

# Install & Configure an Ubuntu VM in VirtualBox

June 21, 2025

VirtualBox 7.0 and higher offer unattended installation of virtual machines. Given the ease with which this allows us to create and configure VMs, we will make this our first installation option.

This guide assumes that you have already downloaded the latest Ubuntu Linux installer (a .iso file).

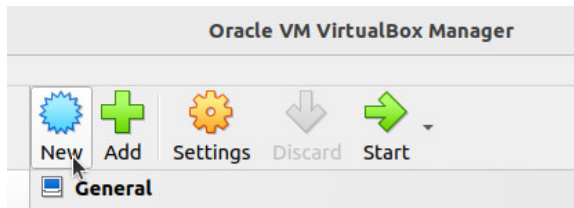


Figure 1: We start by launching the VirtualBox hypervisor and clicking the **New** button to create a new virtual machine.

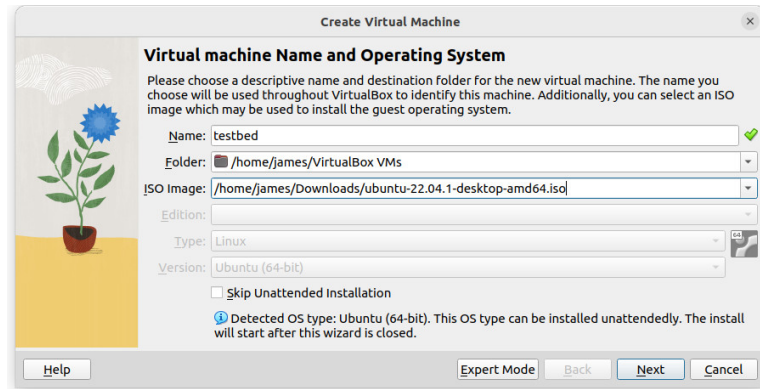


Figure 2: The hypervisor starts the new VM installation with this pop-up. Once you point to the .iso image for Ubuntu Linux that you've downloaded, the hypervisor determines the OS type of the VM.

Note that unattended installation is the default option.

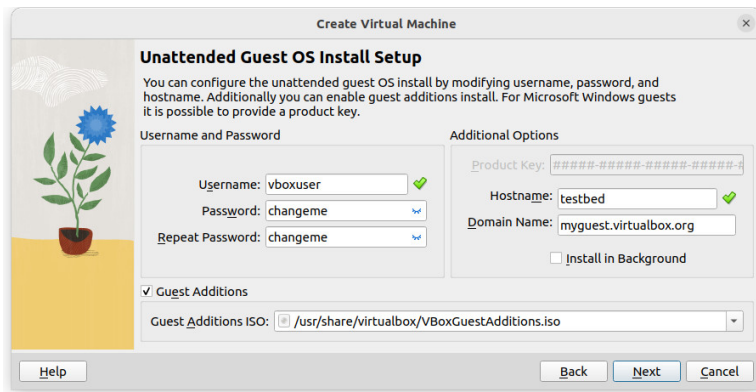


Figure 3: In the next pop-up, you're shown the default user account, **vboxuser**. Change the username and password to your preferred username/password combo now. Note that the default passwords for this user and root are **changeme**. We will change the root password later. Note that you are offered the choice to install guest additions. If you already have the guest additions downloaded from the VirtualBox site, choose this option.

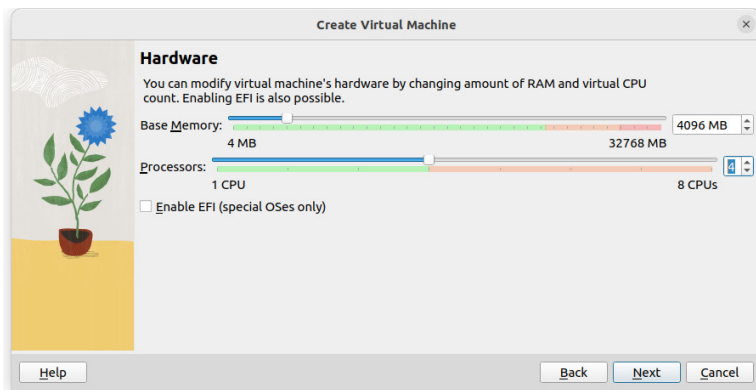


Figure 4: Now we are asked to size the RAM and the number of cores for the VM. If you can, size the RAM to 4GB. Move the core count slider to the number of cores that delineates green from red. This is the max number of cores you can safely use on your host machine for your VM. Note that these options can be reconfigured after the VM has been built.

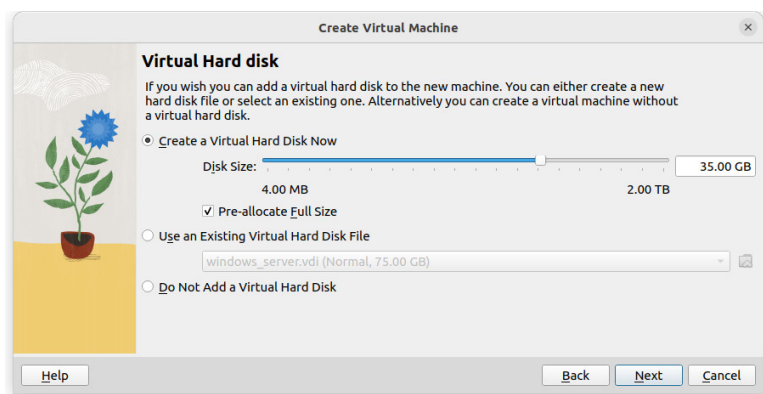


Figure 5: Now we are asked to size the file that serves as the VM's hard drive. I believe that if your host machine is Windows, Oracle provides you with a way to resize the hard drive after it's been created. However, if your host machine isn't Windows (mine isn't), you're stuck with the size you create at this step. Therefore, you want to get this right.

It can be frustrating to get stuck at a step because you've run out of space on your VM's hard-drive file, and you can't go further for want of space. In general, your easiest option — and perhaps your only option — is to delete your VM and start over, this time with a larger hard-drive file.

Believe me, I know.

Our VM is intended to be a platform that we can use to work on this course's material. Students do keep their VMs after our class for use in later classes and to work on datasets at the bench.

If you want to compile Python AND Sagemath on your VM, I suggest allocating the VM at least 35GB. Once you finish compiling Sagemath, load your VM with the class repo and all Bash and SciPy tools, and delete all temporary files, this will leave you with 9.6GB of space. As a rule of thumb, you should leave 10% of your total disk space free for system use so this will leave you about 6GB of workspace for additional datasets, etc.

Choose the option to **Pre-Allocate Full Size**.

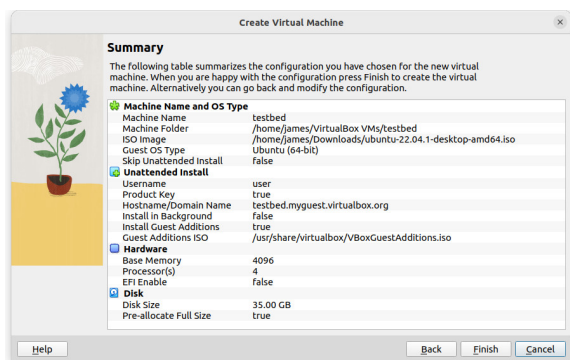


Figure 6: The last pop-up window to create a VM machine by unattended installation is the summary page.

Please verify that everything looks good before clicking the **Finish** button.

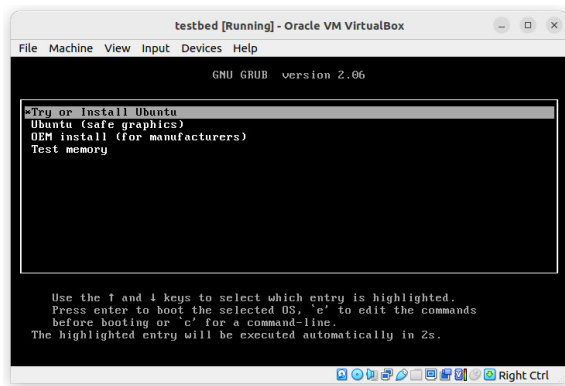


Figure 7: The hypervisor will auto-start your new VM.

If the video hardware on your host machine is too new for a default Linux installation to have the drivers for it, you can choose the **Ubuntu (safe graphics) option** to render video during the final installation steps.

The default installation of your Ubuntu VM continues.

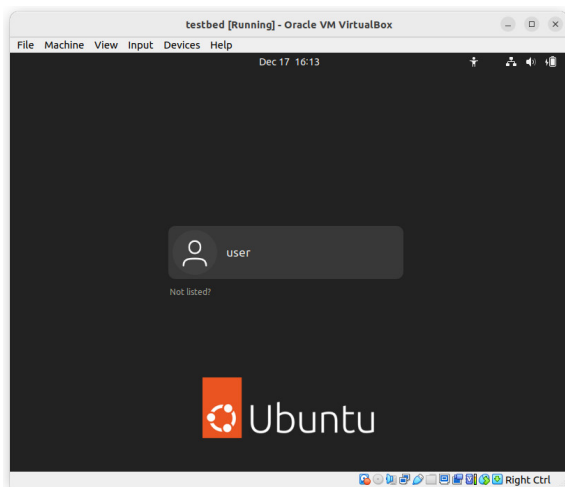


Figure 8: Once the unattended installation finishes, the hypervisor will reboot your VM a final time; and you'll be presented with the Ubuntu login screen.

Note that the VM must still be configured.

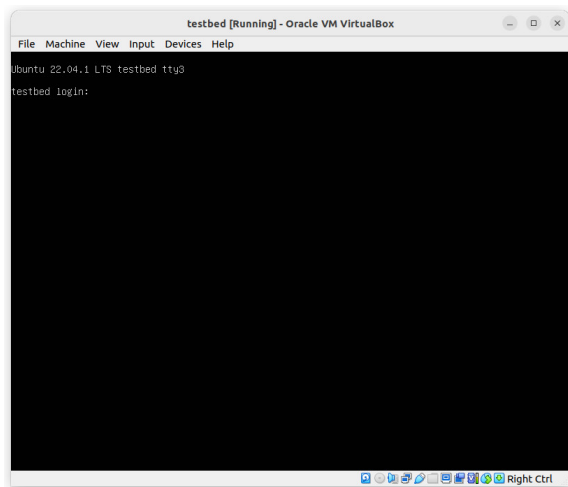


Figure 9: The next step is to open a tty session on our VM, logging in as **root**. To open a session on tty3, press the right-side **ctrl** and **F3** keys at the same time. At the prompt, enter **root** for username, and the password you chose for username when setting up unattended installation.

```
root@testbed:~# usermod -aG sudo user
```

Figure 10: **WARNING** Getting this command wrong can result in problems with your user account that are easiest fixed by simply creating a new user account. Please take care. As root, give your user account sudo ability using the **usermod** command. (Replace the **user** argument with your own username.)

```
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```
root@testbed:~# passwd
New password:
Retype new password:
passwd: password updated successfully
```

Figure 12: Now might be a good time to change root's password. Note that Linux by design does not show the cursor move while you type in a password. This is a security measure and prevents someone watching over your shoulder from being able to count how long your password is. Once you've finished, reboot your VM by typing **reboot** on the command line and hitting **enter**. You can now log into your new VM with your username and finish configuring it in the default graphical desktop environment.

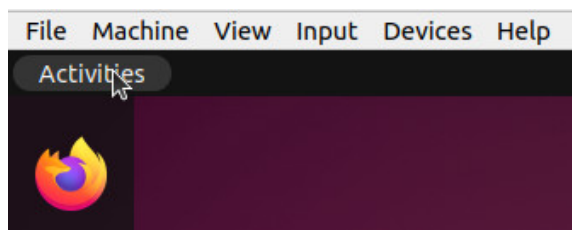


Figure 13: After logging in, you can bring up a terminal app by clicking on **Activities** in the upper left-hand corner of your VM's window. A text window will appear in the upper center of the window.

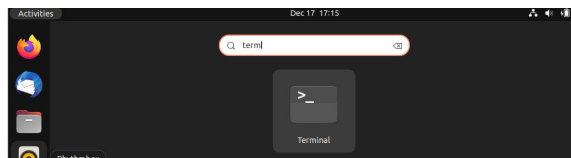


Figure 14: Enter **term** in the text window. An icon for the **Terminal** app will appear. Click it to launch the terminal app. Welcome to the Bash shell.

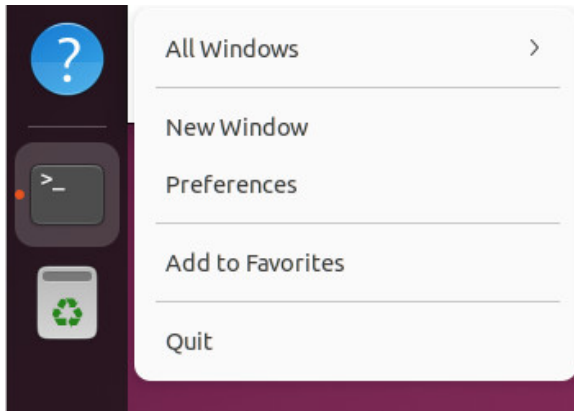


Figure 15: After the Terminal app launches, the icon for it will appear in the **Favorites** bar on the left-hand side of the VM window. Right-click on the icon, and a pop-up menu will appear. An option in the menu is: **Add to Favorites**. Choose it.

This binds the Terminal icon to the Favorites bar, making it easier to launch the app later.

In the Terminal window, first type:

**sudo apt update**

followed by: **sudo apt dist-upgrade**

You will be asked if you want to install all the updates. Type: **y**.

Once all the updates have been installed, reboot your vm.