Amiga-NetBSD-FAQ

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NetBSD-Amiga was initially ported by Markus Wild (mtk@irc) (mw@eunet.ch)

1 Introduction

Welcome to the NetBSD-Amiga-FAQ!

This document contains a bunch of useful infomation about NetBSD on the Amiga. It was mainly created - and is regularly updated - for people, who never used NetBSD on the Amiga before, but it contains a lot of valuable information for all users, especially in the last chapter. This last chapter contains a list of Frequently Asked Questions (FAQs) and their respective answers.

In general the people on the Internet are very helpful, so if you have a problem when using NetBSD, don't be shy and ask for help. But ...

BE SURE YOU HAVE READ AN UP-TO-DATE VERSION OF THIS FAQ FIRST!!!

It is really annoying and time consuming, if a lot of people ask the same questions and we have to answer them over and over again. See Chapter 4 [Where can I find more information on NetBSD?], page 7, for information on how to get an up-to-date version of this document. Also, please redistribute this FAQ, so that it is easier for people who are interested in NetBSD to find it.

Please write all comments, suggestions, spelling corrections, etc. to the current maintainter of the FAQ. This will help to keep this FAQ up-to-date and useful. Thank you for reading the FAQ, because that's why I put so many hours of work into it! You will find the name and the email-address of the current maintainer of this document on the second page. Later on all references to the author of this FAQ will be name- and address-less, for the ease of maintainance. If you ever need to contact the author, see the second page for his name and email-address.

One last thing before we start: If you find this document useful and want to thank me for maintaining it, feel free to send me an email. If you want to send me any money or other donations, contact me under the above email-address for my address.

2 What is NetBSD?

This chapter contains general information about NetBSD.

2.1 The name of the game: What is NetBSD?

NetBSD is a Unix-like operating system. It is very portable and runs on very different architektures such as Amiga, HP, Mac, Sun3, Sparc, PC, ... It is developed by people all around the world on the Internet. Therefore it is called NetBSD. It has all the features you would expect in a modern Unix, including true multitasking, virtual memory, shared libraries, demand loading, shared copy-on-write executables, proper memory management and TCP/IP networking.

For a complete description of a Unix-like operating system, please refer to some introductionary books about Unix. If you have access to Usenet, get any of the comp.unix.* Newsgroups FAQ.

See Chapter 4 [Where can I find more information on NetBSD?], page 7, for information on how to get more and detailed information on NetBSD.

2.2 Who is working on the port?

NetBSD was ported to the Amiga by Markus Wild (mw@eunet.ch), who also initially ported GCC to AmigaDOS and who did the ixemul.library. Once NetBSD-Amiga was useable, a lot of people joined in and contributed a lot to the project. I don't want to list any names, because I am sure I would forget some brave soul. The maintainer of the "projects" file tried to set up a list of projects being worked on. Consult this file for more information about who is working on what.

See Chapter 4 [Where can I find more information on NetBSD?], page 7, for information on how to get this file and how to contact the developers.

3 What do I need to run NetBSD

This chapter describes the hardware related topics of NetBSD. It will explain, what kind of hardware you need to be able to run NetBSD on your Amiga.

In general, there are two major requirements your system must fulfill to be able to run NetBSD. You must have an apropriate CPU and enough memory. To comfortably run NetBSD you should dedicate some harddiskspace to NetBSD.

3.1 Which CPU is needed?

It depends heavily on the type of CPU your system has, whether or not NetBSD runs on your Amiga. NetBSD, as any other modern Unix-derivate, too, must have a memory-management-unit (MMU) to be able to run. This is needed as all the programs that run under Unix are separated from each others, so no program can do any harm to any other.

You need to have one of the following processors (CPUs) to be able to run NetBSD:

- 68020 with 68851 (MMU)
- 68030
- 68040

Note, that it is very important that you have a **real** CPU, i.e. no EC-version. These versions are missing the MMU-part of the chip and are therefore cheaper. It is not possible to simply add a 68851 (MMU) to these chips. You have to replace your CPU, if possible, or you have to buy a seperate CPU-board or accelerator-board equipped with one of the **real** CPUs mentioned above to be able to run NetBSD.

Also note, that you currently need a floating-point-unit (FPU) to be able to run NetBSD. The kernel itself, that is the core part of NetBSD, does not need an FPU, but some of the essential utilities do. However, other ports of NetBSD on other architectures have an FPU-emulator implemented in the kernel, so they can do without an FPU. So, if someone implements an FPU-emulator for NetBSD on the 680x0-architecture, the need for a seperate FPU will eventually vanish, but for now you need an FPU.

3.2 How much memory do I need?

Theoretically, you only need 2MB of FAST-RAM and 1MB of CHIP-RAM. The 1MB CHIP-memory is only needed due to the way NetBSD is currently booted. If someone rewrites the program that loads the kernel into the memory, it would be possible to boot the kernel with 512KB CHIP-RAM. Currently the kernel is loaded into the CHIP-memory and then copied into the largest chunk of fast memory found. Therefore 2MB is the bare minimum and will not allow you to do anything useful, but booting.

It is possible to run NetBSD in a low memory situation, because it uses a mechanism called paging. It writes currently unused parts of programs to the disk, thus freeing some memory for other parts. Writing to and reading from disk is very slow, compared to the execution of programs in memory, so the system will be too slow to be useable. So, to have an actual useable system, you should have at least 4MB of FAST-RAM, preferably more. When you want to use X-Windows, a graphical user interface on top of NetBSD, you probably need about 6MB or even more to do anything useful.

3.3 How much diskspace do I need?

Theoretically, you can do without any harddiskspace. It is possible to boot NetBSD from floppy-disks, but you cannot do any useful work with such a setup. To get an actually useable system, you will need to dedicate some harddiskspace to NetBSD. It is planned to create a NetBSD-CD it the not so far away future. Once it is available you can work with NetBSD from the CD-ROM. But then again, CD-ROMs are a lot slower then harddisks, so if you want to go for maximum speed, you will need some harddiskspace for NetBSD. How much you actually need depends heavily on what you want to do with NetBSD.

8MB of hard disk space will be sufficient to boot NetBSD and play around with it a bit. A small, but complete working system needs about 50 to 80MB. It should be clear, that the more goodies you want to add, the more space you need. Once it is available, you should definitely consider the NetBSD-CD a good source for programs. Having the seldom used binaries executed directly from the CD can save you a lot of harddiskspace.

To prevent you from running out of memory, you should use about twice your RAM amount just for a swap partition on your drive. That is where NetBSD writes the parts of running programs which are currently not used to free up some main-memory for other programs.

See Chapter 4 [Where can I find more information on NetBSD?], page 7, for information on how to get the file '`compatibility-list`'. It contains information about the supported harddisks.

3.3.1 What other hardware requirements are there?

There are no other hardware requirements to run NetBSD, but you are free to use additional devices, provided they are supported.

There is a general scheme on how NetBSD deals with devices. To get a device working with NetBSD you have to provide a so called 'driver' for this device. This is a hardwaredependent part of the kernel, which knows how to access the particular device. There are already device-drivers for the most commonly used devices, but there are still some device-drivers to be written.

See Chapter 4 [Where can I find more information on NetBSD?], page 7, for information on how to get the files '`compatibility-list`' '`projects`'. The former contains information about which devices already work with NetBSD. The latter is a list of projects currently being worked on. The file '`wish-list`' documents the devices, which are currently *not* supported.

It is a difficult task to add support for a new device. So you need to have good programming skills and need to know a lot about how the kernel deals with devices. If you think that you are an experienced programmer and want to add support for a new device, you need to be able to recompile the kernel yourself. See Chapter 5 [How do I build a kernel myself?], page 11, for information on how to do this. See Chapter 4 [Where can I find more information on NetBSD?], page 7, for information on how to get in contact with other developers.

A tape drive is recommended for NetBSD, as for any other operating system, too. You should do regularly backups in order to be able to restore the data you might have accidentially destroyed. Especially when you are doing kernel-development, chances are, that you may trash your harddisk. The system is normally quite stable, so doing backups is not a must but a sensible option.

A CD-ROM-drive is recommended, too, because it allows you to save a lot of harddiskspace, when you run keep most of the seldom used things on the CD.

4 Where can I find more information on NetBSD?

This chapter contains information on how to get more information on NetBSD. There are several ways to get the desired information. Chose the one which uses up the least resouces. To do this, simply use the first method described here, which is appropriate for you.

4.1 Usenet—News

If you have access to Usenet, subscribe to the news-groups `comp.os.386bsd.announce`. Despite the term *386* in the name of this group, announcements for all flavors of *BSD are discussed here. The latest version of the '`NetBSD-Amiga-FAQ`', the document you are currently reading, and the BSD-FAQ, which is maintained by Dave Burgess (burgess@s069.infonet.net), are posted regularly to this group. You should also subscribe to the other `comp.os.386bsd.*` groups to take part in active diskussion or simply for posting questions.

4.2 Ftp

If you don't have access to Usenet, but have the possibily to get files from the Internet with the file-transfer-program (ftp), then get the latest FAQ from `rtfm.mit.edu`. This is the place where all FAQs from all news-groups are collected and archived.

Additional information is available on `ftp.uni-regensburg.de`. Look into the directory '`/pub/NetBSD-Amiga/DOCS`'.

4.3 Mosaic

You can also find a recent copy of this FAQ via Mosaic.

4.4 Irc

If you have access to irc (internet relay chat), try to join the channels '`#amiga`' or '`#amigager`'. Discussions on the former one are in English, on the latter one in German. These channels are not dedicated to NetBSD, but you are likely to find some of the developers and users of NetBSD there.

4.5 Email—Mailing-lists

There are several mailing-lists available for NetBSD. To get information on these mailing-lists, use your favourite mailer and send the following message:

```
To: majordomo@sun-lamp.cs.berkeley.edu
Subject: Don't care, isn't processed.
help
end
```

You will receive an answer that might look like this:

```
Return-Path: <Majordomo-Owner@sun-lamp.cs.berkeley.edu>
...
To: s_grau@ira.uka.de   <- This will be replaced with your email-address.
From: Majordomo@sun-lamp.cs.berkeley.edu
Subject: Majordomo results
Reply-To: Majordomo@sun-lamp.cs.berkeley.edu

>>>> help
This is Brent Chapman's "Majordomo" mailing list manager.
It's been hacked some by cgd, Revision 1.8.

It understands the following commands:

    subscribe <list> [<address>]
        Subscribe yourself (or <address> if specified) to the
        named <list>.

    unsubscribe <list> [<address>]
        Unsubscribe yourself (or <address> if specified) from
        the named <list>.

    which [<address>]
        Find out which lists you (or <address> if specified) are on.

    who <list>
        Find out who is on the named <list>.

    info <list>
        Retrieve the general introductory information for the named <list>.

    lists
        Show the lists served by this Majordomo server.

    help
        Retrieve this message.

    end
        Stop processing commands (useful if your mailer adds a signature).

Commands should be sent in the body of an email message to
"Majordomo@sun-lamp.cs.berkeley.edu".

Commands in the "Subject:" line NOT processed.

If you have any questions or problems, please contact
"Majordomo-Owner@sun-lamp.cs.berkeley.edu".
```

If you send the command `lists` to majordomo, you will currently receive a mail like this:

```
...
>>>> lists
Majordomo@sun-lamp.cs.berkeley.edu serves the following lists:
```

```
amiga
amiga-dev
amiga-x
core
current
current-users
m68k
macbsd-development
macbsd-general
netbsd-bugs
netbsd-help
netbsd-ports
netbsd-users
port-hp300
port-i386
port-m68k
port-pmax
port-sparc
port-sun3
portable-ppp
source-changes
sun-lamp-users
tech-install
tech-kern
tech-net
tech-ports
tech-userlevel

Use the 'info <list>' command to get more information
about a specific list.

NOTE: Most of these mailing lists are archived.  Do not
send things to them if you do not wish your messages to be
archived.
>>>> end
END OF COMMANDS
```

The '`amiga`' list is for a general discussion of Amiga-related problems. You can send beginners questions, *not* answered in the FAQ to this list. The '`amiga-dev`' list is dedicated to discussions between developers. *Do not post any beginners questions here!* This will hinder the discussion about the kernel development. The X-Window-System on NetBSD-Amiga is discussed on '`amiga-x`'. Note, that there is a seperate FAQ for X. It should be posted regularly on this list. The '`NetBSD-Amiga-FAQ`' is sent regularly to the '`amiga`'-list.

It is highly recommended to get on the '`current-users`' and on the '`amiga`' lists, because this is the best way to get in contact with the developers. To do so, your email would look like this:

```
To: majordomo@sun-lamp.cs.berkeley.edu
Subject: None
subscribe amiga
subscribe current-users
end
```

You will receive an answer-mail from majordomo, that he successfully processed your subscription and that you are on the desired mailing-lists. Note that there is some traffic on these lists, so expect a few mails more to arrive dayly in your mailbox. It is recommended, but not required, that you get on a list, before sending any mail to it, because most of the answers are simply sent to the list and not to the sender.

Be sure to have read the latest version of this document, before sending any mail to these lists!

To send any mail to the lists, simply replace majordomo in the address with the list you want to address. For eaxmple, if you would like to write a mail to the amiga-list, send your mail to `amiga@sun-lamp.cs.berkeley.edu`.

4.6 Private Email

If, and only if, all of the above fails, contact one of the developers or the FAQ-maintainer in a personal email. So, if you cannot get hold of a copy of the latest FAQ, feel free to contact the current maintainer of this FAQ. He will be happy to send you a recent copy.

5 How do I build a kernel myself?

Theoretically you have two options here. You can build the kernel under AmigaDOS or under NetBSD itself. In the beginning of the development, NetBSD was compiled under AmigaDOS, of course, but now almost everybody works under NetBSD itself. It is highly recommended that you build the kernel under NetBSD, because you save a lot of HD-space on the Amiga side and, the more important reason, the possibility that other developers can help you with the problems that might occur is much higher. The only sensible reason for compiling under AmigaDOS is that you cannot run NetBSD, because NetBSD doesn't support your harddisk-controller, and you want to develop a driver for your controller.

So, if you want to compile NetBSD under AmigaDOS, get the document "RECOMPILE". Although it is old, it contains some advises for this, but again, I strongly recommend that you do any kernel-development under NetBSD itself.

If you want to compile NetBSD under NetBSD, please refer to the 386BSD-FAQ. It has a complete chapter dealing with the kernel. Although there are some 386-spezific things mentioned there, it is written generally enough to provide you with the needed information to be able to configure and compile the kernel yourself.

When you successfully build and installed a new kernel, you can reboot your computer into the new kernel with the following commands.

```
cp netbsd /dev/reboot
```

See Section 7.14 [How do I create device-files?], page 17, for information on how to create device-files, if the file '`/dev/reboot`' doesn't exist.

6 NetBSD - Linux - Amiga-Unix - Minix

Currently there are four possibilies to run Unix on the Amiga.

The first one is Amiga-Unix. This is a commercial unix from Commodore. It is neither sold nor supported any more.

The second unix on the Amiga was Minix from A.S. Tanenbaum, a very famous operating system professor. It runs on every Amiga and does not support memory protection and some other features needed to get the real unix feeling. It is commercial, too. It's major aim is to be an operating system to play around with. It was developed for the computer science students Tanenbaum held lectures for.

The third available unix on the Amiga was NetBSD. It gives you almost anything you might want to expect from a free unix clone. It is being developed on several platforms, and therefore has a reasonable amount of developers supporting it. It was designed to be as portable as possible, as all machnine-dependent code is sperated. Currently there are ports to the Amiga, Intel-based PCs, HP-300 (680x0-based), Macs(680x0-based), Sun3, Sun-Sparcs and some other platforms. NetBSD-Amiga has a binary-compatibility-mode for Sun3-SunOS-binaries. Of course, this means only binary-compatible with static linked binaries, unless you have the original SunOS shared-libs available. The far end aim is, that all NetBSD-implementations will be binary-compatible on the same processor. That means, that there will be NetBSD-m68k-binaries, that run on the Amiga, the Macs, the HP-300 and the Sun3. This shows some of the possibilities of NetBSD. NetBSD-Amiga is part of the NetBSD-current sources, so any platform independent improvement will be an improvement for NetBSD-Amiga as well. The new features from 4.4BSD are already incoorporated into NetBSD. NetBSD contains a lot of other fancy features, other unix-based operating systems are missing, e.g. cpu-time- or disk-quotas. NetBSD is copyrighted software, but you are free to use, modify and distribute it. Note that it is NOT under the GPL (General Public License, the Gnu Cpoyright (-left)) and the developers of NetBSD want it to keep this state. Therefore it is not possible to include any software which is under the GPL into the kernel. NetBSD is available in source, but anybody is free to take the current sources and provide them together with his own binaries, i.e. you don't have to provide the sources of your own work. This offers the opportunity for software developers to keep the sources of the programms they sell. This is not possible under GPL, where you must provide the source. However, it is very appreciated if you also release the source of your derived work to the public. If nobody releases his sources, the free software will soon disappear.

The forth available unix on the Amiga is Linux. It was designed to run on Intel-based PCs. However, Hamish MacDonald did a major rewrite of the sources, so that it is now possible to run Linux on the Amiga. It is now quite useable, but it is not as stable and mature as NetBSD, but this situation might change in the future. The major-drawback with Amiga-Linux is, that it isn't incorporated in the Linux-source-tree. That means that every change, made in the Intel-PC-Unix, must be ported to the Amiga, whereas most of the changes in the NetBSD-source are made to the unique source-tree for all platforms.

Everybody has to decide by themselves, which unix is best for them. For now I can say, that using NetBSD is the best way to go, as Linux still has some more nasty bugs in it and is missing a lot of the functionality you might want to use, but this can change in the future.

7 Frequently Asked Questions and their answers

This chapter contains a list of frequently asked questions (FAQ) and their respective answers.

7.1 Where do I find all the files referenced in this FAQ?

See Chapter 4 [Where can I find more information on NetBSD?], page 7.

7.2 How do I get NetBSD?

See Chapter 4 [Where can I find more information on NetBSD?], page 7, for information on how to get the file '`getting-NetBSD`'.

7.3 How do I install it?

See Chapter 4 [Where can I find more information on NetBSD?], page 7, for information on how to get the 386BSD-FAQ. It describes the installation process.

7.4 Does NetBSD support my device?

See Chapter 4 [Where can I find more information on NetBSD?], page 7, for information on how to get the file '`compatibility-list`'. It contains all the gathered information on the devices that work with NetBSD.

7.5 I cannot su to root

If a users should be able to 'su' (switch or substitute a user) to root, then he must be a member of group wheel.

7.6 I have problems with my tape drive.

When NetBSD boots, it reports for some tape drives that the drive is not supported. Ignore this message. It is particulary dumb that you get this message for CBM's own A3070 tape drive.

NetBSD seems to work with everyone's tape drive so far. Not that many brands have been tested yet. There are two regularly occuring problems with the tape drives and there is a workaround for each. Evenutally, we'll get all this stuff working right.

Note that there have been some bugfixes for tapedrives, but I don't know exactly, if all the problems below are already fixed, so I mention them here nevertheless.

7.6.1 Tapedrive – Problem 1

After I just used btn on the AmigaDOS side to write a tape, I booted bsd and tar reports some error when I try to read from the tape drive.

Solution:

NetBSD doesn't issue a SCSI reset command to SCSI ID's 4 and 5 - these are assumed to be tape drives, and sending the reset makes drives like the A3070 make a lot of annoying reset/rewind noises. The solution to the problem is to either power cycle your tape drive before or after bsd is booted. The problem goes away and bsd can then read the tape. Note that if the tape is rewinding, you will get an error trying to read from it. Just wait until the tape is done rewinding and try again.

7.6.2 Tapedrive – Problem 2

If I write small files to the tape from NetBSD and try to read them from the AmigaDOS side, there doesn't appear to be anything on the tape. This may occur in the other direction, too.

Solution:

If you are using tar to make the tapes, add a fairly big file to the end of the tape. For example, i want to just put vmunix on tape, so normally, I'd just:

```
tar cvfp tape: vmunix
```

What I need to do to workaround the problem is:

```
tar cvfp tape: vmunix rootfs.gz
```

And on the bsd side:

```
tar xvfp /dev/rst0 vmunix
```

7.6.3 General workaround for tapedrive problems

If you cannot get your tapedrive to get to work with NetBSD, write a new device driver for your tapedrive, or wait until someone else does. As a workaround you can write a tar-file with tar to an unused partition, boot into AmigaDOS and use dcp or devtofile and back this up. It is a kludge, but it works.

7.7 I have no uptime-command?

```
ln -s /usr/bin/w /usr/bin/uptime
```

7.8 How do I update the header files automatically ?

Whenever a new kernel is released, chances are, that some of the kernel-structures may have be changed. You can install the altered headers by hand, but there's an easier way by using symbolic links into the source-tree.

In particular, the files under '`/usr/include/machine`' and '`/usr/include/sys`' are often altered. To replace those files with the one that came with your latest kernel-sources, simply link '`/usr/src/sys/sys`' to '`/usr/include/sys`' and '`/usr/src/sys/arch/amiga/include`' to '`/usr/include/machine`'. To do so, issue the following commands:

```
cd /usr/include
mv sys sys.old
mv include include.old
ln -s /usr/src/sys/sys sys
ln -s /usr/src/sys/arch/amiga/include machine
```

7.9 What packages can I install for BSD to enhance it?

See Chapter 4 [Where can I find more information on NetBSD?], page 7, for information about which news-groups to subscribe. There are special news-groups for applications, which run on NetBSD.

7.10 What about X-Windows?

There are X-Server for the custom chips, as well as for some grafix-cards. See Chapter 4 [Where can I find more information on NetBSD?], page 7, for information on how to get the '`NetBSD-Amiga-X-FAQ`', which should answer most of your X-related questions.

7.11 What about networking?

You can use either ethernet or a serial line to communicate with other computers. See Chapter 4 [Where can I find more information on NetBSD?], page 7, for information on how to get the '`NetBSD-Amiga-Networking-FAQ`'. It should answer most of your networking-related questions.

7.12 What about accessing AmigaDOS-files from NetBSD?

Currently it is only possible to read AmigaDOS files from NetBSD, but support for writing will be added soon. See the manual pages for information on how to mount an AmigaDOS partition.

7.13 Is there a debugger for NetBSD. Is there any? If so, where is it?

The GNU-debugger gdb is available.

7.14 How do I create device-files?

MKDEV is a shellscript that makes devices, just as the name implies. Only root can create devices, so to create a device, do the following

```
su
MKDEV view00
```

to create /dev/view00. '`MAKEDEV`' should reside in '`/etc`'. If it is missing, get it from the NEtBSD-sources and install it there. Note, that you have to use the Amiga-version, which resides in '`NetBSD-current/src/etc/etc.amiga/MAKEDEV`'.

Although there is no need to know, you can create a device by hand using the `mknod` command. See the manpage of mknod for more information.

7.15 Does NetBSD run on the 68040?

Yes. Michael L. Hitch (osymh@montana.edu) has made it possible.

7.16 How do I create accounts and change user-information?

Use vipw and chpass.

7.17 How do I get a reboot that reboots into NetBSD

Do the following:

```
mv /sbin/reboot /sbin/reboot.amiga
echo "cp /vmunix /dev/reboot" >/sbin/reboot
```

'`reboot`' reboots NetBSD, '`reboot.amiga`' reboots into AmigaDOS.

7.18 How do I get a serial terminal to work correctly?

Add the following line in '`/etc/ttys`':

```
tty00 "/usr/libexec/getty std.19200" vt100 on secure
```

Other values for speed can be looked up in '`/etc/gettytab`'.

7.19 Does NetBSD work with my retina and my noname-monitor?

NetBSD opens a ~800x600 screen with ~75Hz on the retina, if present. Some monitors are not able to display a screen with such a high diplay-rate. So, for your on sake, set _retina_default_mon to 0 before starting NetBSD. See Section 7.33 [How do I use binpatch?], page 20, on how to do this.

7.20 Can I run NetBSD with my IDE-drive?

Yes. Michael L. Hitch (osymh@montana.edu) has made it possible.

7.21 What Projects are being worked on?

See Chapter 4 [Where can I find more information on NetBSD?], page 7, for information on how to get the file '`projects`'.

7.22 Is there a Mailing-list?

See Chapter 4 [Where can I find more information on NetBSD?], page 7, for information on how to get on the mailing-lists.

7.23 Is there a Newsgroup for NetBSD?

See Chapter 4 [Where can I find more information on NetBSD?], page 7, for information on news-groups.

7.24 How can I autoboot into multiuser mode?

`loadbsd` offers a switch for booting into mulituser-mode. Try

```
loadbsd -?
```

to see all the options of loadbsd.

7.25 ps does not work on my system.

The file '`/netbsd`' has to be the same like the kernel you are running. Just copy your the kernel you started to '`/vmunix`'.

7.26 NetBSD asks me root device?

Get the latest version of loadbsd and the kernel. Be sure you have configured all the harddisk right.

7.27 Where can I find ixemul.version >= 39.46?

If loadbsd starts with opening a requester asking you for version 39.47 of the ixemul.library, simply click on '`OK`' to continue and boot with version 39.45.

7.28 How do I report bugs?

If you encountered a bug, before reporting this bug, please get sure it is really a bug and not your own mistake/misusage. If you need help, write to the mailing-list or post your question/bug-report to the appropriate newsgroups. See Chapter 4 [Where can I find more information on NetBSD?], page 7, for information on how to do this. If you report a bug, please try to give as much information as possible. This includes your configuration and the output you got.

7.29 Why does NetBSD not change my clock?

At the moment NetBSD is able to read the internal clock, but it is not possible to write to this clock. You can set the clock on the AmigaDos side and NetBSD will recognize the change. It should not be too difficult to add this functionality to NetBSD, but up to now, nobody did it.

7.30 Why does vi tell me he cannot read '`/etc/termcap`'?

This is a bug in the termcap-library. It looks for '`/usr/share/misc/termcap`', but if it can't find this it says, that that it can't read '`/etc/termcap`'. Move the emacs-termcap to '`/etc/termcap`' and make a symbolic link from '`/usr/share/misc/termcap`' to '`/etc/termcap`'.

7.31 How can I change the console to autowrap?

Use `echo -n "^[[?7h"` . If you compile the kernel for yourself, you can change the auto-wrap-default in ite.c to 1.

7.32 NetBSD will not boot into multi-user-mode

If NetBSD hangs when you are trying to boot into multiuser-mode, check if you removed the `named` in '`/etc/rc`'. '`named`' causes the machine to hang, if you are not connected to a network.

7.33 How do I use binpatch?

binpatch is a small utility to patch the kernel. It uses the debugging information to locate the variables. The options of binpatch are:

-s search for an address of a variable

-a <address> specify the address you want to patch

-b patch only a byte value

-w patch a word value (2 bytes)

-l patch a long word value (4 bytes)

-r the value to replace the old value

Retina-owners with monitors that don't grok the default video-mode opened by BSD, are able to binpatch this to an inferior mode. Use

```
binpatch -s _retina_default_mon -r 1  will give you 640x512 with 31.5kHz
```

or

```
binpatch -s _retina_default_mon -r 2  will give you 768x600 with 38kHz
```

The default is '`-r 3`' at 64kHz.

7.34 NetBSD tells me: init FATAL error: console: Interrupted system call

You forgot to install libexec/getty.

7.35 How do I get a Meta-Key for Emacs ?

According to mtk, enter `stty cs8 -istrip -parenb` and use any Amiga-key as meta-key.

7.36 How do I get a german keymap?

Use the program '`sys/arch/amiga/stand/loadkmap`' to do this. Compile it, generate the german keymap and user loadkmap to get a german keymap:

```
bin-kbdmap >din
loadkmap din
```

7.37 Which distribution should I use?

There are several **OLD** distributions floating around. Don't use them! The oldest versions are named '`vmunix.XXX`', where '`XXX`' is a three digit number. There most recent binary distributions have a datestamp in the name, so you can see their age from their name, e.g. '`XXX.940617`'.

If you are a kernel-hacker, chances are, that you already installed NetBSD. Get the latest tar-files from a mirror of sun-lamp. They should compile out-of the box, if you follow the compilation-instructions carefully. If you don't have NetBSD-Amiga installed, I suggest to wait a few weeks, until a new NetBSD-version (NetBSD-1.0) is available. If you still want to get all the pain and hassels, install an old version of NetBSD and upgrade, but I strongly recommend waiting for a new binary release.

If you just want to try out NetBSD and want to install it for the first time, I also strongly suggest waiting a few weeks, until NetBSD-1.0 is released. It is due around 1994/07/17. There will be a binary and a source-release. This will be an officially supported version, i.e. patches will be made available relativly to this release and upgrading to newer versions will be supported, too. You will also receive the best support possible, when reporting bugs or asking for help, because the developers keep access to this version, whereas NetBSD-current versions aren't archived. Although it would be possible to recreate an old version of NetBSD-current to search for a bug, it will not be done, because the bug might have been already fixed.

7.38 Can I read a sun tape data cartidge?

The original sun Archive tape drive, will read/write both QIC-11,QIC-24 format. To maximize you chances of reading the tape from your tape drive use the QIC-24 format, type:

```
tar -cvf /dev/rts8
```

This will create a QIC-24 formatted tape.

7.39 What if my tape drive on the sun is a Archive Viper?

Though the hardware of a 'Archive Viper' is capable of reading/writing multiple tape formats, sun only supports on format for writing, QIC-150. So using '`/dev/rts0`', '`/dev/rst8`', '`/dev/rst16`', '`/dev/rst24`' will all produce a QIC-150 formatted tape.

7.40 How can I tell what type of tape drive my sun has?

You don't, just use /dev/rst8 for all data cartridge systems. Note if it isn't a 8mm tape or a 4mm tape then it probably is a Data Cartridge.

7.41 Does NetBSD run with the PROTO-Chip?

Yes. The ONLY problem which may occure is that some drives (!) do not like to be enabled to the sync mode, which the PROTO does not handle properly. Again: this depends on the drives you are using, and the kludges in the kernel.

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