

## Resizing a Virtual Disk for Windows Guests

Last Updated: 7/8/2007

When you run out of disk space in your virtual disks, you have two choices to add more disk space to your virtual machines.

- Add a second virtual disk to your virtual machine
- Resize your existing virtual disk to be larger

There are a number of advantages of adding a second virtual disk to your virtual machine when you need more disk space.

- 1) It is very simple to add a second virtual disk and it doesn't require using third party tools make the disk space available. Just shut down the virtual machine, go to Settings, click on plus button and select "Add Hard Disk". Select the hard disk size you want and the interface type and click OK. You then to go into Windows Disk Management and format the second virtual hard drive.
- 2) You can move all your user data to the second virtual disk, separating your data from the Windows operating system. Separating user data onto a separate disk makes it easier to only protect only the data you care about.

While it is easy to add a second virtual hard disk, many users would rather expand their existing virtual disk so they don't have to change application or data locations.

To resize your existing virtual disk, VMware Fusion provides a command line tool (`vmware-vdiskmanager`) to resize the virtual disk hardware. While this increases the size of the virtual hard disk, Windows does not recognize the increased size of the virtual disk because `vmware-vdiskmanager` only changes the size of the disk and does not know about operating system specific partitions.

This guide will use three free tools to help resize the Windows virtual disk.

- `vdiskmanager` GUI – A tool by Eric Tung. We will use this to resize the virtual disk itself.
- `VMX Extras` – A tool by Eric Tung. We will use this to make it easier to access the BIOS.
- `Gparted Live CD` – An open source tool that provides partition management. We will use this to resize the partition on the expanded disk so Windows can recognize the additional space.

## Download the Software

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1) Download the latest vdiskmanager GUI

<http://www.vmware.com/community/thread.jspa?messageID=674493&#>

2) Download the latest VMX Extras

<http://www.vmware.com/community/thread.jspa?messageID=687564&#>

3) Download the latest Gparted Live CD disk image (ISO)

<http://gparted.sourceforge.net/livecd.php>

## How to Resize Your Windows Virtual Disk

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BEFORE YOU PERFORM ANY RESIZE OPERATION, I HIGHLY RECOMMEND YOU MAKE A BACKUP COPY OF THE VMDK IN CASE THE OPERATION FAILS

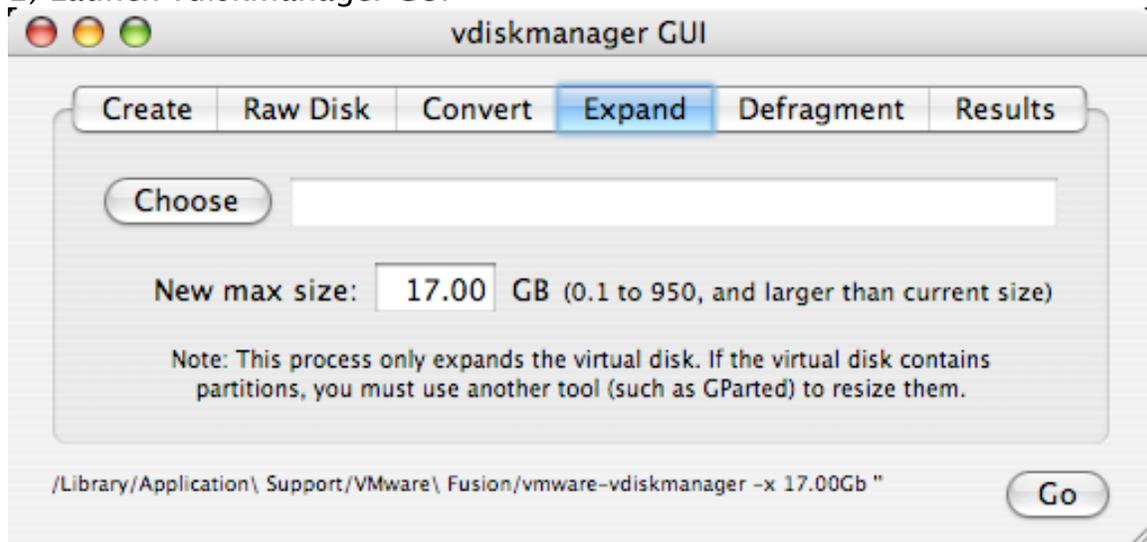
### Resizing A Virtual Disk Has Five Distinct Parts

- 1) Use vdiskmanager to resize the virtual disk
- 2) Changing the BIOS boot order to boot from the Gparted Live ISO
- 3) Use GParted to resize the partition to use larger virtual disk
- 4) Restore the prior BIOS boot order
- 5) Boot into Windows to complete the resize operation

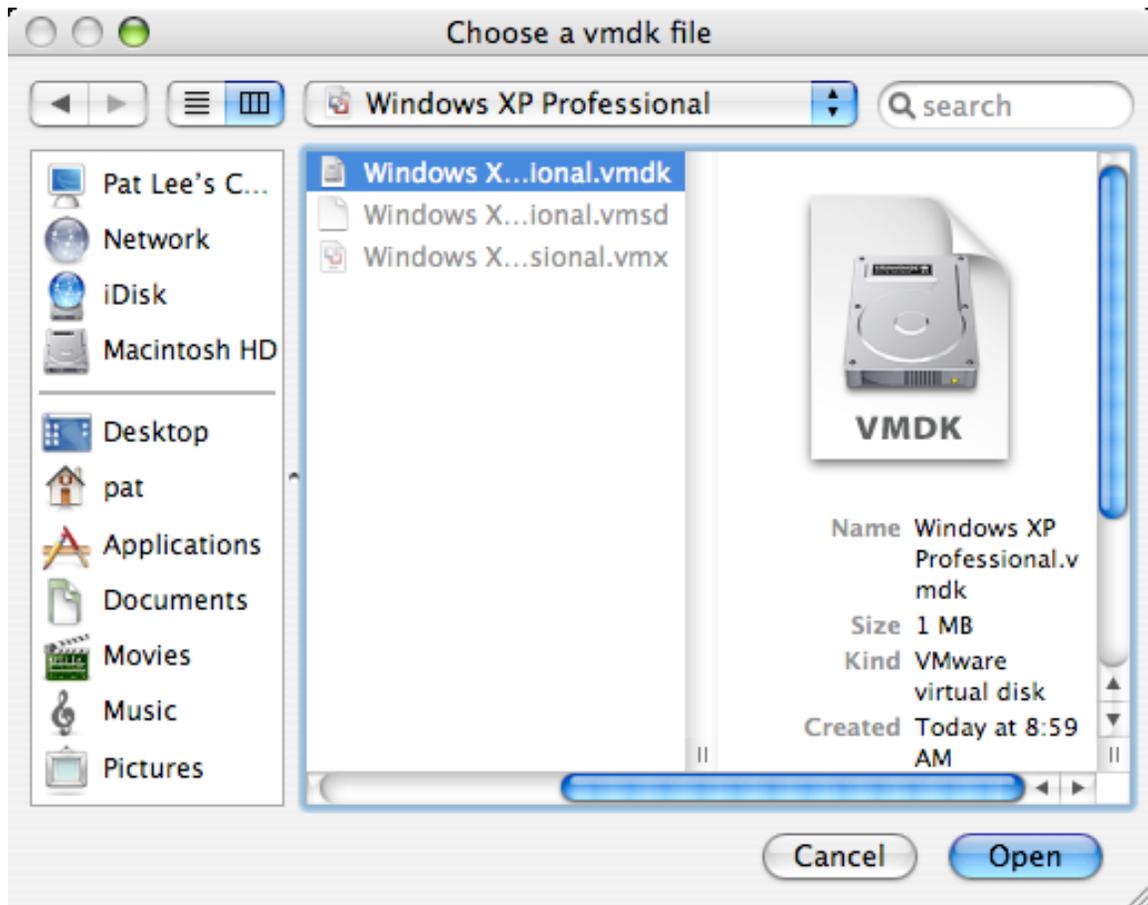
### Part 1 – Use vdiskmanager GUI to resize the virtual disk

1) Shut down your Windows virtual machine so that it is powered off.

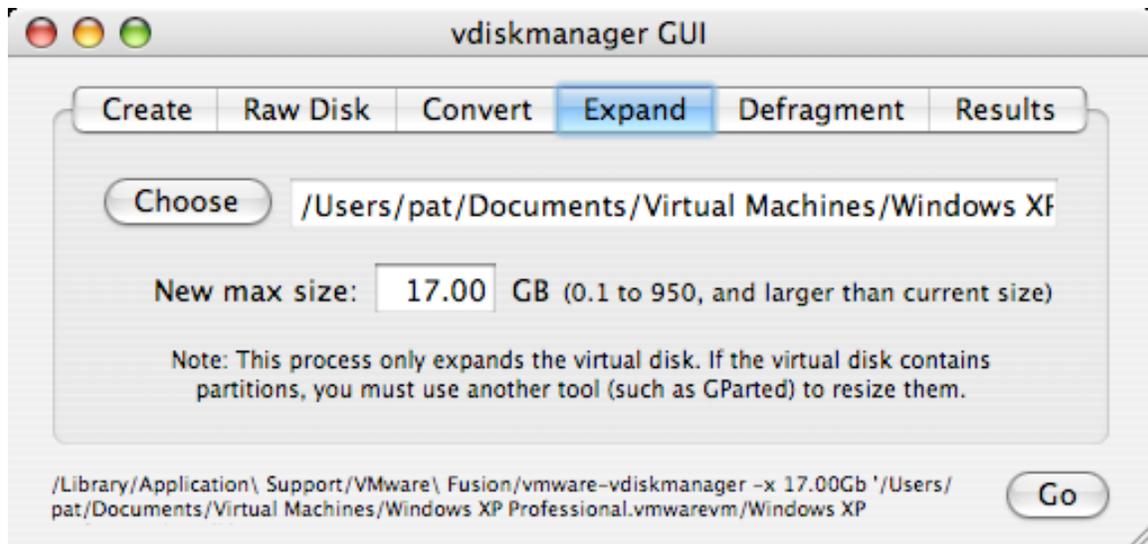
2) Launch vdiskmanager GUI



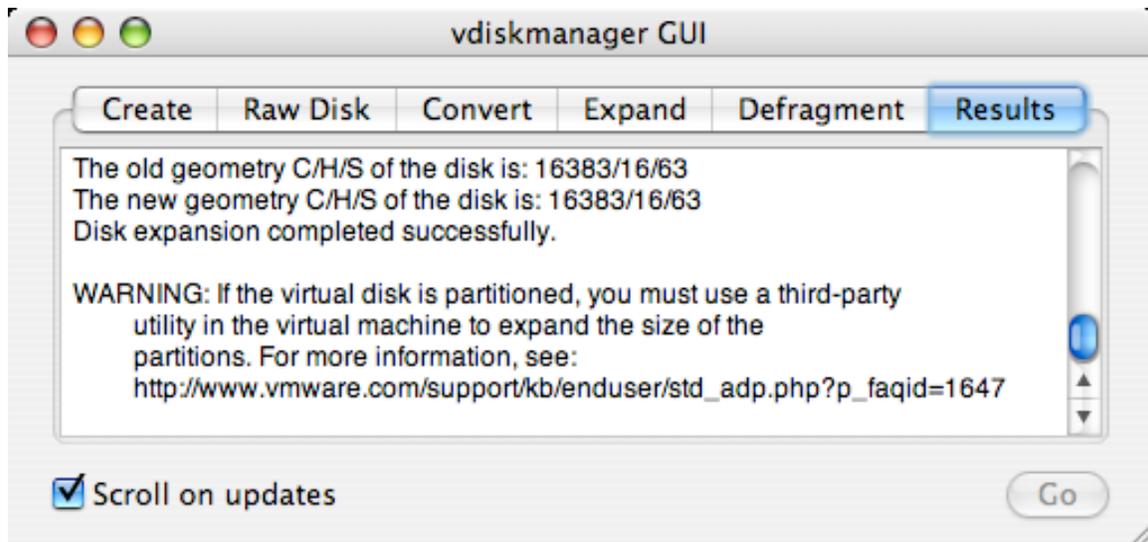
3) In the Expand tab, click the Choose button, navigate to the Virtual Machines folder, select your virtual machine, and select the virtual disk file stored inside the virtual machine package. The virtual disk file ends with .vmdk. Select this file and click Open.



4) When the correct virtual disk is selected, change the "New max size:" to your desired virtual disk size and click Go.



5) vdiskmanager GUI will present the Results tab to show progress of the operation. When the virtual disk resize is complete, quit vdiskmanager GUI.

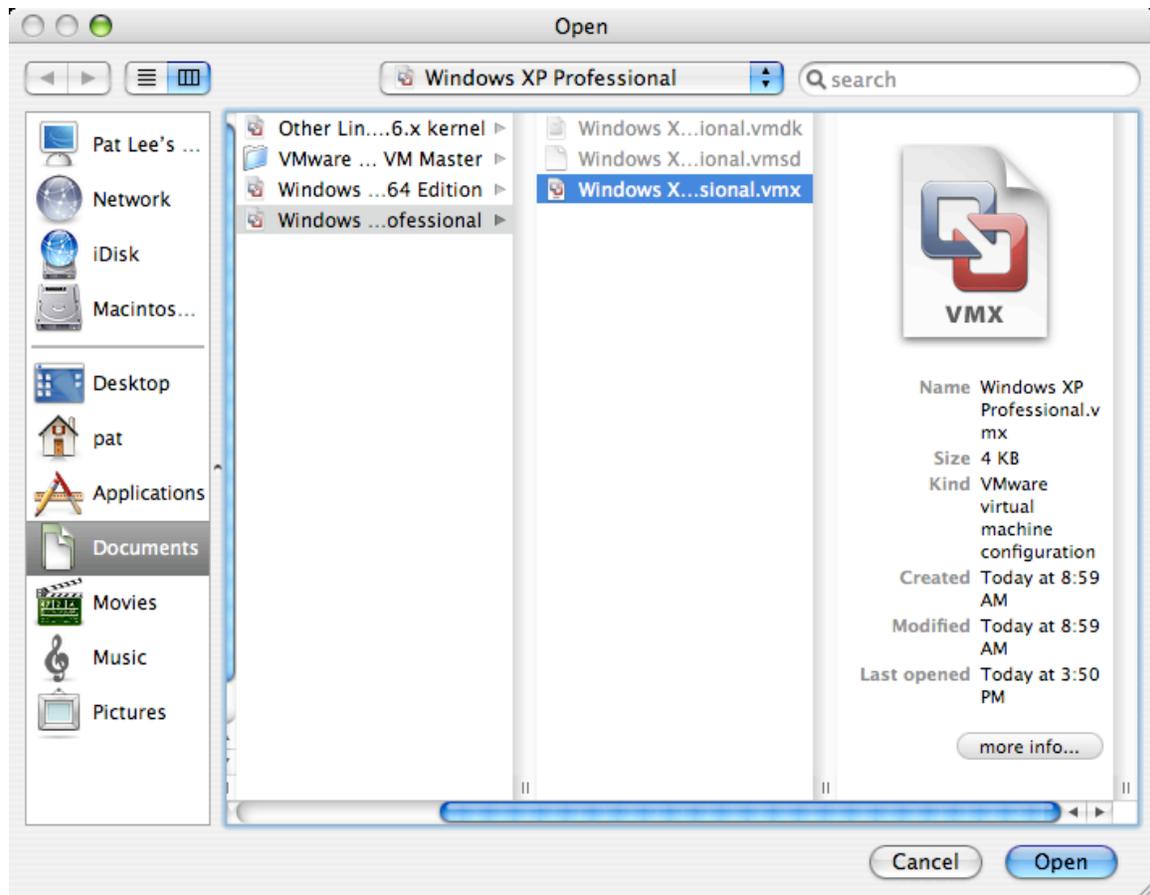


## Part 2 - Changing the BIOS boot order to use Gparted

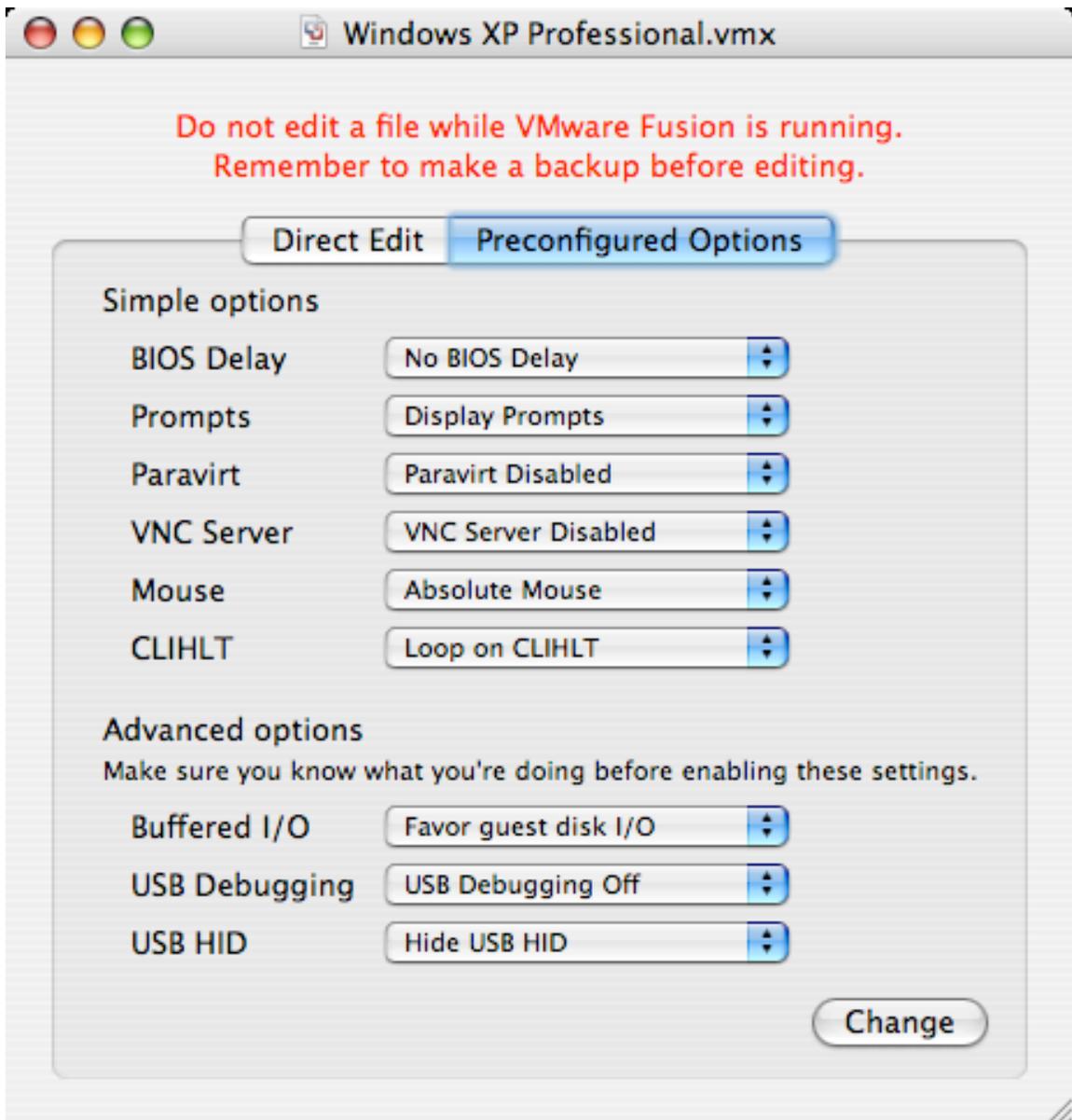
Since the VMware Fusion BIOS flashes by very quickly, we are going to use VMX Extras to add a 5 second delay to the BIOS boot to make it easier to change the boot order.

5) Launch VMX Extras and select Open from the File menu

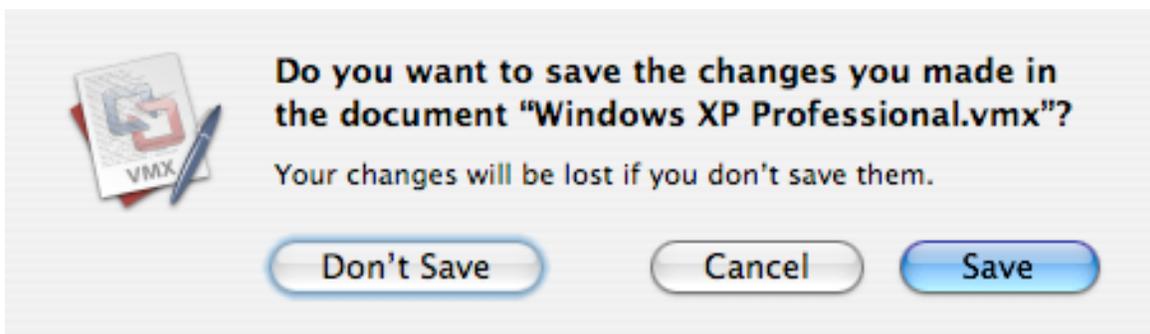
6) Navigate to the virtual machine package for the virtual machine in question and select the VMX file, which contains all the virtual machine settings, and click Open.



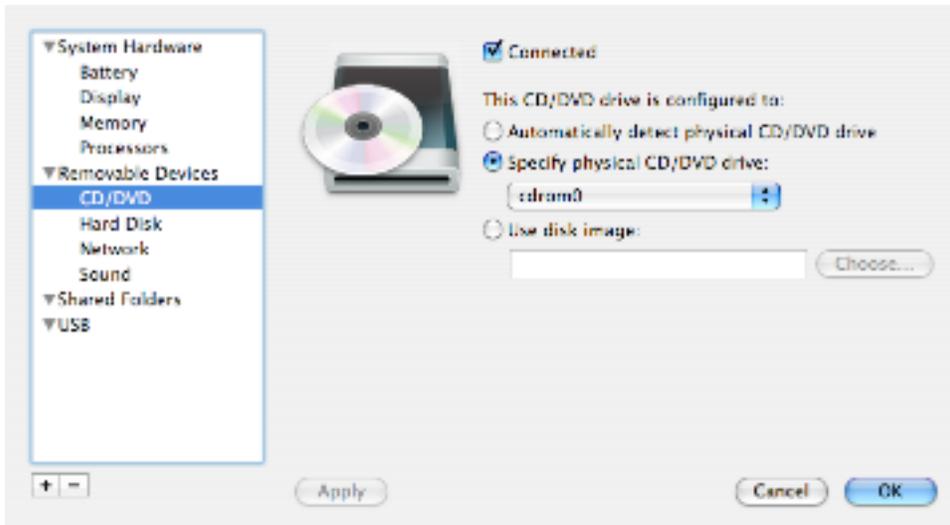
7) Click on the VMX Extras Preconfigured Options tab:



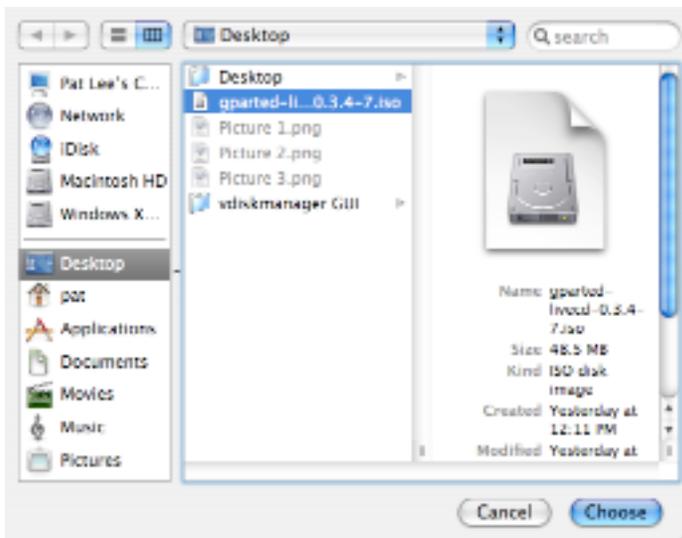
8) Click on BIOS Delay and change setting to 5 seconds and click Change. Quit VMX Extras and you will be presented with a save changes dialog. Click Save.



9) Launch VMware Fusion, select the virtual machine, and click the Settings button or type Command-E to bring up the Virtual Machine settings dialog.

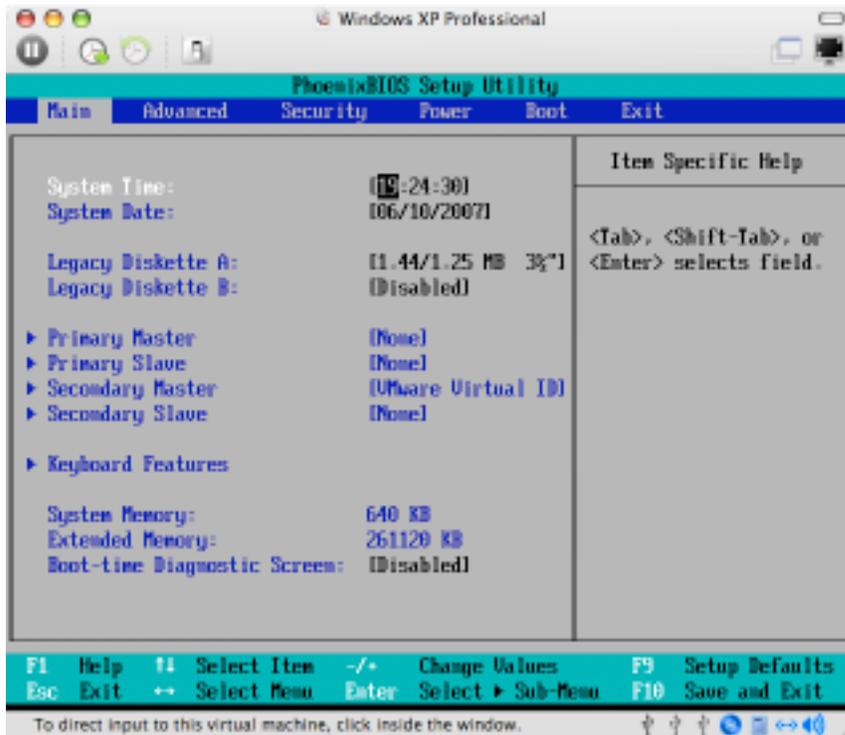


10) Click on CD/DVD and choose the “Use disk image” option and click “Choose...”

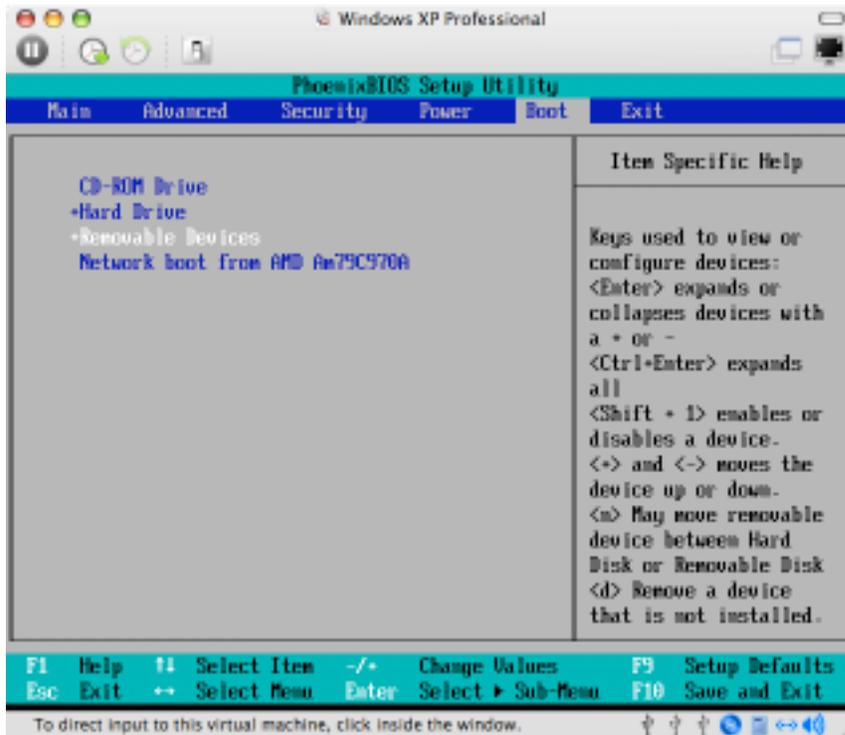


11) Select the Gparted Live CD ISO and click Choose.

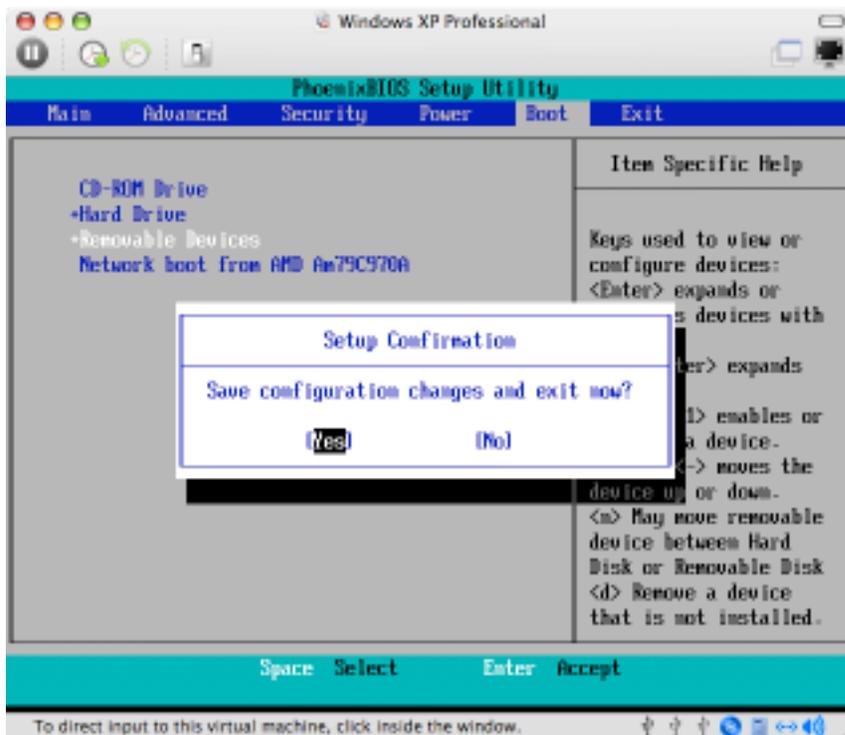
12) Click the Start button in the VM to power on the VM and click into the Window and type F2 (or Fn-F2 on laptops) to bring up the VMware BIOS.



13) Before proceeding, make a note of the boot device order so you can restore to the defaults after resizing your virtual hard disk. Next, use the arrow keys on the keyboard to navigate to the Boot menu of the BIOS. With the Hard Drive selected, use the minus key '-' on the keyboard multiple times to move Hard Drive and Removable Devices so that CD-ROM Drive becomes the top item in the boot order.

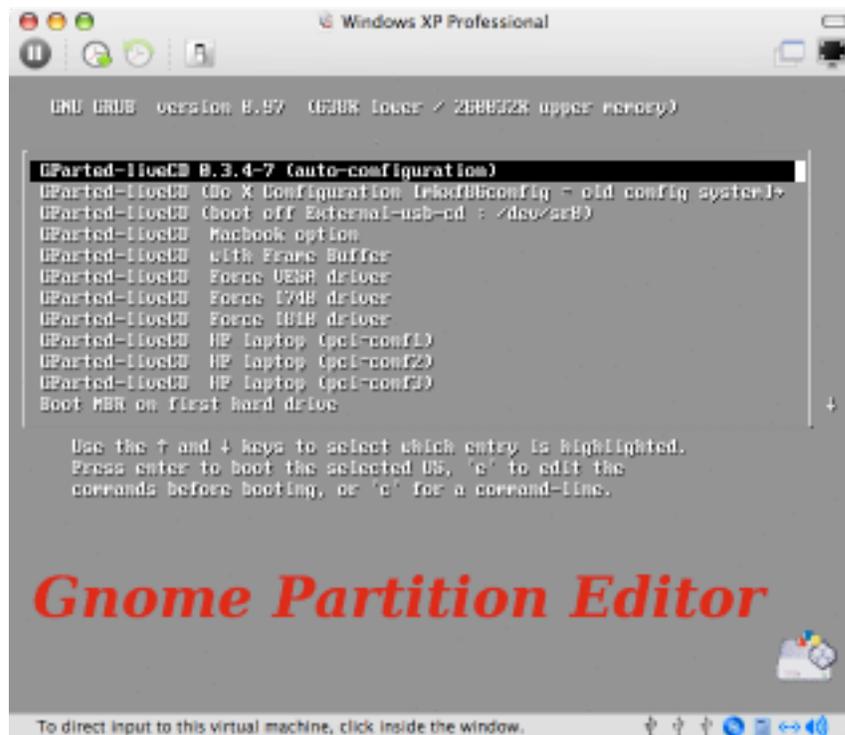


14) Type F10 (or Fn-F10 on laptops) to save changes to the BIOS and continue booting the virtual machine.

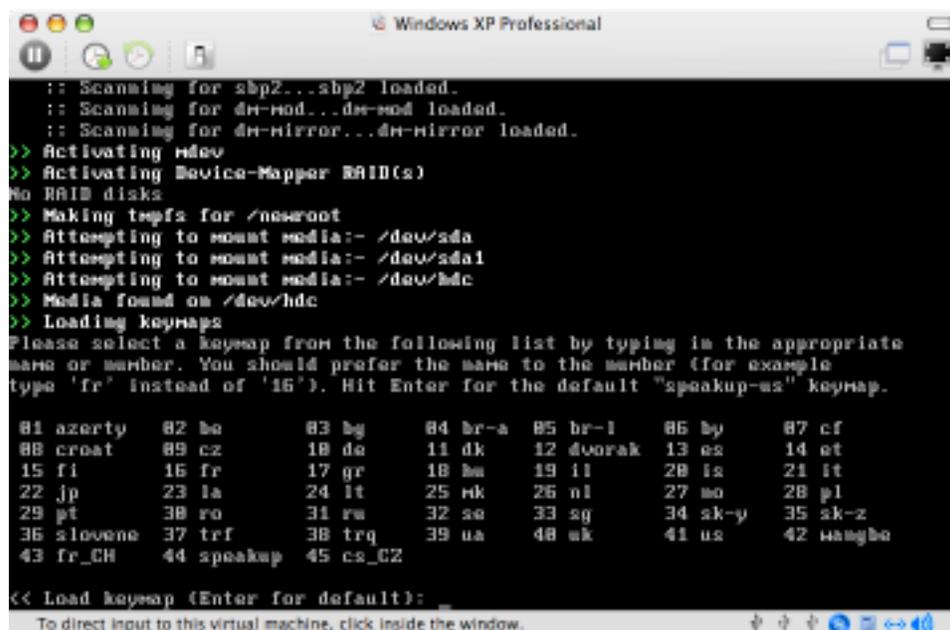


### Part 3 – Use GParted to resize the partition to use larger virtual disk

15) VMware Fusion will proceed to boot off the GParted Live CD. Click Enter to select the default “auto-configuration” settings to proceed.

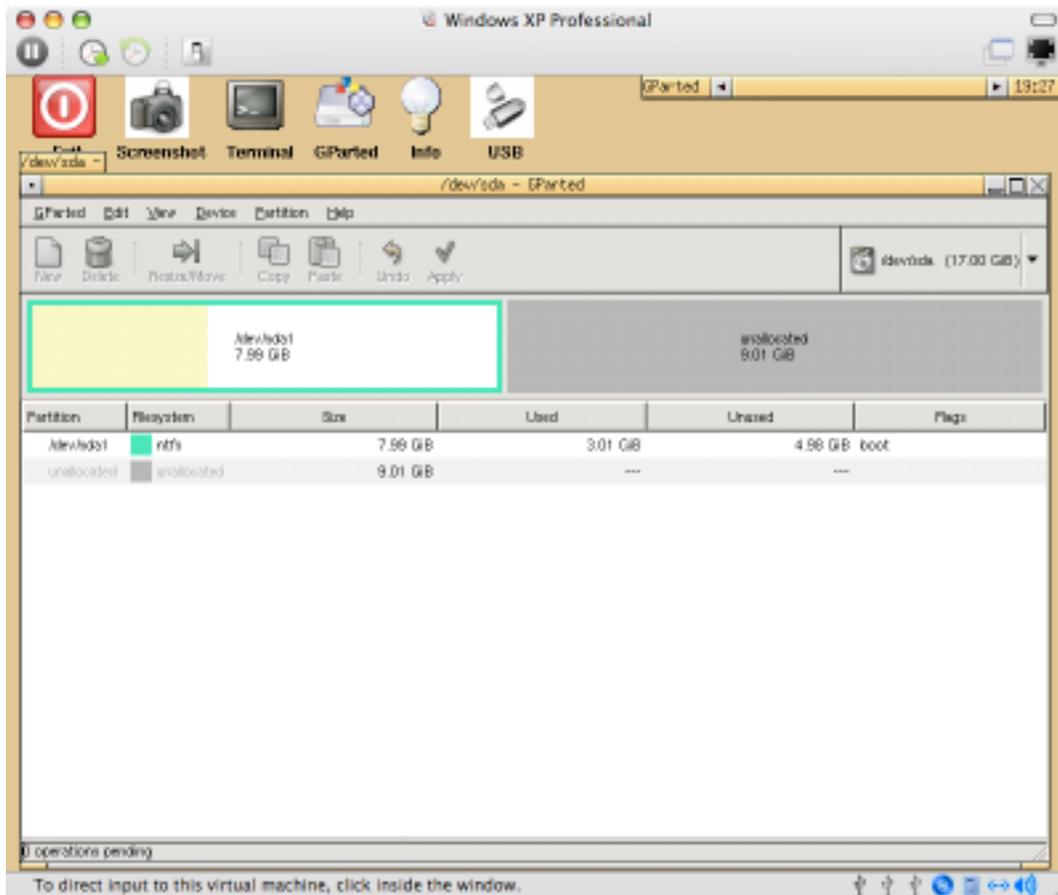


16) You will need answer two separate questions by hitting enter to make GParted proceed with the default keyboard settings for English.

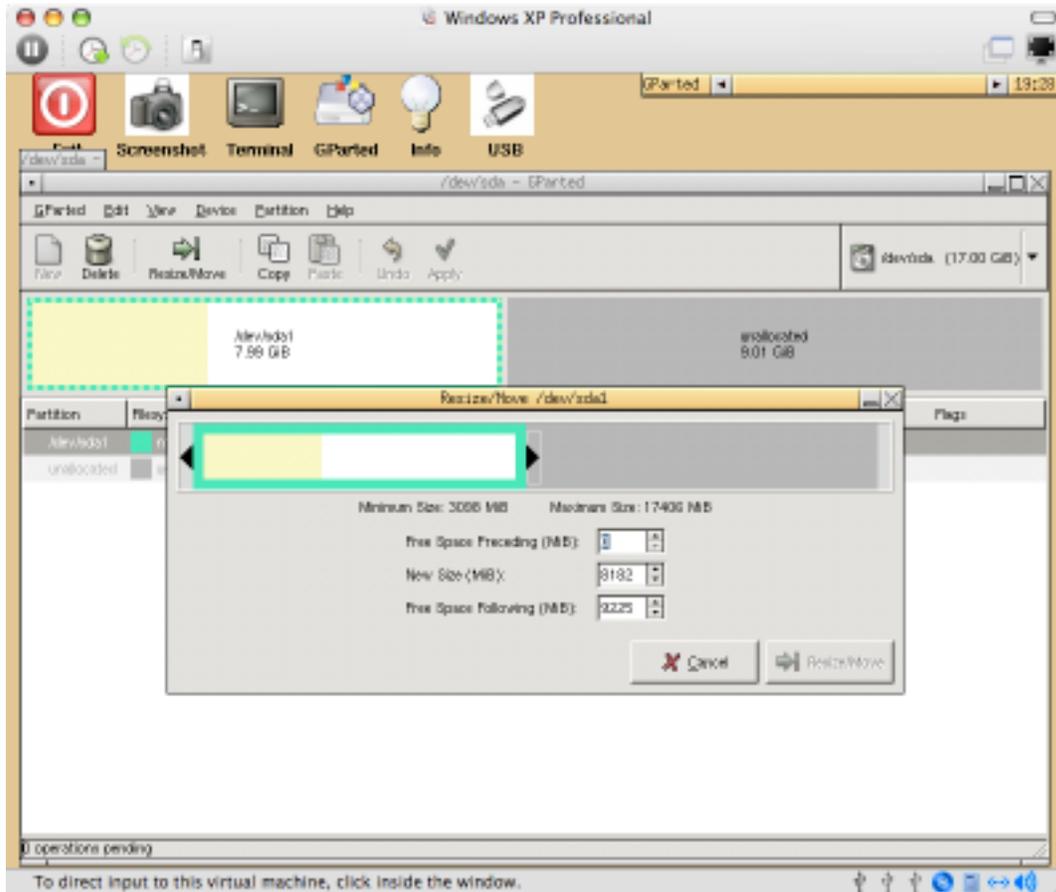




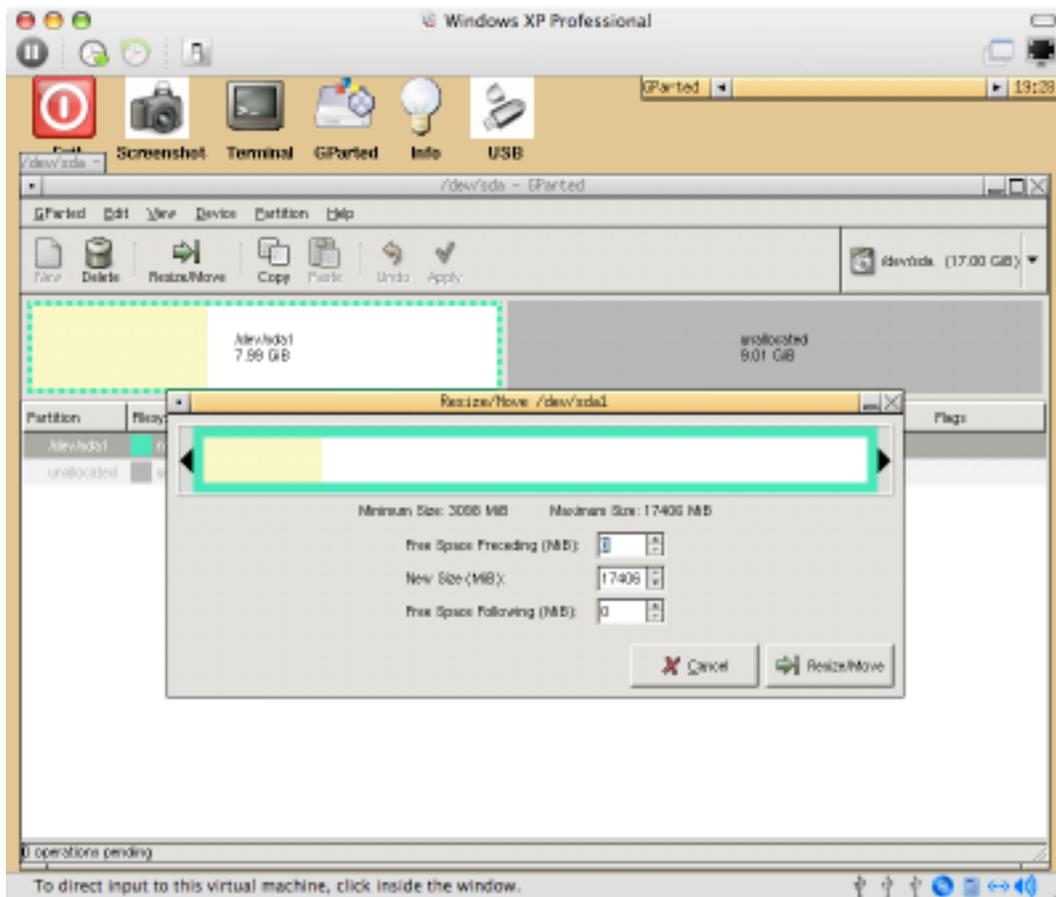
17) The virtual machine then boots directly into GParted



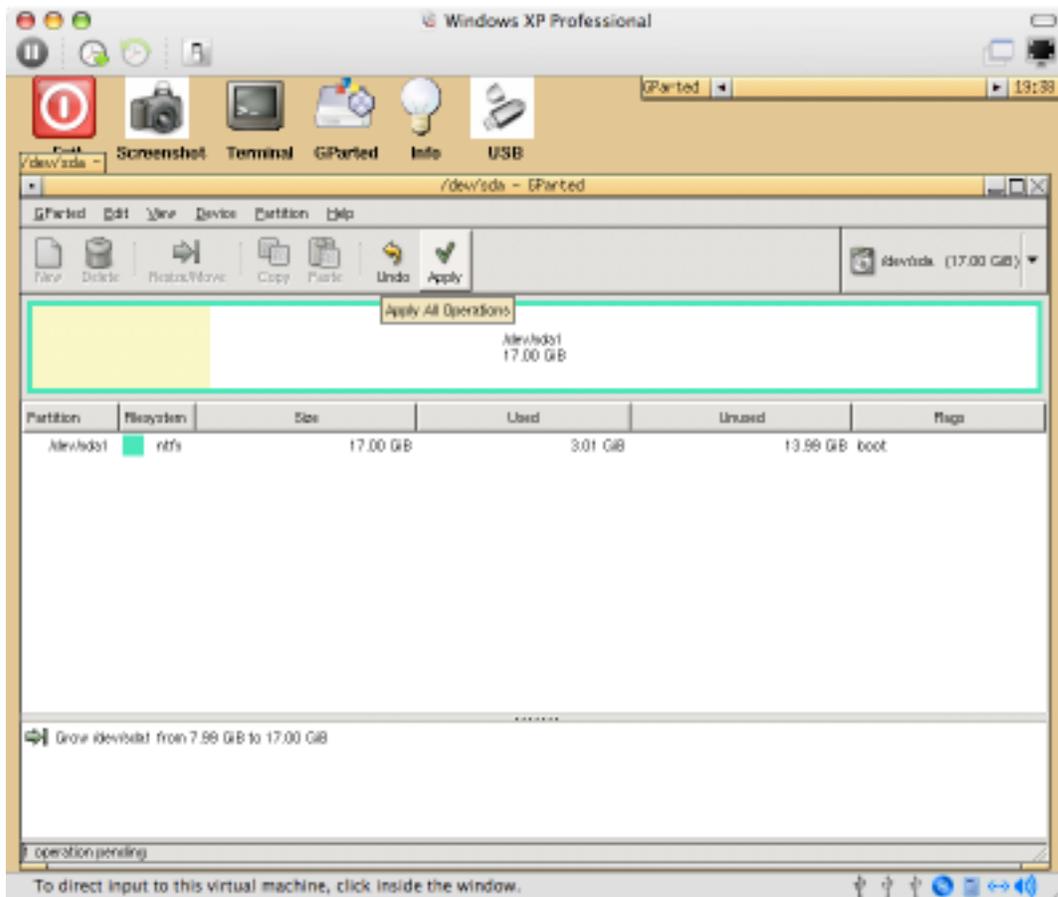
18) Select your existing virtual disk partition and click Resize/Move. GParted will put up the resize dialog.



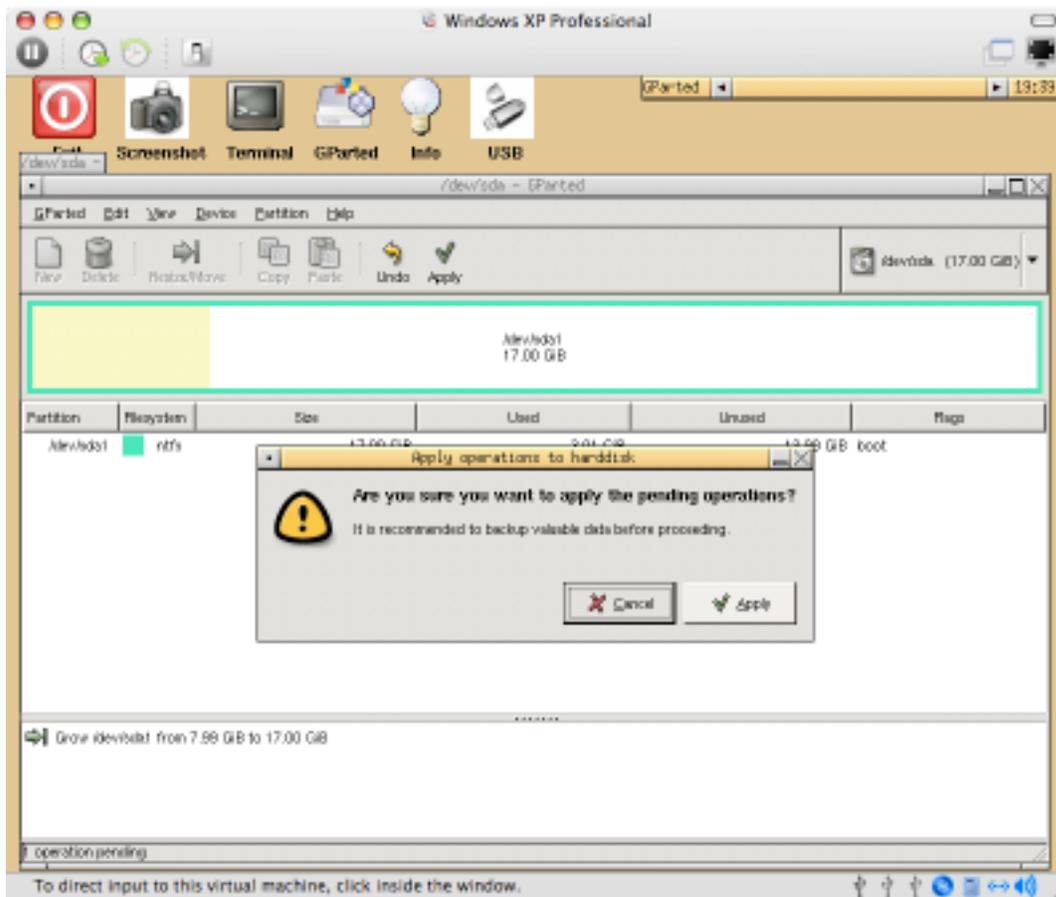
19) Select your existing partition at the right arrow and drag it completely to the right to take up the newly added virtual hard disk size.



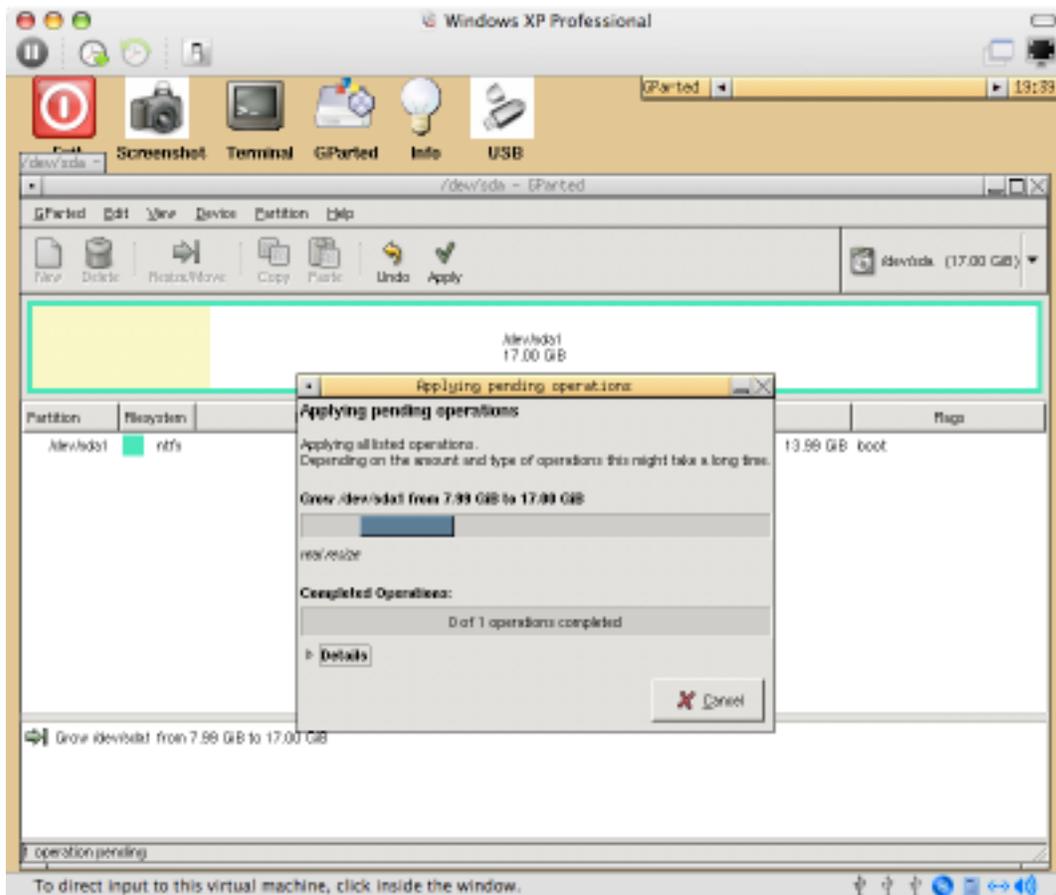
20) Click on the Resize/Move button.



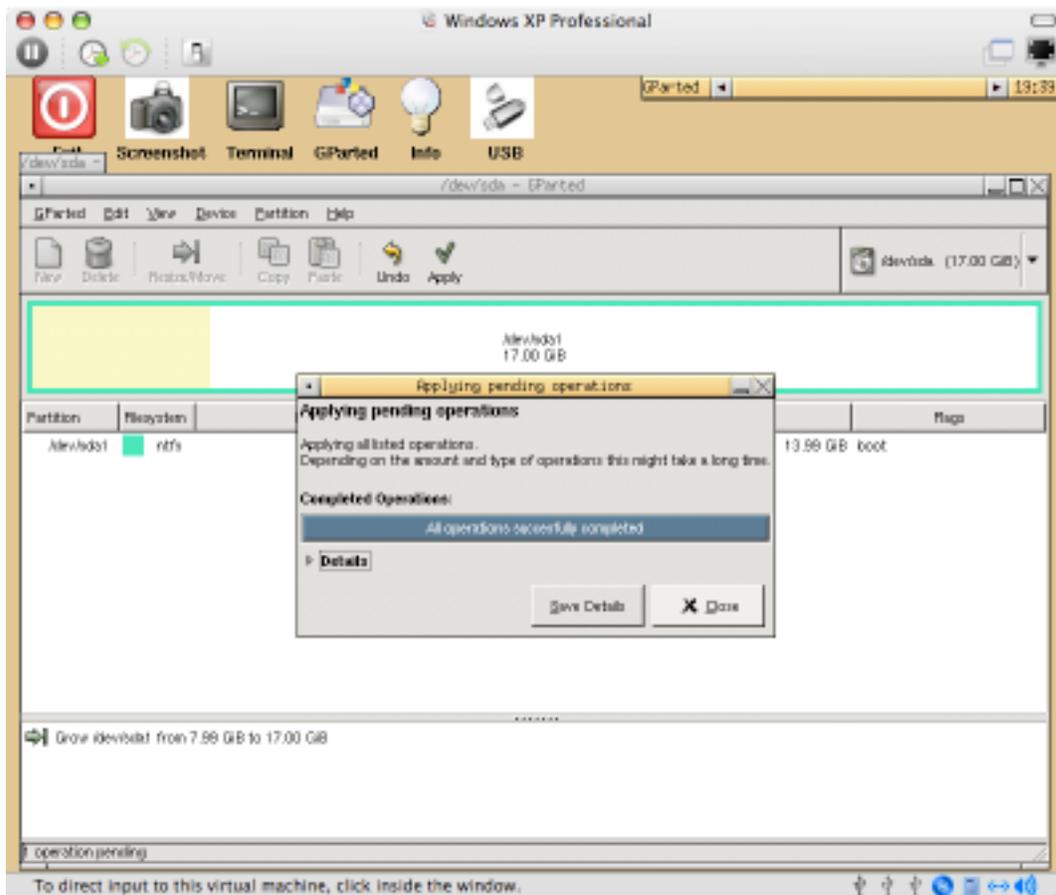
21) With your newly updated partition selected, click the Apply button.



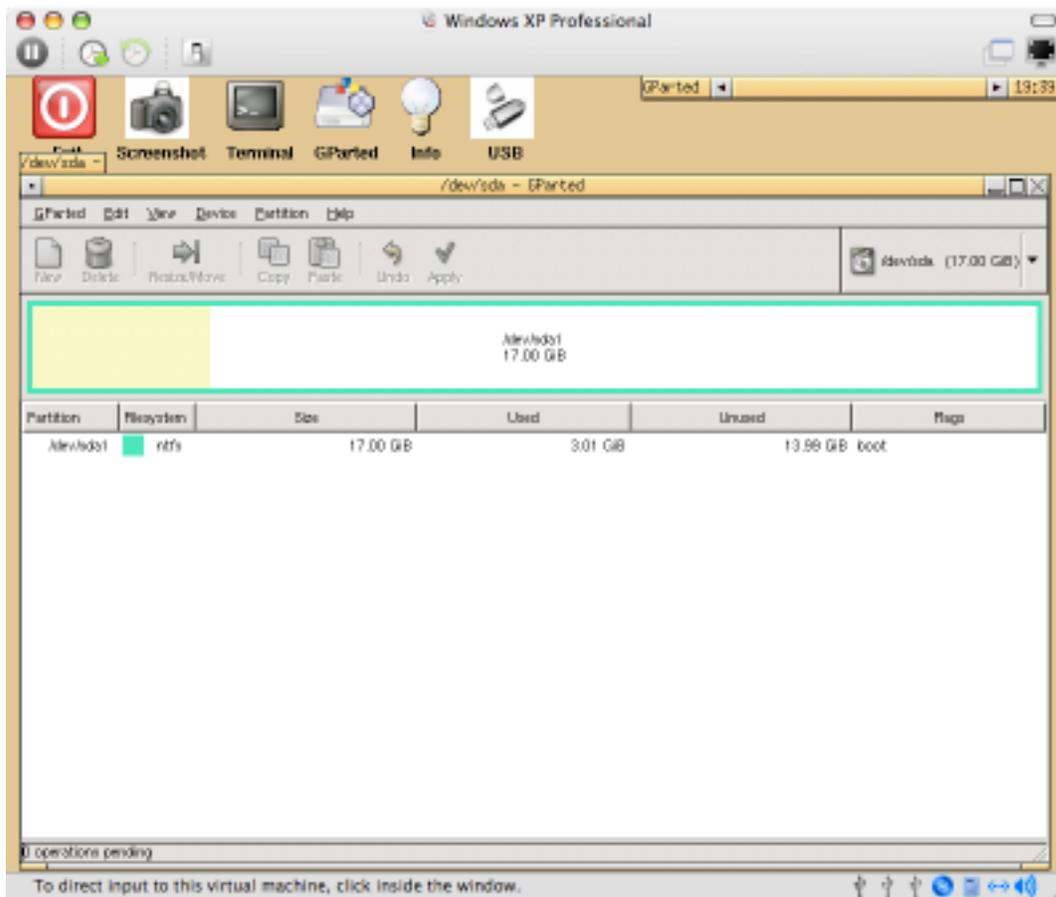
22) Click Apply to the GParted Confirmation dialog.



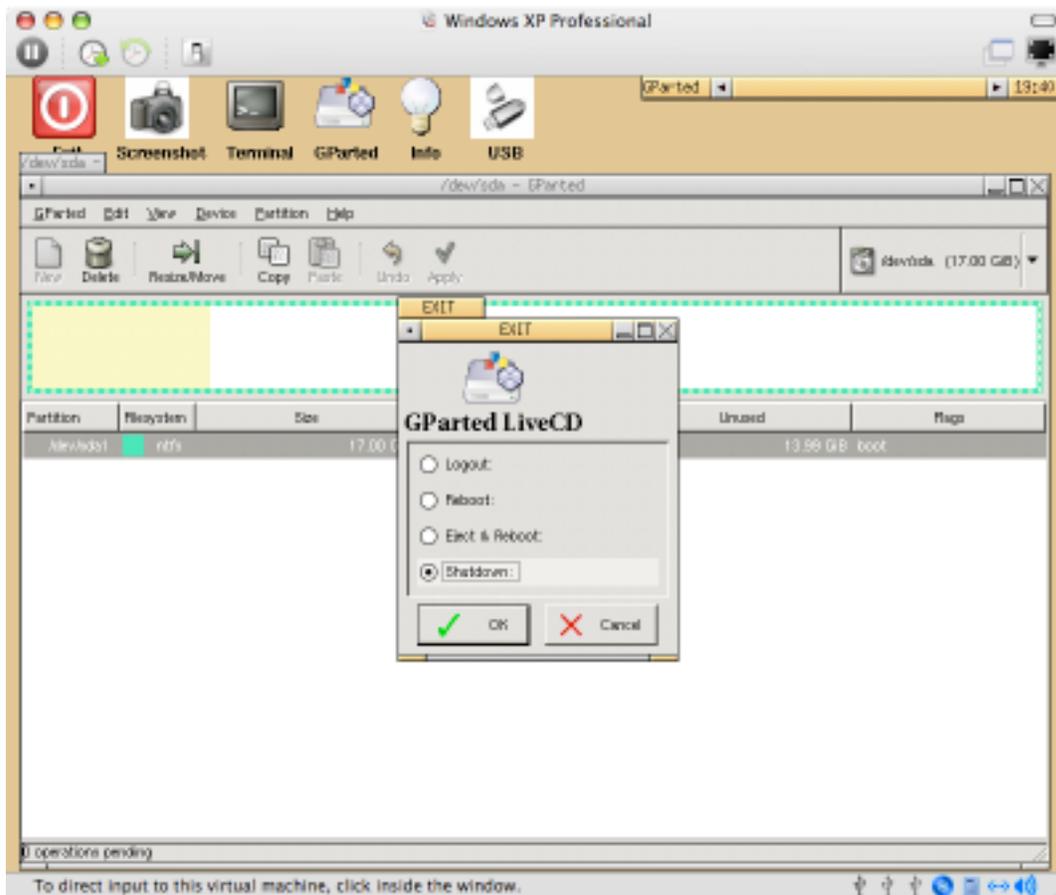
23) GParted will proceed to repartition the virtual disk and at the completion will put up a confirmation dialog. Click Close to proceed.



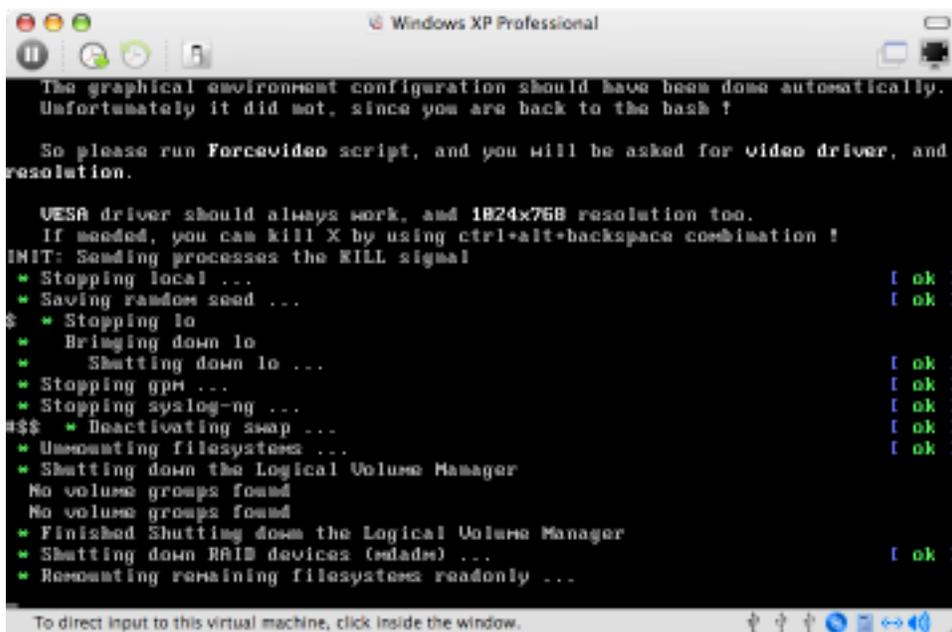
24) Now that the partition resizing is complete, click on the Exit button in the upper left hand corner to exit GParted.



25) Select Shutdown from the GParted confirmation dialog and click OK.



26) Once GParted exits the UI, it will finish the Shutdown in text mode.

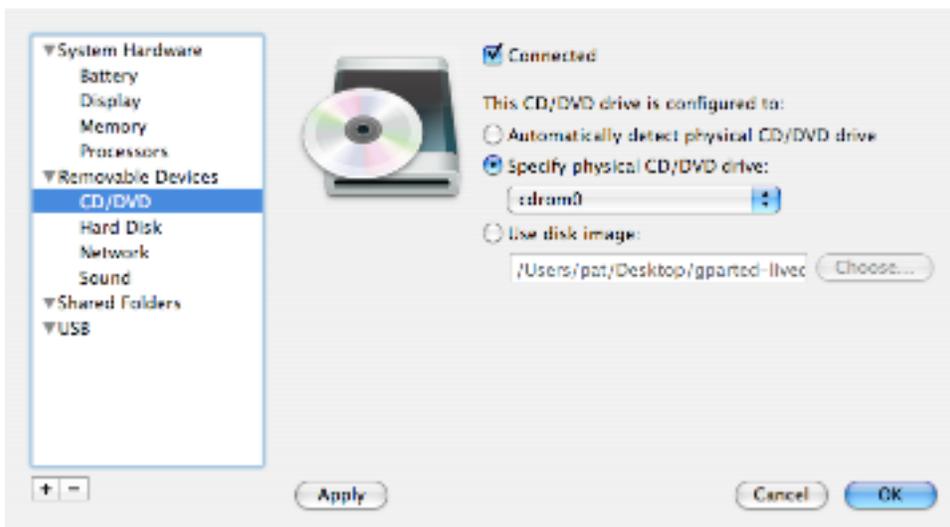


Part 4 – Restore the BIOS boot order and delay time

27) In VMware Fusion, select the powered off virtual machine, and click the Settings button or type Command-E to bring up the Virtual Machine settings dialog.



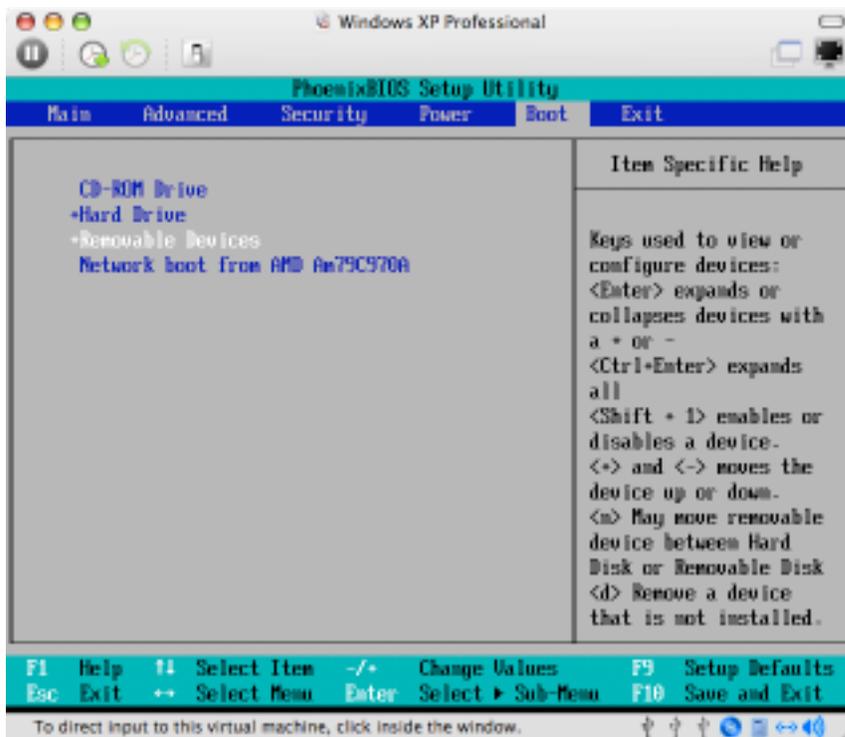
28) Click on CD/DVD and change the option back to your previous CD/DVD settings from “Use disk image” and click OK.



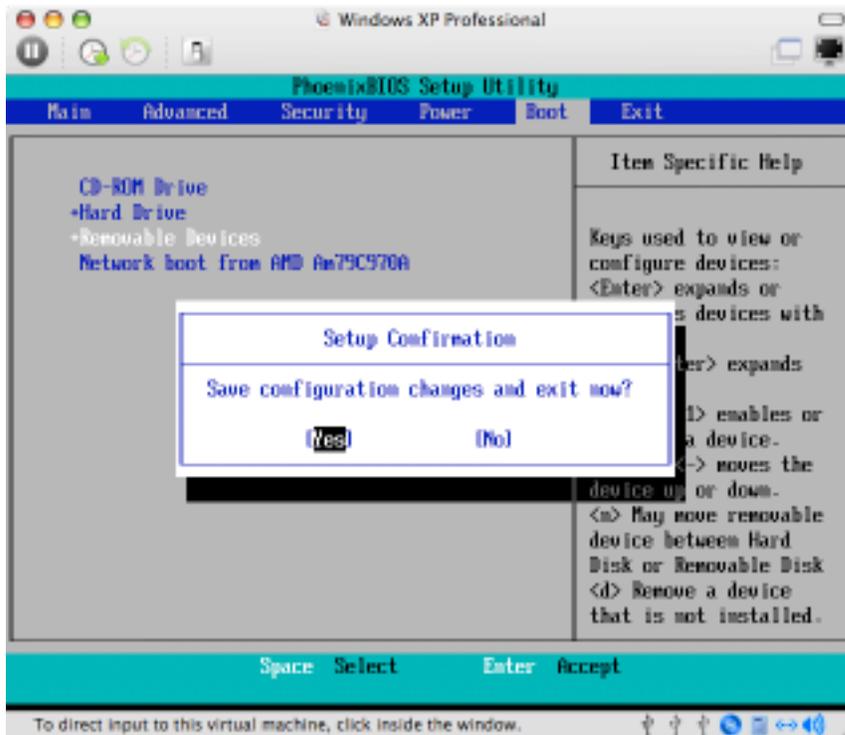
29) Now we should restore the boot order to the default or your previous settings. Click the Start button in the VM to power on the VM and click into the window and type F2 (or Fn-F2 on laptops) to bring up the VMware BIOS.



30) Use the arrow keys on the keyboard to navigate to the Boot menu of the BIOS. Then, use the minus key '-' on the keyboard multiple times to restore the boot order to the previous settings you recorded in step 10.

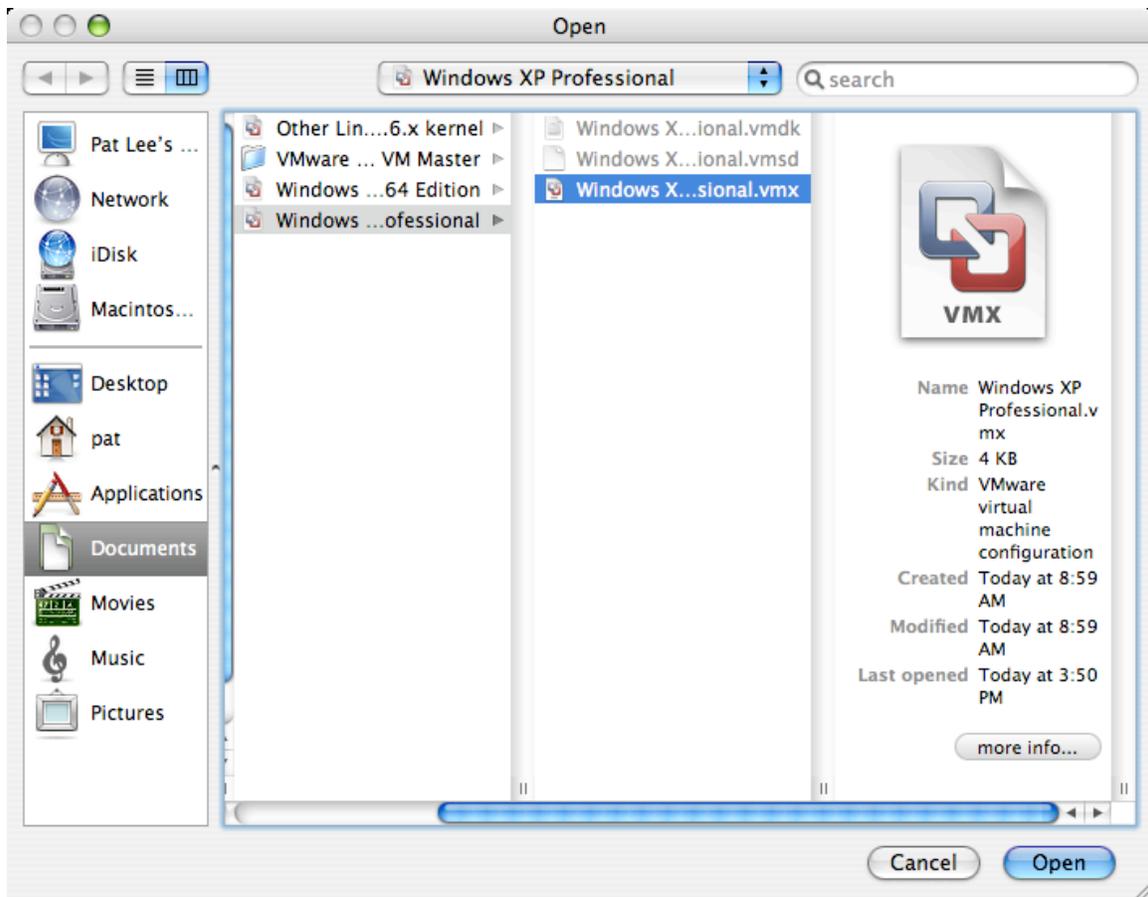


31) Type F10 (or Fn-F10 on laptops) to save changes to the BIOS and continue booting the virtual machine. Once the VM starts booting again, select Shut Down Guest from the Virtual Machine Menu

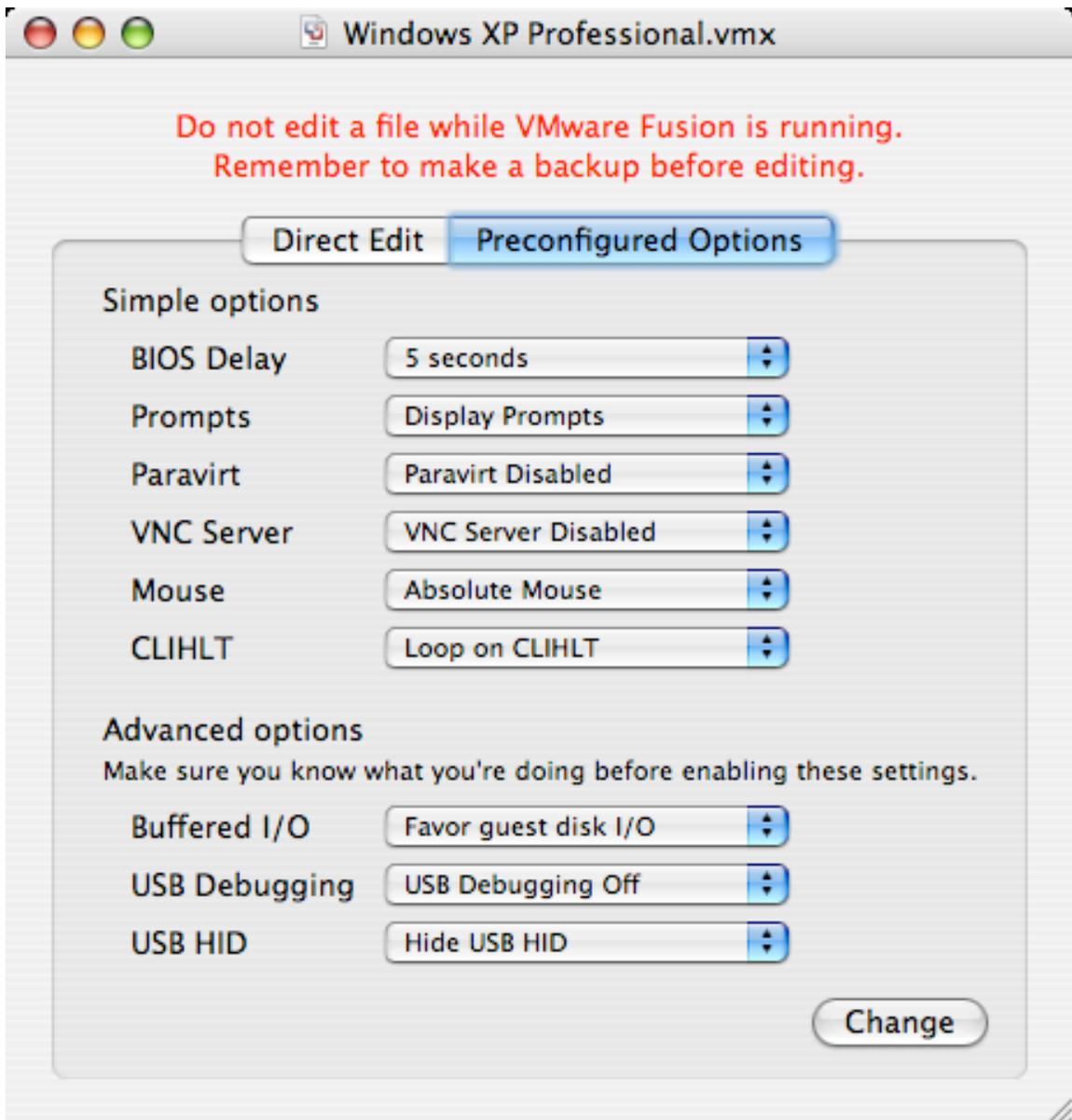


32) Launch VMX Extras and select Open from the File menu.

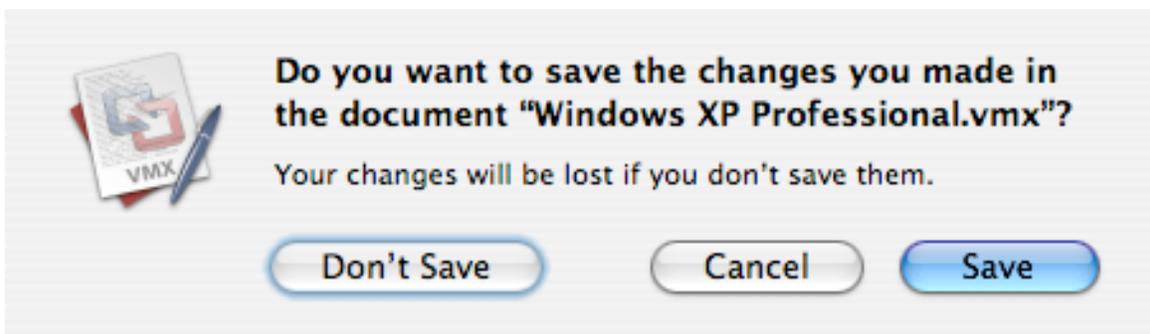
33) Navigate to the virtual machine package for the virtual machine in question and select the VMX file, which contains all the virtual machine settings, and click Open.



34) Click on the VMX Extras Preconfigured Options tab:

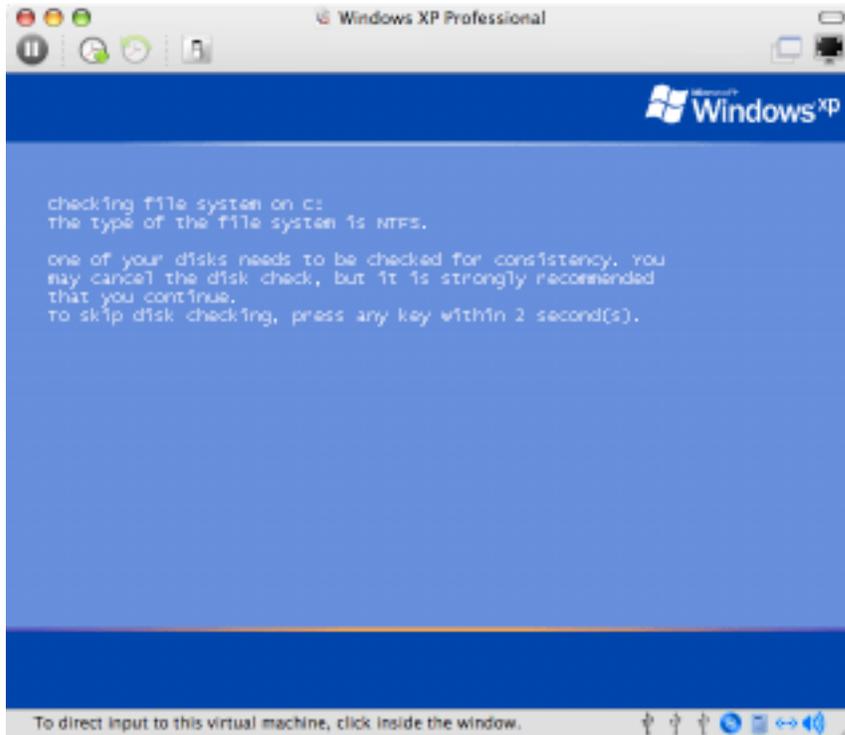


35) Click on BIOS Delay and change setting from 5 seconds to No BIOS Delay and click Change. Close VMX Extras and you will be presented with a save changes dialog. Click Save.

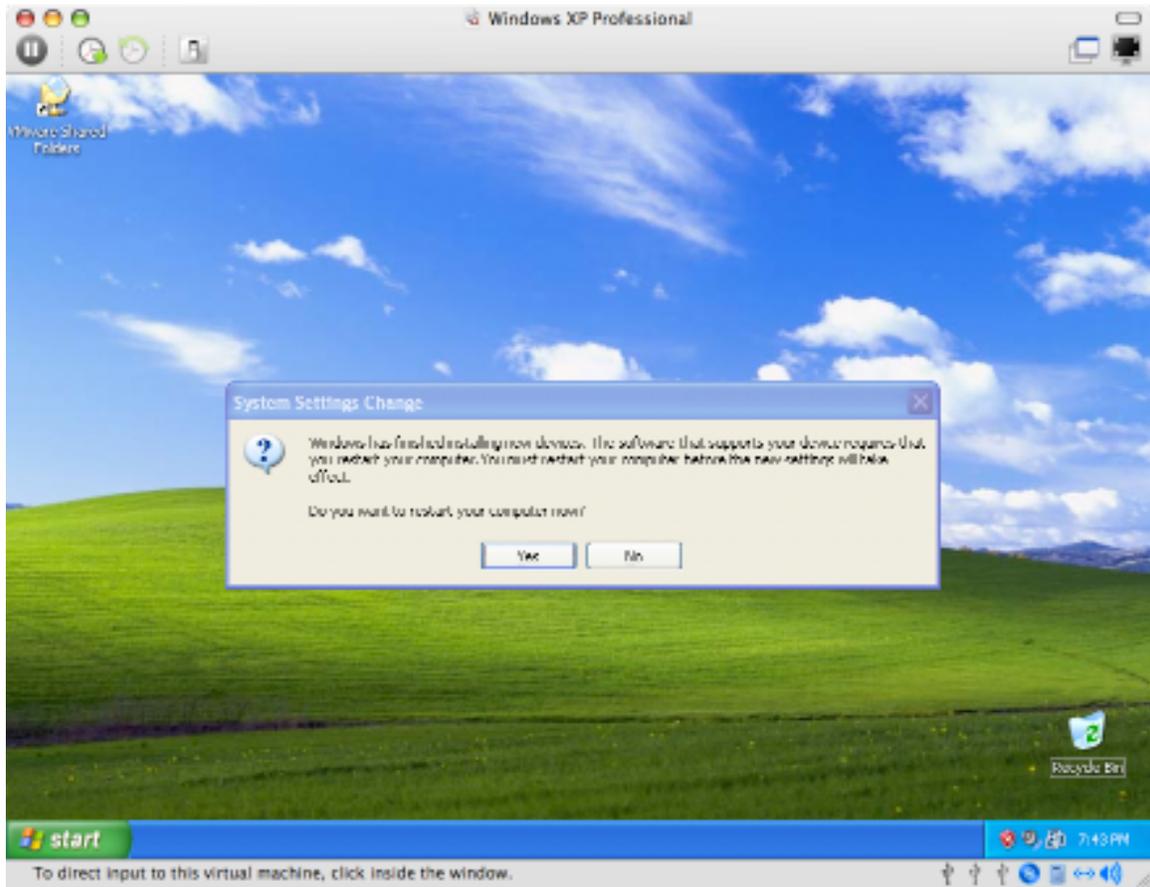


## Part 5 – Boot into Windows to complete the disk resize operation

36) In VMware Fusion, click Run to power on the virtual machine. When Windows begins to boot, it will start with a disk check for consistency. This is expected, as this is the default setting of GParted to ensure that the partition operation was completed successfully.



37) Once the Windows disk check is complete, Windows will boot to the desktop and after a short period Windows will recognize that new hardware, the larger hard drive, is now available. You need to restart Windows for the resized disk to be available.



38) When Windows reboots, go the Start Menu and select My Computer. Select your updated hard drive and notice that the size is now updated to your desired size.

