NAME

INSTALL — Installation procedure for NetBSD/next68k.

CONTENTS

DESCRIPTION

About this Document

This document describes the installation procedure for NetBSD 6.1.3 on the *next68k* 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 57 different system architectures (ports) across 15 distinct CPU families, and is being ported to more. The NetBSD 6.1.3 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. Please see the NetBSD web site at **http://www.NetBSD.org/** for information on them.)

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 6.1.2 and 6.1.3 Releases

NetBSD 6.1.3 is the third critical/security update of the NetBSD 6.1 release branch. It represents a selected subset of fixes deemed critical for security or stability reasons.

The complete list of changes can be found in the CHANGES-6.1.3:
http://ftp.NetBSD.org/pub/NetBSD/NetBSD-6.1.3/CHANGES-6.1.3
file in the top level directory of the NetBSD 6.1.3 release tree. An abbreviated list is as follows:

Security Advisory Fixes

- NetBSD-SA2013-010:
  http://ftp.NetBSD.org/pub/NetBSD/security/advisories/NetBSD-SA2013-010.txt.asc
  Use after free in Xserver handling of ImageText requests (CVE-2013-4396)
- NetBSD-SA2013-011:
  http://ftp.NetBSD.org/pub/NetBSD/security/advisories/NetBSD-SA2013-011.txt.asc
  embryonic TCP sockets local DoS
- NetBSD-SA2013-012:
  http://ftp.NetBSD.org/pub/NetBSD/security/advisories/NetBSD-SA2013-012.txt.asc
  Router Advertisement sysctl local Denial of Service
- NetBSD-SA2013-013:
  http://ftp.NetBSD.org/pub/NetBSD/security/advisories/NetBSD-SA2013-013.txt.asc
  Memory leak when trying to execute bogus ELF binaries
- NetBSD-SA2014-001:
  http://ftp.NetBSD.org/pub/NetBSD/security/advisories/NetBSD-SA2014-001.txt.asc
  Stack buffer overflow in libXfont (CVE-2013-6462)
- NetBSD-SA2014-002:
  http://ftp.NetBSD.org/pub/NetBSD/security/advisories/NetBSD-SA2014-002.txt.asc
  ntpd used as DDoS amplifier

Advisories prior to NetBSD-SA2013-009 do not affect NetBSD 6.1.3: .:
http://www.NetBSD.org/support/security/patches-6.1.3.html

Other Security Fixes

- bind: Fix CVE-2014-0591.

Kernel

- `pci`(4): Work around a QEMU bug preventing NetBSD from booting on some versions of QEMU and KVM. (PR#45671): **http://gnats.netbsd.org/45671**
- Xen: fix dom0 crash with some domUs
- Xen: remove a bogus diagostic message spamming the console. (PR#46313): **http://gnats.netbsd.org/46313**

Networking

- NPF: fix byteorder for port range comparison.
- NPF: fix a race condition.

File Systems

- ffs: Fixed a fsck_ffs internal error on UFS1.

Miscellaneous

- `Xserver`(1): Fixed crash on i810e. (PR#48315): **http://gnats.netbsd.org/48315**
- `sysinst`(8): Fixed wrong MBR partiton offset on small disks. (PR#48304): **http://gnats.netbsd.org/48304** `ld.elf_so`(1): Fixed memory corruption. (PR#48324): **http://gnats.netbsd.org/48324**
- sparc64: fix a kernel diagnostic panic.
- sparc64: fixed gcc to not generate invalid asm.

The NetBSD Foundation

The NetBSD Foundation is a tax exempt, not-for-profit 501(c)(3) corporation that devotes itself to the traditional goals and Spirit of the NetBSD Project and owns the trademark of the word "NetBSD". It supports the design, development, and adoption of NetBSD worldwide. More information on the NetBSD Foundation, its composition, aims, and work can be found at: **http://www.NetBSD.org/foundation/**

Sources of NetBSD

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

NetBSD 6.1.3 Release Contents

The root directory of the NetBSD 6.1.3 release is organized as follows:

`.../NetBSD-6.1.3/`

`CHANGES` Changes between the 5.0 and 6.0 releases.

`CHANGES-6.0` Changes between the initial 6.0 branch and final release of 6.0.

`CHANGES-6.1` Changes between the final release of 6.0 and final release of 6.1.

`CHANGES-6.1.1`
Changes between the final release of 6.1 and final release of 6.1.1.

`CHANGES-6.1.2`
Changes between the final release of 6.1.1 and final release of 6.1.2.

`CHANGES-6.1.3`
Changes between the final release of 6.1.2 and final release of 6.1.3.

`CHANGES.prev` Changes in previous NetBSD releases.

`LAST_MINUTE` Last minute changes and notes about the release.

`README.files` README describing the distribution's contents.

`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 6.1.3 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.

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.

src This set contains all of the base NetBSD 6.1.3 sources which are not in **gnusrc**, **sharesrc**, or **syssrc**.

syssrc This set contains the sources to the NetBSD 6.1.3 kernel for all architectures as well as the `config`(1) utility.

xsrc This set contains the sources to the X Window System.

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:

`MD5` MD5 digests in the format produced by the command:
cksum -a MD5 *file*.

`SHA512` SHA512 digests in the format produced by the command:
cksum -a SHA512 *file*.

The SHA512 digest is safer, but MD5 checksums are provided so that a wider range of operating systems can check the integrity of the release files.

NetBSD/next68k subdirectory structure

The next68k-specific portion of the NetBSD 6.1.3 release is found in the `next68k` subdirectory of the distribution: `.../NetBSD-6.1.3/next68k/`. 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/` next68k binary distribution sets; see below.

`installation/`
- `misc/` Miscellaneous next68k installation utilities; see installation section below.

Binary distribution sets

The NetBSD next68k binary distribution sets contain the binaries which comprise the NetBSD 6.1.3 release for next68k. The binary distribution sets can be found in the `next68k/binary/sets` subdirectory of the NetBSD 6.1.3 distribution tree, and are as follows:

base The NetBSD 6.1.3 next68k **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.

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.

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.

games This set includes the games and their manual pages.

kern-GENERIC
This set contains a NetBSD/next68k 6.1.3 `GENERIC` kernel, named `/netbsd`. You *must* install this distribution set.

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.

misc This set includes the system dictionaries, the typesettable document set, and other files from `/usr/share`.

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

NetBSD maintains its own set of sources for the X Window System in order to assure tight integration and compatibility. These sources are based on X.Org. 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.

xcomp The extra libraries and include files needed to compile X source code.

xfont Fonts needed by the X server and by X clients.

xetc Configuration files for X which could be locally modified.

xserver The X server.

The next68k 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 -xzpf`** command from the root directory (`/`) of your system.

Note: Each directory in the next68k binary distribution also has its own checksum files, just as the source distribution does.

NetBSD/next68k System Requirements and Supported Devices

NetBSD/next68k 6.1.3 will run on the 25 MHz 68040-based NeXT workstations. The Turbo (33 MHz) models are not supported. The 68030 model is not supported. NetBSD/next68k 6.1.3 does not have any local disk support, so you must netboot and run diskless.

The minimum configuration requires 4 MB of RAM and a network server capable of netbooting NetBSD/next68k. Serial consoles are poorly supported by the hardware, see the FAQ for help. Typically it is just easier to use the NeXT monitor and keyboard.

http://www.NetBSD.org/ports/next68k/faq.html

Supported hardware

- CPUs
  - 68040-25 2-bit grayscale (NeXTcube)
  - 68040-25 2-bit grayscale (NeXTstation)
  - 68040-25 16-bit color (NeXTstation Color)
- RS232 interfaces
  - on-board A and B serial ports (*zsc*) .
- Network interfaces:
  - on-board ethernet (*xe*) .
- Displays
  - on-board NeXT monochrome display (*nextdisplay*) .
  - on-board NeXT 12-bit color display (*nextdisplay*) .
- Input devices
  - NeXT non-adb keyboard (*nextkbd*) .
- Miscellaneous
  - Battery-backed real-time clock.

Unsupported hardware

- CPUs
  - 68030-25 2-bit grayscale (NeXT Computer)
  - 68040-33 2-bit grayscale (NeXTcube Turbo)
  - 68040-33 2-bit grayscale (NeXTstation Turbo)
  - 68040-33 16-bit color (NeXTstation Color Turbo)
- Disk interfaces
  - on-board SCSI interface and disks
  - Floppy drive
  - Optical disk
  - non-SCSI CD-ROM

- Miscellaneous devices
  - NeXTdimension 32-bit color framebuffer
  - 16-bit digital audio
  - DSP
  - NeXT Printer

Getting the NetBSD System on to Useful Media

Because NetBSD/next68k must run diskless, the distribution must be installed to a remote machine that NFS exports to the NeXT 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-6.1.3/next68k/binary/sets
```

Preparing your System for NetBSD installation

Get to the ROM Monitor prompt

After the system performs its power-on self test, and while it tries to boot an operating system, press the `COMMAND-`` keys (the backquote is above 7 on the keypad on the right of the keyboard). You should see a prompt like this:

```
                        NeXT ROM Monitor 2.5 (v66)

CPU MC68040 25 MHz, memory 100 nS
Backplane slot #0
Ethernet address:  0:0:f:0:fb:90
Memory size 40 MB
NeXT>
```

Write down the ethernet address. You will need this later to configure the netboot server for your NetBSD/next68k system.

Change the configuration parameters to netboot

Press the `p` key to modify the configuration parameters. You will need to change the `boot command` to `en()netbsd` which is to boot from the `en()` ethernet device the kernel named `netbsd`. You should write down what the original `boot command` was in case you wish to boot NEXTSTEP in the future. It will probably be `sd()`. While modifying the parameters, you may wish to set the system to use `verbose test mode` which will print detailed messages while it is attempting to load the kernel, as opposed to the normal graphic of a network cable. You should not set the `extended diagnostics` as the system will try to boot a diagnostic kernel. Here is an example configuration session:

NeXT> **p**
boot command: sd()? **en()netbsd**
DRAM tests: yes? **yes**
perform power-on system test: yes? **yes**
  sound out tests: yes? **yes**
  SCSI tests: yes? **yes**
  loop until keypress: no? **no**
  verbose test mode: no? **yes**
boot extended diagnostics: no? **no**
serial port A is alternate console: no? **yes**

allow any ROM command even if password protected: no? **no**
allow boot from any device even if password protected: no? **no**
allow optical drive #0 eject even if password protected: yes? **yes**
enable parity checking if parity memory is present: no? **no**

Now, whenever you reset or power on your system, it will attempt to netboot. From the ROM Monitor prompt, you can simply type `b` to netboot. You can also press the power key (above the arrows) to turn off the system.

Installing the NetBSD System

1. Introduction

   To netboot a next68k, you must configure one or more servers to provide information and files to your next68k (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/docs/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 bootstrap program goes through another discovery phase to determine where the kernel is located. The bootstrap program tries to mount the NFS share containing the kernel. 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). All next68k systems use BOOTP for the discovery stage. TFTP is used in the bootstrap phase to download the bootstrap program, `boot`. NFS is used in both the kernel and file system stages to download the kernel, and to access files on the file server.

   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.

2. `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                "boot";

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

                #
                #next68k machines require non-RFC1048 BOOTP
                #
                always-reply-rfc1048 false;

                #
                # If your DHCP server is not your NFS server, supply the
                # address of the NFS server. Since we assume you run everything
                # 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

3. `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 next68k machine to `/tftpboot`. Get `boot` from the `installation` directory of the distribution.

   # **cp boot /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**

4. `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**

5. NetBSD kernel

   Now, if you place a kernel named `netbsd` in `/export/client/root` your client should boot the kernel. Use `binary/kernel/netbsd-GENERIC.gz`.

   # **gunzip netbsd-GENERIC.gz**
   # **mv netbsd-GENERIC /export/client/root/netbsd**

6. 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. See
   http://www.NetBSD.org/docs/network/netboot/nfs.html
   for details.

   - 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 >> /etc/exports
     # /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
     ```

7. 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:

```
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. The most important steps are 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).

   When you have finished editing /etc/rc.conf, type **exit** at the prompt to leave the single-user shell and continue with the multi-user boot.

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

```
ifconfig_xe0="inet 192.0.2.123 netmask 255.255.255.0"
```

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

```
ifconfig_xe0="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. 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.

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.

4. The X Window System

   If you installed the X Window System, you may want to read the chapter about X in the NetBSD Guide:
   http://netbsd.org/docs/guide/en/chap-x.html

5. 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, pkgsrc. pkgsrc automatically handles any changes necessary to make the software run on NetBSD. This includes the retrieval and installation of any other packages on which the software may depend.

   - More information on the package system is available at
     http://www.NetBSD.org/docs/software/packages.html

   - A list of available packages suitable for browsing is at
     ftp://ftp.NetBSD.org/pub/pkgsrc/current/pkgsrc/README.html

   - Precompiled binaries can be found at
     ftp://ftp.NetBSD.org/pub/pkgsrc/packages/NetBSD/
     usually in the `next68k/6.1.3/All` subdir. If you installed `pkgin`(1) in the **sysinst** post-installation configuration menu, you can use it to automatically install binary packages over the network. Assuming that `/usr/pkg/etc/pkgin/repositories.conf` is correctly configured, you can install them with the following commands:

     ```
     # pkgin install tcsh
     # pkgin install bash
     # pkgin install perl
     # pkgin install apache
     # pkgin install kde
     # pkgin install firefox
     ...
     ```

     Note: Some mirror sites don't mirror the `/pub/pkgsrc` directory.

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

   - If you did not install it from the **sysinst** post-installation configuration menu, the `pkgsrc`(7) framework for compiling packages can be obtained by retrieving the file
     ftp://ftp.NetBSD.org/pub/pkgsrc/pkgsrc.tar.gz.
     It is typically extracted into `/usr/pkgsrc` (though other locations work fine) with the commands:

     ```
     # cd /usr
     # tar -zxpf pkgsrc.tar.gz
     ```

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

6. Misc

   - Edit `/etc/mail/aliases` to forward root mail to the right place. Don't forget to run `newaliases`(1) afterwards.
   - The `/etc/postfix/main.cf` file will almost definitely need to be adjusted. If you prefer a different MTA, then install it using pkgsrc or by hand and 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/next68k 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 6.1.3.

Note that **sysinst** will automatically invoke

```
postinstall fix
```

and thus all issues that are fixed by **postinstall** by default (see below) will be handled.

Issues affecting an upgrade from NetBSD 5.x releases

The pthread libraries from previous versions of NetBSD require that the `sysctl`(3) node `kern.no_sa_support` be set to `0`. This affects the following environments:

- Running a 5.0 kernel with an older userland.
- Running an older userland inside a chroot'ed environment on a 5.0 system.
- Running older statically linked pthread applications.

The 5.0 kernel defaults to `0` for `kern.no_sa_support`, which covers the first case. However, please note that a full installation of 5.0 (either from scratch or through an upgrade) will set `kern.no_sa_support` to 1 during the boot process. This means that for the last two cases, you will have to manually set `kern.no_sa_support` to `0`, using either the `sysctl`(8) command or through `sysctl.conf`(5).

The implementation of SHA2-HMAC in KAME_IPSEC as used in NetBSD-5 and before did not comply to current standards. FAST_IPSEC does, with the result that old and new systems cannot communicate over IPSEC, if one of the affected authentication algorithms (hmac_sha256, hmac_sha384, hmac_sha512) is used.

Issues affecting an upgrade from NetBSD 4.x releases

The following issues can generally be resolved by running *postinstall* with the **etc** set:

```
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/daily`
  - `/etc/weekly`
  - `/etc/monthly`
  - `/etc/security`
  - `/etc/rc.subr`
  - `/etc/rc`
  - `/etc/rc.shutdown`
  - `/etc/rc.d/*`
  - `/etc/envsys.conf`

The following issues need to be resolved manually:

- The users '_httpd' and '_timedc' and the groups '_httpd' and '_timedc' need to be created.
- Unprivileged use of the `mount`(8) command now requires the *nosuid* and *nodev* options to be explicitly specified. Previously, these options were automatically enforced even if they were not explicitly specified.
- A number of things have been removed from the NetBSD 6.1.3 release. See the "Components removed from NetBSD" section near the beginning of this document for a list.

Using online NetBSD documentation

Documentation is available if you installed 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. See **http://www.NetBSD.org/mailinglists/** for a web interface.

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.

Bugs also can be submitted and queried with the web interface at

http://www.NetBSD.org/support/send-pr.html

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-users@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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- The Columbia University Computer Science Department for hosting the NYC build cluster.
- The Western Washington University Computer Science Department for running the WWU build cluster.
- The many organizations that provide NetBSD mirror sites.
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- We list the individuals and organizations that have made donations or loans of hardware and/or money, to support NetBSD development, and deserve credit for it at **http://www.NetBSD.org/donations/** (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.)

- Finally, we thank all of the people who've put sweat and tears into developing NetBSD since its inception in January, 1993. (Obviously, there are a lot more people who deserve thanks here. If you're one of them, and would like to be mentioned, tell us!)

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