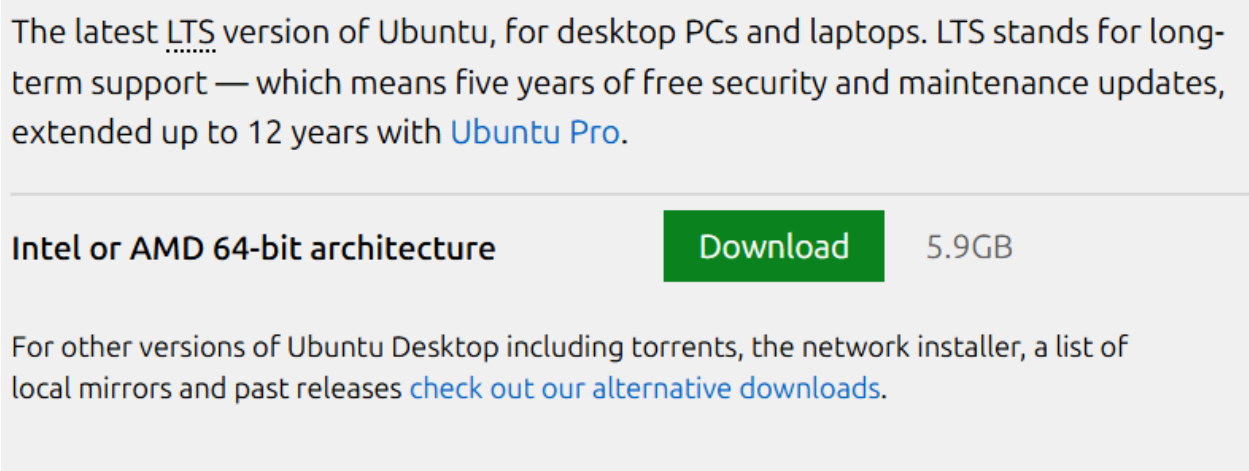
Creating a Linux VM running Ubuntu

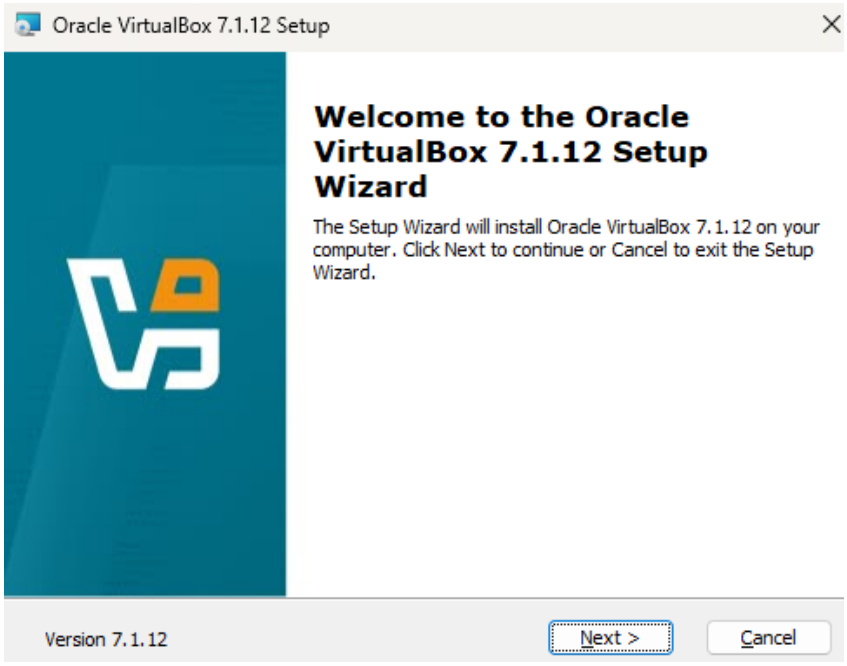
For most users: [Download the Ubuntu ISO](#).

FOR ARM-based MAC USERS: If you have a Mac that runs Apple Silicon (i.e., is not Intel-based), then you need the ARM-based Ubuntu, not the Intel-based one. **Same link, just scroll down a bit on the same page.**

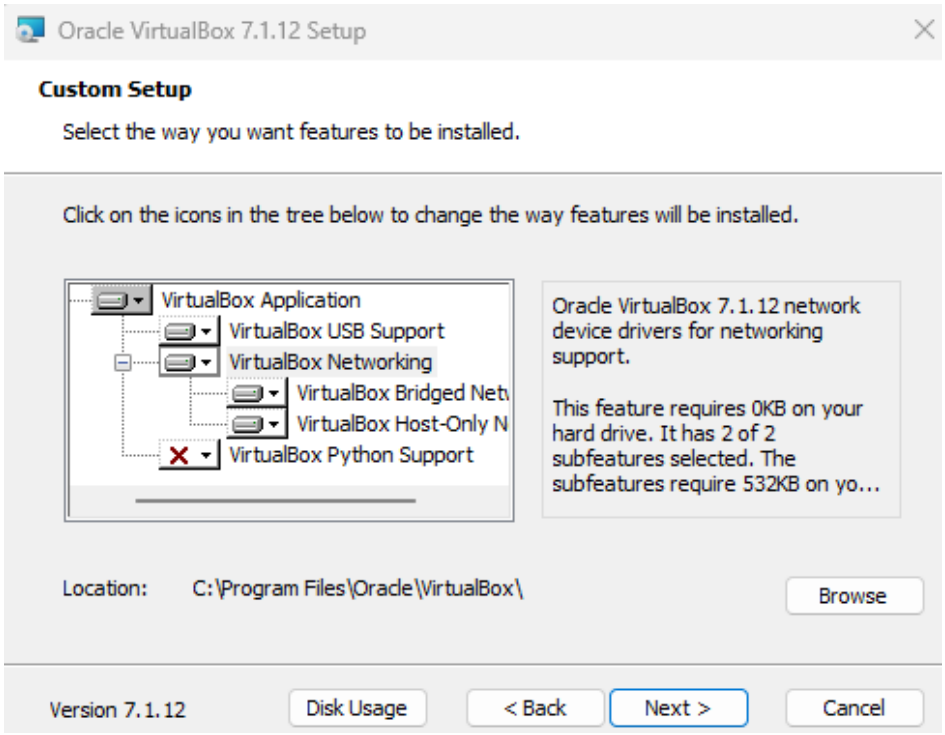


[Download VirtualBox](#) for your operating system.

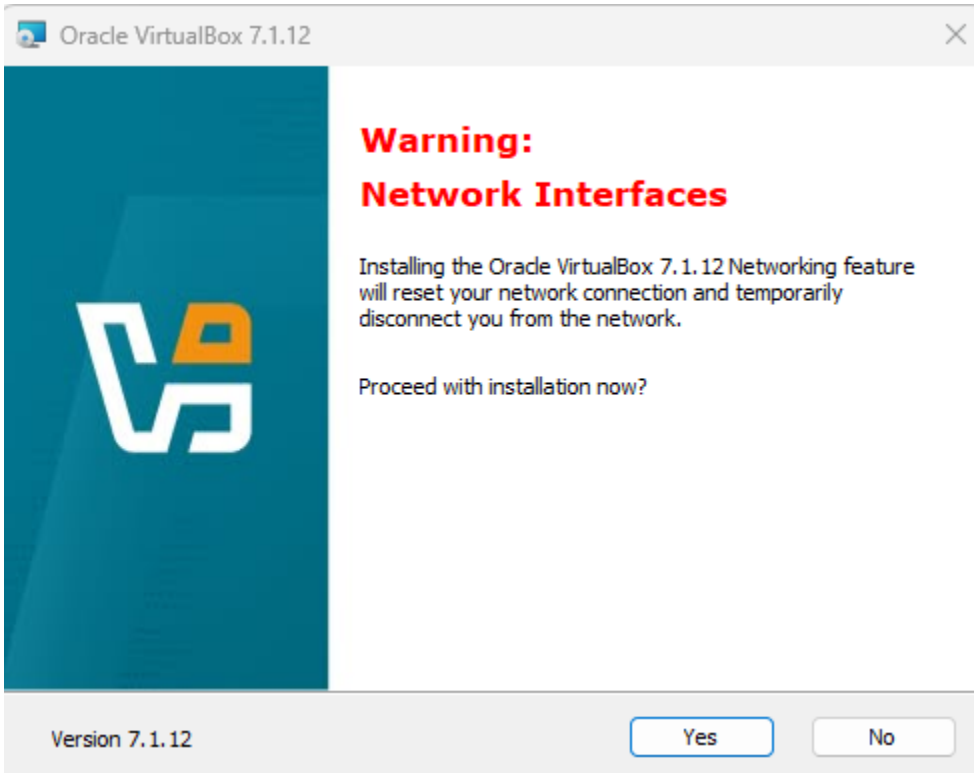
Run the VirtualBox install program.



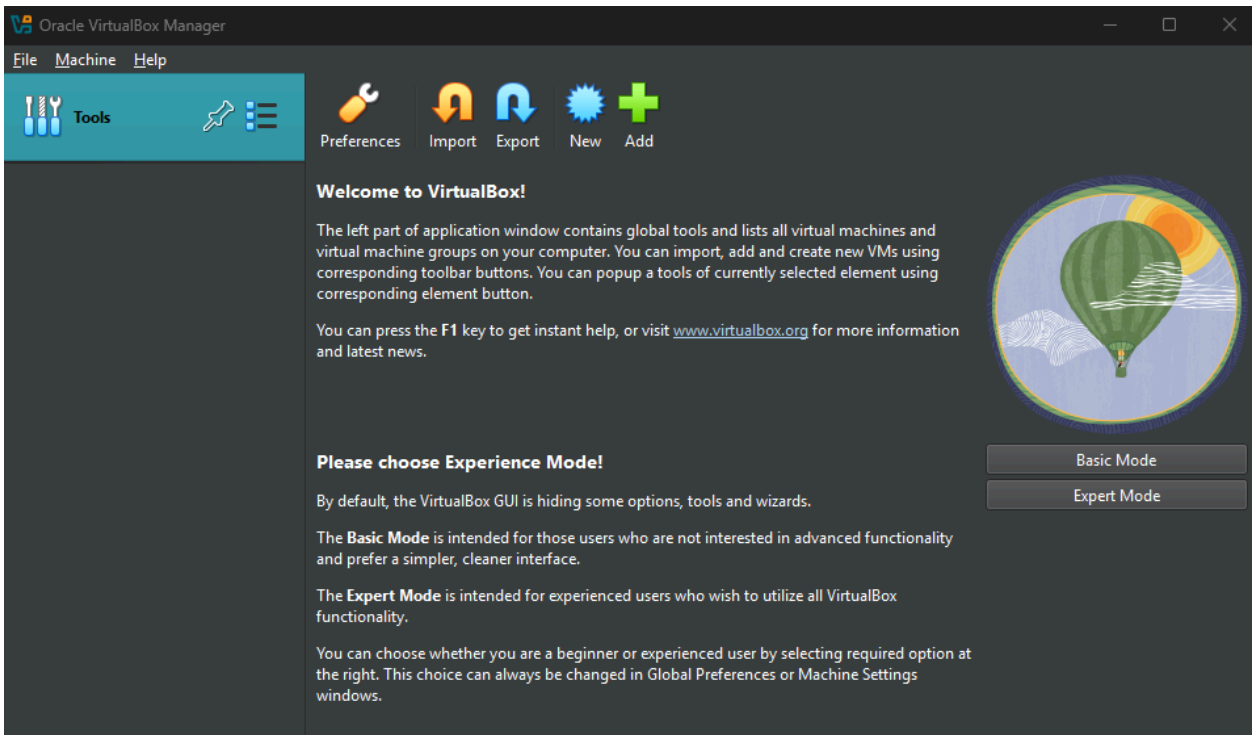
At the custom setup stage, disable the Python support. If you know what that is, and know how to enable it correctly, you can keep Python support. Otherwise disable it, you will not need it.



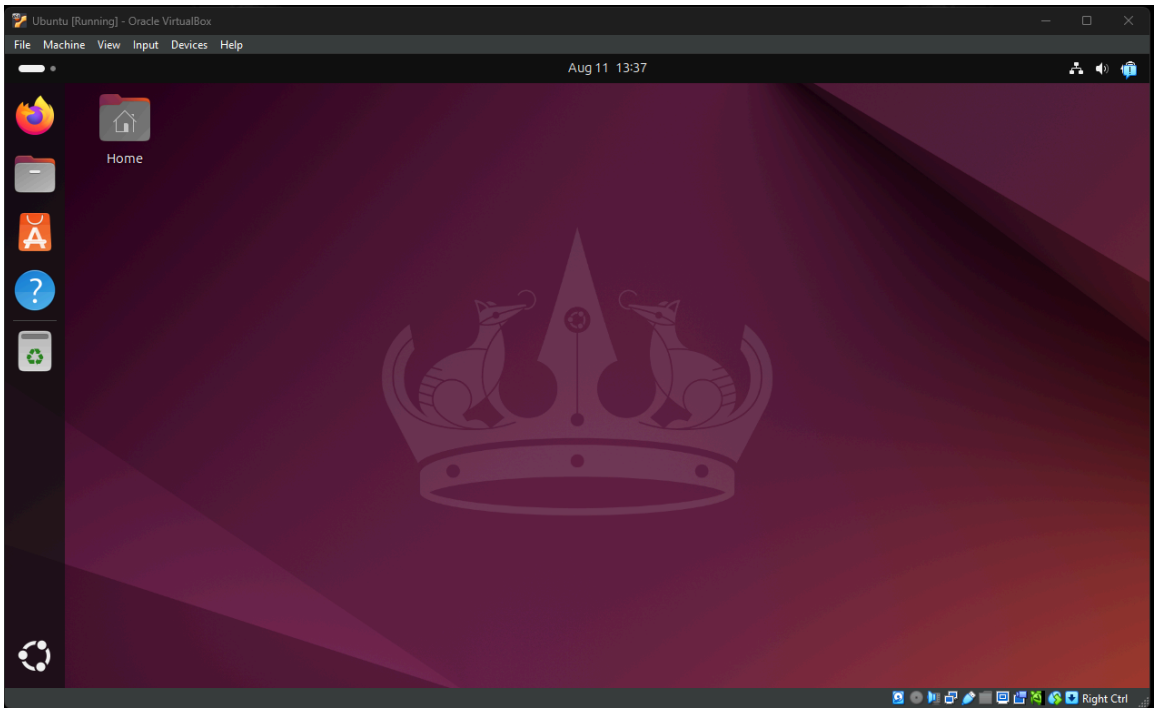
Ignore the networking error.



When the installation is complete, run the Virtual Box Manager.



Use this tutorial to create an Ubuntu Desktop VM. Once you are done with that installation, you should be able to run a VM with Ubuntu. It will look something like this.



If you have not worked with a VM before, the idea is that inside that window is an entire self contained computer. Think of it as a literal separate machine from the actual physical machine you are working on. Inside that computer is it's own processor, memory, file system, etc. What you do inside this virtual computer is isolated and separate from what you do out side of it.

All work for this course will be done inside this virtual machine. Inside here you will install your development software and tools, and run your programs.

Three key installations you will need, the g++ compiler for C/C++, python3 for running python programs, and git for handling version control. Both g++ and python3 should be installed already since they are necessary to Linux. Verify that using the following commands.

```
alex@Ubuntu:~$ g++ --version
g++ (Ubuntu 13.3.0-6ubuntu2~24.04) 13.3.0
Copyright (C) 2023 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
```

```
alex@Ubuntu:~$ python3 --version
Python 3.12.3
```

If you get back similar responses for g++ and python3, you are all set. If you do not get proper responses, contact the instructor because something went wrong.

You will need to install git. Perform the following commands in order and observe the responses.

```
sudo apt update
sudo apt upgrade
sudo apt install git
git --version
```

By the time you type git version, you should see

```
alex@Ubuntu:~$ git --version
git version 2.43.0
```

You should now be all set to complete the course in a Linux environment.

Watch this basic guide to get started with Ubuntu Linux.

Learn the command prompt from this guide (ignore the Widows and Mac parts) and watch the official class videos linked at the top of that page.

Tip: Do not get confused by which operating system you are in. You are running two different operating systems on one computer; one native, and one in a VM. **They do not interact.** It is very easy to get confused. For example, you are reading a tutorial in a browser in Windows, and you need to copy/paste a command into the terminal in the the VM. So you copy in the browser (in Windows) and go to paste in the terminal (in Linux). **This will not work.** You have to think of your VM as a completely different and independent computer, because it is. It has it's own "disk drive," its own file system, its own memory - its own everything. You cannot even move files between the two without extra steps, such as using a USB stick, or uploading to the Internet and then downloading, or using a samba share (you can also read the Ubuntu page about samba if you want to use it).