Installing NetBSD-Athena on MITnet

These instructions explain how to install a binary release of NetBSD-Athena 8.2 (based on NetBSD/i386 1.3.2). NetBSD is a freely distributable Unix-like operating system for many platforms including Intel 386-class machines. This document explains how you can install NetBSD-Athena using MITnet if you have a machine on the network. If you have any questions or problems during the installation, please send mail to `netbsd-help@mit.edu`. NetBSD also runs on a number of other architectures including SPARC, Sun 3, Alpha, and both 68K and PowerPC-based Macintoshes. SIPB does not support Athena software on these platforms, but we may be able to help you get started with them. Contact `netbsd-help@mit.edu` for more information.

System Requirements

Before you start, you may want to find out if NetBSD and XFree86 support your computer's hardware. NetBSD/i386 supports nearly all IDE hard drives and CD-ROM drives, and most common SCSI controllers, hard drives, CD-ROM drives, and other SCSI peripherals. Check the NetBSD/i386 web page at `http://www.netbsd.org/Releases/formal-1.3/i386.html` for your specific hardware. You may also want to check the XFree86 web site at `http://www.xfree86.org/3.3.2/README.html` to see if the X windows server supports your particular video card.

NetBSD/i386 supports many PCI network cards (the 3Com 3c905B is the only common card not supported), most common PCMCIA network adapters, and most common ISA network cards. If you have an ISA-bus network card, the default NetBSD-Athena kernel may only support it at certain I/O ports and IRQs:

- 3Com 3c509 (Etherlink III) cards at any location
- NE2000 and compatible cards at port 0x280 IRQ 9, or port 0x300 IRQ 10

The kernel also supports other less-common ISA-bus network cards. Contact `netbsd-help@mit.edu` if your card is not listed above. If you have an ISA-bus network card which is supported by NetBSD but isn't supported by the default kernel, either reconfigure the card to a supported port and IRQ, or contact SIPB via the mailing list `netbsd-help@mit.edu` (or phone x3-7788) and we can create custom install disks for your machine.

NetBSD/i386 requires nearly 200MB of disk space and 12MB of system memory to install. If you plan on using X windows, you will likely want more than 12MB of memory: consider 16MB as a more realistic minimum. It may be possible to run NetBSD-Athena with less disk space or memory, but this will require extra work on your part. Send mail to `netbsd-help@mit.edu` for assistance.

For users upgrading from NetBSD-Athena 7.7, you may be able to upgrade your system instead of reinstalling. Contact `netbsd-help@mit.edu` if you are looking to upgrade.

System Installation

1. Back up any important data on your hard disk. Any time you change your disk's partition layout, you risk losing all your data. If you are installing over an existing NetBSD or Linux partition and you have an `/etc/athena/srvtab` or `/etc/krb5.keytab` file, save a copy of it to avoid having to request another srvtab. Also, you will probably want to save your `/etc/XF86Config` file to avoid having to reconfigure XFree86.
2. If you don't intend on having any other operating systems on your PC, then you can skip this step. If you want to dual boot between NetBSD and another operating system, you will have to install a dual-boot manager. You will also need to clear space for the NetBSD-Athena installation. We have several tools to help you do this available in `/mit/netbsd/i386/utils`, including:

   - FIPS, a tool for shrinking a DOS partition
   - BOOTEASY, a simple boot manager
   - OS Boot Select, a more sophisticated boot manager

   To use these utilities, make a bootable DOS floppy, put it in the drive of an Athena Sun workstation, and copy the utilities to it:

   ```
   add netbsd; copyinsttools
   ```

   You can also access these programs by pointing your web browser to `http://web.mit.edu/netbsd/i386/utils/`.

   FIPS is a utility that can split your DOS or Windows disk partitions into smaller pieces, so that you can create empty space on your disk for use as a NetBSD partition. FIPS 2.0, available at `http://www.igd.fhg.de/ aschaefe/fips/`, supports both FAT16 DOS partitions and the newer FAT32 Windows partitions.

   You should set aside at least 200 megabytes for NetBSD. To reduce the size of your DOS partition, you should first run the DOS program `defrag` (this requires DOS 6 or greater) and tell it to completely optimize your hard disk, moving all of the data to the first part of the disk. There may be some complications related to immovable files; read `FIPS.DOC` to find out how to deal with those. Then, boot from your utilities floppy and run `fips`.

Now run the DOS program `fdisk` and delete the second DOS partition, so that the installation process can create a NetBSD partition there.

FIPS will have split your DOS partition into two DOS partitions, the first one containing all your old data and the second one empty. At this point, since you have two partitions and want to be able to boot off either one, run `bootinst` or `osbs20b8` to install the dual boot loader. (BOOTEASY is a little easier to install; OS Boot Select is fancier and more flexible.)

3. Make an installation disk from the image in `/mit/netbsd/release/athena-8.2/i386/floppies`. To copy the image onto a formatted HD floppy disk from an Athena machine, do:

   ```
   attach netbsd
   cd /mit/netbsd/release/athena-8.2/i386/floppies
   dd if=floppy.fs of=floppydev bs=18k
   ```

   On a NetBSD system, replace *floppydev* with `/dev/rfd0a`. On Linux, use `of=/dev/fd0`. Suns use `/vol/dev/aliases/floppy0` and SGI boxes use the particularly arcane `/dev/rdsk/fds0d2.3.5`. You may want to avoid using SGI machines due problems with the reliability of their floppy drives. On Suns, you might want to run `volcheck` before the `dd` command. If you are using a Windows machine, you can use the `rawrite.exe` utility to create the boot disk. You can find `rawrite` and its documentation in `http://web.mit.edu/netbsd/i386/dos-utils/`, and the floppy image from `http://web.mit.edu/netbsd/release/athena-8.2/i386/floppy/floppy.fs`.

4. Now, on your PC, boot off of the installation floppy you made. Enter your machine's IP address when you are asked for it. The default values for the network interface and flags are probably correct, and you can just press return at each question. If the install doesn't find a network interface, send email to `netbsd-help@mit.edu` with your system's configuration.

   After a minute or so, the installation program will begin asking you questions about how you want your system configured. After you have answered all of the questions, it will show you your answers and ask you to confirm them. After that point, the installation proceeds with no manual intervention. Over a typical MITnet connection, the installation should take somewhere between 15 and 30 minutes.

   Once the installation is finished and your system is halted, remove the floppy, reboot your machine, and boot off your NetBSD hard disk partition (using the boot loader you installed earlier, if necessary). Your root password is the public athena cluster root password. (You can find the public root password by running `tellme root`.)

5. Configure X. For a new installation, log in as root and run:

   ```
   attach netbsd
   /mit/netbsd/bin/xconfig
   ```

   It will ask five fairly easy questions about your mouse, monitor, and video card and generate an X configuration. Test the resulting X configuration by running `startx`. You can run `xconfig` as many times as you like if it doesn't work the first time. If it doesn't work for you, please send mail to `netbsd-help@mit.edu` detailing the problem. Another tool provided with XFree86 may help you if `xconfig` does not; this is the command `/usr/X11R6/bin/xf86config`. If you saved an old `XF86Config` file, you can just copy it to
   /etc/XF86Config instead.

   After you get X working, you can enable xlogin by modifying the line of `/etc/ttys` which executes the command `/etc/athena/dm` to be `on` rather than `off`, and then running the command `kill -HUP 1`.

6. You're ready to use your machine as an Athena workstation. For information on administrative tasks, such as enabling remote logins and adding new users, consult the "Administrating MIT SIPB NetBSD-Athena 8.2" document, available in `/mit/sipb/doc/netbsd-admin.dvi`.

Document revision: 1.34. The latest version of this document may be obtained in person from the SIPB office (W20-557), or may be printed out with: `attach sipb; dvips -hduplex -P`*printer* `/mit/sipb/doc/netbsd-install.dvi`.