

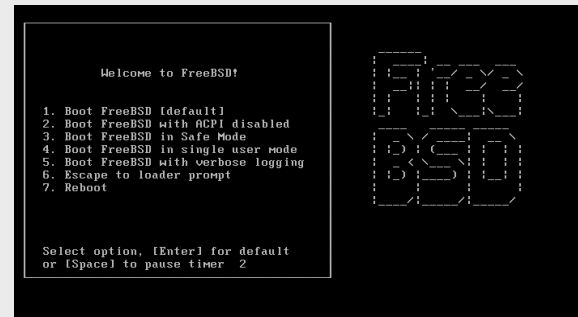
## FreeBSD Installation

AFNOG IX  
Rabat, Morocco  
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## Boot Off CD

- Insert the FreeBSD 7.0 CD1 on your machines into your CD-ROM drive and (re)boot the machine



```
Welcome to FreeBSD!

1. Boot FreeBSD [default]
2. Boot FreeBSD with ACPI disabled
3. Boot FreeBSD in Safe Mode
4. Boot FreeBSD in single user mode
5. Boot FreeBSD with verbose logging
6. Escape to loader prompt
7. Reboot

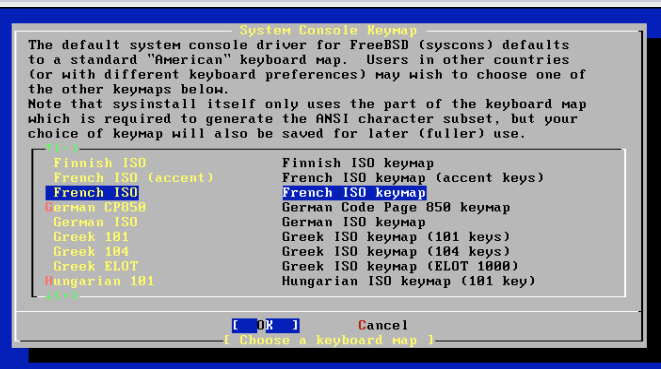
Select option, [Enter] for default
or [Space] to pause timer 2
```

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## KeyMap

- You then need to say what country you are in. Choose Morocco from the list (scroll up with the up arrow) so it will allow you to choose what your keymap looks like.
- The Keyboard map tells the Operating system what characters are printed on your keyboard. Scroll up and choose french.iso (without accent keys – the screenshot is in the next slide).

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```
System Console Keymap

The default system console driver for FreeBSD (syscons) defaults
to a standard "American" keyboard map. Users in other countries
(or with different keyboard preferences) may wish to choose one of
the other keymaps below.

Note that sysinstall itself only uses the part of the keyboard map
which is required to generate the ANSI character subset, but your
choice of keymap will also be saved for later (fuller) use.

Finnish ISO          Finnish ISO keymap
French ISO (accent)  French ISO keymap (accent keys)
French ISO           French ISO keymap
German CP850         German Code Page 850 keymap
German ISO           German ISO keymap
Greek 101            Greek ISO keymap (101 keys)
Greek 104            Greek ISO keymap (104 keys)
Greek EL0T           Greek ISO keymap (EL0T 1000)
Hungarian 101        Hungarian ISO keymap (101 key)

OK Cancel
Change a keyboard map
```

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## Sysinstall

- Finally you'll get to the sysinstall menu. Sysinstall is the installer tool used to get FreeBSD onto your machine – and optionally configure it later.
- Move through it by using your up and down arrow keys, use the space or enter key to choose the highlighted option.
- If there are "buttons" at the bottom of the screen, you can navigate to it by using the tab key then using the enter key.
- Select a standard installation and the next thing we need to do is partition our disk.

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## Disk Partitioning/installation

- In your case, you are presented with a choice of disks to partition. We will use just the first 80GB disk.
- Select it with the space button so we can start **slicing** the disk.
- In our case we are going to use the entire disk so use "a" to tell FreeBSD to use as much of the disk as it can.
- If you plan to use multiple operating disks you need to create different slices for the other operating systems.
- When done with the slicing, then use "q" to quit the fdisk partition editor

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## Slicing

```
Disk name: ad0          fdisk Partition Editor
Disk Geometry: 44384 cyls/15 heads/63 sectors = 41942880 sectors (28473MB)

Offset      Size(ST)      End      Name  PType  Desc  Subtype  Flags
-----
0           63           62      -     12     unused  0
63         41942817    41942879  ad0s1  8      freebsd 165
41942880   168         41943839  -     12     unused  0

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  : = Wizard M.
T = Change Type     U = Undo All Changes   Q = Finish

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

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## Boot Blocks

- Next you decide what FreeBSD will put in your MBR. If you have multiple operating systems you want a boot manager. In our case, standard MBR will do. (none is for if you have GRUB or something else)

```
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"!

Standard  Install the FreeBSD Boot Manager
Standard  Install a standard MBR (no boot manager)
None       Leave the Master Boot Record untouched

[ OR ]      Cancel
Press F1 to read about drive setup
```

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## Partitions

- Fdisk is launched again to create partitions inside the slice you created. Use "a" to automatically create partitions, watch the screen for a demo on how you'd do it yourself.

```
FreeBSD Disklabel Editor
Disk: ad0 Partition name: ad0s1 Free: 0 blocks (0MB)

Part  Mount      Size Newfs  Part  Mount      Size Newfs
----  -
ad0s1a /             512MB UFS2   Y
ad0s1b swap          470MB SLAP
ad0s1d /var         1263MB UFS2+S Y
ad0s1e /tmp          512MB UFS2+S Y
ad0s1f /usr         17714MB UFS2+S Y

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  Z = Custom Newfs
T = Toggle Newfs U = Undo      A = Auto Defaults      R = Delete+Merge

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

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## Multiple Disks

- On computers with more than one disk you are returned to the menu where you choose which disk you want to slice and partition.
- If you plan to use both disks you can put some partitions on the second disk (like /usr or /var or /data) by going selecting the second disk and slicing it and using fdisk to put partitions in there as was demoed on the screen.
- In our case we use tab to go to ok and continue with the installation. We'll leave the second disk blank in case we get the chance to do actual mirrors later in the week.

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## Choice of packages

- Next we get to choose which packages we want installed. You can either choose predefined package groups or make your own selection. For our case we'll choose a small distribution and add packages we need during the week.
- In this window use the arrow keys to move to a distribution, use the space bar to select the distribution.
- Our distribution is going to be X-User so scroll down and select it with the space bar.

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## FreeBSD Distribution

```
Choose 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].

[ ] 4 Developer      Full sources, binaries and doc but no games
[ ] 5 X-Developer    Same as above + X Window System
[ ] 6 Kern-Developer Full binaries and doc, kernel sources only
[ ] 7 X-Kern-Developer Same as above + X Window System
[ ] 8 User           Average user - binaries and doc only
[ ] 9 X-User        Same as above + X Window System
[ ] A Minimal       The smallest configuration possible
> > B Custom         Specify your own distribution set

[ OK ] Cancel
Press F1 for more information on these options.
```

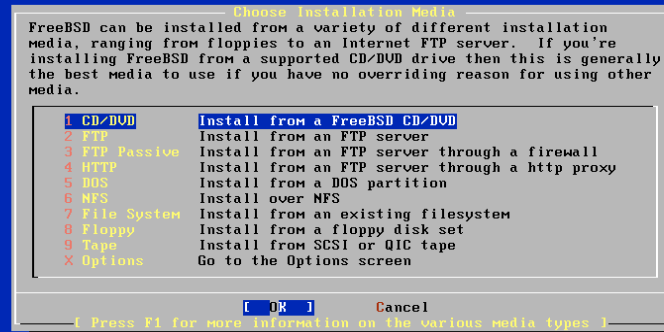
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## Ports

- You will be asked if you want to install the ports system. Hit the “Enter” key to say “yes” we will discuss how to use the ports system in the next session.
- Once that is done you need to exit the distribution selection. Use the tab key to select “OK” and move on to the media selection.
- FreeBSD can install these packages from all kinds of media – CDROM, FTP, HTTP, NFS mounts, even a huge stack of floppies.
- In our case we’ll use the CDROM for now, FTP will be used in the next session.

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## Media Selection



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## Point of no return

- You are now presented with an important prompt. Prior to this, no actual data has been written to disk. If you chose no, you can have your system unmodified. If you chose yes, then every thing from the partitioning starts to happen. Chose yes and watch.



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## Post Installation Tasks

- At this point, the FreeBSD operating system has been installed on your computer. We shall now do some post installation tasks to get some attributes of your system working.
- Say “Yes” to configuring your ethernet device. You are presented with a menu, select the first one which should be em0 – your ethernet card.
- You will be asked if you want to try IPv6 configuration for your card, say “yes”
- You will be asked if you want to try DHCP configuration for your card, say “no”
- Next is the IPv4 configuration which you should set similar to this. Substitute the IPv4 address and hostname fields as relevant.
- Leave the gateway, domain, and name server fields constant.

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## IPv4 configuration

Host: pc1.sae.ws.afnog.org  
Network Domain: sae.ws.afnog.org  
IPv4 Gateway: 196.200.218.254  
Name server: 196.200.223.1  
Configuration for Interface le0  
IPv4 Address: 196.200.218.100  
Netmask: 255.255.255.0  
Extra options to ifconfig (usually empty):  
[ OK ] [ CANCEL ]  
Select this if you are happy with these settings

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## Startup Options

- You are then presented with options to start different services on boot.
- Say “NO” to all of them except ssh.
- You will also be asked if your clock is set to UTC – say “yes”.
- You then need to set the timezone on your machine, say yes to that, select “Africa” then select “Morocco” and you should end up with a prompt like the one which follows. – say “yes” to the prompt.

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## Timezone

Countries in Africa  
Select a country or region  
16 Eritrea  
17 Ethiopia  
18 Gabon  
19 Gambia  
20 Ghana  
21 Guinea  
27 Malawi  
28 Mali  
29 Mauritania  
30 Morocco  
31 Mozambique  
Confirmation  
Does the abbreviation 'WET' look reasonable?  
[ Yes ] No  
[ OK ] Cancel

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## Additional Steps

- Say “Yes” to enable linux binary compatibility (this allows your FreeBSD to run linux applications natively)
- Say “yes” to whether you have a mouse connected.
- The default settings (autoprobe) work fine, just go down to enable and select that.
- When done go to exit to leave this menu.
- Answer “NO” to browsing the package selection
- Do not add a user account at this point, one of the exercises that follows does this.
- Set your root password to afnog08 . Please leave this password as is so instructors can fix your machines if the need arises. Remember that if you set your keymap to French ISO, then using the numlock and keypad to type in the zero and eight is highly recommended.

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## First Boot

- Next you'll be asked if you want to visit the configuration menu for the last time, say no.
- Press the x key to exit systinstall press enter, and remove your disk from the drive as the machine reboots.
- An ssh key will be generated and you will be greeted with a prompt similar to the one you saw during bootcamp.
- Log in with the username root ; password afnog08 (use the numeric keypad) and type the following commands. Include all the quotation marks and don't forget the double ">>" not a single ">" replace 100 with the last part of your real IP address. The '#' just means you type the commands as root.

```
# echo 'ipv6_ifconfig_em0="2001:4438:0:218:196:200:218:100"' >> /etc/rc.conf  
# /etc/netstart
```

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