VM on computers in the CAB

For anyone who

- can not run the VM on their own laptop, **OR**
- would like to run the grader script but does not have the necessary host OS

it is possible to do so on the computers in the labs.

There are several issues we need to deal with:

- you have no sudo rights on the lab computers
- you do not have not enough storage space to actually download the VM, and certainly not unpack and run it

To deal with the storage space issue, you are in need of a USB stick. The USB stick should have enough space. If you don't have one, ask the TAs in the lab. We have a limited number of sticks you could borrow for this purpose (for the duration of this module, not just for during the lab session).

However, the sticks (the ones we have, or the one you have) might be formatted in a way that does not allow you to change permissions of files. So if the stick is not `ext4` formatted, you should first format it to `ext4`.

Formatting the Stick

You have no root access on the lab computers, so you will have to do that either on a friends' device, your own laptop, a PC at home, etc. It will most likely not work on the computers in CAB. If you do not have a computer that can format the stick for you, you can also ask the TAs in the lab session to help with formatting.

First, figure out which device listed in `lsblk` is actually your device. You can do this by viewing the output of `lsblk` once before you plug the stick in and once after, just to be sure that you do not accidentally wipe something important. Formatting the stick deletes all files. If anything important is on there, you should back it up!

To format the stick, follow the steps below:

```
# unmount it
sudo umount /dev/DEVICE
# format it
sudo mkfs.ext4 /dev/DEVICE
# DEVICE is your device. For example /dev/sda
```

You will need to remount the stick, or just unplug and replug it.

Now the whole stick filesystem might belong to root, so you'll need to set permissions such that your user on the lab computer can read/write as well. To grant permissions to everyone execute

```
cd /media/your_user/your_stick_name
sudo chmod a+rwx .
```
Finally, you can move your files onto the stick.

When you connect the USB stick to the computer in the lab, if the folders you created do not have *write* permissions, you can copy them on the stick. This should fix any permission issues.

Files

Load the Virtualbox image file (.ova) and the graders to the stick. Sometimes the downloads fail in the labs. Therefore, you should verify the .ova file hashsum with

```
sha256sum -c sha256_file_that_contains_the_hash_for_the_file
```

Also make sure that if you have to download the .ova file on the lab PC, save it directly on the stick because there is not enough space to save it on the machine itself. For this you can use `curl` from a folder in the stick.

```
curl "https://polybox.ethz.ch/index.php/s/CrMhxCqy4WBEek8/download?path=%2Fvm&files=isl-lab-2022.ova" -o isl-lab-2022.ova
```

SSHPass Setup

To run the grader scripts, you need `sshpass` to be installed in the lab computers. You do not have `sudo`, so `apt-get` will not work. First create a folder `bin` in `/nas/<username>` if it does not exist. Then, you can download the binary from https://polybox.ethz.ch/index.php/s/WF0Whmp2ejS7ITb into the `bin` folder you created. Make sure that your PATH has the folder using `echo $PATH`. If it does not exist, execute `export PATH=/nas/<username>/bin:$PATH`. Now, you should be able to execute `sshpass` from your terminal. You can add the export command to your `.bashrc` so that it is available on all future shells.

If the binary we provided does not work for you, you can follow the below steps to build `sshpass` from source:

- Download the Source Code : (https://sourceforge.net/projects/sshpass/)
- Extract it and cd into the directory
- ./configure
- Edit the `Makefile` line 291 and set `prefix=/nas/<username>/bin`
- make install

This creates the `sshpass` binary in `/nas/<username>/bin`. Follow the steps above to add `/nas/<username>/bin` to PATH.

Virtualbox Setup

Create a folder on the USB stick for the VirtualBox VMs. In the Virtualbox GUI, open the Preferences and change the path to the VirtualBox VMs folder on the USB stick. This ensures that the VMs are created on the USB stick.

Then you can set up the normal task VM with the Virtualbox GUI as usual. The grader scripts will also run as explained in the handouts.