

Mac Setup Guide: VS Code, VirtualBox & Ubuntu

Table of Contents

1. [Installation Method](#)
2. [Installation Process](#)
 - [VS Code](#)
 - [VirtualBox](#)
 - [Ubuntu](#)
 - [VM Setup](#)
3. [Terminal Outputs](#)
4. [Reflection](#)
5. [Extra Questions](#)

1. Installation Method

Chosen method Option A: Virtual Machine

2. Installation Process

1. Install VS Code

1. Open your browser and go to:
<https://code.visualstudio.com/>
2. Download for **Mac (Apple Silicon)** version.
3. Extract the **.zip** → Move **Visual Studio Code.app** to **Applications**.
4. Open from **Launchpad** or **Applications**.
5. If blocked, allow in:
System Settings → Privacy & Security → Allow App.



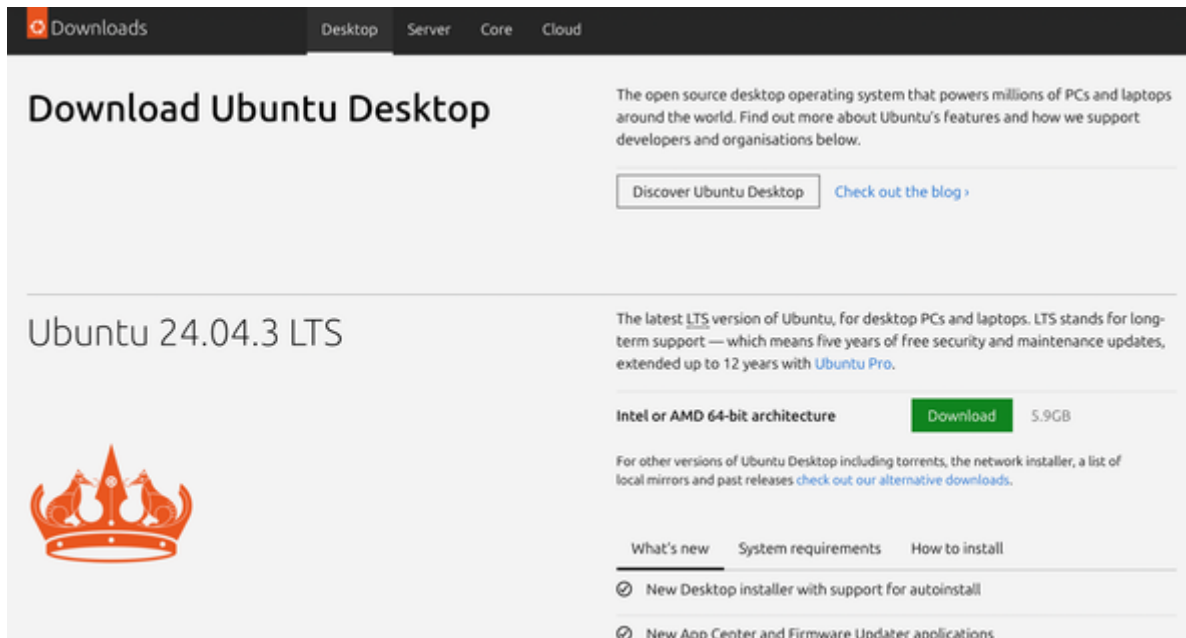
2. Install VirtualBox (ARM64)

1. Go to:
<https://www.virtualbox.org/wiki/Downloads>
2. Download **OS X hosts (ARM64)** version.
3. Open **.dmg** → Drag **VirtualBox.app** to **Applications**.
4. If blocked, allow in:
System Settings → **Privacy & Security** → **Allow App**.



3. Download Ubuntu (ARM64)

1. Go to:
<https://ubuntu.com/download/desktop>
2. Scroll to **Other versions** → **ARM**.
3. Download **Ubuntu 22.04 LTS ARM64**.
4. File will be a **.iso**.



4. Create Ubuntu VM in VirtualBox

1. Open **VirtualBox** → Click **New**.
 - **Name:** Ubuntu
 - **Type:** Linux
 - **Version:** Ubuntu (64-bit)
2. Allocate resources:
 - **Memory:** 4096 MB (4 GB)
 - **CPUs:** 2
 - **Storage:** 25 GB+
3. Attach ISO:
 - Go to **Settings** → **Storage** → **Empty disk** → **Choose Ubuntu .iso**.
4. Start VM and follow Ubuntu installation instructions.

3. Terminal Outputs

1. lsb_release -a

The command `lsb_release -a` displays information about the Linux distribution you are running.

`lsb_release` = Linux Standard Base release.

`-a` option = shows all available details.

It typically outputs:

- Distributor ID (e.g., Ubuntu, Debian)
- Description (full name of the OS + version)
- Release (version number, e.g., 22.04)

- Codename (e.g., jammy, focal)

Sample Output:

```
ritsika raghuvanshi@Ritsikas-MacBook-Air ~ % sw_vers

ProductName:      macOS
ProductVersion:   15.6.1
BuildVersion:     24G90
```

2. uname -a

The command `uname -a` prints detailed system information about the Linux kernel and machine.

`uname` = Unix Name

`-a` option = shows all available details.

It typically outputs:

- Kernel name (e.g., Linux)
- Hostname of the machine
- Kernel release (version number)
- Kernel version (build details)
- Machine hardware name (e.g., x86_64)
- Processor type
- Hardware platform
- Operating system

Sample Output:

```
ritsika raghuvanshi@Ritsikas-MacBook-Air ~ % uname -a
Darwin Ritsikas-MacBook-Air.local 24.6.0: Darwin Kernel Version 24.6.0: Mon Jul 14 11:30:40 PDT 2025; root:xnu-11417.140.69~1/RELEASE_ARM64_T8132 arm64
```

3. df -h

The command `df -h` displays the disk space usage of all mounted file systems.

`df` = disk free

`-h` option = human-readable format (sizes shown in KB, MB, GB instead of raw blocks).

It typically shows:

- Filesystem name (e.g., `/dev/sda1`)
- Size of the partition

- Used space
- Available space
- Percentage of usage
- Mount point (where the filesystem is attached, e.g., / or /home)

Sample Output:

```
ritsika@Ritsikas-MacBook-Air ~ % df -h
Filesystem      Size  Used Avail Capacity iused ifree %iused  Mounted on
/dev/disk2s1s1  228Gi  10Gi  177Gi     6%   426k  1.9G     0%      /
devfs           201Ki  201Ki   0Bi   100%    696    0  100%      /dev
/dev/disk2s6    228Gi   20Ki  177Gi     1%     0  1.9G     0%  /System/Volumes/VM
/dev/disk2s2    228Gi   6.6Gi  177Gi     4%   1.2k  1.9G     0%  /System/Volumes/Preboot
/dev/disk2s4    228Gi   3.7Mi  177Gi     1%    55  1.9G     0%  /System/Volumes/Update
/dev/disk1s2    500Mi   6.0Mi  482Mi     2%     1  4.9M     0%  /System/Volumes/xarts
/dev/disk1s1    500Mi   5.8Mi  482Mi     2%    29  4.9M     0%  /System/Volumes/iSCPreboot
/dev/disk1s3    500Mi   1.7Mi  482Mi     1%    97  4.9M     0%  /System/Volumes/Hardware
/dev/disk2s5    228Gi   33Gi  177Gi    16%   584k  1.9G     0%  /System/Volumes/Data
map auto_home   0Bi    0Bi   0Bi   100%     0    0     -  /System/Volumes/Data/home
```

4. free -m

The command `free -m` displays the system's memory (RAM and swap) usage in megabytes.

`free` = shows memory usage summary.

`-m` option = presents values in MB (megabytes).

It typically shows:

- *total*: total installed RAM
- *used*: RAM currently in use
- *free*: unused RAM
- *shared*: memory used by tmpfs/shmem
- *buff/cache*: memory used for disk caching
- *available*: RAM available for starting new applications
- *swap*: usage of swap space (virtual memory)

Sample Output:

```
Mach Virtual Memory Statistics: (page size of 16384 bytes)
Pages free: 8391.
Pages active: 288426.
Pages inactive: 286806.
Pages speculative: 99.
Pages throttled: 0.
Pages wired down: 113972.
Pages purgeable: 53586.
"Translation faults": 208662646.
Pages copy-on-write: 4769101.
Pages zero filled: 119535057.
Pages reactivated: 14423305.
Pages purged: 13592708.
File-backed pages: 202106.
Anonymous pages: 372425.
Pages stored in compressor: 826979.
Pages occupied by compressor: 312236.
Decompressions: 24770888.
Compressions: 32192957.
Pageins: 4833308.
Pageouts: 199666.
Swapins: 0.
Swapouts: 0.
```

4. Reflection

During installation, the main challenges I faced were:

- Setting up VirtualBox guest additions.
 - Configuring correct RAM and disk size.
 - Enabling virtualization in BIOS.
-

5. Extra Questions

Q1. What are two advantages of installing Ubuntu in VirtualBox?

- Can run Ubuntu without affecting existing OS.
- Easy to take snapshots and revert to earlier states.

Q2. What are two advantages of dual booting instead of using a VM?

- Better performance (uses hardware directly).
- Access to full system resources (RAM, GPU, disk).b