Appendix I. VALUE Installation

This appendix covers various methods of installing or updating VALUE. It also addresses post-installation and updating the VALUE host Debian operating system.

If this is your first distribution of VALUE, please review the Software License Agreement and return a signed copy to the following address:

ManTech International Corporation
Attn: Mr. Mark Brown
1560 Wilson Blvd., Suite 1000
Arlington, Virginia 22209
USA
Phone: 703-907-3952
Fax: 703-358-9432

NOTE: Older versions of VALUE were developed and distributed with Ubuntu 10.10. Now Debian 6 is the distribution used for development and distribution.

I.1. VALUE Windows Installation

This section describes installing VALUE pre-loaded on an Oracle VM VirtualBox® virtual appliance (VBVA). It assumes VirtualBox is already installed on the Windows host. See the VirtualBox [http://www.virtualbox.org] web site for download and installation instructions. (Note we shall often use "VBox" as a short name for VirtualBox hereinafter.)

The Windows host must be able to host the VBVA which is normally produced for 64-bit-capable hosts. Windows 32-bit hosts are capable of supporting a 64-bit Debian guest host if the CPU meets certain conditions. Those conditions are detailed in the Oracle VM VirtualBox® User Manual section entitled "64-bit guests [http://www.virtualbox.org/manual/ch03.html#intro-64bitguests]."

Note that ManTech is allowed to distribute the Open Source Edition (OSE) binaries of VirtualBox (licensed under the GPL Version 2) but not the extension pack which is licensed under the VirtualBox Personal Use and Evaluation License (PUEL); however, the user is allowed to download and use the extension pack if the terms of the PUEL are adhered to. That extension is very useful as it provides USB 2.0 support.

A VALUE VBVA will be distributed in a single large file (3+ Gb or larger) named to identify the Debian operating system (OS) version, and the OS type (32- or 64-bit), e.g., 'debian-6.0.7-64bit-VALUE.ova'. The 'ova' extension stands for "open virtualization archive" which is a tar file containing several OVF (Open Virtualization Format) files. It is produced by exporting that VBVA from its containing VirtualBox host.

The general VBVA import and export processes are described in detail here [http://www.virtualbox.org/manual/ch01.html#ovf]. The next several figures illustrate importing a VALUE VBVA into a VirtualBox host (note that the VBVA in the figures reflect the older Ubuntu OS and VBVA naming scheme, but the procedures are current as of Virtual Box 4.2.10).

Figure I.1. Opening an empty VirtualBox

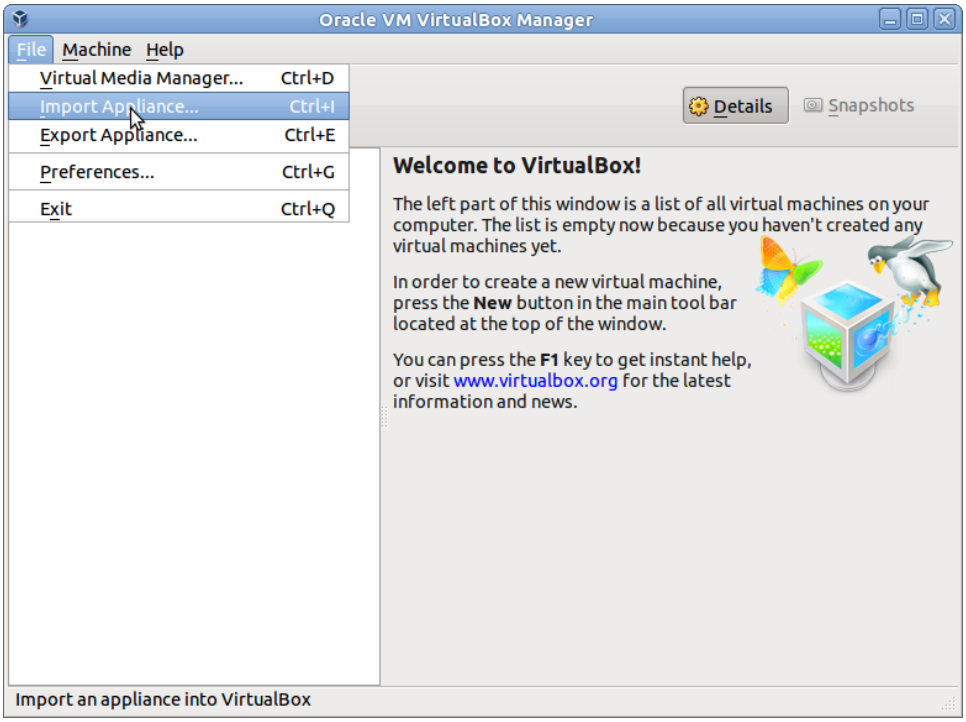

Figure I.2. Selecting the import menu

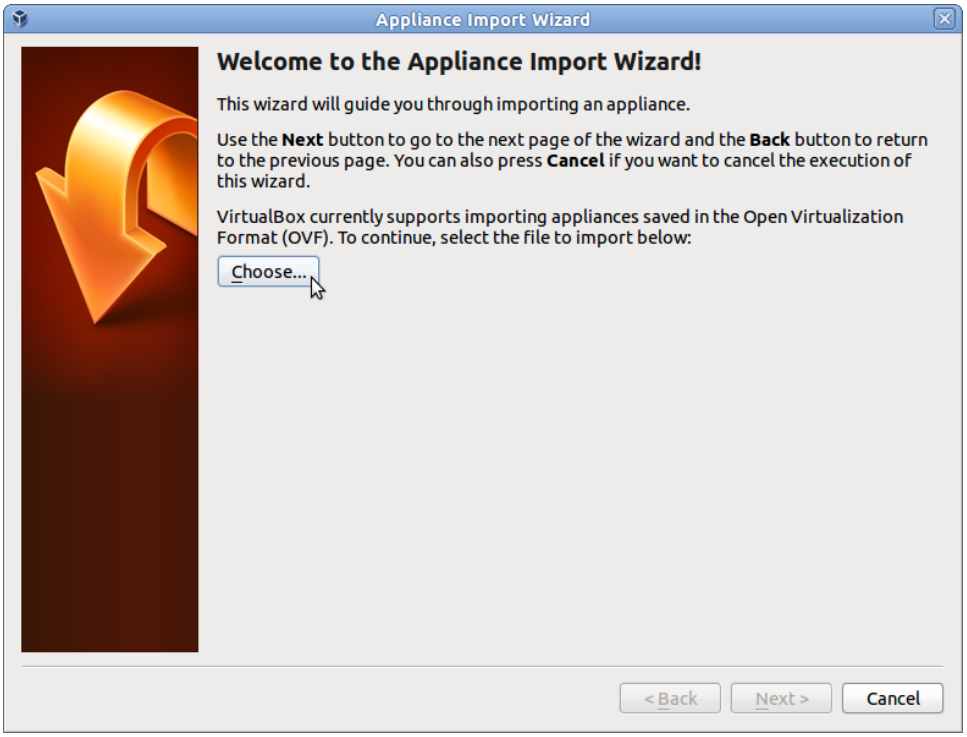

Figure I.3. Choosing the appliance to import

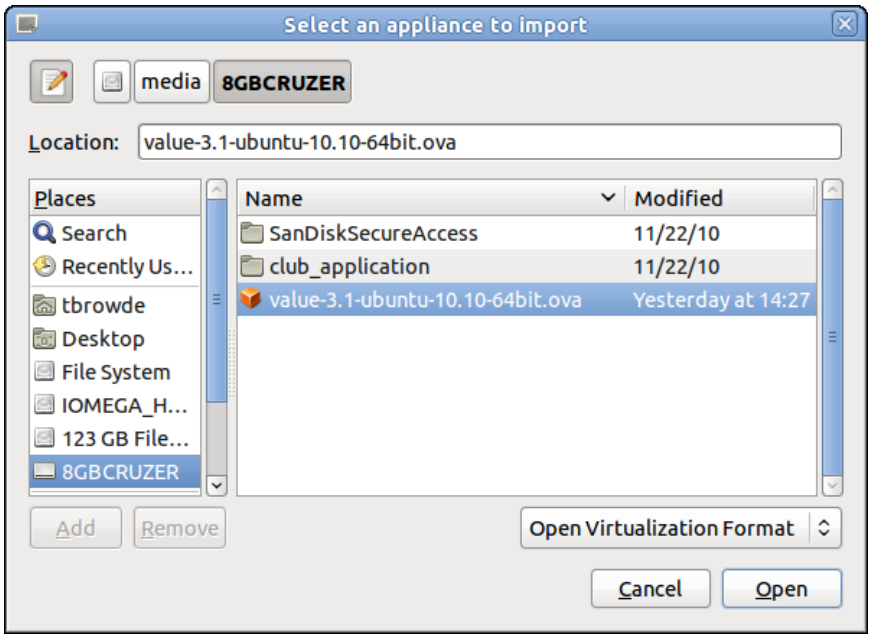

Figure I.4. Selecting the desired appliance file

Figure I.5. Selecting next to continue the import process

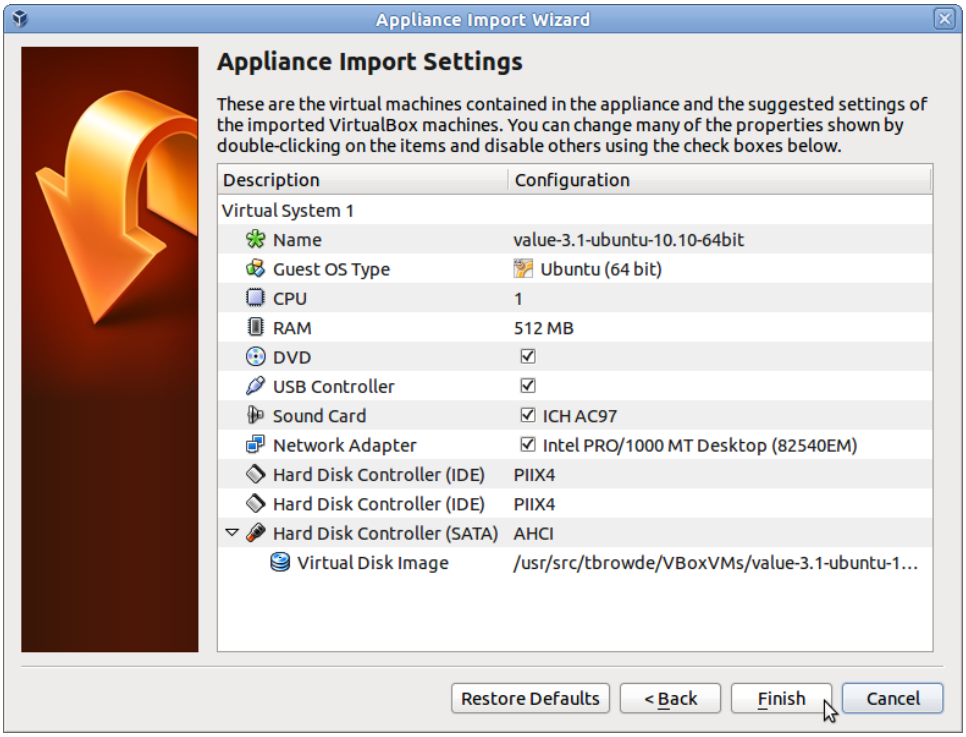

Figure I.6. The import details are displayed (and some can be modified by the user if desired)

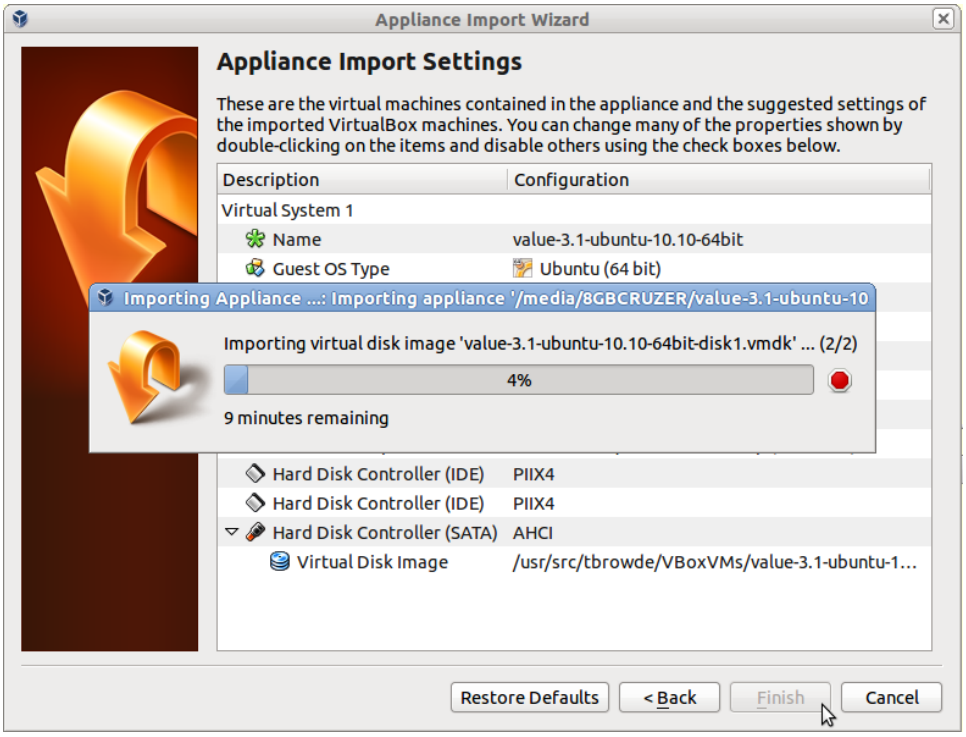

Figure I.7. A large file takes some time to load

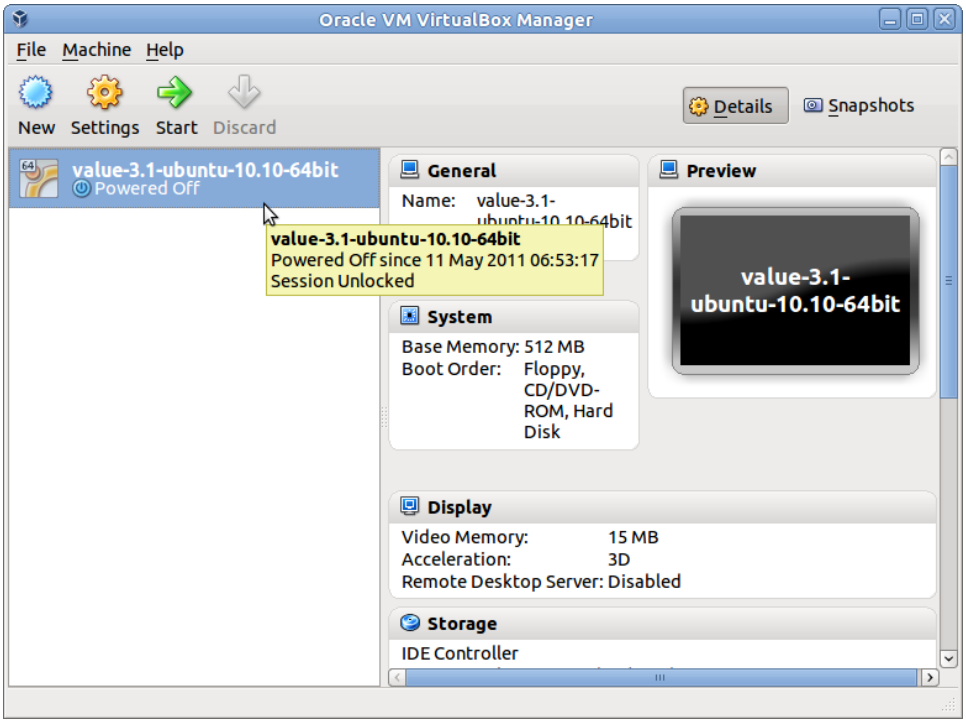

Figure I.8. Selecting the imported guest

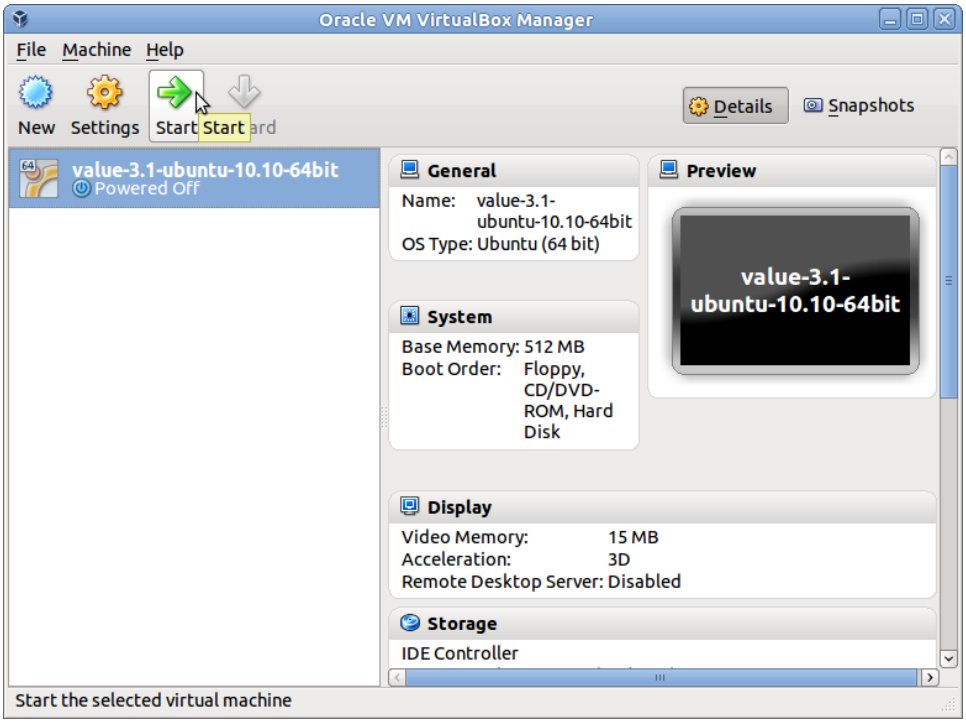

Figure I.9. Starting the imported guest

At this point the guest host should start normally and the user can log in, normally as user "vuser" with password "Value!". The initial user should change the password for good security unless the appliance is on a properly secured group-use Windows host such as in a secure classroom.

Depending on how and on what host the appliance was generated, you may have to do a modest amount of window size, system and video memory size adjustment (appropriate for the using host's resources), and other configuration as described in the VBox User Manual section entitled "Starting a new VM for the first time [http://www.virtualbox.org/manual/ch01.html#idp7653344]." You also may need to install or update guest additions as described here [http://www.virtualbox.org/manual/ch04.html#guestadditions].

See the following sub-sections for other important settings and customization details.

I.1.1. Ensuring Use of 3D Acceleration

Note in Figure I.8 [page 179] the "Display" window shows "Acceleration: 3D" but that sometimes may not be the case if it was inadvertently not turned on by the provider of the appliance or the user when creating a new virtual host. Normally, BRL-CAD is provided with OpenGL capability and it is important for good GUI perfomance that 3D acceleration be activated in the virtual host. If 3D acceleration is not activated, the same "Display" window will not show the acceleration line at all (as is the case shown in Figure I.10 [page 181]).

If the 3D acceleration is not turned on, do the following steps as shown in the figures starting with Figure I.11 [page 181]. (Note that the virtual host *must* be powered off for the following steps to work as illustrated.)

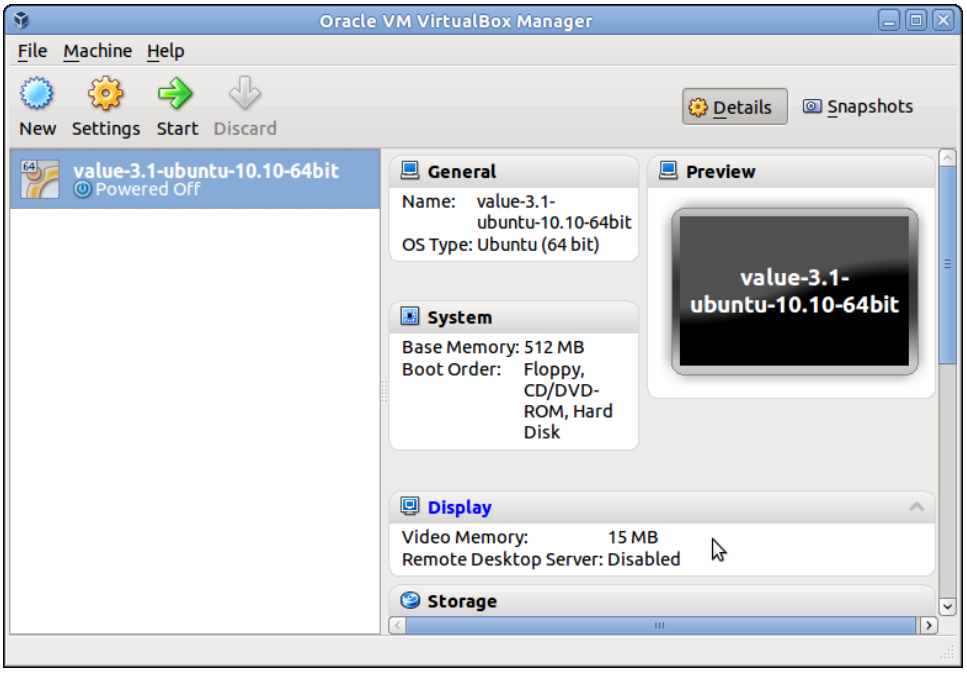

Figure I.10. No "Display" 3D acceleration

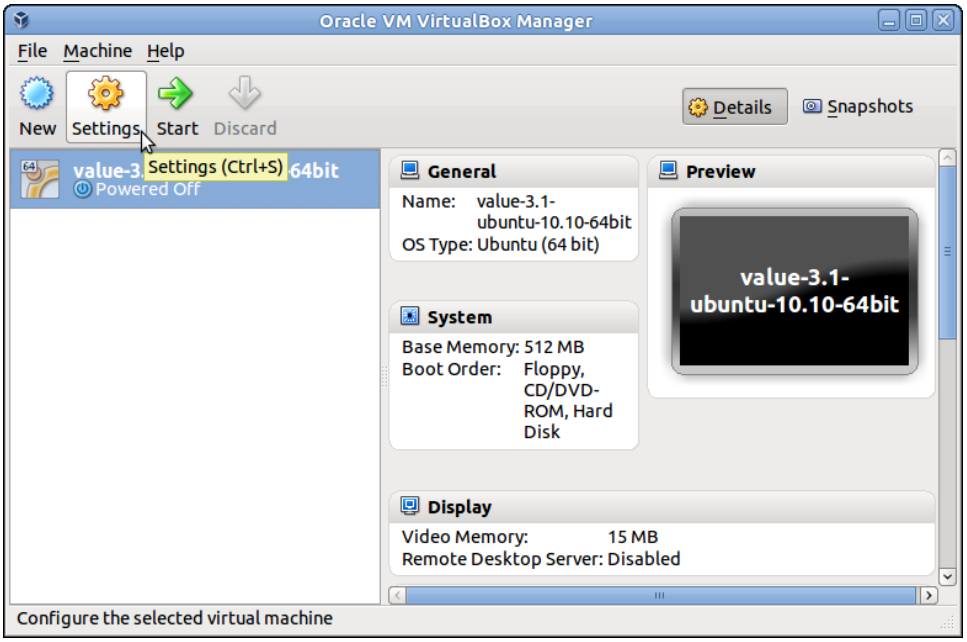

Figure I.11. Select "Settings" (notice virtual machine is powered off)

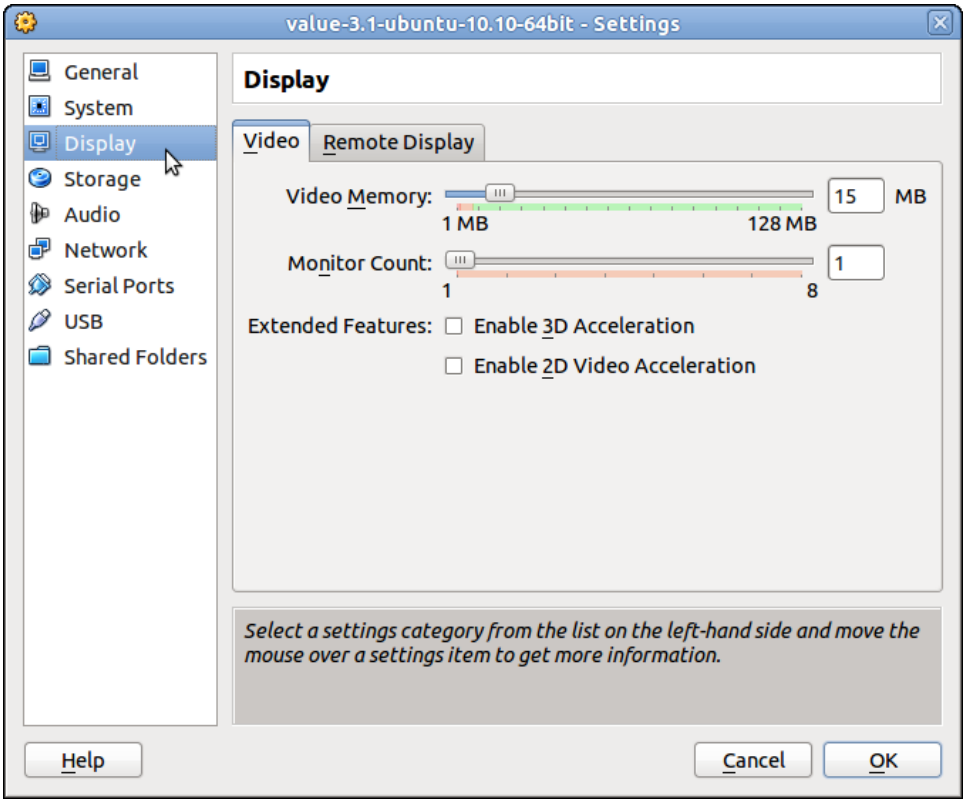

Figure I.12. Select "Display"

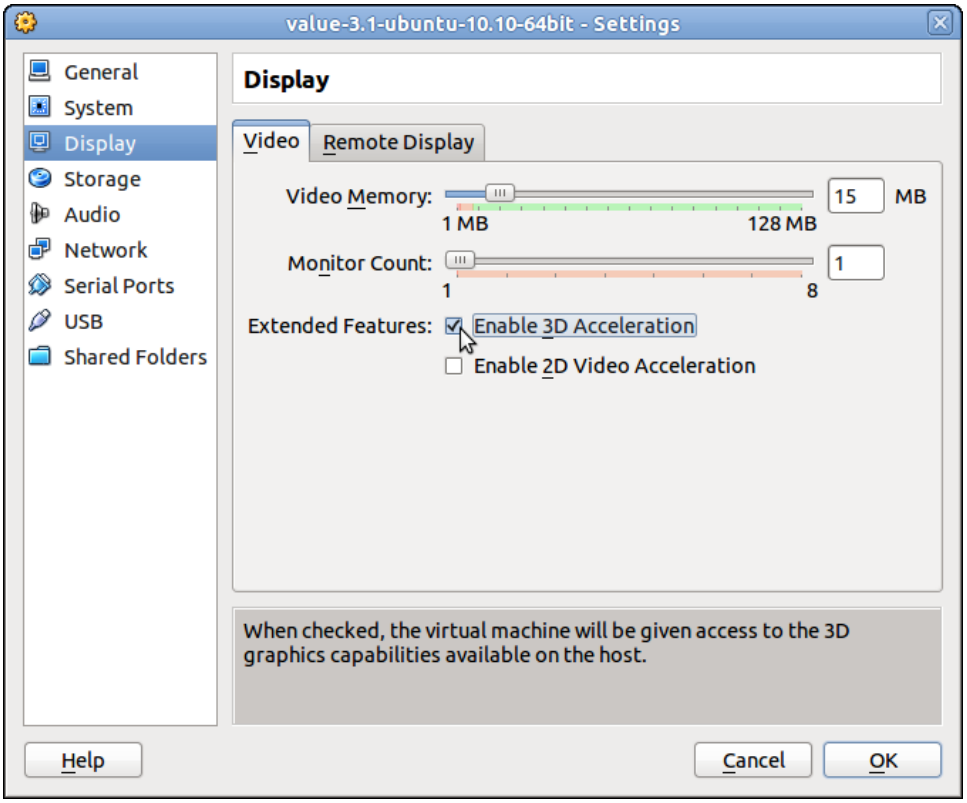

Figure I.13. Select "Enable 3D Acceleration"

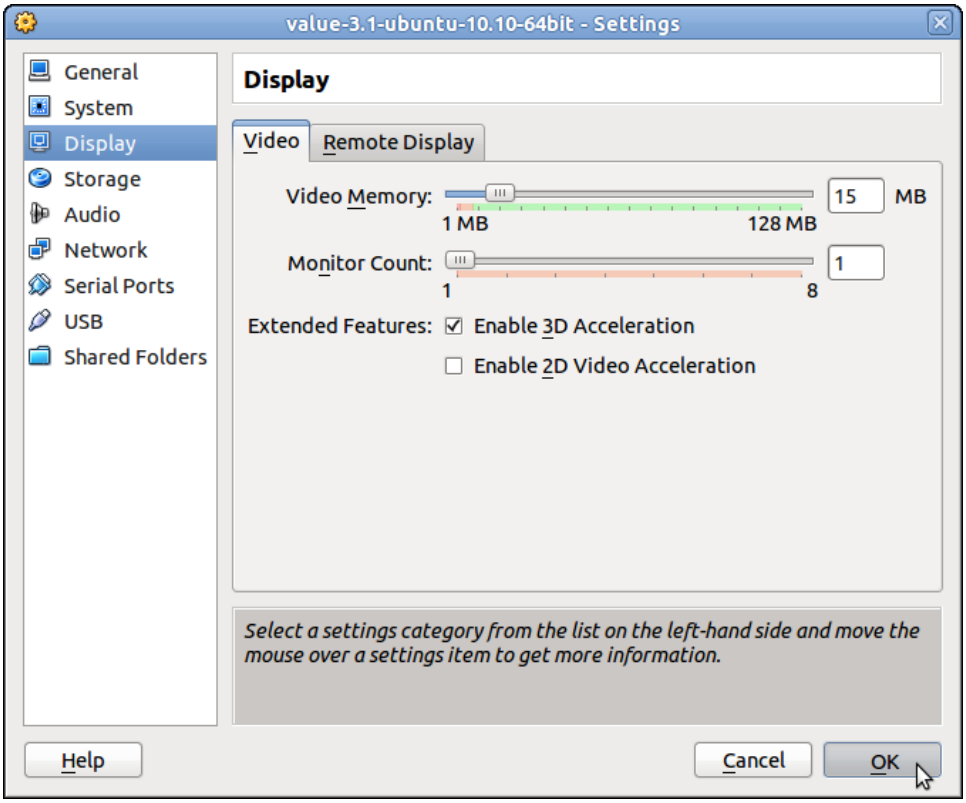

Figure I.14. Select "OK"

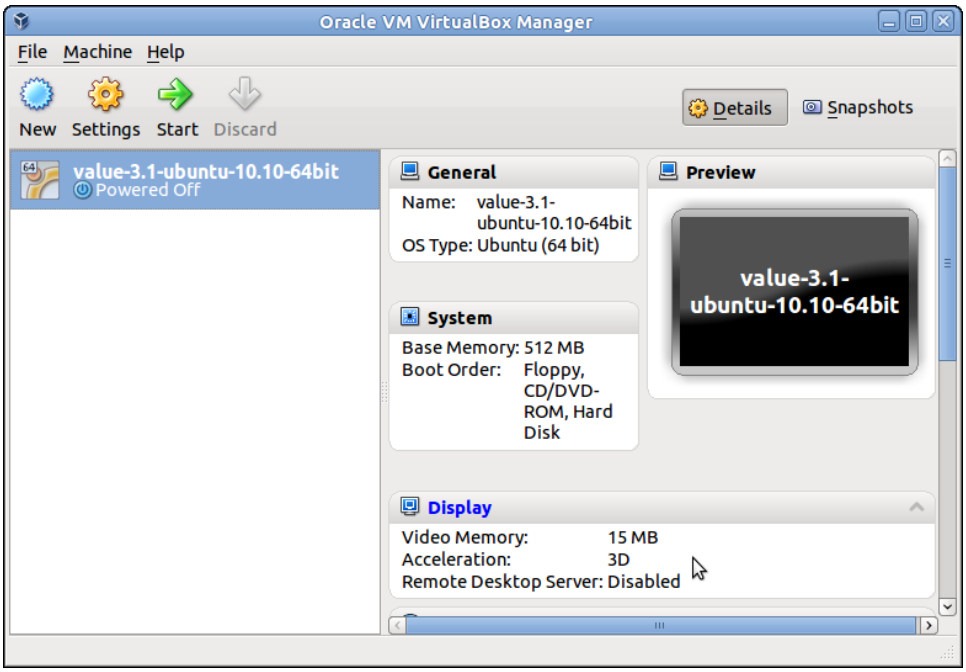

Figure I.15. The "Display" window shows "Acceleration: 3D"

I.1.2. Shared Folders

One useful feature you will want is to share a folder on the Windows host for easy transfer of files. The process is descibed in detail in the VBox User's Manual [http://www.virtualbox.org/manual/ch04.html#sharedfolders]. Note that with version 4.1 of VBox, those procedures are more of a last resort and, with a little luck, the process can be much easier. The basic steps are:

- Make a suitable folder on the Windows host, e.g., "C:\share".
- In the VBox Manager, define a shared folder for the selected virtual host. It should point to the Windows desired folder. Be sure and select automount and do not make the folder read-only. As recommended, we suggest making the name of the shared folder "share" for the virtual host.
- After starting the virtual host, ensure users have membership in the "vboxsf" group. Be sure to log off and log back in after making changes to ensure each affected user's account is updated.
- After logging back in, execute "df" and you should see the shared folder listed as "/media/sf_shared". You should be able to copy files into and out of that directory, and you should see the same files in that directory as you see in the Windows "C:\share" folder.
- If the shared folder is not working, then go back to the more detailed procedures in the manual, but that should be a rare case.

The following figures illustrate the process.

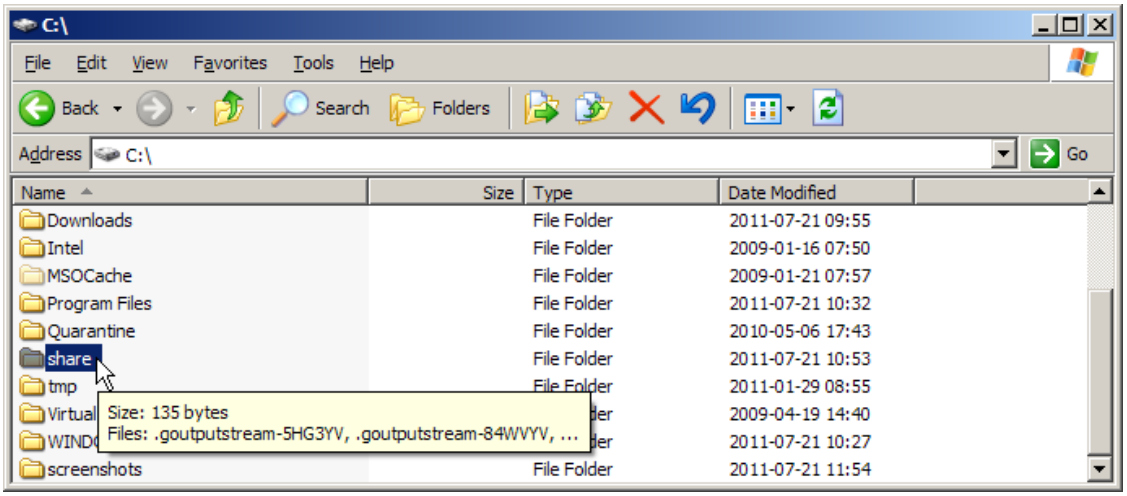

Figure I.16. Create a Windows folder to share with a virtual host

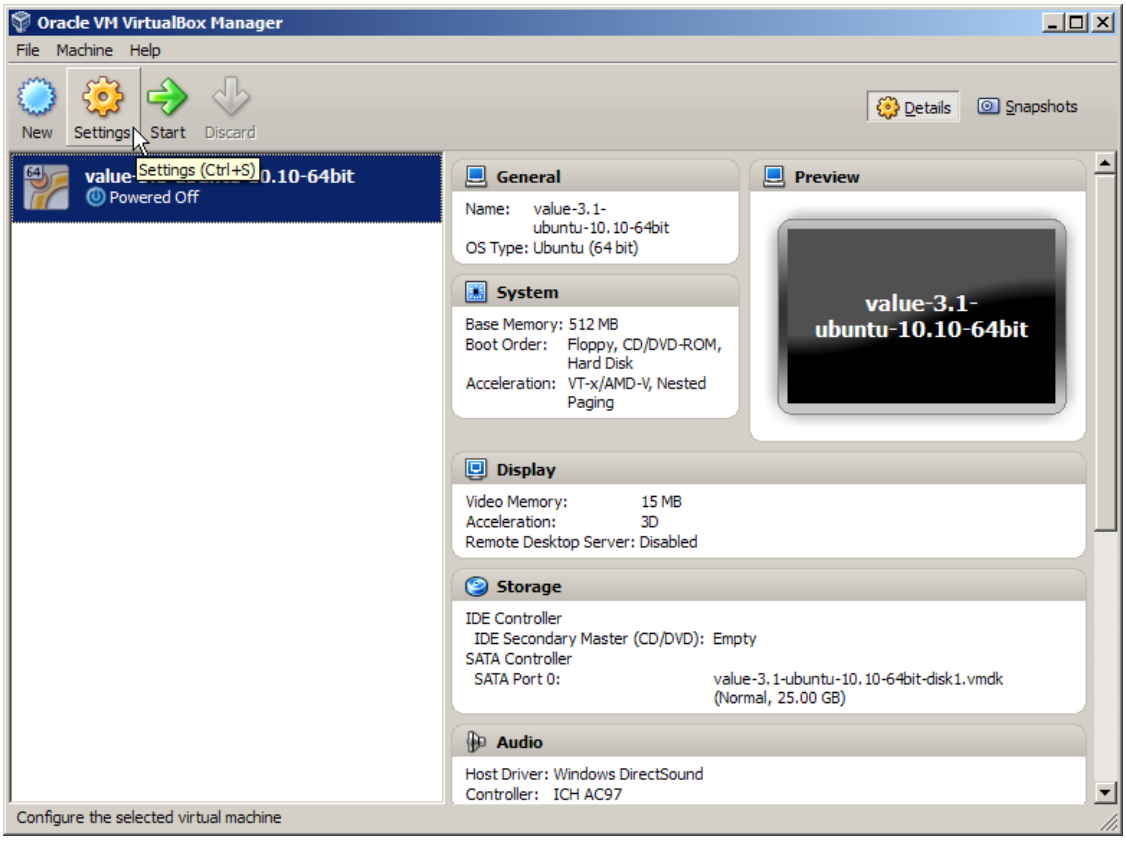

Figure I.17. VBox Manager: select the desired virtual host, then select "Settings"

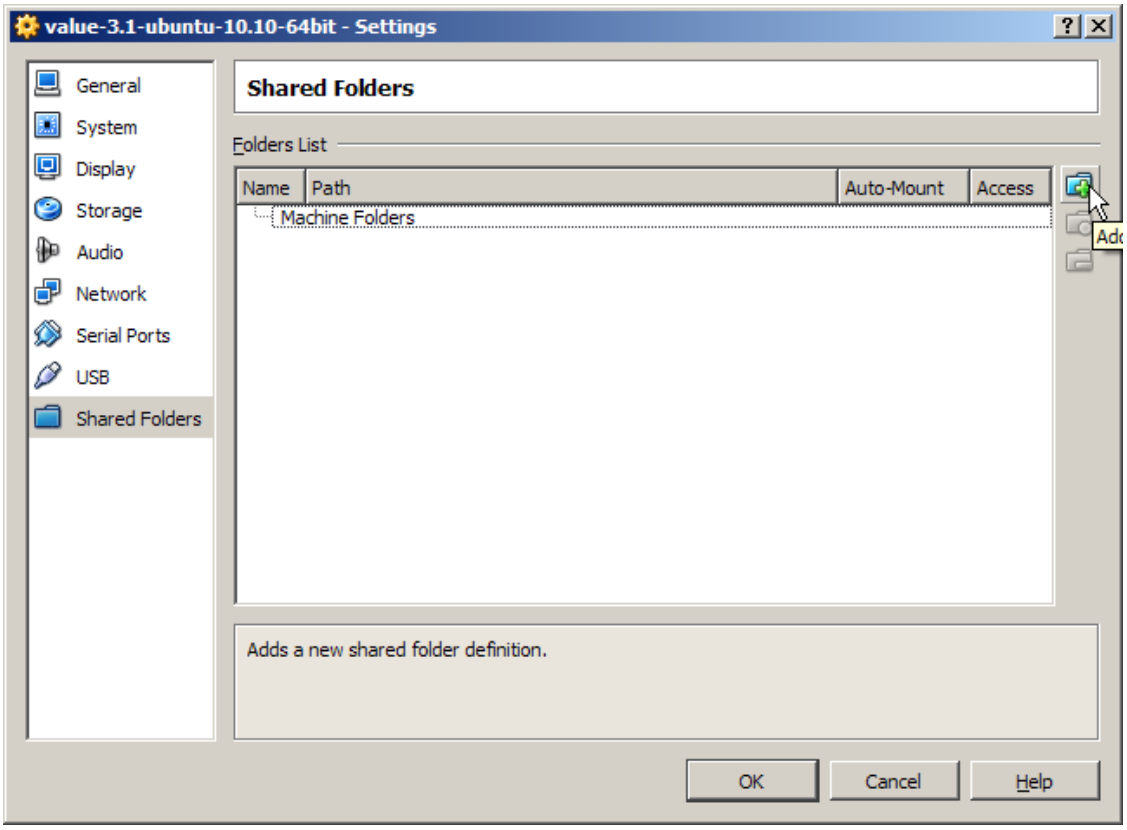

Figure I.18. Select "Add" a shared [machine] folder

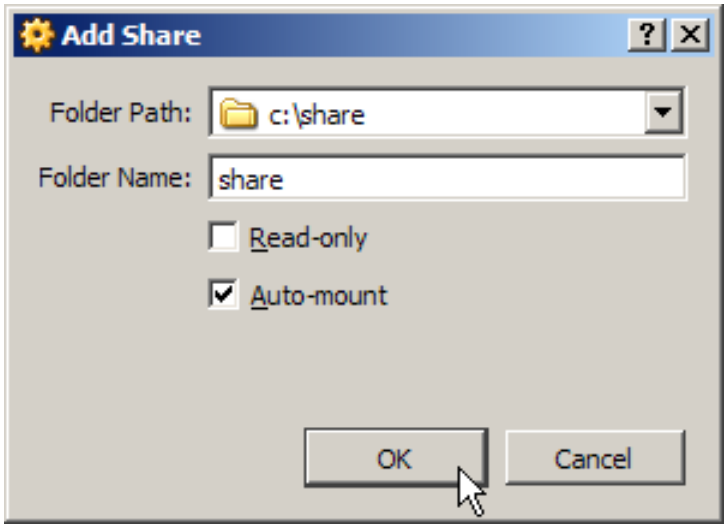

Figure I.19. Enter the path and name of the shared folder; check "Auto-mount" and not "Read-only"; select "Okay"

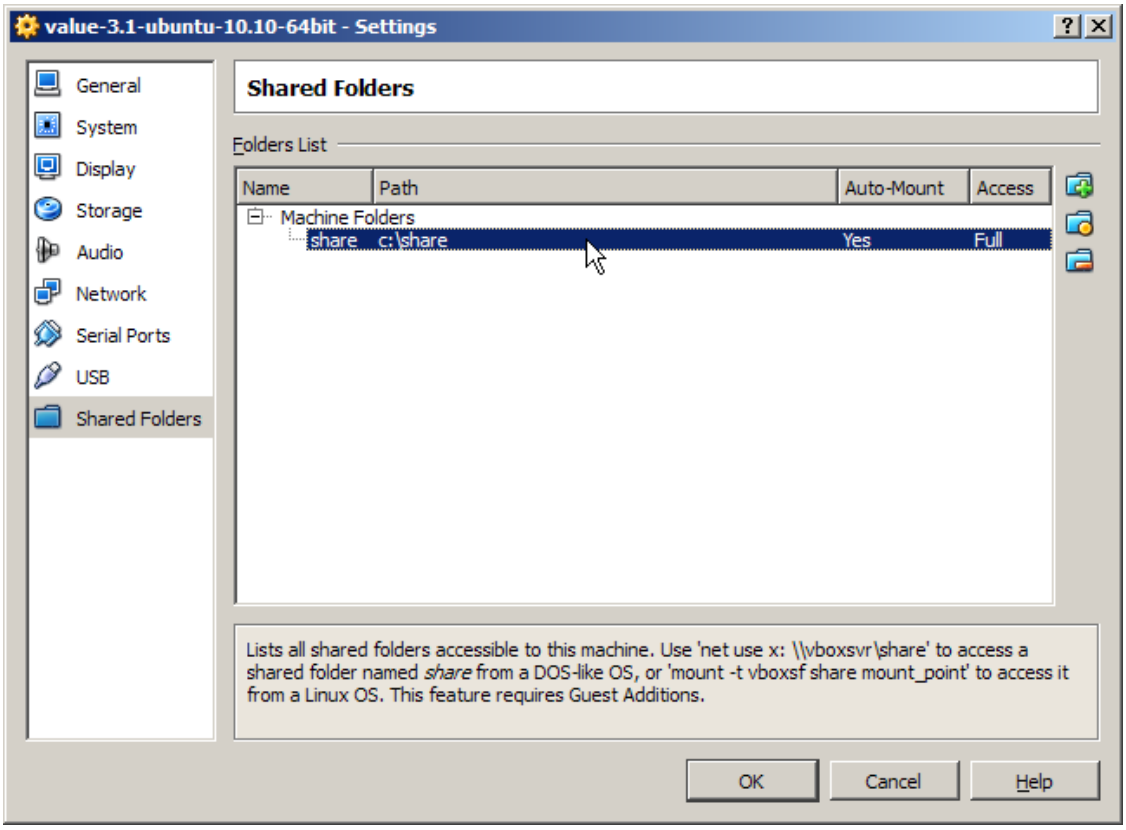

Figure I.20. The shared folder is set

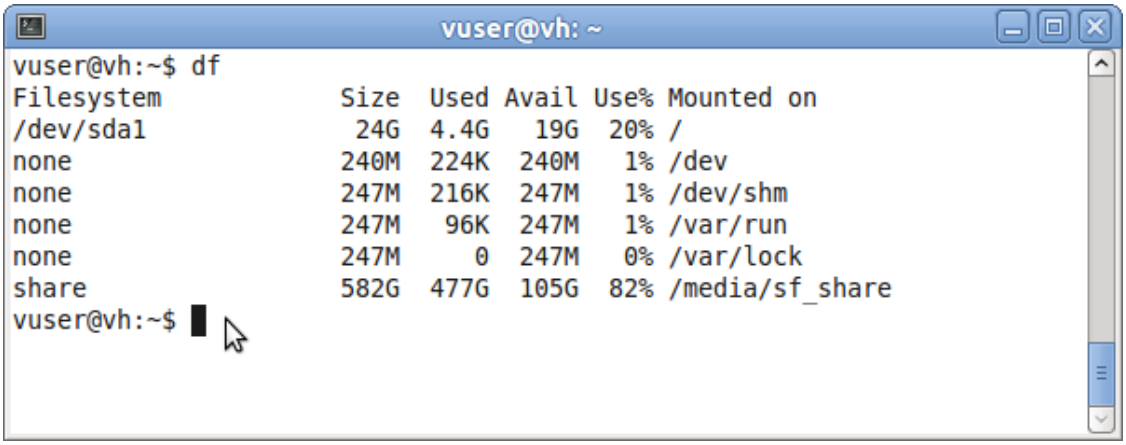

Figure I.21. The shared folder shows on the virtual host as directory "/media/sf_share"

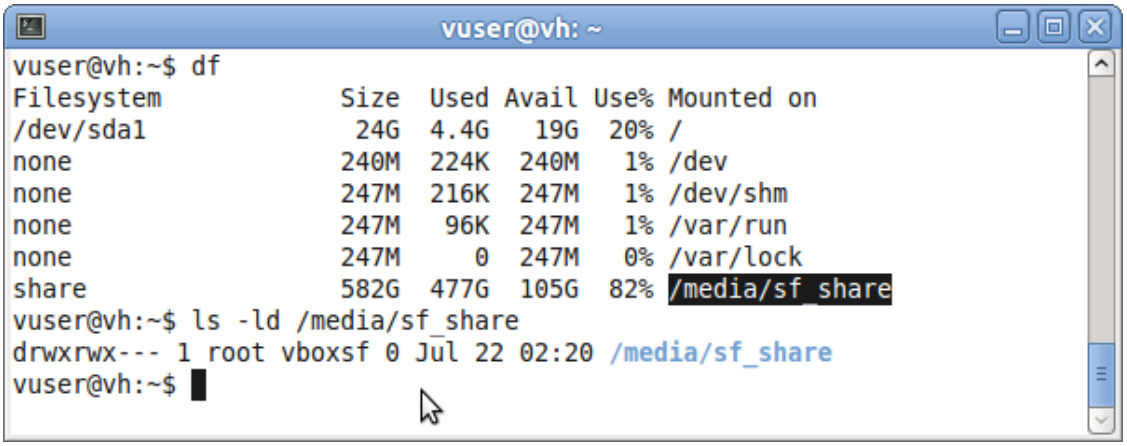

Figure I.22. The shared directory is fully accessible by the "vboxsf" group

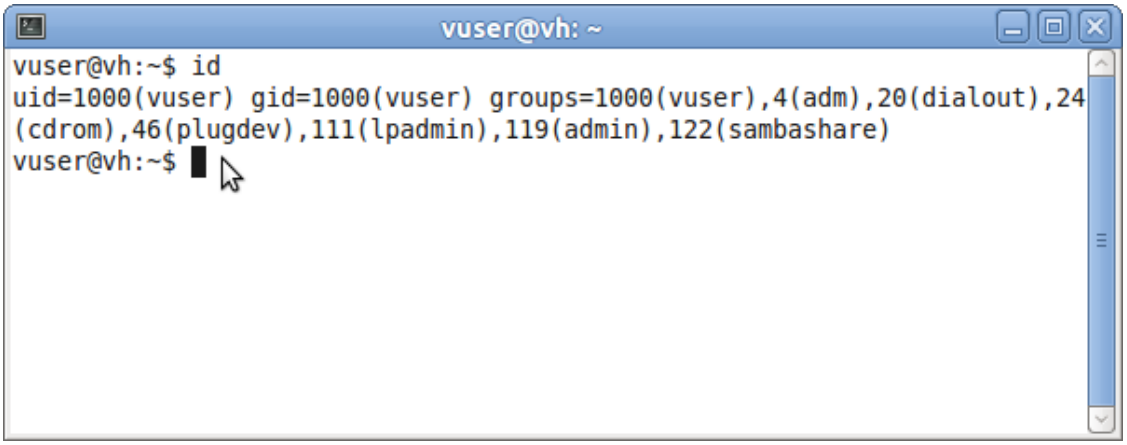

Figure I.23. The vuser is not yet a member of the "vboxsf" group

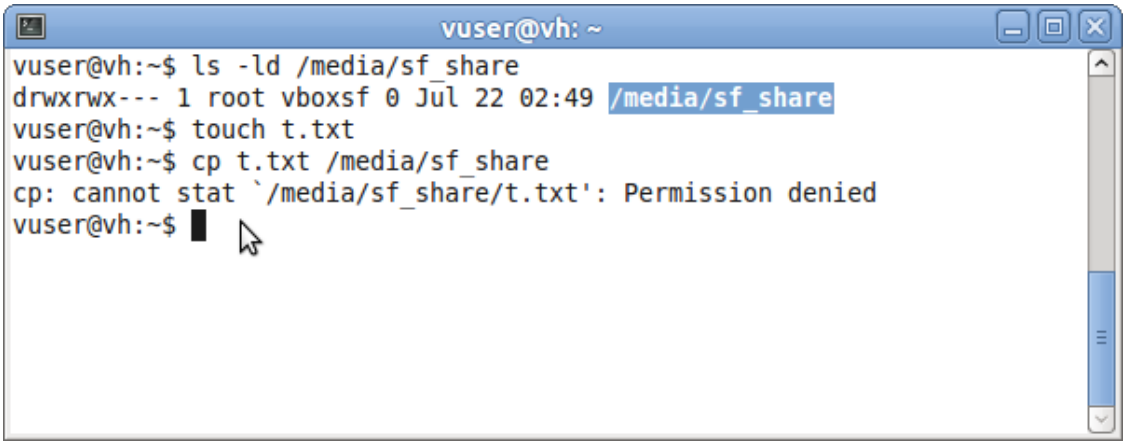

Figure I.24. The vuser cannot access the shared directory

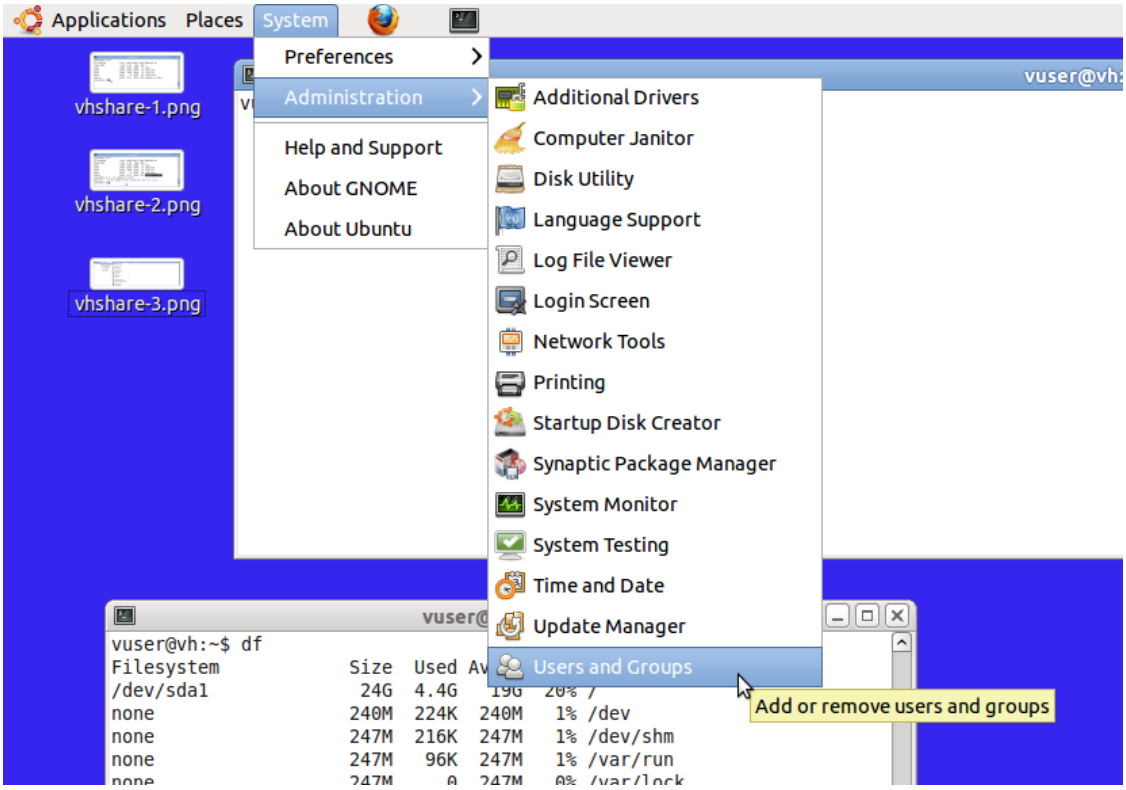

Figure I.25. Select the "Users and Groups" menu

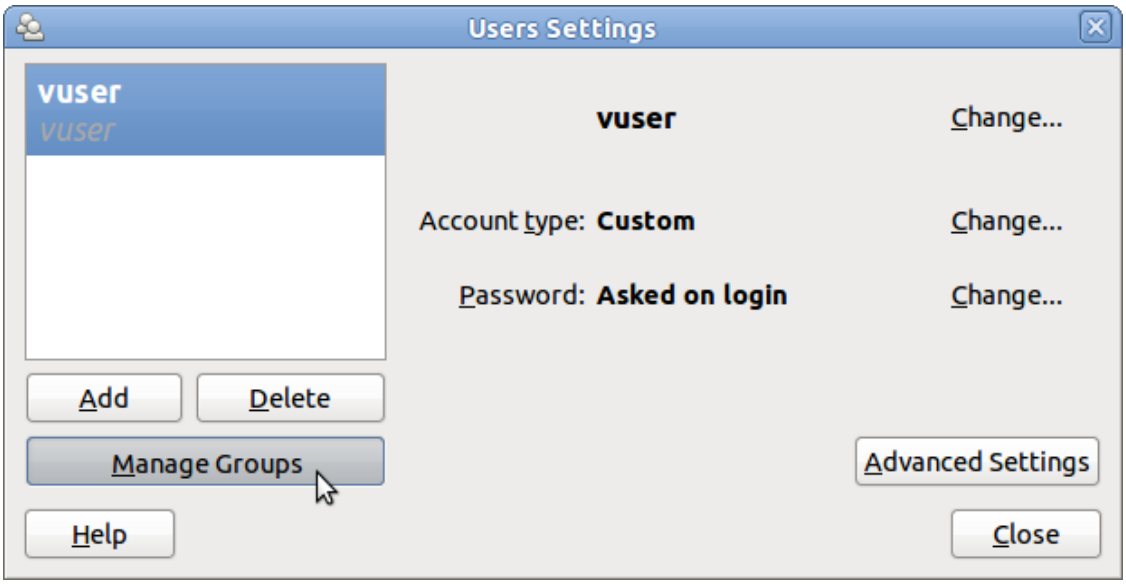

Figure I.26. Select "Manage Groups"

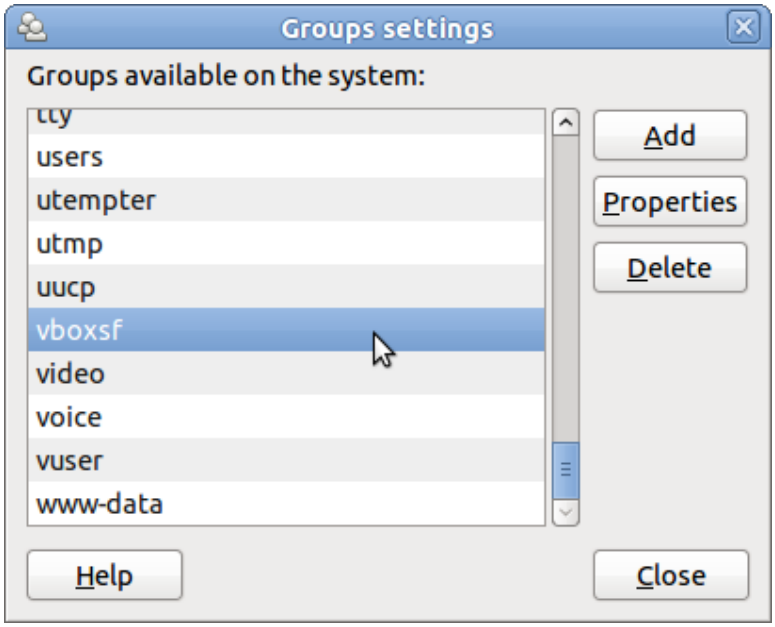

Figure I.27. Find and select group "vboxsf"

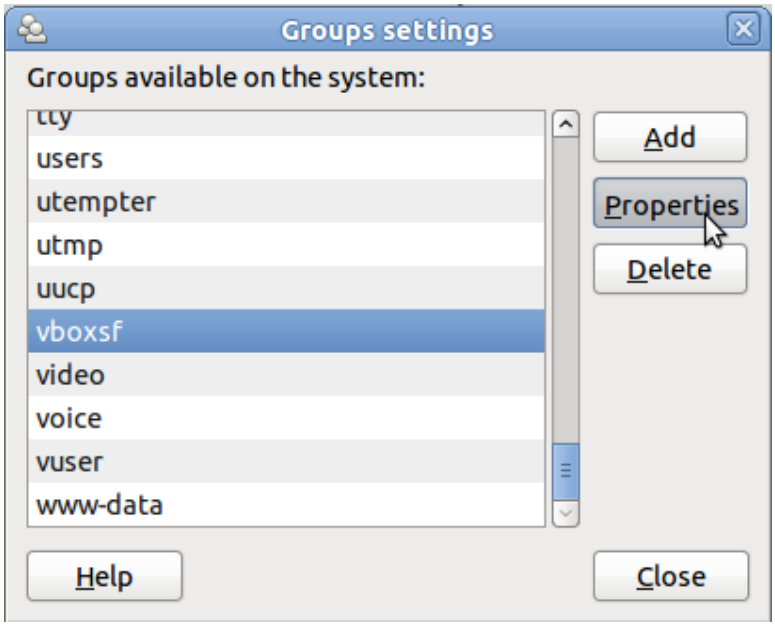

Figure I.28. Select "Properties"

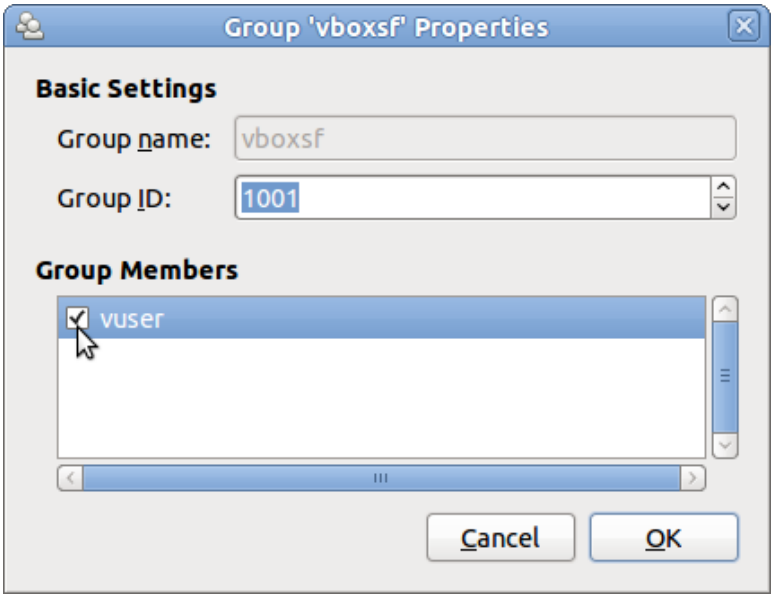

Figure I.29. Check all users that are to be allowed access to the shared directory

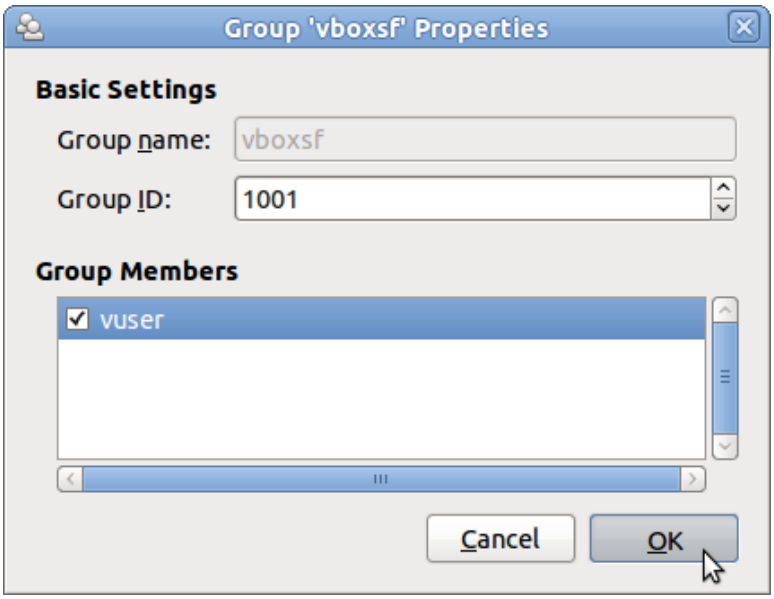

Figure I.30. Select "OK"

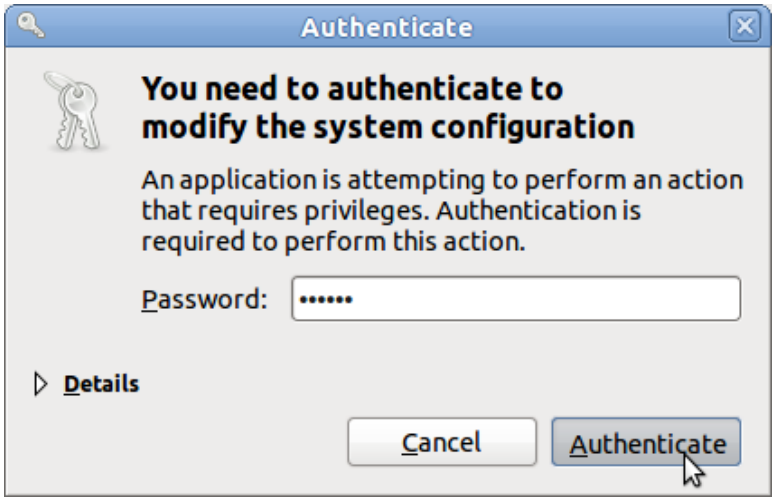

Figure I.31. Enter the root user's password to complete the changes

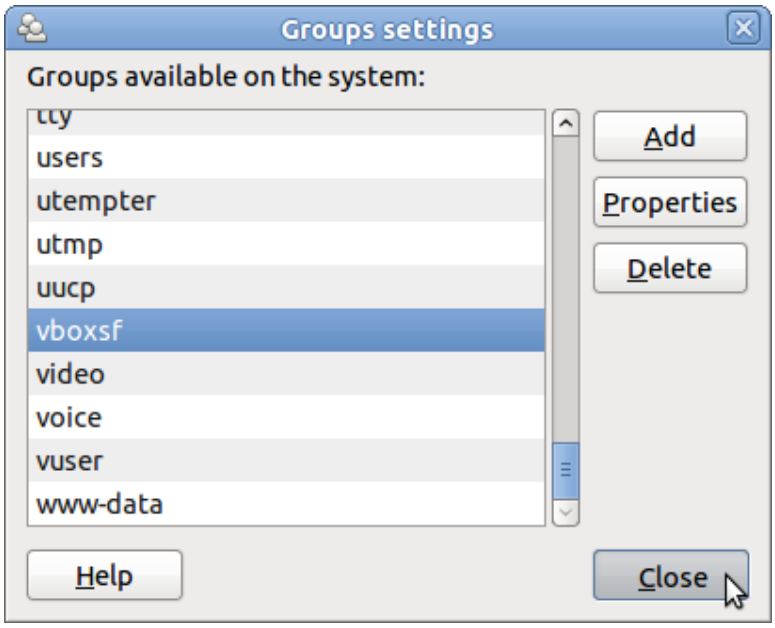

Figure I.32. Close the group management window

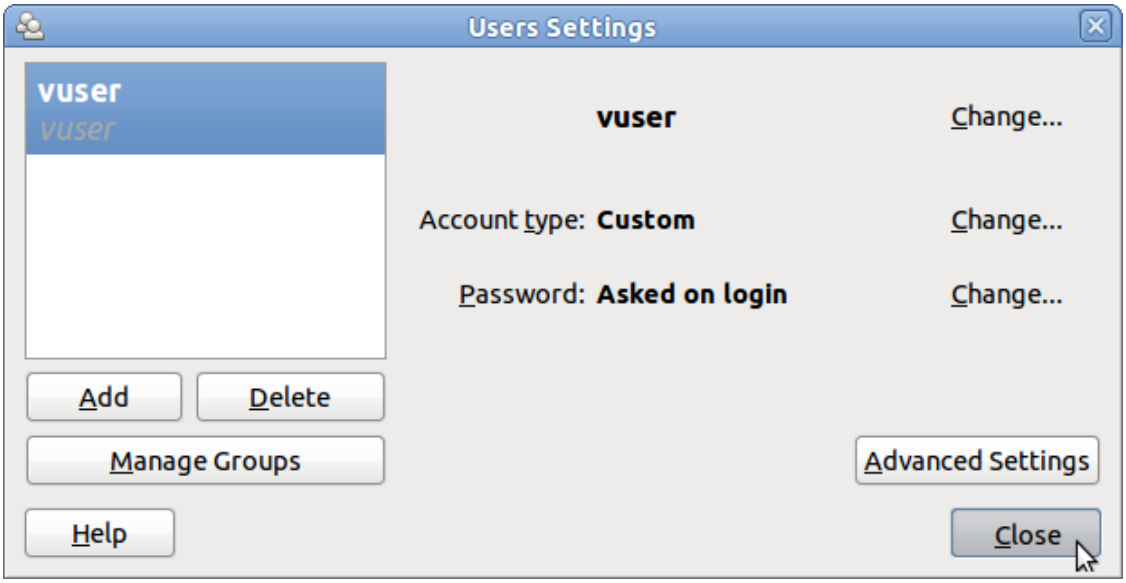

Figure I.33. Close the "Users Settings" window

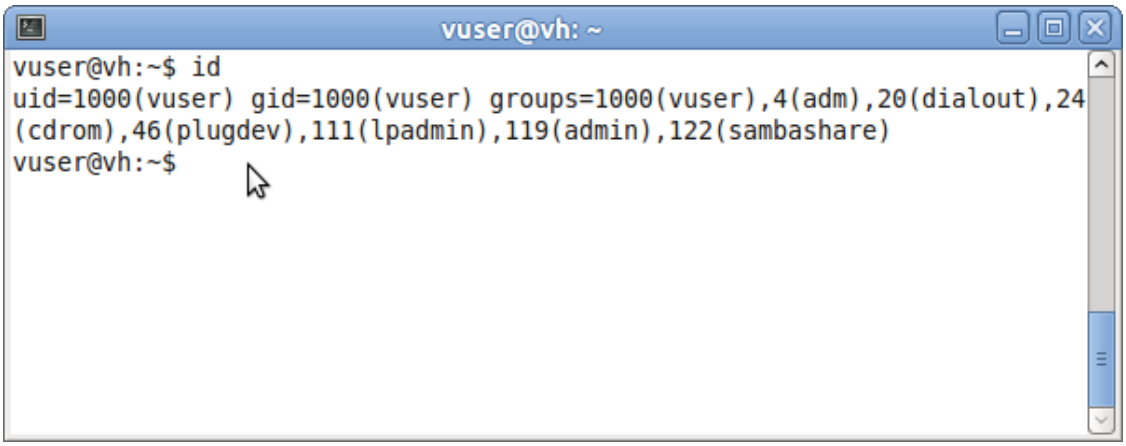

Figure I.34. The vuser is still not shown in the "vboxsf" group

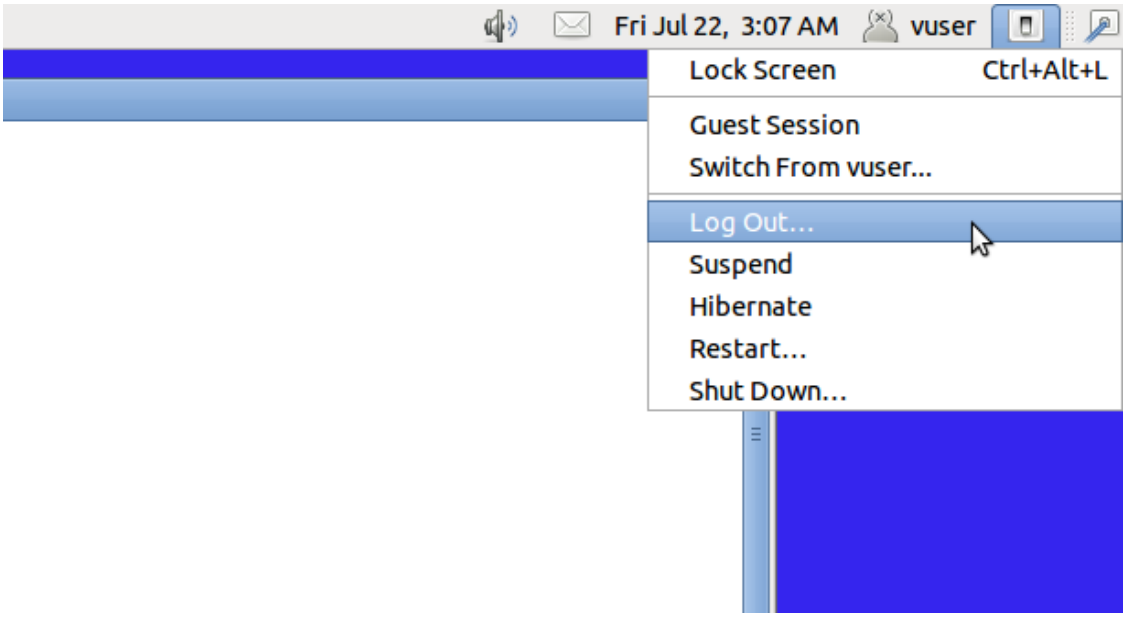

Figure I.35. Log out and back in for the changes to take effect

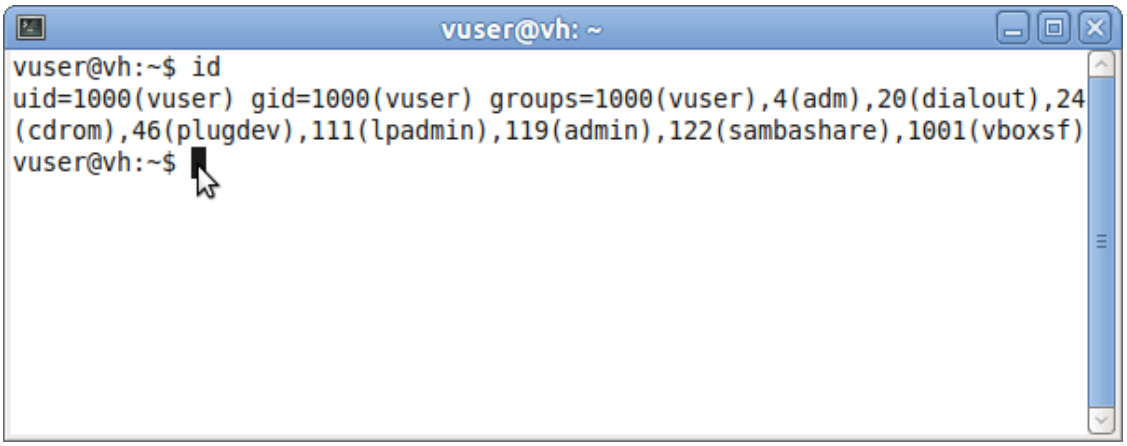

Figure I.36. The vuser is now a member of the "vboxsf" group

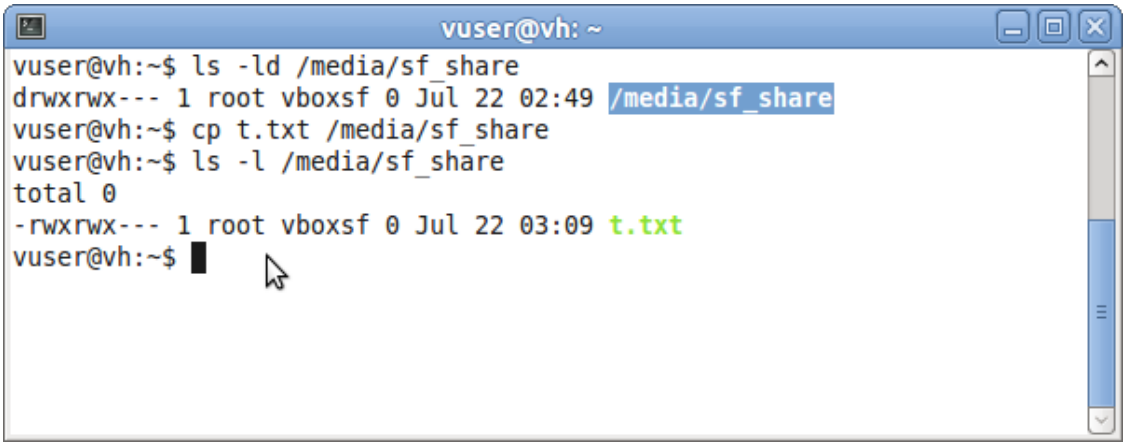

Figure I.37. An empty file in the shared directory

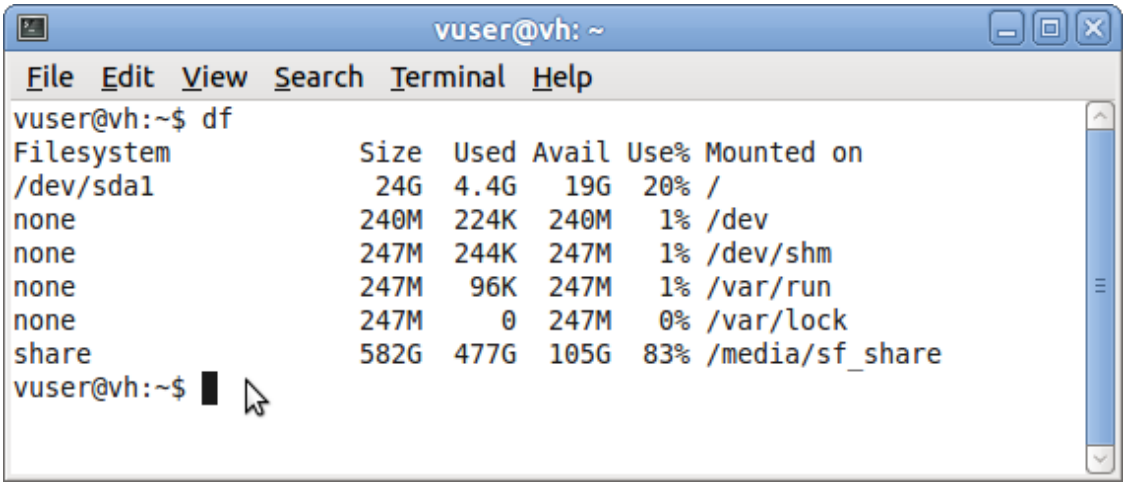

Figure I.38. The shared directory

I.1.3. VBox Extensions for USB 2.0

As mentioned previously, the VBox extensions cannot be distrubuted because of the license, but, if the license terms can be met, the extensions provide USB 2.0 support for the virtual host. Assuming you have the compatible extensions file downloaded, then the following figures illustrate installation of the extensions and use of a USB 2.0 device (an 8 Gb flash drive).

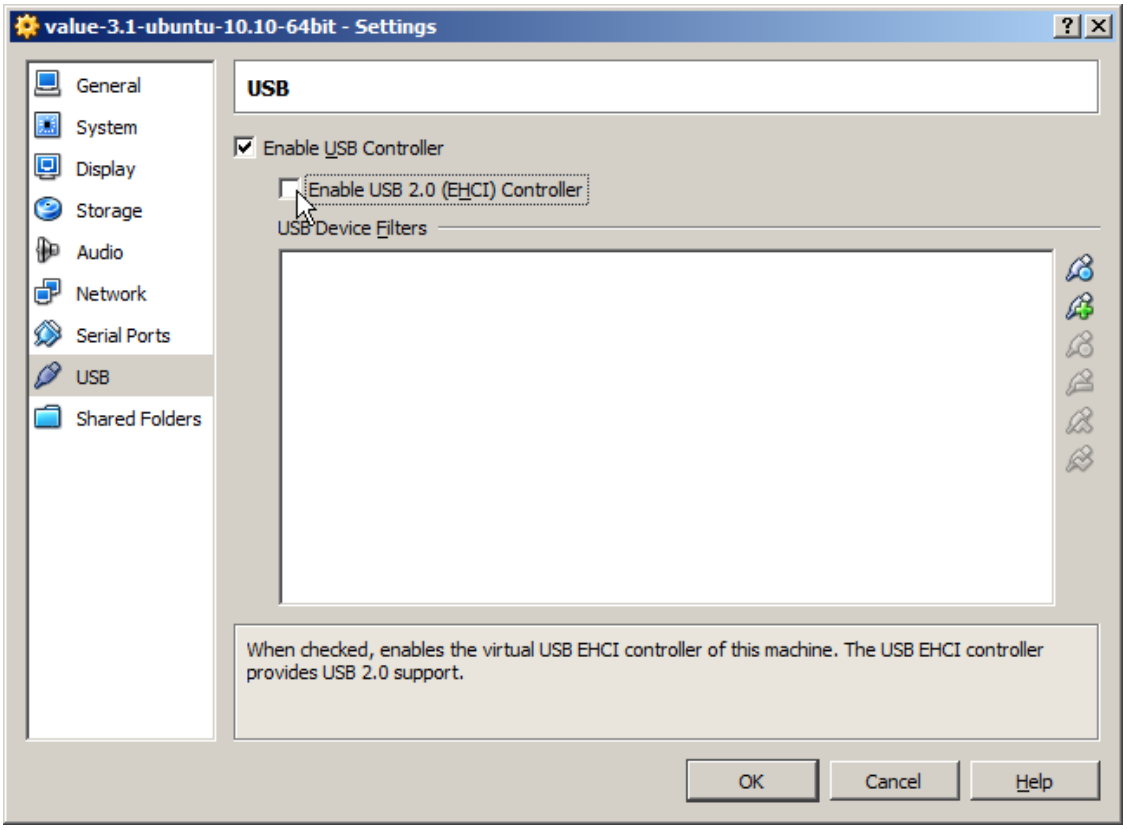

Figure I.39. The VBox Manager shows no USB 2.0 capability selected

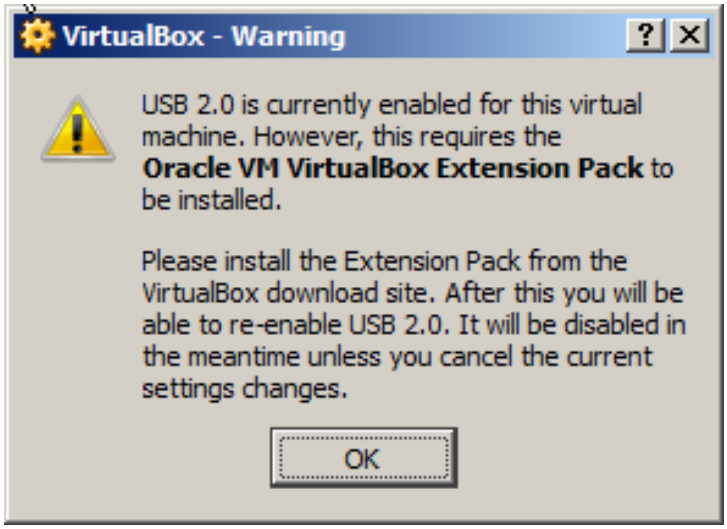

Figure I.40. USB 2.0 selected but not available without extensions

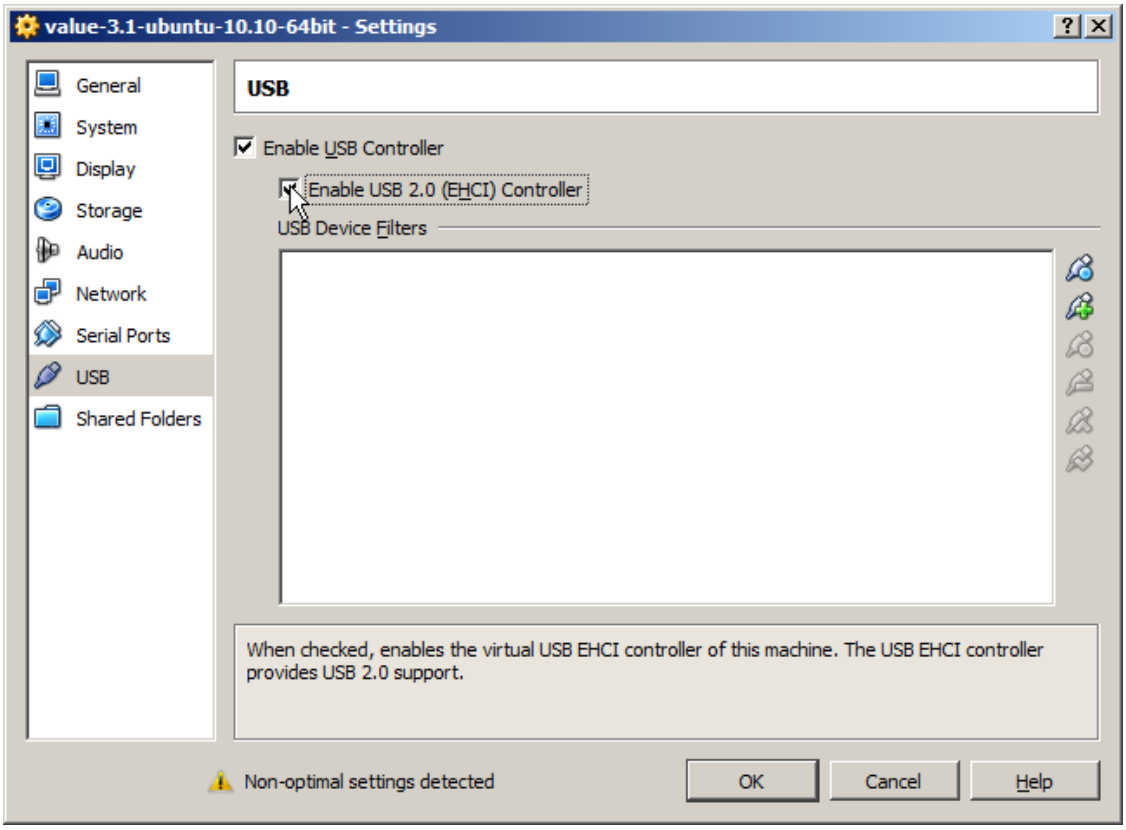

Figure I.41. Select "Enable USB 2.0"

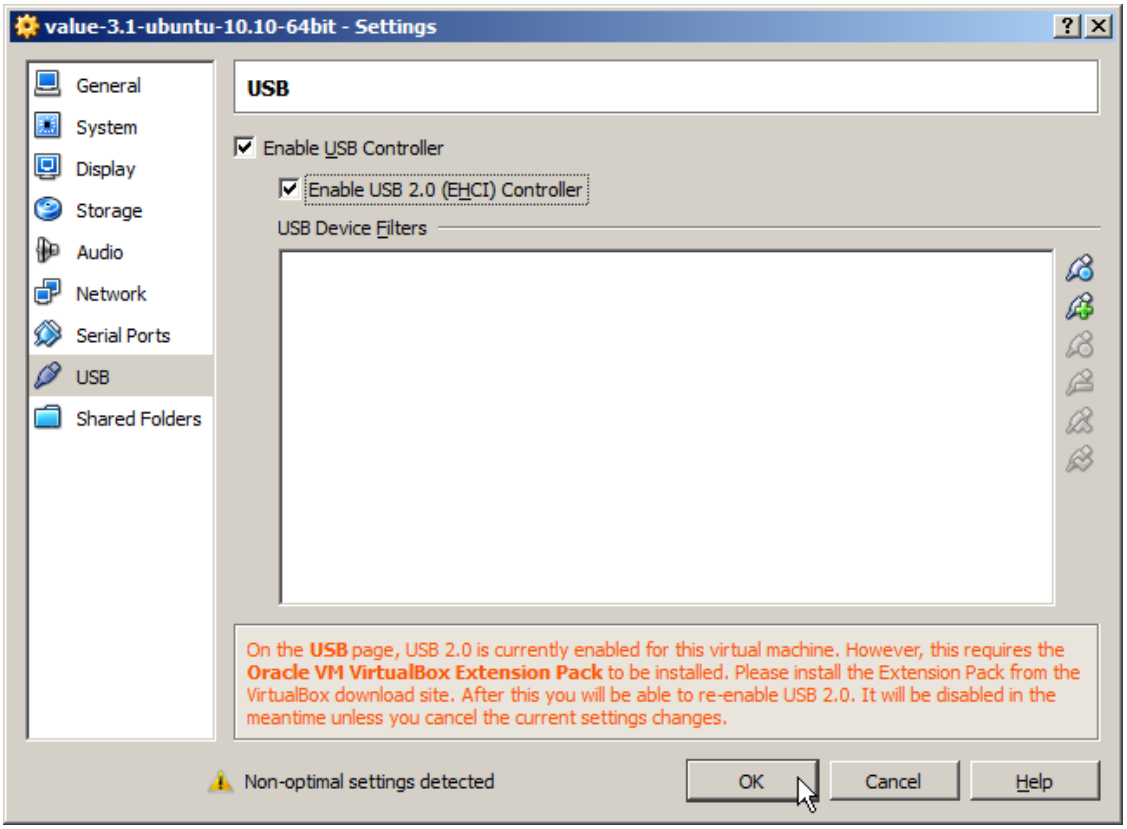

Figure I.42. Warning that USB 2.0 is not available

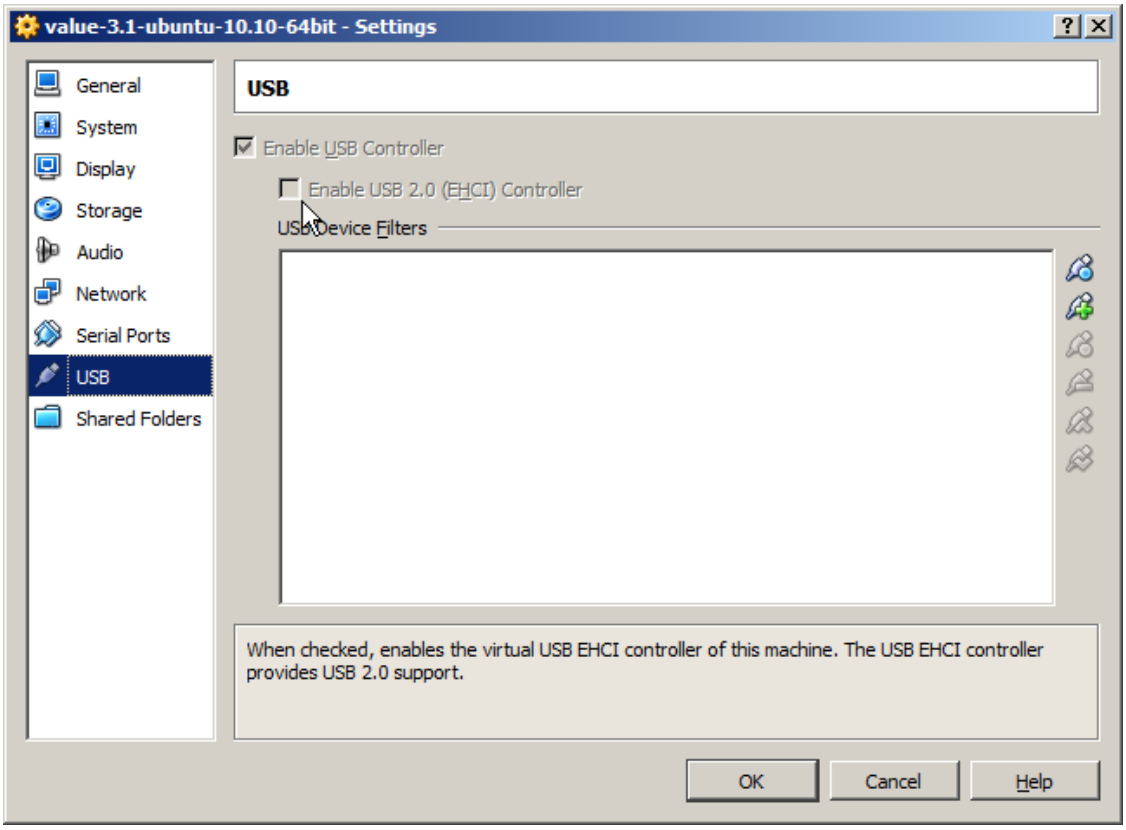

Figure I.43. Showing USB 2.0 not enabled

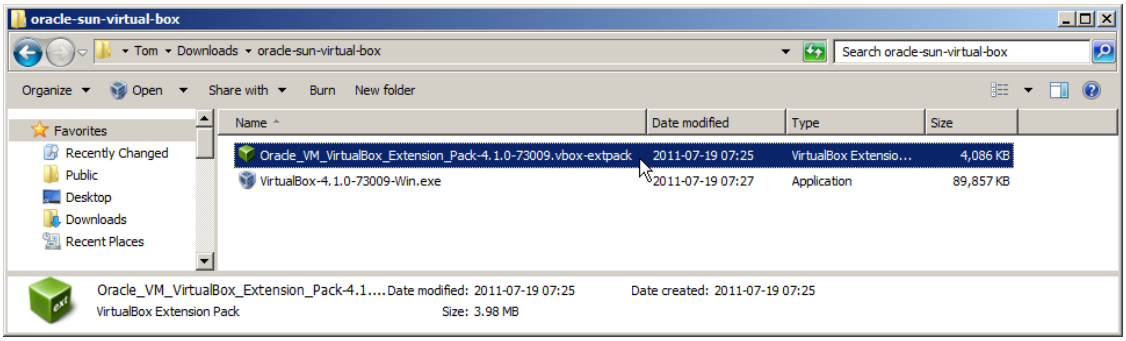

Figure I.44. Double click on the VBox extensions package to install

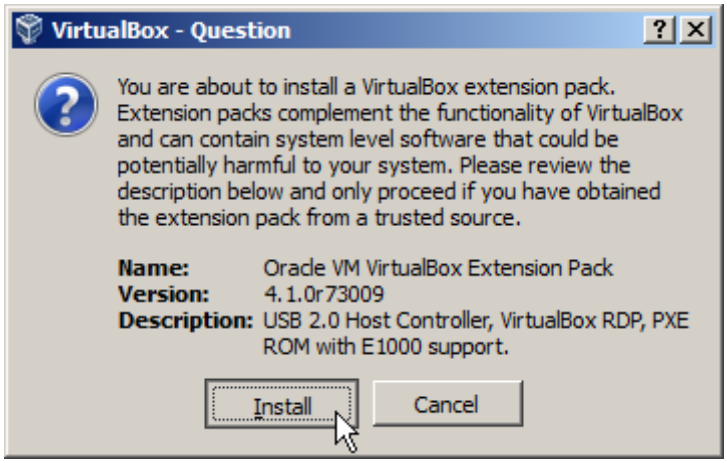

Figure I.45. Installing the VBox extensions

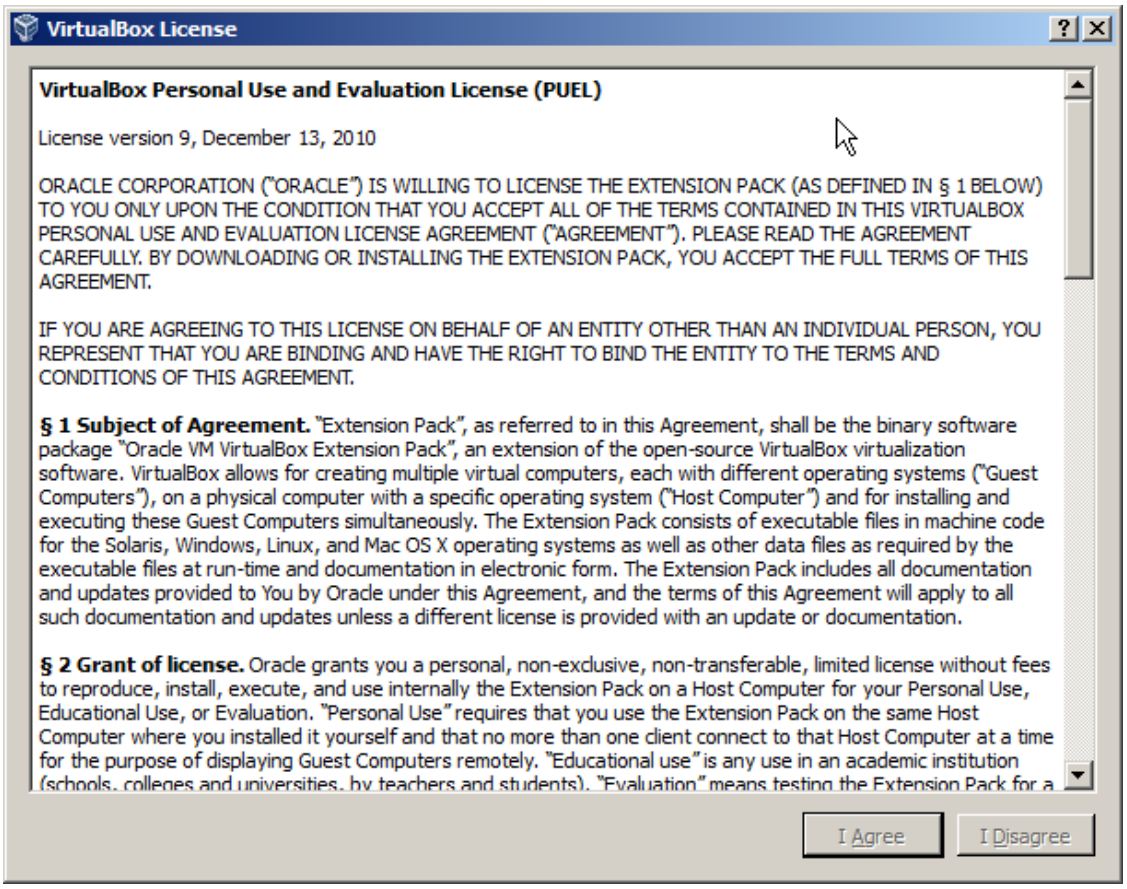

Figure I.46. The PUE license for the VBox extensions

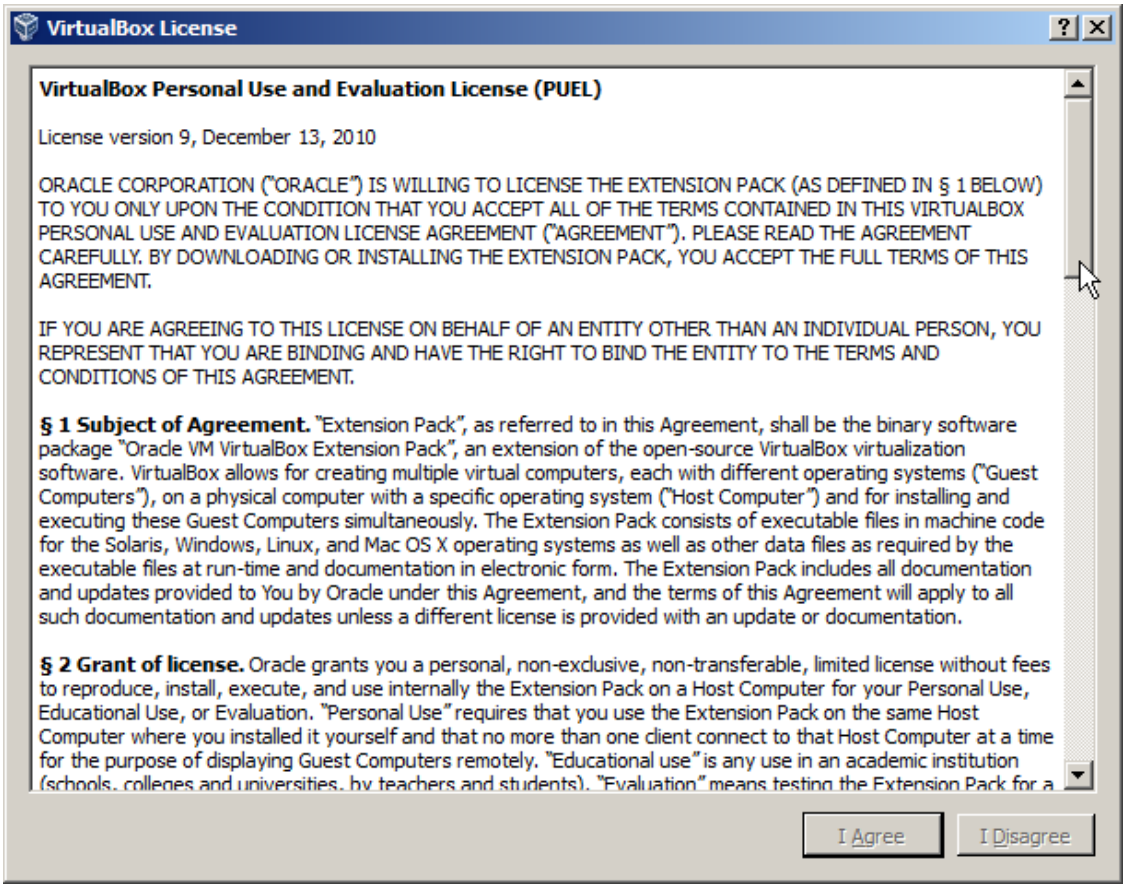

Figure I.47. Start viewing the complete the PUE license

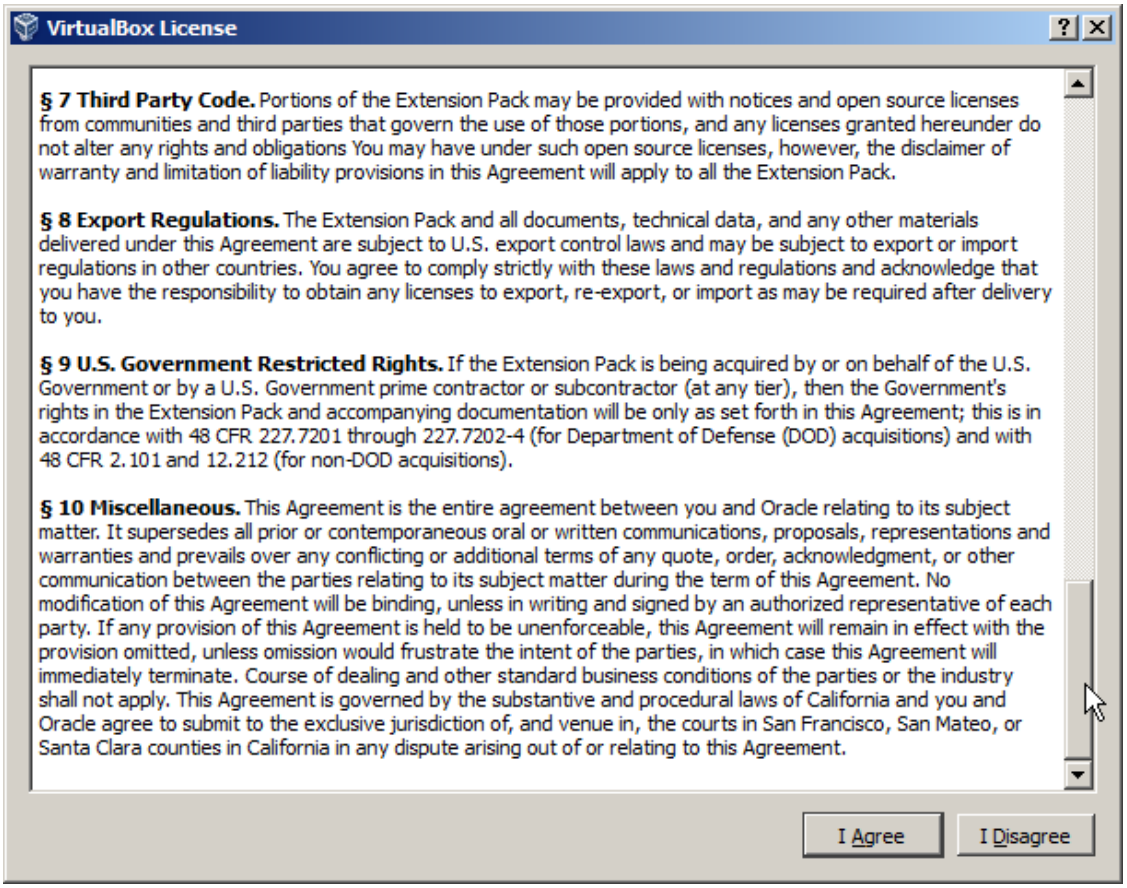

Figure I.48. Complete viewing and accept the terms of the PUEL

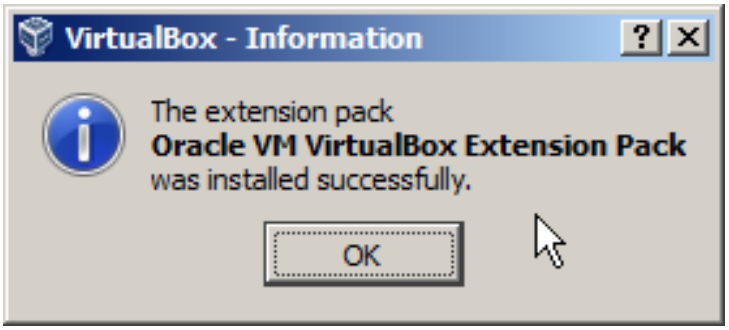

Figure I.49. Successful installation of the VBox extensions

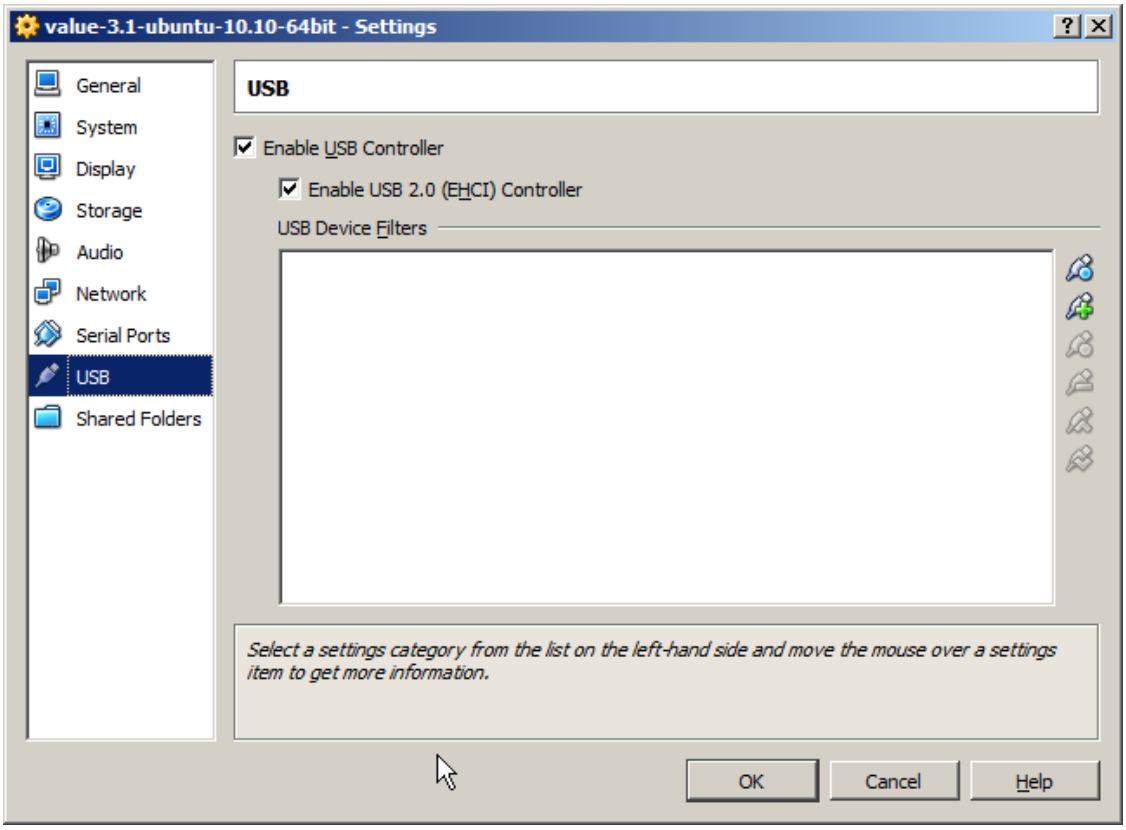

Figure I.50. USB 2.0 is now enabled

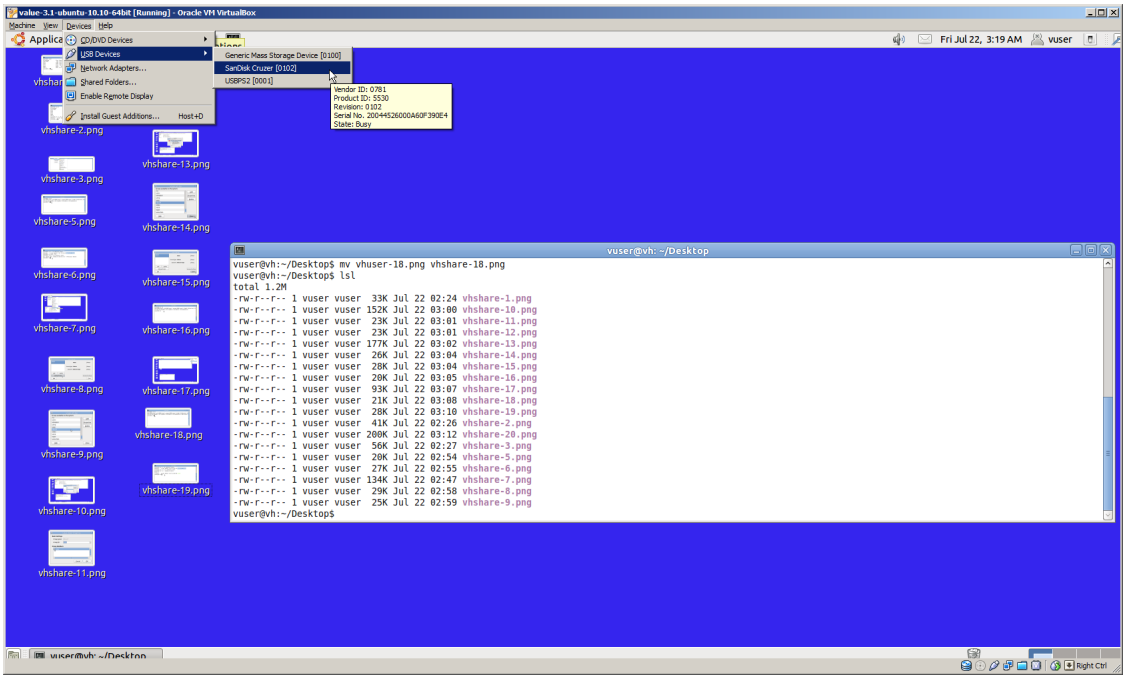

Figure I.51. Show status of USB devices

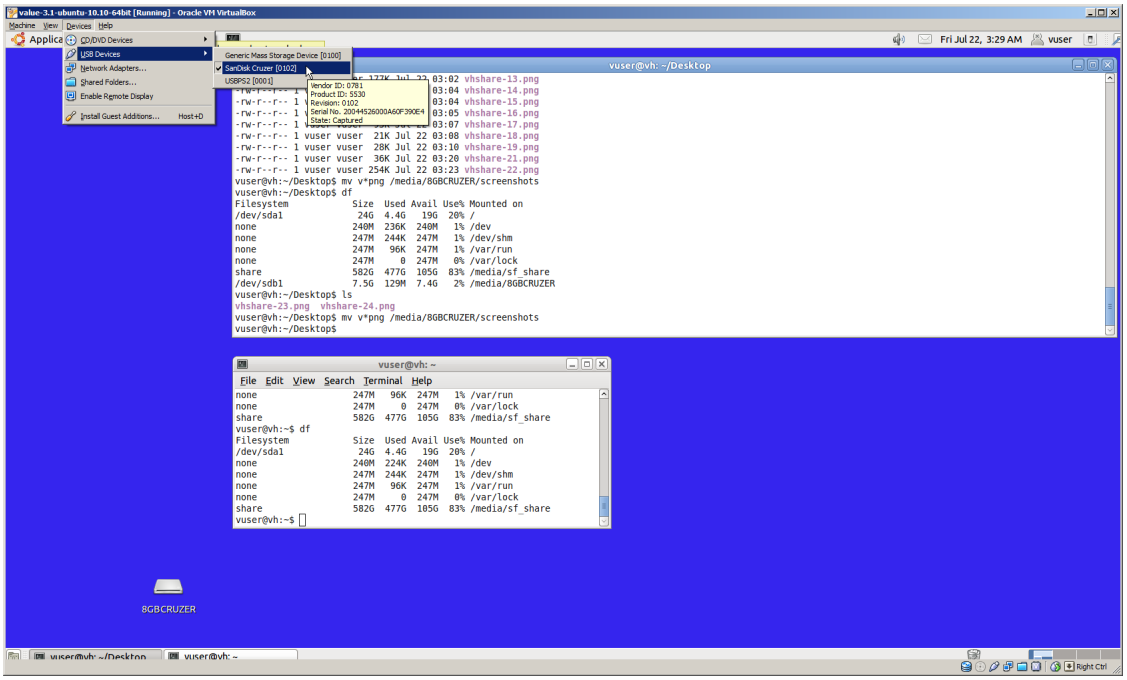

Figure I.52. Select a desired USB device

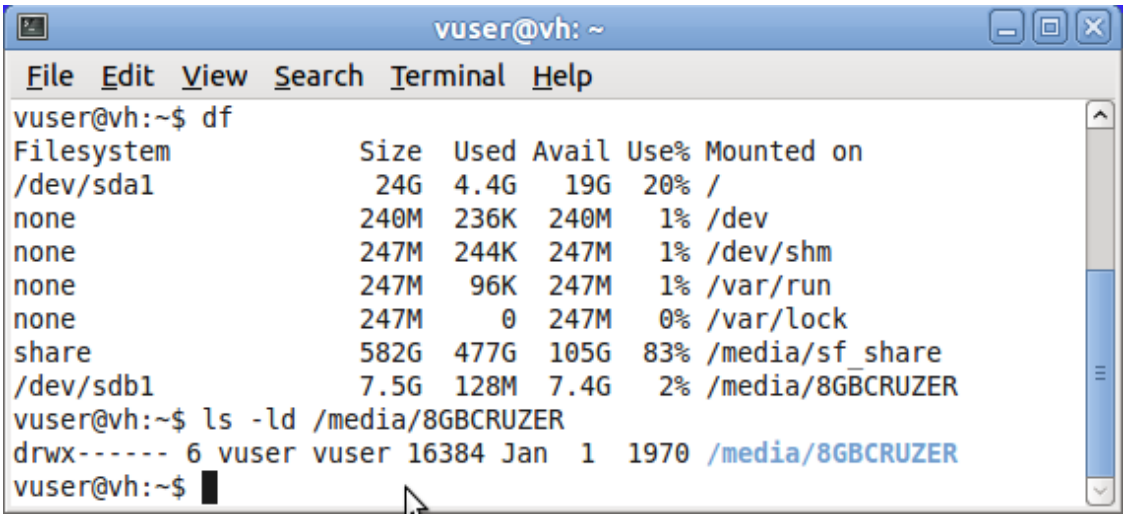

Figure I.53. The USB device shows on the virtual host

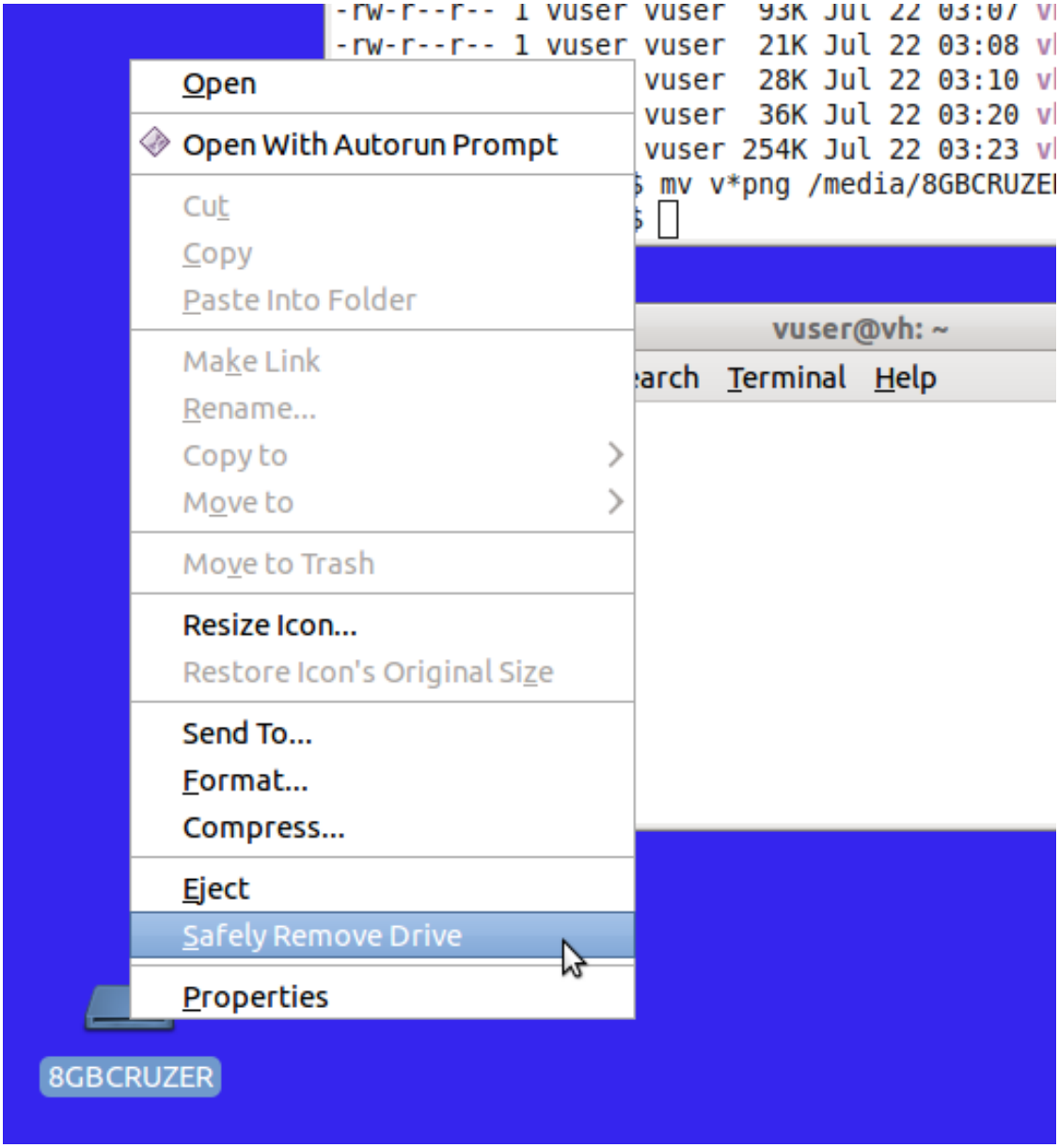

Figure I.54. Select the USB drive icon, right click, and select "Safely Remove Drive"

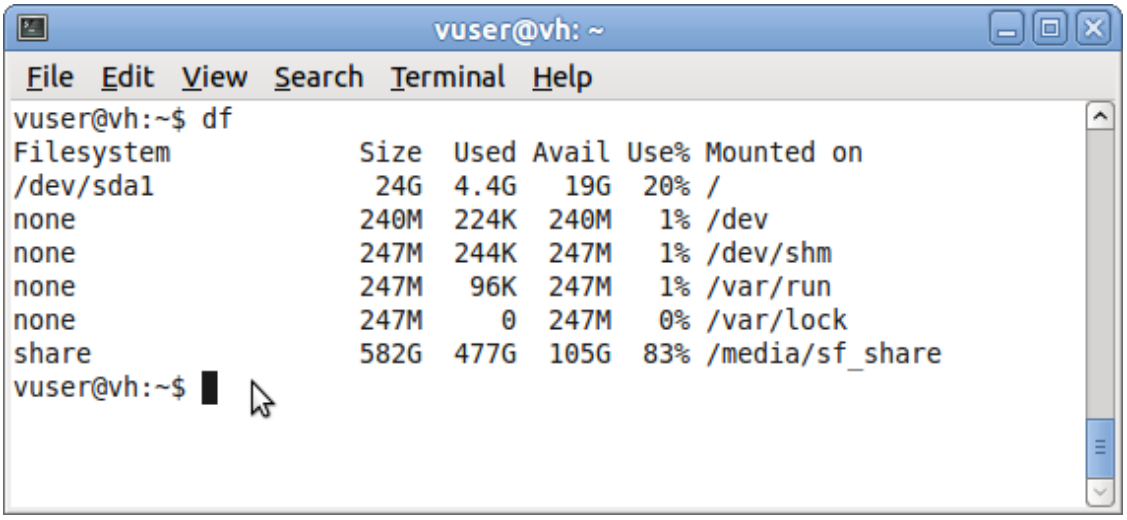

Figure I.55. The USB device is no longer mounted

I.2. VALUE Debian Installation Update

This section describes updating an existing VALUE Debian system whether on a Windows host as a virtual Debian guest host or on a native Debian host. It assumes the running system has an operational VALUE package that was installed via a Debian-format installations file (deb file).

The update will also be via a Debian-format installation file (deb file) which will re-install the Linux distribution of VALUE, along with demos, presentations, sample files, and some pre-requisite programs. IMPORTANT: You MUST remove the installed VALUE version and install the new version.

To proceed, start by mounting the distribution medium and copy the "value*.deb" file onto your system's hard drive. (You may remove the deb file later after you are confident all is working.) Then take the following steps which show examples of command-line entries and typical, but abbreviated, system responses.

Find the installed package name:

```
$ aptitude search value
[  0%] Reading package lists
...
[----] ?name("value"): Accessing index
p   libclass-accessor-lvalue-perl      - Create Lvalue accessors
...
i   value                              - A lethality/vulnerability analysis program
```

Remove the package (as root):

```
$ sudo aptitude remove value
[  0%] Reading package lists
...
The following packages will be REMOVED:
  value
...
Removing value ...
```

- share - a materials.xml file
  - threats - a subdirectory with VALUE threat files
- examples - example targets
- training_materials - Power Point training briefings
- external_docs - several publicly releasable documents dealing with vulnerability analysis

I.4. Updating the Debian Host with the Synaptic Package Manager

You can update the Debian host or install additional Debian programs either through the command-line utility "aptitude" (as demonstrated previously) or by using the Debian Synaptic Package Manager. Select it from from the GUI menu bar:

```
System =>
  Administration =>
    Synaptic Package Manager
```

The manager GUI will look similar to the following figure.

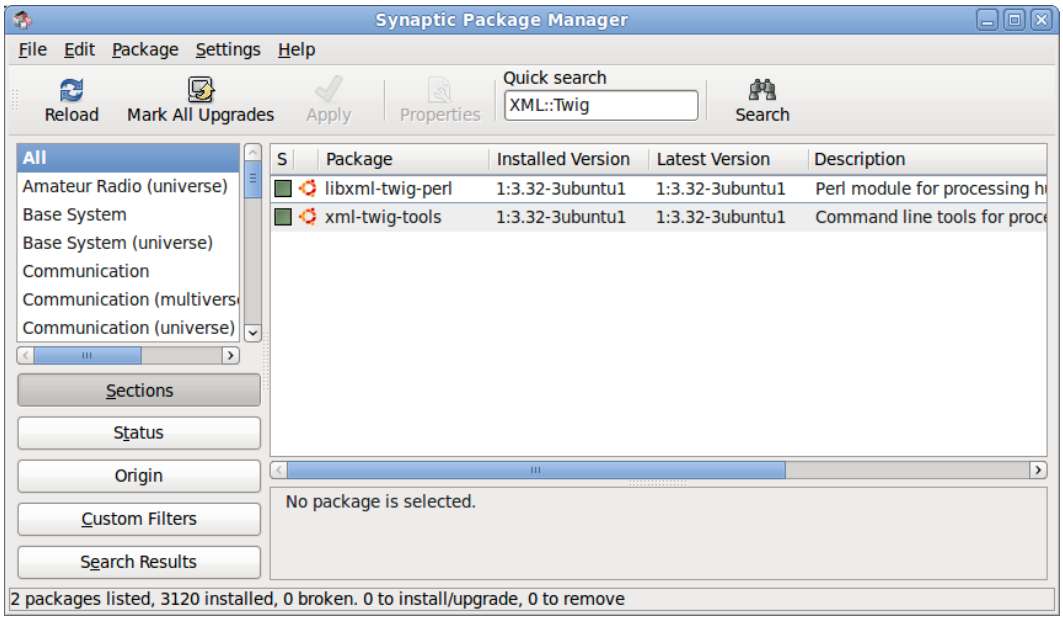

Figure I.56. Debian Synaptic Package Manager