

FreeBSD Installation

ISOC/AfNOG

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(Original materials by Hervey Allen – NSRC)

READ THE INSTRUCTIONS

These slides contain explicit instructions to allow you to successfully install **FreeBSD** and **Gnome** on your machines.

If you do not read the instructions on these slides and/or do not pay attention to what is chosen in the screens during installation you are very likely to install incorrectly.

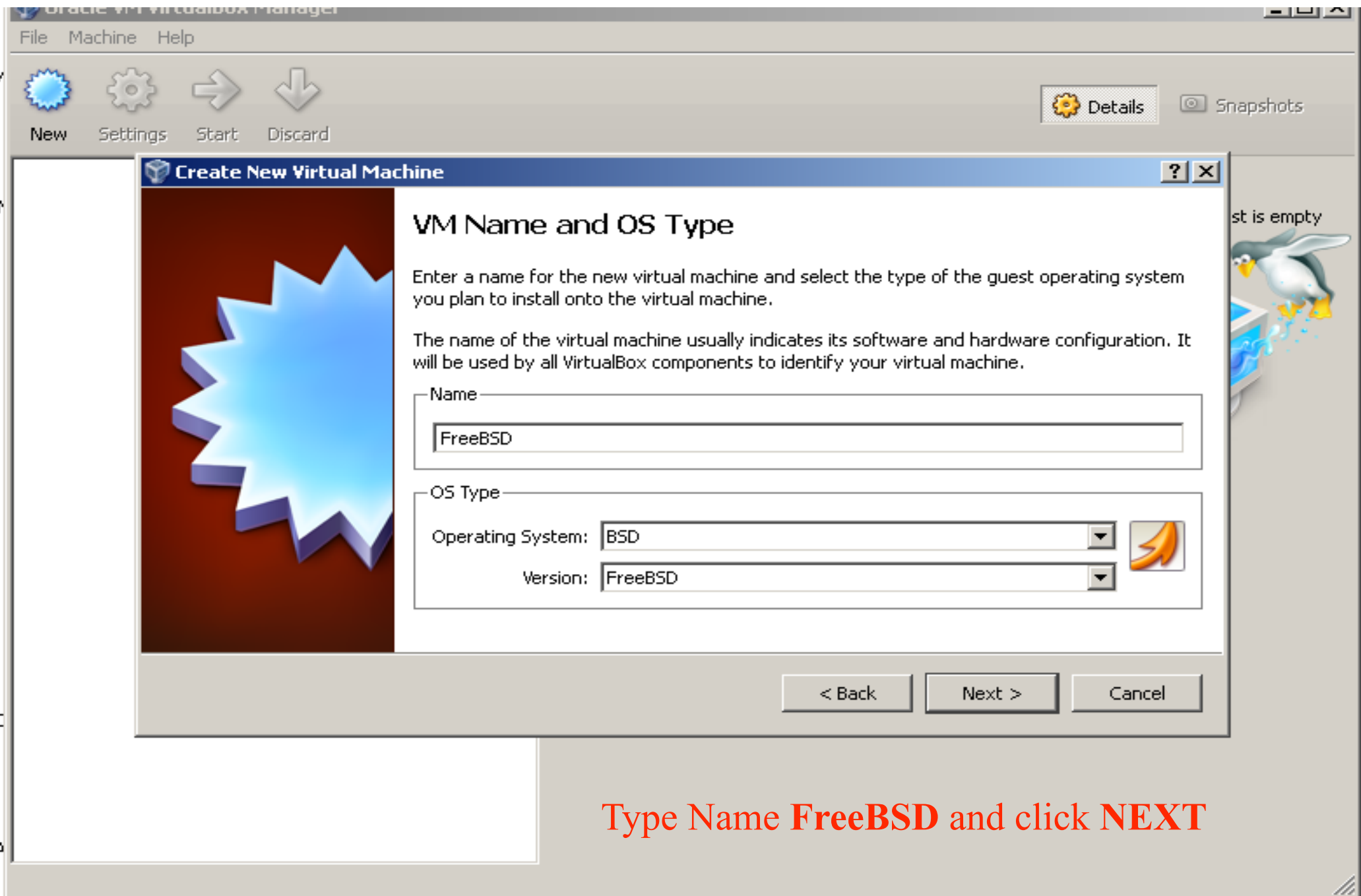
So:

READ THE INSTRUCTIONS

You instructors thank you :-)

Virtual Machine Setup

- The steps that follow will guide you on how to install FreeBSD in a **virtualized environment** on a **Windows XP Host Machine**
- The Windows XP Machines are installed with Virtualization Software called **VirtualBOX**
- The FreeBSD installation will be a **Guest Operating System**
- 1st Step is to **Insert FreeBSD DVD into the DVD Drive**
- 2nd Step Open **VirtualBox** under Windows programs and click on **New**



Type Name **FreeBSD** and click **NEXT**

Oracle VM VirtualBox Manager

File Machine Help

New Settings Start Discard

Details Snapshots

Create New Virtual Machine

Memory

Select the amount of base memory (RAM) in megabytes to be allocated to the virtual machine. The recommended base memory size is **128 MB**.

Base Memory Size

4 MB 2048 MB

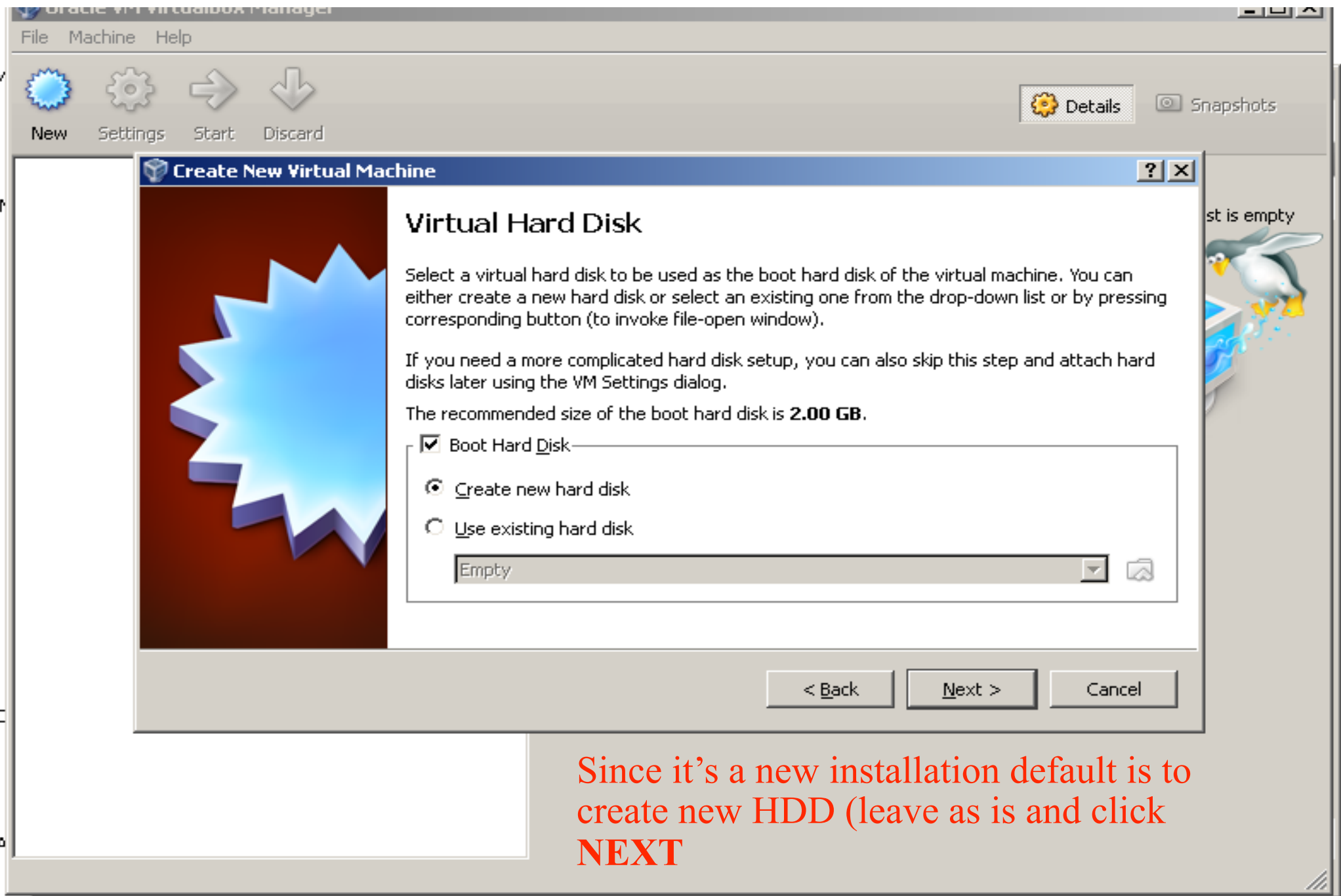
512 MB

< Back Next > Cancel

Select RAM to **512** and click **NEXT**

Start Oracle VM VirtualBox ... Microsoft PowerPoint - [...]

EN 03:38



Since it's a new installation default is to create new HDD (leave as is and click **NEXT**)



Oracle VM VirtualBox Manager

File Machine Help

New Settings Start Discard

Details Snapshots

Create New Virtual Disk

Hard Disk Storage Type

Select the type of virtual hard disk you want to create.

A **dynamically expanding storage** initially occupies a very small amount of space on your physical hard disk. It will grow dynamically (up to the size specified) as the Guest OS claims disk space.



A **fixed-size storage** does not grow. It is stored in a file of approximately the same size as the size of the virtual hard disk. The creation of a fixed-size storage may take a long time depending on the storage size and the write performance of your harddisk.

Storage Type

- Dynamically expanding storage
- Fixed-size storage

< Back Next > Cancel

st is empty



Select **Dynamic expanding storage** and click **NEXT**

Start Oracle VM VirtualBox ... Microsoft PowerPoint - [...]

EN << >> 03:40

Oracle VM VirtualBox Manager

File Machine Help

New Settings Start Discard

Details Snapshots

Create New Virtual Disk

Virtual Disk Location and Size

Press the **Select** button to select the location of a file to store the hard disk data or type a file name in the entry field.

Location

FreeBSD

Select the size of the virtual hard disk in megabytes. This size will be reported to the Guest OS as the maximum size of this hard disk.

Size

4.00 MB 2.00 TB 56.48 GB

< Back Next > Cancel

Type in here for exact size

Set Size to be **50GB** and click **NEXT**

Start Oracle VM VirtualBox ... Microsoft PowerPoint - [...] EN 03:42

Oracle VM VirtualBox Manager

File Machine Help

New Settings Start Discard

Details Snapshots

Create New Virtual Disk

Virtual Disk Location and Size

Press the **Select** button to select the location of a file to store the hard disk data or type a file name in the entry field.

Location

FreeBSD

Select the size of the virtual hard disk in megabytes. This size will be reported to the Guest OS as the maximum size of this hard disk.

Size

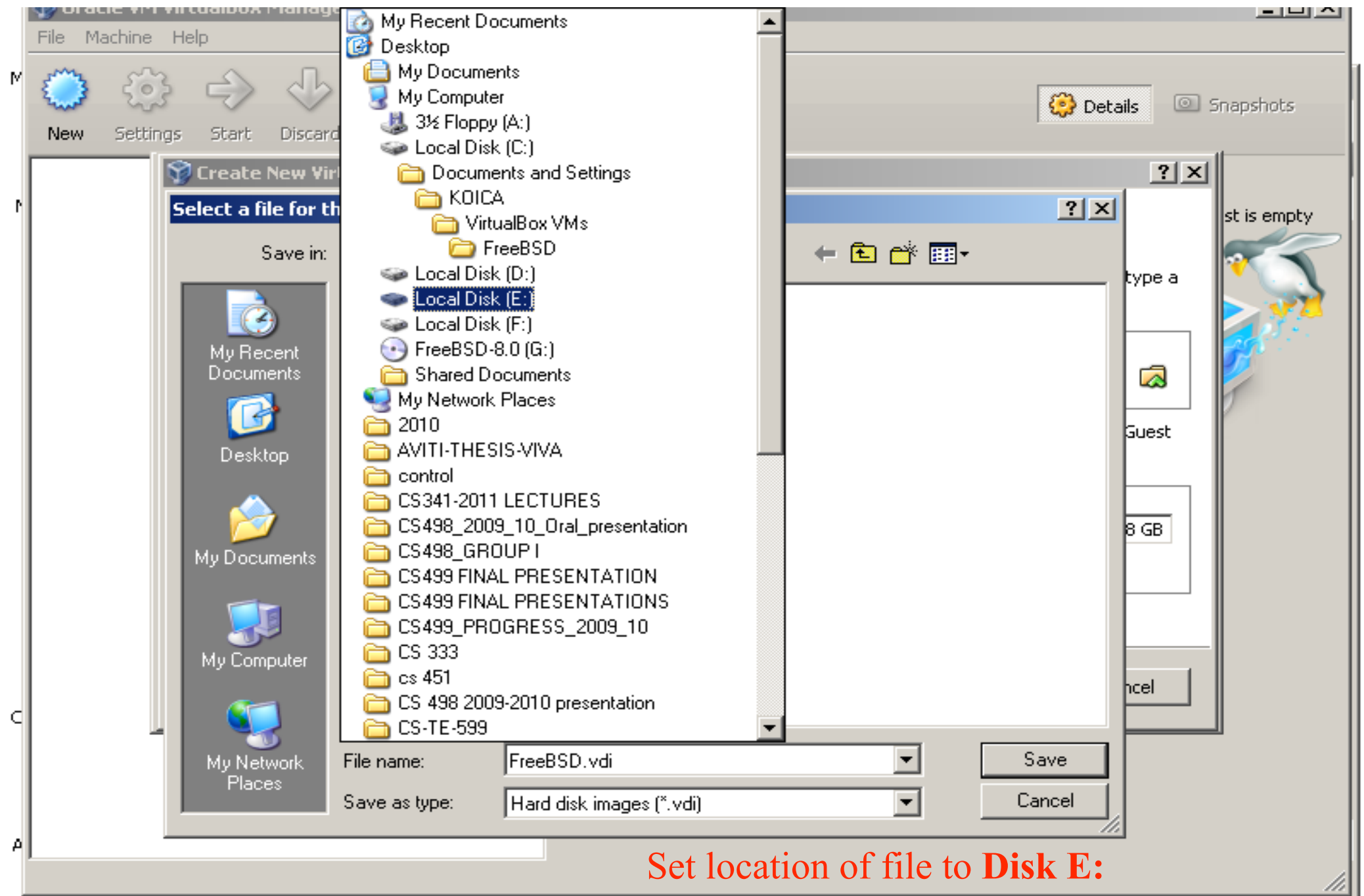
4.00 MB 2.00 TB 56.48 GB

< Back Next > Cancel

Click here to set location of the file.

Set Size to be **50GB** and click **NEXT**

Start Oracle VM VirtualBox ... Microsoft PowerPoint - [...] EN 03:42



Set location of file to **Disk E:**

Oracle VM VirtualBox Manager

File Machine Help

New Settings Start Discard

Details Snapshots

Create New Virtual Disk

Virtual Disk Location and Size

Press the **Select** button to select the location of a file to store the hard disk data or type a file name in the entry field.

Location

E:\FreeBSD.vdi



Select the size of the virtual hard disk in megabytes. This size will be reported to the Guest OS as the maximum size of this hard disk.

Size

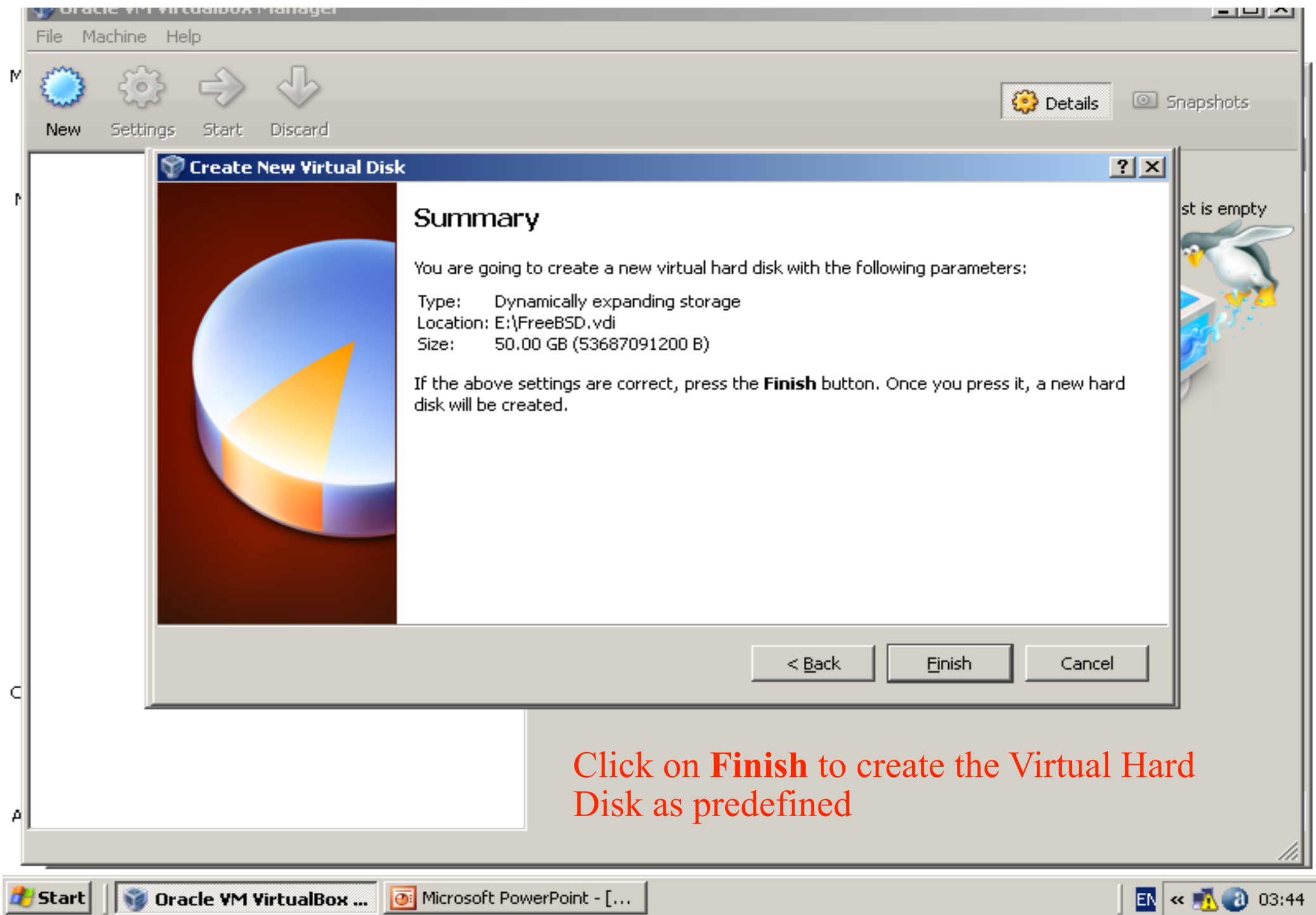
4.00 MB 2.00 TB 50GB

< Back Next > Cancel

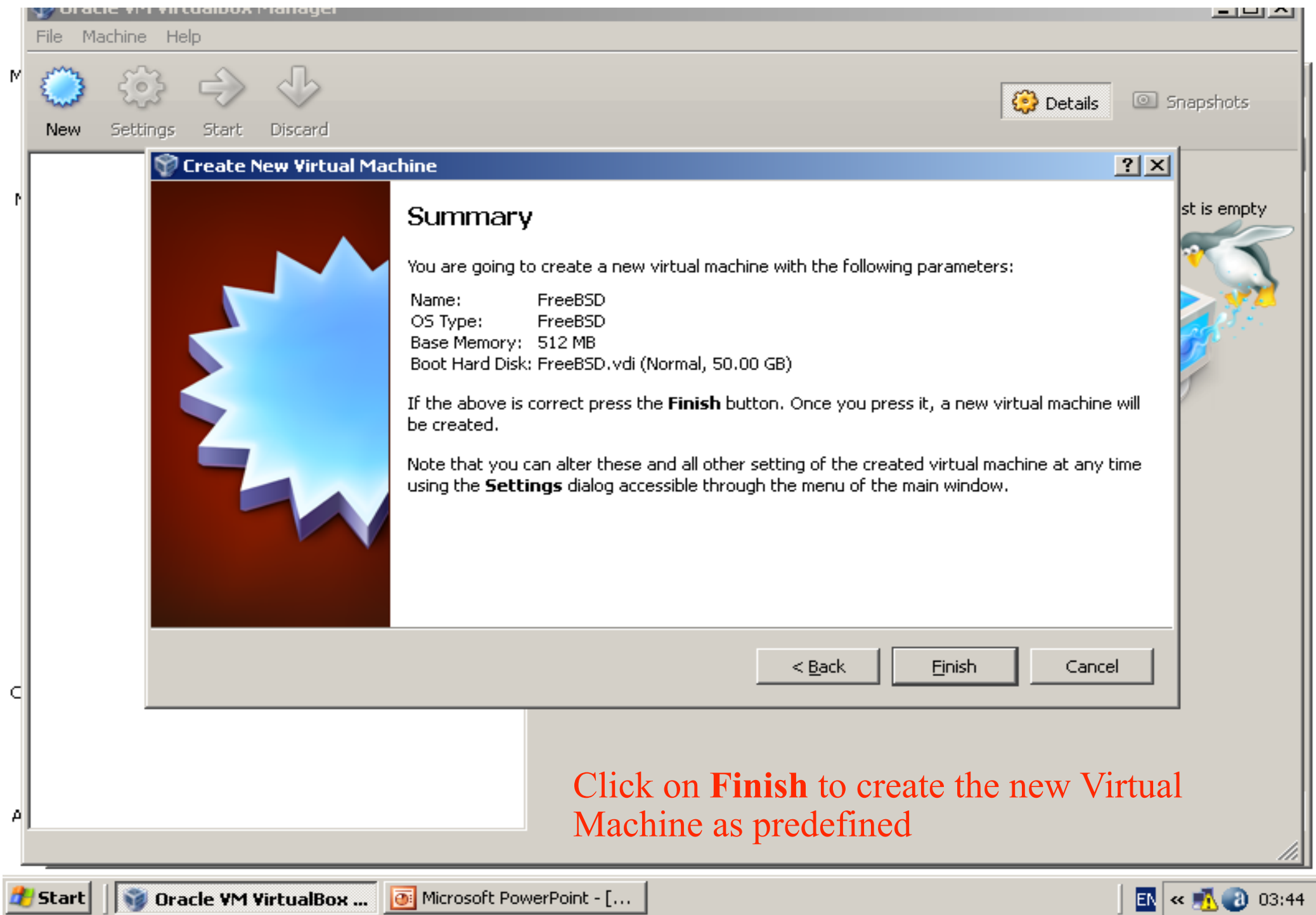
st is empty



Verify that location is **E:\FreeBSD.vdi** and size is **50GB** click **NEXT**



Click on **Finish** to create the Virtual Hard Disk as predefined



Click on **Finish** to create the new Virtual Machine as predefined

Oracle VM VirtualBox Manager

File Machine Help

New Settings **Start** Discard

Click Start to start the FreeBSD VM

Details Snapshots

FreeBSD
Powered Off

General
Name: FreeBSD
OS Type: FreeBSD

System
Base Memory: 512 MB
Boot Order: Floppy, CD/DVD-ROM, Hard Disk

Preview
FreeBSD

Display
Video Memory: 4 MB
Remote Desktop Server: Disabled

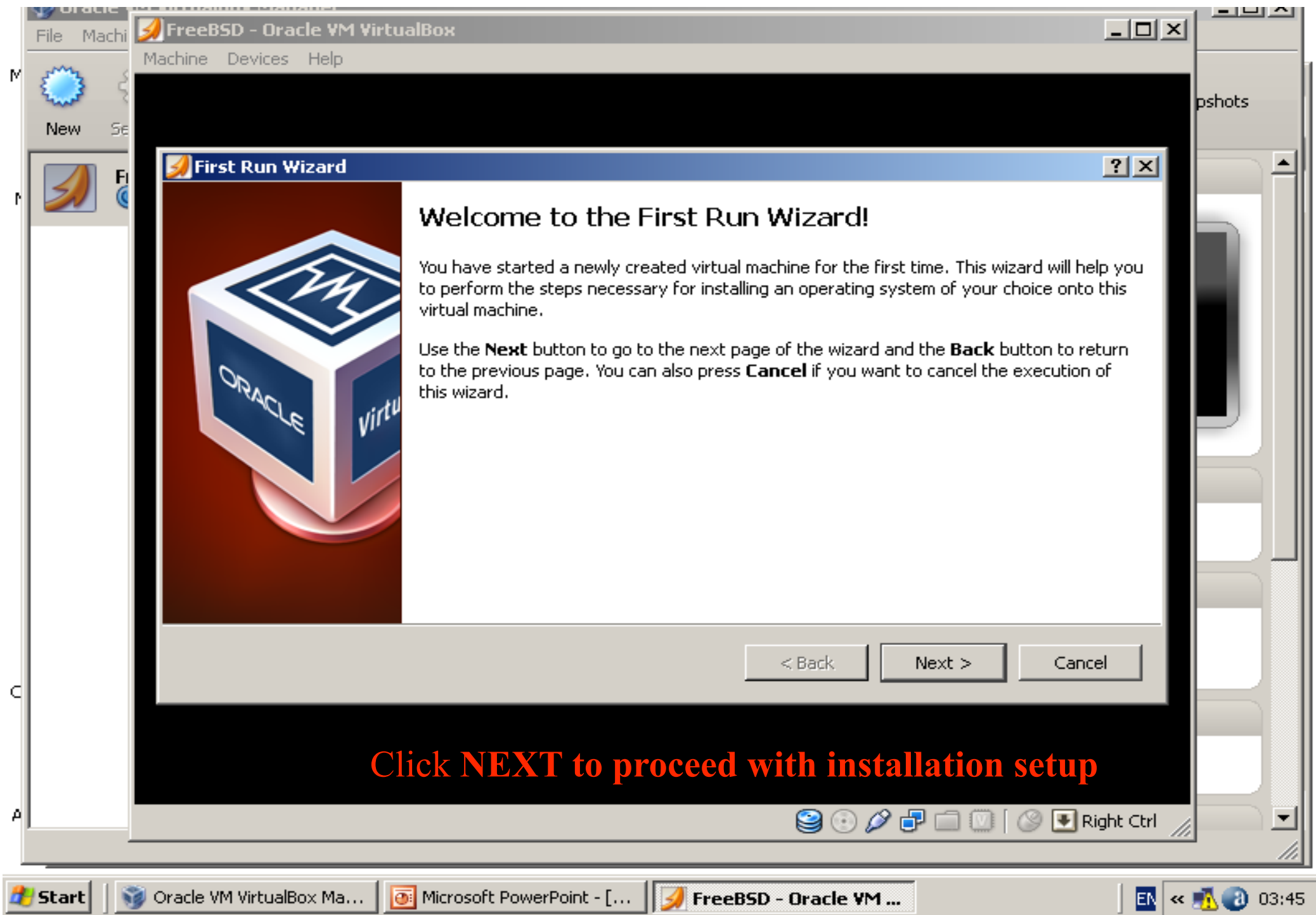
Storage
IDE Controller
IDE Primary Master: FreeBSD.vdi (Normal, 50.00 GB)
IDE Secondary Master (CD/DVD): Empty

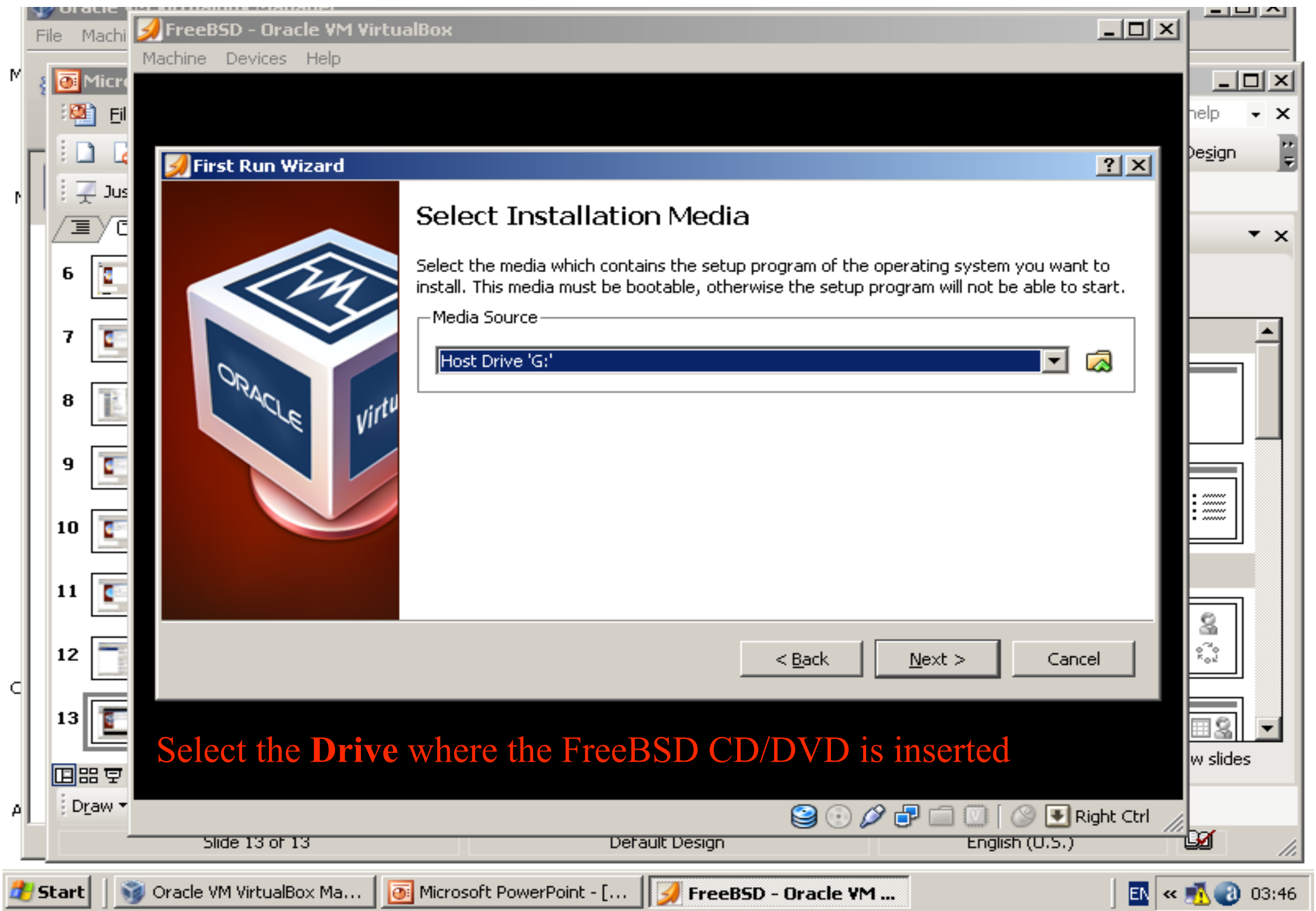
Audio
Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Start Oracle VM VirtualBox ... Microsoft PowerPoint - [...]

EN << 03:45






Select the **Drive** where the FreeBSD CD/DVD is inserted

FreeBSD - Oracle VM VirtualBox

Machine Devices Help

First Run Wizard



Summary

You have selected the following media to boot from:

Type: CD/DVD-ROM Device
Source: Host Drive 'G:'

If the above is correct, press the **Finish** button. Once you press it, the selected media will be temporarily mounted on the virtual machine and the machine will start execution.

Please note that when you close the virtual machine, the specified media will be automatically unmounted and the boot device will be set back to the first hard disk.

Depending on the type of the setup program, you may need to manually unmount (eject) the media after the setup program reboots the virtual machine, to prevent the installation process from starting again. You can do this by selecting the corresponding **Unmount...** action in the **Devices** menu.

< Back Finish Cancel

Slide 14 of 14 Default Design English (U.S.)

Since it's a CD/DVD install verify and click **FINISH**

Capture & Screen

- The **Keyboard and Mouse are captured** automatically when you click onto the VirtualBox/VM instance
- To release the Keyboard & Mouse from the Virtual Machine press on the keyboard the **RIGHT CTRL Key**
- To view the VM in full screen select from **Menu Full Screen**
- To return VM in window mode press **Righth CTRL + F**

FreeBSD Installation



Installation: How to use the keyboard

Please follow the steps exactly as described

FreeBSD Installer Keyboard Usage

1. Use the **SPACE** key to choose highlighted options.
2. Use the **TAB** key to move to confirmations such as “<OK>”, then press **ENTER**.

Generally **don't use** the ENTER key to select options, such as items to install. This **will not work!** Instead, you will **deselect** what you wish to install.

Installation: How to use the Keyboard

Please follow the steps exactly as described

FreeBSD Installer Keyboard Usage

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Installation: How to use the Keyboard

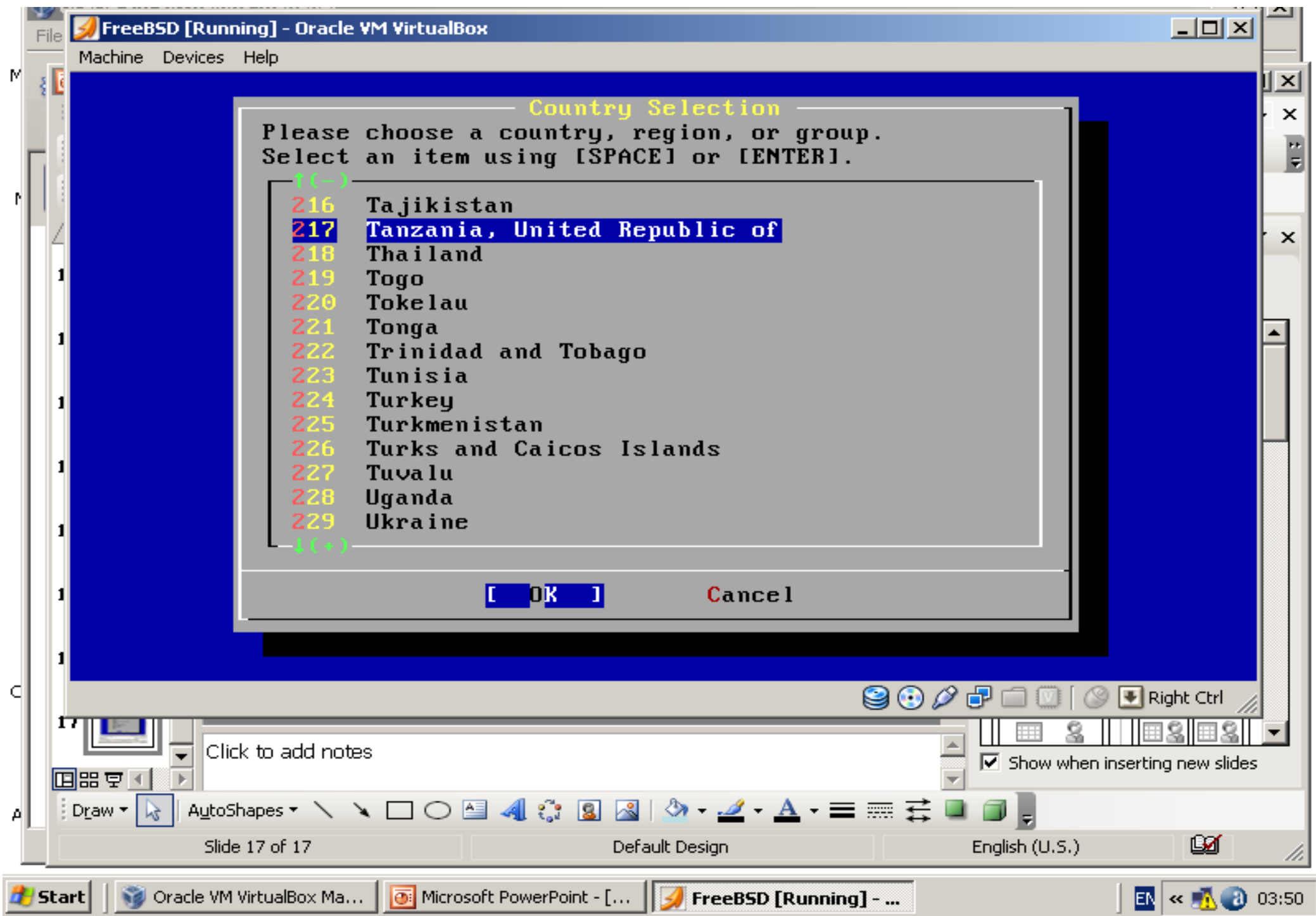
Please follow the steps exactly as described

FreeBSD Installer Keyboard Usage

1. Use the **SPACE** key to choose highlighted options.
2. Use the **TAB** key to move to confirmations such as “<**OK**>”, then press **ENTER**.

Generally **don't use** the ENTER key to select options, such as items to install. This **will not work!** Instead, you will **deselect** what you wish to install.

Not following these steps is the number one problem people encounter when installing FreeBSD.



Country Selection

Please choose a country, region, or group.
Select an item using [SPACE] or [ENTER].

- 216 Tajikistan
- 217 Tanzania, United Republic of
- 218 Thailand
- 219 Togo
- 220 Tokelau
- 221 Tonga
- 222 Trinidad and Tobago
- 223 Tunisia
- 224 Turkey
- 225 Turkmenistan
- 226 Turks and Caicos Islands
- 227 Tuvalu
- 228 Uganda
- 229 Ukraine

[OK]

Cancel

Click to add notes

Show when inserting new slides

Slide 17 of 17

Default Design

English (U.S.)

Select Keyboard

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.

^(-)	
UK ISO	UK ISO keymap
Ukrainian KOI8-U	Ukrainian KOI8-U keymap
Ukrainian KOI8-U+KOI8-R	Ukrainian KOI8-U+KOI8-R keymap (alter)
USA CapsLock→Ctrl	US standard (Caps as L-Control)
USA Dvorak	US Dvorak keymap
USA Dvorak (left)	US left handed Dvorak keymap
USA Dvorak (right)	US right handed Dvorak keymap
USA Emacs	US standard optimized for EMACS
USA ISO	US ISO keymap
v(+)	

[**OK**]

Cancel

[Choose a keyboard map]

Select to Install FreeBSD

```
FreeBSD/i386 8.0-RELEASE - 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.

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

[ Select ]  X Exit Install
```

Use the **tab** key to select “Select” then **enter** to continue.

Click OK to continue

```
Message
In the next menu, you will need to set up a DOS-style ("fdisk") partitioning
scheme for your hard disk.  If you simply wish to devote all disk space
to FreeBSD (overwriting anything else that might be on the disk(s) selected)
then use the (A)ll command to select the default partitioning scheme followed
by a (Q)uit.  If you wish to allocate only free space to FreeBSD, move to a
partition marked "unused" and use the (C)reate command.
(100%)
[ OK ]
[ Press enter or space ]
```

How Much of the Disk to Use

```
Disk name:      ad0                               FDISK Partition Editor
DISK Geometry: 88768 cyls/15 heads/63 sectors = 83885760 sectors (40959MB)

Offset          Size(ST)          End          Name  PType          Desc  Subtype  Flags
-----
0      83886080      83886079      -      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.
```

We will use our Entire Disk. Press “A” to do this.

Using the Entire Disk for FreeBSD

```
Disk name:      ad0                      FDISK Partition Editor
DISK Geometry: 88768 cyls/15 heads/63 sectors = 83885760 sectors (40959MB)

Offset          Size(ST)          End          Name  PType      Desc  Subtype  Flags
-----
      0           63             62          -     12        unused    0
      63      83885697      83885759    ad0s1  8         freebsd   165
83885760        320           83886079    -     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.
```

We chose the entire disk. Now press “Q” to leave this screen and continue with installation.

Confirm Geometry of Disk

```
----- User Confirmation Requested -----  
WARNING: It is safe to use a geometry of 88768/15/63 for ad0 on  
computers with modern BIOS versions. If this disk is to be used  
on rather old machines, however, it is recommended to ensure that  
it does not have more than 65535 cylinders, or more than 255 heads  
or more than 63 sectors per track.  
  
Would you like that to keep using the current geometry?  
  
[ Yes ]      No
```

If you see this warning...

We select "Yes" as our machines are "modern"

Options to Boot Your Machine

Install Boot Manager for drive ad0?

FreeBSD comes with a boot manager 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 manager will also make it possible to do so (limitations in the PC BIOS usually prevent this otherwise). If you will only have FreeBSD on the machine the boot manager is not needed and it slows down the boot while offering you the choice of which operating system to boot. If you do not want a boot manager, or wish to replace an existing one, select "standard". If you would prefer your Master Boot Record remain untouched then select "None".

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

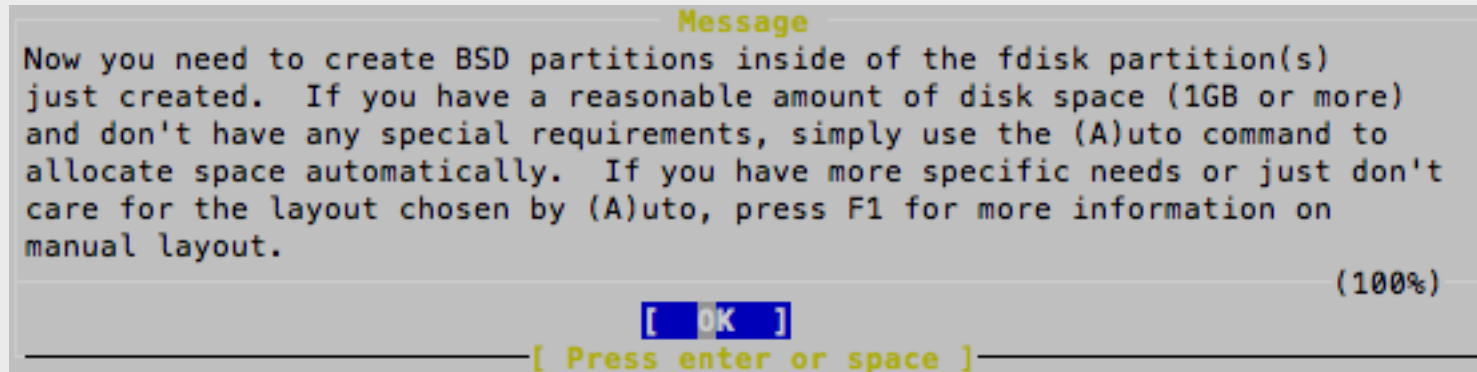
Standard	Install a standard MBR (no boot manager)
BootMgr	Install the FreeBSD Boot Manager
None	Leave the Master Boot Record untouched

[**OK**] Cancel

[Press F1 to read about drive setup]

If you have more than one Operating System on your machine, then you may want to choose "BootMgr". In our case our machines will only have FreeBSD, so select "Standard", tab to "OK" and press **enter**.

Click OK to continue



Now “Slice Up” your Disk (Partition)

```
FreeBSD Disklabel Editor
Disk: ad0      Partition name: ad0s1      Free: 83885697 blocks (40959MB)
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  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.
```

The entire Disk is our FreeBSD partition. We now slice up our partition. Note that “ad0” is chosen by default.

Now “Slice Up” your Disk (Partition)

```
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             2254MB SWAP
ad0s1d        /var             2151MB UFS2+S    Y
ad0s1e        /tmp             512MB UFS2+S    Y
ad0s1f        /usr             35529MB 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.
```

- Choose “Auto Defaults” by pressing “A”, then exit the screen by pressing “Q”.
- We will let the installer **partition our slice** for us. But, you can specify this any way you want. This is a *very important* step in the installation.

Install Kern-Developer

```
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].

<<< X Exit          Exit this menu (returning to previous)
      All           All system sources and binaries
      Reset        Reset selected distribution list to nothing
[ ] 4 Developer    Full sources, binaries and doc but no games
[ ] 5 Kern-Developer Full binaries and doc, kernel sources only
[ ] 6 User        Average user - binaries and doc only
[ ] A Minimal     The smallest configuration possible
> > B Custom      Specify your own distribution set

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

CAREFUL! You must do these steps exactly as follows:

- 1) Select "Kern-Developer"
- 2) Press the **SPACE** bar (*Do not press enter!*)

Install English Documentation

```
FreeBSD Documentation Installation Menu
This menu will allow you to install the whole documentation set
from the FreeBSD Documentation Project: Handbook, FAQ and articles.

Please select the language versions you wish to install. At minimum,
you should install the English version, this is the original version
of the documentation.

<<< X Exit  Exit this menu (returning to previous)
      All   Select all below
[ ] bn     Bengali Documentation
[ ] da     Danish Documentation
[ ] de     German Documentation
[ ] el     Greek Documentation
[X] en     English Documentation (recommended)
[ ] es     Spanish Documentation
[ ] fr     French Documentation
[ ] hu     Hungarian Documentation
[ ] it     Italian Documentation
[ ] ja     Japanese Documentation

v(+)

[ OK ]      Cancel
```

- 1) Move your cursor to “English Documentation” and press the **SPACE** bar (not enter!)
- 2) Press the **TAB** key to highlight “OK” and then press **ENTER**

Install Ports – BIG Software Collection

User Confirmation Requested

Would you like to install the FreeBSD ports collection?

This will give you ready access to over 19,000 ported software packages, at a cost of around 445MB of disk space when "clean" and possibly much more than that when a lot of the distribution tarballs are loaded (unless you have the extra discs available from a FreeBSD CD/DVD distribution and can mount them on /cdrom, in which case this is far less of a problem).

The ports collection is a very valuable resource and well worth having on your /usr partition, so it is advisable to say Yes to this option.

For more information on the ports collection & the latest ports, visit:
<http://www.freebsd.org/ports>

[Yes]

No

Select "Yes" and press **enter**.

Choosing Distribution Part 2

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].

<< X Exit	Exit this menu (returning to previous)
All	All system sources and binaries
Reset	Reset selected distribution list to nothing
[X] 4 Developer	Full sources, binaries and doc but no games
[] 5 Kern-Developer	Full binaries and doc, kernel sources only
[] 6 User	Average user - binaries and doc only
[] A Minimal	The smallest configuration possible
> > B Custom	Specify your own distribution set

[OK] Cancel

[Press F1 for more information on these options.]

- Now we are returned to our Distribution selection menu
- Select **"X Exit"**
- Now use the **tab** key to select **"OK"** and press **enter**.

Your Method of Installation

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]

Select "CD/DVD", tab to "OK" and press **enter** to continue.

Initial install finishes

```
Message
Congratulations! You now have FreeBSD installed on your system.

We will now move on to the final configuration questions.
For any option you do not wish to configure, simply select
No.

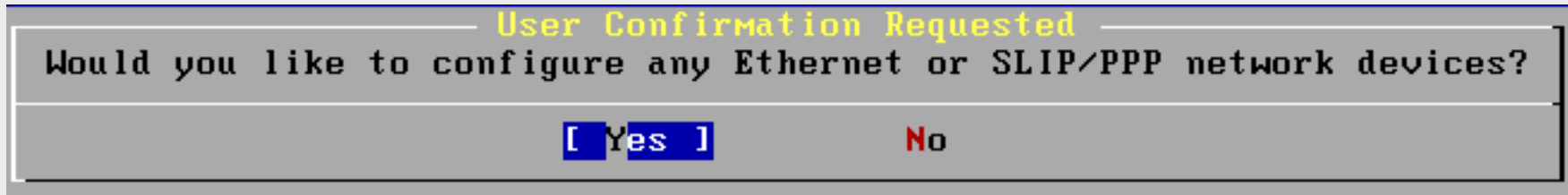
If you wish to re-enter this utility after the system is up, you
may do so by typing: /usr/sbin/sysinstall.                                     (100%)

[ OK ]
_____ [ Press enter or space ] _____
```

Press ENTER to continue with configuration.

Post Install Configuration

We are now presented with a series of questions about items to configure after installation. Make the selections as shown.



Be sure “Yes” is chosen and press **enter** to continue

Choose a Network Interface

```
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.

bge0  Broadcom BCM570x PCI Gigabit Ethernet card
plip0  Parallel Port IP (PLIP) peer connection

[ OK ]      Cancel
[ Press F1 to read network configuration manual ]
```

Our hardware is using the “**em0**” driver for the network interface cards (NICs) installed in our machines. Be sure this is highlighted, use **TAB** to select **OK** and press ENTER.

IPv6

```

----- 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.
----- User Confirmation Requested -----
Do you want to try IPv6 configuration of the interface?
Yes      [ No ]

ppp0     PPP interface on device /dev/cuad0 (COM1)
s10     SLIP interface on device /dev/cuad1 (COM2)
ppp0     PPP interface on device /dev/cuad1 (COM2)

[ OK ]      Cancel
----- [ Press F1 to read network configuration manual ] -----

```

Select “No” and press **enter**. We may configure IPv6 later in the week.

Use DHCP for Network?

```

      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"
cabl
      User Confirmation Requested
Do you want to try DHCP configuration of the interface?
      Yes      [ No ]

ppp0  PPP interface on device /dev/cuad0 (COM1)
sl0   SLIP interface on device /dev/cuad1 (COM2)
ppp0  PPP interface on device /dev/cuad1 (COM2)

      [ OK ]      Cancel
[ Press F1 to read network configuration manual ]

```

Select "No" and press **enter**. We will manually configure our network information as our machines are servers.

Configure Network

Network Configuration

Host:	Domain:
<input type="text" value="pcXX.afnog.or.tz"/>	<input type="text" value="afnog.or.tz"/>
IPv4 Gateway:	Name server:
<input type="text" value="172.16.0.254"/>	<input type="text" value="172.16.0.200"/>
Configuration for Interface em0	
IPv4 Address:	Netmask:
<input type="text" value="172.16.0.XX"/>	<input type="text" value="255.255.255.0"/>
Extra options to ifconfig (usually empty):	
<input type="text"/>	
<input type="button" value="OK"/>	<input type="button" value="CANCEL"/>

[Select this if you are happy with these settings]

Use **TAB** to move between fields. Once done, tab to “**OK**” and press **enter**. Note: change “pcXX” to the actual name of your PC (pc1-pc30).

More Configuration

```
----- User Confirmation Requested -----  
Would you like to bring the em0 interface up right now?  
[ Yes ]      No
```

<= Choose "Yes"

```
----- User Confirmation Requested -----  
Do you want this machine to function as a network gateway?  
Yes      [ No ]
```

```
----- User Confirmation Requested -----  
Do you want to configure inetd and the network services that it provides?  
Yes      [ No ]
```

```
----- User Confirmation Requested -----  
Would you like to enable SSH login?  
[ Yes ]      No
```

<== Choose "Yes" here.

```
----- User Confirmation Requested -----  
Do you want to have anonymous FTP access to this machine?  
Yes      [ No ]
```

More Configuration continued

```
----- User Confirmation Requested -----  
Do you want to configure this machine as an NFS server?  
  
Yes      [ No ]
```

```
----- User Confirmation Requested -----  
Do you want to configure this machine as an NFS client?  
  
Yes      [ No ]
```

```
----- User Confirmation Requested -----  
Would you like to customize your system console settings?  
  
Yes      [ No ]
```

```
----- User Confirmation Requested -----  
Would you like to set this machine's time zone now?  
  
[ Yes ]      No
```

Note we choose "Yes" here.

Configuring Time and Time Zone

Select local or UTC (Greenwich Mean Time) clock

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!

Yes [No]

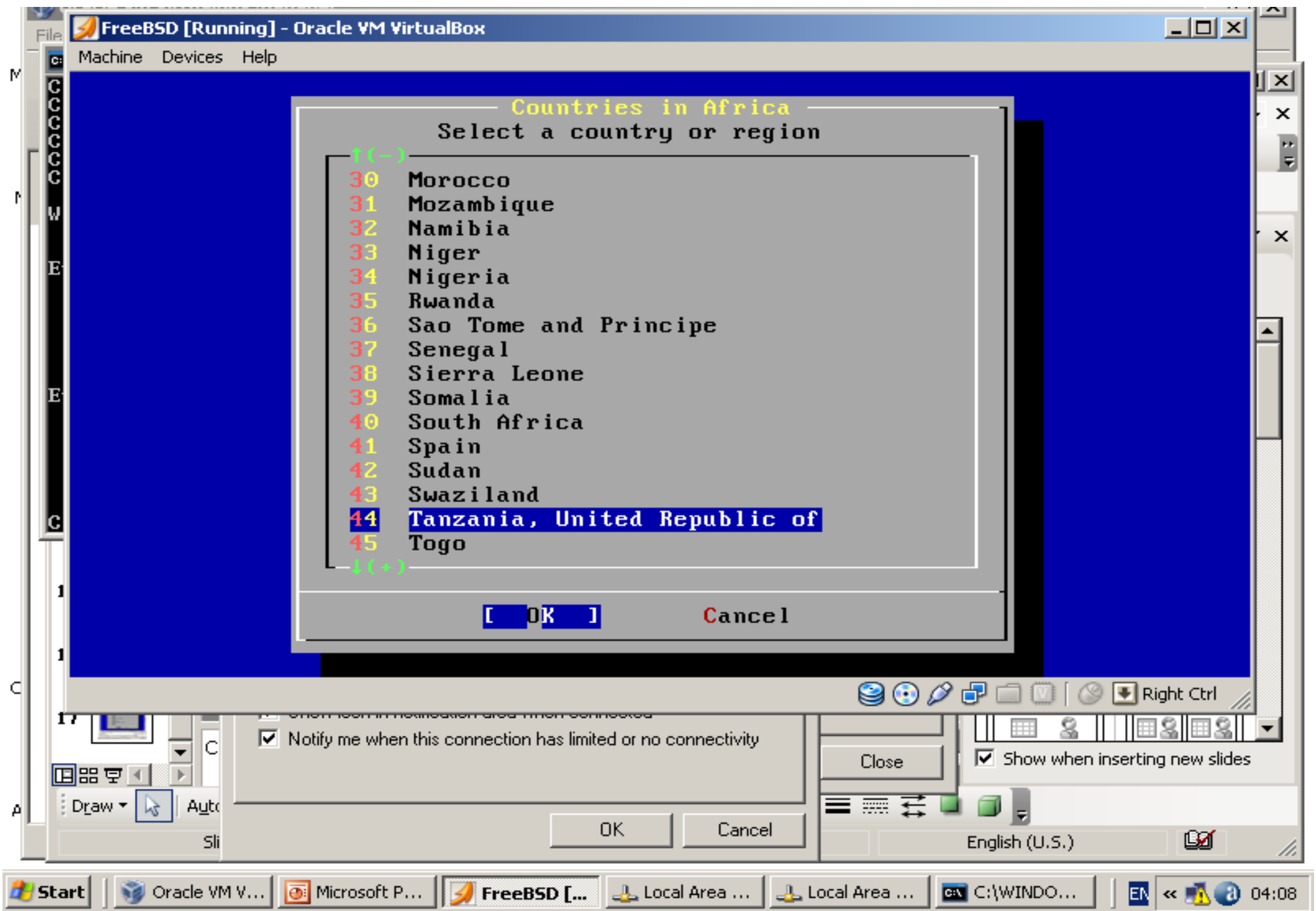
Time Zone Selector

Select a region

- 1 Africa
- 2 America -- North and South
- 3 Antarctica
- 4 Arctic Ocean
- 5 Asia
- 6 Atlantic Ocean
- 7 Australia
- 8 Europe
- 9 Indian Ocean
- 0 Pacific Ocean

[OK] Cancel

First select "Africa" to determine what Time Zone we are located in. Tab to "OK" and press **enter**.



FreeBSD [Running] - Oracle VM VirtualBox

Machine Devices Help

Countries in Africa
Select a country or region

- 30 Morocco
- 31 Mozambique
- 32 Namibia
- 33 Niger
- 34 Nigeria
- 35 Rwanda
- 36 Sao Tome and Principe
- 37 Senegal
- 38 Sierra Leone
- 39 Somalia
- 40 South Africa
- 41 Spain
- 42 Sudan
- 43 Swaziland
- 44 Tanzania, United Republic of
- 45 Togo

[OK] Cancel

Right Ctrl

Notify me when this connection has limited or no connectivity

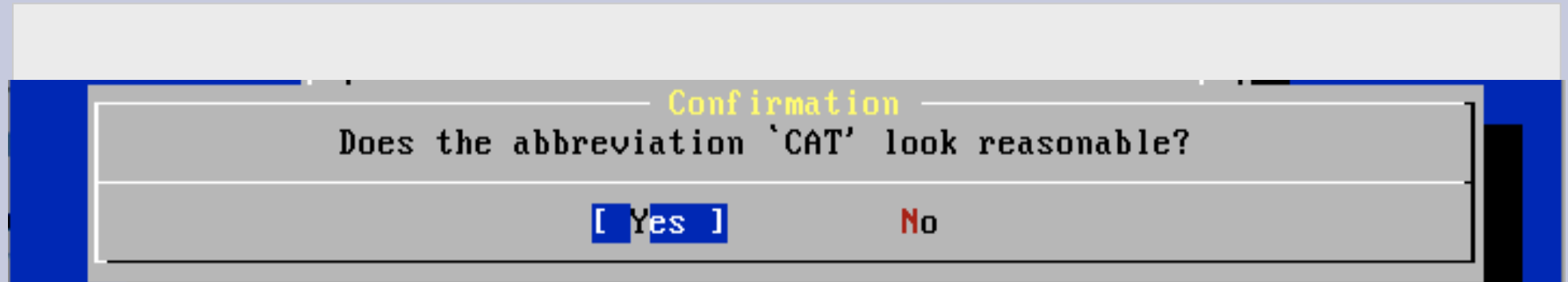
Close

Show when inserting new slides

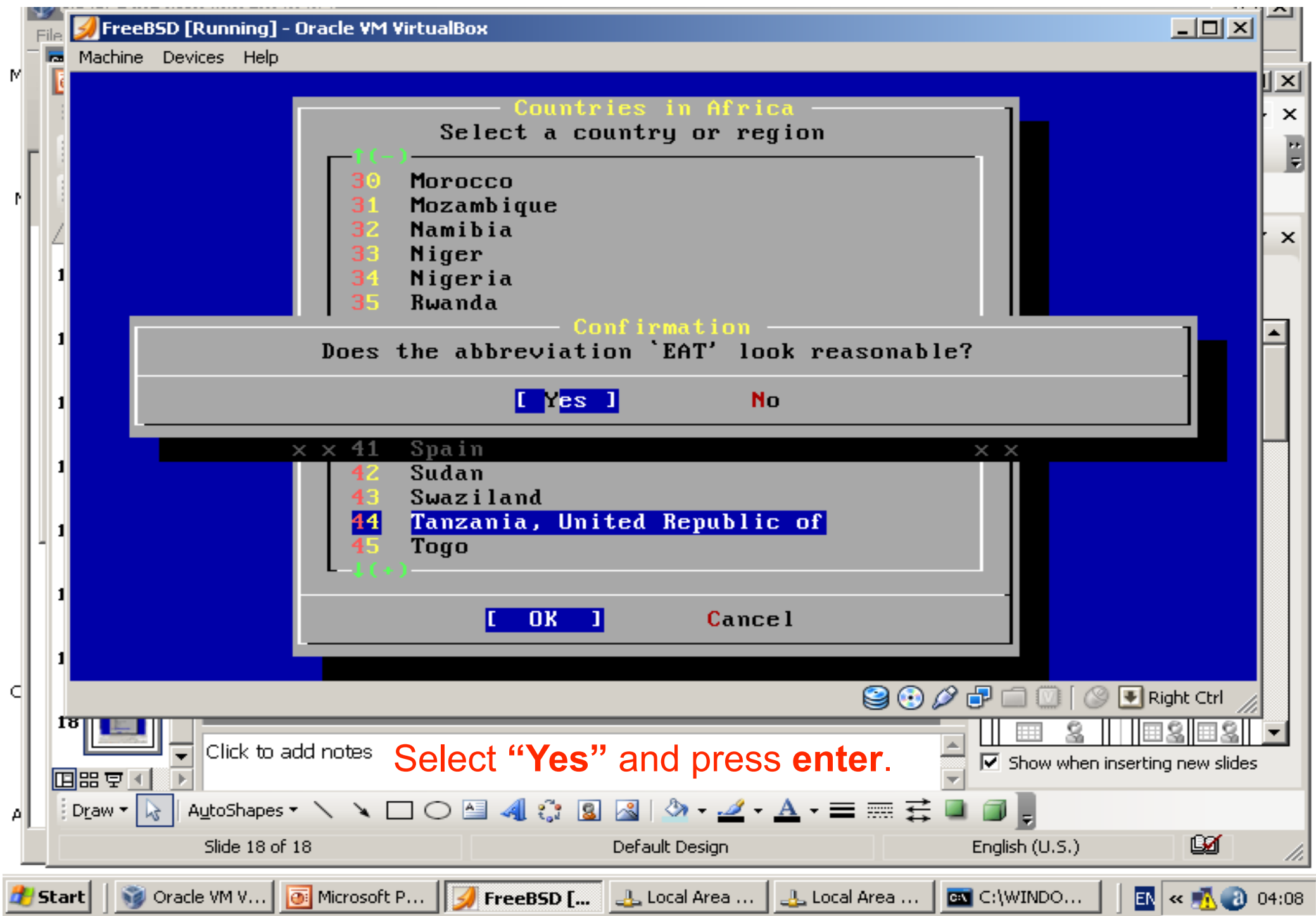
OK Cancel

English (U.S.)

Configuring time zone cont.



Select "Yes" and press **enter**.



Countries in Africa
Select a country or region

- 30 Morocco
- 31 Mozambique
- 32 Namibia
- 33 Niger
- 34 Nigeria
- 35 Rwanda

Confirmation
Does the abbreviation 'EAT' look reasonable?

[Yes] No

41 Spain

- 42 Sudan
- 43 Swaziland
- 44 Tanzania, United Republic of
- 45 Togo

[OK] Cancel

Select "Yes" and press enter.

More Configuration

```
----- User Confirmation Requested -----  
Does this system have a PS/2, serial, or bus mouse?  
  
Yes      [ No ]
```

```
----- User Confirmation Requested -----  
The FreeBSD package collection is a collection of thousands of ready-to-run  
applications, from text editors to games to WEB servers and more. Would you  
like to browse the collection now?  
  
Yes      [ No ]
```

We will return to the package collection a bit later. For now be sure “No” is selected and press **enter** to continue.

User Configuration Cont.

```
New Password:  
Retype New Password: |
```

Verify the password. Then you will see...

```
----- User Confirmation Requested -----  
Visit the general configuration menu for a chance to set  
any last options?  
  
Yes [ No ]
```

Select "No" and press **enter** to continue.

Finishing Installation

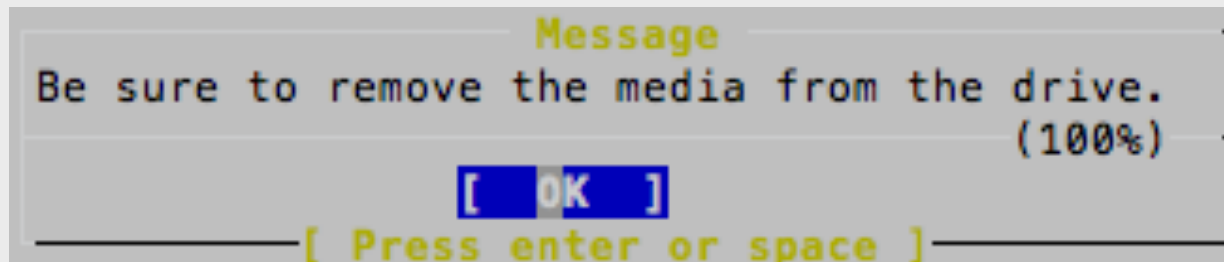
```
FreeBSD/i386 8.0-RELEASE - sysinstall Main Menu
Welcome to the FreeBSD installation and configuration tool. Please
select one of the options below by using the arrow keys or typing the
first character of the option name you're interested in. Invoke an
option with [SPACE] or [ENTER]. To exit, use [TAB] to move to Exit.

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

Select      [X] Exit Install
```

We are back at our original screen. As we are done, select “**Exit Install**” and press **enter**.

Finishing Installation



Select “Yes” and press **enter**. Be sure to remove your FreeBSD 8.0 DVD-ROM from your machine.

After rebooting you can log in as “*root*” with the password you were given in class.

Our next set of instructions will lead you through the installation of the GNOME desktop manager, the xorg server and a current version of the Firefox web browser.

This page intentionally left blank.

Installing additional packages

After you have logged in on your machine as the “*root*” user you will be presented with a “#” prompt. At this prompt type the command:

```
# sysinstall
```

You will be presented with the same menu that you saw when starting your FreeBSD installation. This time, however, we are going to do some “post-install configuration of FreeBSD”.

Continue ==>

Installing additional packages

```
FreeBSD/i386 8.0-RELEASE - 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.

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

[ Select ]    X Exit Install
```

Select “Configure”, tab to “Select” and press **enter**.

Installing GNOME: Packages

```
FreeBSD Configuration Menu
-----
If you've already installed FreeBSD, you may use this menu to customize
it somewhat to suit your particular configuration.  Most importantly,
you can use the Packages utility to load extra "3rd party"
software not provided in the base distributions.

X Exit          Exit this menu (returning to previous)
Distributions   Install additional distribution sets
Packages     Install pre-packaged software for FreeBSD
Root Password  Set the system manager's password
Fdisk          The disk Slice (PC-style partition) Editor
Label          The disk Label editor
User Management Add user and group information
Console        Customize system console behavior
Time Zone      Set which time zone you're in
Media          Change the installation media type
Mouse          Configure your mouse
Networking     Configure additional network services
↓(+)

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

Next select "Packages", tab to "OK" and press **enter**.

Additional packages: Install 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 USB | Install from a USB drive |
| X Options | Go to the Options screen |

[OK]

Cancel

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

Select "CD/DVD", tab to "OK" and press **enter**.

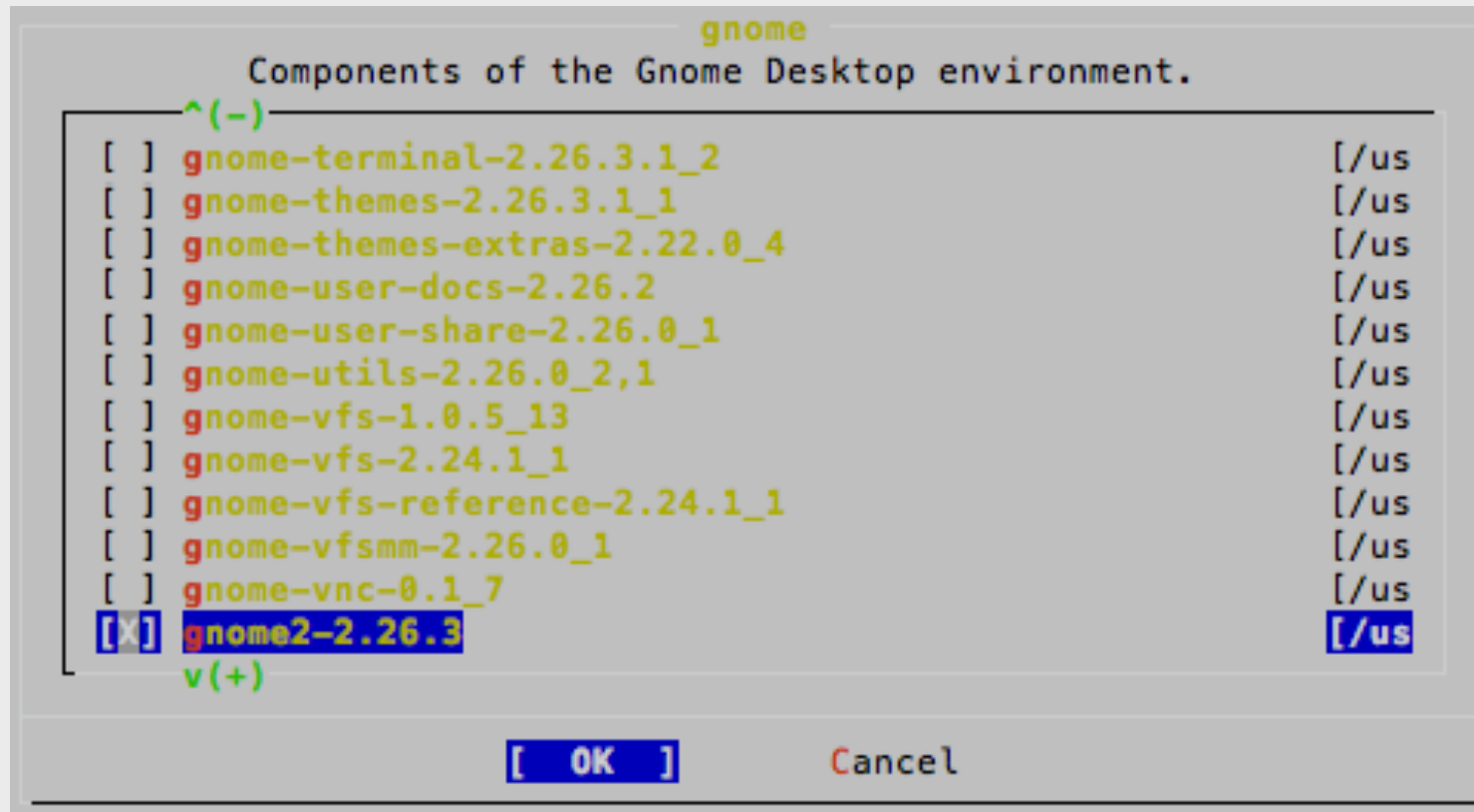
Installing GNOME: Package Selection

```
Package Selection
-----
To mark a package, move to it and press SPACE.  If the package is
already marked, it will be unmarked or deleted (if installed).
Items marked with a 'D' are dependencies which will be auto-loaded.
To search for a package by name, press ESC.  To select a category,
press RETURN.  NOTE: The All category selection creates a very large
submenu!  If you select it, please be patient while it comes up.
↑(-)
gnome      Components of the Gnome Desktop environment.
graphics  Graphics libraries and utilities.
ipv6      IPV6 related software.
irc       Internet Relay Chat utilities.
japanese  Ported software for the Japanese market.
kde       Software for the K Desktop Environment.
kld       Kernel loadable modules
korean    Ported software for the Korean market.
lang      Computer languages.
linux     Linux programs that can run under binary compatibility.
mail      Electronic mail packages and utilities.
math      Mathematical computation software.
↓(+)
```

[OK] Install

Move down the list of packages, Select “gnome”, tab to “OK” and press **enter**.

Installing GNOME: Package Selection



There are a *lot* of Gnome packages. We are looking for the *meta package*, or “**gnome2-2.26.3**”. Move your cursor to this line and then press the **space bar** to select this. *Notice Dependencies are also selected by this action.*

Installing additional packages

```
Package Selection
To mark a package, move to it and press SPACE.  If the package is
already marked, it will be unmarked or deleted (if installed).
Items marked with a `D' are dependencies which will be auto-loaded.
To search for a package by name, press ESC.  To select a category,
press RETURN.  NOTE: The All category selection creates a very large
submenu!  If you select it, please be patient while it comes up.
^(-)
security      System security software.
shells        Various shells (tcsh, bash, etc).
spanish       Ported software for the Spanish market.
sysutils      Various system utilities.
tcl           TCL and packages that depend on it.
textproc     Text processing/search utilities.
tk           Tk and packages that depend on it.
ukrainian    Ported software for the Ukrainian market.
vietnamese   Ported software for the Vietnamese market.
windowmaker  Ports to support the WindowMaker window manager.
www          Web utilities (browsers, HTTP servers, etc).
x11          X Window System based utilities.
v(+)
```

[DK] Install

You are returned to the Package Selection screen. **Don't** choose Install yet. Now scroll down to the “**www**” category...

Install additional packages

```
Package Selection
To mark a package, move to it and press SPACE.  If the package is
already marked, it will be unmarked or deleted (if installed).
Items marked with a `D' are dependencies which will be auto-loaded.
To search for a package by name, press ESC.  To select a category,
press RETURN.  NOTE: The All category selection creates a very large
submenu!  If you select it, please be patient while it comes up.
^(-)
security      System security software.
shells        Various shells (tcsh, bash, etc).
spanish       Ported software for the Spanish market.
sysutils      Various system utilities.
tcl           TCL and packages that depend on it.
textproc      Text processing/search utilities.
tk            Tk and packages that depend on it.
ukrainian     Ported software for the Ukrainian market.
vietnamese    Ported software for the Vietnamese market.
windowmaker   Ports to support the WindowMaker window manager.
www           Web utilities (browsers, HTTP servers, etc).
x11           X Window System based utilities.
v(+)
```

[OK] Install

Highlight “www”, tab to **OK** and press **enter**.

Install Firefox 3.5

```
www
Web utilities (browsers, HTTP servers, etc).

[ ] fget-1.3.3                [/usr/ports/ftp/fget]
[ ] fhttpd-0.4.2            [/usr/ports/www/fhttpd]
[ ] firefox-3.0.15,1        [/usr/ports/www/firefox3]
[X] firefox-3.5.4,1         [/usr/ports/www/firefox35]
[ ] firefox-i18n-2.0.0.20   [/usr/ports/www/firefox-i18n]
[ ] firefox-remote-20040803_3 [/usr/ports/www/firefox-remote]
[ ] firefox3-i18n-3.0.13    [/usr/ports/www/firefox3-i18n]
[ ] firefox35-i18n-3.5.3    [/usr/ports/www/firefox35-i18n]
[ ] flashplugin-mozilla-0.4.13_4 [/usr/ports/www/flashplugin-mozilla]
[ ] flat-frog-2.2.13        [/usr/ports/www/flat-frog]
[ ] flickcurl-1.14          [/usr/ports/www/flickcurl]
[ ] flock                    [/usr/ports/www/flock]

v(+)
[ OK ](+) Cancel
```

Scroll down the list of packages until you find “**firefox-3.5.4,1**”, press the space bar to select the package then tab to **OK** and press **enter**.

Additional packages cont.

```
Package Selection
To mark a package, move to it and press SPACE.  If the package is
already marked, it will be unmarked or deleted (if installed).
Items marked with a 'D' are dependencies which will be auto-loaded.
To search for a package by name, press ESC.  To select a category,
press RETURN.  NOTE: The All category selection creates a very large
submenu!  If you select it, please be patient while it comes up.
^(-)
textproc      Text processing/search utilities.
tk            TK and packages that depend on it.
ukrainian     Ported software for the Ukrainian market.
vietnamese    Ported software for the Vietnamese market.
windowmaker   Ports to support the WindowMaker window manager.
www           Web utilities (browsers, HTTP servers, etc).
x11           X Window System based utilities.
x11-clocks    X Window System based clocks.
x11-drivers   X Window System drivers.
x11-fm        X Window System based file managers.
x11-fonts     X Window System fonts and font utilities.
x11-servers   X Window System servers.
v(+)
```

[OK] Install

You will be returned to the category list with **www** highlighted. Again, **don't** press install, instead start scrolling down the list until...

Additional packages cont.

```
Package Selection
To mark a package, move to it and press SPACE.  If the package is
already marked, it will be unmarked or deleted (if installed).
Items marked with a 'D' are dependencies which will be auto-loaded.
To search for a package by name, press ESC.  To select a category,
press RETURN.  NOTE: The All category selection creates a very large
submenu!  If you select it, please be patient while it comes up.
^(-)
textproc      Text processing/search utilities.
tk            TK and packages that depend on it.
ukrainian     Ported software for the Ukrainian market.
vietnamese    Ported software for the Vietnamese market.
windowmaker   Ports to support the WindowMaker window manager.
www           Web utilities (browsers, HTTP servers, etc).
x11           X Window System based utilities.
x11-clocks    X Window System based clocks.
x11-drivers   X Window System drivers.
x11-fm        X Window System based file managers.
x11-fonts     X Window System fonts and font utilities.
x11-servers   X Window System servers.
v(+)
```

[OK] Install

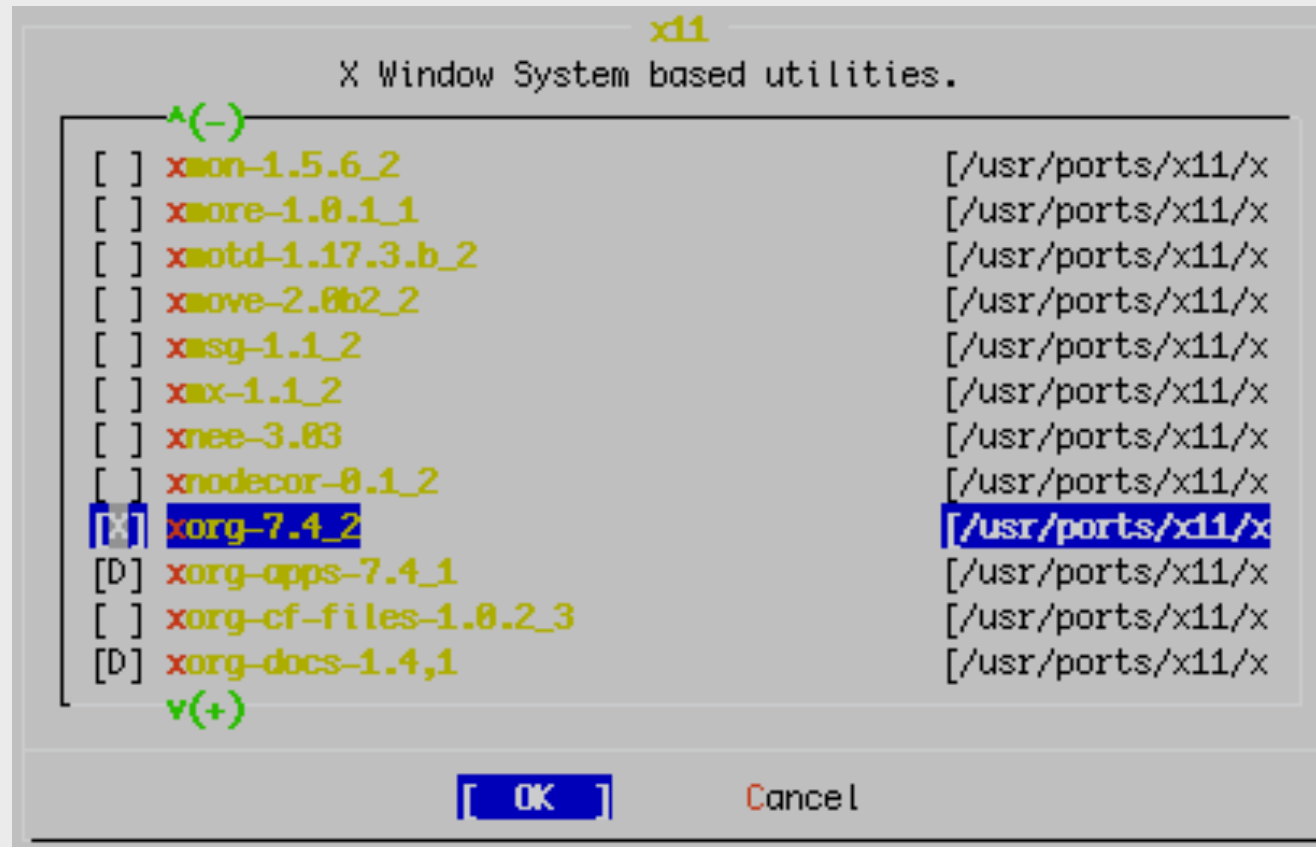
You are returned to the Package Selection screen. **Don't** choose Install yet. Now scroll down to the “x11” category...

Additional packages cont.

```
Package Selection
To mark a package, move to it and press SPACE.  If the package is
already marked, it will be unmarked or deleted (if installed).
Items marked with a 'D' are dependencies which will be auto-loaded.
To search for a package by name, press ESC.  To select a category,
press RETURN.  NOTE: The All category selection creates a very large
submenu!  If you select it, please be patient while it comes up.
^(-)
textproc      Text processing/search utilities.
tk            TK and packages that depend on it.
ukrainian     Ported software for the Ukrainian market.
vietnamese    Ported software for the Vietnamese market.
windowmaker   Ports to support the WindowMaker window manager.
ww           Web utilities (browsers, HTTP servers, etc).
x11          X Window System based utilities.
x11-clocks    X Window System based clocks.
x11-drivers   X Window System drivers.
x11-fm        X Window System based file managers.
x11-fonts     X Window System fonts and font utilities.
x11-servers   X Window System servers.
v(+)
[OK] Install
```

...you highlight **x11**. Use **tab** to highlight **OK** and press **enter**.

Additional packages: xorg



Scroll down the list to the *meta-package* “**xorg-7.4_2**” – Press the space bar to select the package, then tab to **OK** and press **enter**.

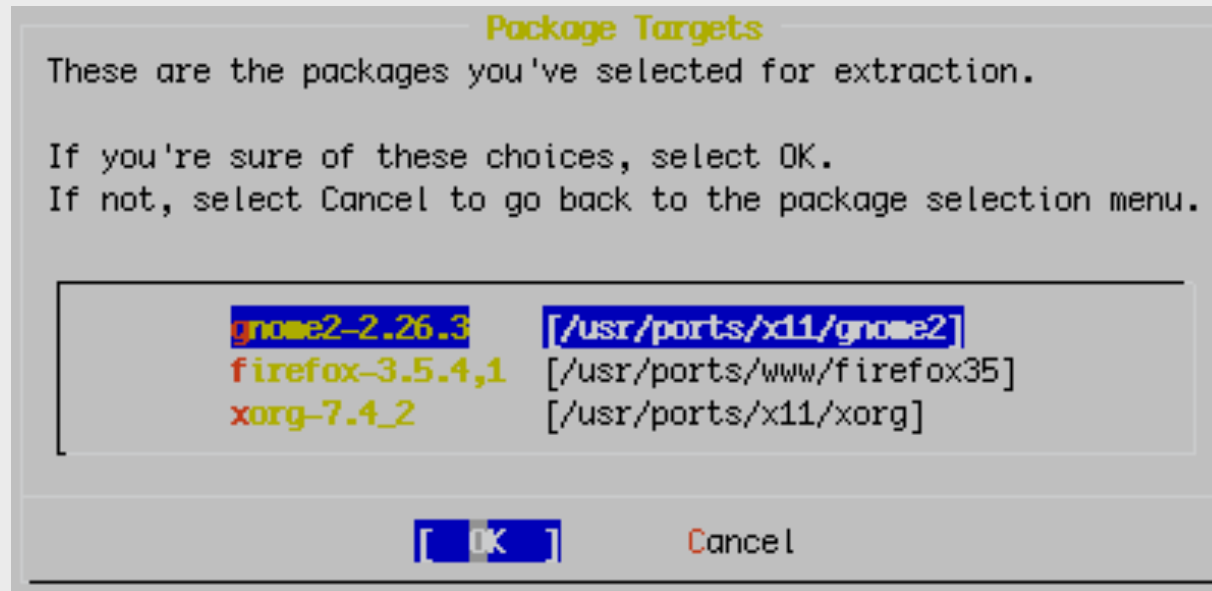
Additional packages

```
Package Selection
To mark a package, move to it and press SPACE.  If the package is
already marked, it will be unmarked or deleted (if installed).
Items marked with a 'D' are dependencies which will be auto-loaded.
To search for a package by name, press ESC.  To select a category,
press RETURN.  NOTE: The All category selection creates a very large
submenu!  If you select it, please be patient while it comes up.
^(-)
security      System security software.
shells        Various shells (tcsh, bash, etc).
sysutils      Various system utilities.
textproc      Text processing/search utilities.
windowmaker   Ports to support the WindowMaker window manager.
ww            Web utilities (browsers, HTTP servers, etc).
x11           X Window System based utilities.
x11-clocks    X Window System based clocks.
x11-drivers   X Window System drivers.
x11-fm        X Window System based file managers.
x11-fonts     X Window System fonts and font utilities.
x11-servers   X Window System servers.
v(+)
```

OK [Install]

You will be returned to the category list with **x11** highlighted. Now, **do select install** and press **enter**.

Additional packages: verify choices



Be sure "OK" is chosen and then press **enter** to install KDE and xorg. (diagram above is just an example)

Additional packages: installing

```
Adding packages/All/pcr-7.9.tbz (as a dependency)
from ftp://ftp.freebsd.org
```

You will see a *lot* of packages being installed. Installation will take a few minutes. Once installation has completed you will see the original sysinstall screens again...

Note: installation of these packages may take close to an hour. If this is the case we may do something else in class while they are installing.

Installing GNOME: Config Menu

```
FreeBSD Configuration Menu
-----
If you've already installed FreeBSD, you may use this menu to customize
it somewhat to suit your particular configuration.  Most importantly,
you can use the Packages utility to load extra "3rd party"
software not provided in the base distributions.

X Exit          Exit this menu (returning to previous)
Distributions   Install additional distribution sets
Packages        Install pre-packaged software for FreeBSD
Root Password   Set the system manager's password
Fdisk          The disk Slice (PC-style partition) Editor
Label           The disk Label editor
User Management Add user and group information
Console         Customize system console behavior
Time Zone       Set which time zone you're in
Media           Change the installation media type
Mouse           Configure your mouse
Networking      Configure additional network services
↓(+)

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

You are returned to the sysinstall Configuration Menu.
Be sure **"X Exit"** is chosen, tab to **"OK"** and press **enter**.

Installing GNOME: Exit Menu

```
FreeBSD/i386 7.2-RELEASE - 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.

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

Select    [X] Exit Install
```

We are returned to the sysinstall Main Menu. Use tab to select “**X Exit Install**” and press **enter**. You are almost done.

Installing Gnome: Cleanup Cont.

You should now have the “#” prompt, once again, on your screen.

Now we must edit the file */etc/rc.conf* and add one other line. This will cause Gnome to start whenever we boot our machine.

```
# ee /etc/rc.conf
```

Now go to the bottom of the file and press. Add the following entry:

```
gnome_enable="YES"
```

Now press **Esc Key**, then type “**a or press enter**” to exit and save the file. You should be back at the “#” prompt.

Installing Gnome: Finish

Now we will create a user other than *root* that we will use when logging in with Gnome. We will call this user *afnog* and this will be our administrative user that we use throughout the workshop.

```
# pw useradd afnog -m -s /usr/local/bin/bash -G wheel
```

This user has a home directory, uses *bash* as its default shell and belongs to the *wheel* group. Be sure to set a password for this user:

```
# passwd afnog      (Use the password given in class)
```

While not necessary, we will now reboot our machine so that you can see the new default behaviour. At the prompt type:

```
# shutdown -r now
```

Upon rebooting you should be presented with the Gnome graphical login prompt. Don't log in as the *root* user, rather use the *afnog* user to log in at this point. Enjoy!