

Virtualization with Oracle VM VirtualBox

Installing FreeDOS Guest OS



Contents

1. Version History 35

This document will help you install **FreeDOS** Guest Operating System under **Windows 7 32-bit** Host Operating System using **Oracle VM VirtualBox** product.

The following excerpt of Q & A from <http://www.freedos.org> will help you to understand what **FreeDOS** is all about. Please note that you have access to these Q & A from **FreeDOS** official website, <http://www.freedos.org> but they are provided here for convenience.

- What is FreeDOS?

FreeDOS is a free DOS-compatible operating system that can be used to play games, run legacy software, or support embedded systems. FreeDOS is basically like the old MS-DOS, but better! For example, FreeDOS lets you access FAT32 file systems and use large disk support (LBA) — a feature not available in MS-DOS, and only included in Windows 95 and newer.

- Is FreeDOS really free?

Yes, FreeDOS is really free. It doesn't cost anything to download and run FreeDOS. Even better, FreeDOS is open source software; you can view and edit our source code. All FreeDOS programs are distributed under the GNU General Public License ("GNU GPL") or a similar open source license. Because we are open source software, anyone can contribute to it. Even if you don't write code, you can help out the FreeDOS Project by [reporting bugs](#).

- What programs can I run in FreeDOS?

FreeDOS is a complete, free, DOS-compatible operating system. While we provide our own [programs and utilities](#), you should be able to run any program that was intended for MS-DOS. You can even do [networking](#)! However, you may experience problems running Windows on FreeDOS. For example, Windows standard-mode works on FreeDOS, but 386-mode Windows for Workgroups 3.11 does not.

The instructions given below are only for convenience in order to help you use the existing legacy applications which need serial communication access with Brainboxes products by installing FreeDOS Guest Operating System under Windows 7 32-bit Host Operating System. FreeDOS official website also provides excellent manual on how to virtualize FreeDOS using Oracle VM VirtualBox product even though there is a lack of information regarding how to map Brainboxes serial port to the Guest Operating System. Please visit FreeDOS official website if you would like to follow their instructions.

1. Please download the “.iso” image file of FreeDOS from the following link:

<http://www.freedos.org/download/>

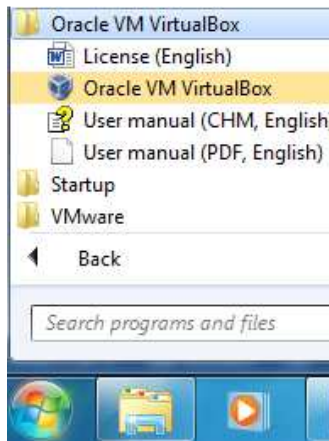
2. Find and click on the link as shown below to download the file to a location on your machine :

FreeDOS 1.1 Base

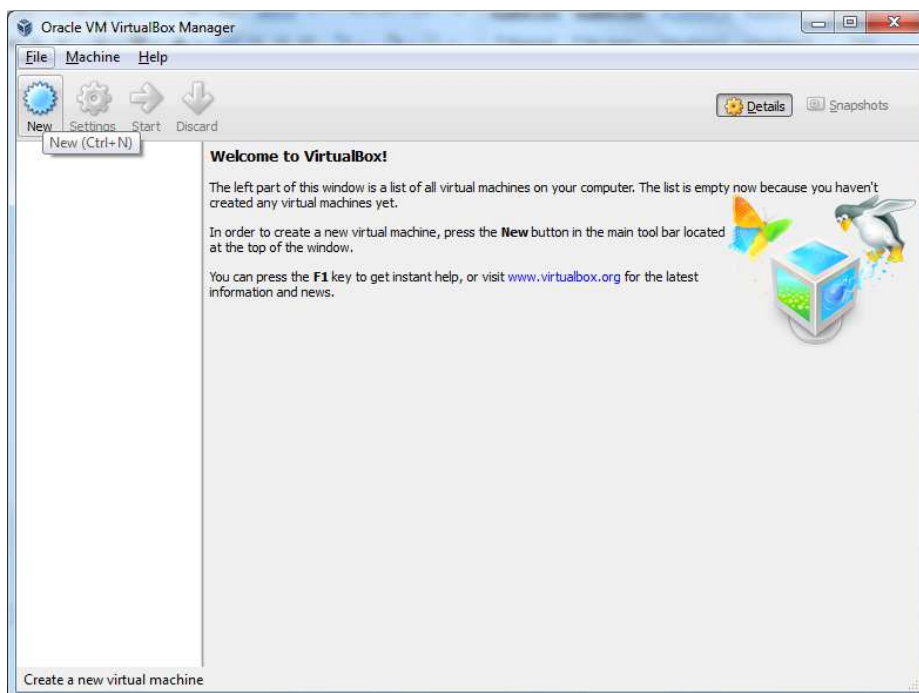


We will be downloading this to our “**Desktop**” location in this demonstration.

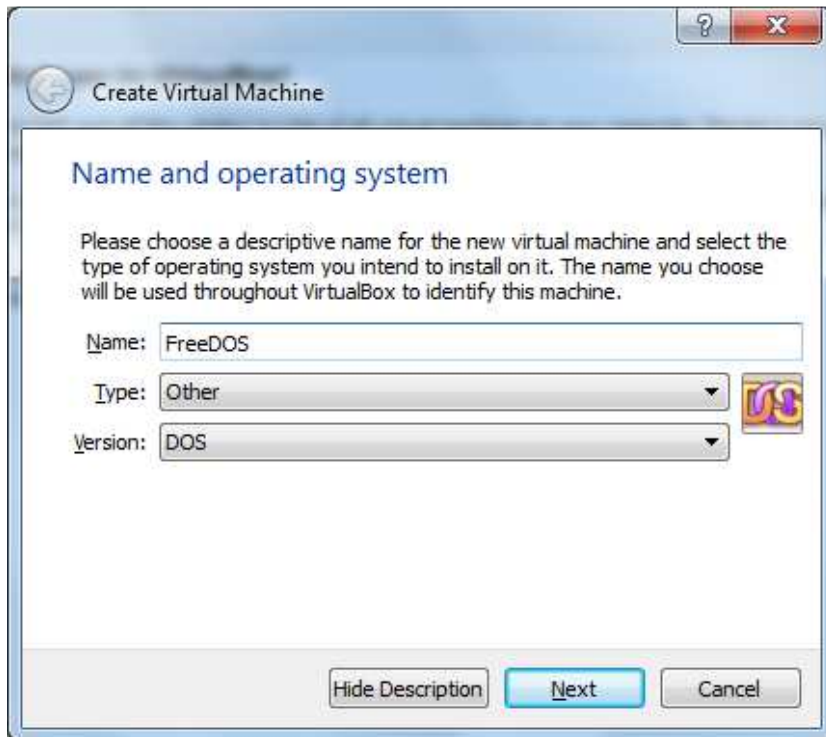
3. Run “**Oracle VM VirtualBox**” application by clicking Start -> All Programs -> Oracle VM VirtualBox -> Oracle VM VirtualBox as shown below:



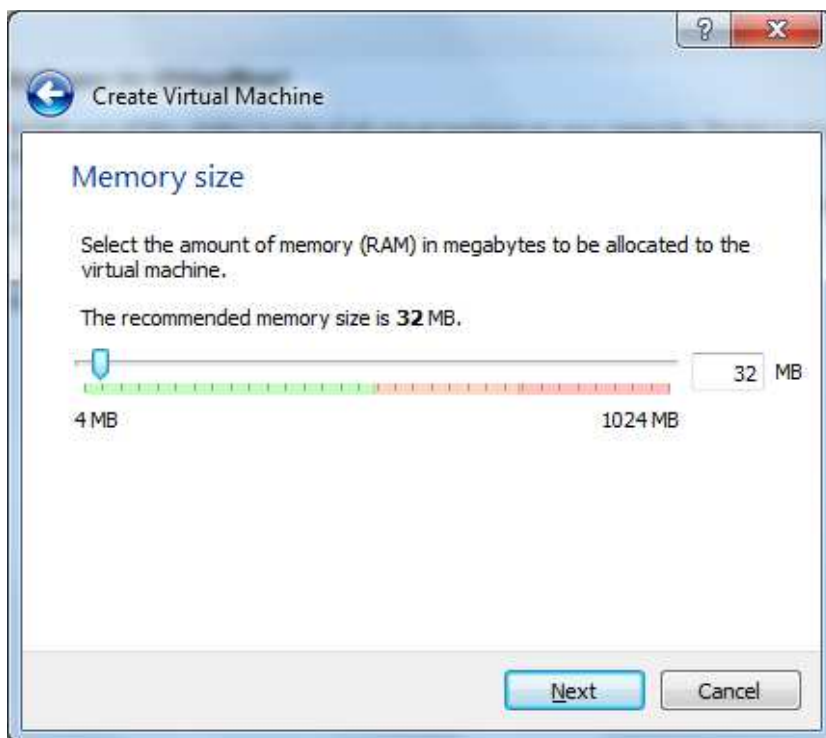
4. Click “**New**” when you are presented with the following:



5. Give a name to the virtual machine, “FreeDOS” or one of your own choosing, select “Other” from “Type:” drop-down list, “DOS” from “Version:” drop-down list, and then click “Next” when you are presented with the following:

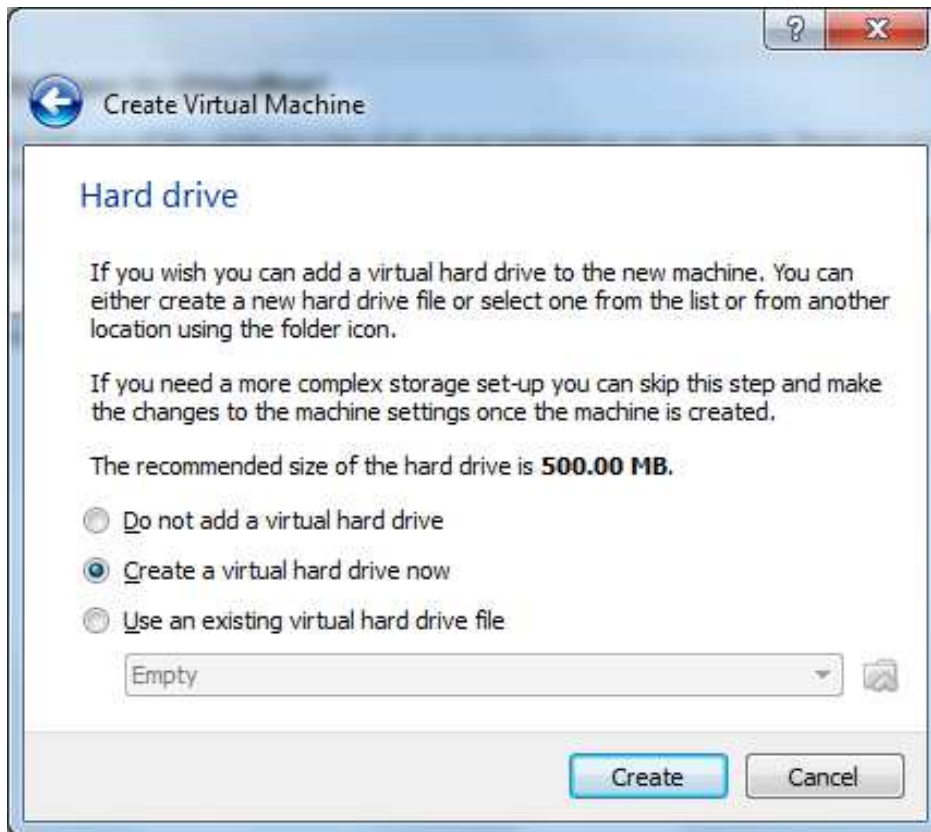


6. Click “Next” when you are presented with the following:

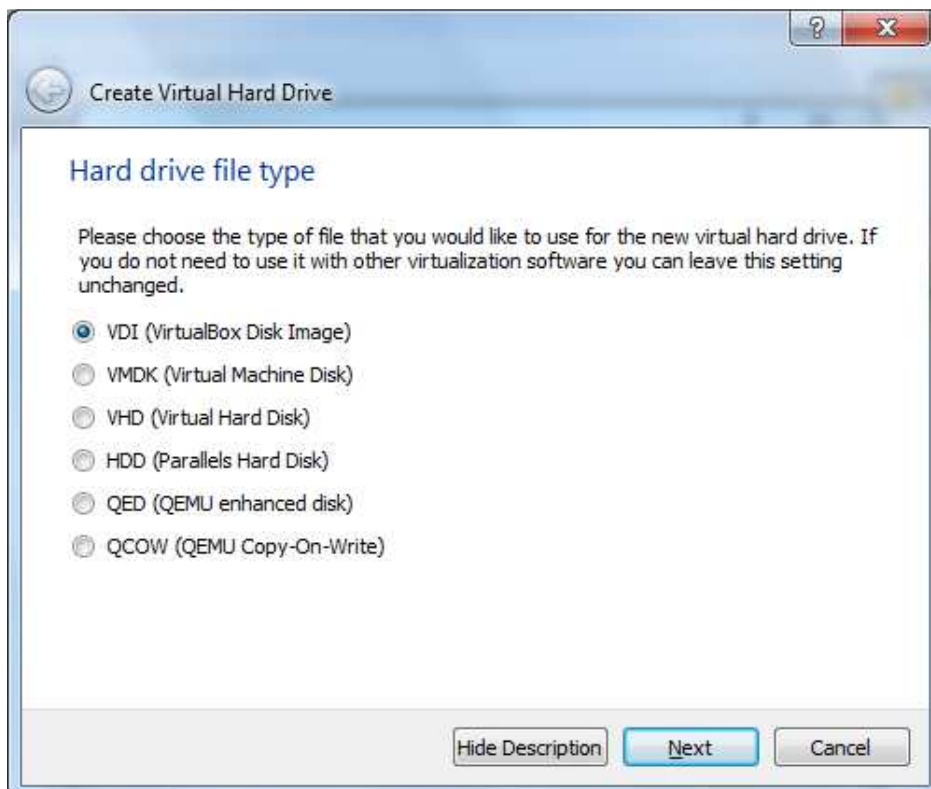


You can increase the amount of memory to be allocated if you wish by using the slider bar or by entering the exact amount you want such as 64, 128 and so on into the textbox where the number 32 is shown as default.

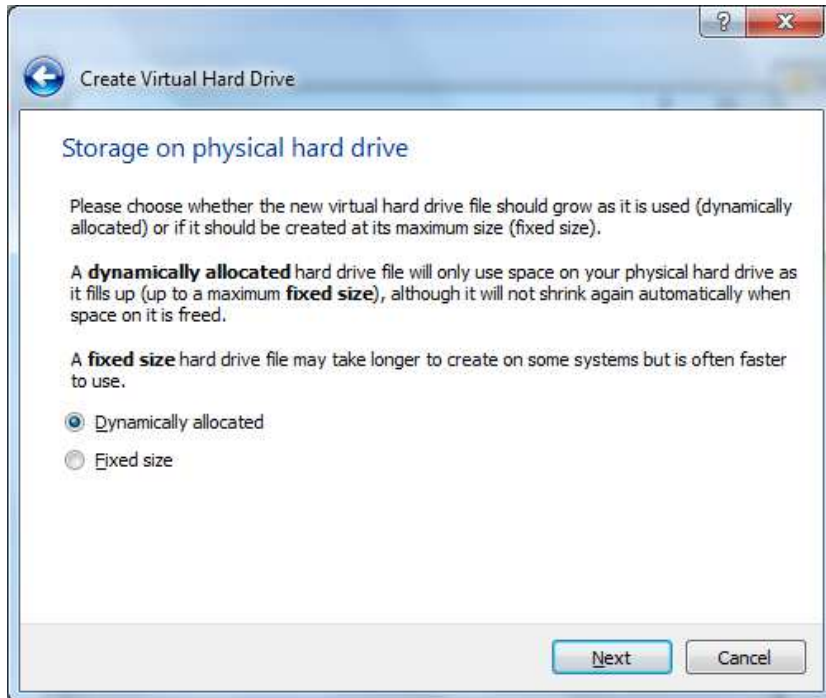
7. Select the option “**Create a virtual hard drive now**”, and click “**Create**” when you are presented with the following:



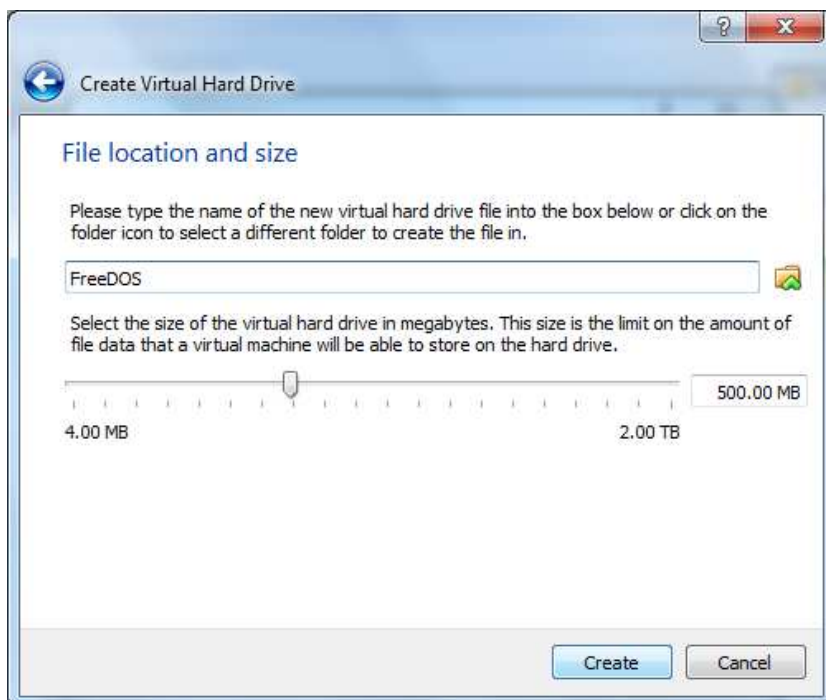
8. Select the option “**VDI (VirtualBox Disk Image)**”, and click “**Next**” when you are presented with the following:




9. Select the option “**Dynamically allocated**”, and click “**Next**” when you are presented with the following:

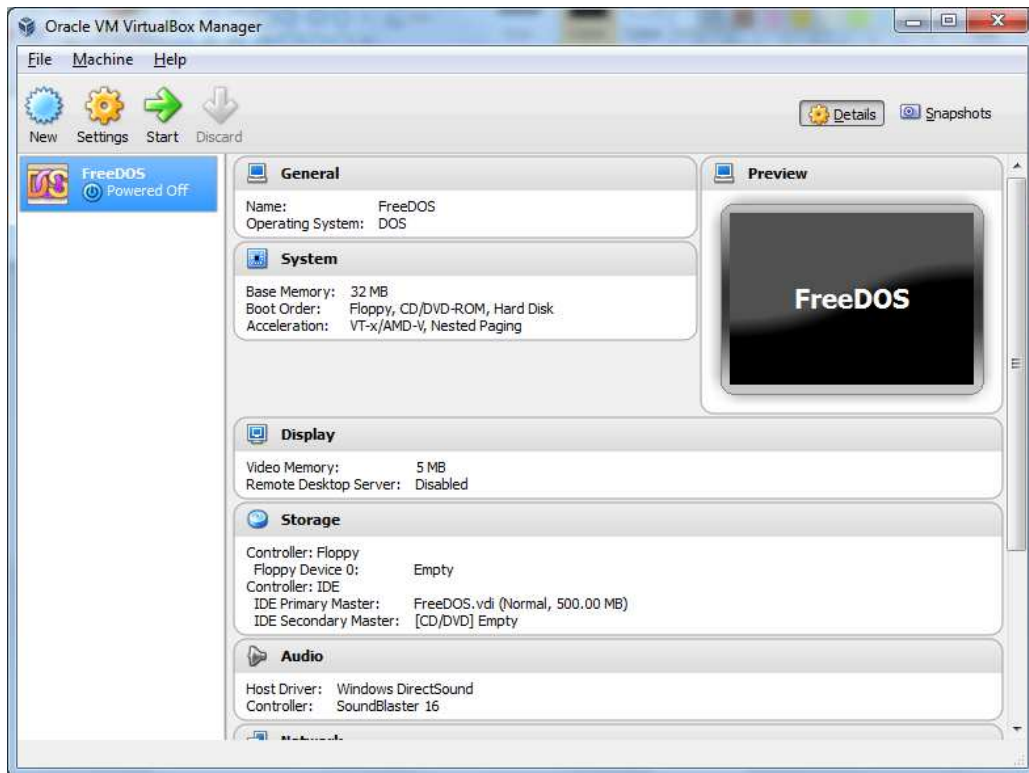


10. Click “**Create**” when you are presented with the following:

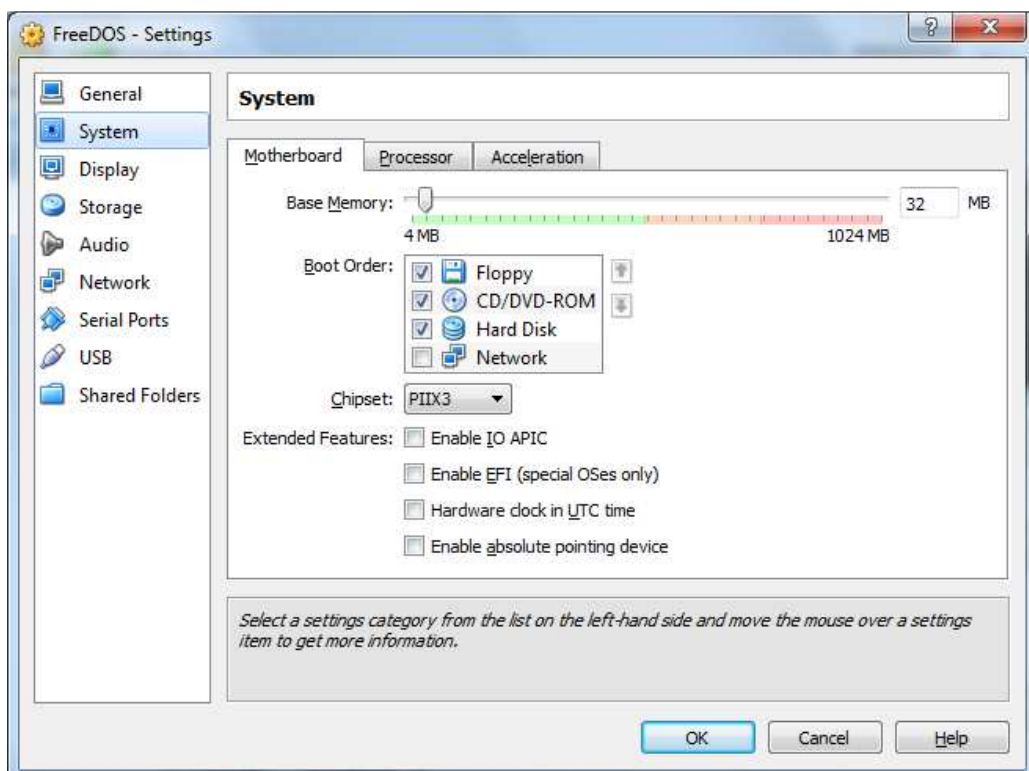


You can change the maximum size of the virtual hard drive that will be allocated to the virtual machine if you wish to do so. You can also change the location of the virtual hard drive by clicking the icon  if you wish to do so in case you would like to store this in a location with more disk space and so on. Since we are using “Dynamically allocated” virtual hard drive, the space will be allocated as required for the virtual machine and this will have a maximum size of 500 MB by default as shown above or the number you specified.

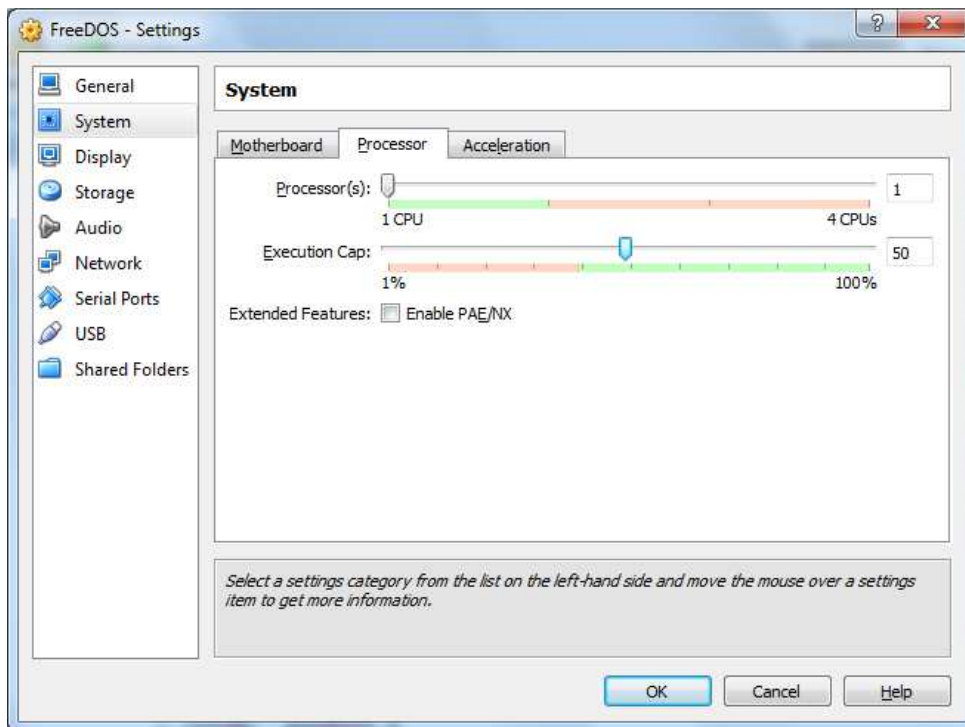
- You have now created an environment where you can start to install “FreeDOS” operating system, and you will be presented with the following:



- Click and select “FreeDOS” entry in the list, and click “Settings”
- Click and select “System” on the left side when you are presented with the following:

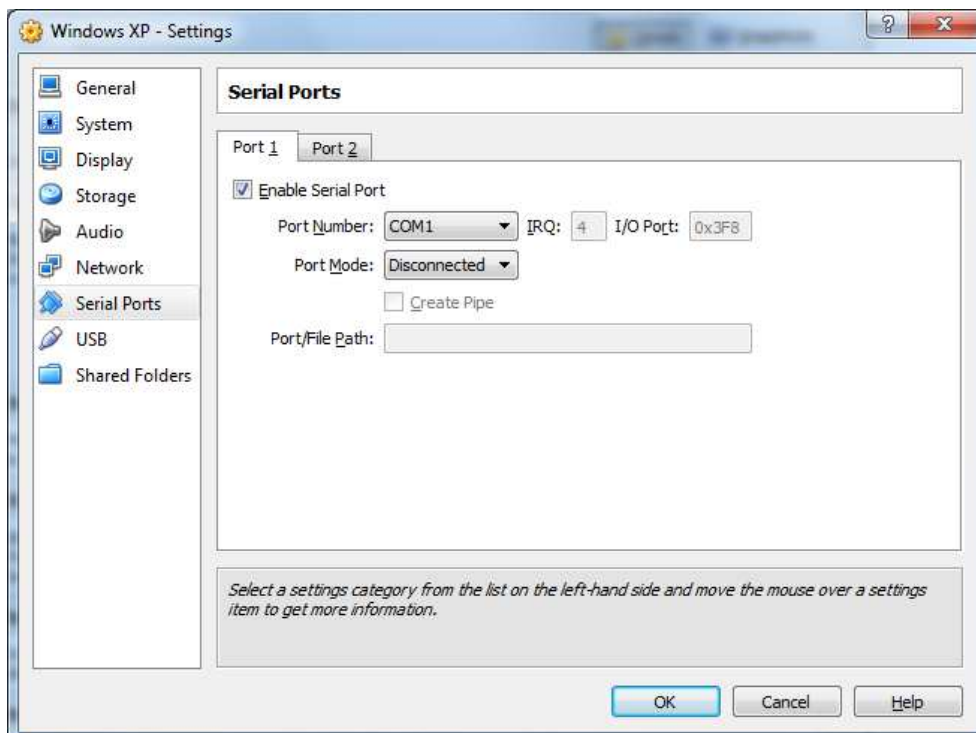


- Click “**Processor**” tab on the right, reduce the “**Execution Cap:**” slider bar to a value of 50, and click “**OK**” when you are presented with the following:

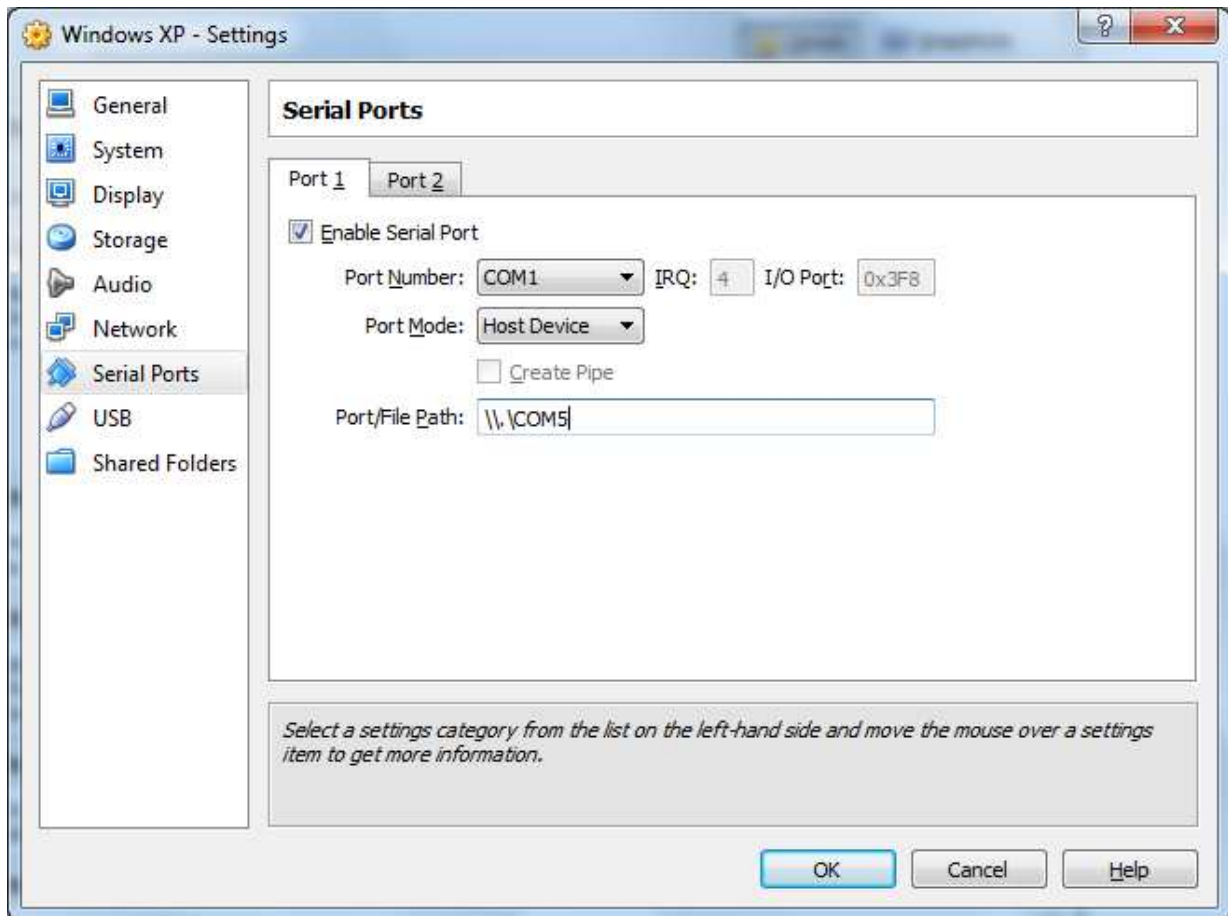


- Click and select “**FreeDOS**” entry in the list, and click “**Settings**” again.

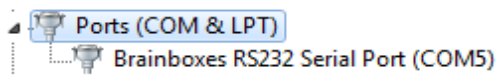
- Click and select “**Serial Ports**” entry in the list, and check “**Enable Serial Port**” option for “**Port 1**” tab when you are presented with the following:



17. Select “Host Device” from “Port Mode:” drop down list, and enter “\\.\COM5” into “Port/File Path:” textbox as shown below:

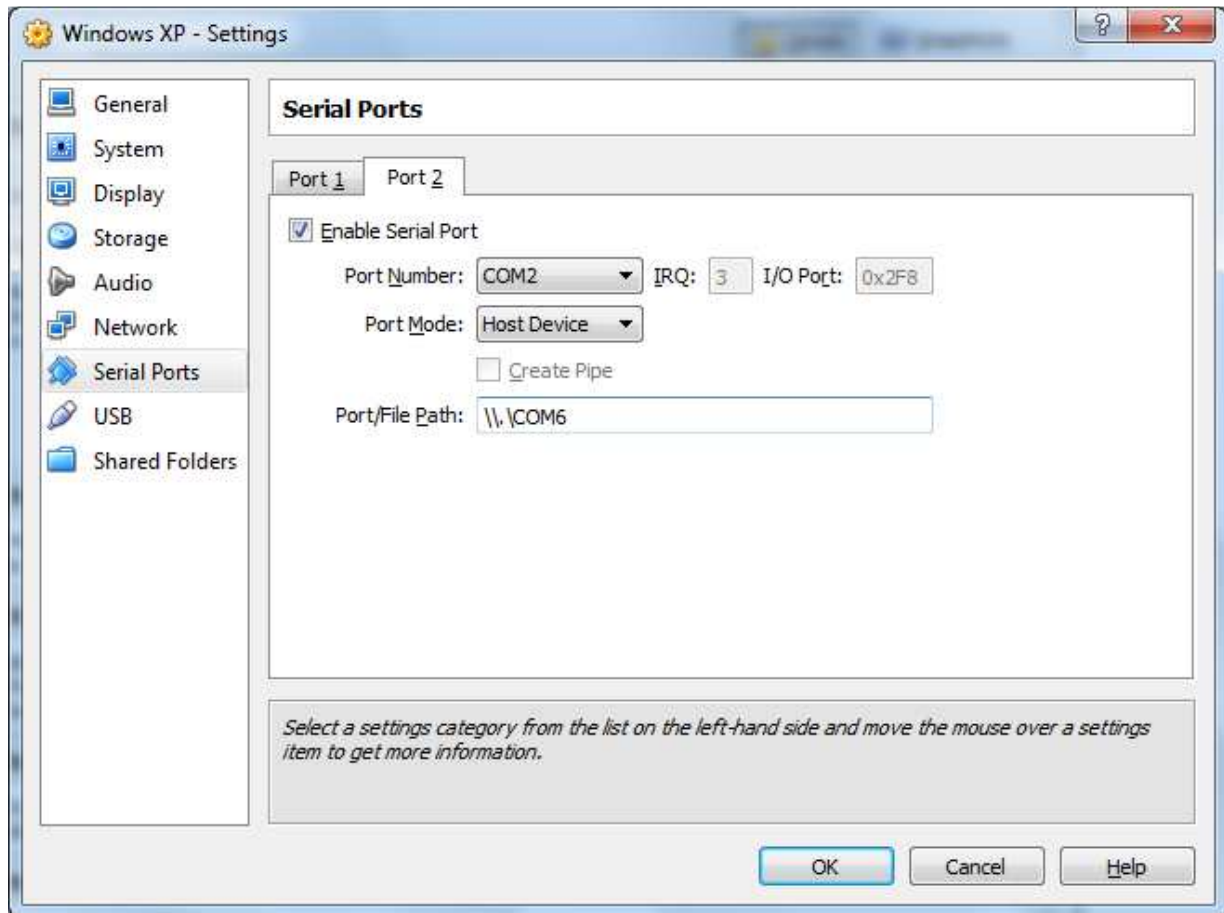


Please note that for this demonstration I have installed Brainboxes **US-101** product in the Host Operating System and this is installed as “COM5” in my machine as shown below:



You might have a different COM Port label on your machine such as **COM3**, **COM4** and so on. Please select the correct COM Port label to map accordingly by checking the “Ports (COM & LPT)” section under **Device Manager**. For example, if you have installed **US-101** as **COM4** on your machine, you will have to enter “\\.\COM4” into “Port/File Path:” textbox.

If you would like to map two Serial Ports in case you have installed two Brainboxes US-101 products or a Brainboxes product with two Serial Ports in your machine, please select “**Port 2**” tab like shown below:

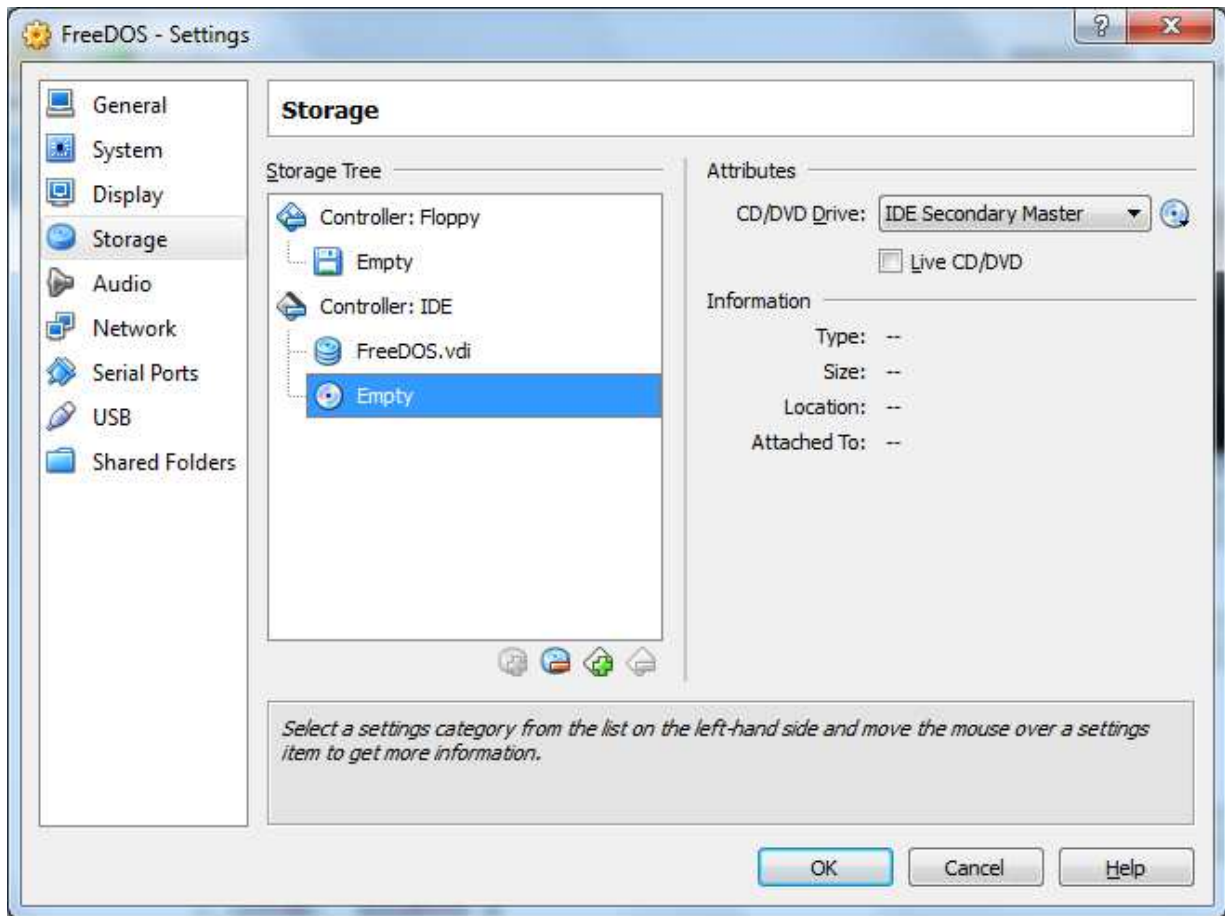


Again, you might have a different COM Port label on your machine such as **COM3**, **COM4** and so on. Please select the correct COM Port label to map accordingly by checking the “**Ports (COM & LPT)**” section under **Device Manager**. For example, if you have installed another **US-101** as **COM7** on your machine, you will have enter “**\\.\COM7**” into “**Port/File Path:**” textbox.

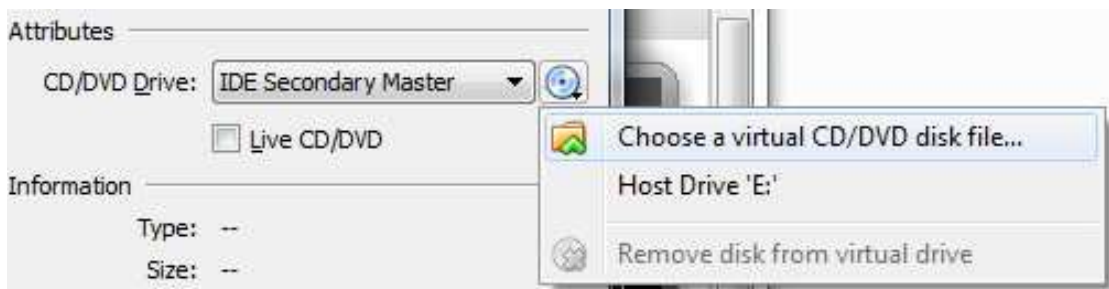
In this demonstration, I will only be mapping one Serial Port. Please follow the steps as described above if you would like to also map two Serial Ports.

18. Click “**OK**” after you have finished mapping the COM Ports. Then you will be taken back to the screen as shown in Step 11.
19. Click and select “**FreeDOS**” entry in the list, and click “**Settings**” again.

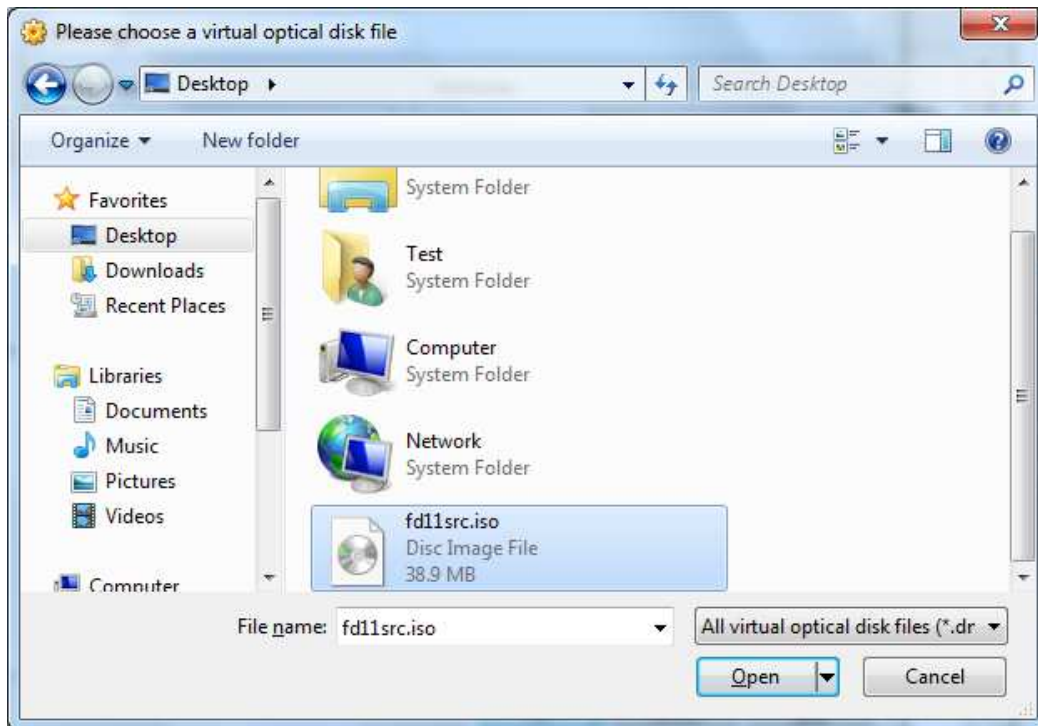
20. Click and select **“Storage”** on the left side, and click on **“Empty”** under the **“Storage Tree”** entry when you are presented with the following:



21. Click on the  icon, and click **“Choose a virtual CD/DVD disk file...”** option as shown below:

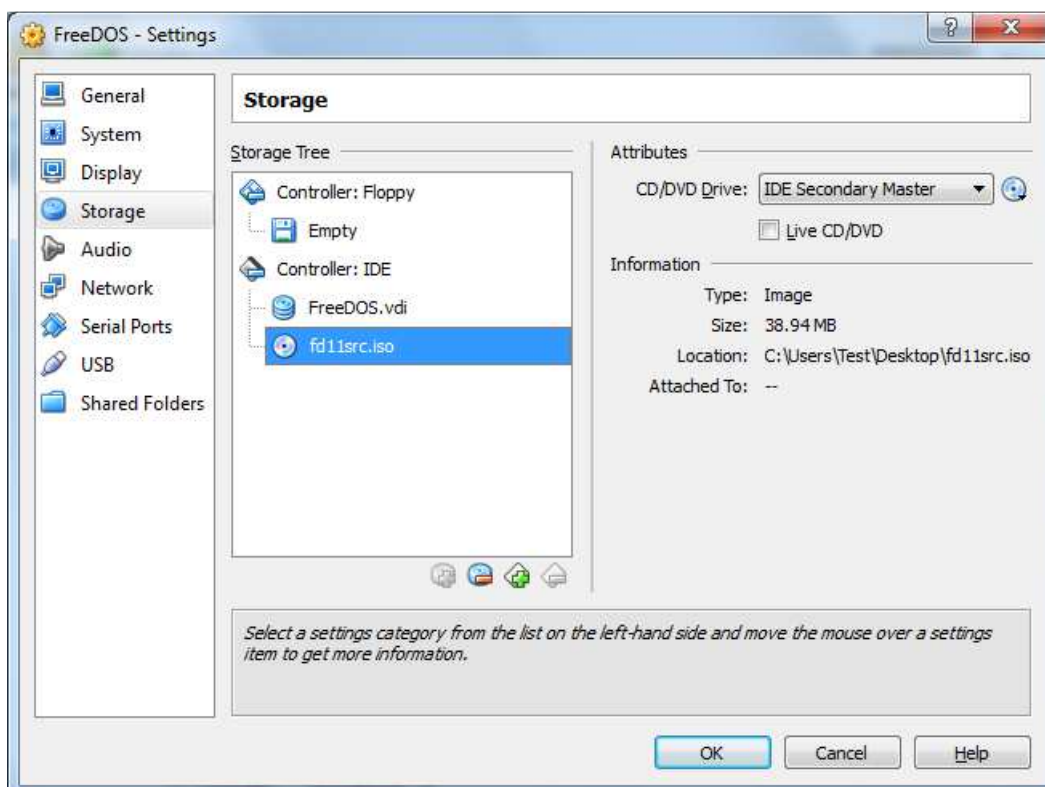


22. Browse to the location of the “**fd11src.iso**” file which you have downloaded in Step 2, select and highlight the file, and then click “**Open**” when you are presented with the following:

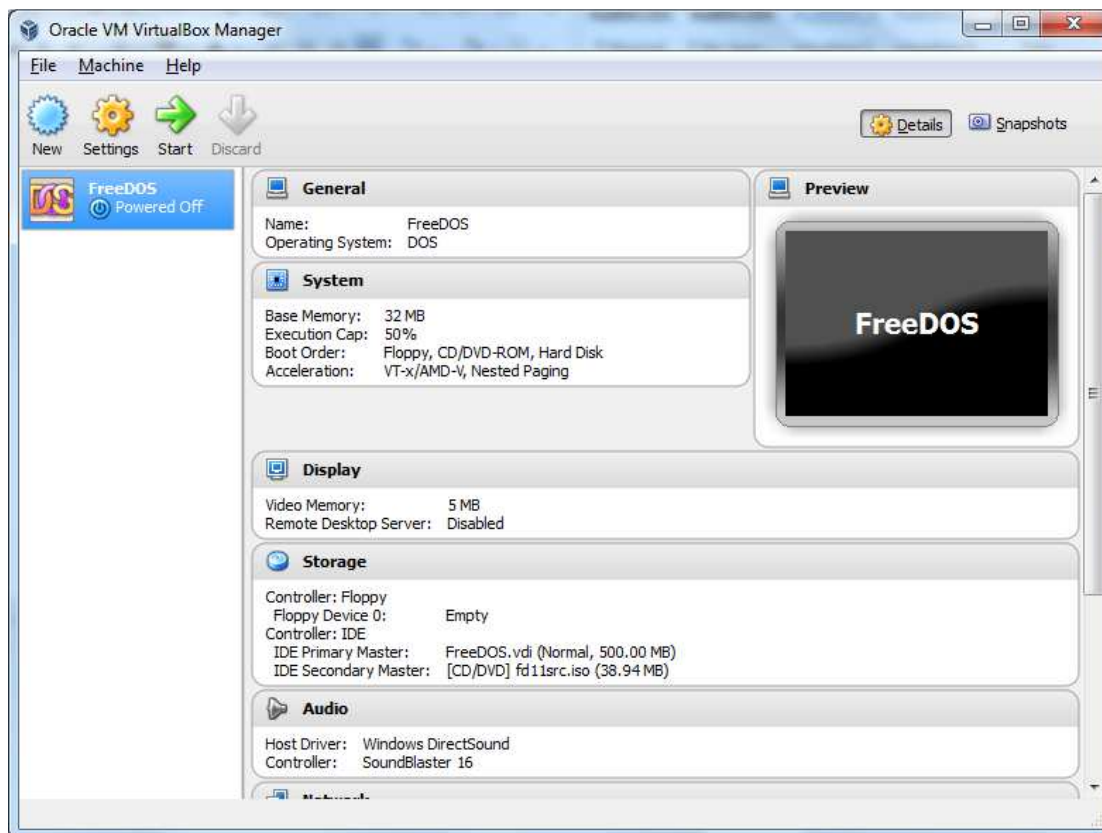


Please specify and open the file from the correct location. For this demonstration, we have downloaded the file to “**Desktop**” in Step 2. Please select the location of the file accordingly if you specified it to a different location in Step 2.

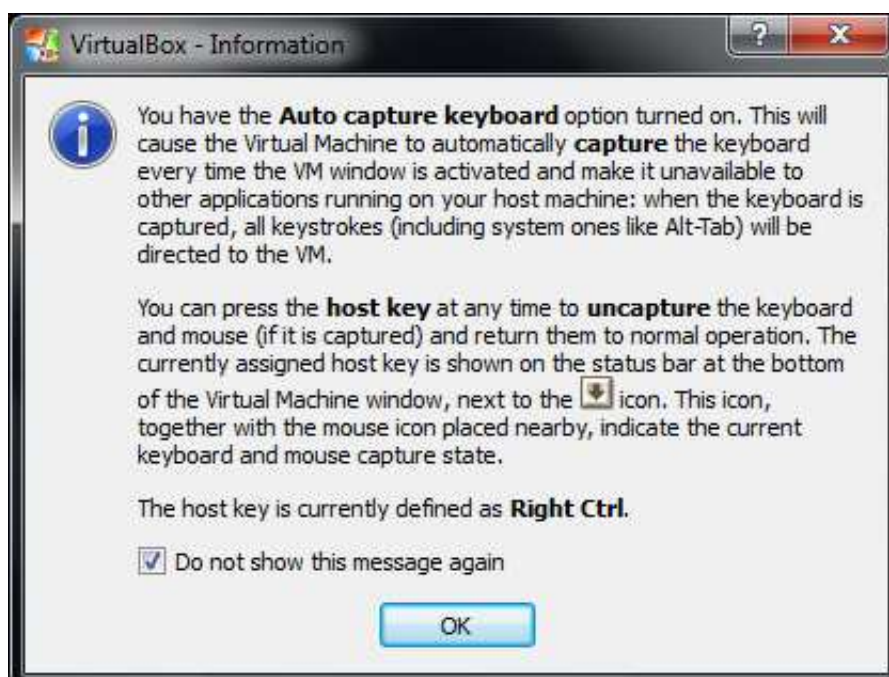
23. Click “**OK**” when you are presented with the following:



24. Now we will begin the process of installing “FreeDOS” Guest Operating System by clicking “Start” when you are presented back to the following screen:



1. Check the option “Do not show this message again”, and click “OK” when you are presented with the following:

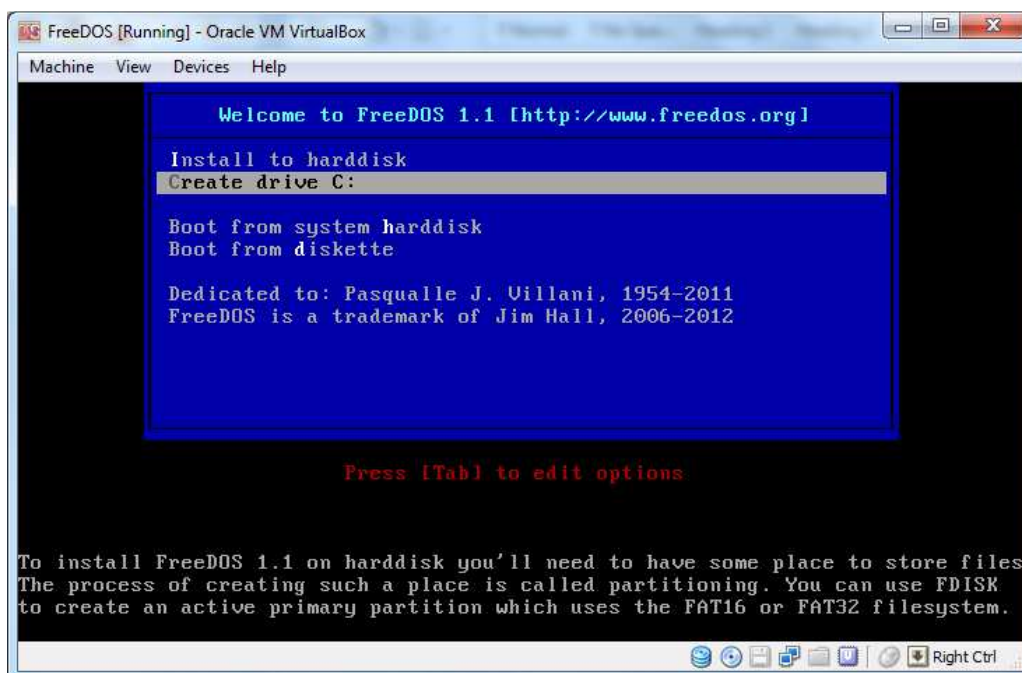


25. Check “Do not show this message again” option, and click “OK” in order to get pass the following:

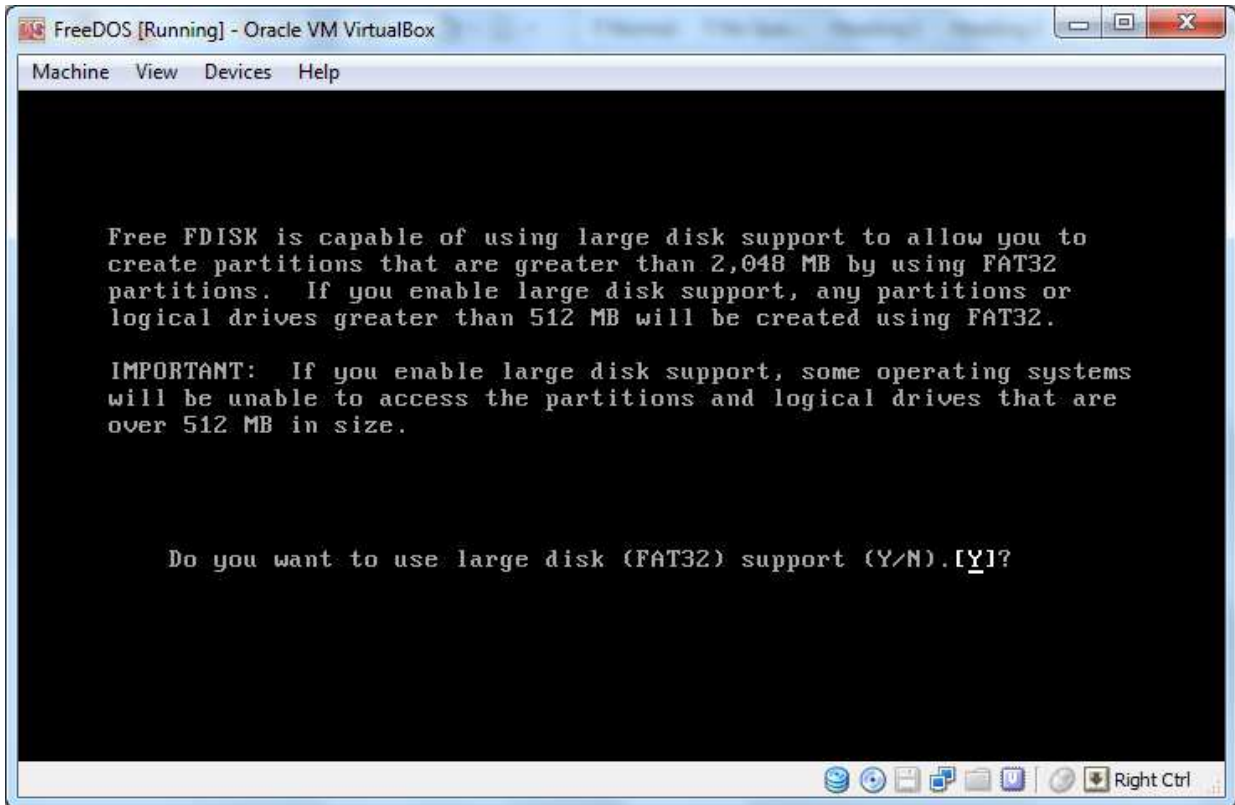


26. Remember to press the “Right Ctrl” key if you ever find yourself stuck inside the “FreeDOS” Guest Operating System windows. This will take you back to your Host Operating System and you could move your mouse again.

27. Point your mouse and click on the “FreeDOS” Guest Operating System windows, use the arrow key to select “Create drive C:” and then press “Enter” when you are presented with the following:



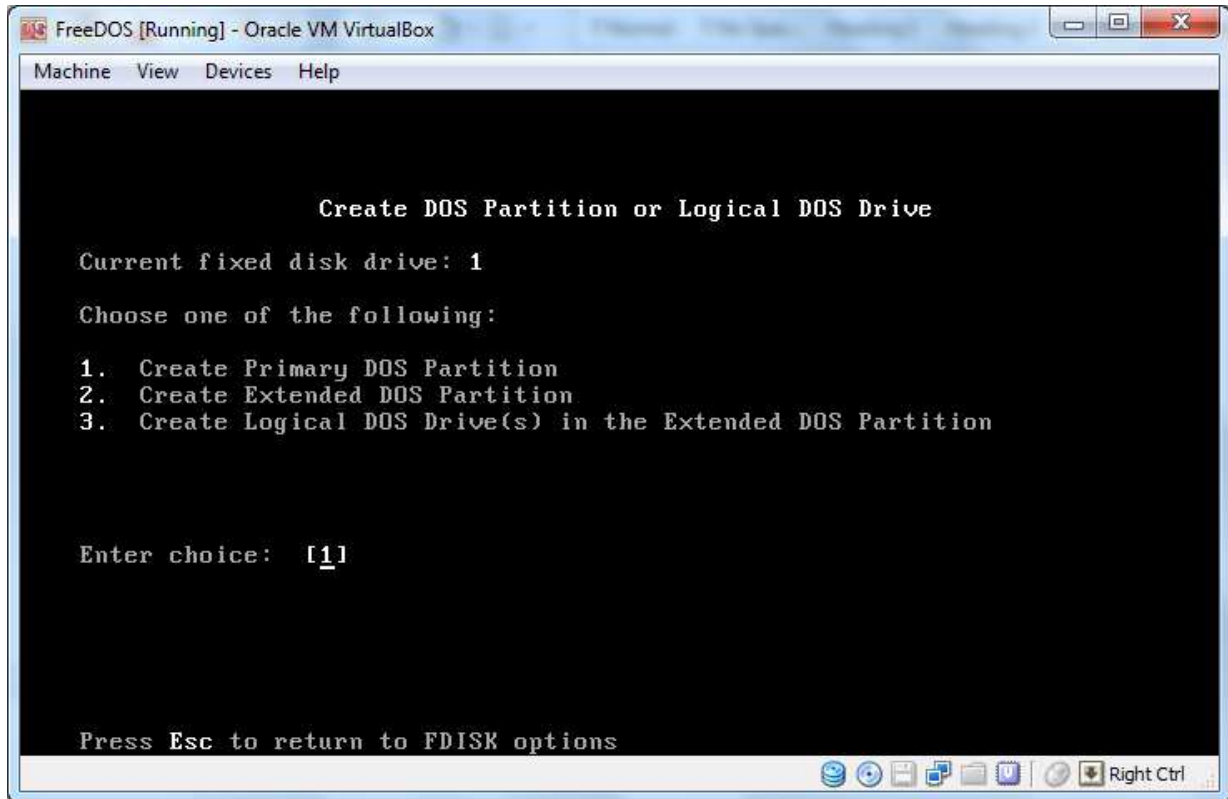
28. Press “Y”, and then press “Enter” when you are presented with the following:



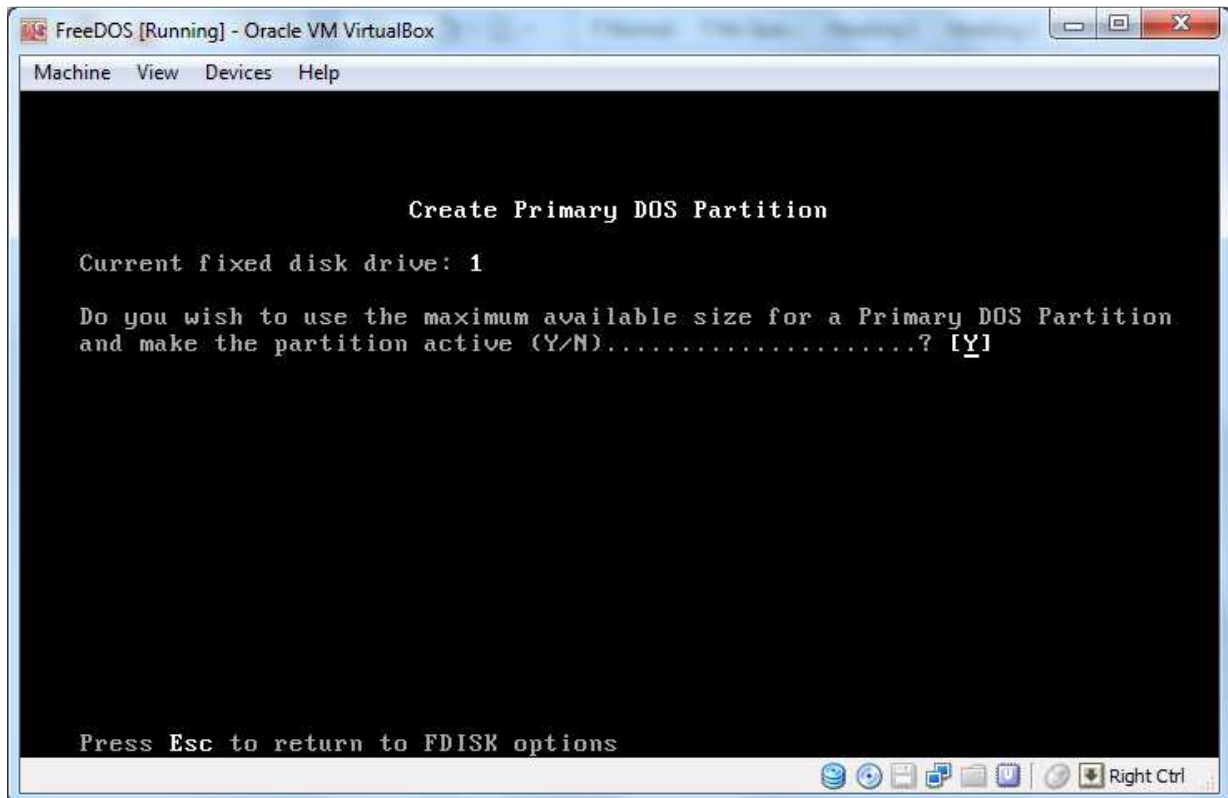
29. Press “1”, and then press “Enter” when you are presented with the following:



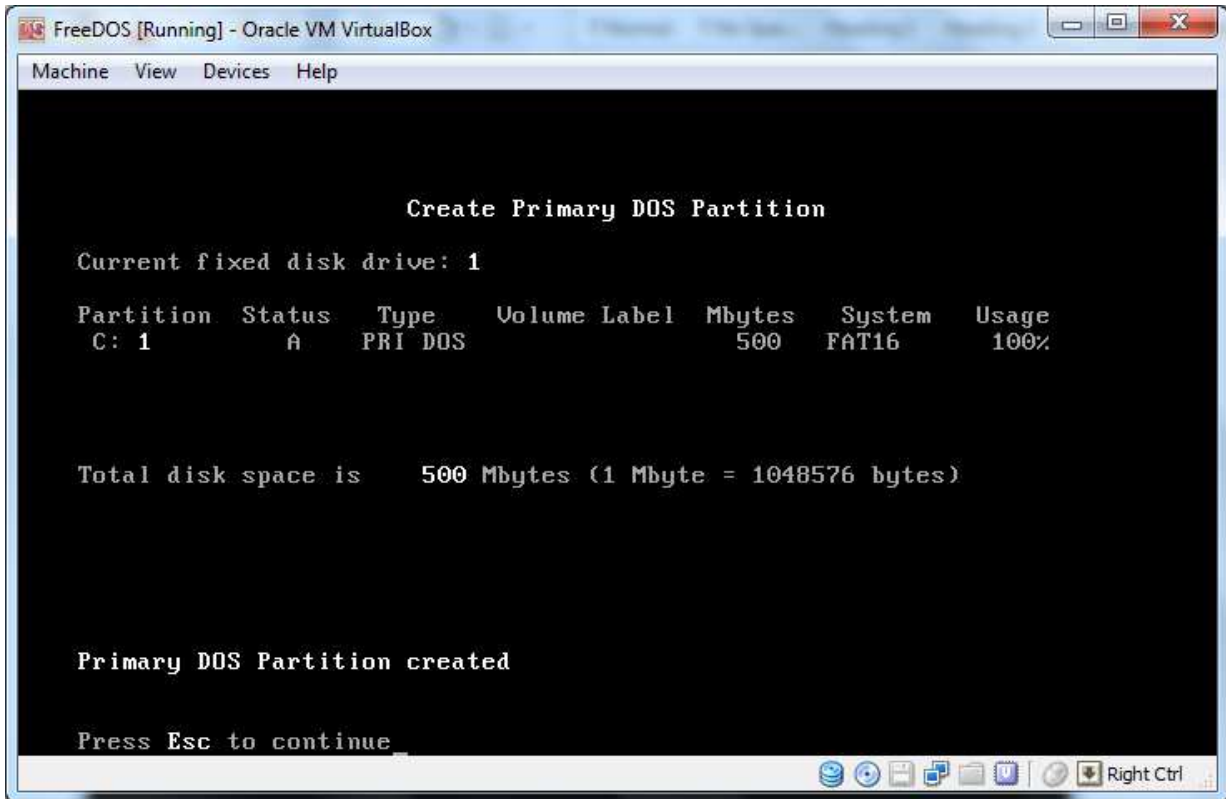
30. Press “1”, and then press “Enter” when you are presented with the following:



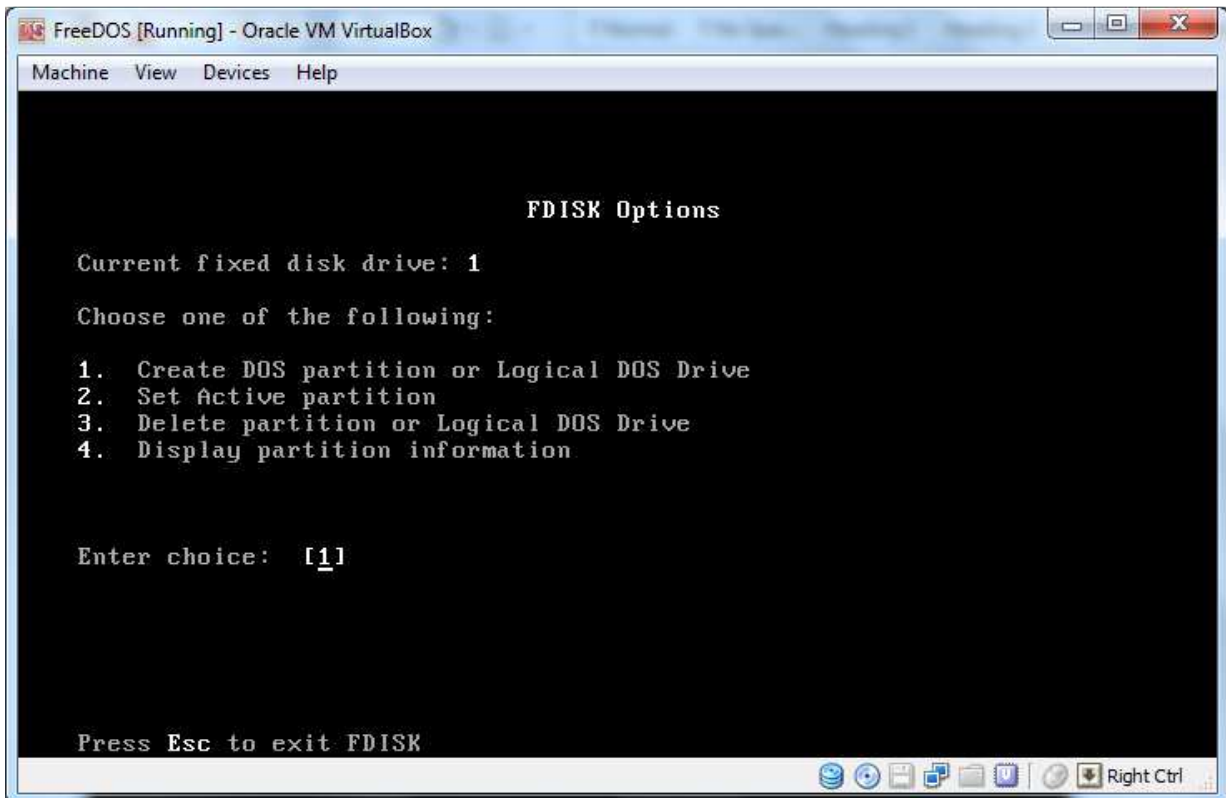
31. Press “Y”, and then press “Enter” when you are presented with the following:



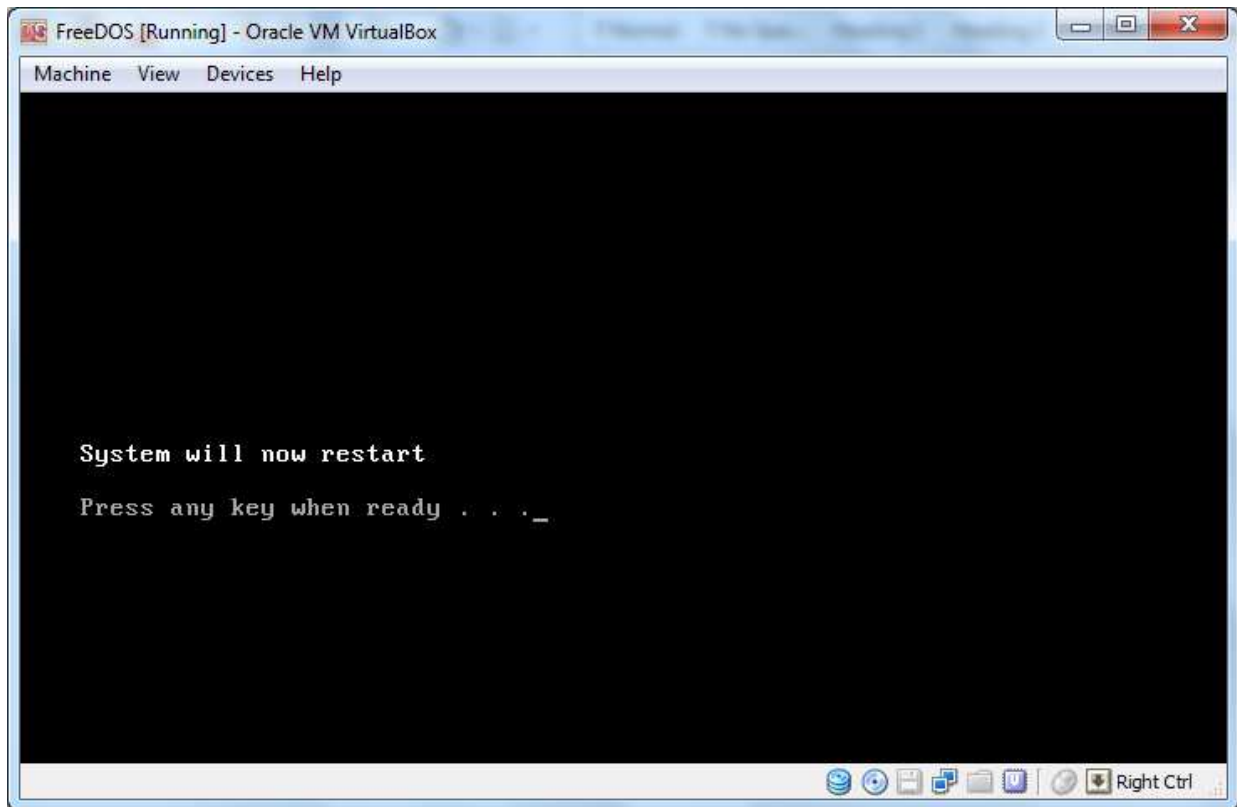
32. Press “Esc” when you are presented with the following:



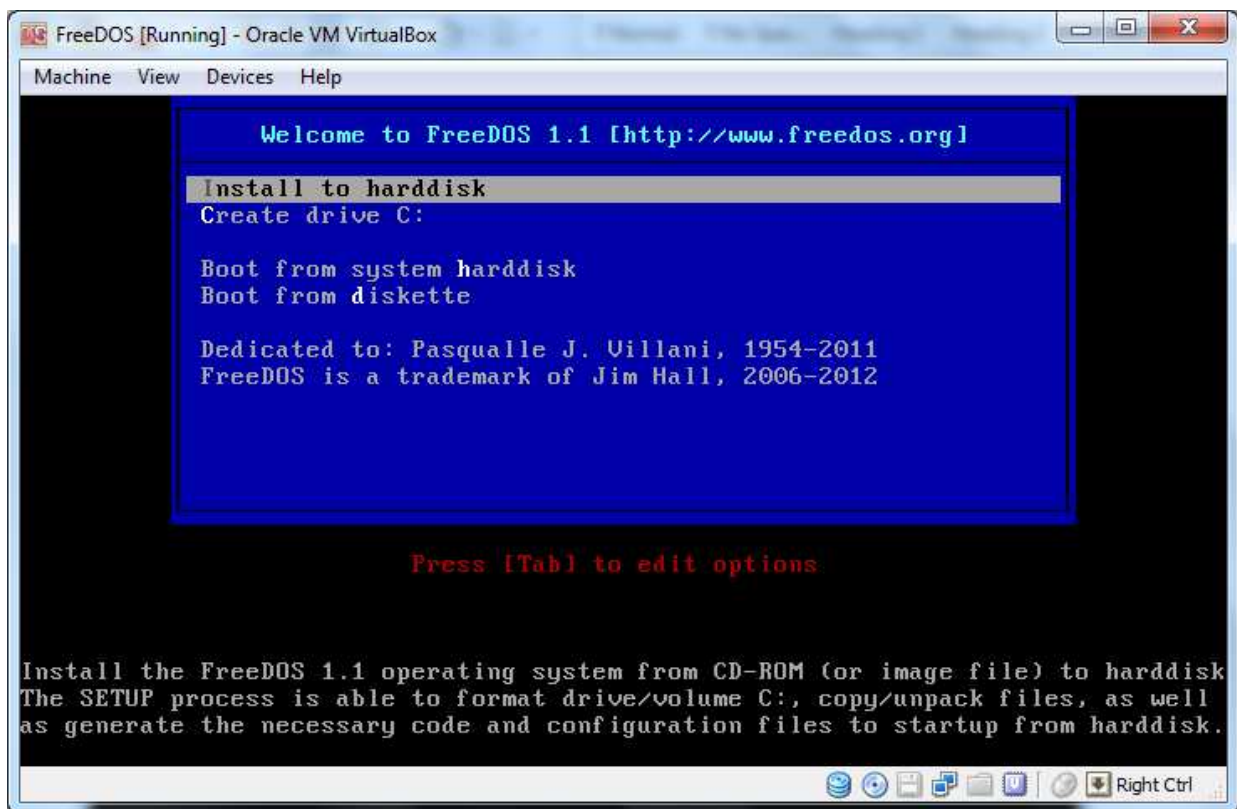
33. Press “Esc” again when you are presented with the following:



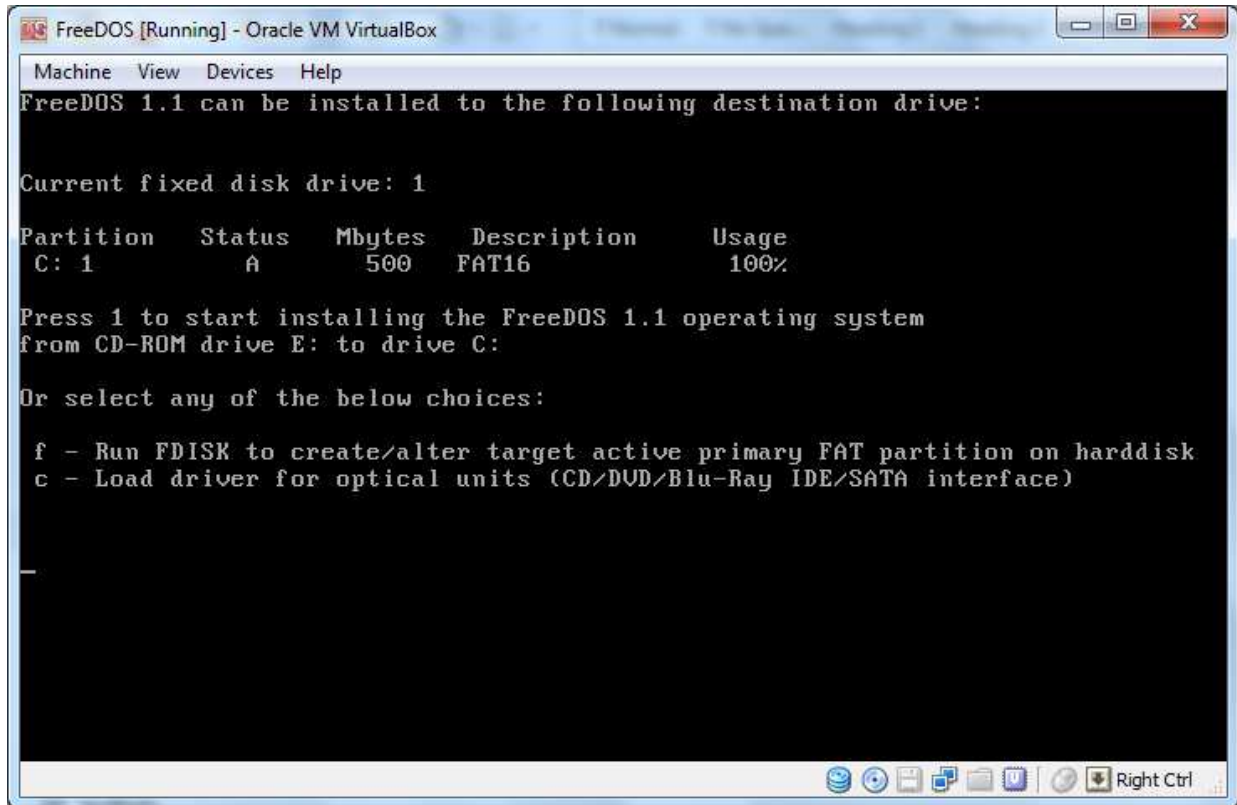
34. Press any key to reboot the Guest Operating System when you are presented with the following:



35. Use the arrow key to select "Install to harddisk", and then press "Enter" when you are presented with the following:



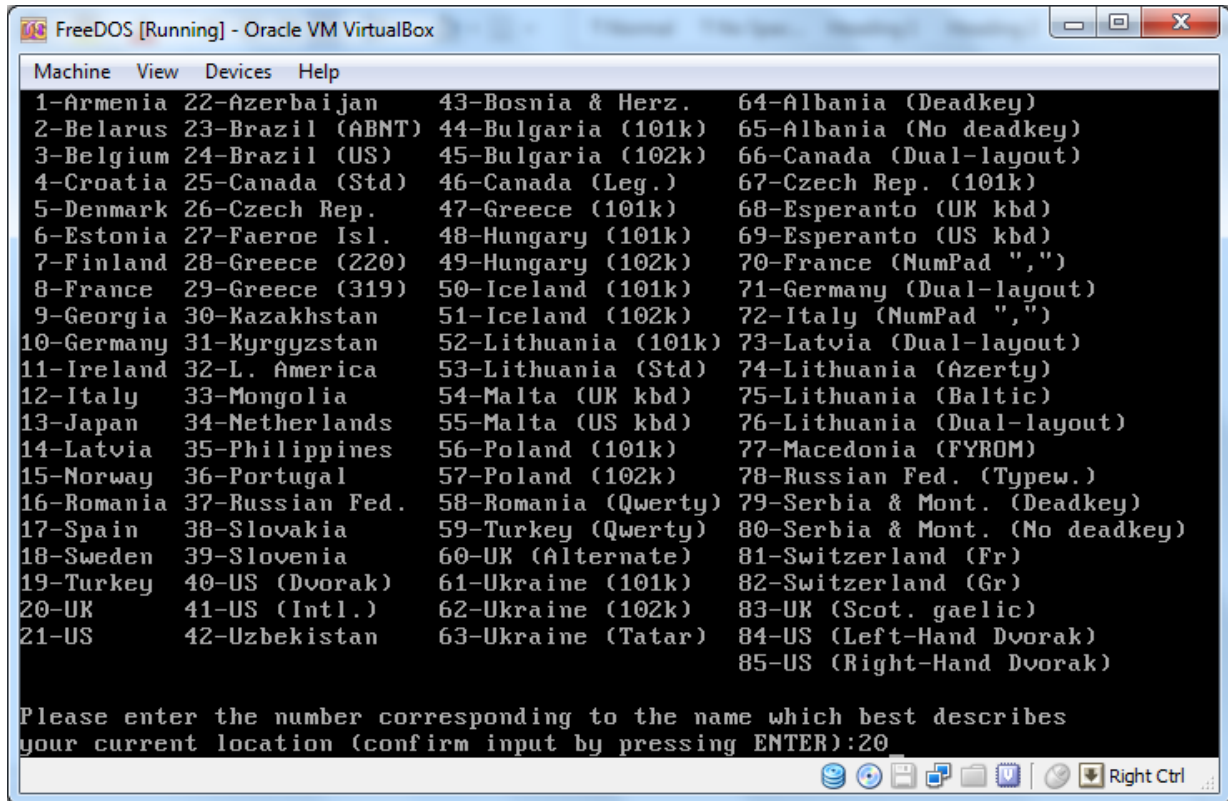
36. Press “1” to start the installation process when you are presented with the following:



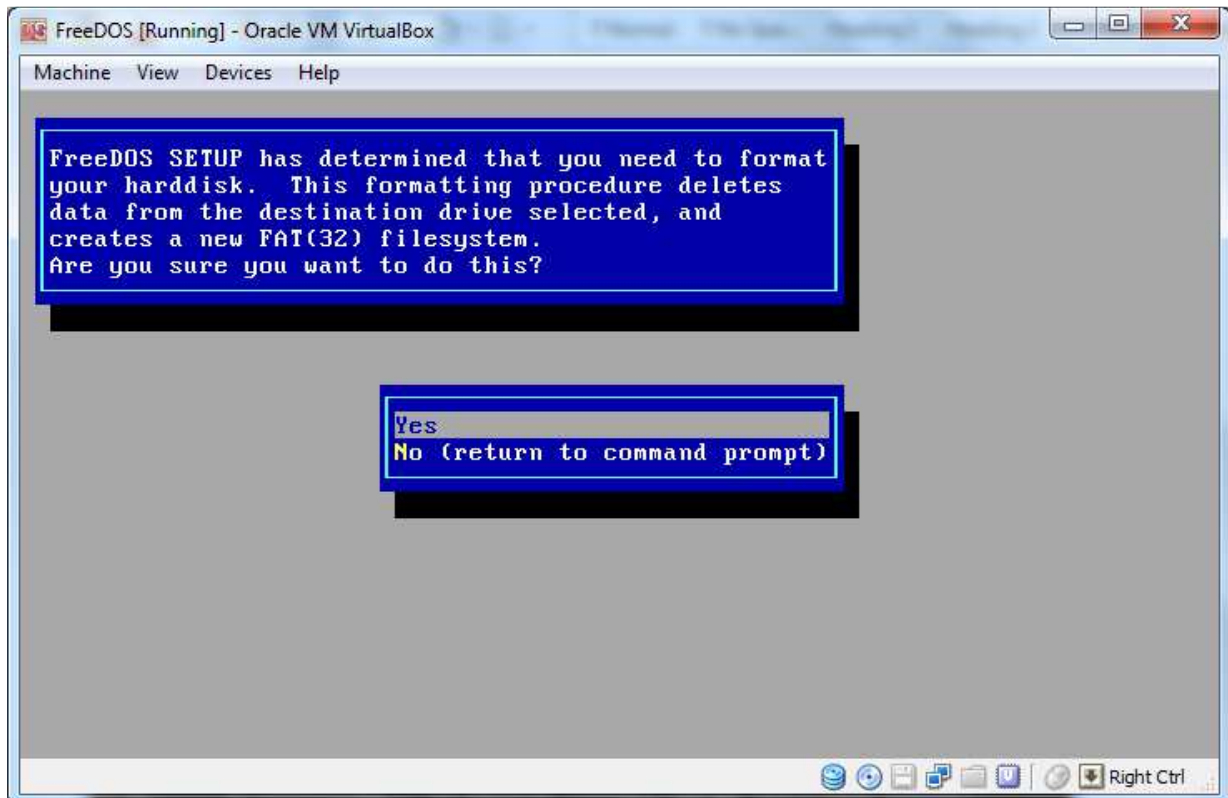
37. Use the arrow key to select “More choices”, and then press “Enter” when you are presented with the following:



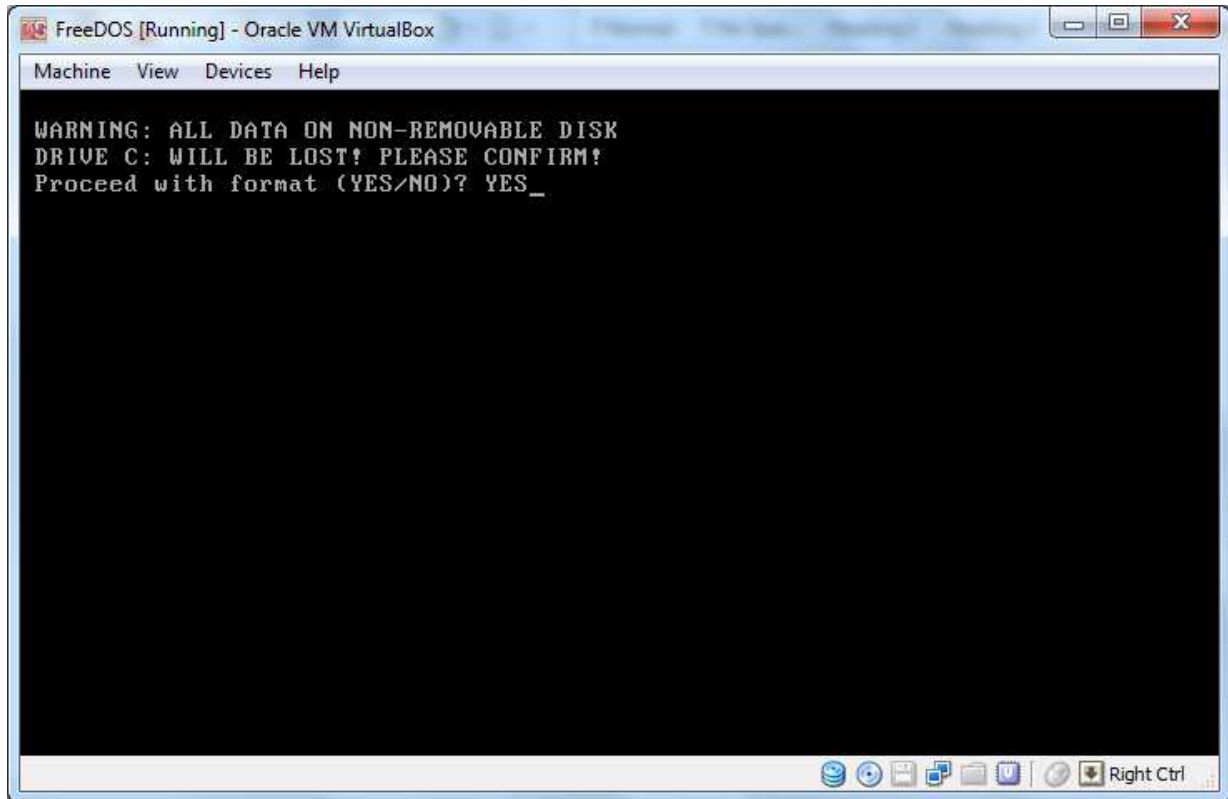
38. Type “20” to set the location as UK, and then press “Enter” when you are presented with the following:



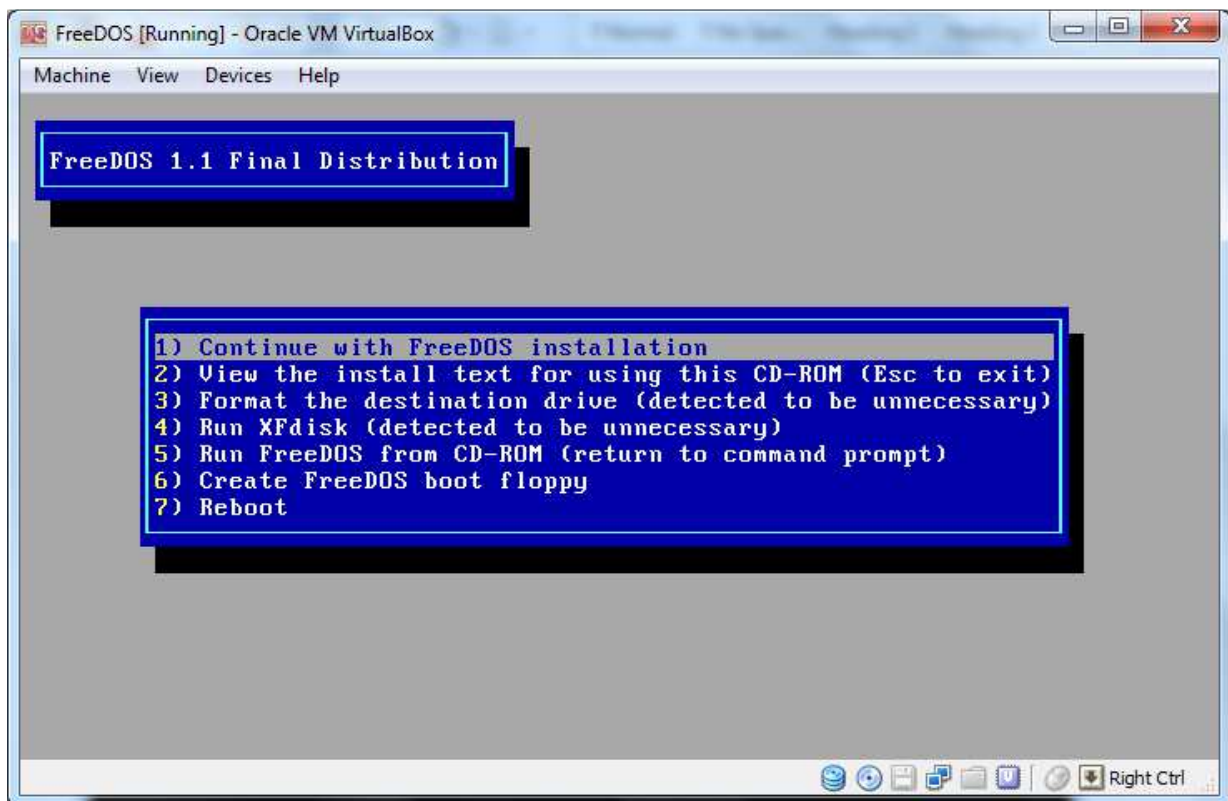
39. Use the arrow key to select “Yes”, and then press “Enter” when you are presented with the following:



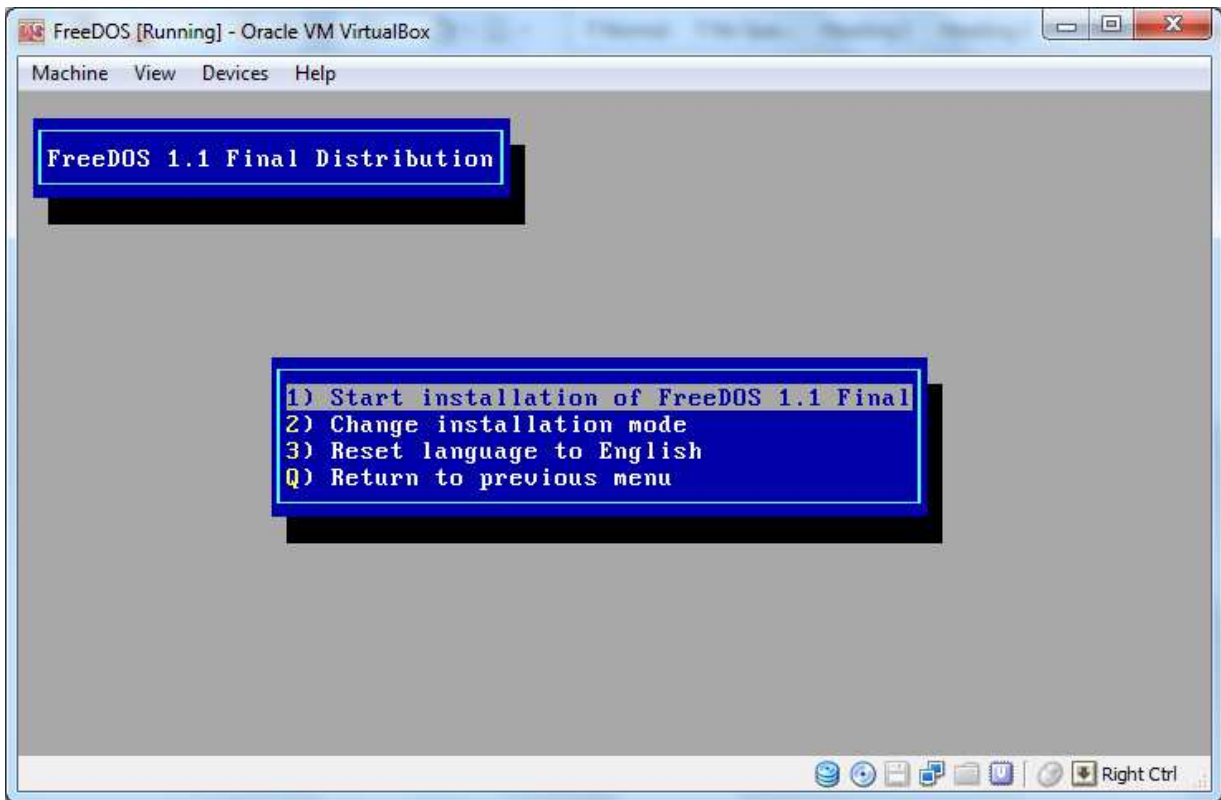
40. Type “YES”, and then press “Enter” when you are presented with the following:



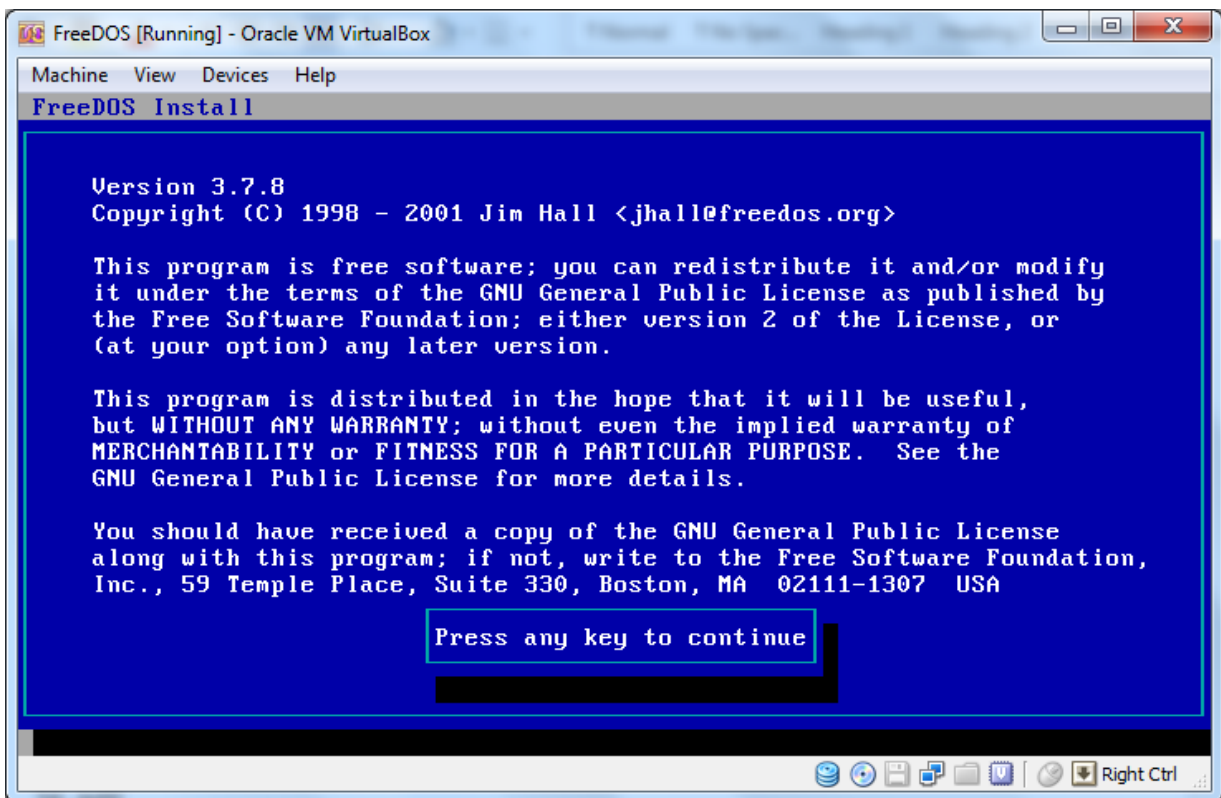
41. Use the arrow key to select “1) Continue with the FreeDOS installation”, and then press “Enter” when you are presented with the following:



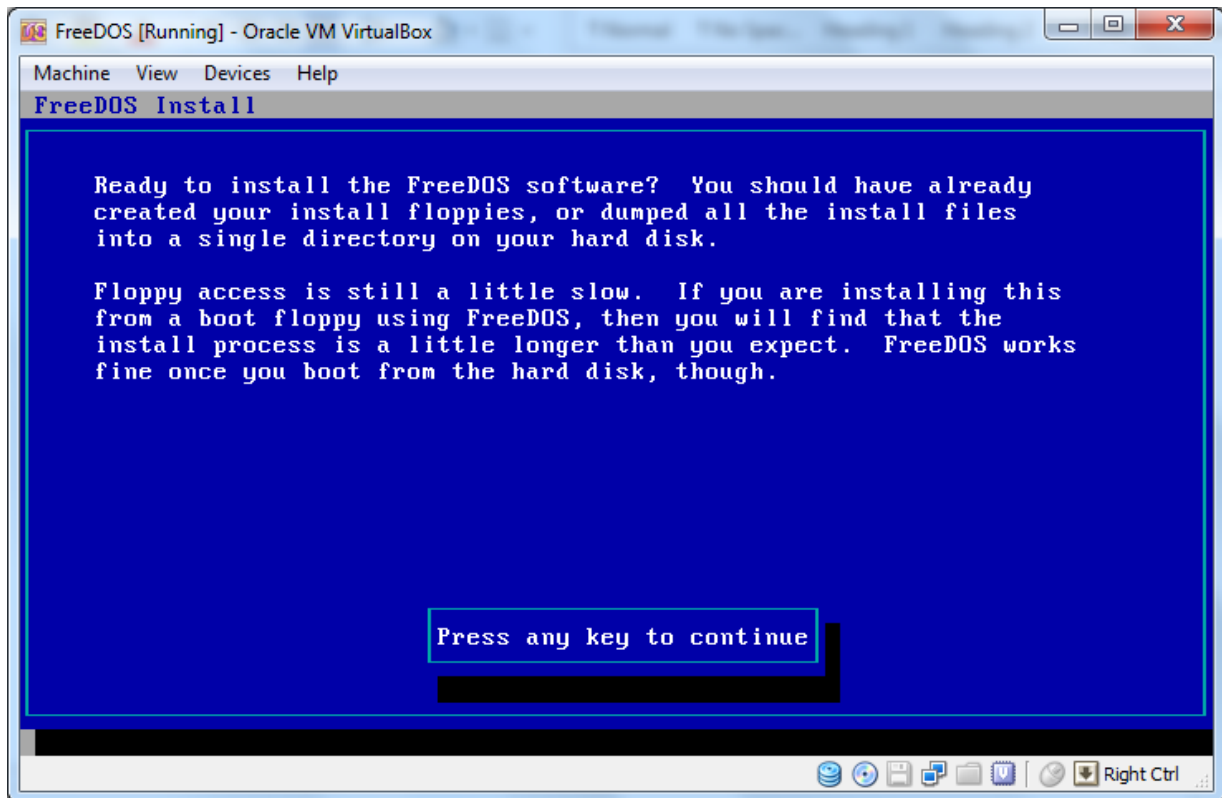
42. Use the arrow key to select “1) Start installation of FreeDOS 1.1 Final”, and then press “Enter” when you are presented with the following:



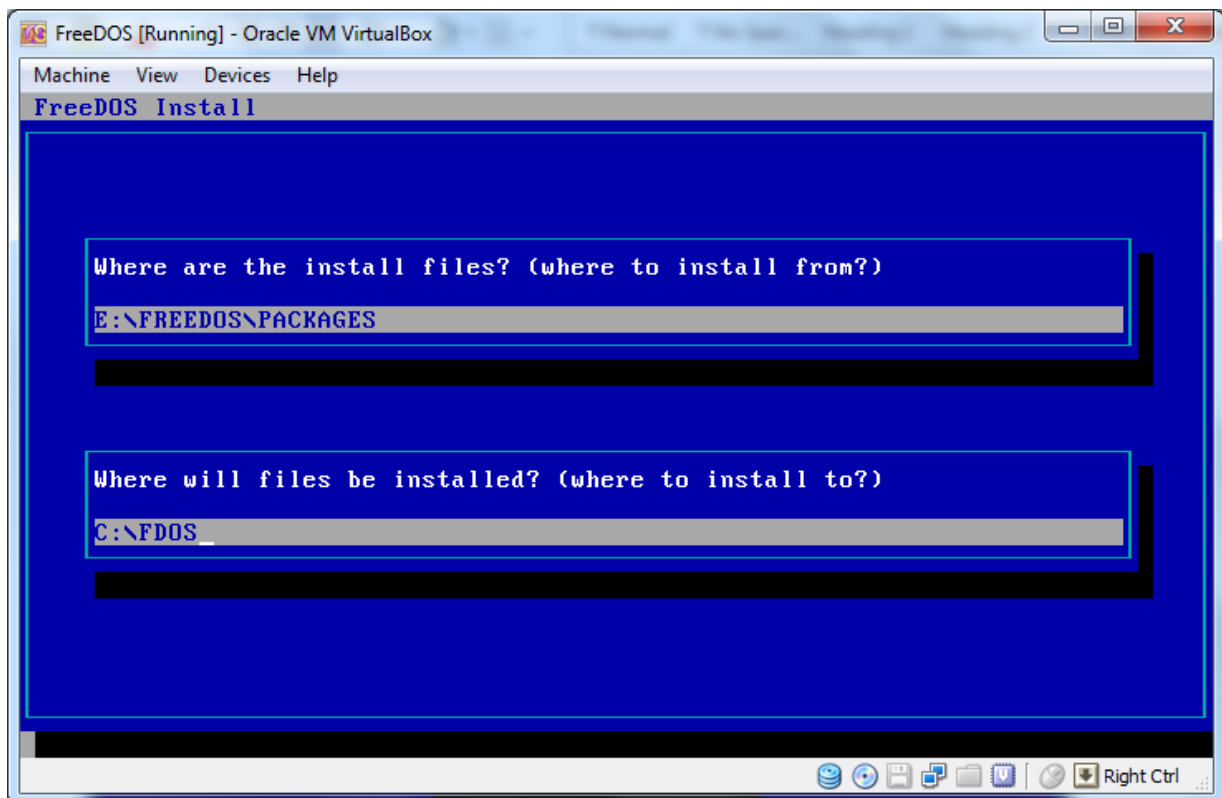
43. Press any key to continue the process when you are presented with the following:



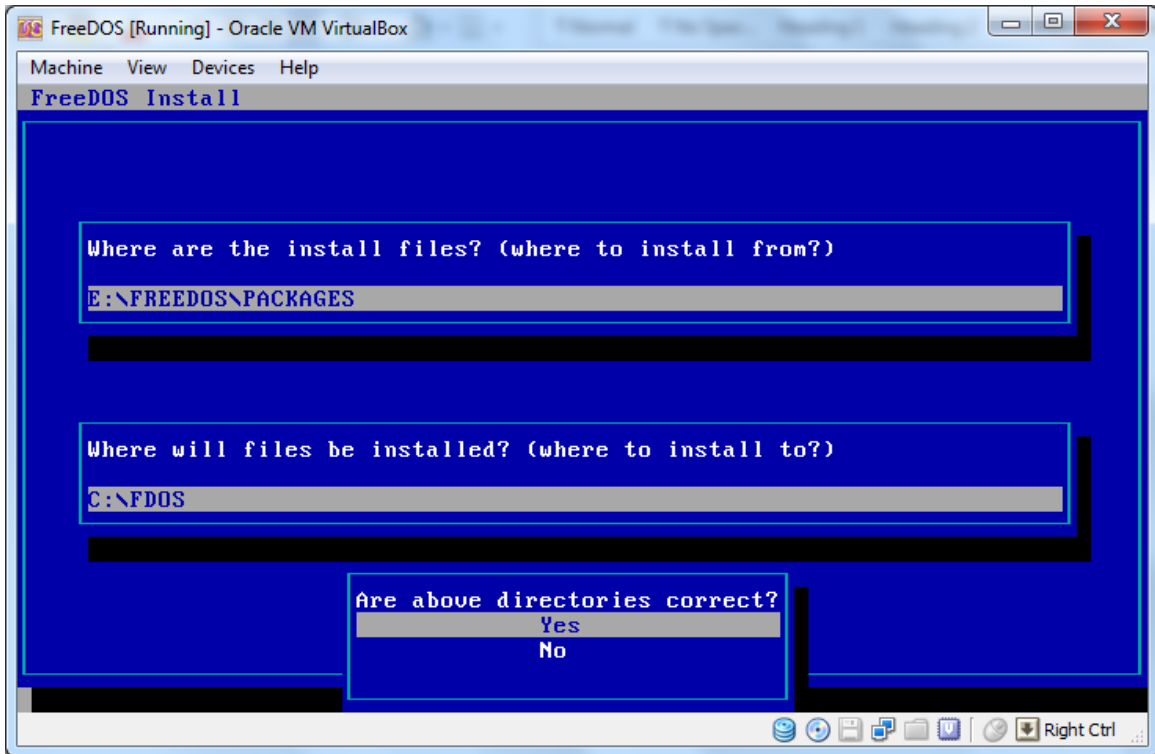
44. Press any key to continue the process when you are presented with the following:



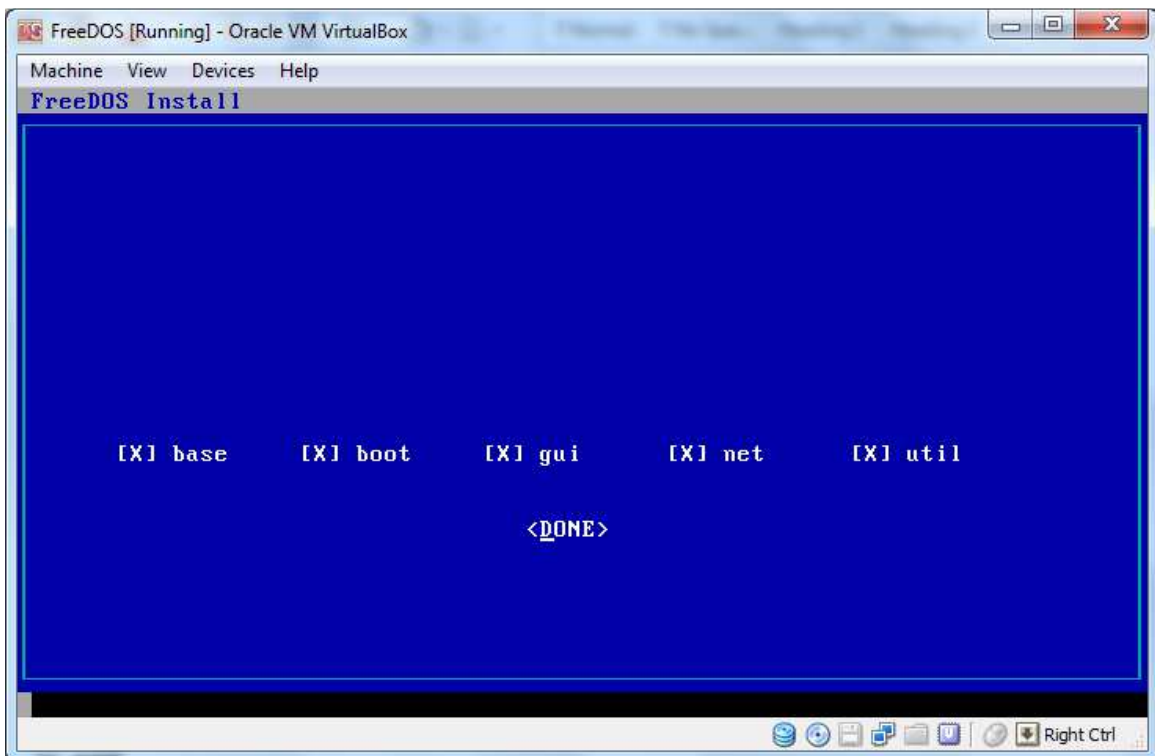
45. Press "Enter" when you are presented with the following:



46. Use the arrow key to select “Yes”, and then press “Enter” when you are presented with the following:



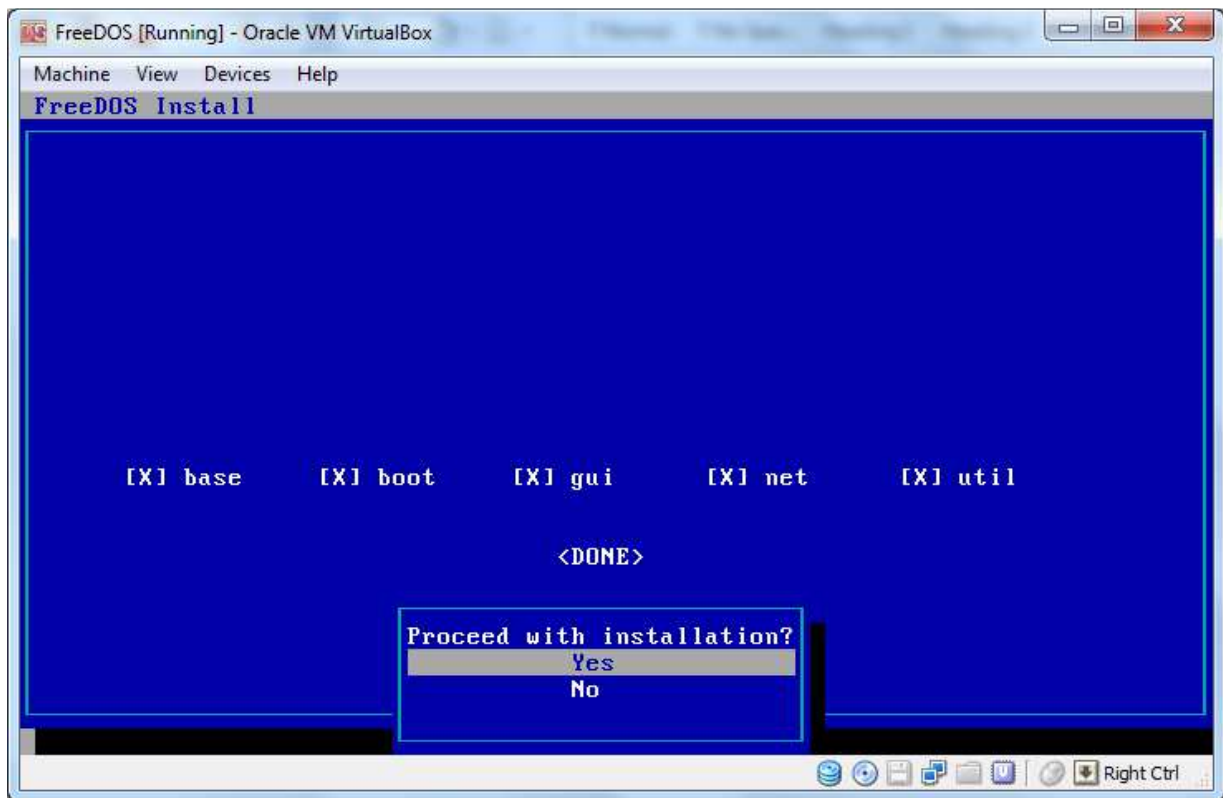
47. Use the arrow key to move to different section, and press “Space Bar” to select all the packages with “[X]” when you are presented with the following:



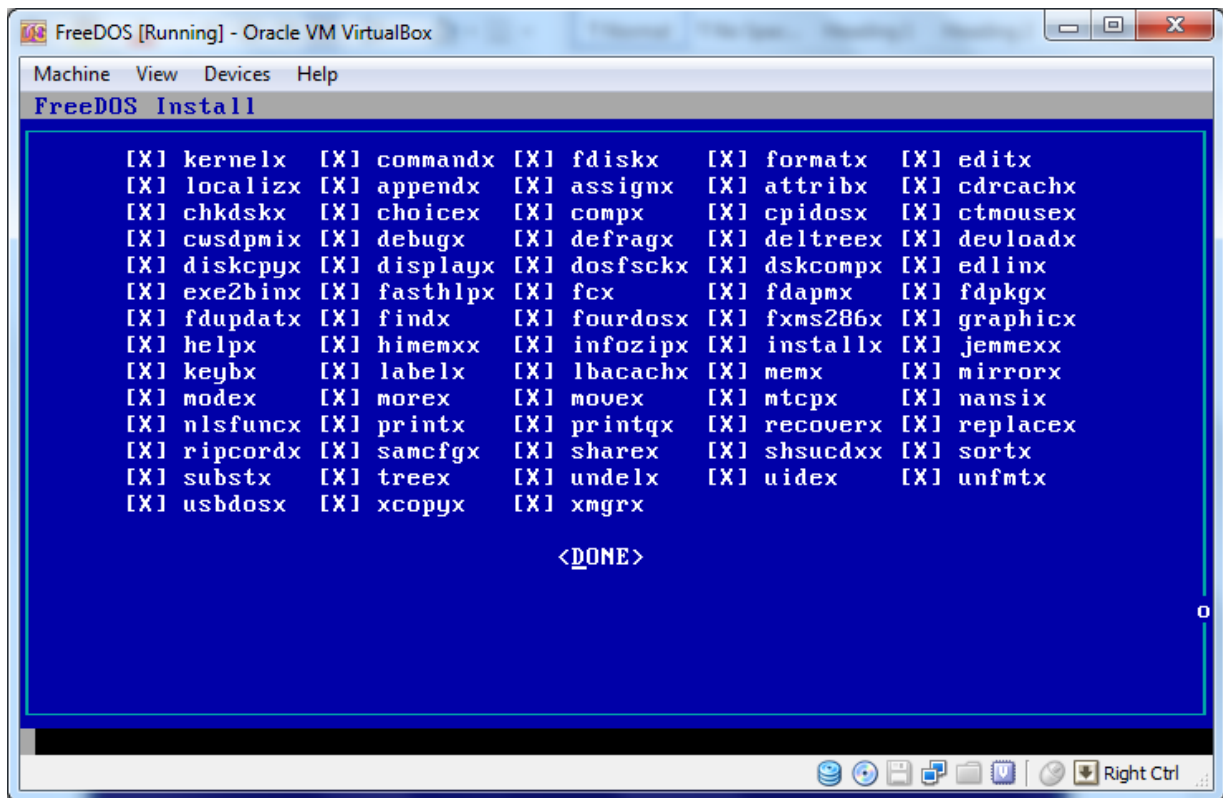
Make sure all are selected as “[X] base”, “[X] boot”, “[X] gui”, “[X] net” and “[X] util” as shown above.

48. Press “Enter”

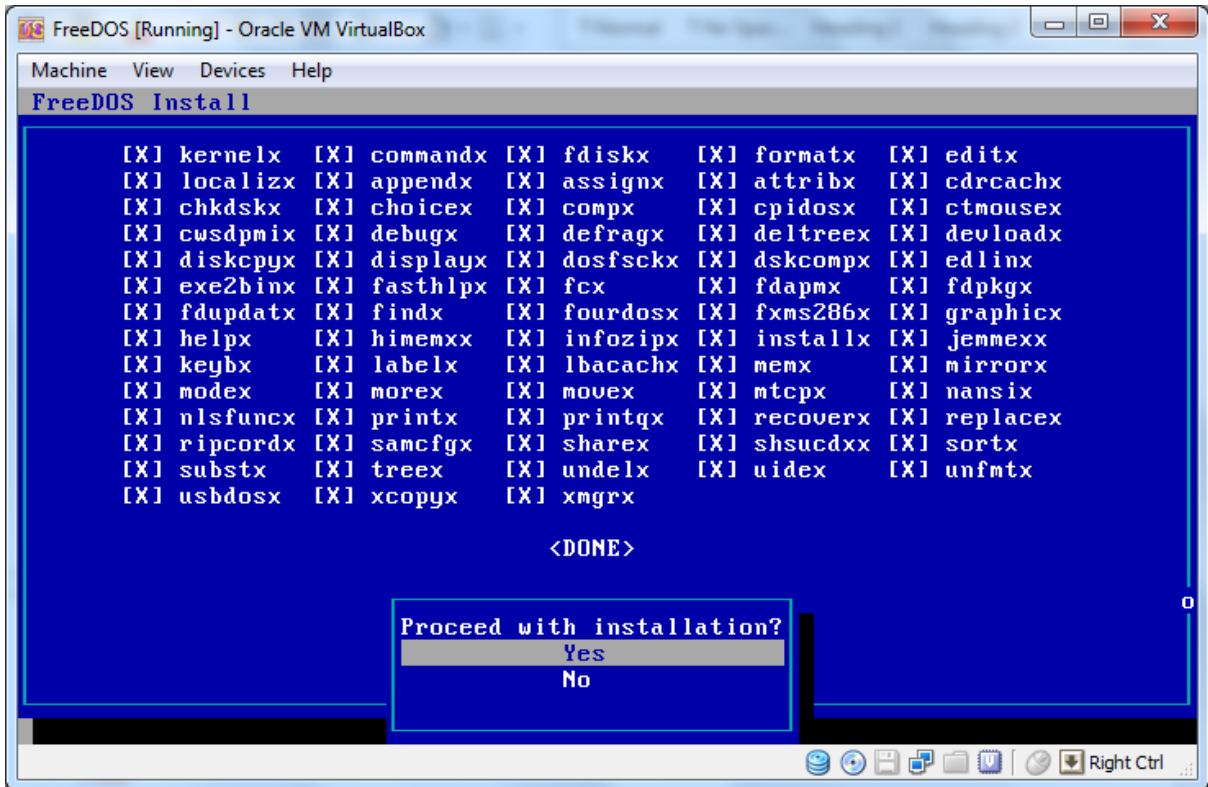
49. Use the arrow key to select “Yes”, and then press “Enter” when you are presented with the following:



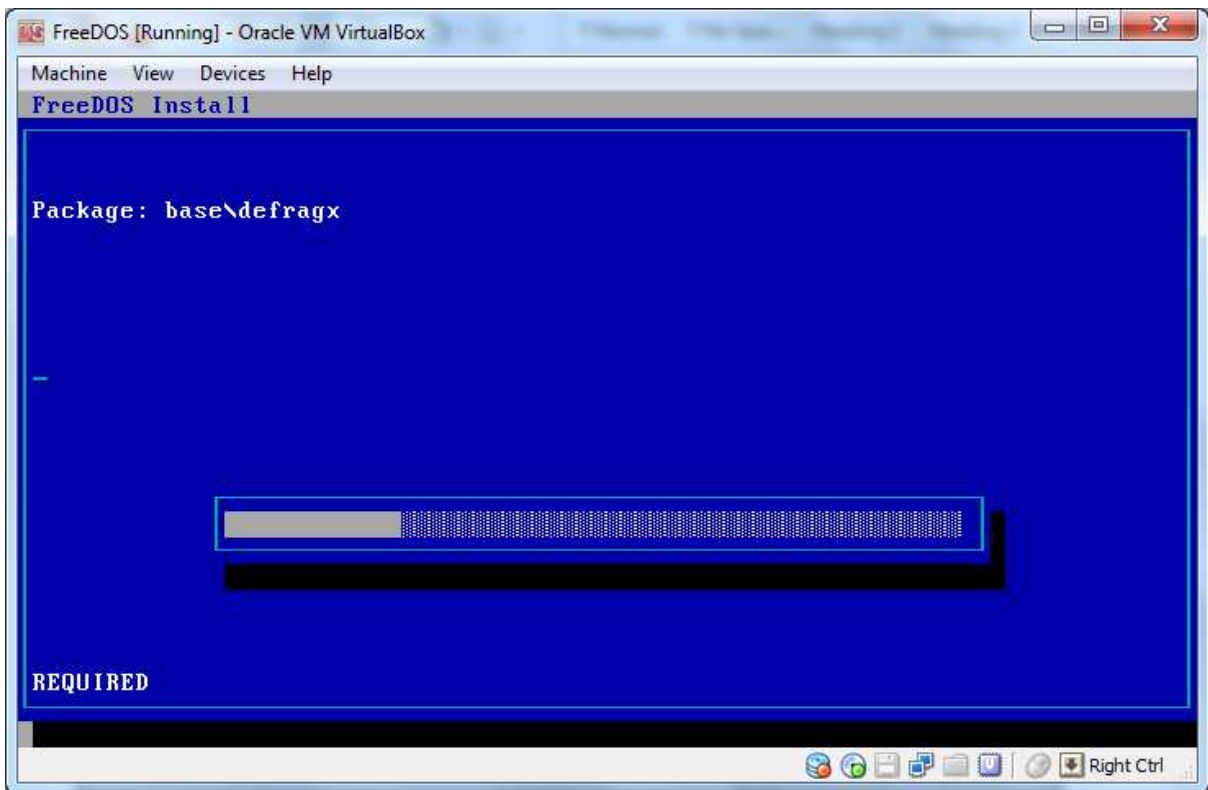
50. Press “Enter” when you are presented with the following:



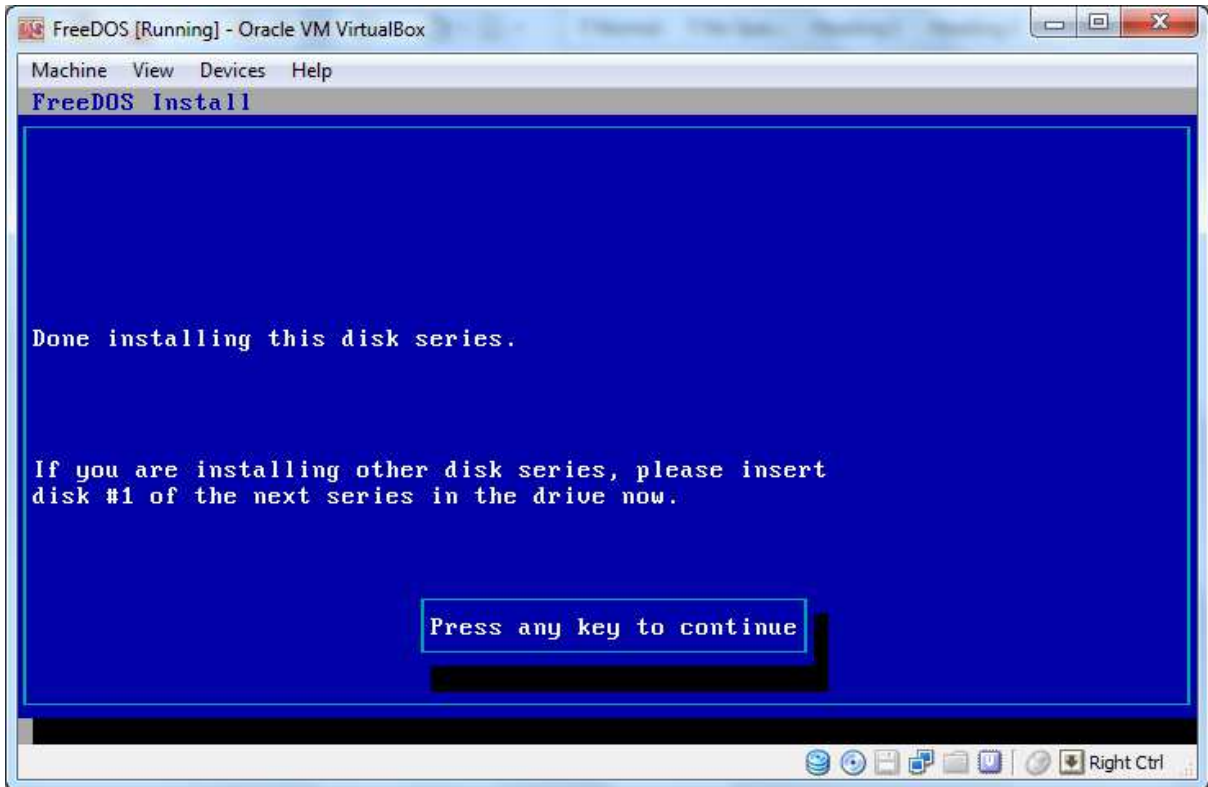
51. Use the arrow key to select “Yes”, and then press “Enter” when you are presented with the following:



52. Please wait for the installation process to continue as this step will take a while to complete. During this time you will be presented with a series of screen similar to the one shown below:

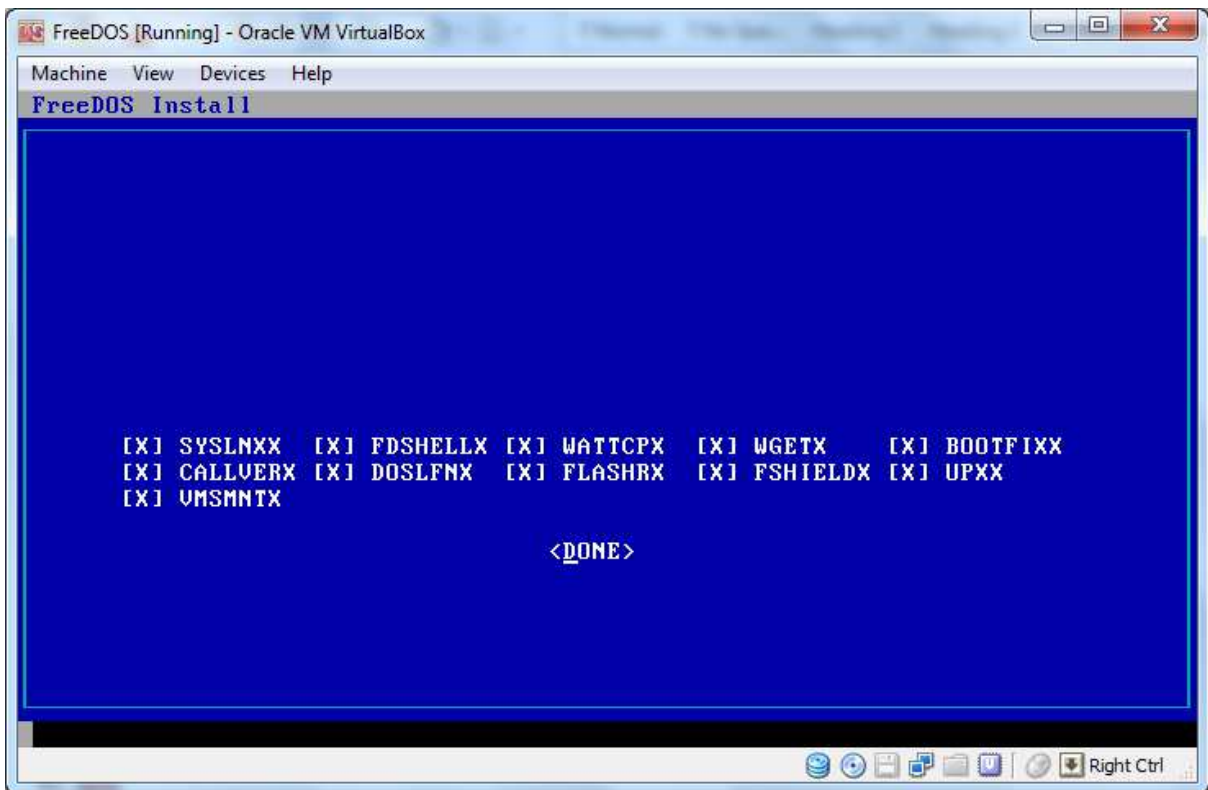


53. Press any key to continue the process when you are presented with the following:

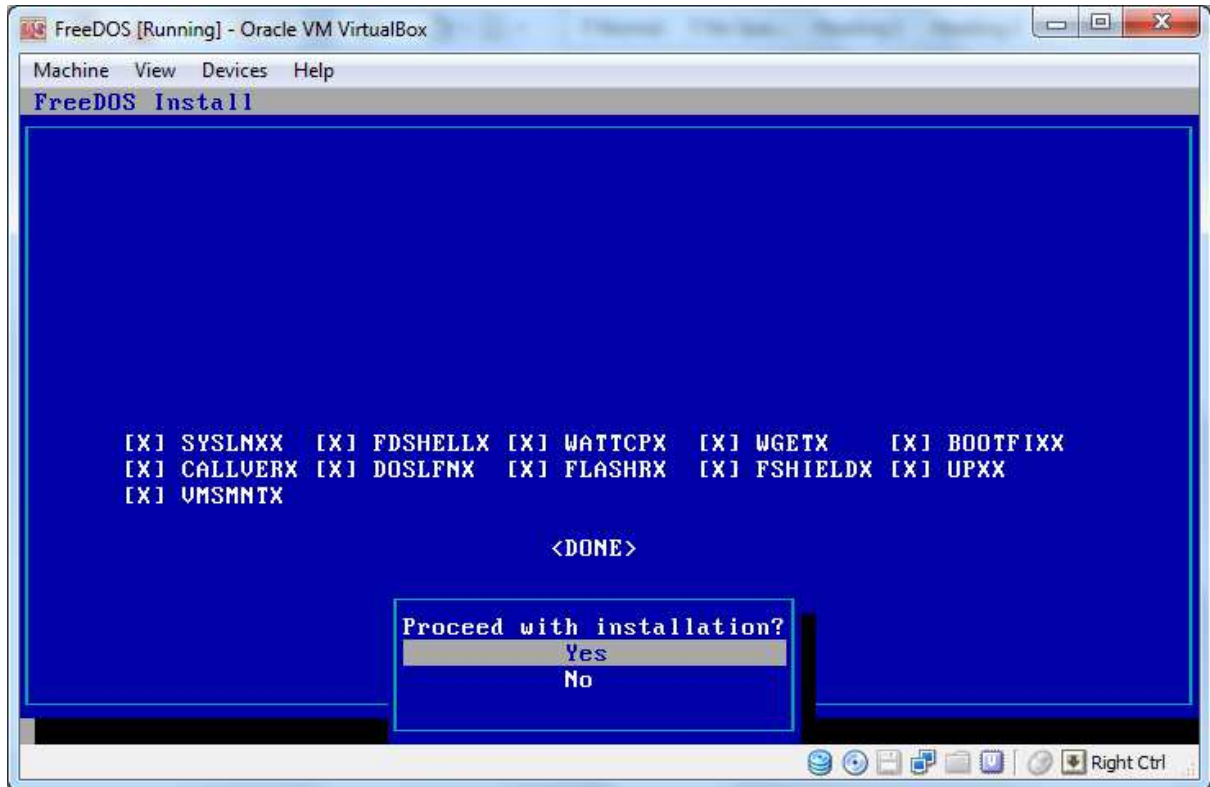


You will have to repeat pressing any key for about four times before you get to the next stage.

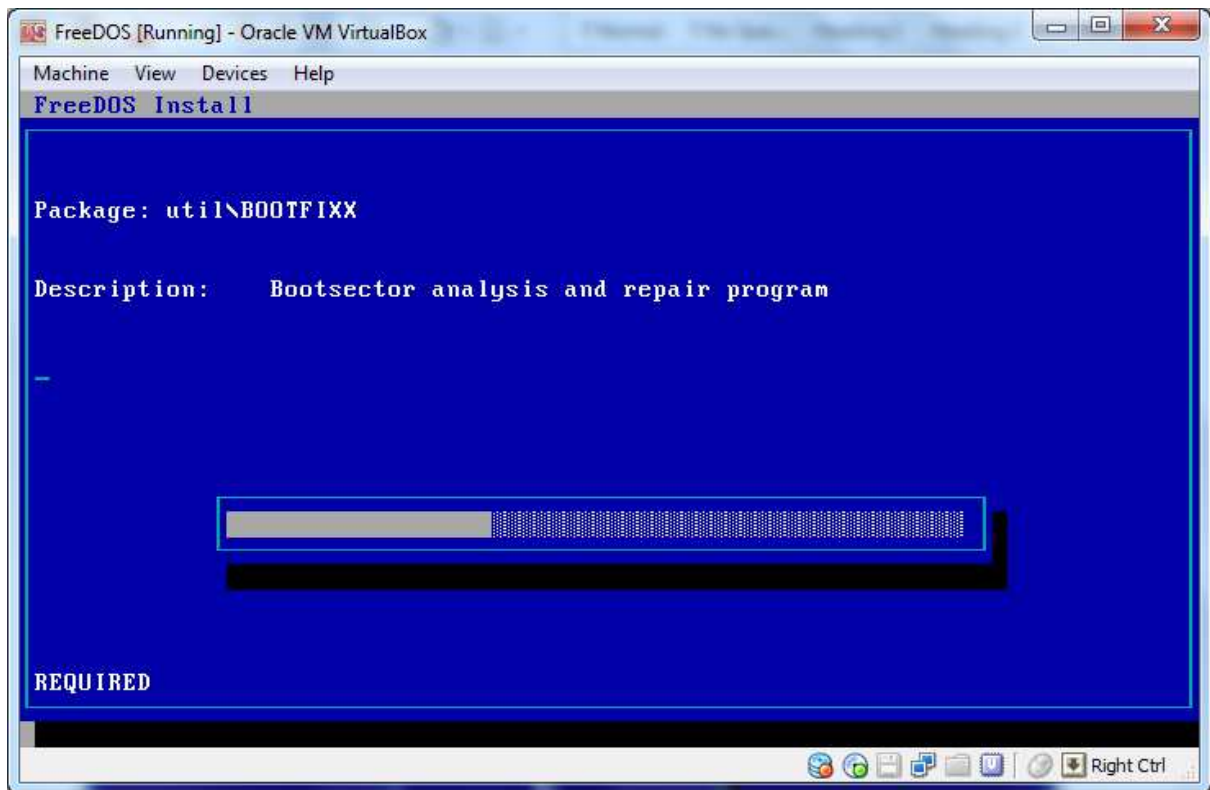
54. Press "Enter" when you are presented with the following:



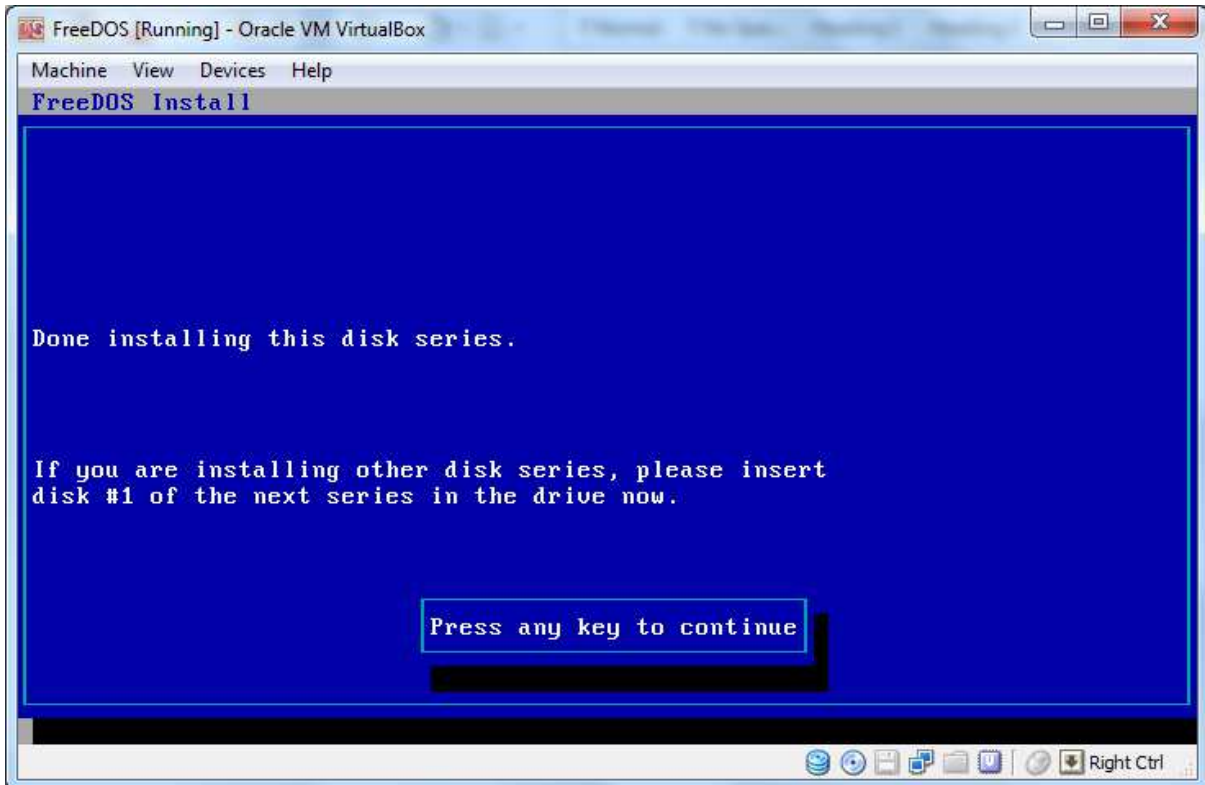
55. Use the arrow key to select “Yes”, and then press “Enter” when you are presented with the following:



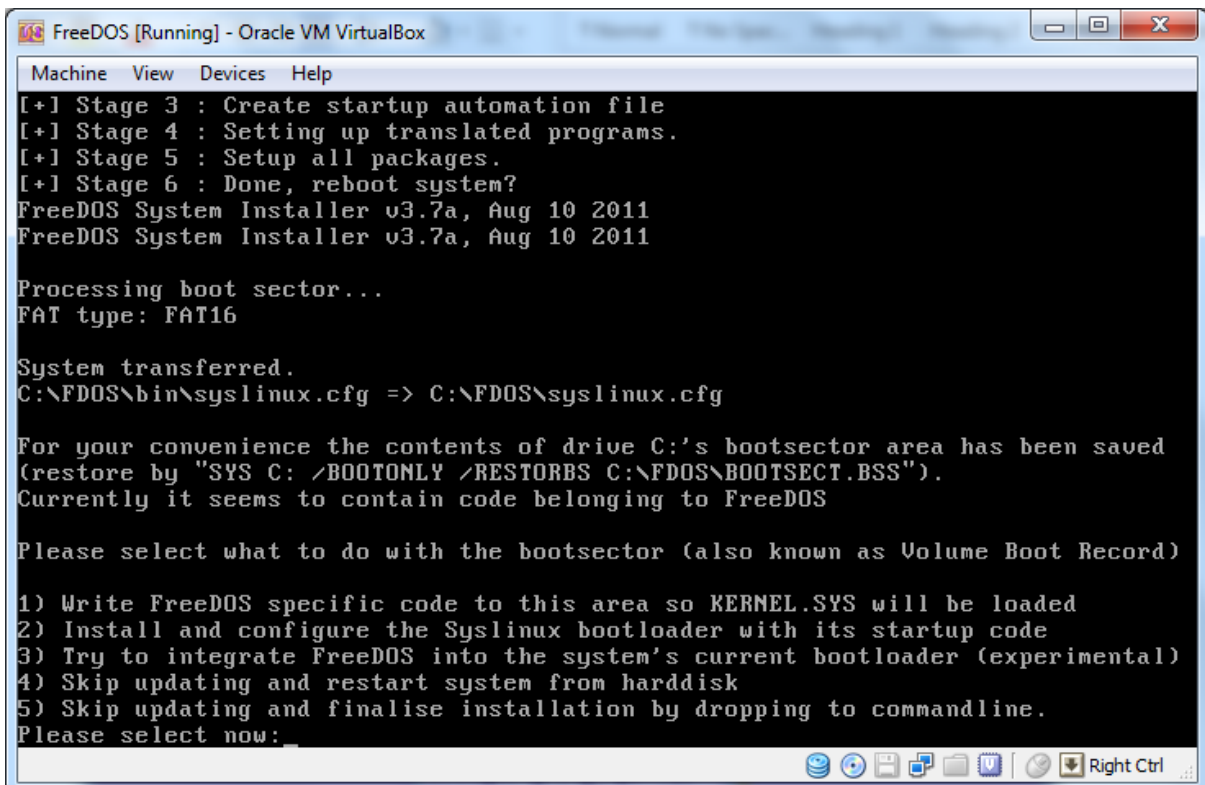
56. Please wait for the installation process to continue as this step will take a while to complete. During this time you will be presented with a series of screen similar to the one shown below:



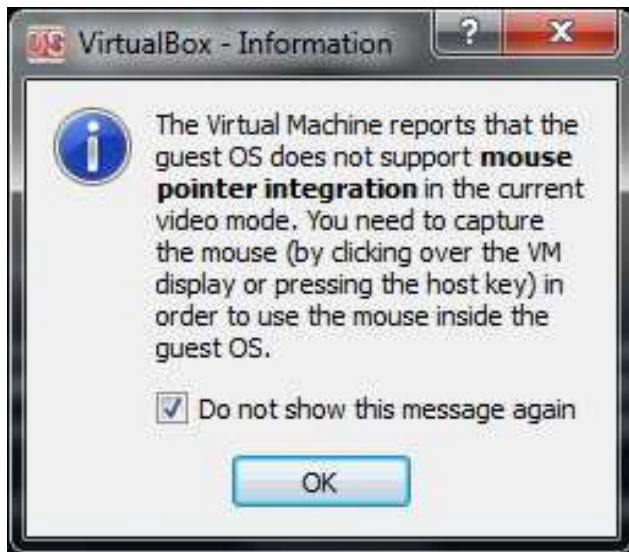
57. Press any key to continue the process when you are presented with the following:



58. Please wait for a few seconds for the installation to finalize, and then press “1” in order to select the option “1) Write FreeDOS specific code to this area so KERNEL.SYS will be loaded” when you are presented with the following:

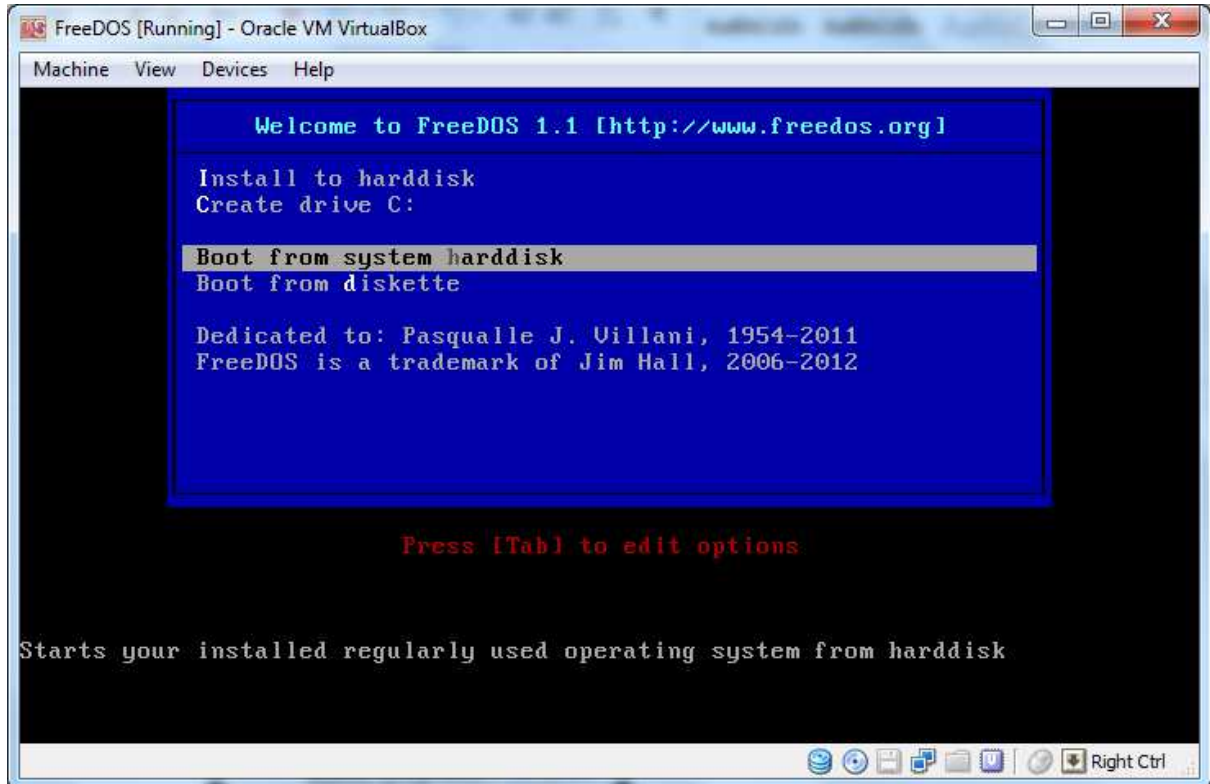


59. Check the option “**Do not show this message again**”, and then click “**OK**” when you are presented with the following:

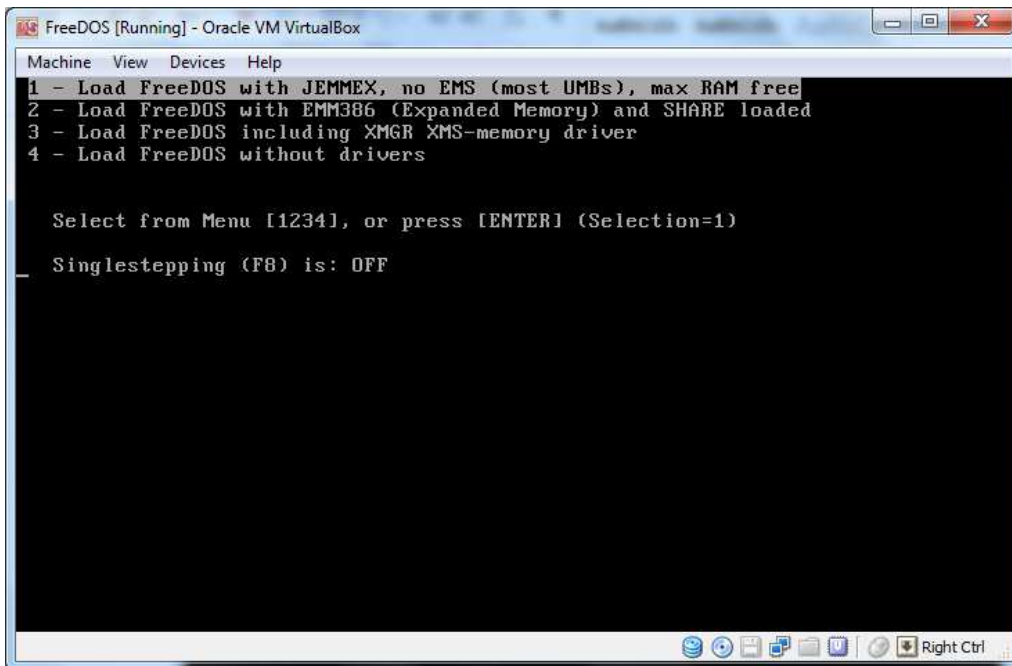


60. The “**FreeDOS**” Guest Operating System will now reboot.

61. After the Guest Operating System resume from reboot, use the arrow key to select the option “**Boot from system harddisk**”, and press “Enter” when you are presented with the following:

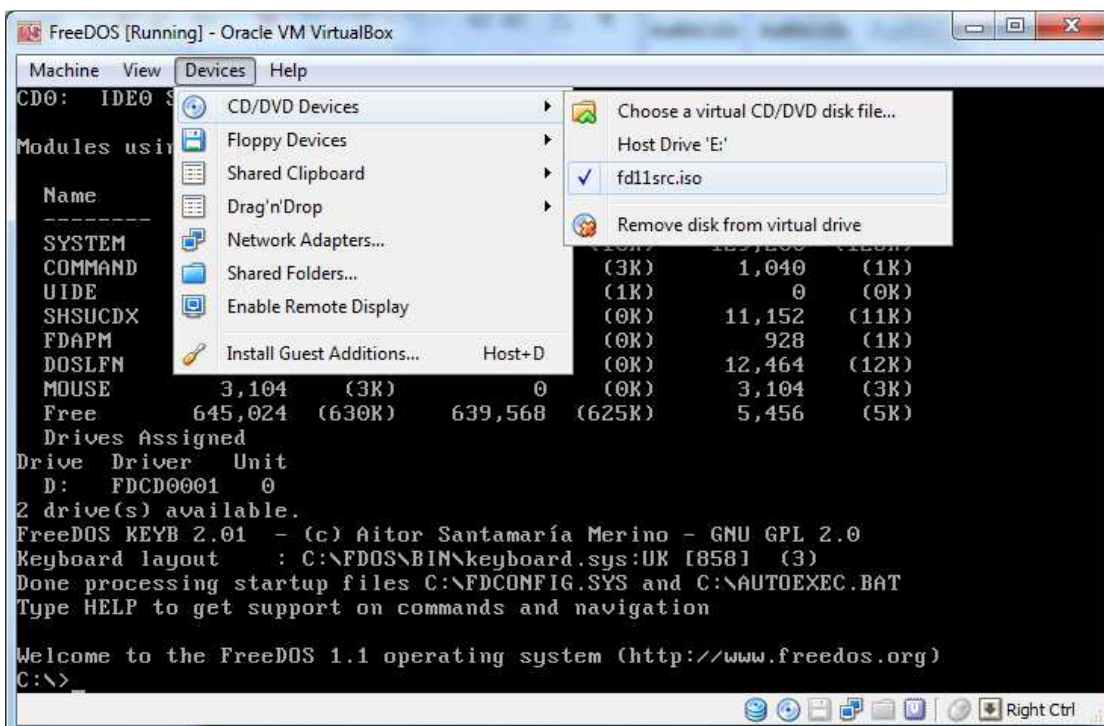


62. Use the arrow key to select the option “**1 – Load FreeDOS with JEMMEX, no EMS (most UMBs), max RAM free**”, and then press “**Enter**” when you are presented with the following:



63. We will now un-mount the installation “.iso” disk image. Otherwise, you will be greeted with the screen shown in **Step 61** every time you start the “FreeDOS” Guest Operating System. Since we have now successfully installed the Guest Operating System, we no longer need this installation disk image.

64. Click “**Devices -> CD/DVD Devices**”, and then click on “**fd11src.iso**” to un-mount the installation disk image as shown below:



65. Now type “reboot”, and then press “Enter” as shown below:

```
Welcome to the FreeDOS 1.1 operating system (http://www.freedos.org)
C:\>reboot
```

66. Now you will be taken a screen as shown in **Step 62** every time you start the “FreeDOS” Guest Operating System.

67. Please also note that the CD / DVD drive for “FreeDOS” Guest Operating System is “D:” drive as shown below:

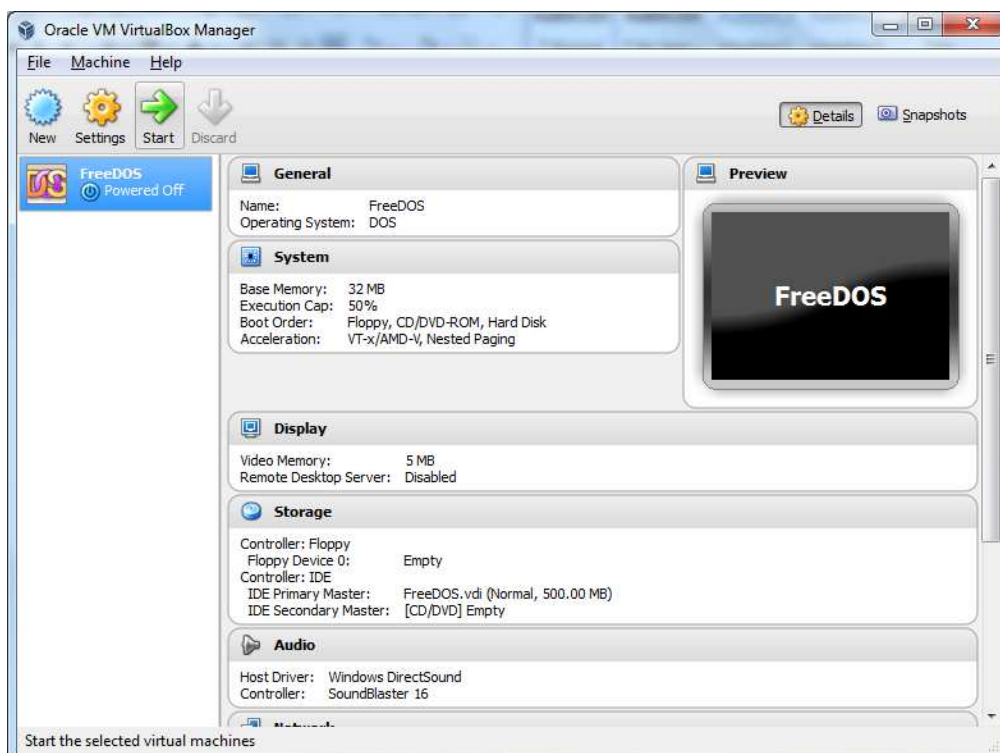
```
Drive  Driver  Unit
D:     FDCD0001  0
```

The disk image file (or) actual DVD / DVD media you load from the Windows 7 32-bit Host Operating System will show up under “D:” drive inside the “FreeDOS” Guest Operating System.

68. To shut down / switch off the “FreeDOS” Guest Operating System, type “shutdown” and then press “Enter” at the “C:\>_” DOS prompt as shown below:

```
Welcome to the FreeDOS 1.1 operating system (http://www.freedos.org)
C:\>shutdown
```

69. To start the “FreeDOS” Guest Operating System, simply press “Start” as shown below:



70. Now “FreeDOS” Guest Operating System is ready to be used for Serial Port communication. You will be using **COM1** of the “FreeDOS” Guest Operating System which will be **COM5** of the “Windows 7” Host Operating System as we have mapped in **Step 13**. Inside the Guest Operating System, **COM1** will appear as a legacy serial port with legacy I/O resources. Now you could run application inside the Guest Operating System which required legacy serial port resources by using **COM1**.

1. Version History

Version	Date	Author	Checked By	Comments
1	12/06/2013	Seng Seng Du	R&D	