit `/etc/rc.local` to run any local daemons you use.
   - Many of the `/etc` files are documented in section 5 of the manual; so just invoking

     ```
     # man 5 filename
     ```

     is likely to give you more information on these files.

Upgrading a previously-installed NetBSD System

NetBSD/hp700 does not currently support an upgrade procedure.

Compatibility Issues With Previous NetBSD Releases

Users upgrading from previous versions of NetBSD may wish to bear the following problems and compatibility issues in mind when upgrading to NetBSD 3.1.1.

Issues affecting an upgrade from NetBSD 3.1 and older releases.

It is **very important** that you populate the directory `/etc/pam.d` with appropriate configuration files for the Pluggable Authentication Modules (PAM) because you will not be able to login any more otherwise. Using *postinstall* as described below will take care of this. Please refer to

http://www.netbsd.org/guide/en/chap-pam.html

for documentation about PAM.

The following issues can generally be resolved by extracting the **etc** set into a temporary directory and running *postinstall*:

```
postinstall -s /path/to/etc.tgz check
postinstall -s /path/to/etc.tgz fix
```

Issues fixed by *postinstall*:

- Various files in `/etc` need upgrading. These include:
  - `/etc/defaults/*`
  - `/etc/mtree/*`
  - `/etc/pam.d/*`
  - `/etc/daily`
  - `/etc/weekly`
  - `/etc/monthly`
  - `/etc/security`
  - `/etc/rc.subr`
  - `/etc/rc`
  - `/etc/rc.shutdown`
  - `/etc/rc.d/*`

The following issues need to be resolved manually:

- The user '_pflogd'
  and the groups '_pflogd' and 'authpf' need to be created.

Using online NetBSD documentation

Documentation is available if you first install the manual distribution set. Traditionally, the "man pages" (documentation) are denoted by '`name(section)`'. Some examples of this are

- `intro`(1),
- `man`(1),
- `apropos`(1),
- `passwd`(1), and
- `passwd`(5).

The section numbers group the topics into several categories, but three are of primary interest: user commands are in section 1, file formats are in section 5, and administrative information is in section 8.

The *man* command is used to view the documentation on a topic, and is started by entering **man** [*section*] *topic*. The brackets [ ] around the section should not be entered, but rather indicate that the section is optional. If you don't ask for a particular section, the topic with the lowest numbered section name will be displayed. For instance, after logging in, enter

```
# man passwd
```

to read the documentation for `passwd`(1). To view the documentation for `passwd`(5), enter

```
# man 5 passwd
```

instead.

If you are unsure of what man page you are looking for, enter

apropos *subject-word*

where *subject-word* is your topic of interest; a list of possibly related man pages will be displayed.

Administrivia

If you've got something to say, do so! We'd like your input. There are various mailing lists available via the mailing list server at `majordomo@NetBSD.org`. To get help on using the mailing list server, send mail to that address with an empty body, and it will reply with instructions.

There are various mailing lists set up to deal with comments and questions about this release. Please send comments to: `netbsd-comments@NetBSD.org`.

To report bugs, use the `send-pr`(1) command shipped with NetBSD, and fill in as much information about the problem as you can. Good bug reports include lots of details. Additionally, bug reports can be sent by mail to: `netbsd-bugs@NetBSD.org`.

Use of `send-pr`(1) is encouraged, however, because bugs reported with it are entered into the NetBSD bugs database, and thus can't slip through the cracks.

There are also port-specific mailing lists, to discuss aspects of each port of NetBSD. Use majordomo to find their addresses, or visit **http://www.NetBSD.org/MailingLists/**. If you're interested in doing a serious amount of work on a specific port, you probably should contact the 'owner' of that port (listed below).

If you'd like to help with this effort, and have an idea as to how you could be useful, send us mail or subscribe to: `netbsd-help@NetBSD.org`.

As a favor, please avoid mailing huge documents or files to these mailing lists. Instead, put the material you would have sent up for FTP or WWW somewhere, then mail the appropriate list about it, or, if you'd rather not do that, mail the list saying you'll send the data to those who want it.

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Brad Salai
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Brian Carlstrom
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Chris Legrow
Chris Townsend
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Daniel de Kok
Dave Burgess
Dave Rand
Dave Tyson
David Brownlee
Dayton Clark
Demon Internet, UK
Derek Fellion
Digital Equipment Corporation
Distributed Processing Technology
Distro Jockey
Douglas J. Trainor
Dr.ir. F.W. Dillema
Easynet, UK

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Erik E. Fair
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Ernst Lehmann
Espen Randen
Ewald Kicker
Florent Parent
Frank Kardel
Free Hardware Foundation
Front Range *BSD User Group
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Gan Uesli Starling
Garth R. Patil
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GK Meier
Gordon Zaft
Grant Beattie
Greg Gingerich
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John Heasley
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Jonathan P. Kay
Jordan K. Hubbard
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Karl Wagner
Kenji Hisazumi
Kenneth Alan Hornstein
Kenneth P. Stox
Kevin Keith Woo
Kevin Sullivan
Klaus Lichti
Kimmo Suominen
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Lex Wennmacher
LinuxFest Northwest
Luke Maurits
Luke Mewburn
MS Macro System GmbH, Germany
Maki Kato
Marc Tooley
Marcus Wyremblewski
Mark Brinicombe
Mark Houde
Mark Perkins
Mark S. Thomas
Mason Loring Bliss
Martin Cernohorsky
Martin J. Ekendahl
Matt Dainty
Matt Thomas
Matthew Jacob
Matthew Sporleder
Matthias Scheler
Mattias Karlsson
Mel Kravitz
Michael Graff
Michael "Kvedulv" Moll

Michael L. Hitch
Michael Richardson
Michael Thompson
Michael W. James
Mike Price
Mirko Thiesen (Thiesi)
Murphy Software BV, Netherlands
Neil J. McRae
Noah M. Keiserman
Norman R. McBride
Numerical Aerospace Simulation Facility, NASA Ames Research
Olaf "Rhialto" Seibert
Oliver Cahagne
Oppedahl & Larson LLP
Palle Lyckegaard
Paul Ripke
Paul Southworth
Pawel Rogocz
Pearson Education
Perry E. Metzger
Petar Bogdanovic
Peter C. Wallace
Peter J. Bui
Peter Postma
Petri T. Koistinen
Phil Thomas
Piermont Information Systems Inc.
Pierre-Philipp Braun
Precedence Technologies Ltd
Public Access Networks Corporation
Ralph Campbell
Randy Ray
Real Weasel
Reinoud Zandijk
Renewed Health Company
Richard Nelson
Rob Windsor
Robert Pankratz
Robert Thille
Roland Lichti
Ross Harvey
Ryan Campbell
SDF Public Access Unix, Inc. 501(c)(7)
SMC Networks Inc.
Salient Systems Inc.
Sander van Dijk
Scott Ellis
Scott Kaplan
Scott Walters
Sean Davis
Simon Burge
Soren Jacobsen

Soren Jorvang
Stephen Borrill
Stephen Early
Steve Allen
Steve Wadlow
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Tatoku Ogaito
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Timo Scholer
Tino Hanich
Tino Wildenhain
Tom Coulter
Tom Ivar Helbekkmo
Tom Lyon
Tomas Dabasinskas
Torsten Harenberg
Toru Nishimura
Toshiba
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Tyler Sarna
UTN Web Directory
VMC Harald Frank, Germany
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Worria Web Hosting
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(If you're not on that list and should be, tell us! We probably were not able to get in touch with you, to verify that you wanted to be listed.)

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We are...

(in alphabetical order)

The NetBSD core group:

Allen Briggs	briggs@NetBSD.org
Matt Thomas	matt@NetBSD.org
Valeriy E. Ushakov	uwe@NetBSD.org
YAMAMOTO Takashi	yamt@NetBSD.org
Christos Zoulas	christos@NetBSD.org

The portmasters (and their ports):

Allen Briggs	briggs@NetBSD.org	**sandpoint**
Anders Magnusson	ragge@NetBSD.org	**vax**
Andrey Petrov	petrov@NetBSD.org	**sparc64**
Ben Harris	bjh21@NetBSD.org	**acorn26**
Chris Gilbert	chris@NetBSD.org	**cats**
Christian Limpach	cl@NetBSD.org	**xen**
Eduardo Horvath	eeh@NetBSD.org	**evbppc**
Frank van der Linden	fvdl@NetBSD.org	**amd64**
Frank van der Linden	fvdl@NetBSD.org	**i386**
Gavan Fantom	gavan@NetBSD.org	**iyonix**
IWAMOTO Toshihiro	toshii@NetBSD.org	**hpcarm**
Ichiro Fukuhara	ichiro@NetBSD.org	**hpcarm**
Ignatios Souvatzis	is@NetBSD.org	**amiga**
Izumi Tsutsui	tsutsui@NetBSD.org	**hp300**
Izumi Tsutsui	tsutsui@NetBSD.org	**news68k**
Jason Thorpe	thorpej@NetBSD.org	**algor**
Jason Thorpe	thorpej@NetBSD.org	**evbarm**
Jason Thorpe	thorpej@NetBSD.org	**shark**
Jeremy Cooper	jeremy@NetBSD.org	**sun3**
Jonathan Stone	jonathan@NetBSD.org	**pmax**
Julian Coleman	jdc@NetBSD.org	**atari**
Jun-ichiro itojun Hagino	itojun@NetBSD.org	**evbsh3**
Jun-ichiro itojun Hagino	itojun@NetBSD.org	**mmeye**
Kazuki Sakamoto	sakamoto@NetBSD.org	**bebox**
Lennart Augustsson	augustss@NetBSD.org	**pmppc**
Marcus Comstedt	marcus@NetBSD.org	**dreamcast**
Martin Husemann	martin@NetBSD.org	**sparc64**
Matt DeBergalis	deberg@NetBSD.org	**next68k**
Matt Fredette	fredette@NetBSD.org	**hp700**
Matt Fredette	fredette@NetBSD.org	**sun2**
Matt Thomas	matt@NetBSD.org	**alpha**
Matt Thomas	matt@NetBSD.org	**netwinder**
Matthias Drochner	drochner@NetBSD.org	**cesfic**
NISHIMURA Takeshi	nsmrtks@NetBSD.org	**x68k**
NONAKA Kimihiro	nonaka@NetBSD.org	**prep**
Nathan Williams	nathanw@NetBSD.org	**sun3**
Noriyuki Soda	soda@NetBSD.org	**arc**

Paul Kranenburg	pk@NetBSD.org	**sparc**
Phil Nelson	phil@NetBSD.org	**pc532**
Reinoud Zandijk	reinoud@NetBSD.org	**acorn32**
Ross Harvey	ross@NetBSD.org	**alpha**
Søren Jørvang	soren@NetBSD.org	**cobalt**
Søren Jørvang	soren@NetBSD.org	**sgimips**
Scott Reynolds	scottr@NetBSD.org	**mac68k**
Shin Takemura	takemura@NetBSD.org	**hpcmips**
Simon Burge	simonb@NetBSD.org	**evbmips**
Simon Burge	simonb@NetBSD.org	**evbppc**
Simon Burge	simonb@NetBSD.org	**pmax**
Simon Burge	simonb@NetBSD.org	**sbmips**
Steve Woodford	scw@NetBSD.org	**evbsh5**
Steve Woodford	scw@NetBSD.org	**mvme68k**
Steve Woodford	scw@NetBSD.org	**mvmeppc**
Tohru Nishimura	nisimura@NetBSD.org	**luna68k**
Tsubai Masanari	tsubai@NetBSD.org	**macppc**
Tsubai Masanari	tsubai@NetBSD.org	**newsmips**
UCHIYAMA Yasushi	uch@NetBSD.org	**hpcsh**
UCHIYAMA Yasushi	uch@NetBSD.org	**playstation2**
Wayne Knowles	wdk@NetBSD.org	**mipsco**
Wolfgang Solfrank	ws@NetBSD.org	**ofppc**

The NetBSD 3.1.1 Release Engineering team:

Grant Beattie	grant@NetBSD.org
Erik Berls	cyber@NetBSD.org
James Chacon	jmc@NetBSD.org
Julian Coleman	jdc@NetBSD.org
Håvard Eidnes	he@NetBSD.org
Jun-ichiro itojun Hagino	itojun@NetBSD.org
Geert Hendrickx	ghen@NetBSD.org
Soren Jacobsen	snj@NetBSD.org
SAITOH Masanobu	msaitoh@NetBSD.org
Luke Mewburn	lukem@NetBSD.org
Jeff Rizzo	riz@NetBSD.org
Matthias Scheler	tron@NetBSD.org
Curt Sampson	cjs@NetBSD.org
Jim Wise	jwise@NetBSD.org

NetBSD Developers:

Nathan Ahlstrom	nra@NetBSD.org
Steve Allen	wormey@NetBSD.org
Jukka Andberg	jandberg@NetBSD.org
Julian Assange	proff@NetBSD.org
Lennart Augustsson	augustss@NetBSD.org
Christoph Badura	bad@NetBSD.org
Bang Jun-Young	junyoung@NetBSD.org
Dieter Baron	dillo@NetBSD.org
Robert V. Baron	rvb@NetBSD.org
Alan Barrett	apb@NetBSD.org
Grant Beattie	grant@NetBSD.org
Jason Beegan	jtb@NetBSD.org
Erik Berls	cyber@NetBSD.org
Hiroyuki Bessho	bsh@NetBSD.org
John Birrell	jb@NetBSD.org
Mason Loring Bliss	mason@NetBSD.org
Charles Blundell	cb@NetBSD.org
Rafal Boni	rafal@NetBSD.org
Sean Boudreau	seanb@NetBSD.org
Manuel Bouyer	bouyer@NetBSD.org
John Brezak	brezak@NetBSD.org
Allen Briggs	briggs@NetBSD.org
Mark Brinicombe	mark@NetBSD.org
Aaron Brown	abrown@NetBSD.org
Andrew Brown	atatat@NetBSD.org
David Brownlee	abs@NetBSD.org
Frederick Bruckman	fredb@NetBSD.org
Jon Buller	jonb@NetBSD.org
Simon Burge	simonb@NetBSD.org
Robert Byrnes	byrnes@NetBSD.org
D'Arcy J.M. Cain	darcy@NetBSD.org
Dave Carrel	carrel@NetBSD.org
Daniel Carosone	dan@NetBSD.org
James Chacon	jmc@NetBSD.org
Bill Coldwell	billc@NetBSD.org
Julian Coleman	jdc@NetBSD.org
Ben Collver	ben@NetBSD.org
Jeremy Cooper	jeremy@NetBSD.org
Chuck Cranor	chuck@NetBSD.org
Alistair Crooks	agc@NetBSD.org
Aidan Cully	aidan@NetBSD.org
Garrett D'Amore	gdamore@NetBSD.org
Johan Danielsson	joda@NetBSD.org
John Darrow	jdarrow@NetBSD.org
Jed Davis	jld@NetBSD.org
Matt DeBergalis	deberg@NetBSD.org
Rob Deker	deker@NetBSD.org

Chris G. Demetriou	cgd@NetBSD.org
Tracy Di Marco White	gendalia@NetBSD.org
Jaromír Dolecek	jdolecek@NetBSD.org
Andy Doran	ad@NetBSD.org
Roland Dowdeswell	elric@NetBSD.org
Emmanuel Dreyfus	manu@NetBSD.org
Matthias Drochner	drochner@NetBSD.org
Jun Ebihara	jun@NetBSD.org
Elad Efrat	elad@NetBSD.org
Håvard Eidnes	he@NetBSD.org
Stoned Elipot	seb@NetBSD.org
Michael van Elst	mlelstv@NetBSD.org
Enami Tsugutomo	enami@NetBSD.org
Bernd Ernesti	veego@NetBSD.org
Erik Fair	fair@NetBSD.org
Gavan Fantom	gavan@NetBSD.org
Hubert Feyrer	hubertf@NetBSD.org
Jason R. Fink	jrf@NetBSD.org
Liam J. Foy	liamjfoy@NetBSD.org
Matt Fredette	fredette@NetBSD.org
Thorsten Frueauf	frueauf@NetBSD.org
Castor Fu	castor@NetBSD.org
Ichiro Fukuhara	ichiro@NetBSD.org
Quentin Garnier	cube@NetBSD.org
Thomas Gerner	thomas@NetBSD.org
Simon J. Gerraty	sjg@NetBSD.org
Justin Gibbs	gibbs@NetBSD.org
Chris Gilbert	chris@NetBSD.org
Eric Gillespie	epg@NetBSD.org
Adam Glass	glass@NetBSD.org
Michael Graff	explorer@NetBSD.org
Brian C. Grayson	bgrayson@NetBSD.org
Matthew Green	mrg@NetBSD.org
Andreas Gustafsson	gson@NetBSD.org
Jun-ichiro itojun Hagino	itojun@NetBSD.org
Juergen Hannken-Illjes	hannken@NetBSD.org
Charles M. Hannum	mycroft@NetBSD.org
Ben Harris	bjh21@NetBSD.org
Ross Harvey	ross@NetBSD.org
Eric Haszlakiewicz	erh@NetBSD.org
John Hawkinson	jhawk@NetBSD.org
HAMAJIMA Katsuomi	hamajima@NetBSD.org
HAYAKAWA Koichi	haya@NetBSD.org
John Heasley	heas@NetBSD.org
Geert Hendrickx	ghen@NetBSD.org
René Hexel	rh@NetBSD.org
Iain Hibbert	plunky@NetBSD.org
Kouichirou Hiratsuka	hira@NetBSD.org
Michael L. Hitch	mhitch@NetBSD.org

Jachym Holecek	freza@NetBSD.org
Christian E. Hopps	chopps@NetBSD.org
Ken Hornstein	kenh@NetBSD.org
Marc Horowitz	marc@NetBSD.org
Eduardo Horvath	eeh@NetBSD.org
Nick Hudson	skrll@NetBSD.org
Shell Hung	shell@NetBSD.org
Martin Husemann	martin@NetBSD.org
Dean Huxley	dean@NetBSD.org
Love Hörnquist Åstrand	lha@NetBSD.org
Bernardo Innocenti	bernie@NetBSD.org
Tetsuya Isaki	isaki@NetBSD.org
ITOH Yasufumi	itohy@NetBSD.org
IWAMOTO Toshihiro	toshii@NetBSD.org
Matthew Jacob	mjacob@NetBSD.org
Soren Jacobsen	snj@NetBSD.org
Lonhyn T. Jasinskyj	lonhyn@NetBSD.org
Darrin Jewell	dbj@NetBSD.org
Chris Jones	cjones@NetBSD.org
Søren Jørvang	soren@NetBSD.org
Takahiro Kambe	taca@NetBSD.org
Antti Kantee	pooka@NetBSD.org
Masanori Kanaoka	kanaoka@NetBSD.org
Frank Kardel	kardel@NetBSD.org
Mattias Karlsson	keihan@NetBSD.org
KAWAMOTO Yosihisa	kawamoto@NetBSD.org
Mario Kemper	magick@NetBSD.org
Min Sik Kim	minskim@NetBSD.org
Thomas Klausner	wiz@NetBSD.org
Klaus Klein	kleink@NetBSD.org
John Klos	jklos@NetBSD.org
Wayne Knowles	wdk@NetBSD.org
Takayoshi Kochi	kochi@NetBSD.org
John Kohl	jtk@NetBSD.org
Daniel de Kok	daniel@NetBSD.org
Paul Kranenburg	pk@NetBSD.org
Martti Kuparinen	martti@NetBSD.org
Kentaro A. Kurahone	kurahone@NetBSD.org
Kevin Lahey	kml@NetBSD.org
Johnny C. Lam	jlam@NetBSD.org
Martin J. Laubach	mjl@NetBSD.org
Greg Lehey	grog@NetBSD.org
Ted Lemon	mellon@NetBSD.org
Christian Limpach	cl@NetBSD.org
Frank van der Linden	fvdl@NetBSD.org
Joel Lindholm	joel@NetBSD.org
Mike Long	mikel@NetBSD.org
Michael Lorenz	macallan@NetBSD.org
Warner Losh	imp@NetBSD.org

Tomasz Luchowski	zuntum@NetBSD.org
Federico Lupi	federico@NetBSD.org
Brett Lymn	blymn@NetBSD.org
Paul Mackerras	paulus@NetBSD.org
Anders Magnusson	ragge@NetBSD.org
MAEKAWA Masahide	gehenna@NetBSD.org
David Maxwell	david@NetBSD.org
Dan McMahill	dmcmahill@NetBSD.org
Gregory McGarry	gmcgarry@NetBSD.org
Jared D. McNeill	jmcneill@NetBSD.org
Neil J. McRae	neil@NetBSD.org
Perry Metzger	perry@NetBSD.org
Simas Mockevicius	symka@NetBSD.org
Juan Romero Pardines	xtraeme@NetBSD.org
Julio M. Merino Vidal	jmmv@NetBSD.org
Minoura Makoto	minoura@NetBSD.org
Luke Mewburn	lukem@NetBSD.org
der Mouse	mouse@NetBSD.org
Joseph Myers	jsm@NetBSD.org
Ken Nakata	kenn@NetBSD.org
Takeshi Nakayama	nakayama@NetBSD.org
Phil Nelson	phil@NetBSD.org
John Nemeth	jnemeth@NetBSD.org
Bob Nestor	rnestor@NetBSD.org
NISHIMURA Takeshi	nsmrtks@NetBSD.org
Tohru Nishimura	nisimura@NetBSD.org
NONAKA Kimihiro	nonaka@NetBSD.org
Takehiko NOZAKI	tnozaki@NetBSD.org
Jesse Off	joff@NetBSD.org
Tatoku Ogaito	tacha@NetBSD.org
OKANO Takayoshi	kano@NetBSD.org
Masaru Oki	oki@NetBSD.org
Atsushi Onoe	onoe@NetBSD.org
Greg Oster	oster@NetBSD.org
Jonathan Perkin	sketch@NetBSD.org
Herb Peyerl	hpeyerl@NetBSD.org
Matthias Pfaller	matthias@NetBSD.org
Chris Pinnock	cjep@NetBSD.org
Adrian Portelli	adrianp@NetBSD.org
Rui Paulo	rpaulo@NetBSD.org
Peter Postma	peter@NetBSD.org
Dante Profeta	dante@NetBSD.org
Chris Provenzano	proven@NetBSD.org
Niels Provos	provos@NetBSD.org
Michael Rauch	mrauch@NetBSD.org
Marc Recht	recht@NetBSD.org
Darren Reed	darrenr@NetBSD.org
Jeremy C. Reed	reed@NetBSD.org
Antoine Reilles	tonio@NetBSD.org

Tyler R. Retzlaff	rtr@NetBSD.org
Scott Reynolds	scottr@NetBSD.org
Michael Richardson	mcr@NetBSD.org
Tim Rightnour	garbled@NetBSD.org
Alan Ritter	rittera@NetBSD.org
Jeff Rizzo	riz@NetBSD.org
Gordon Ross	gwr@NetBSD.org
Steve Rumble	rumble@NetBSD.org
Ilpo Ruotsalainen	lonewolf@NetBSD.org
Heiko W. Rupp	hwr@NetBSD.org
David Sainty	dsainty@NetBSD.org
SAITOH Masanobu	msaitoh@NetBSD.org
Kazuki Sakamoto	sakamoto@NetBSD.org
Curt Sampson	cjs@NetBSD.org
Wilfredo Sanchez	wsanchez@NetBSD.org
Ty Sarna	tsarna@NetBSD.org
SATO Kazumi	sato@NetBSD.org
Jan Schaumann	jschauma@NetBSD.org
Matthias Scheler	tron@NetBSD.org
Karl Schilke (rAT)	rat@NetBSD.org
Amitai Schlair	schmonz@NetBSD.org
Konrad Schroder	perseant@NetBSD.org
Georg Schwarz	schwarz@NetBSD.org
Lubomir Sedlacik	salo@NetBSD.org
Christopher SEKIYA	sekiya@NetBSD.org
Reed Shadgett	dent@NetBSD.org
John Shannon	shannonjr@NetBSD.org
Tim Shepard	shep@NetBSD.org
Takeshi Shibagaki	shiba@NetBSD.org
Naoto Shimazaki	igy@NetBSD.org
Takao Shinohara	shin@NetBSD.org
Takuya SHIOZAKI	tshiozak@NetBSD.org
Chuck Silvers	chs@NetBSD.org
Thor Lancelot Simon	tls@NetBSD.org
Jeff Smith	jeffs@NetBSD.org
Noriyuki Soda	soda@NetBSD.org
Wolfgang Solfrank	ws@NetBSD.org
SOMEYA Yoshihiko	someya@NetBSD.org
Bill Sommerfeld	sommerfeld@NetBSD.org
Jörg Sonnenberger	joerg@NetBSD.org
Ignatios Souvatzis	is@NetBSD.org
Bill Squier	groo@NetBSD.org
Jonathan Stone	jonathan@NetBSD.org
Bill Studenmund	wrstuden@NetBSD.org
Kevin Sullivan	sullivan@NetBSD.org
SUNAGAWA Keiki	kei@NetBSD.org
Kimmo Suominen	kim@NetBSD.org
Shin Takemura	takemura@NetBSD.org
TAMURA Kent	kent@NetBSD.org

Shin'ichiro TAYA	taya@NetBSD.org
Ian Lance Taylor	ian@NetBSD.org
Matt Thomas	matt@NetBSD.org
Jason Thorpe	thorpej@NetBSD.org
Christoph Toshok	toshok@NetBSD.org
Greg Troxel	gdt@NetBSD.org
Tsubai Masanari	tsubai@NetBSD.org
Izumi Tsutsui	tsutsui@NetBSD.org
UCHIYAMA Yasushi	uch@NetBSD.org
Masao Uebayashi	uebayasi@NetBSD.org
Shuichiro URATA	ur@NetBSD.org
Valeriy E. Ushakov	uwe@NetBSD.org
Todd Vierling	tv@NetBSD.org
Aymeric Vincent	aymeric@NetBSD.org
Paul Vixie	vixie@NetBSD.org
Mike M. Volokhov	mishka@NetBSD.org
Krister Walfridsson	kristerw@NetBSD.org
Lex Wennmacher	wennmach@NetBSD.org
Leo Weppelman	leo@NetBSD.org
Assar Westerlund	assar@NetBSD.org
Todd Whitesel	toddpw@NetBSD.org
Nathan Williams	nathanw@NetBSD.org
Rob Windsor	windsor@NetBSD.org
Dan Winship	danw@NetBSD.org
Jim Wise	jwise@NetBSD.org
Michael Wolfson	mbw@NetBSD.org
Steve Woodford	scw@NetBSD.org
Colin Wood	ender@NetBSD.org
YAMAMOTO Takashi	yamt@NetBSD.org
Yuji Yamano	yyamano@NetBSD.org
Reinoud Zandijk	reinoud@NetBSD.org
S.P.Zeidler	spz@NetBSD.org
Maria Zevenhoven	maria7@NetBSD.org
Christos Zoulas	christos@NetBSD.org

Other contributors:

Dave Burgess	burgess@cynjut.infonet.net
Brian R. Gaeke	brg@dgate.org
Brad Grantham	grantham@tenon.com
Lawrence Kesteloot	kesteloo@cs.unc.edu
Waldi Ravens	waldi@moacs.indiv.nl.net

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