

Creating the Remote Virtual Machines for Computer Science

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Purpose

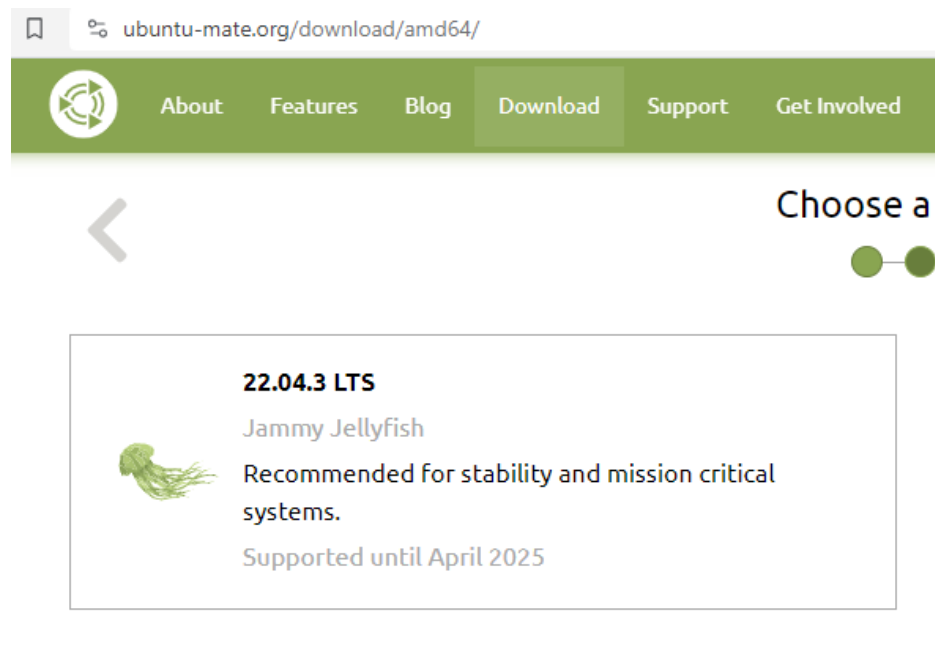
To work remotely on Ubuntu, it is possible to create your own environment with the same tools as those used by the deployment team. This will require the downloading of Ubuntu and Virtual box.

Download Ubuntu Mate

Begin by downloading Ubuntu.

<https://ubuntu-mate.org/download/amd64/>

- **Recommended version: 22.04.3 LTS, (3.5GB)**



Download Virtual Box and Setup new virtual machine (VM)

Download Virtual Box and Install from <https://www.virtualbox.org/>.

VirtualBox binaries

By downloading, you agree to the terms and conditions of the respective license.

If you're looking for the latest VirtualBox 6.1 packages, see [VirtualBox 6.1 builds](#). Version 6.1 will remain supported until December 2023.

VirtualBox 7.0.12 platform packages

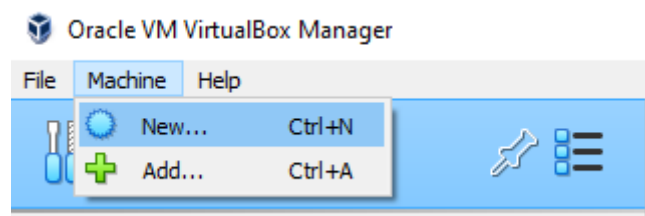
- [Windows hosts](#)
- [macOS / Intel hosts](#)
- [Linux distributions](#)
- [Solaris hosts](#)
- [Solaris 11 IPS hosts](#)

Also, download a Guest Additions iso, these expand the usability of your VMs: e.g., this can be done via a manual download from https://download.virtualbox.org/virtualbox/7.0.12/VBoxGuestAdditions_7.0.12.iso, or you can select the iso included with the VirtualBox installation.

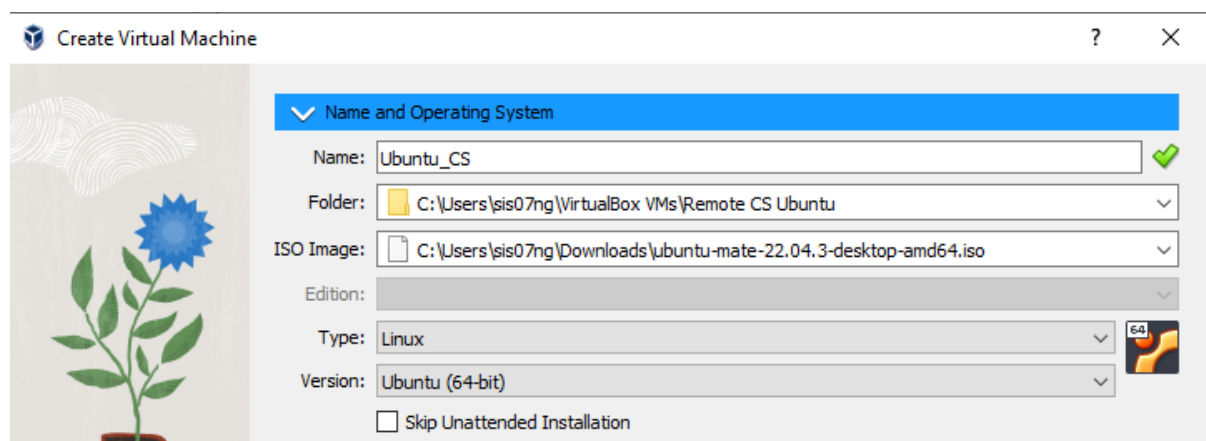
Index of /virtualbox/7.0.12

Name	Last modified	Size
Parent Directory		
MD5SUMS	20-Oct-2023 14:47	1.9K
Oracle_VM_VirtualBox_Extension_Pack-7.0.12-159484.vbox-extpack	19-Oct-2023 18:58	18M
Oracle_VM_VirtualBox_Extension_Pack-7.0.12.vbox-extpack	19-Oct-2023 18:58	18M
SDKRef.pdf	12-Oct-2023 22:18	3.1M
SHA256SUMS	20-Oct-2023 14:47	2.7K
UserManual.pdf	12-Oct-2023 22:18	4.4M
VBoxGuestAdditions_7.0.12.iso	12-Oct-2023 22:18	51M
VirtualBox-7.0-7.0.12_159484_el7-1.x86_64.rpm	12-Oct-2023 22:24	95M
VirtualBox-7.0-7.0.12_159484_el8-1.x86_64.rpm	12-Oct-2023 22:24	95M
VirtualBox-7.0-7.0.12_159484_el9-1.x86_64.rpm	12-Oct-2023 22:24	93M

Launch Virtual Box. Go to the Machine menu and choose New.



Fill out the details as below, but choose a location where you have storage space, and set the ISO image to the Ubuntu MATE iso downloaded above.



Click Next to move onto Unattended Install. Create a user and hostname (own choice, but there are character limitations: note warning for underscore in image below). **Note and remember these credentials.** Here, you can install the included Guest Additions iso by ticking the bottom box.

Unattended Guest OS Install Setup

You can configure the unattended guest OS install by modifying username, password, and hostname. Additionally you can enable guest additions install. For Microsoft Windows guests it is possible to provide a product key.

Username and Password

Username: ✓

Password: ⓘ

Repeat Password: ⓘ

Additional Options

Product Key:

Hostname: ⓘ

Domain Name:

☐ Install in Background

☐ Guest Additions

Guest Additions ISO:

Help Back Next Cancel

Configure VM hardware specification.

Hardware

You can modify virtual machine's hardware by changing amount of RAM and virtual CPU count. Enabling EFI is also possible.

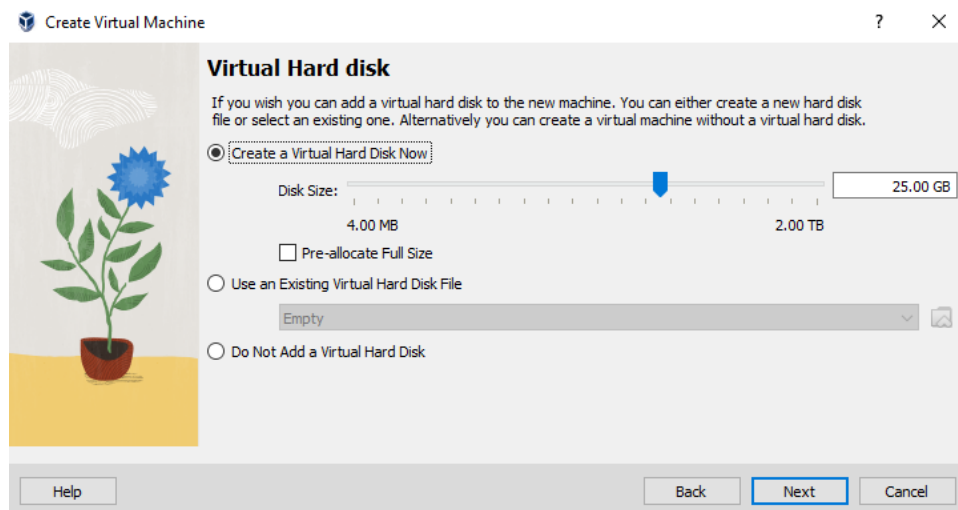
Base Memory: 2048 MB

Processors: 1

☐ Enable EFI (special OSes only)

Help Back Next Cancel

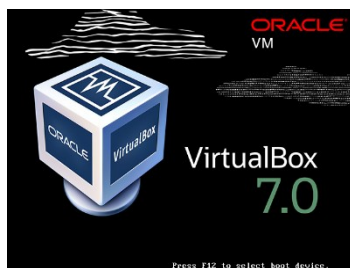
Configure VM hard disk.



Select Finish on the Summar screen to create the VM.

Installation of the VM

The newly created VM should automatically launch. You will be presented with a screen that looks like this, click in the screen to take control of the VM and press F12.



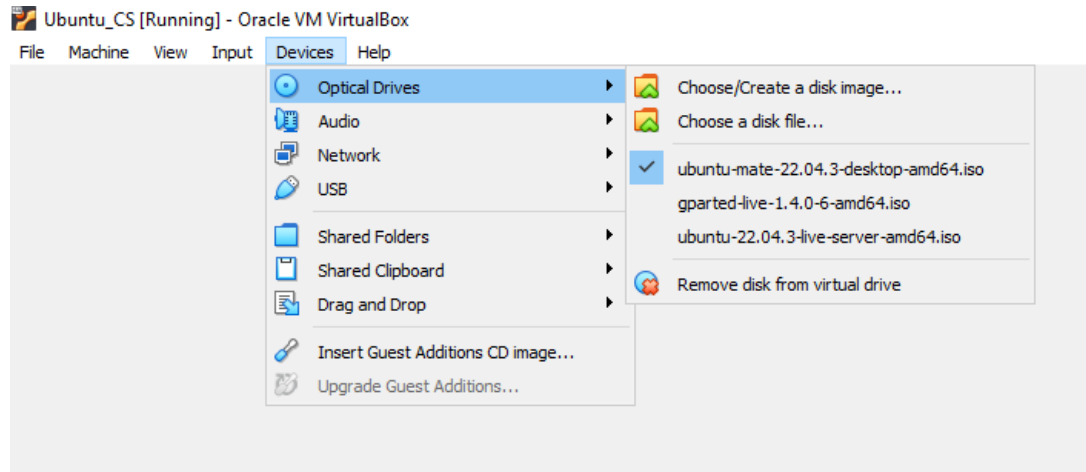
CAUTION: Depending on the iso you used or whether you performed the unattended installation, you may or may not be presented with all of the contents of this section, particularly those from Step 2 onward. Instead, you might immediately see setup screens and progress information, such as:



In this case, wait for this to complete and for the desktop to appear. Then, perform **ONLY Step 1** below, before continuing to the next section.

1. You will be given a menu screen. If you use right CTRL to regain your mouse cursor you can choose the device menu and then choose the optical drive -> Choose / Create a disk image and in the resulting box, click add and select the disk image with ubuntu you downloaded

earlier.



2. In the menu on the screen one of the options will be to choose c to boot from the cd rom, which is the option that you will need to take.
3. You will be offered an option to choose the language and to try or install. Choose install. You will be asked to choose keyboard layout – generally, you will choose English (uk).
4. You will then come to the following screen. You can select the Install third-party tick box, as this makes the VM more usable and does not require the download of things like codecs for video and sound.

Updates and other software

What apps would you like to install to start with?

☒ Normal installation

Web browser, utilities, office software, games, and media players.

☐ Minimal installation

Web browser and basic utilities.

Other options

☒ Download updates while installing Ubuntu MATE

This saves time after installation.

☒ Install third-party software for graphics and Wi-Fi hardware and additional media formats

This software is subject to license terms included with its documentation. Some is proprietary.

5. You will have to name the computer and then give it a username and password. Remember these!

Who are you?

Your name: User ✓

Your computer's name: ubuntu.myguest.virtua ✓
The name it uses when it talks to other computers.

Pick a username: user ✓

Choose a password: ●●●●●●●●●● Weak password

Confirm your password: ●●●●●●●●●● ✓

☒ Log in automatically
☐ Require my password to log in

6. Follow default options, choose the location as London when asked! Choose a name and password. You can choose login automatically for convenience.
7. After a while, the desktop will appear. Restart the machine.

Beginning to Work in Your VM

Once the above has been completed, then you will get the desktop. Go to the Menu in the top, you can search from this menu. Find and open the Mate Terminal under System Tools.

Type in each command and then press return. Here, we add a \$ to represent the command prompt! The \$ does not need to be typed – it demonstrates the beginning of the terminal command. This command will cause the operating system and update any packages that need to be updated. The command full-upgrade will remove any unneeded packages, an upgrade will not.

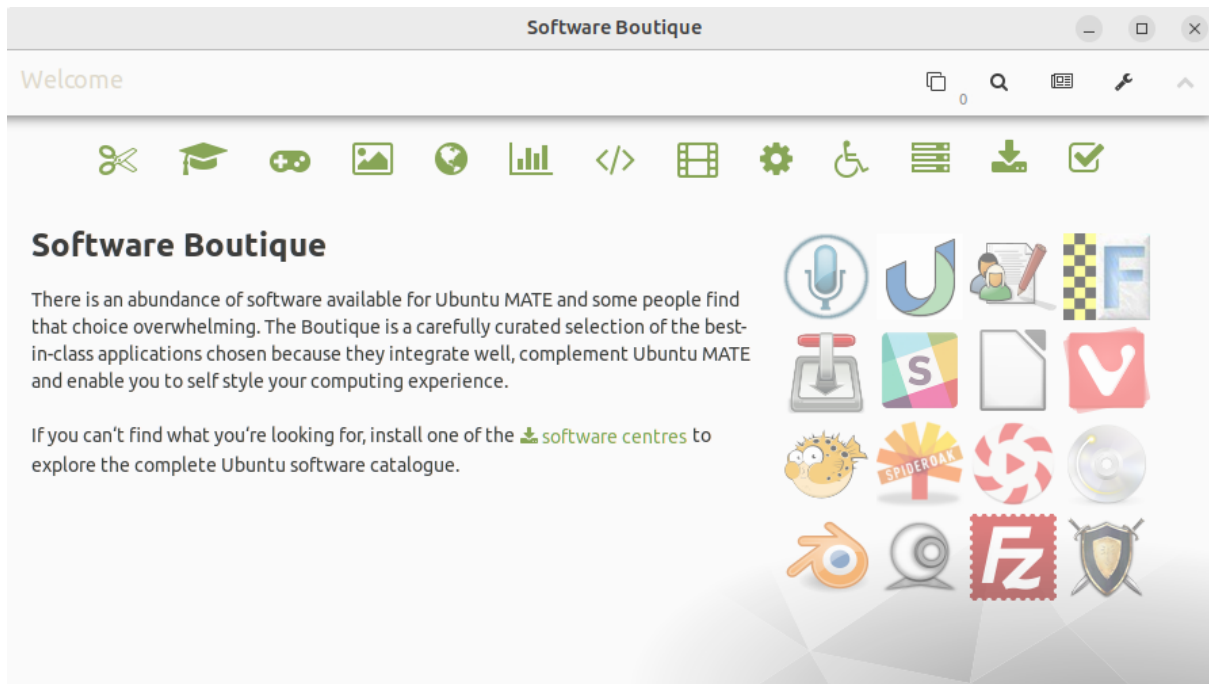
```
$ sudo apt update && sudo apt full-upgrade
```

If this fails, see the [Notes on sudo](#) section, and try again.

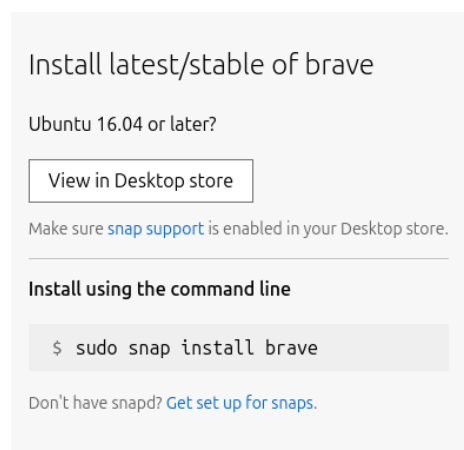
Installing Software

Every version of Linux has a software store based around a set of 'known good,' safe software. This 'known good' verified software is a reason that Ubuntu is a more secure Operating System. The graphical software installer is called Software Boutique, all software on here is free. Just search for anything and then click install. While most software will be here, not all will. There is a search option at the top and some collections in themes along the top – helpful if you know what you want to do but not with what!

Find the Software Boutique under Menu --> Administration --> Software Boutique. Or preferably click into the menu / hit the special key (also known as the Windows key) and start to type the name of the product until it appears and can be selected.



You additionally have 2 other stores available: the snap store and the Flathub. Snaps work out of the box, while there is some installation to be done for Flathub. Snaps are very favoured by Ubuntu but less by other distributions of Linux. The snap store is based at <https://snapcraft.io>, and most items from snap are also available in the Software Boutique. The snap application should already be included with your Ubuntu installation for command line installations. A [desktop version](#) of the store is available, too. When choosing to install software from the web-based store, you may be asked to install the snap store snap by replying “yes”, but if you don’t want to do that you will be presented with the command line installation instructions or the ability to see it in the desktop store.



Flathub is similar but not being as strongly associated with Ubuntu has more variety of software. There is a button (“Set Up Flathub”) to take you to the instructions to setup the Store on the Flatpak store webpage (<https://flathub.org/en>), which leads to a choice of Linux version (choose Ubuntu) and some terminal commands to type for installation. Installing software from the store is similar to the process from the snap store above so I will not go into too much detail. The process for installing flatpak from the terminal can be cut and pasted.

Notes on sudo

In some instances, you will find that you do not have `sudo` capabilities automatically. This might be related to performing the unattended installation. To gain this capability:

1. Open a terminal.
2. Execute to gain root access (will prompt for password): `su -`
3. Execute to add your user to the sudo group: `usermod -a -G sudo your-username`
4. Restart Ubuntu for the changes to take effect.