NetBSD 3.0
for System Administrators

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About NetBSD

- Project started in 1993 as an offshoot of 386BSD
- 11 major releases (0.8 through 3.0)
- Numbering scheme changed with 2.0
- 17 CPU architectures (over 50 platforms)
  - All built from a common source tree

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NetBSD's Strengths

- Quick to install, set up
- Highly ported, and portable
  - Can be cross-built on most POSIX systems
- Clean, well-structured source tree
- Good security focus

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Getting Started

- Two pieces to an install
  - Booting an install kernel to run sysinst
  - Where the installation sets are kept
- Install kernel usually booted from CD, network, or floppy
- Binary sets can be fetched via CD, ftp, http, NFS, floppy, or a local disk partition

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sysinst

- Simple installer with few frills
- Installing/upgrading "by hand" also feasible

```
Welcome to sysinst, the NetBSD-3.0 system installation tool.  This
menu-driven tool is designed to help you install NetBSD to a hard disk, or
upgrade an existing NetBSD system, with a minimum of work.
In the following menus type the reference letter (a, b, c, ...) to select an
item, or type CTRL+N/CTRL+P to select the next/previous item.
The arrow keys and Page-up/Page-down may also work.
Activate the current selection from the menu by typing the enter key.

If you booted from a floppy, you may now remove the disk.

Thank you for using NetBSD!


    NetBSD-3.0 Install System

  >a: Install NetBSD to hard disk
   b: Upgrade NetBSD on a hard disk
   c: Re-install sets or install additional sets
   d: Reboot the computer
   e: Utility menu
   x: Exit Install System
```

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sysinst - screens

```
You can now change the sizes for the system partitions.  The default is to
allocate all the space to the root file system, however you may wish to have
separate /usr (additional system files), /var (log files etc) or /home
(users' home directories).

Free space will be added to the partition marked with a '+'.

        MB            Cylinders    Sectors     Filesystem
>    723 (15231)         1469      1480752  +  /
     128                  261       263088     swap
       0                    0            0     tmp (mfs)
       0                    0            0     /usr
       0                    0            0     /var
       0                    0            0     /home
    Add a user defined partition
    Change input units (sectors/cylinders/MB)
    Accept partition sizes.  Free space 14508 MB, 12 free partitions.
```

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sysinst - screens


```
    Status: Running
    Command: /sbin/newfs -O 1 -b 16384 -f 2048  /dev/rwd0a
------------------------------------------------------------------
/dev/rwd0a: 15230.7MB (31192560 sectors) block size 16384, fragment size 2048
        using 83 cylinder groups of 183.52MB, 11745 blks, 23040 inodes.
super-block backups (for fsck -b #) at:
        32,    375872,    751712,   1127552,   1503392,   1879232,   2255072,   2630912,
    3006752,   3382592,   3758432,   4134272,   4510112,   4885952,   5261792,   5637632,
    6013472,   6389312,   6765152,   7140992,   7516832,   7892672,   8268512,   8644352,
    9020192,   9396032,   9771872,  10147712,  10523552,  10899392,  11275232,  11651072,
   12026912,  12402752,  12778592,  13154432,  13530272,  13906112,  14281952,  14657792,
   15033632,  15409472,  15785312,  16161152,  16536992,
```

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```
Would you like to install the normal set of bootblocks or serial bootblocks?

Normal bootblocks use the BIOS console device as the console (usually the
monitor and keyboard).  Serial bootblocks use the first serial port as the
console.

Selected bootblock: BIOS console


        Bootblocks selection

       >a: Use BIOS console
        b: Use serial port com0
        c: Use serial port com1
        d: Use serial port com2
        e: Use serial port com3
        f: Serial baud rate
        g: Use existing bootblocks
        x: Exit
```

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```
Status: Running
Command: progress -zf /mnt2//i386/binary/sets/comp.tgz tar --chroot -xhepf -

15% |*****                              | 11816 KB    1.65 MB/s    00:39 ETA
```

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sysinst - screens

Please choose the password cipher to use. NetBSD can be configured to use either the DES, MD5 or Blowfish schemes.

The traditional DES scheme is compatible with most other Unix-like operating systems, but only the first 8 characters of any password will be recognised. The MD5 and Blowfish scheme allows for longer passwords, and some would argue that it's more secure.

If you have a network and intend to use NIS, please bear in mind the capabilities of other machines on your network.

If you are upgrading and would like to keep configuration unchanged, choose the last option "do not change".

```
Password cipher

a: DES
b: MD5
>c: Blowfish 2^7 round
d: do not change
```

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sysinst - screens

```
The installation of NetBSD-3.0 is now complete.  The system should boot from
hard disk.  Follow the instructions in the INSTALL document about final
configuration of your system.  The afterboot(8) manpage is another
recommended reading; it contains a list of things to be checked after the
first complete boot.

At a minimum, you should edit /etc/rc.conf to match your needs.  See
/etc/defaults/rc.conf for the default values.


                        >Hit enter to continue
```

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rc.d - system startup

- Dynamic dependency ordering
  - PROVIDE, REQUIRE, BEFORE, KEYWORD in scripts
- Configuration for services in `/etc/rc.conf`
- No runlevels
- Individual services may be started, stopped, restarted, reloaded easily
  - `#/etc/rc.d/sshd restart`

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pkgsrc

- Easy building of third-party software from source, as well as binary package tools

- All packages installed in consistent tree with configurable prefix (" /usr/pkg/ ")

- Support for other systems, including Solaris, MacOS X, *BSD, and Linux

- Over 5800 packages (plus "pkgsrc-wip")

- audit-packages tool simplifies keeping up to date with package security problems

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Authentication

- **Kerberos**
  - Heimdal in base, many services kerberized
- **Traditional: files (/etc/master.passwd) or NIS**
- **Pluggable Authentication Modules (PAM)**

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RAIDframe

- Software RAID implementation supporting levels 0,1,4,5 (and combinations)
- Autoconfiguration of RAID at boot time
  - Root filesystem can be on RAID
  - Support for booting from RAID1 (only) on some platforms
- Supports hot spares, rebuild-in-place
- Components can be any block device

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Other useful features

- Packet filtering and NAT using either ipfilter or pf

- IPv6 and IPsec

- procfs, kernfs

- Visibility: systat, ktruss

- Device manipulation: scsictl, atactl

- Well-maintained man pages

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New in NetBSD 3.0

- Pluggable Authentication Modules (PAM)
- Xen 2 support (dom0/domU)
  - Xen 3 is coming!
- TCP SACK
- The pf packet filter
- tap(4) virtual Ethernet
- Lots of new hardware support

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In Development

- Replacing MFS with TMPFS
- agr(4) for link aggregation (IEEE 802.3ad)
- Better cd9660 booting support for x86
- cd9660 support for makefs
- iSCSI target
- More drivers!

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More Information

http://www.NetBSD.org/ - Project page

http://www.NetBSD.org/Documentation/ - Manuals,
  HOWTOs

http://www.pkgsrc.org/ - NetBSD Packages
  Collection

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