Tools/Software to download for CSCI235:

Items (software) recommended to download and install:

- Virtual Box
- Virtual machine for Oracle R19c (64-bit, Linux)

1. VirtualBox

i. To download VirtualBox, at your Web browser, type the **URL: Vitualbox.org**,

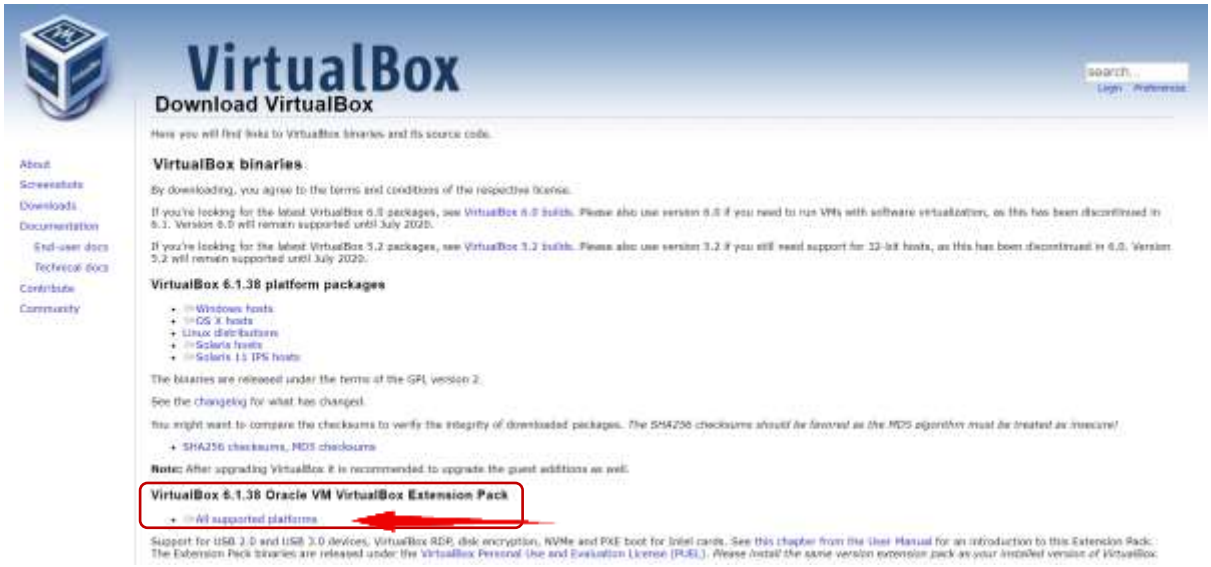
ii. Click at the big icon "Download VirtualBox 6.1", and you will be brought to another page to start your download. (At the point of preparing these instructions, the latest version of VirtualBox is 6.1.38. You can download and install any version you like.)

iii. In this page ("Download VirtualBox"), choose the packages that is according to your system specification, e.g., windows hosts, or IOS-x, etc.

My OS is Windows 10; hence, I am downloading this.

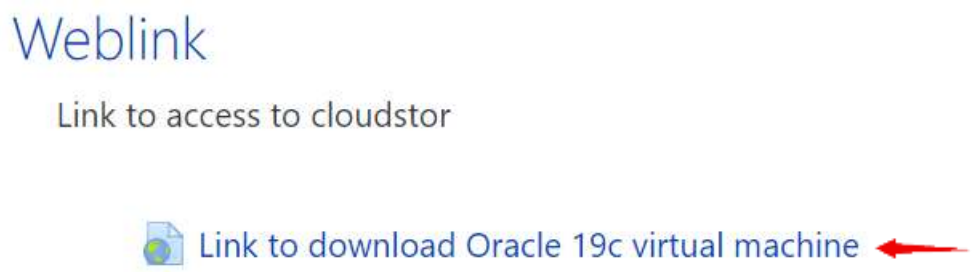
iv. After the packages is downloaded, you can execute the executable. Follow the instructions on the screen to install the VirtualBox. (This screen is based on VirtualBox version 6.1.38, at the time of preparing this report. You may be installing a different version. It is okay to install another version.)

v. If the installation guide asks to install the **latest** "Oracle VM VirtualBox extension pack", please do it. If you need to get a copy of the extension pack, you can get it from the VirtualBox download page. NOTE: It is important to have a compatible version of the extension pack for the VirtualBox.



2. Virtual machine for Oracle R19c (64-bit, Linux)

i. You can download the Oracle R19c (64-bit, Linux) image to be set up in the VirtualBox from the following Weblink (available at the subject site in Moodle):

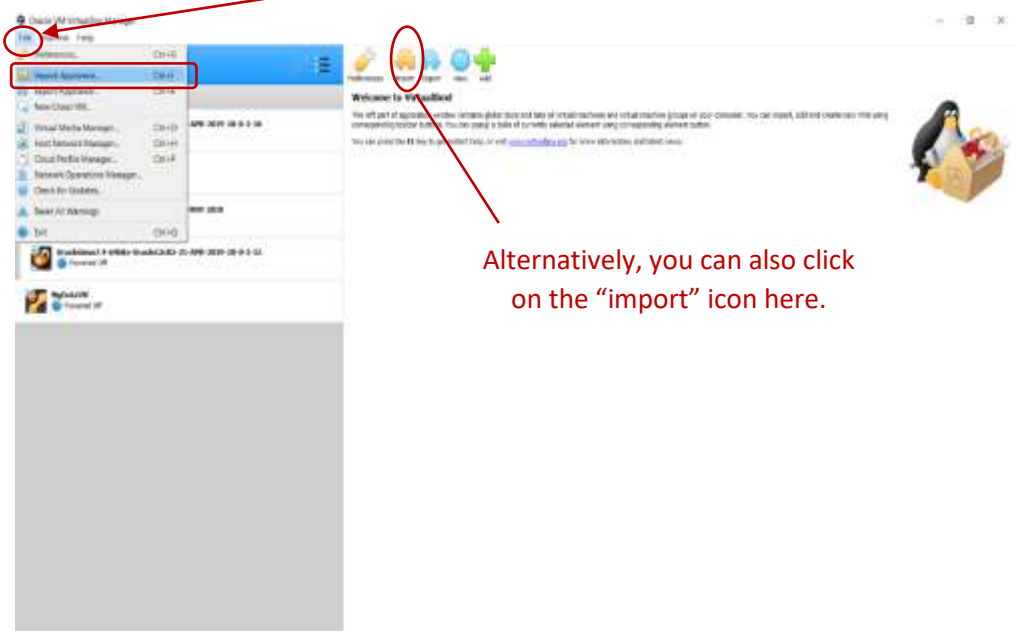


In the **cloud**stor page, click on the "Download OracleLinux7.4-64bits-Oracle19c-22-JAN-2020.ova (9.4 GB)" and save it in a directory that you can access conveniently later. (If possible, try to download using **Firefox web browser**.)

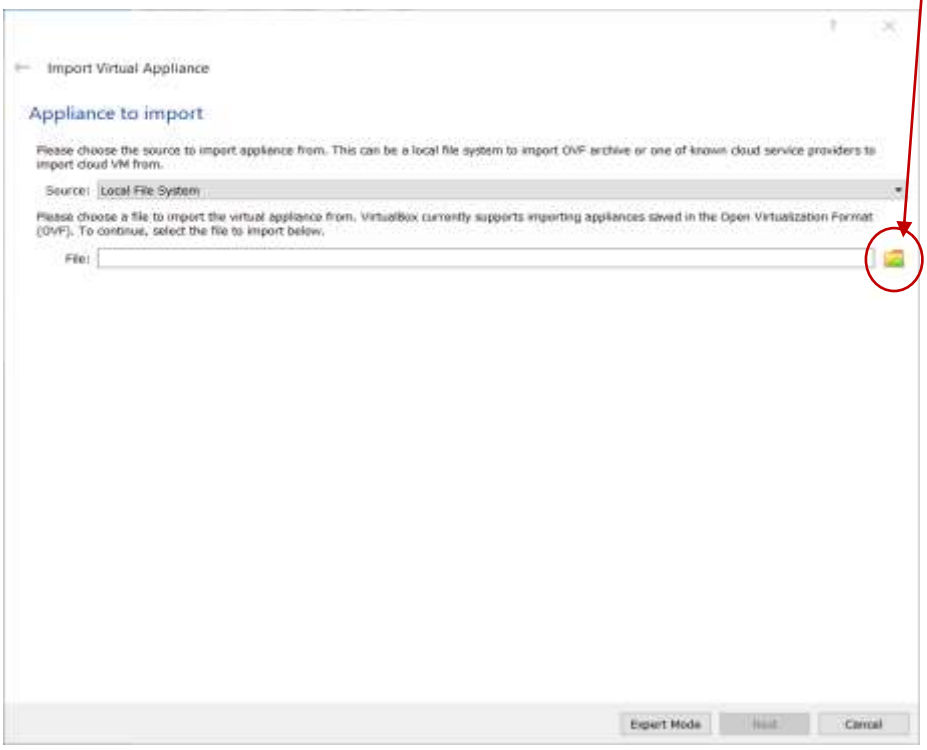
3. Add Virtual Machine to VirtualBox:

i. After the downloading is completed, you can add the virtual machine (OracleLinux7.4-64bits-Oracle19c-22-JAN-2020.ova) to the VirtualBox as follow:

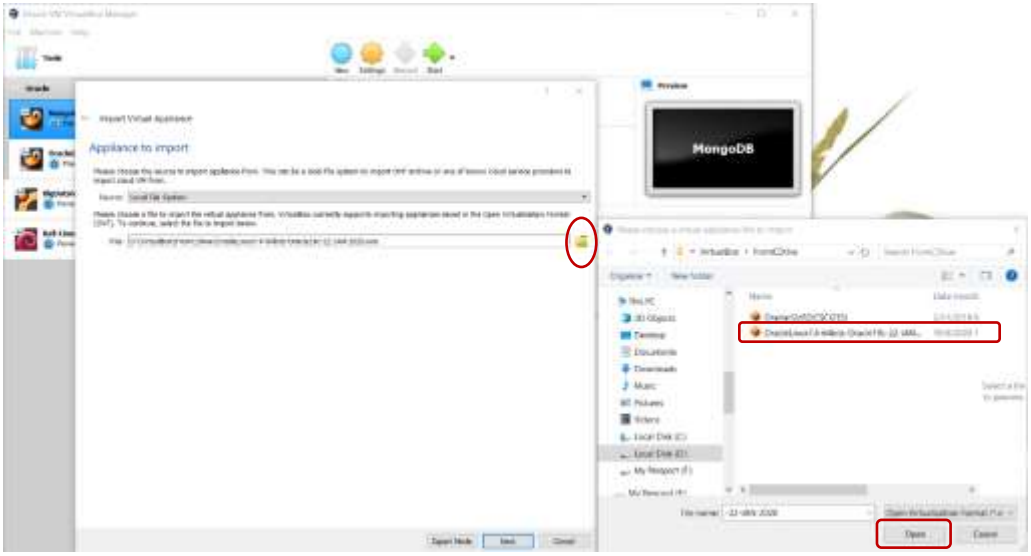
- Start VirtualBox if you have not already done so.
- At the command tool bar of the VirtualBox, click on the "File" option, and at the drop-down menu, select the “Import Appliance.”



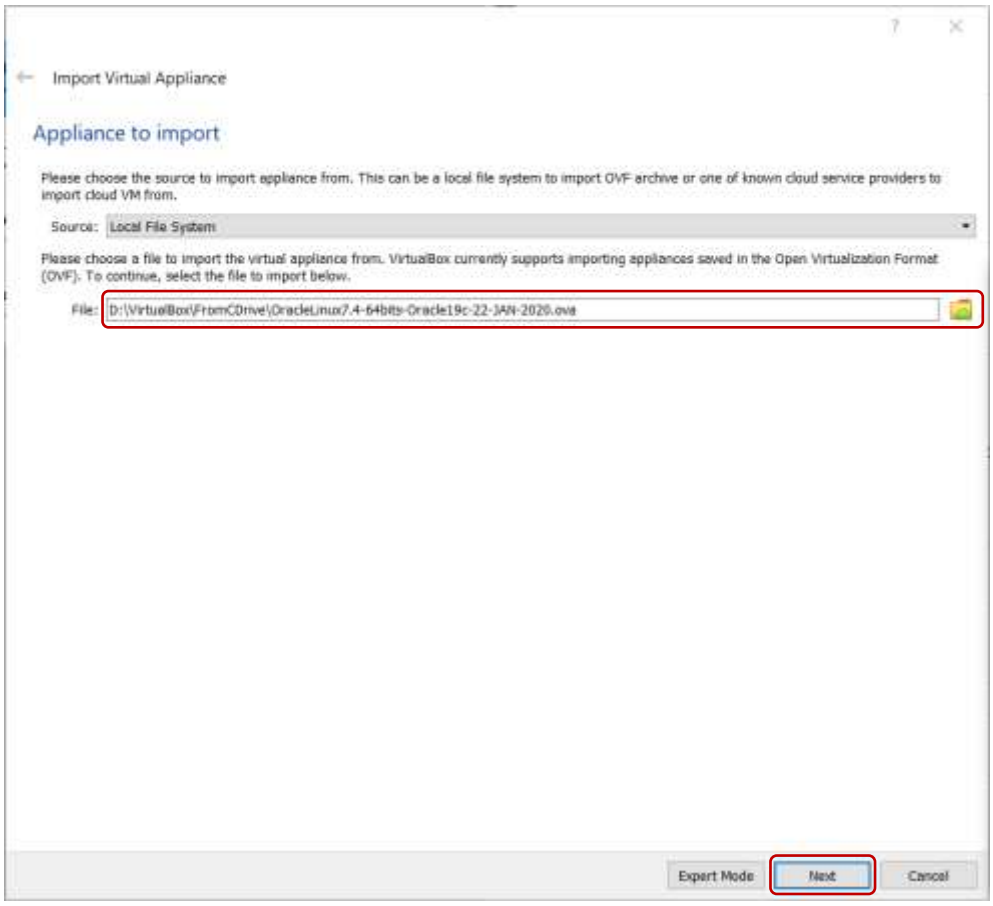
- A new window to import appliance pops up. At this window, click on the little "file-explorer" icon to select the virtual machine (appliance) from your hard-disk.



- Through the file explorer, navigate to the directory where the virtual machine image (OracleLinux7.4-64bits-Oracle19c-22-JAN-2020.ova) that you have downloaded is located. Select it and click "open" to select the image.

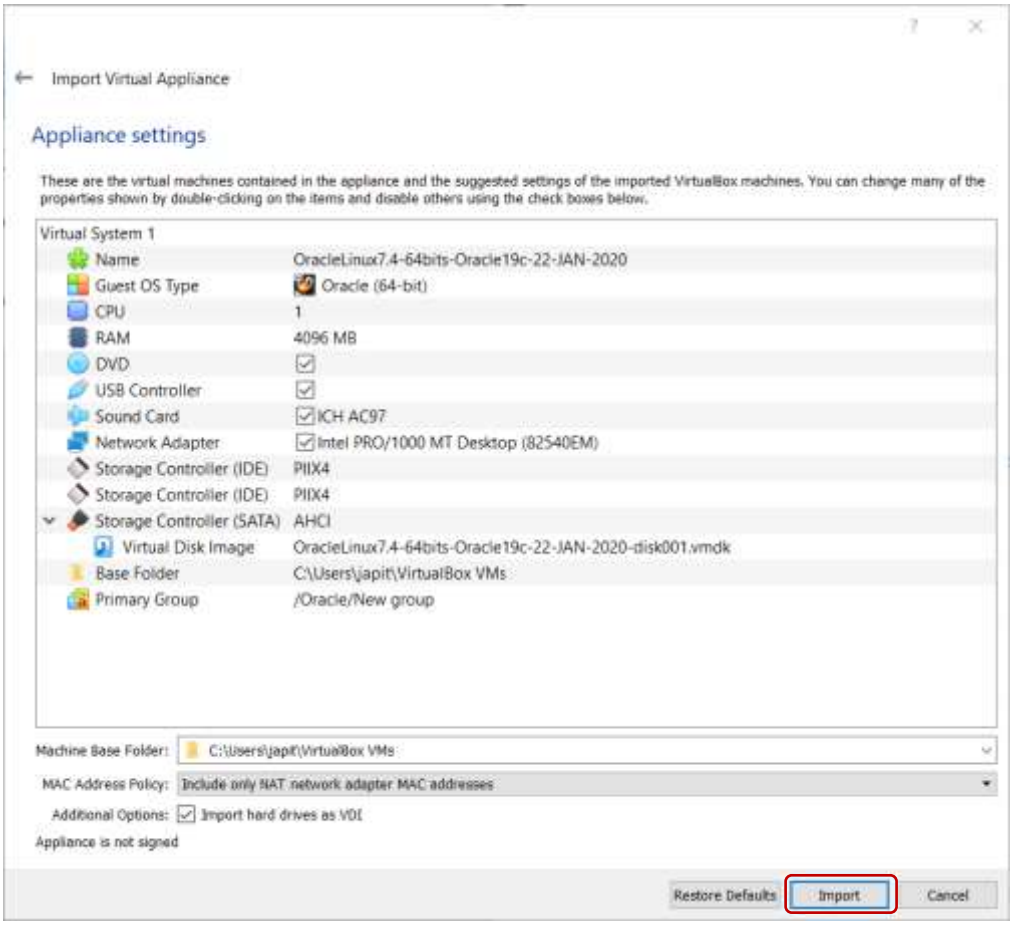


- Click on "next" button to proceed the import.



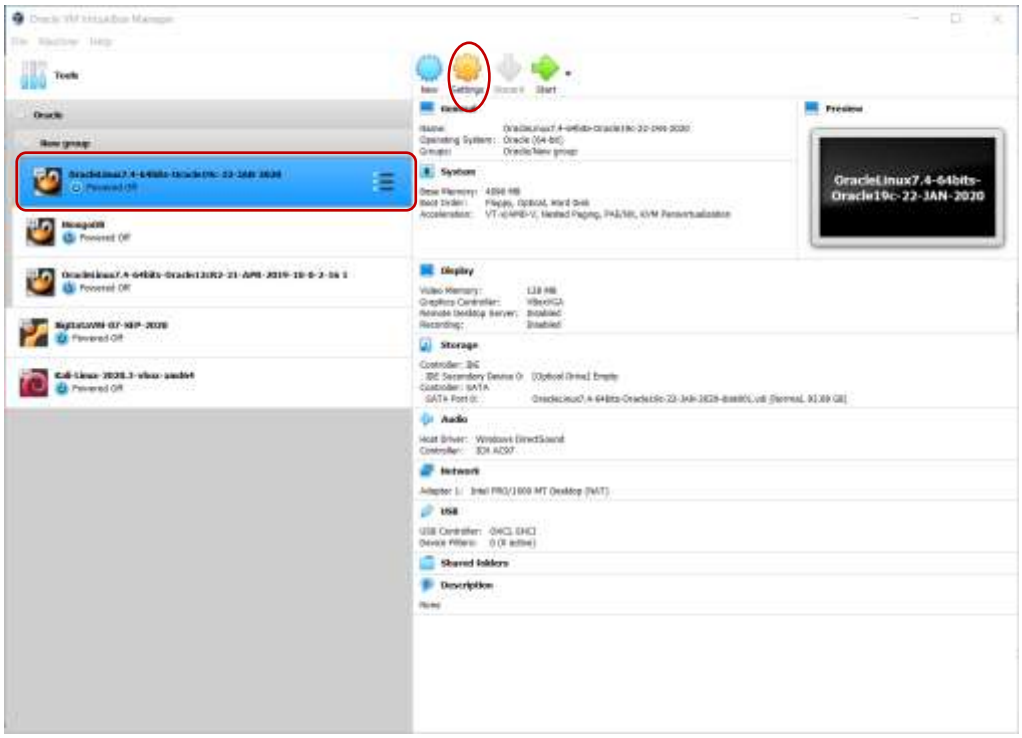
- A confirmation window appears. Check that the details are correct. (If everything is done properly, the information should be correct.)

  Click the "import" button to start the import. The import should take less than 5 minutes to complete.

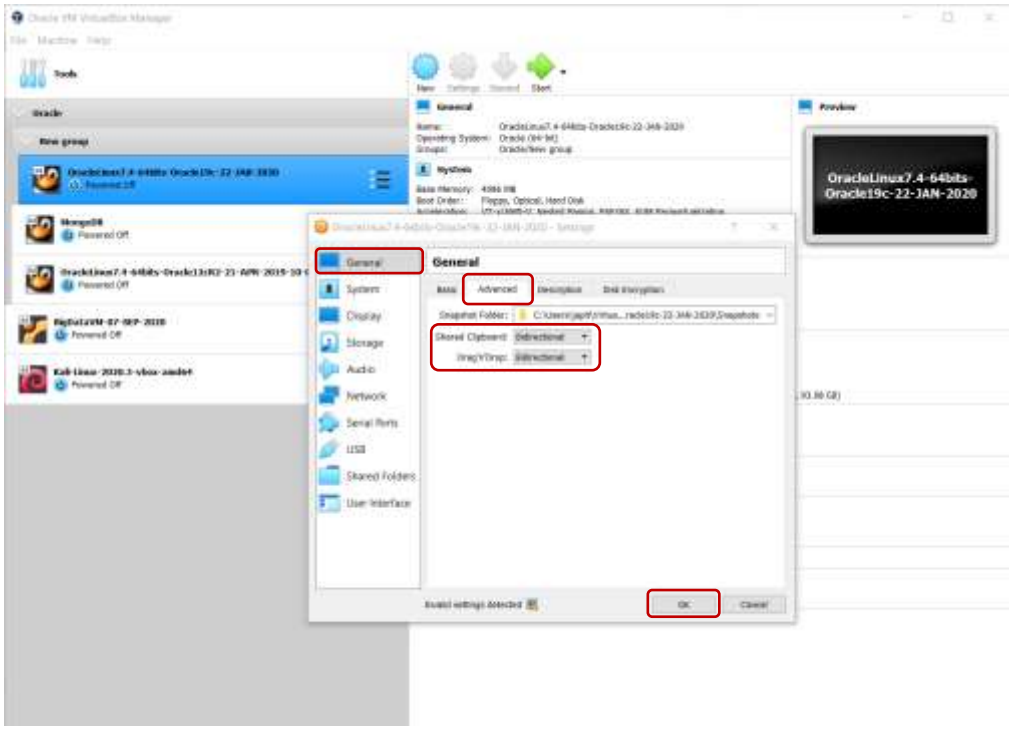


- Upon successful import, you should see the virtual machine appear at the VirtualBox manager screen. Before you start your virtual machine, check that the following parameters are set:
  - The “Shared clipboard” option is set to "Bidirectional" (See the screen-capture shown below.)
  - The "Drag’n’Drop" option is set to "Bidirectional" (See the screen-capture shown below.)
  - The Network adapter is attached to "NAT" (See the screen-capture shown below.)

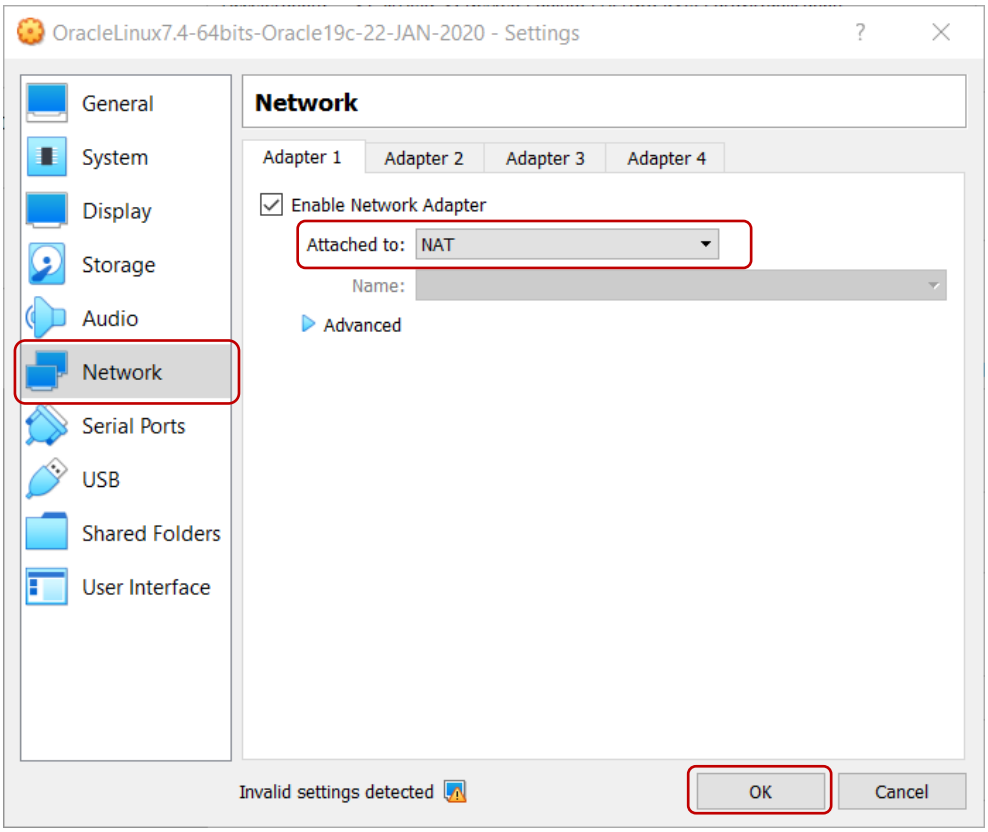
- At the VirtualBox Manager page (main page), select the virtual machine, and click the "Setting" icon.



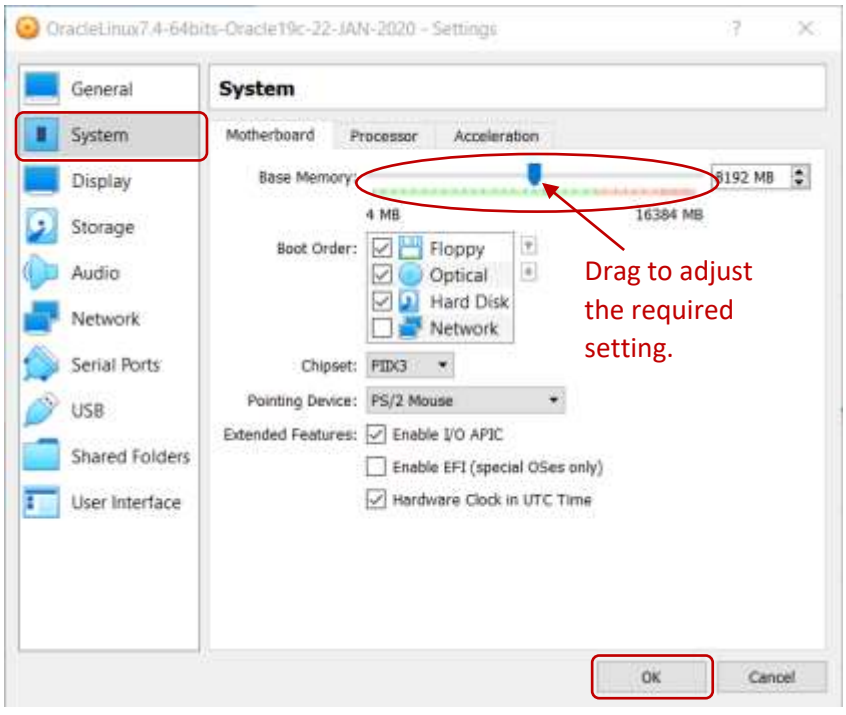
- A new Setting window appears. Click on the "General" option and navigate to the "Advanced" tab. Set both the "Shared Clipboard" and "Drag'n'Drop" options to "Bidirectional". Click "Ok" to register the setting.



- Next, click on the "Network" option, and set the "Attached to" to "NAT" if it is not "NAT".

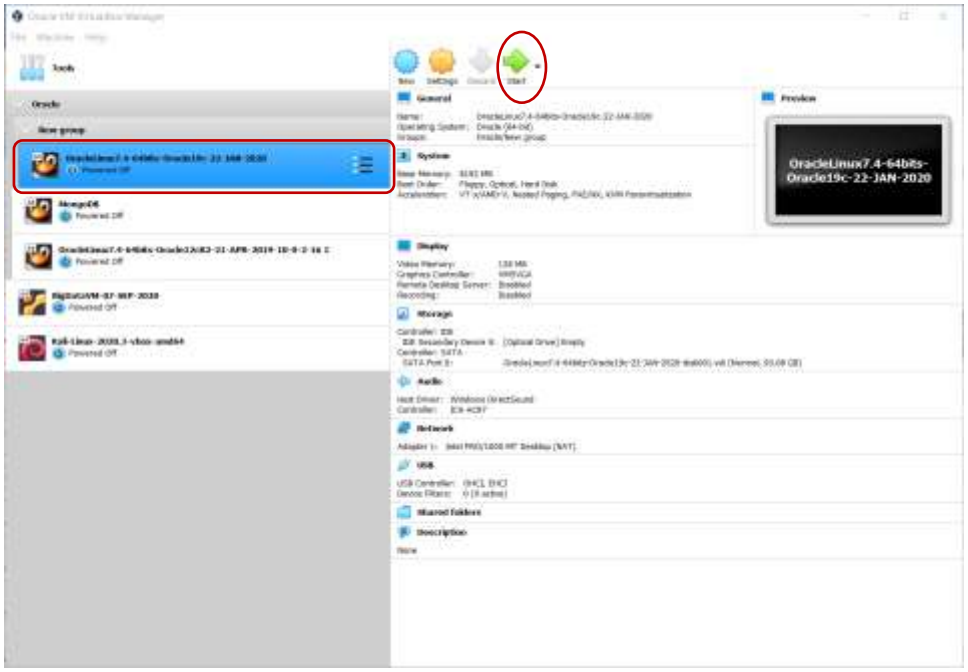


- Depending on the size of your mother-board memory (main memory), you may want to set the VM memory for the machine. The recommended memory is 4GB. However, you have a bigger mother-board memory you can increase it to 8GB to get a better performance.



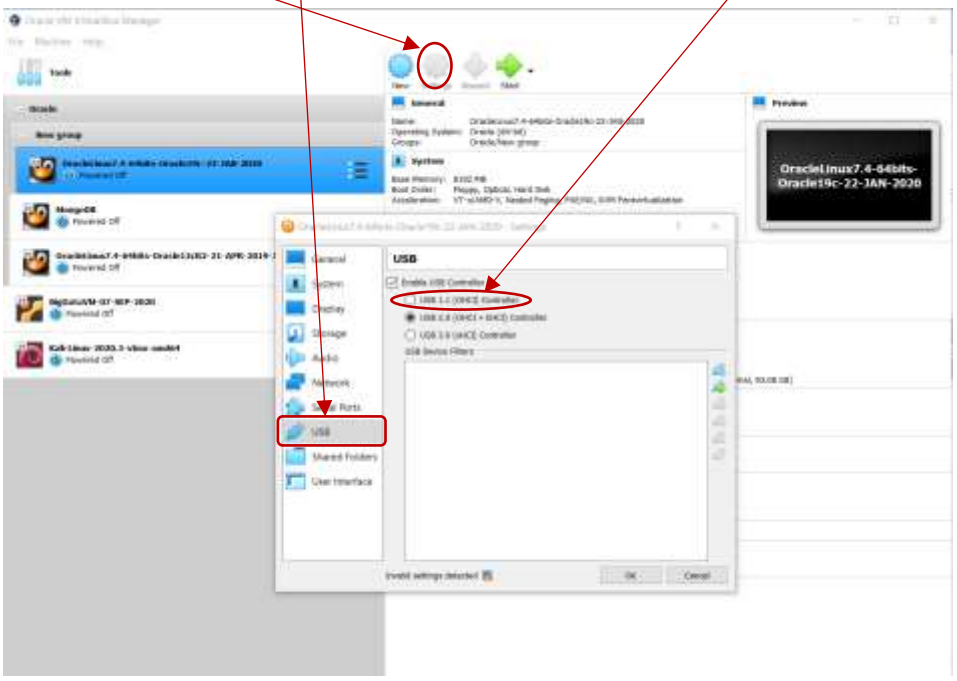
Start the virtual machine:

i. To start a virtual machine, with the virtual machine selected, click on the "Start" (green arrow) icon.



After a minute or two, the virtual machine will be started. The password and username set for the virtual machine is **oracle**.

(Note: If the virtual machine fails to start due to some USB controller error, go back to the setting, click on the USB button and change the controller to USB1.1 (OHCI) controller.)



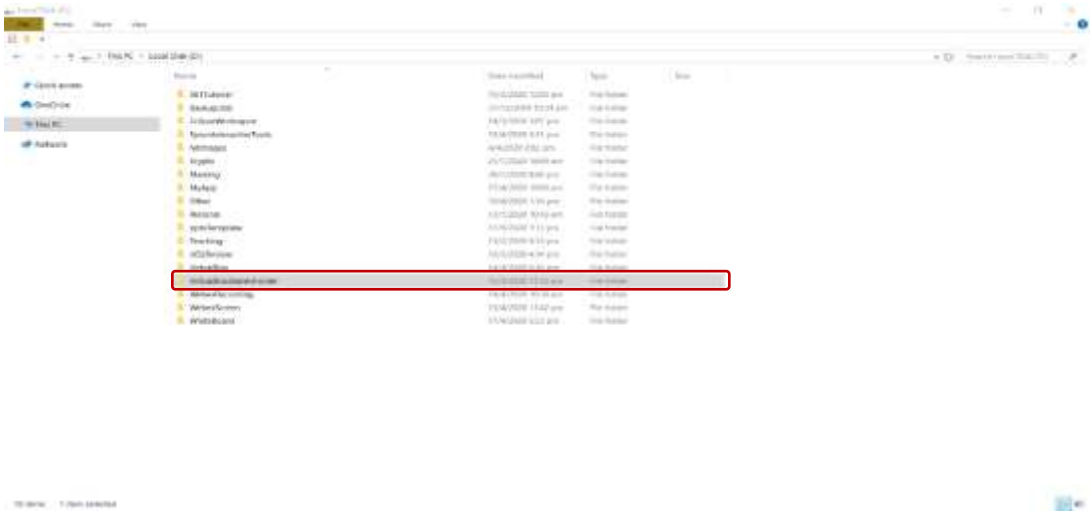
4. Creating a shared-folder (This option is not mandatory)

NOTE: To create shared-folder, you must have the extension-pack (Oracle VM VirtualBox extension pack) run. Please refer to page 2, point 1.v above.

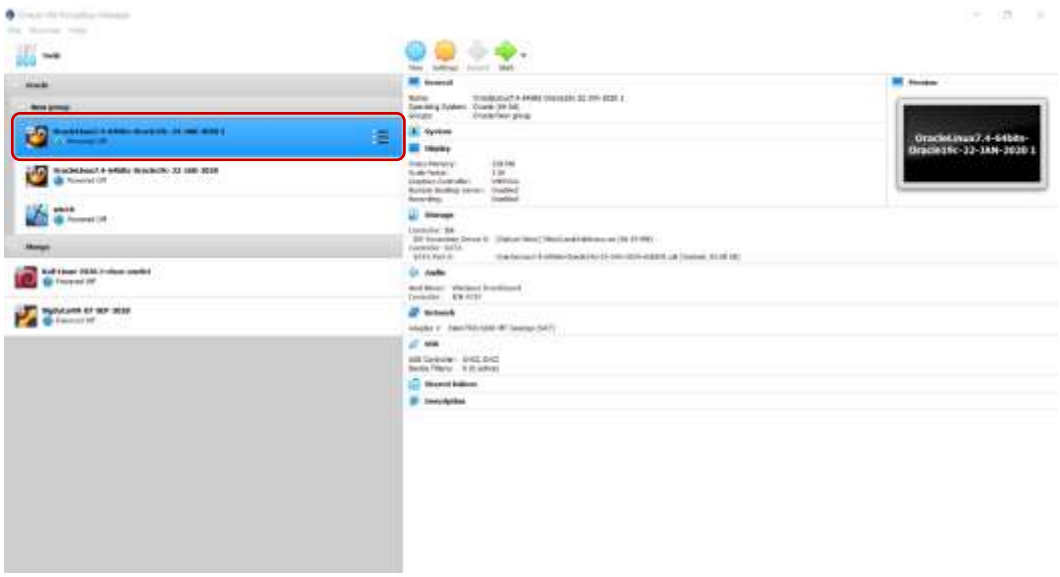
Shared-folder is an option for convenience in sharing of data between the virtual machine and your native OS. It is **NOT** a mandatory function that we need to setup. We can easily share data using cloud storage such as one-drive or Google drive or Dropbox, etc. **You can opt not to setup shared-folder.**

Virtual machine and your native OS are isolated. In order to access files/data stored in your local hard-disk from virtual machine, you need to setup a shared-folder that both the native OS and the virtual machine can access. This shared-folder can be created in your local hard-disk.

i. Create a folder at your local hard-disk. The folder can be created at any of your disk-drive. For example, we create one folder named "VirtualBoxSharedFolder" at the local disk-drive D.

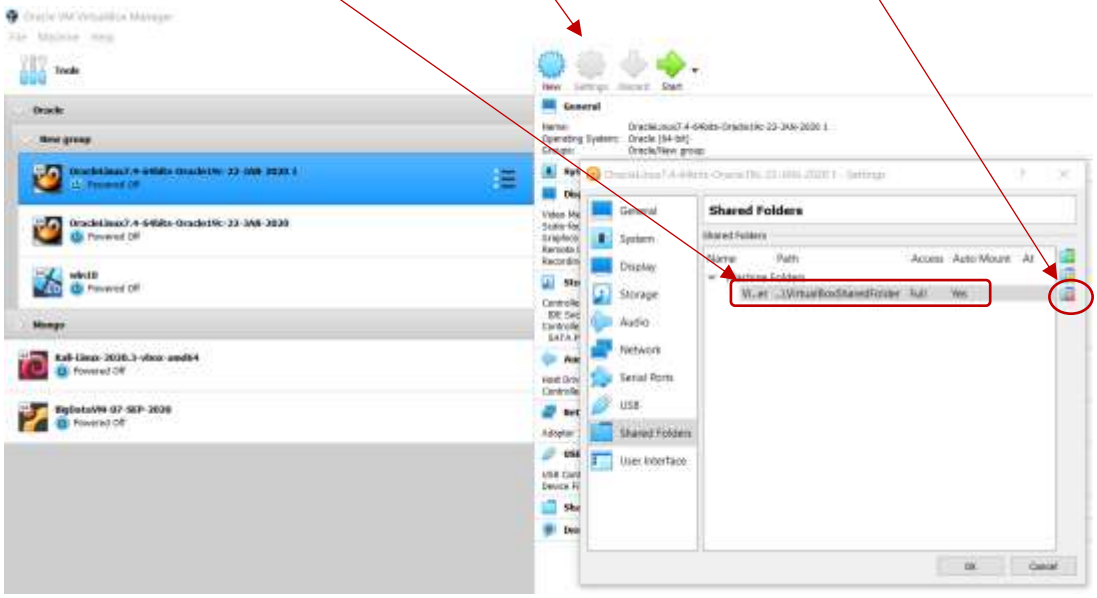


ii. Next, start your virtual box, and select the virtual machine that you want it to share the shared-folder.

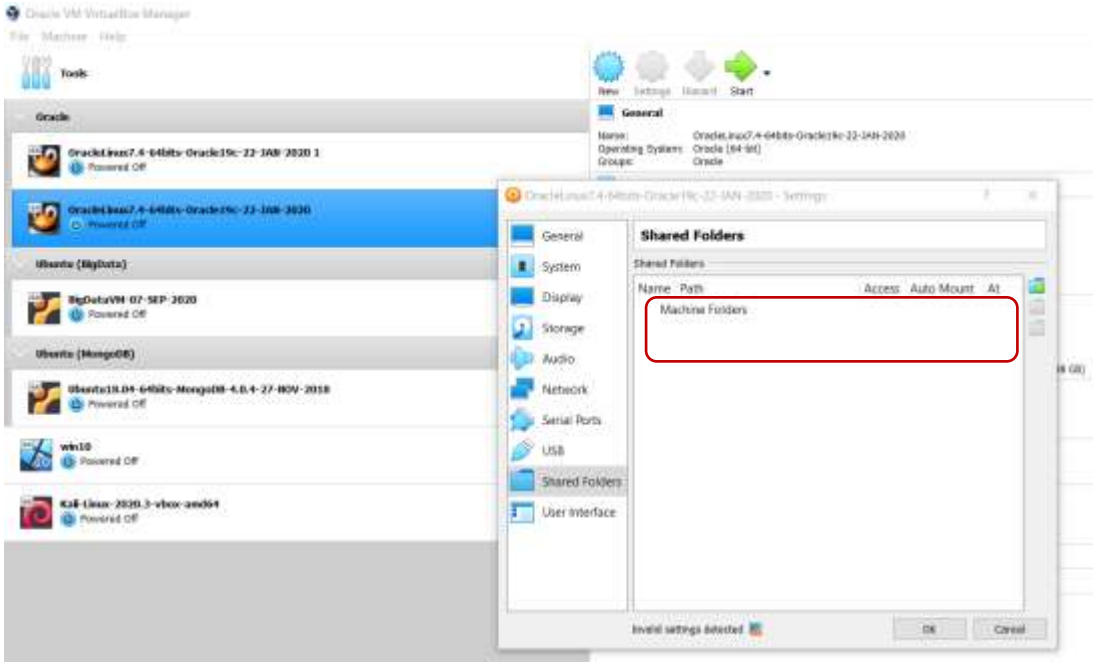


iii. Next (assuming you are continuing from Step 3, that is, you have already started the Oracle virtual machine), click on the "setting" icon, and the setting window popups. Navigate to the "Shared Folders" button and check if you see any existing shared-folder being setup.

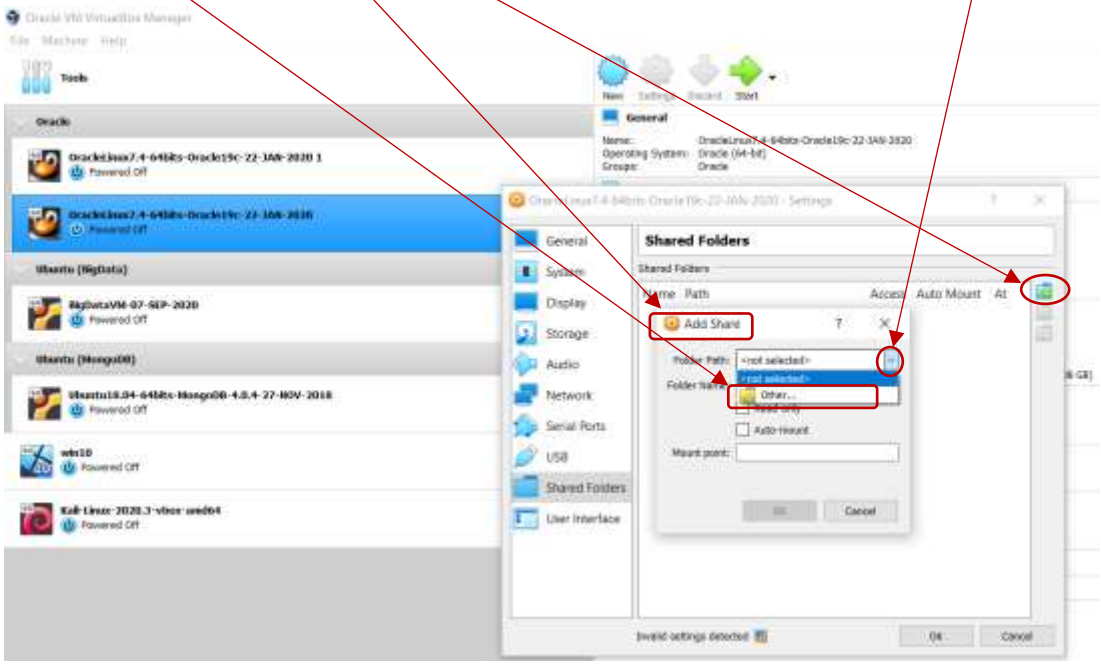
If the "shared-folder" is not setup by you or it is not a folder that you share with other existing virtual machine, click at it, and delete it by clicking on the "delete" icon shown on the right.



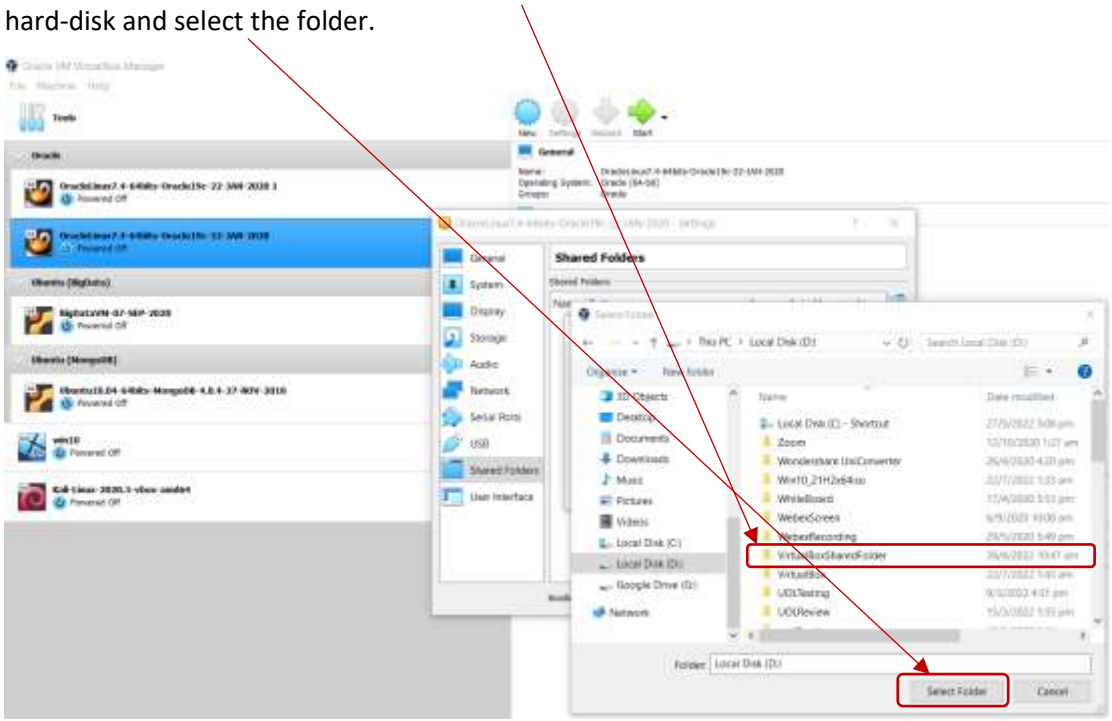
iv. Your Virtual Machine Shared Folders should be emptied now as shown below.



v. Now we can add the share folder that we have created earlier in the D drive. Click at the folder icon with a '+' sign on it, located on the right somewhere near the top. A popup window, titled 'Add Share' appears. Click on the icon that looks like letter 'v' to select the "other" option.

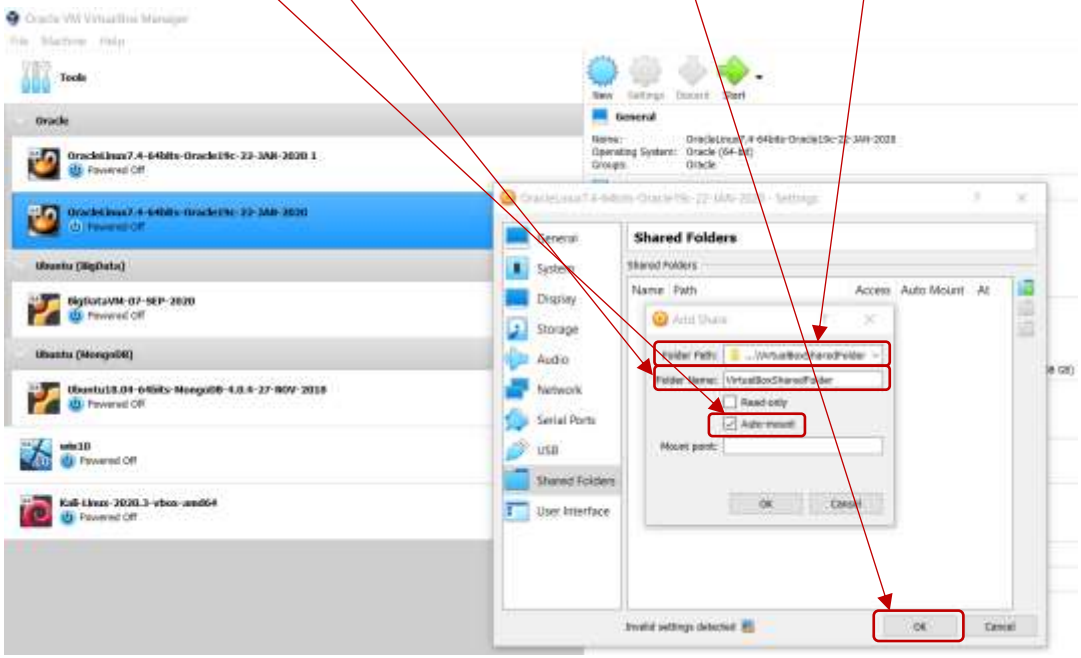


vi. A file explorer opens. Navigate to the directory where the shared folder located in your hard-disk and select the folder.



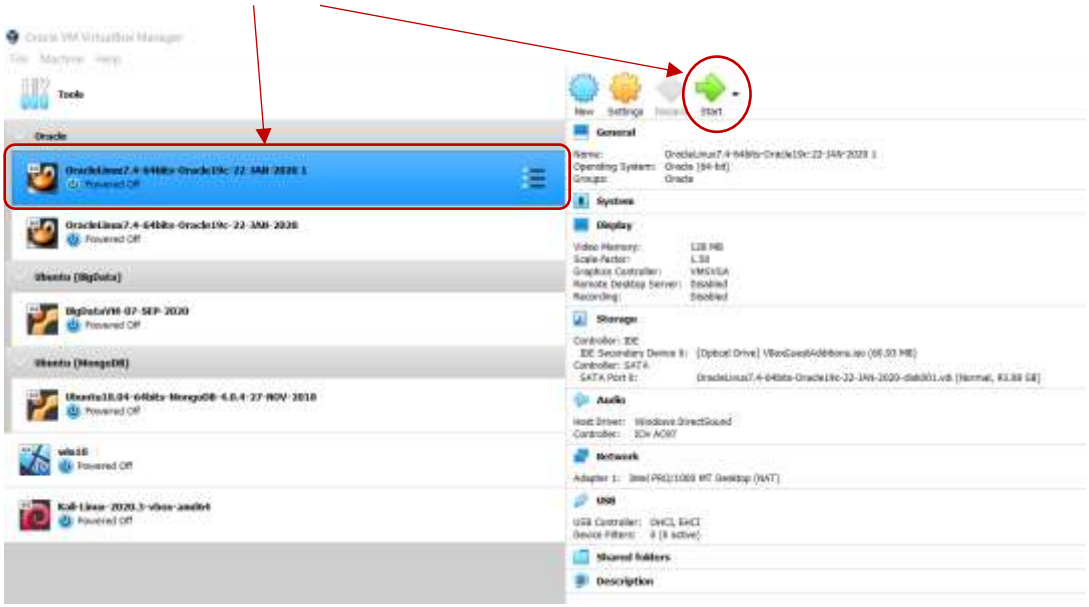
vii. The path and the name of the shared folder is now displayed in the "Folder Path", and a name "VitualBoxSharedFolder" is selected as the folder name. Rename it if you want, otherwise you can leave as it is.

Next, check (tick) the "Auto mount" option and click "Ok" to confirm the selection of the shared folder.

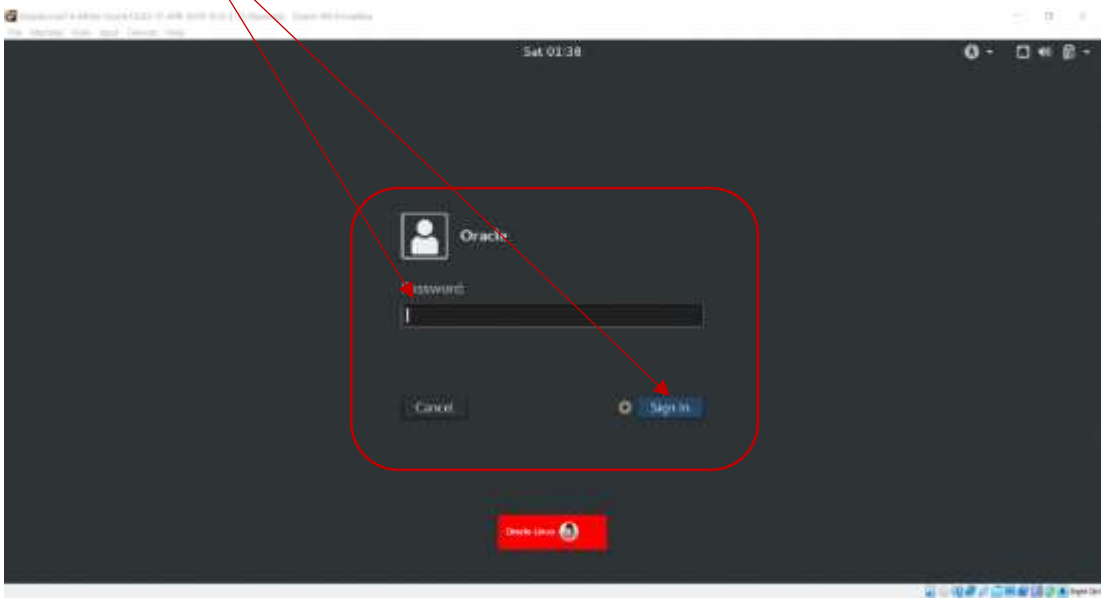


viii. The shared folder is now attached to the virtual machine. However, the user from the virtual machine need to have permission to access to the attached shared folder, hence, we need to grant the user permission. To do that, we need to start and login to the virtual machine.

Start the virtual machine,

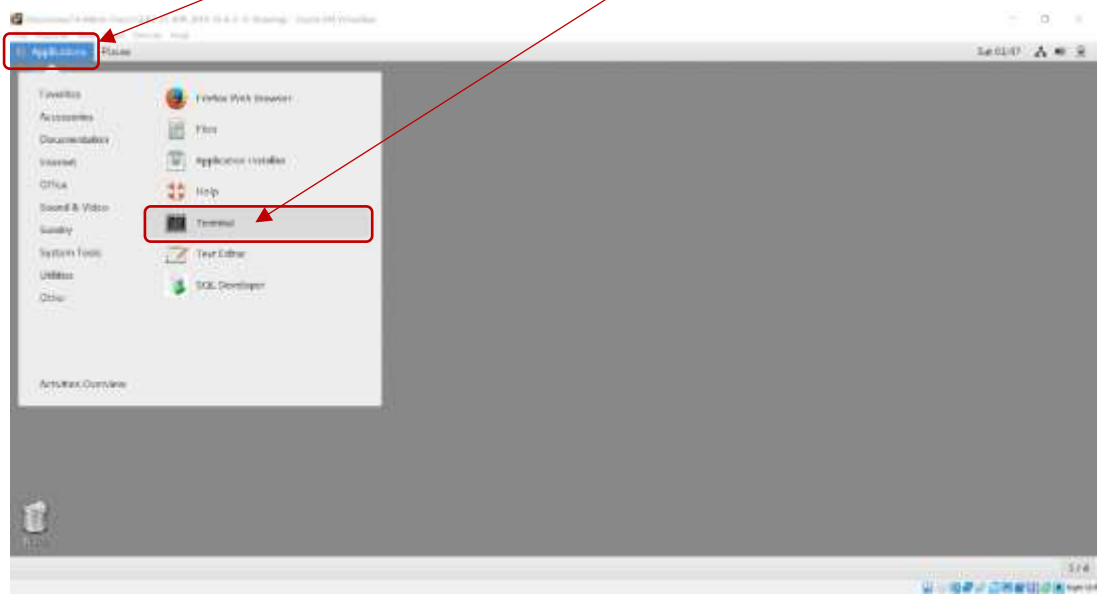


And login the system.

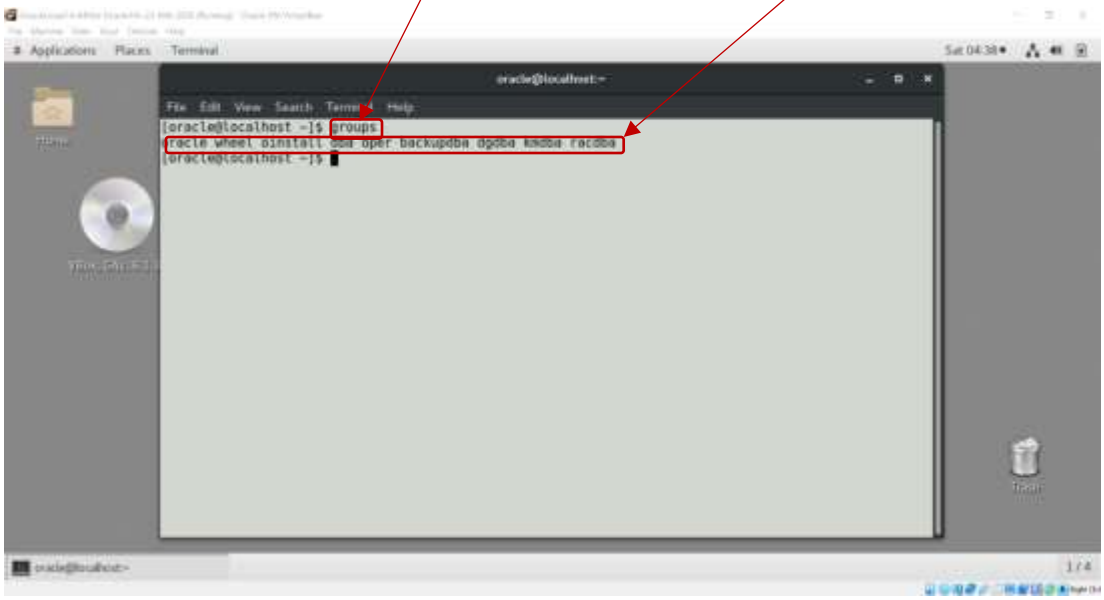


The password to login is oracle.

ix. Once login, you will see the VirtualBoxSharedFolder appears, but at the moment, you still cannot access to it because your username (oracle in this instance) does not have the permission. We need to grant permission to the username. To do that, open the terminal by selecting the “Application” then click on the “Terminal”.



x. Once the terminal window opens, check which groups the user oracle currently already has permission to access by typing in “groups” at the terminal prompt. You should see some, but **NOT** “vboxsf” (virtual box shared folder) group. If you can see “vboxsf” group, it means you already have permission to access the virtual box shared-folder group.

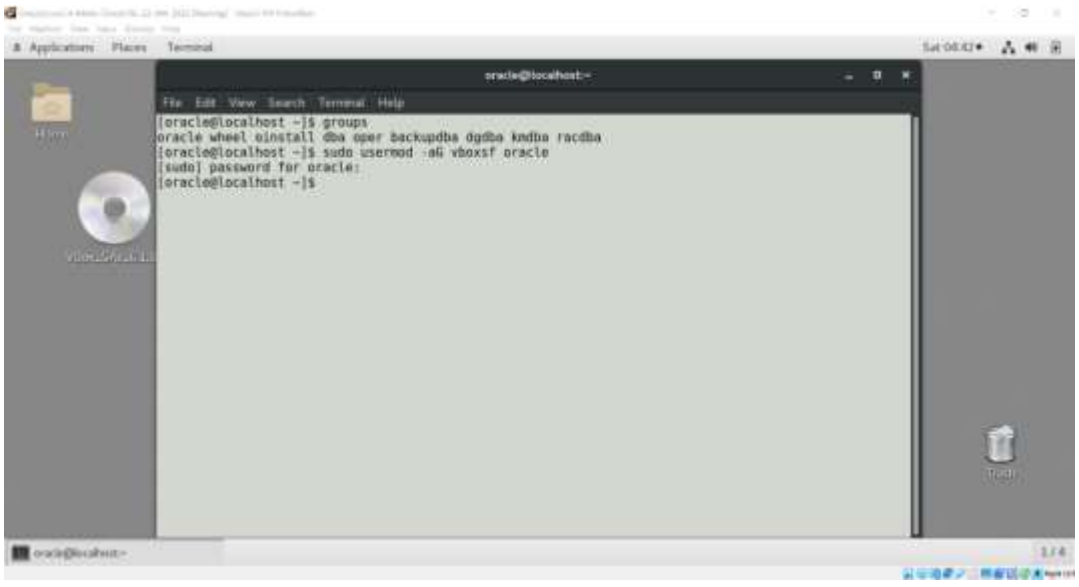


xi. To grant the user oracle to access to the virtual box shared-folder group, type the following at the prompt:

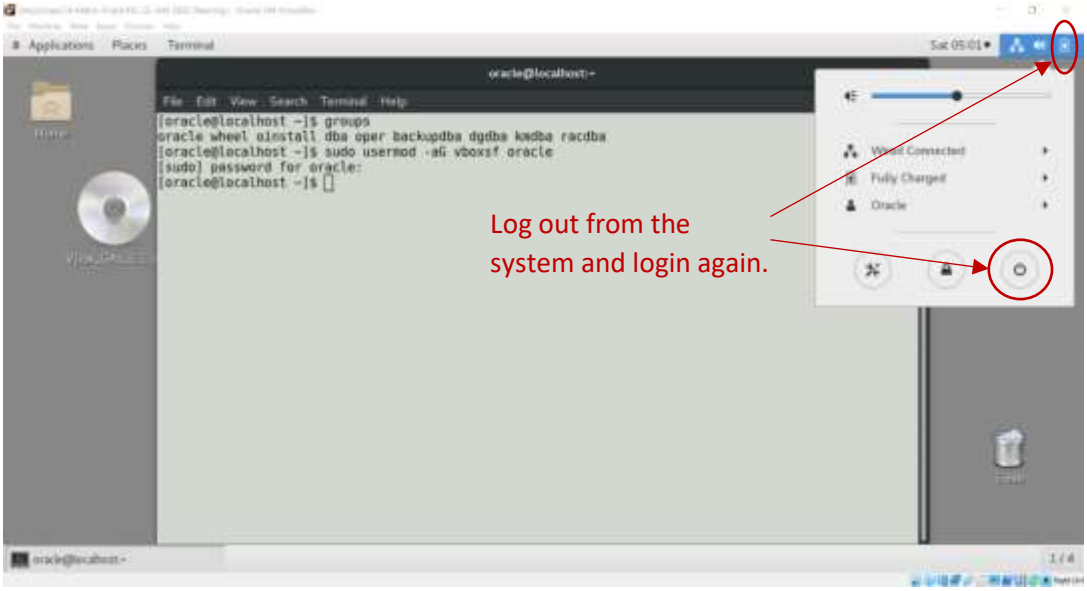
$ sudo usermod –aG vboxsf oracle

Enter the password accordingly. (The password is ‘oracle’, unless you have change it.)

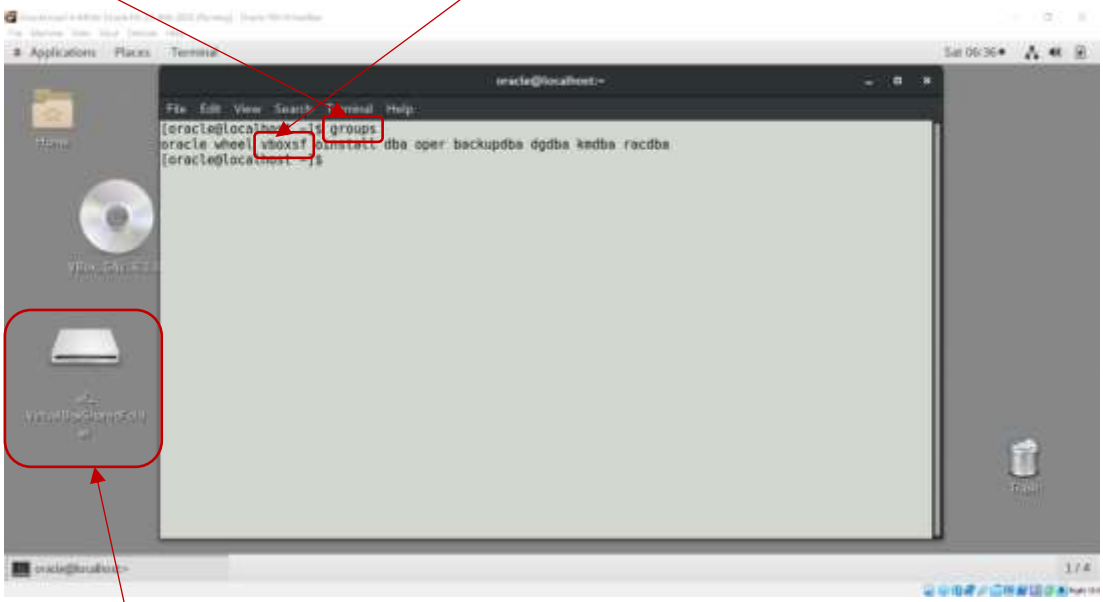
```
[oracle@localhost ~]$ groups
oracle wheel oinstall dba oper backupdba dgdba kmdba racdba
[oracle@localhost ~]$ sudo usermod -aG vboxsf oracle
[sudo] password for oracle:
[oracle@localhost ~]$
```



xii. Log out and login again.

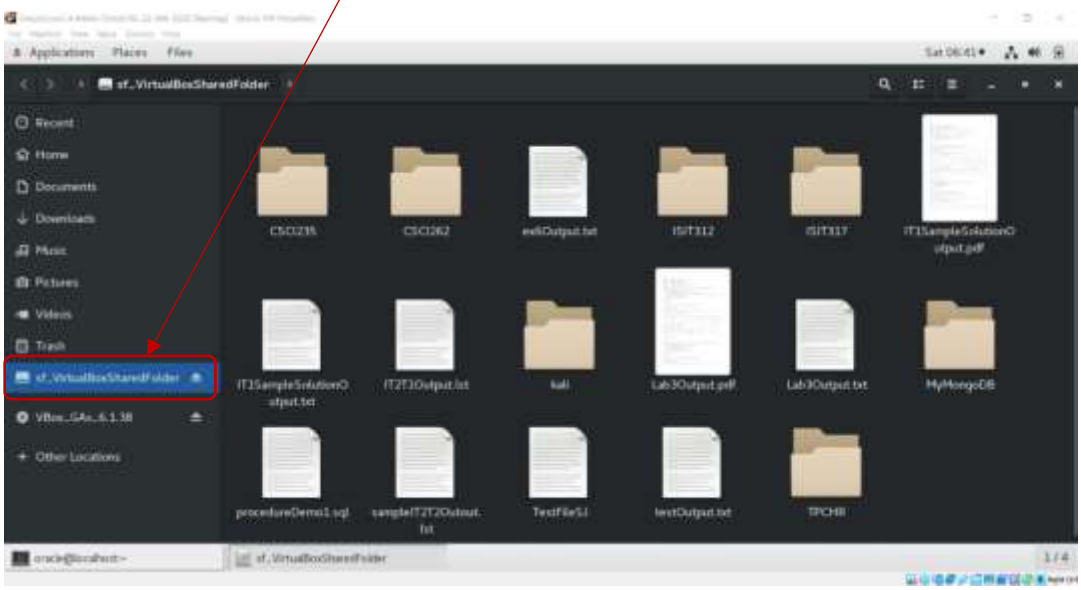


xiii. You should be able to access to the shared folder now. At the prompt, type the command groups, and you should see the folder vboxsf appears.

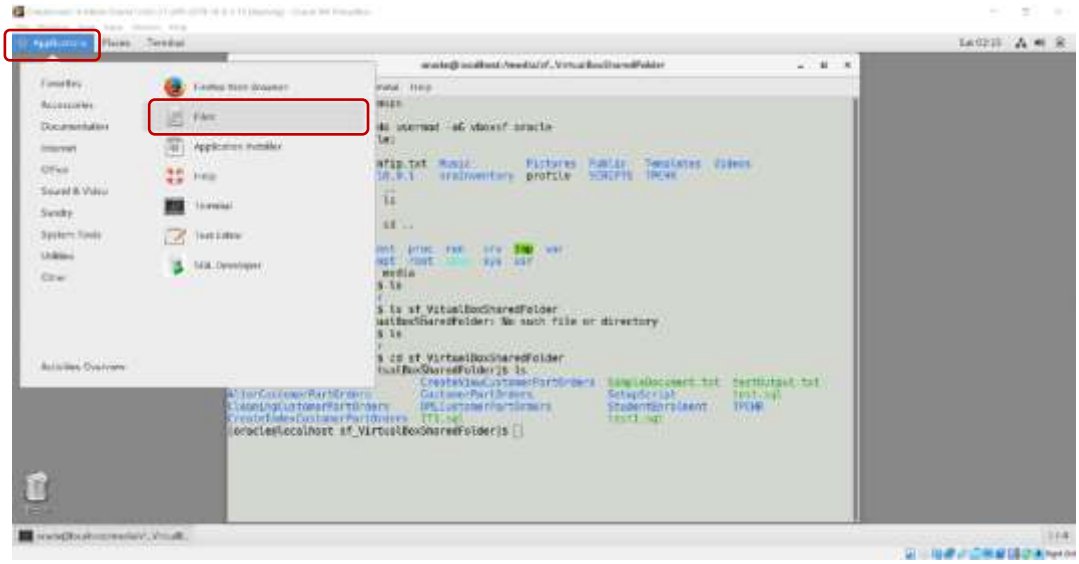


You should be able to see the shared-folder icon "sf-VirtualBoxSharedFolder" on the desktop.

xiv. Double-click on the "sf-VirtualBoxSharedFolder" icon, and you will be directed to a window where you can access the shared-folder.



You can also access the shared folder via the file explorer from the virtual machine or via the shortcut in the Desktop.



Your Oracle (virtual machine) should have been successfully configured in the VirtualBox. Good luck and have fun with your Oracle.