

Practical Exercise 7-5: Working with Shared Libraries

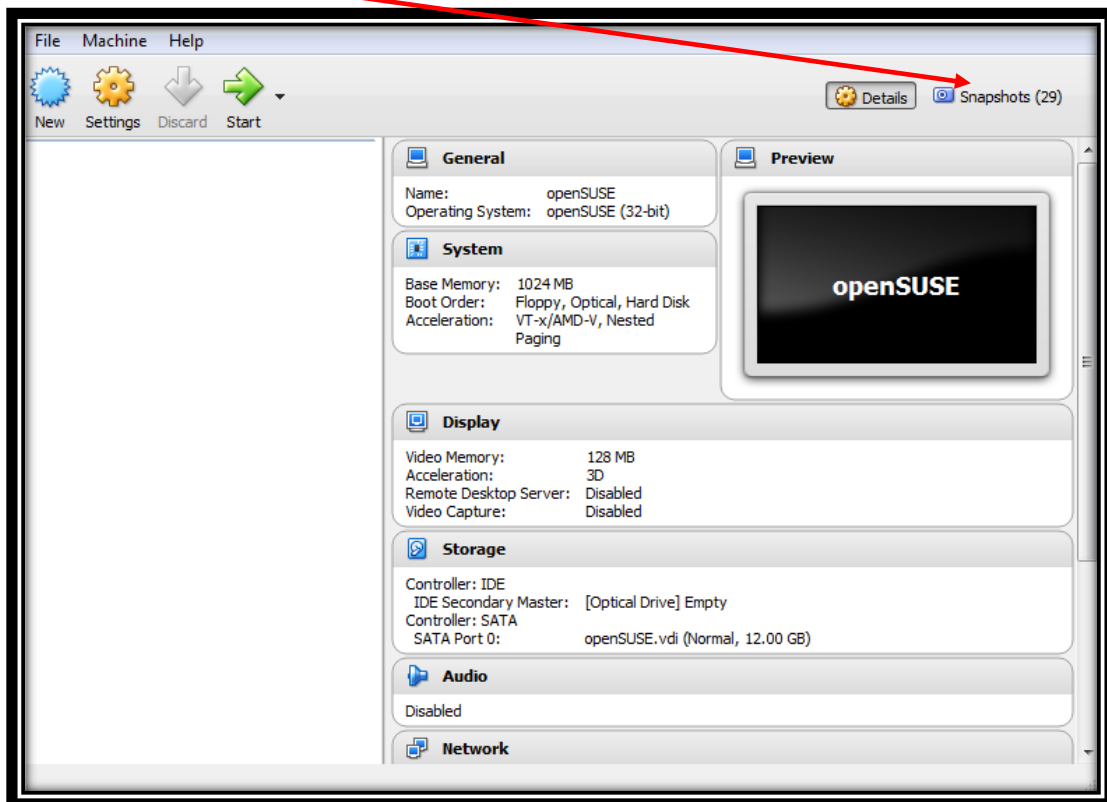
This Practical Exercise will take students through identifying shared libraries used by a specific executable (ping), finding the location of a shared library, viewing a system's library cache with the ldconfig utility and rebuilding the library cache with the ldconfig utility.

Open VirtualBox and start the openSUSE VM. Run snapshot 8-3 for the correctly configured environment. To run snapshot 8-3:

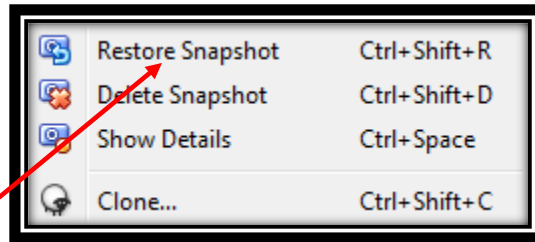
1. Open the Oracle VM VirtualBox manager by double clicking this icon on your desktop:



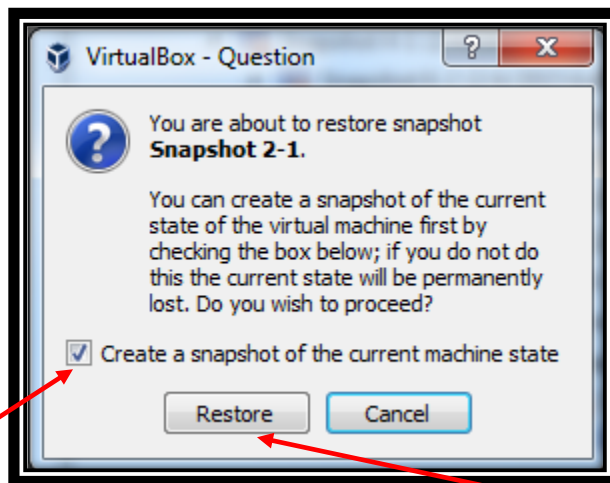
2. Click "Snapshots" in the top right of the Oracle VM Virtualbox Manager.



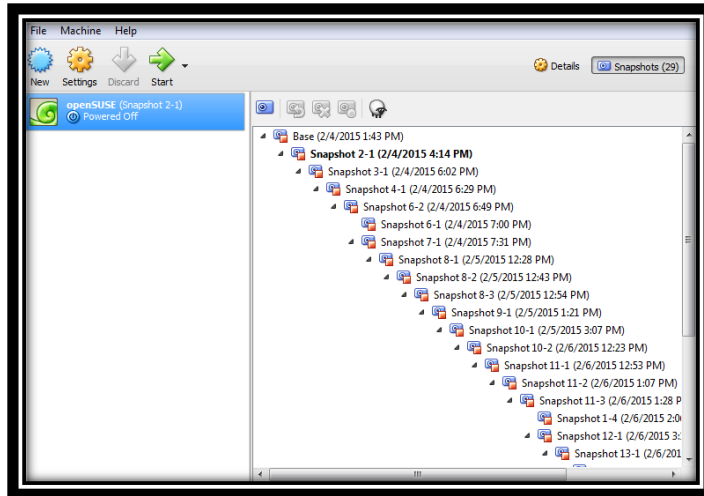
3. In the right side box populated with snapshots scroll up and find the one titled "Snapshot 8-3" and right click on it. The following box should appear:



4. Select "Restore Snapshot" and the following pop-up should appear:



5. Uncheck the "Create a Snapshot of the current machine state" box and then click the "Restore" button.
6. You should now see in the left box the openSUSE (Snapshot 8-3) with a status of "Powered Off." Power it on by double clicking it.



7. A separate window should open and you should see the openSUSE Linux OS booting.
8. Press **CTRL+ALT+F1** and login with the username: **root** and the password: **student**.
9. Lets view the shared libraries used by the ping executable. Enter **ldd -v /bin/ping**. You should get notified that the libc.so.6 shared library is required by ping. The ldd utility prints the shared libraries required by each program or shared library specified on the command line. The -v is for verbose, print all information to the screen for the ping executable located in /bin.ping.
10. To figure out where the libc.so.6 is located on the system enter **find / -name libc.so.6**. On a 32-bit system it usually resides in /lib. On a 64-bit system it usually resides in /lib64.
11. View the systems' library cache by entering **ldconfig -p**. If you want to read this a page at a time pipe it to more (`| more`). The ldconfig utility creates the necessary links and cache to the most recent shared libraries, in the /etc/ld.so.conf file and trusted directories (/lib and /usr/lib). The -p option is used to print the list of directories and libraries.
12. Rebuild the library cache by entering **ldconfig -v**. If you want to read this a page at a time pipe it to more (`| more`). The -v option is used for verbose mode. This will cause the current version number to be printed to screen, the number of directories scanned and any links created between libraries and directories.

--End of Practical Exercise--