

## **Initial Boot from Install Disc 1**

**Turn on the power for your machine.**

**Immediately place the first CD-ROM of the FreeBSD 5.3 install set in your machine's CD-ROM drive.**

**You'll see an initial boot menu with several choices. The first two choices look something like this:**

- 1. Boot FreeBSD [default]**
- 2. Boot FreeBSD with ACPI disabled**

**...**

**Select the first choice, or just press ENTER.**

**Now you'll see the Sysinstall main menu. During the week we'll call the Sysinstall utility on several occasions to do further configuration of our FreeBSD installations.**

## Sysinstall main menu

Welcome to the FreeBSD installation and configuration tool. Please select one of the options below by using the arrow keys or typing the first character of the option name you're interested in. Invoke an option with [SPACE] or [ENTER]. To exit, use [TAB] to move to Exit.

<b>Help</b>	Quick start - How to use this menu system
<b>Standard</b>	<b>Begin a standard installation (recommended)</b>
<b>Expert</b>	Begin a quick installation (for experts)
<b>Custom</b>	Begin a custom installation (for experts)
<b>Configure</b>	Do post-install configuration of FreeBSD
<b>Doc</b>	Installation instructions, README, etc.
<b>Keyboard</b>	Select keyboard type
<b>Options</b>	View/Set various installation options
<b>Fail</b>	Repair mode with CDROM/DVD/floppy or start shell
<b>Upgrade</b>	Upgrade an existing system
<b>Load Config</b>	Load default install configuration
<b>Index</b>	Glossary of functions

[ **Select** ]    X Exit Install

**Move the cursor down by using the DOWN-ARROW and select Standard.**

**The press ENTER to select this choice. As you can see there are quite a number of additional options. Sysinstall not only steps you through installing FreeBSD, but it also allows you to do post-install configuration, such as installing additional software packages and distributions.**

**In addition you can set keyboard options, view documentation, configure network interfaces, multiple startup options, and so forth.**

**Next you'll see a message indicating that you are about to partition your hard drive for a FreeBSD installation. If you have more than one hard drive, then you'll need to indicate which drive to work on. At this point press OK to continue.**

**Now you'll see a screen that looks something like this:**

# Sample FDISK Partition screen

```
Disk name:      ad0                               FDISK Partition Editor
DISK Geometry: 16383 cyls/16 heads/63 sectors = 16514064 sectors (8063MB)

Offset      Size(ST)      End      Name  PType  Desc  Subtype  Flags
-----
0           63           62      -     6      unused  0        >
63         4193217      4193279  ad0s1  2      fat     14       >
4193280    1008        4194287  -     6      unused  0        >
4194288    12319776    16514063 ad0s2  4      extended 15       >

The following commands are supported (in upper or lower case):

A = Use Entire Disk      G = set Drive Geometry  C = Create Slice      F = `DD' mode
D = Delete Slice        Z = Toggle Size Units   S = Set Bootable     I = Wizard m.
T = Change Type         U = Undo All Changes    Q = Finish

Use F1 or ? to get more help, arrow keys to select.
```

**Assuming you have unused space on your hard drive, then you could highlight this partition and press "C" to Create Slice in this area. For purposes of the workshop we are going to use the entire drive, so press "A" now to use the entire drive for our FreeBSD installation.**

**By pressing "A" you should end up with a single FreeBSD slice for the entire drive with the correct filesystem choice of 165 (FreeBSD) chosen.**

**Now press "Q" to finish. This is not intuitive, but Q will actually save the information you just entered for use in a few more steps.**

**Next you are prompted whether you wish to install a Boot Manager or not. This is an important decision. First here is what this screen looks like:**

# Sysinstall boot manager menu

## Install Boot Manager for drive ad0?

FreeBSD comes with a boot selector that allows you to easily select between FreeBSD and any other operating systems on your machine at boot time. If you have more than one drive and want to boot from the second one, the boot selector will also make it possible to do so (limitations in the PC BIOS usually prevent this otherwise). If you do not want a boot selector, or wish to replace an existing one, select "standard". If you would prefer your Master Boot Record to remain untouched then select "None".

NOTE: PC-DOS users will almost certainly require "None"!

<b>BootMgr</b>	Install the FreeBSD Boot Manager
<b>Standard</b>	Install a standard MBR (no boot manager)
<b>None</b>	Leave the Master Boot Record untouched

[ OK ] Cancel

[ Press F1 to read about drive setup ]

**Now here is your decision matrix:**

**FreeBSD is the only operating system on your machine: choose "Standard".**

**You have additional operating systems (Windows) and you wish to be able to start all of them: possibly choose "BootMgr".**

**You have another boot manager installed that can boot FreeBSD (i.e. Grub under Linux!): choose "None".**

**As we are going to use the whole hard drive and just install FreeBSD during this workshop you should choose "Standard" at this point and press OK.**

**Now it's time to create partitions inside of the disk slice you created for FreeBSD. Press OK to the screen asking you if you want to do this.**

**At this point the FreeBSD Disklabel Editor should present itself. Assuming we have used the entire drive on your machine your initial screen should look something like this:**

# Sysinstall Disklabel Editor

FreeBSD Disklabel Editor

Disk: ad0 Partition name: ad0s1 Free: 16514001 blocks (8063MB)

Part	Mount	Size	Newfs	Part	Mount	Size	Newfs
------	-------	------	-------	------	-------	------	-------

The following commands are valid here (upper or lower case):

C = Create            D = Delete       M = Mount pt.  
N = Newfs Opts       Q = Finish       S = Toggle SoftUpdates  
T = Toggle Newfs     U = Undo           A = Auto Defaults    R = Delete+Merge

Use F1 or ? to get more help, arrow keys to select.

Now it is time to create the various partition we want to use. You instructor will step you through this, but in the end you should have the following sizes chosen:

Partition	Size	Notes
-----	-----	-----
/	512MB	You actually need enough for "/tmp" w/Linux
swap	2xRAM or 256MB	Special type of "swap"
/tmp	256MB	
/var	1GB	Lots of software installs here. Needs space.
/usr	6GB	Normally /usr/home is here and more.
/u	Rest of disk	Our convention. Makes updating easier.

Just to see what this might look like when you are done here is a sample disk that has been partitioned.

This is what FreeBSD will choose for you if you "A" for Auto Defaults.

Remember, ours will be a bit different and you need more space for "/" as we do not have a separate "/tmp" partition.

Remember to follow the instructor's suggestions in class for this section. It's common to make mistakes here and it's easy to fix if you are installing for the first time.

When you are finished setting up the partitions in your slice, then press "Q" to leave the Disklabel editor.

Next you'll be asked what distribution set you wish to install. This looks like:

# Choosing Distributions

## Using Distributions

As a convenience, we provide several "canned" distribution sets. These select what we consider to be the most reasonable defaults for the type of system in question. If you would prefer to pick and choose the list of distributions yourself, simply select "Custom". You can also pick a canned distribution set and then fine-tune it with the Custom item.

Choose an item by pressing [SPACE] or [ENTER]. When finished, choose the Exit item or move to the OK button with [TAB].

<<<	X	Exit	Exit this menu (returning to previous)
	A	All	All system sources, binaries and X Window System
	R	Reset	Reset selected distribution list to nothing
[ ]	4	Developer	Full sources, binaries and doc but no games
[ ]	5	K-Developer	Same as above + X Window System
[ ]	6	Kern-Developer	<b>Full binaries and doc, kernel sources only</b>
[ ]	7	K-Kern-Developer	Same as above + X Window System
[ ]	8	User	Average user - binaries and doc only
	v(+)		

[ OK ]

Cancel

[ Press F1 for more information on these options. ]

**For purposes of our workshop you should scroll down and highlight number 5, or "X Developer". Press the Space Bar to choose this selection and then press ENTER for "OK".**

**This will give us all the system sources, plus the X-window system but without the games. This is useful since we are going to be updating these system sources later on in the workshop using cvsup in order to upgrade the entire system.**

**Now you'll be prompted if you wish to install the Ports collection. Say "Yes" to this. We'll be using the Ports collection throughout the week to install additional software.**

**Now, and this is a bit confusing, you are placed back in the Choose Distributions windows again. At this point you should use the UP-ARROW to move the cursor to the first choice, which is "X Exit". Once highlighted press ENTER to Exit from the menu.**

**At this point you asked where your installation media resides. In our case it is on your CD/DVD-ROM drive. The menu prompt looks like this:**

# Choosing Installation Media

## Choose Installation Media

FreeBSD can be installed from a variety of different installation media, ranging from floppies to an Internet FTP server. If you're installing FreeBSD from a supported CD/DVD drive then this is generally the best media to use if you have no overriding reason for using other media.

- |               |   |
|---------------|---|
| 1 CD/DVD      | Install from a FreeBSD CD/DVD                   |
| 2 FTP         | Install from an FTP server                      |
| 3 FTP Passive | Install from an FTP server through a firewall   |
| 4 HTTP        | Install from an FTP server through a http proxy |
| 5 DOS         | Install from a DOS partition                    |
| 6 NFS         | Install over NFS                                |
| 7 File System | Install from an existing filesystem             |
| 8 Floppy      | Install from a floppy disk set                  |
| 9 Tape        | Install from SCSI or QIC tape                   |
| X Options     | Go to the Options screen                        |

[ OK ]

Cancel

[ Press F1 for more information on the various media types ]

You should leave the first option, CD/DVD highlighted and press ENTER for OK.

You'll receive a confirmation and last chance warning before proceeding. Up to this point no changes have actually been saved to your disk. You could back out of the installation with absolutely no changes made. But, at this point we are ready to continue so press ENTER for "YES".

FreeBSD is installed!

At this point, technically speaking, FreeBSD is now installed on your machine. You could reboot your computer and FreeBSD would start. However, before doing this the Sysinstall utility gives you the opportunity to configure several important items.

All of these items can be configured by hand, but the Syinstall utility has been designed to make this configuration much easier. So, the next 30, or so, steps are post-FreeBSD-installation items that we are going to take care of.

The first item that will present itself is the Ethernet Device configuration menu. This looks something like:

# Ethernet Device Selection

## Network interface information required

If you are using PPP over a serial device, as opposed to a direct ethernet connection, then you may first need to dial your Internet Service Provider using the ppp utility we provide for that purpose. If you're using SLIP over a serial device then the expectation is that you have a HARDWIRED connection.

You can also install over a parallel port using a special "laplink" cable to another machine running FreeBSD.

- x10** 3COM 3c90x / 3c90xB PCI ethernet card
- p11p0** <unknown network interface type>
- s10** SLIP interface on device /dev/cuaa0 (COM1)
- p11p0** PPP interface on device /dev/cuaa0 (COM1)
- s10** SLIP interface on device /dev/cuaa1 (COM2)
- p11p0** PPP interface on device /dev/cuaa1 (COM2)

[ OK ]

Cancel

Press F1 to read network configuration screen

In most cases you should simply press ENTER for "OK" to choose the first device. The FreeBSD kernel is pretty smart about detecting hardware and even smarter about detecting network hardware. Hopefully your network hardware has been correctly detected and is the first item listed.

Choose "No" when prompted for IPv6 configuration.

Choose "NO" to DHCP configuration.

You'll see a network configuration window."

We are going to number our PCs starting from the first PC at the front of the classroom on the right. Thus, the first PC will be named pc1.e0.ws.afnog.org and it will have an IP address of 196.200.219.1. Before you fill in the number for your PC check with the instructor or wait until the instructor gives you your correct IP address.

This means you will be changing the following:

Host:

pcN.e0.ws.afnog.org

Domain:

e0.ws.afnog.org

IPV4 Gateway

196.200.219.126

Nameserver

196.200.219.125

IPV4 Address

196.200.219.N

Where N is the ip address assigned to you by the instructor.

Fill in the other fields as shown in the image above, then use the tab key to move through each field until you reach "OK", then press ENTER.

Now you'll receive numerous queries about items you can configure. The answers to these are:

"No" to Network Gateway.

"No" to inetd. [To be discussed later]

"No" to ssh. [To be done later]

"No" to anonymous FTP.

"No" to NFS server.

"No" to NFS client.

"No" to customize console settings.

When you are prompted to set the timezone say "Yes".

"Say "No" to the following prompt:

"Is this machine's CMOS clock set to UTC? If it is set to local time or you don't know, please choose NO here!"

Now you'll see a list of regions for your time zone that looks like this:

### Select Your Region (Time Zone)



Choose number 1, or "Africa" and press ENTER for "OK".

In the next list choose "Mozambique" and press ENTER for "OK".

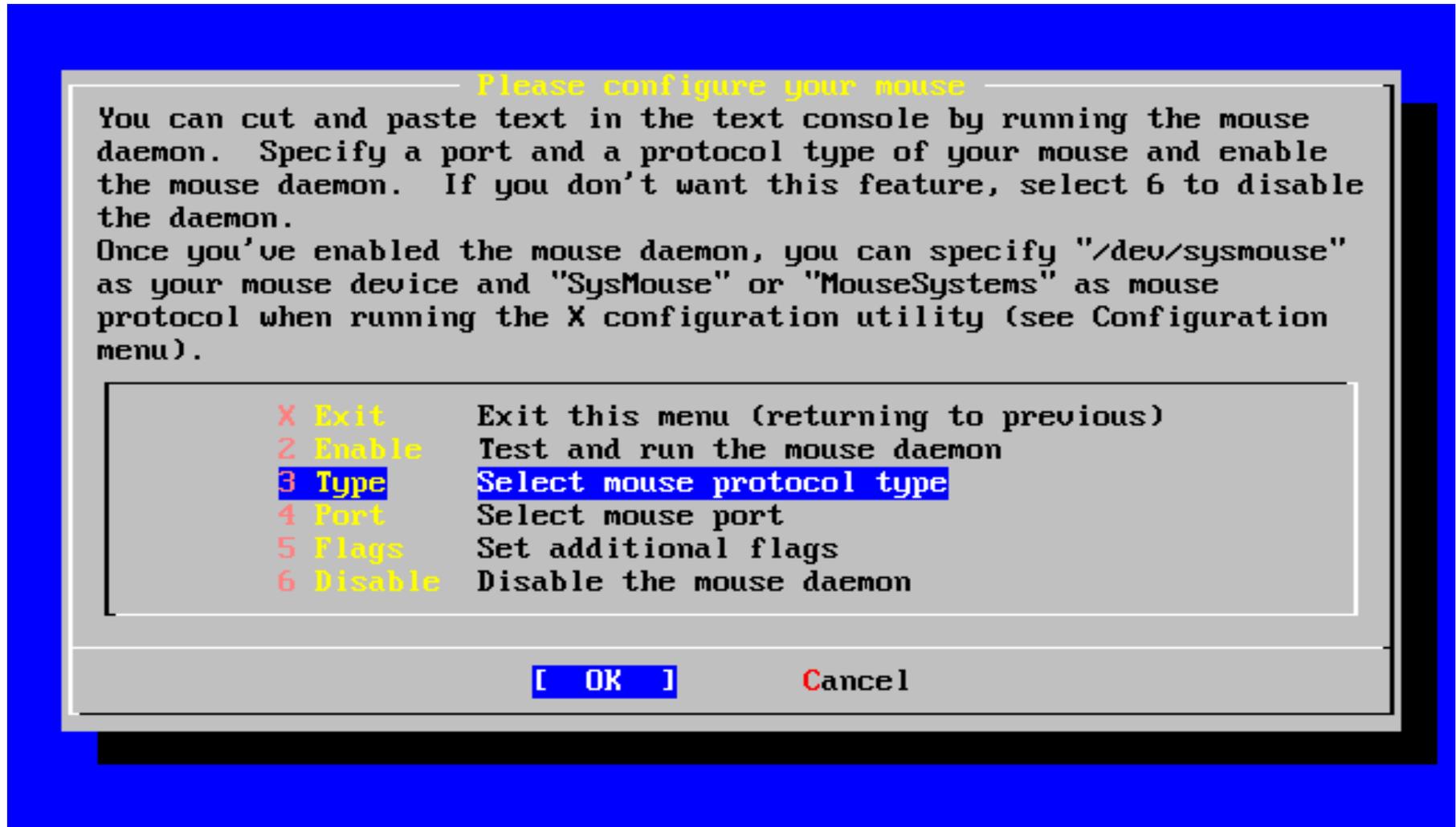
Respond "Yes" to 'CAT looks reasonable' prompt'.

"Yes" to Linux binary compatibility.

"Yes" to PS/2 or Serial Mouse.

When you see the Select Mouse Protocol type menu, which looks like this:

# Select Mouse Protocol



Choose number 2, "Enable" and press ENTER for "OK".

If you move your mouse and you see the cursor moving on the screen, then press ENTER for "Yes" when asked, "Is the mouse cursor moving?"

Move the cursor up to X or "Exit" and press ENTER to exit the mouse configuration menu.

Answer "No" to browsing Package collection. We'll add more Packages later.

Answer "No" to adding a user account. We'll add user accounts after installation completes.

Press ENTER for "OK" to set password for root account.

# Documentation and Help

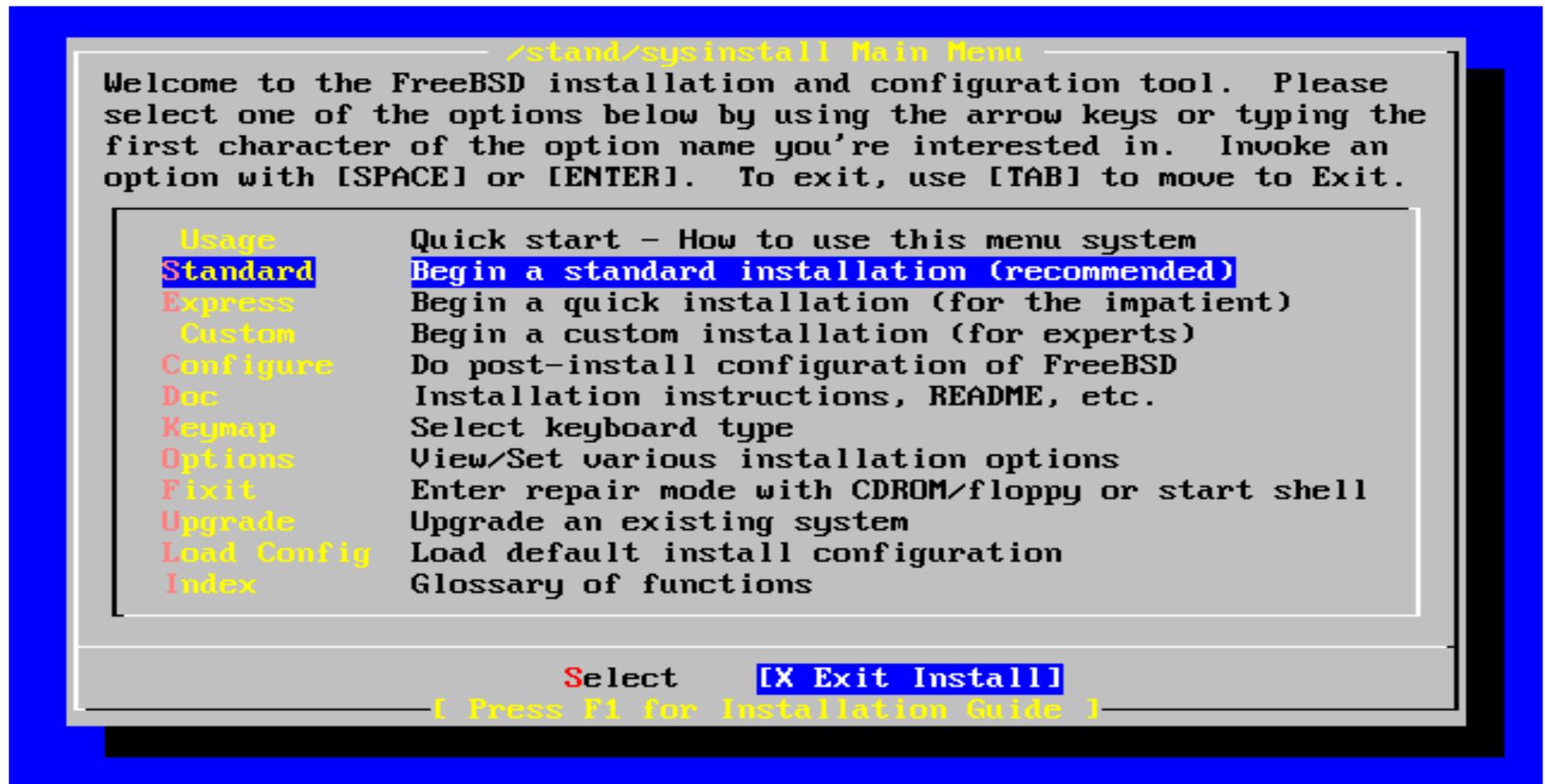
- 1. man pages**
- 2. /usr/share/doc/en/{articles,books},**
- 3. FreeBSD handbook) <http://www.freebsd.org/handbook>**
- 4. /usr/share/examples**

The password we are going to use is "afnog05" - That's all lower-case letters with the numbers zero 0 and 5. Please use this password and do not change it during the week in case an instructor needs access to your machine to help with exercises. Notice that we have picked a mildly secure password (except that it's printed in a document that will soon be cached for Google searches... :-)).

When prompted with, " Visit the general configuration menu for a chance to set any last options?" answer "No".

Now you will be dropped back to the Sysinstall main menu:

# Sysinstall Main menu



Move your cursor to highlight "X Exit Install" at the bottom of the menu (or just press "X"), and press ENTER to exit this menu.

Answer "Yes" to exit and remove the FreeBSD Disc 1 CD-ROM from your machine's CD-ROM drive as it is rebooting.

## After Initial Reboot

At this point you will be staring at your initial logon screen for FreeBSD 5.3, which should look something like this:

```
FreeBSD/i386 (pcN.e0.ws.afnog.org) (ttyv0)
```

login:

Password: