Install Virtual Machines

Our virtual machine set-up will include:

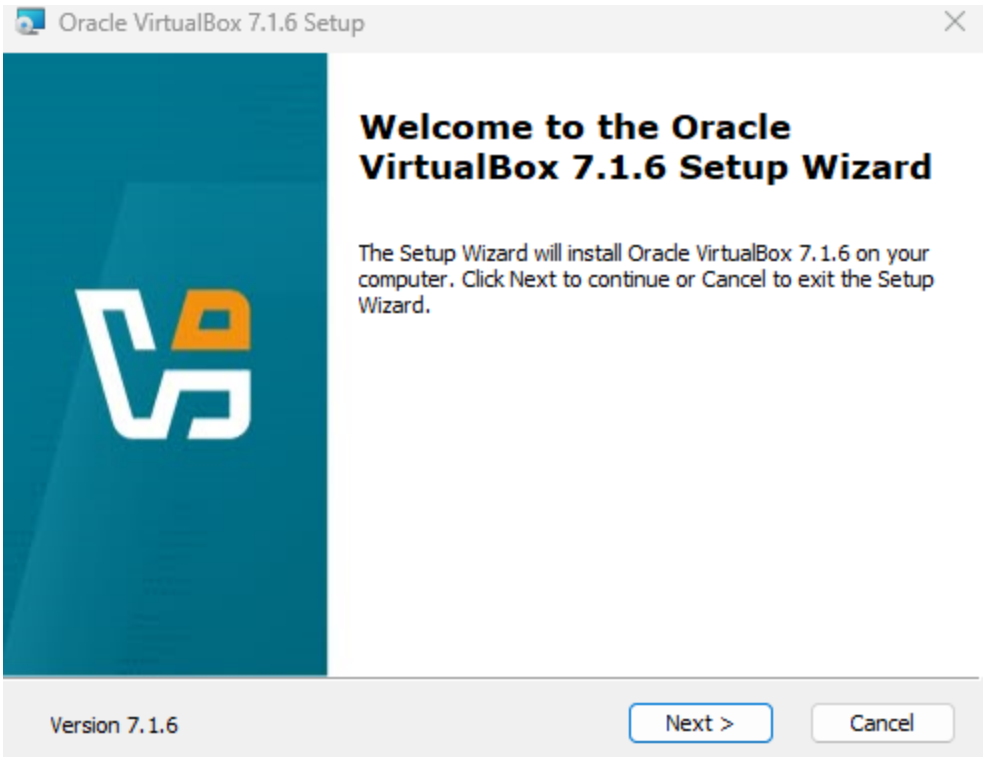
- Windows 10
- Ubuntu Server
- Windows Server 2022

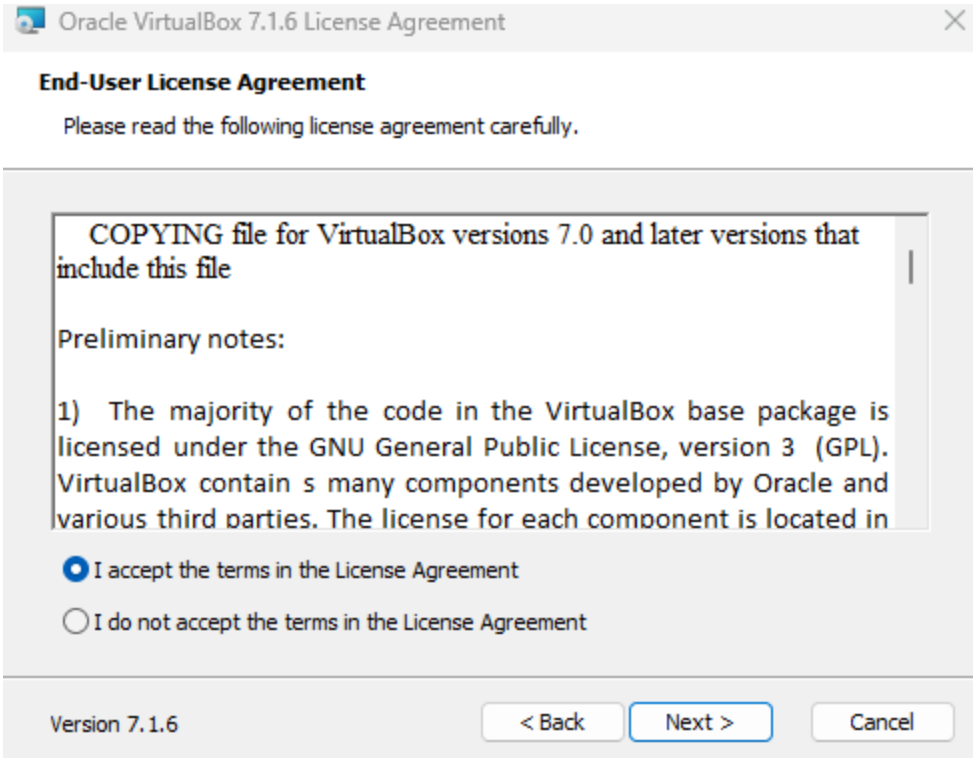
1. Install Virtual Box

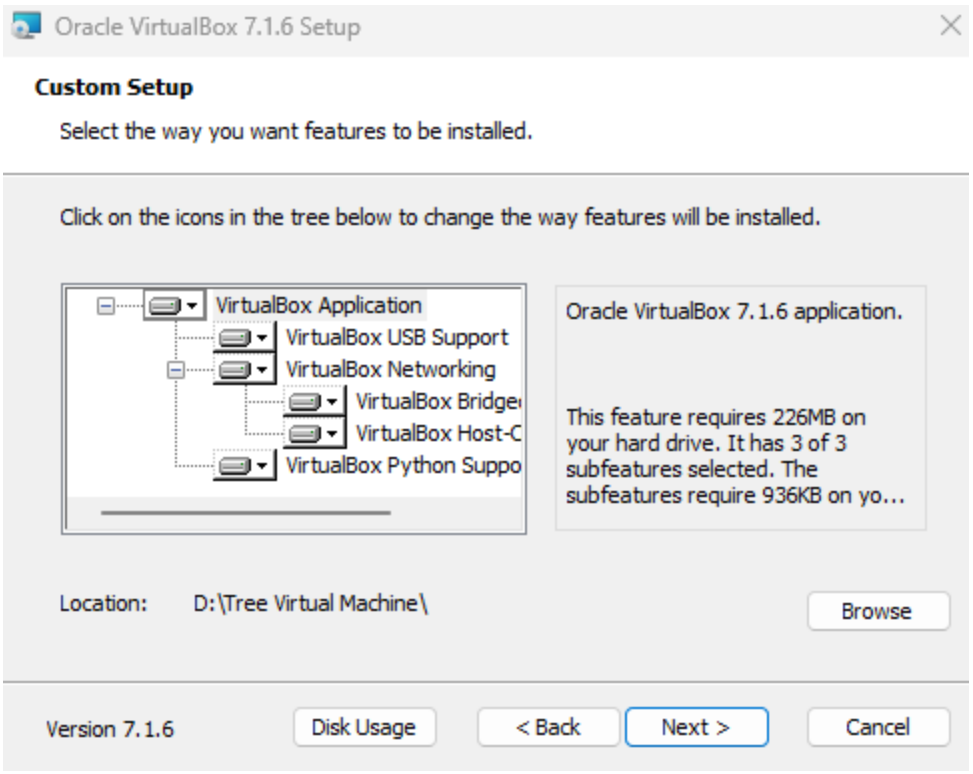
https://www.oracle.com/ca-en/virtualization/technologies/vm/downloads/virtualbox-downloads.html

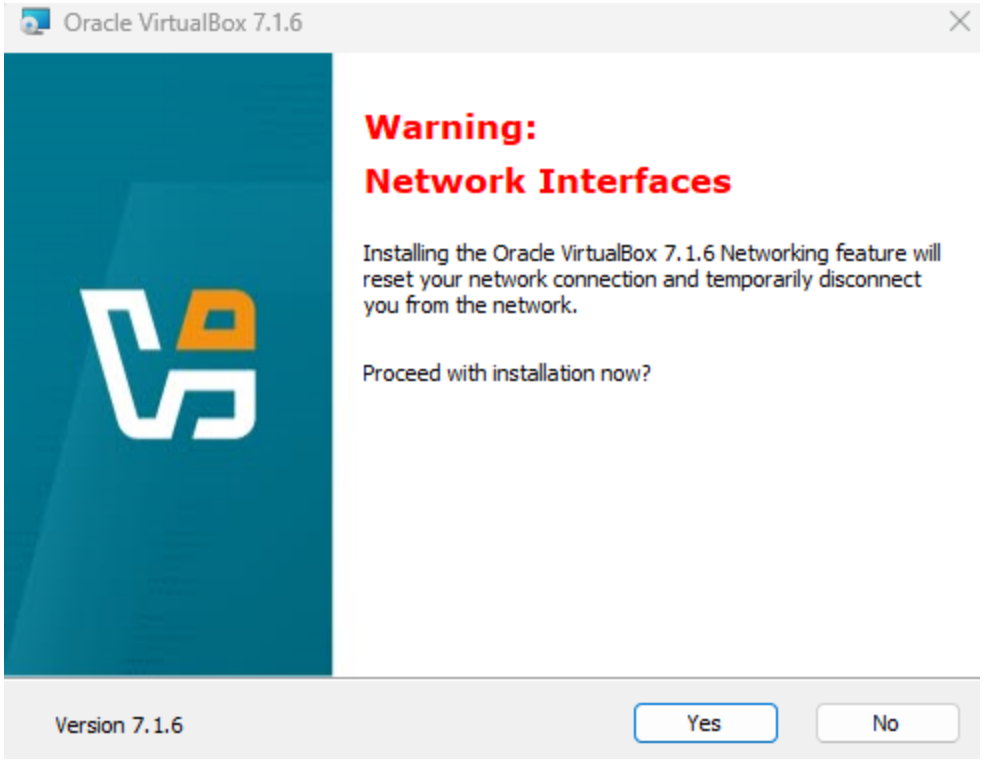
Platform	64-bit
Windows	Windows Installer

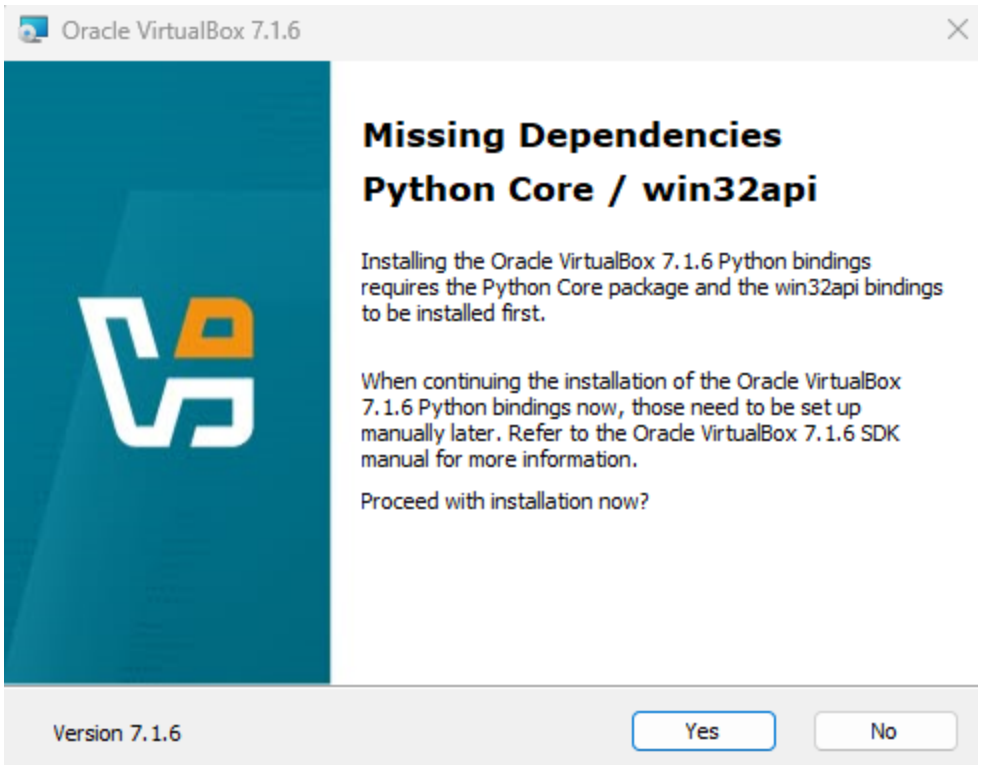
After that run the .exe installer file

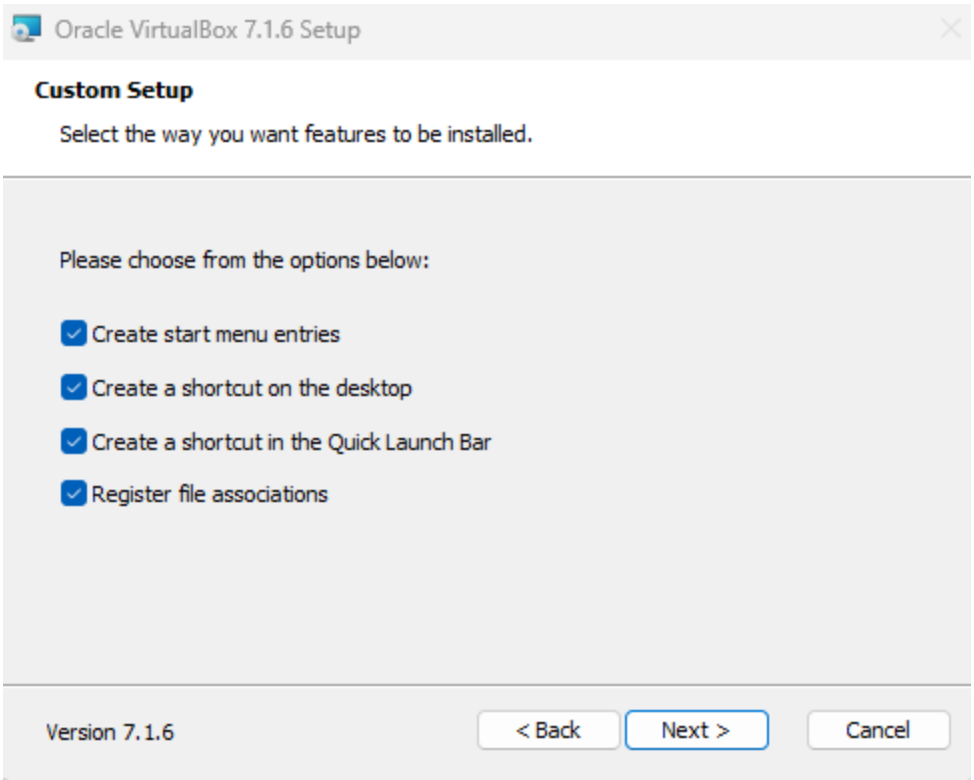

Oracle VirtualBox 7.1.6 Setup
Welcome to the Oracle VirtualBox 7.1.6 Setup Wizard
The Setup Wizard will install Oracle VirtualBox 7.1.6 on your computer. Click Next to continue or Cancel to exit the Setup Wizard.
Version 7.1.6
Next >
Cancel

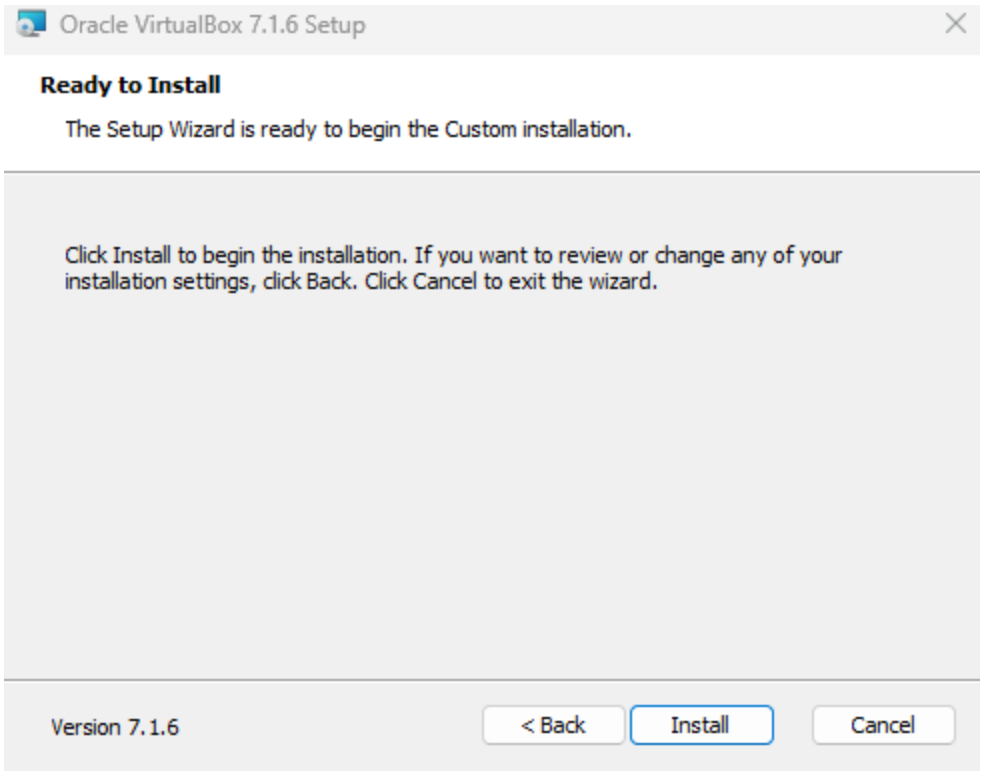

Oracle VirtualBox 7.1.6 License Agreement
End-User License Agreement
Please read the following license agreement carefully.
COPYING file for VirtualBox versions 7.0 and later versions that include this file
Preliminary notes:
1) The majority of the code in the VirtualBox base package is licensed under the GNU General Public License, version 3 (GPL). VirtualBox contain s many components developed by Oracle and various third parties. The license for each component is located in
I accept the terms in the License Agreement
I do not accept the terms in the License Agreement
Version 7.1.6
< Back
Next >
Cancel

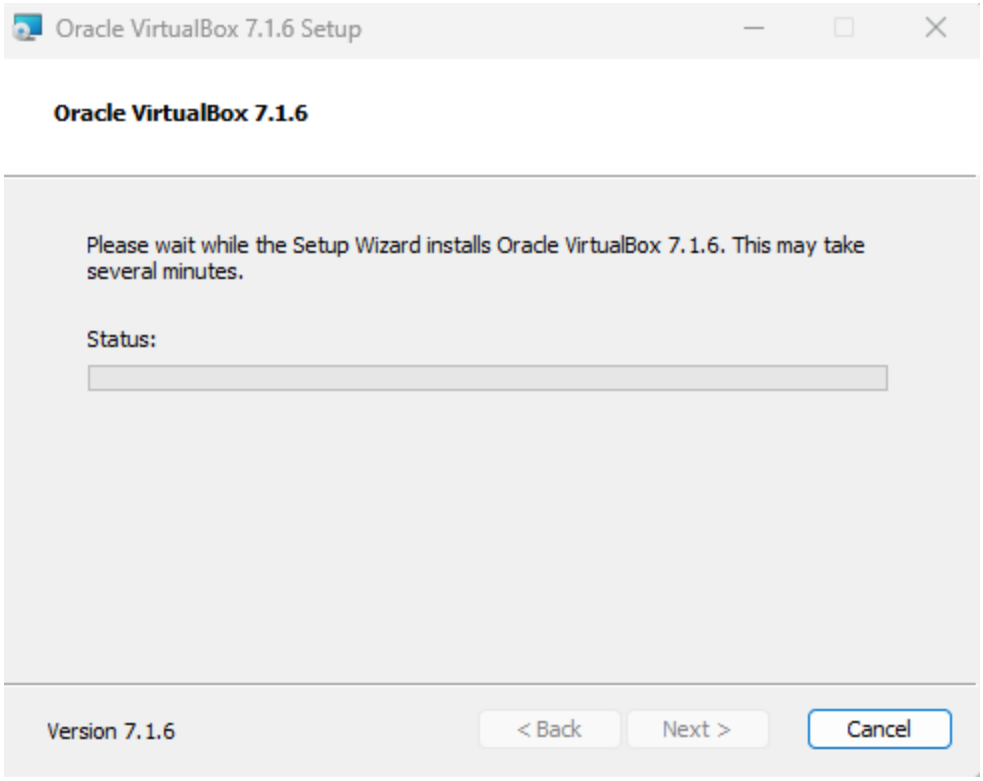

Oracle VirtualBox 7.1.6 Setup
Custom Setup
Select the way you want features to be installed.
Click on the icons in the tree below to change the way features will be installed.
VirtualBox Application
VirtualBox USB Support
VirtualBox Networking
VirtualBox Bridge
VirtualBox Host-C
VirtualBox Python Suppo
Oracle VirtualBox 7.1.6 application.
This feature requires 226MB on your hard drive. It has 3 of 3 subfeatures selected. The subfeatures require 936KB on yo...
Location:
D:\Tree Virtual Machine\
Browse
Version 7.1.6
Disk Usage
< Back
Next >
Cancel

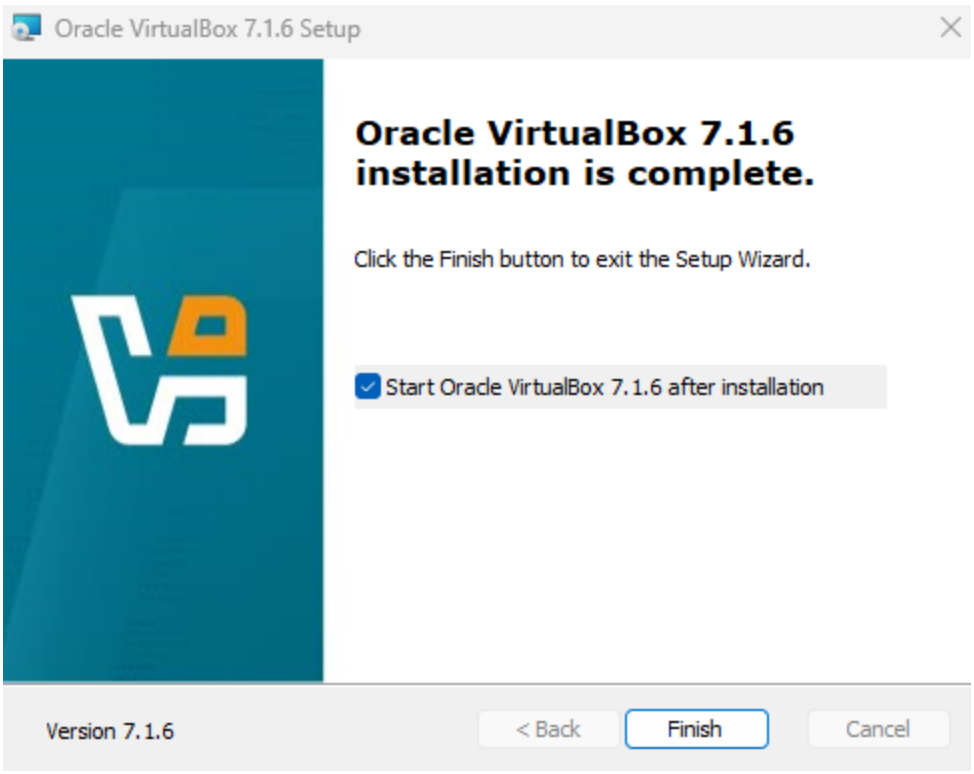

Oracle VirtualBox 7.1.6
Warning:
Network Interfaces
Installing the Oracle VirtualBox 7.1.6 Networking feature will reset your network connection and temporarily disconnect you from the network.
Proceed with installation now?
Version 7.1.6
Yes
No

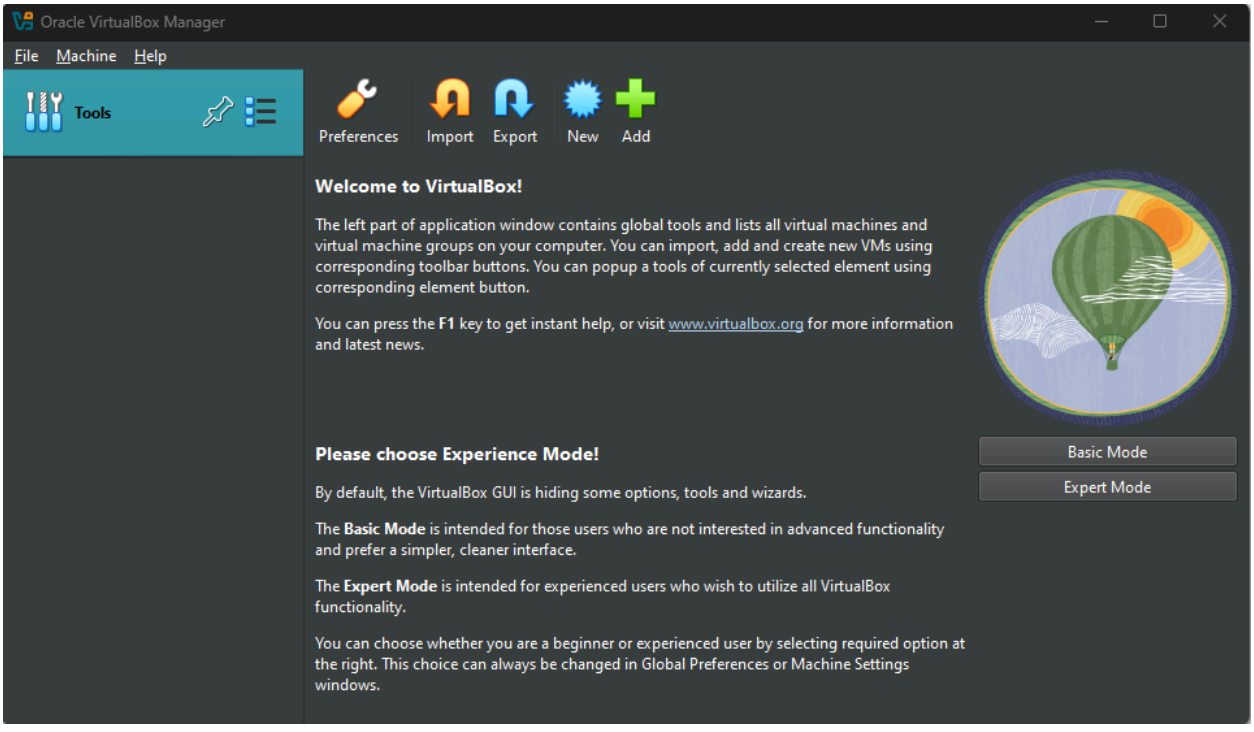

Oracle VirtualBox 7.1.6
Missing Dependencies
Python Core / win32api
Installing the Oracle VirtualBox 7.1.6 Python bindings requires the Python Core package and the win32api bindings to be installed first.
When continuing the installation of the Oracle VirtualBox 7.1.6 Python bindings now, those need to be set up manually later. Refer to the Oracle VirtualBox 7.1.6 SDK manual for more information.
Proceed with installation now?
Version 7.1.6
Yes
No


Oracle VirtualBox 7.1.6 Setup
Custom Setup
Select the way you want features to be installed.
Please choose from the options below:
Create start menu entries
Create a shortcut on the desktop
Create a shortcut in the Quick Launch Bar
Register file associations
Version 7.1.6
< Back
Next >
Cancel


Oracle VirtualBox 7.1.6 Setup
Ready to Install
The Setup Wizard is ready to begin the Custom installation.
Click Install to begin the installation. If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
Version 7.1.6
< Back
Install
Cancel

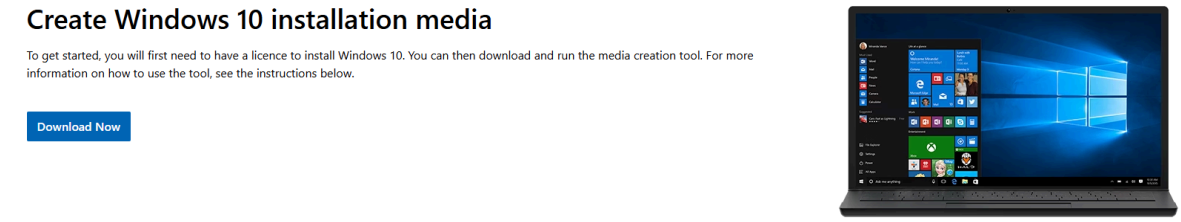

Oracle VirtualBox 7.1.6 Setup
Oracle VirtualBox 7.1.6
Please wait while the Setup Wizard installs Oracle VirtualBox 7.1.6. This may take several minutes.
Status:
Version 7.1.6
< Back
Next >
Cancel



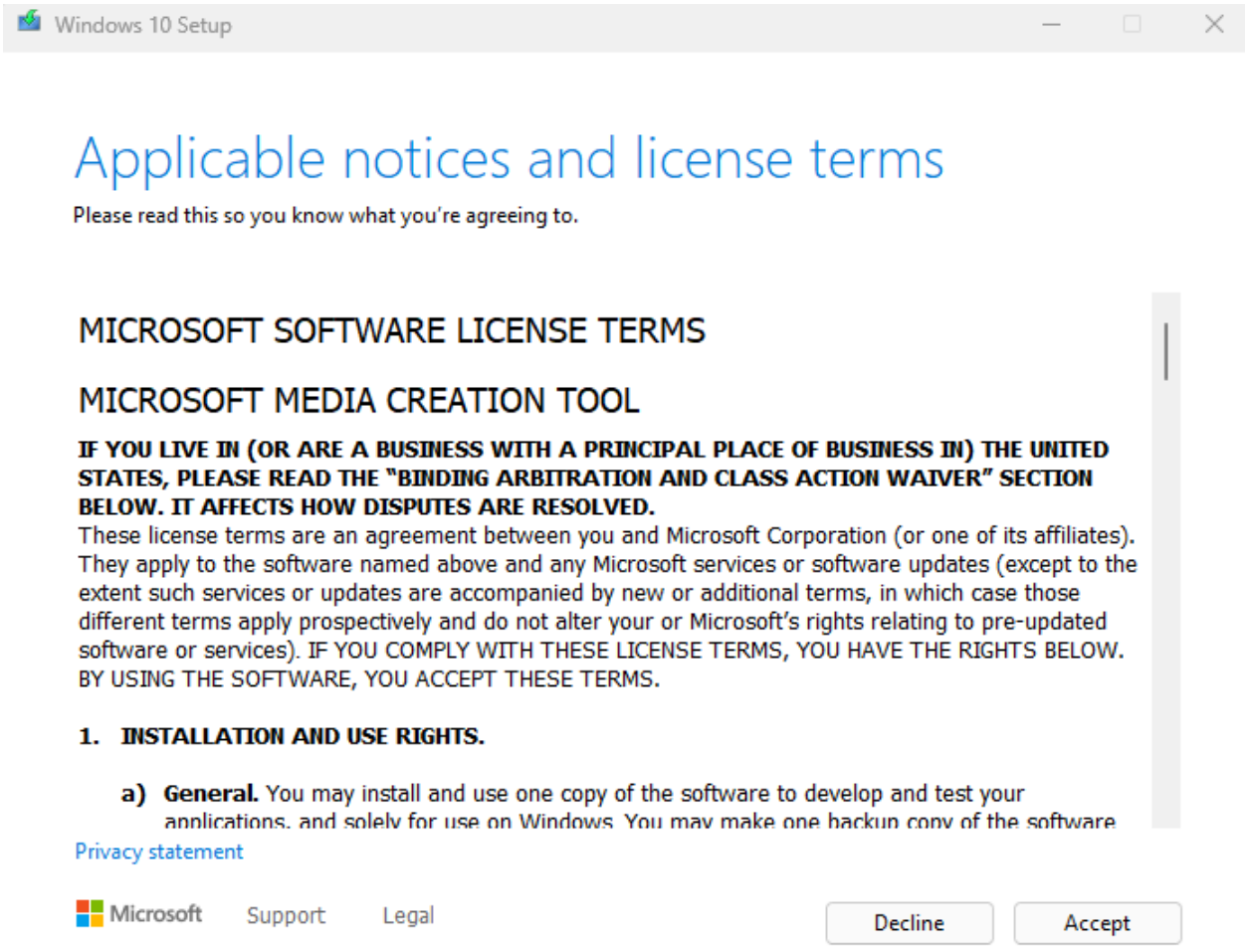


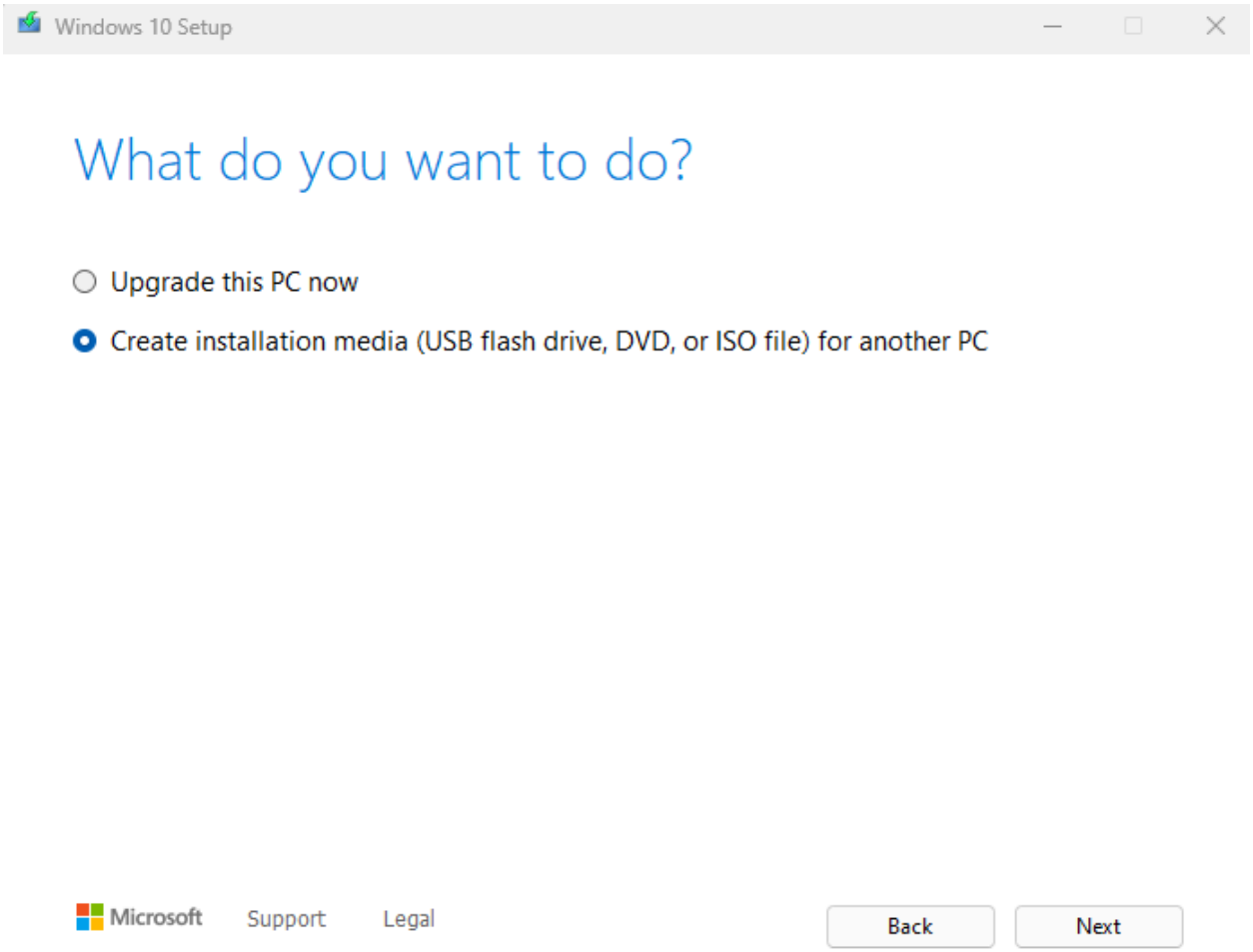
2. Install Windows 10

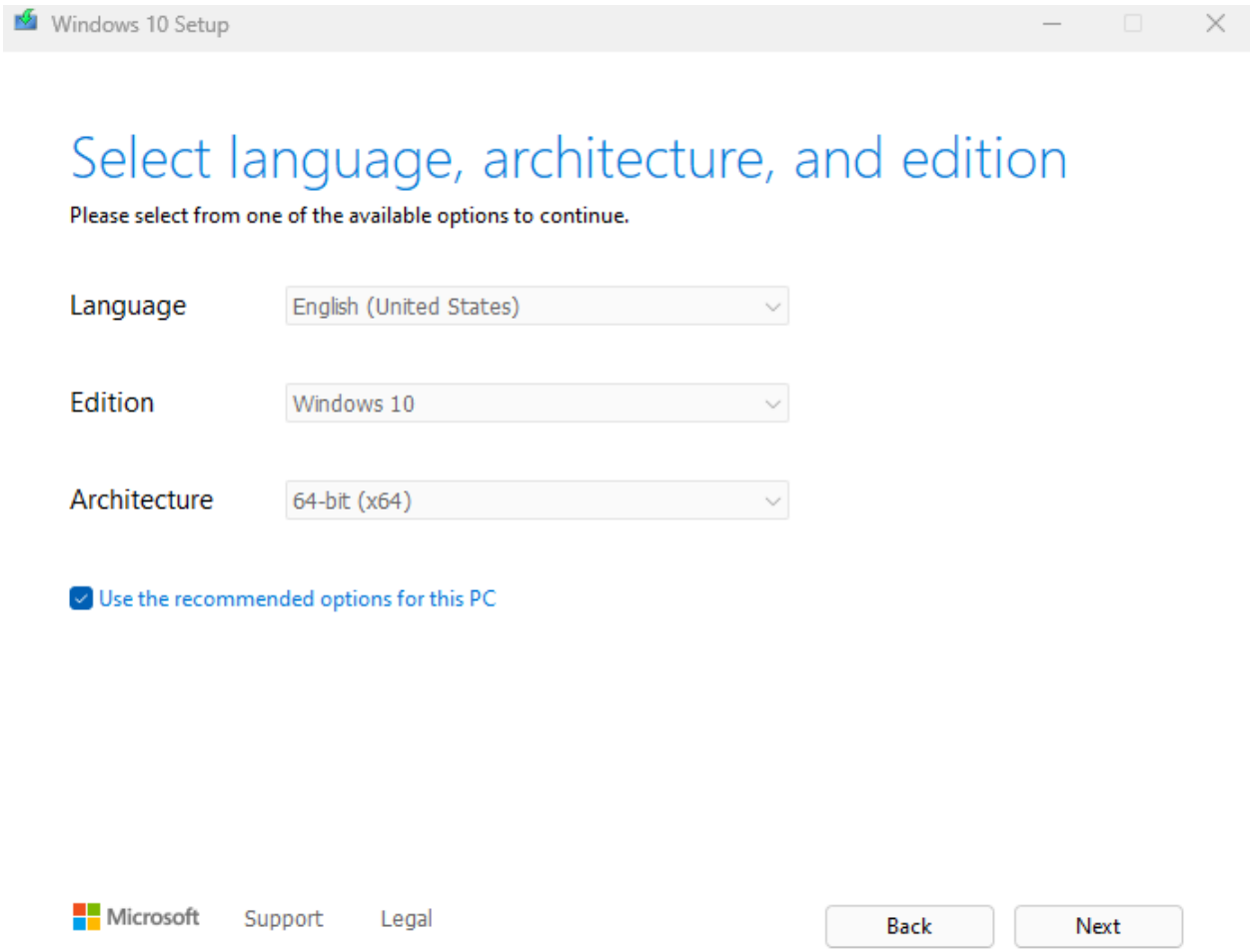
Download Window ISO Image through this link (https://www.microsoft.com/en-ca/software-download/windows10)

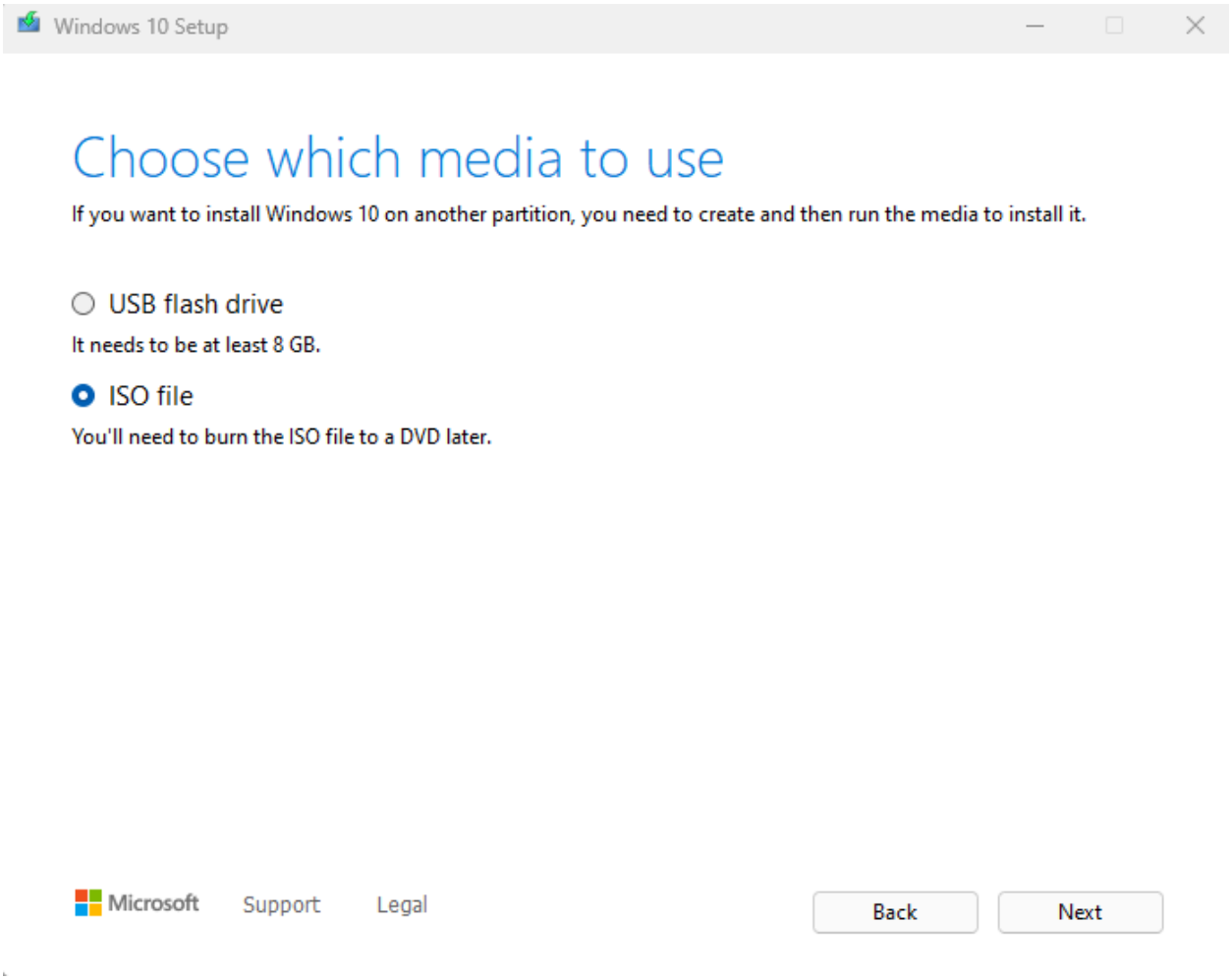


After that run the .exe installer file

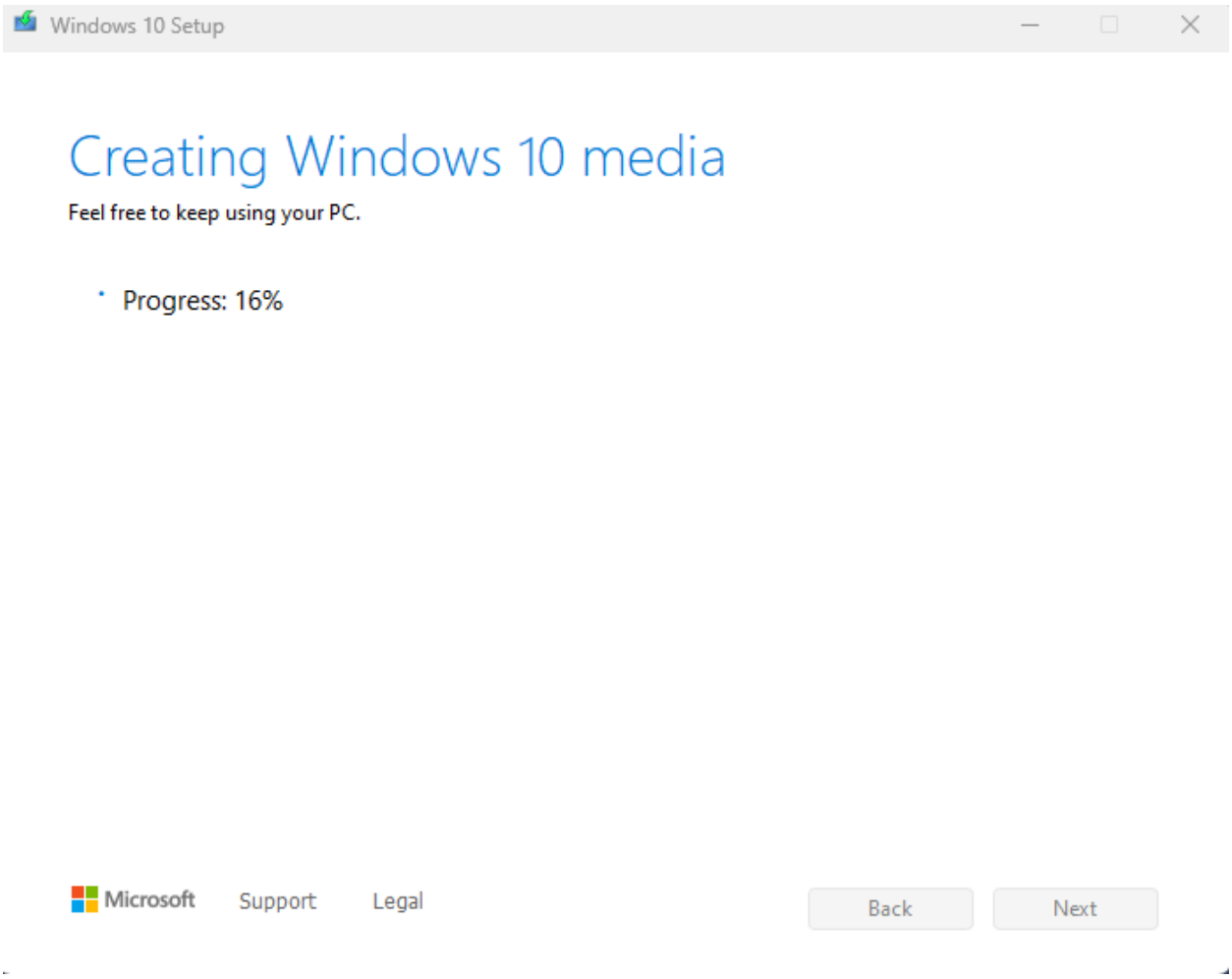


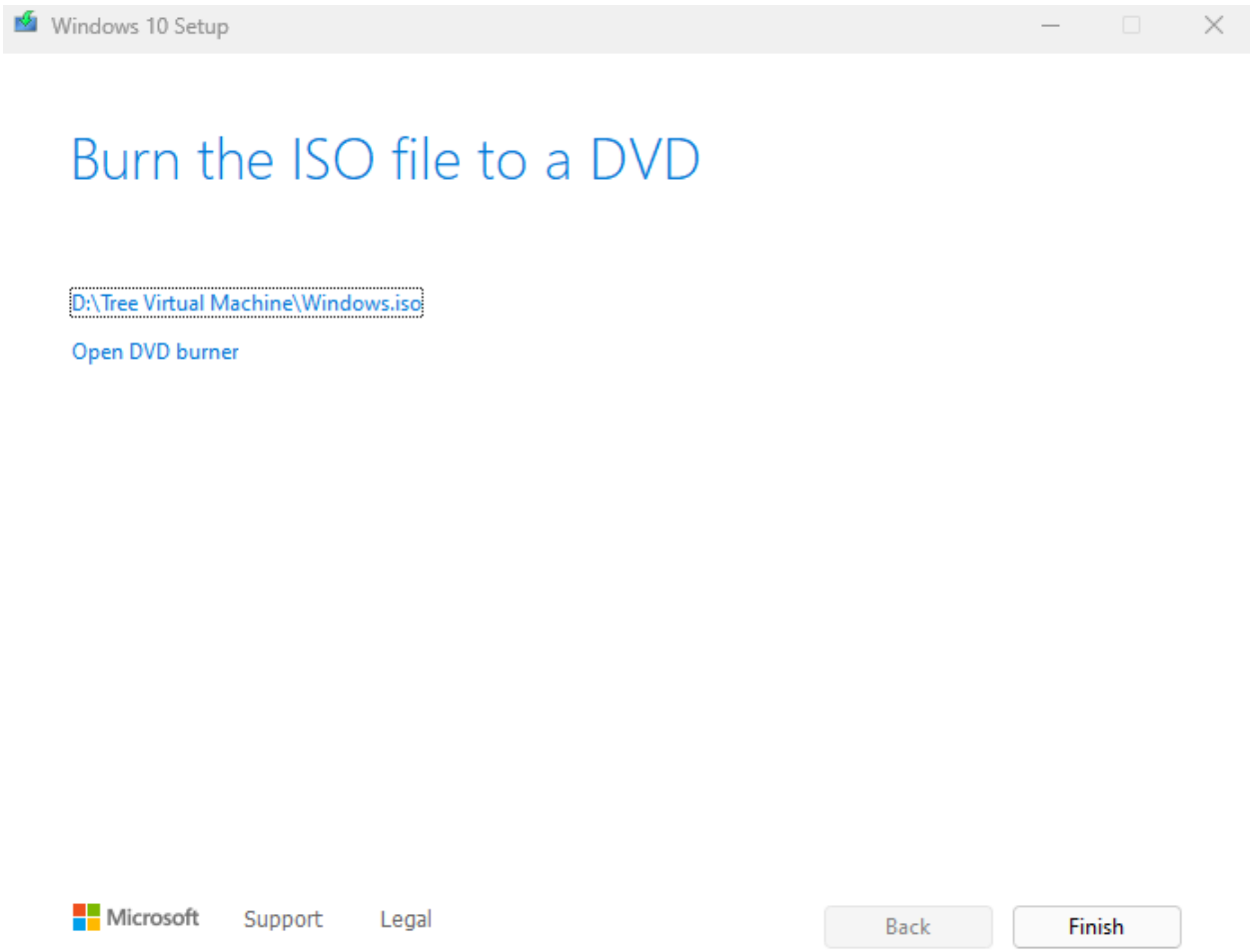

Windows 10 Setup
What do you want to do?
Upgrade this PC now
Create installation media (USB flash drive, DVD, or ISO file) for another PC
Microsoft
Support
Legal
Back
Next


Windows 10 Setup
Select language, architecture, and edition
Please select from one of the available options to continue.
Language
English (United States)
Edition
Windows 10
Architecture
64-bit (x64)
Use the recommended options for this PC
Microsoft
Support
Legal
Back
Next

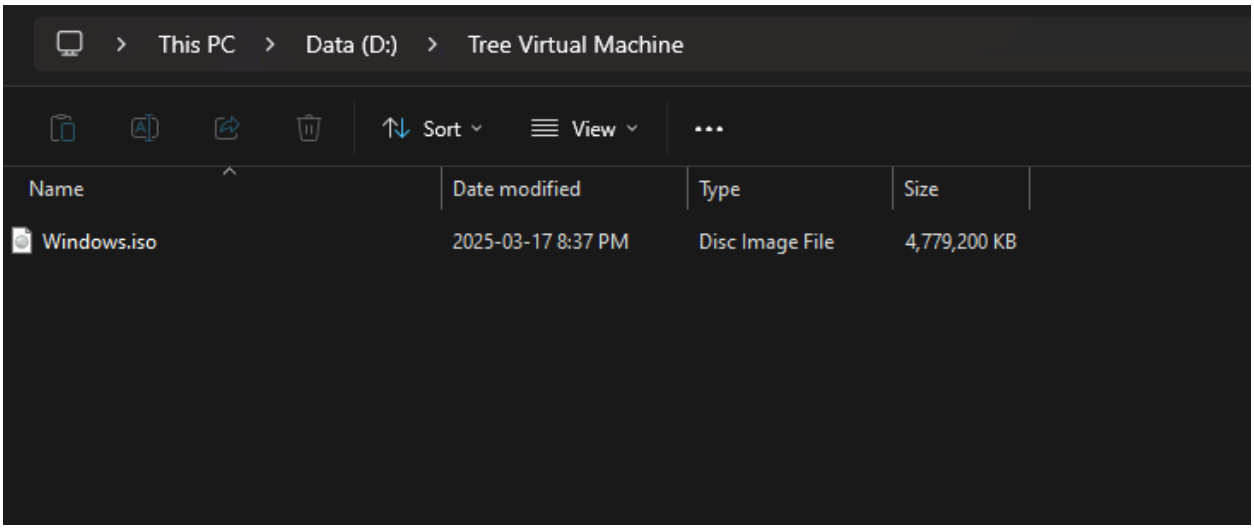


After Next, it will ask you to install the windows.iso to folder location you prefer, choose your location then install.

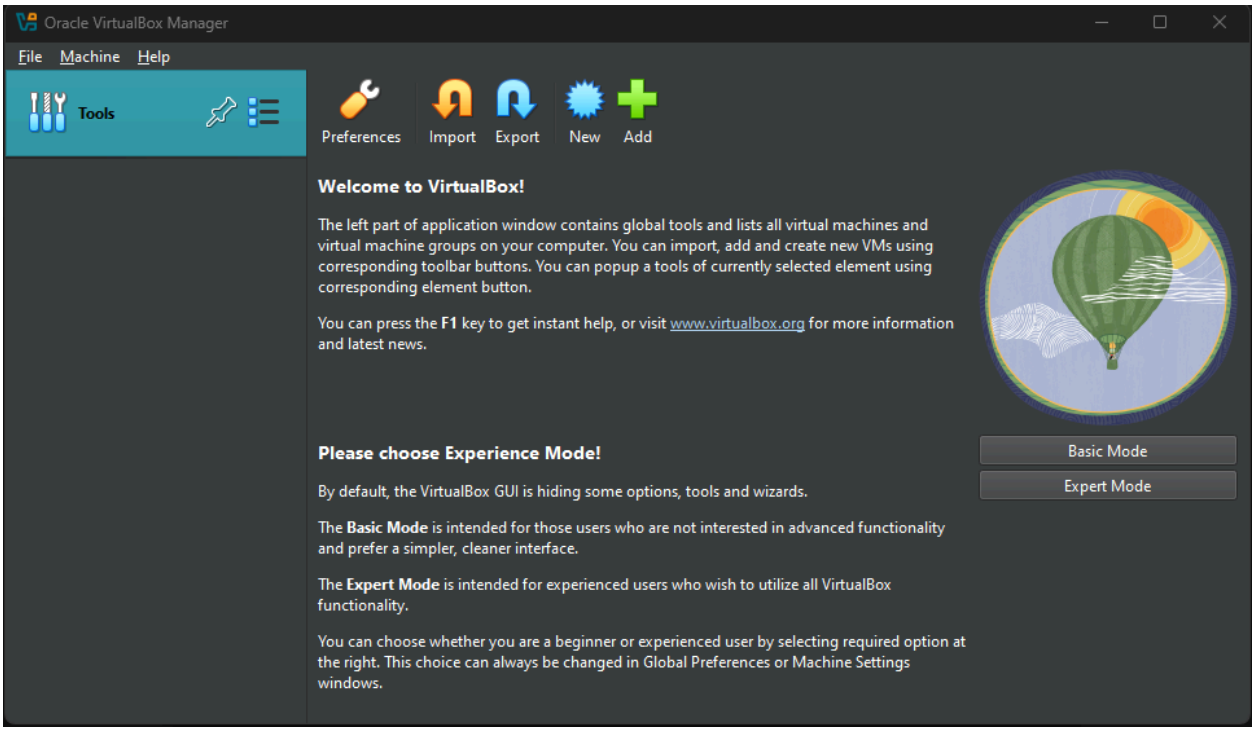

Windows 10 Setup
Creating Windows 10 media
Feel free to keep using your PC.
Progress: 16%
Microsoft
Support
Legal
Back
Next

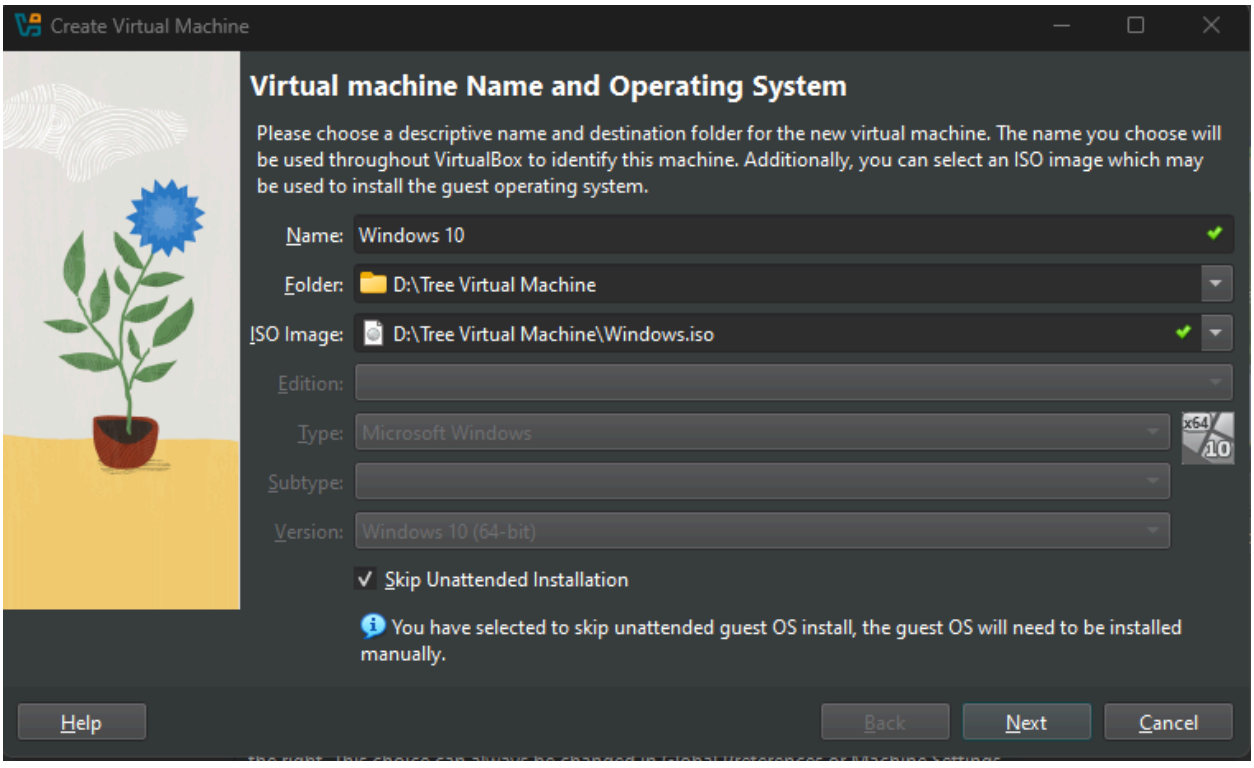


After finish you should see the windows.iso in your prefer folder:



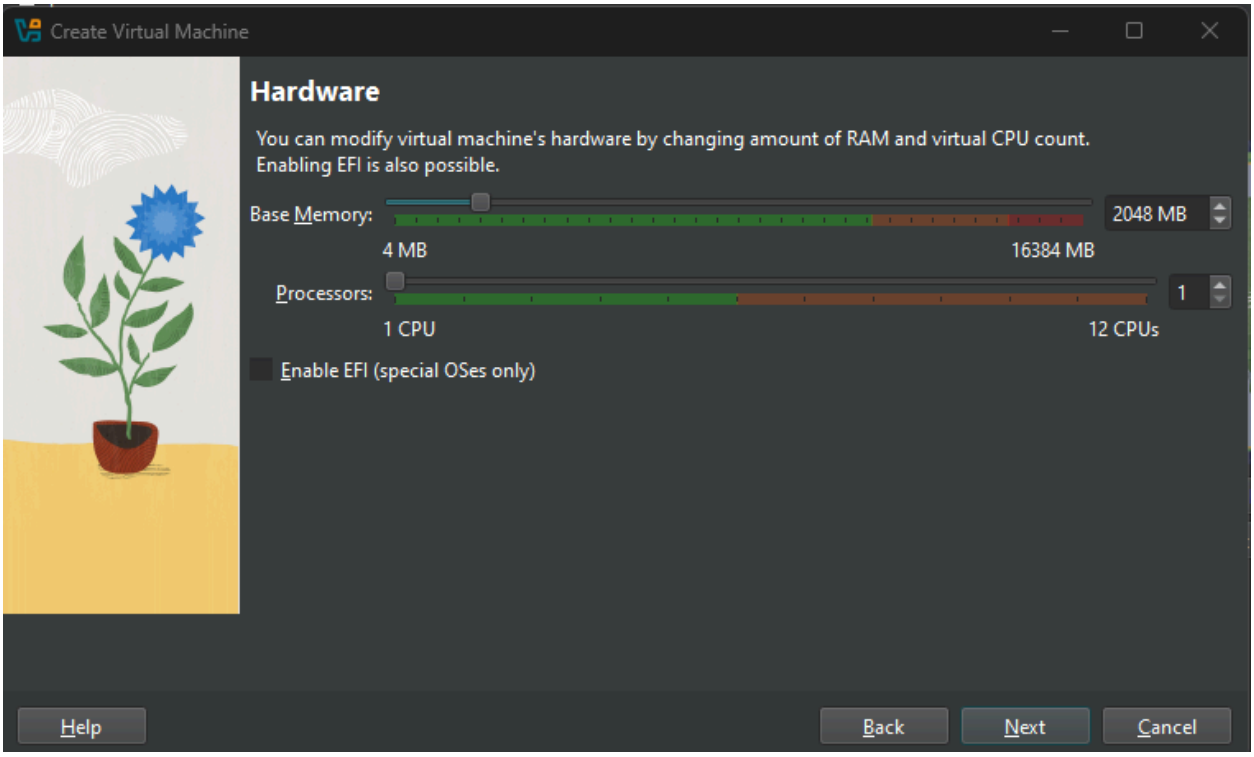
Time to create a Windows 10 Virtual Machine



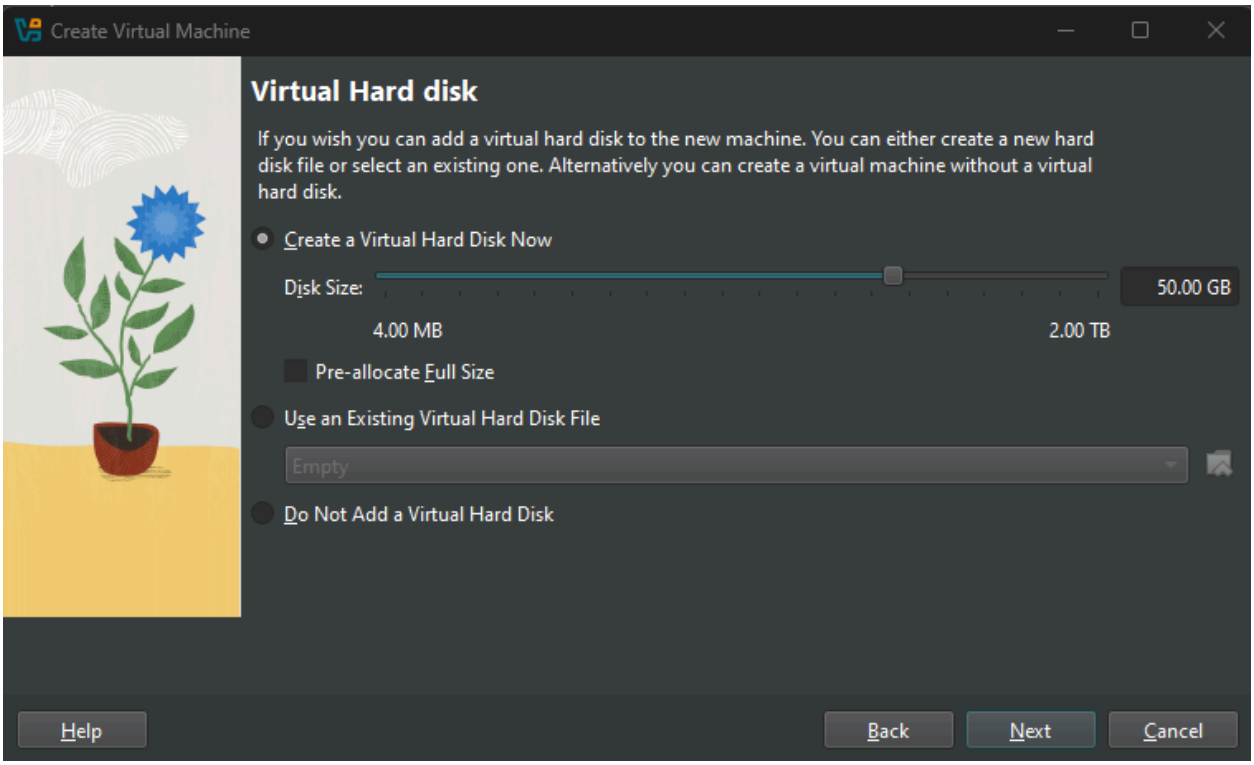


- Set up your VM Name

- Choose folder to store the VM storage and file
- Choose the windows.iso file we install earlier for the ISO Image section
- Select “Skip Unattended Installation” so that you can install the Operate System manually (Option)

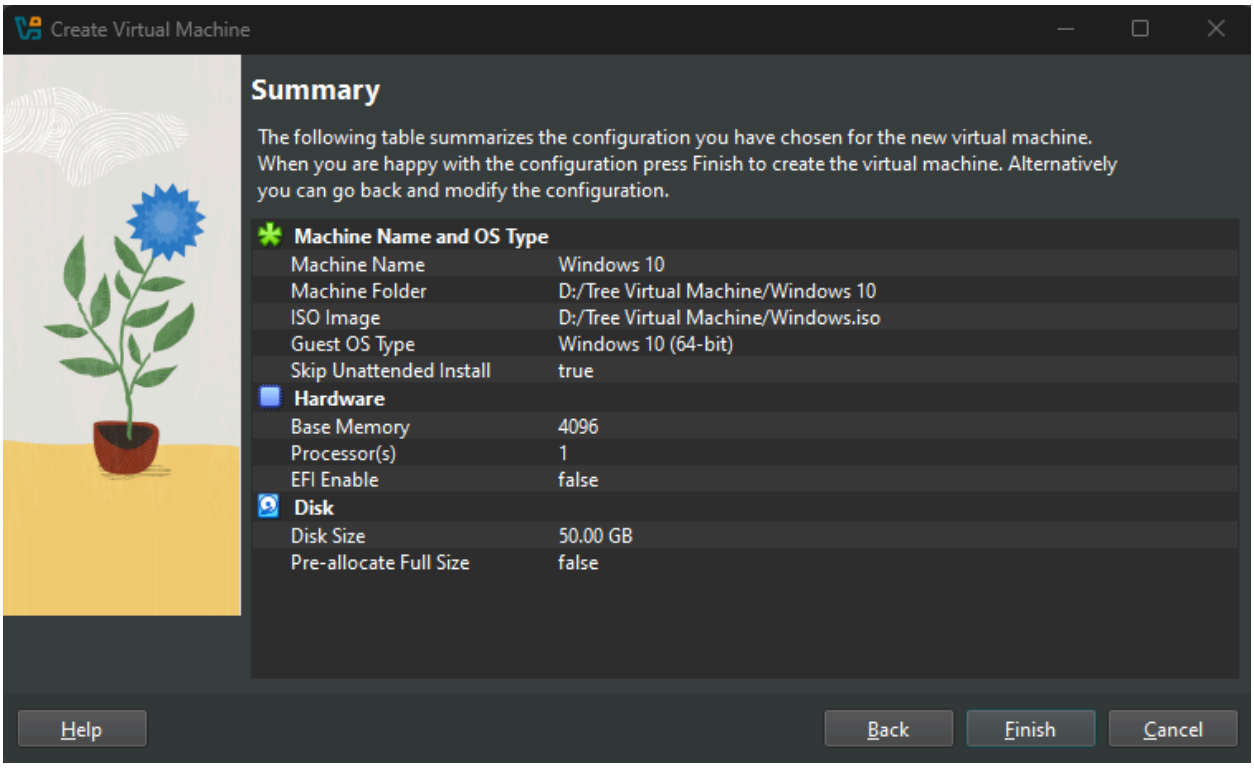


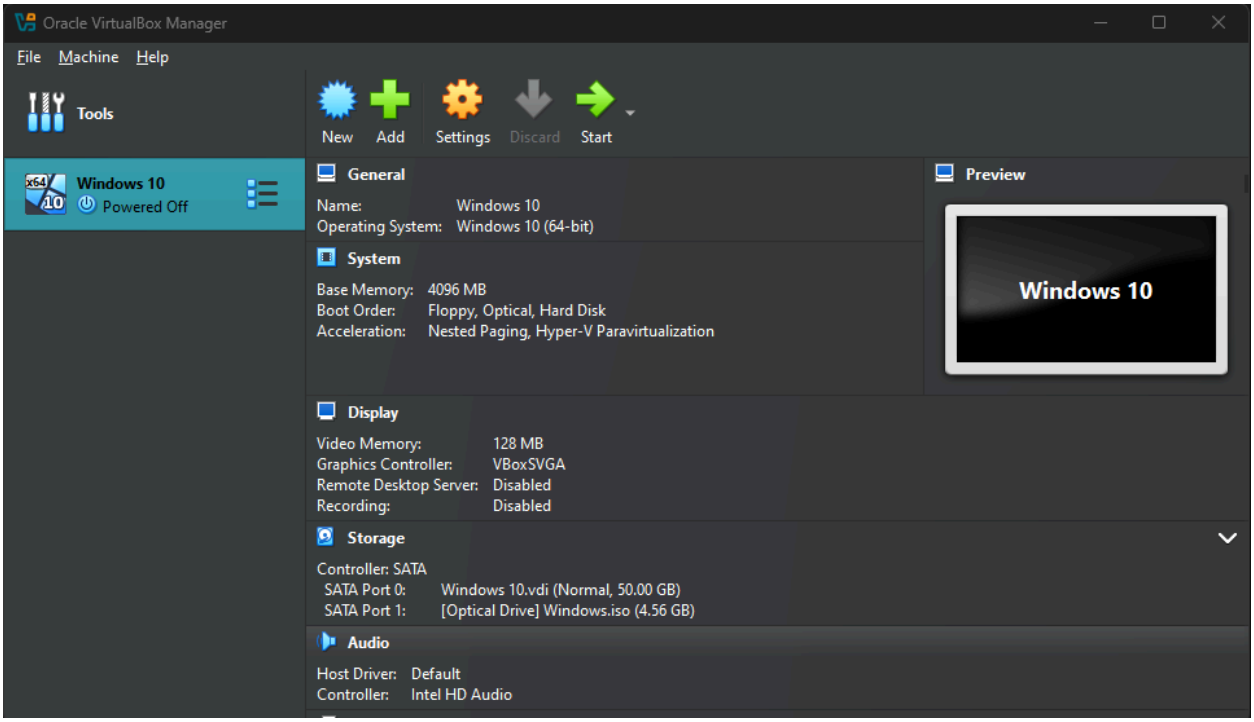
Please note that for this section we will configurate our VM (Virtual Machine) specifications, base on your computer specifications so be aware of how you adjust the memory and disk space.

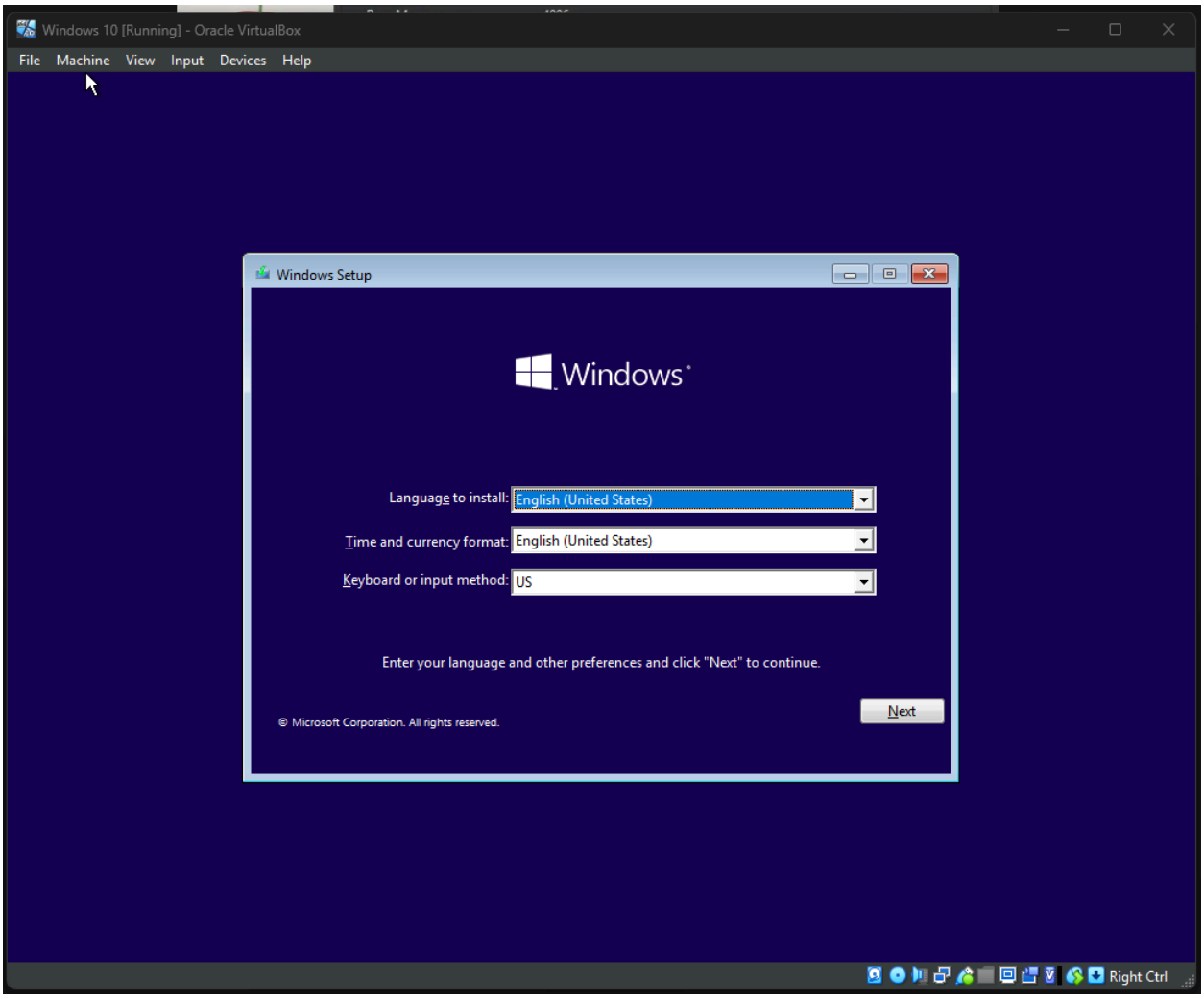


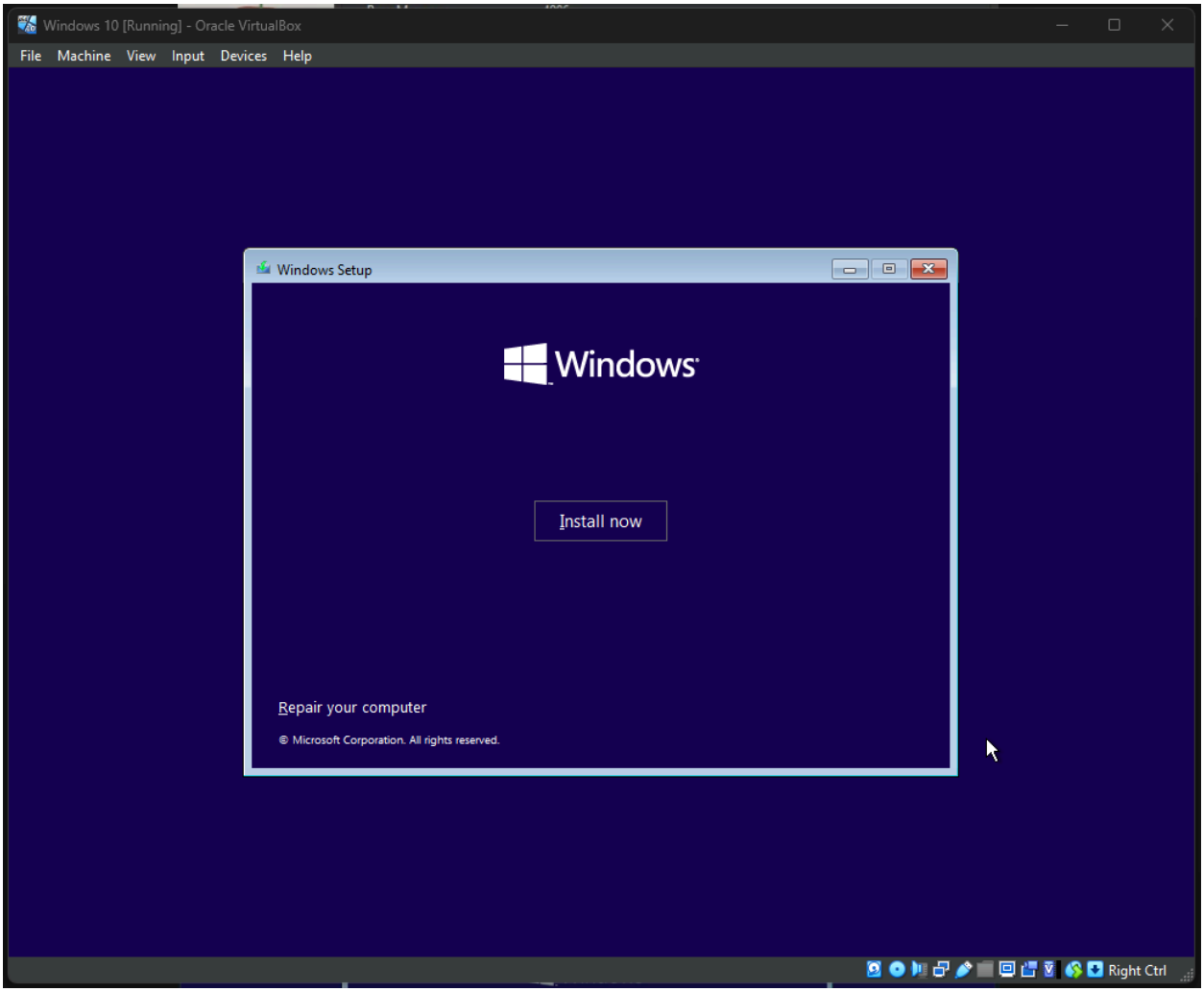
In summary, my Windows 10 VM Specification will be:

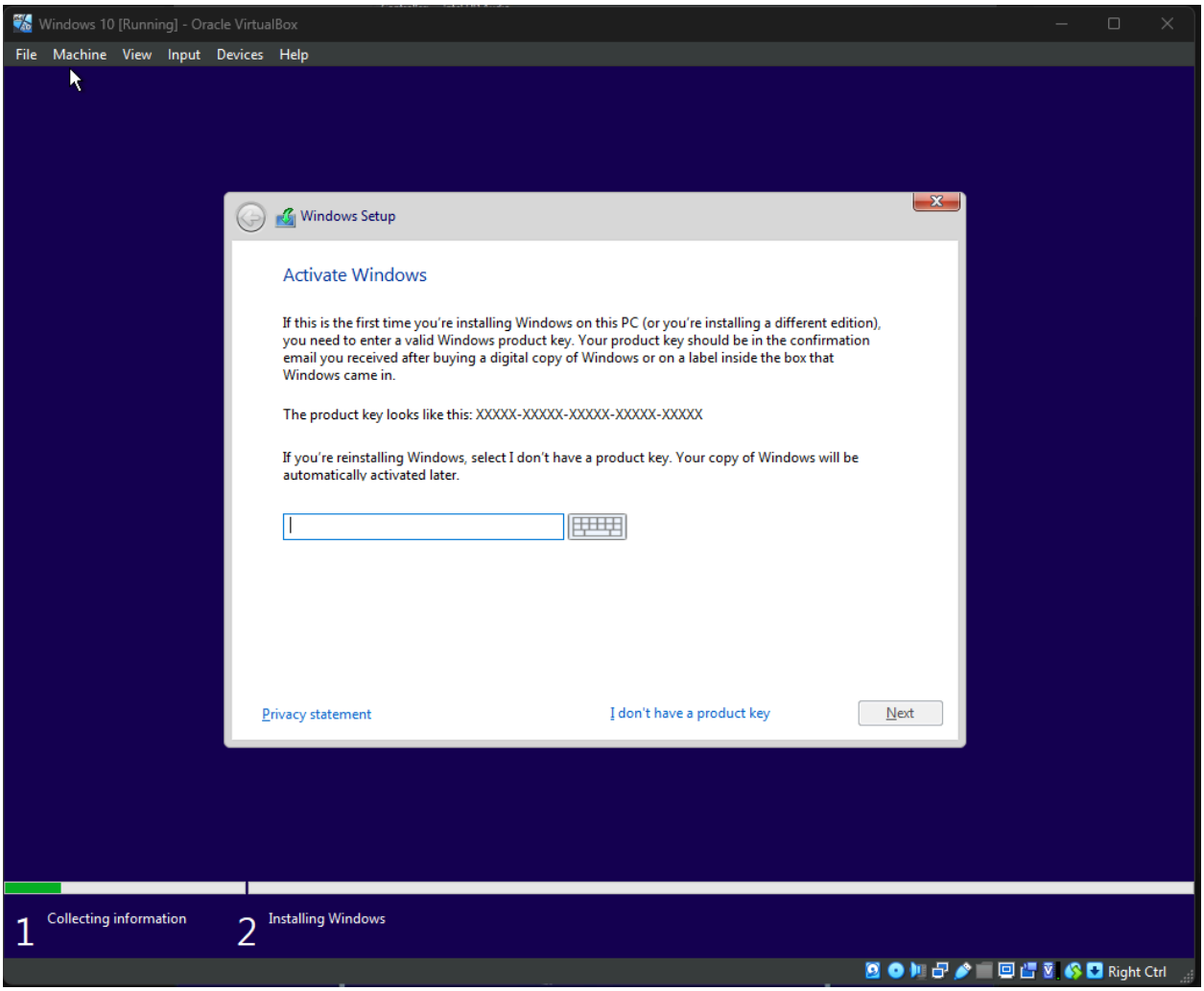
- Memory: 4GBs
- CPU: 1
- Hard Disk: 50Gbs


Create Virtual Machine
Summary
The following table summarizes the configuration you have chosen for the new virtual machine. When you are happy with the configuration press Finish to create the virtual machine. Alternatively you can go back and modify the configuration.
Machine Name and OS Type
Machine Name Windows 10
Machine Folder D:/Tree Virtual Machine/Windows 10
ISO Image D:/Tree Virtual Machine/Windows.iso
Guest OS Type Windows 10 (64-bit)
Skip Unattended Install true
Hardware
Base Memory 4096
Processor(s) 1
EFI Enable false
Disk
Disk Size 50.00 GB
Pre-allocate Full Size false
Help
Back
Finish
Cancel

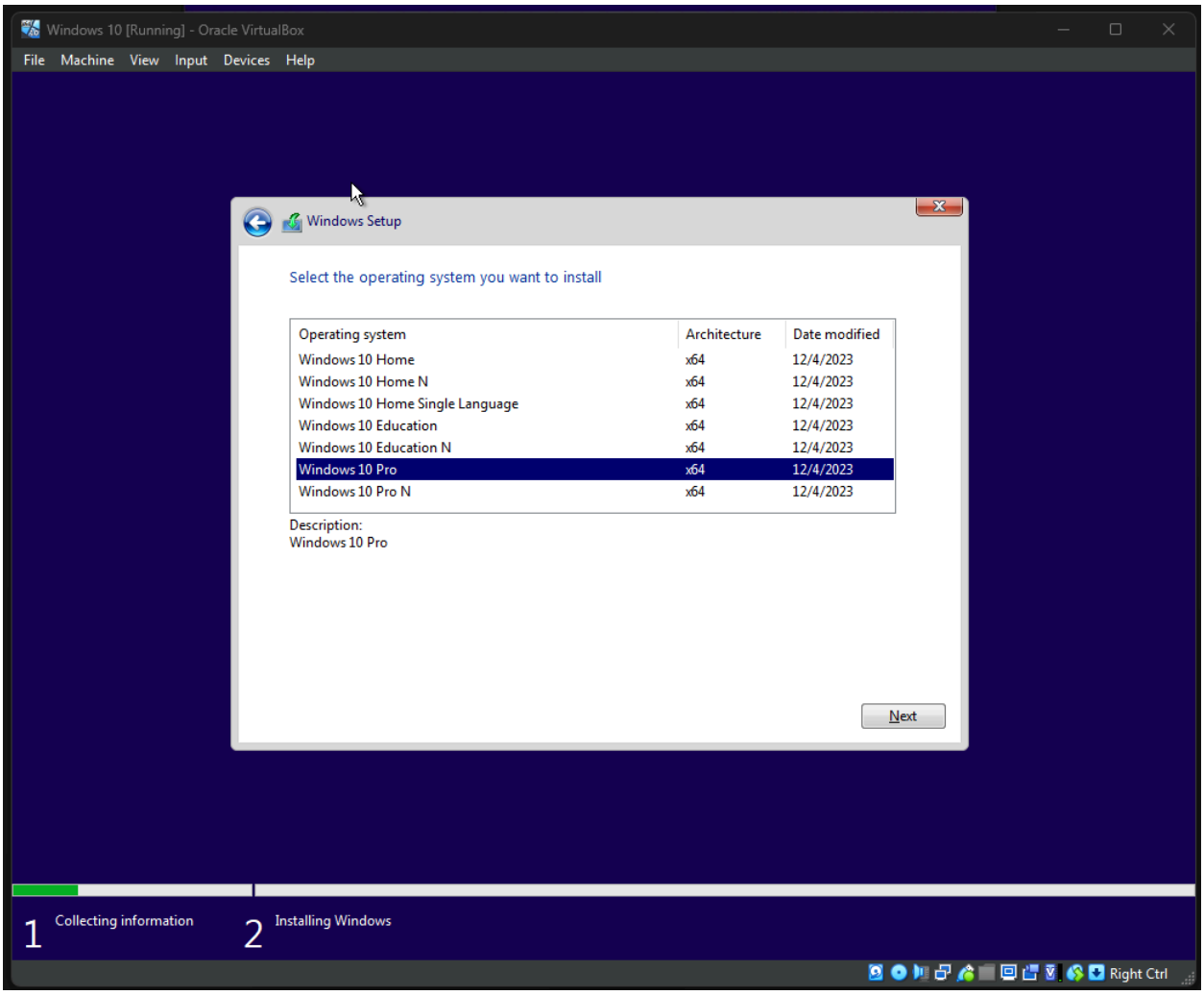

Oracle VirtualBox Manager
File Machine Help
Tools
New Add Settings Discard Start
Windows 10
Powered Off
General
Name: Windows 10
Operating System: Windows 10 (64-bit)
System
Base Memory: 4096 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: Nested Paging, Hyper-V Paravirtualization
Preview
Windows 10
Display
Video Memory: 128 MB
Graphics Controller: VBoxSVGA
Remote Desktop Server: Disabled
Recording: Disabled
Storage
Controller: SATA
SATA Port 0: Windows 10.vdi (Normal, 50.00 GB)
SATA Port 1: [Optical Drive] Windows.iso (4.56 GB)
Audio
Host Driver: Default
Controller: Intel HD Audio


Windows 10 [Running] - Oracle VirtualBox
File Machine View Input Devices Help
Windows Setup
Windows
Language to install: English (United States)
Time and currency format: English (United States)
Keyboard or input method: US
Enter your language and other preferences and click "Next" to continue.
© Microsoft Corporation. All rights reserved.
Next
Right Ctrl

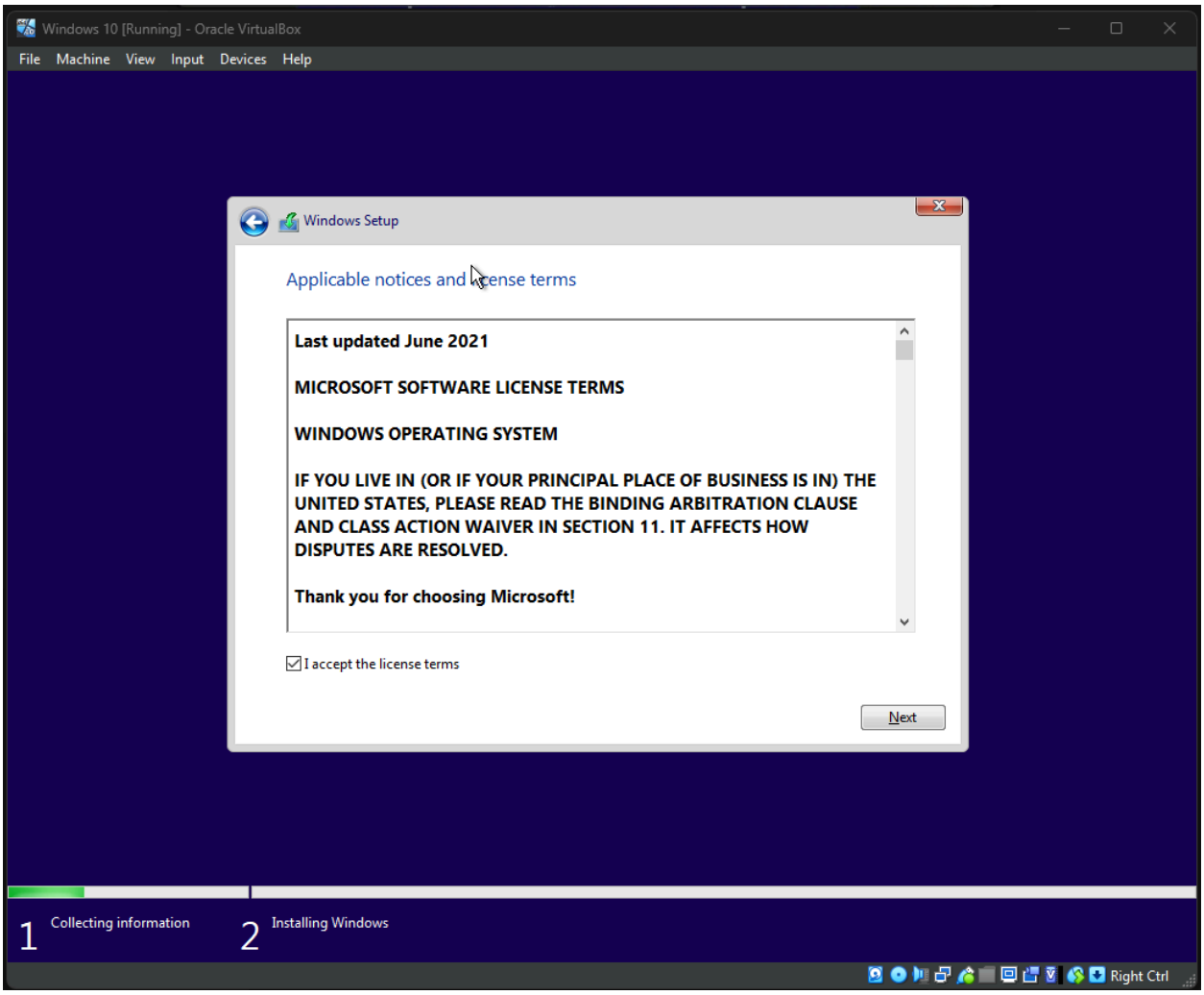

Windows 10 [Running] - Oracle VirtualBox
File Machine View Input Devices Help
Windows Setup
Windows
Install now
Repair your computer
© Microsoft Corporation. All rights reserved.
Right Ctrl

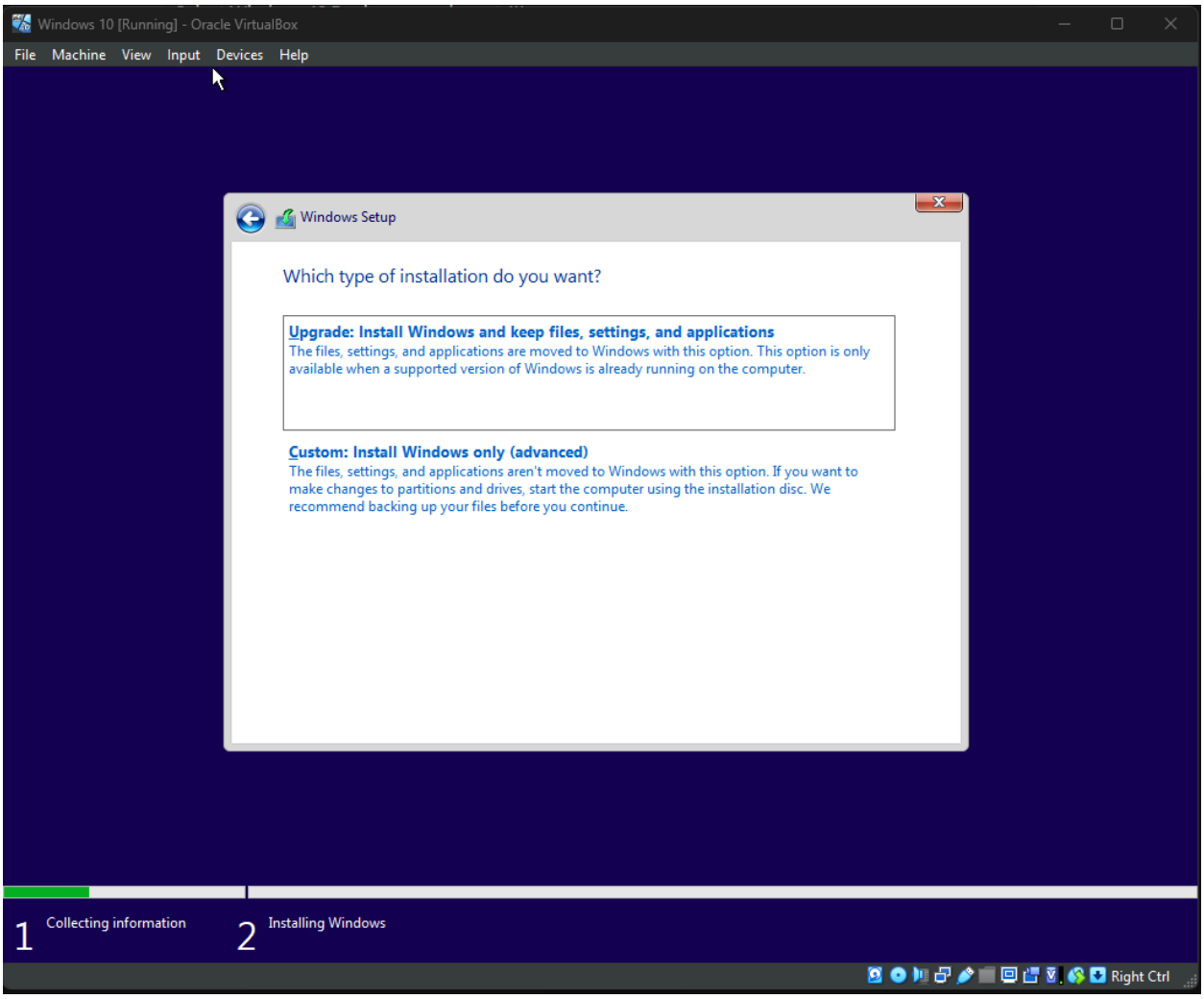


Click “I don’t have a product key”

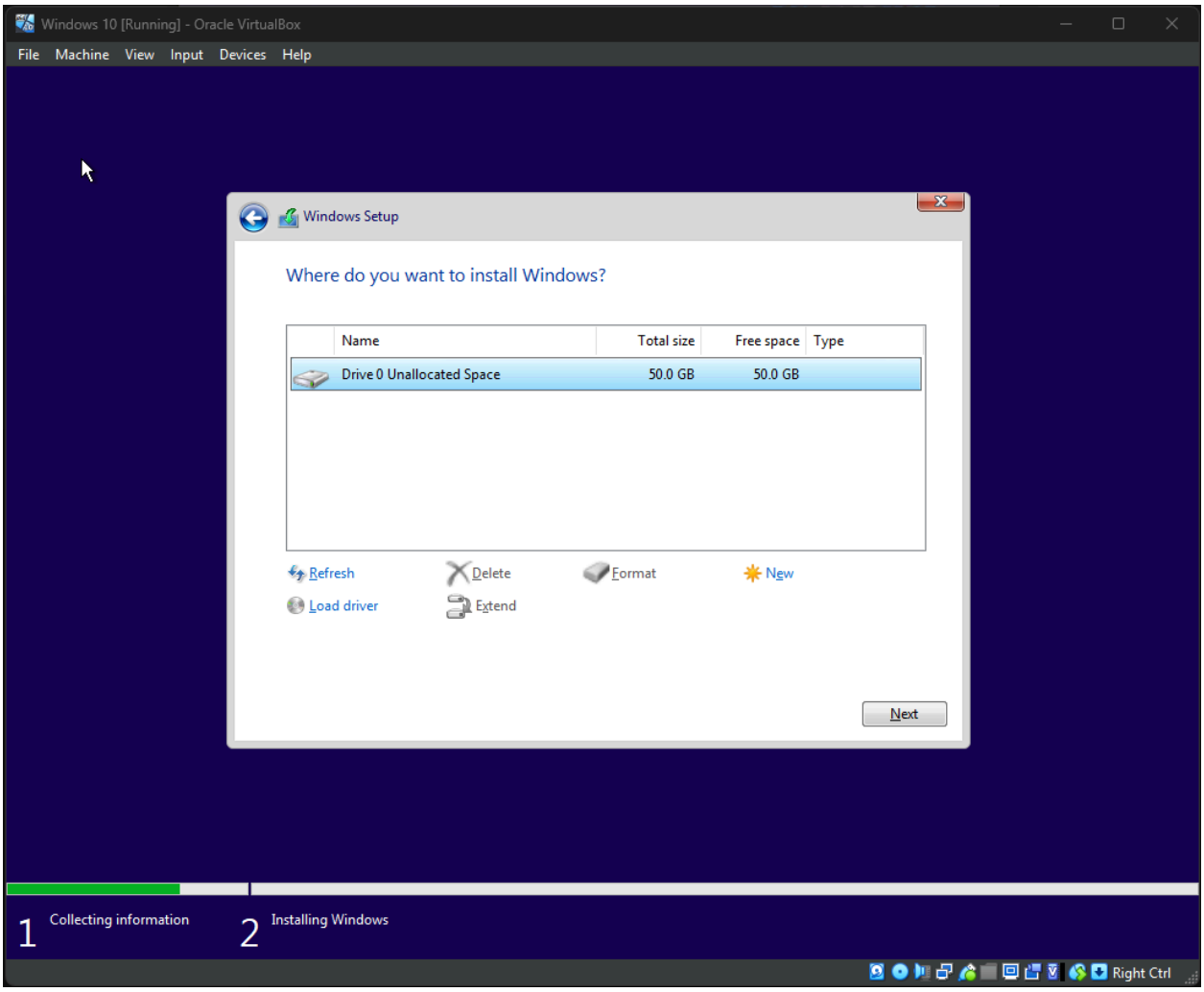


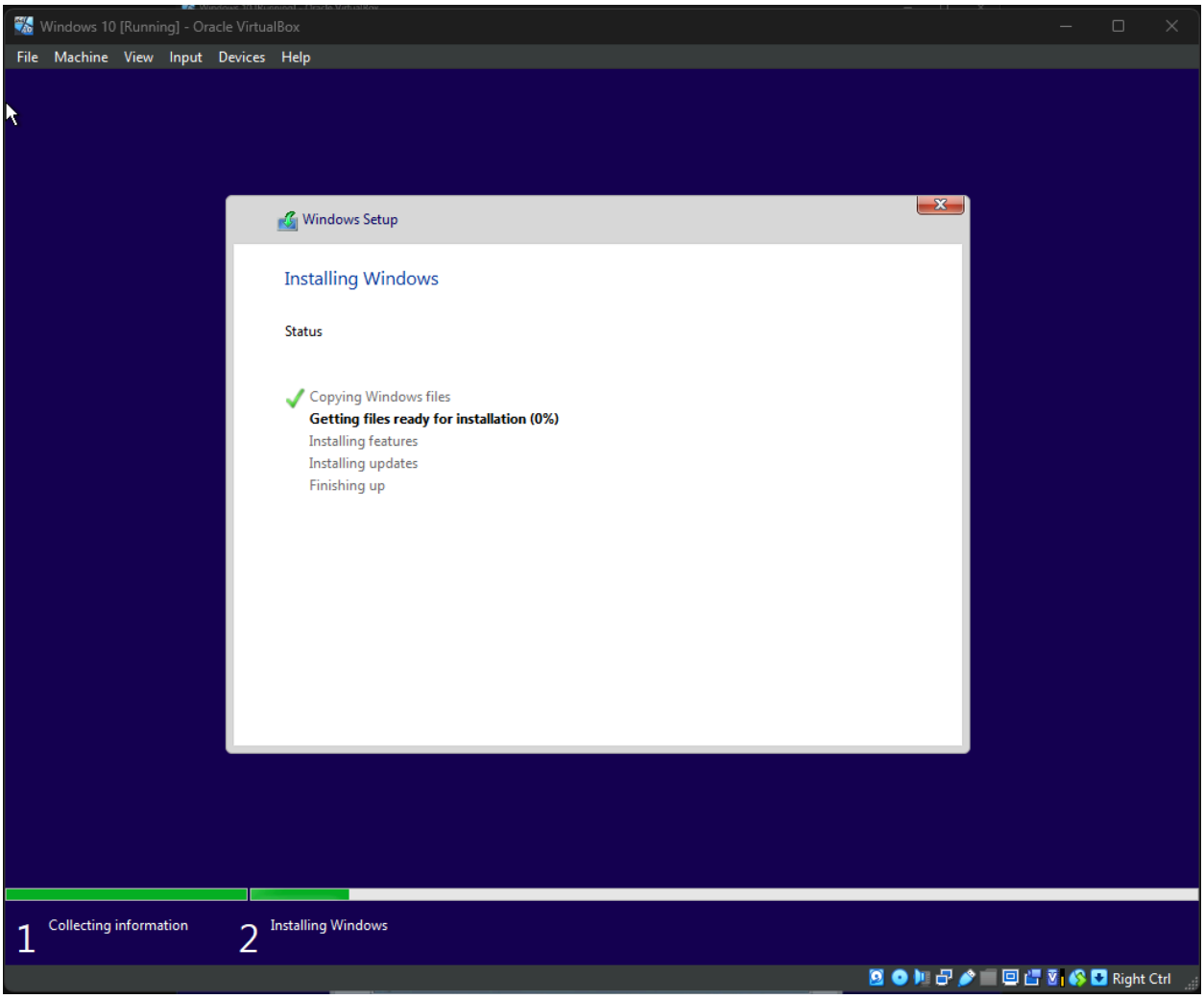
Select Windows 10 Pro because why not :)))


Windows 10 [Running] - Oracle VirtualBox
File Machine View Input Devices Help
Windows Setup
Applicable notices and license terms
Last updated June 2021
MICROSOFT SOFTWARE LICENSE TERMS
WINDOWS OPERATING SYSTEM
IF YOU LIVE IN (OR IF YOUR PRINCIPAL PLACE OF BUSINESS IS IN) THE UNITED STATES, PLEASE READ THE BINDING ARBITRATION CLAUSE AND CLASS ACTION WAIVER IN SECTION 11. IT AFFECTS HOW DISPUTES ARE RESOLVED.
Thank you for choosing Microsoft!
I accept the license terms
Next
1 Collecting information
2 Installing Windows
Right Ctrl



Click “Custom: Install Windows only (advanced)”


Windows 10 [Running] - Oracle VirtualBox
File Machine View Input Devices Help
Windows Setup
Where do you want to install Windows?
Name
Total size
Free space
Type
Drive 0 Unallocated Space
50.0 GB
50.0 GB
Refresh
Delete
Format
New
Load driver
Extend
Next
1 Collecting information
2 Installing Windows
Right Ctrl



Your Windows 10 VM should be install

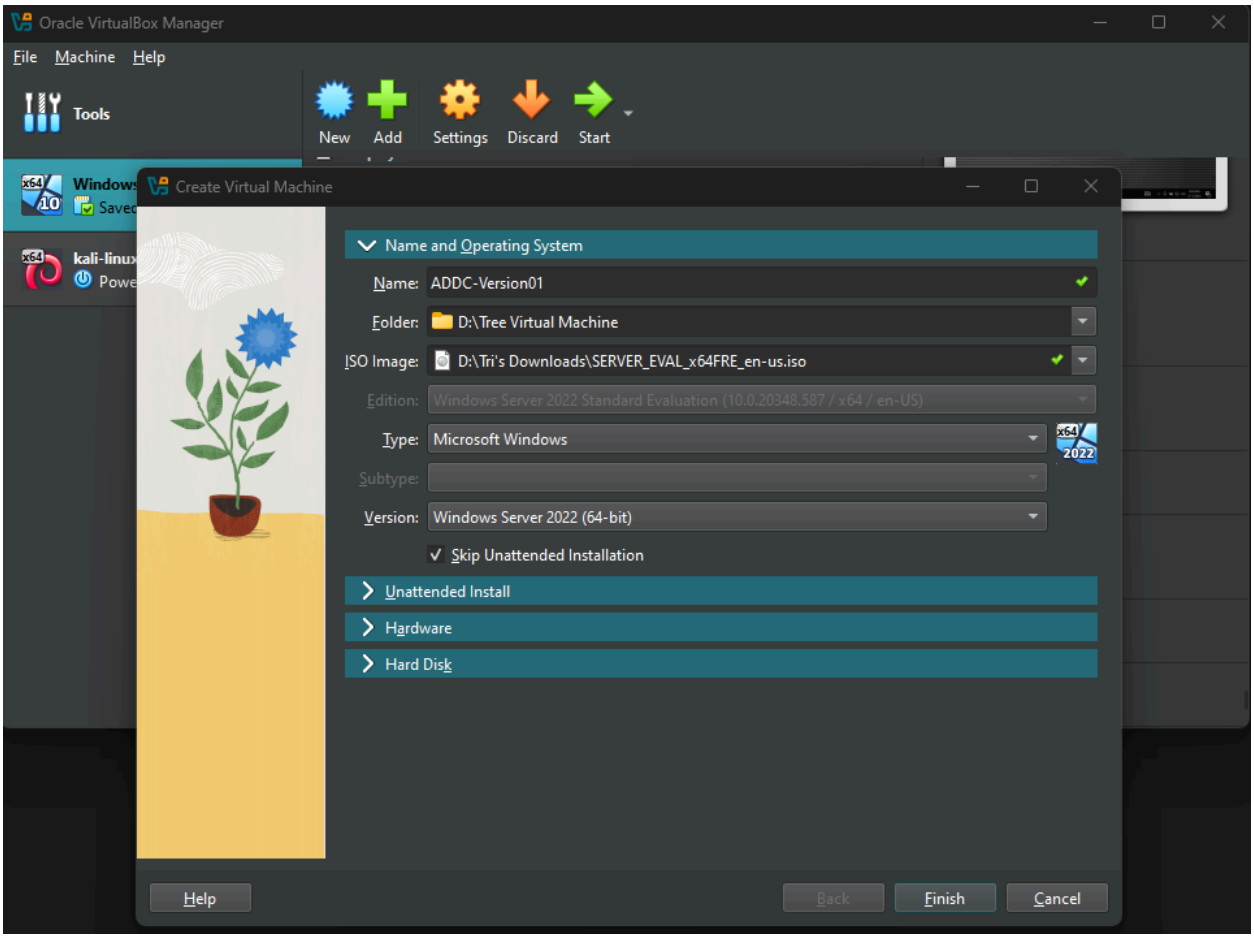
3. Install Windows Server

Download the Windows Server 2022 from this link https://www.microsoft.com/en-us/evalcenter/evaluate-windows-server-2022

Download the ISO

File the information then hit Download Now. Click ISO downloads - 64-bit edition and run the installed iso file.

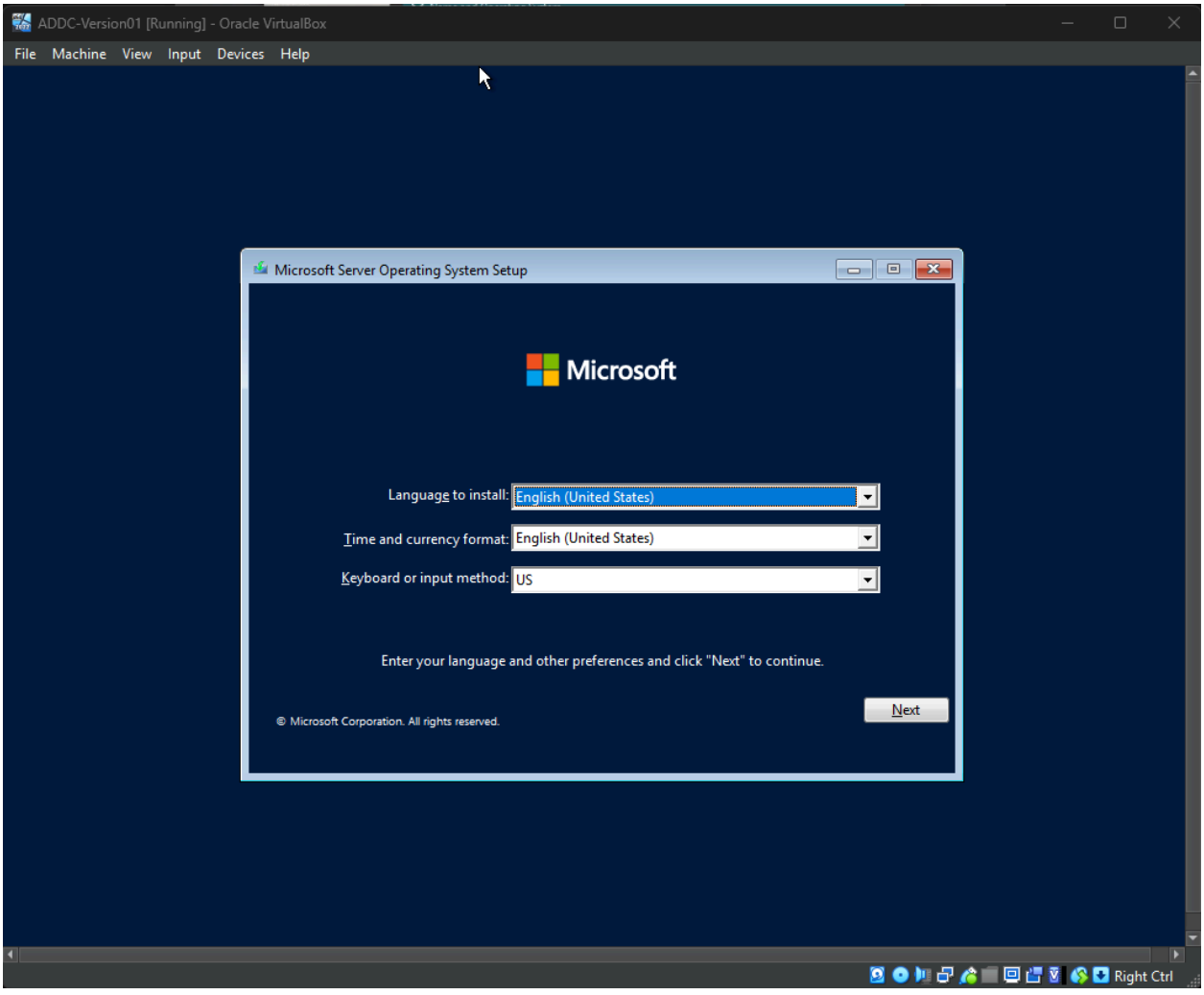
Time to to add the server to our Virtual Box:

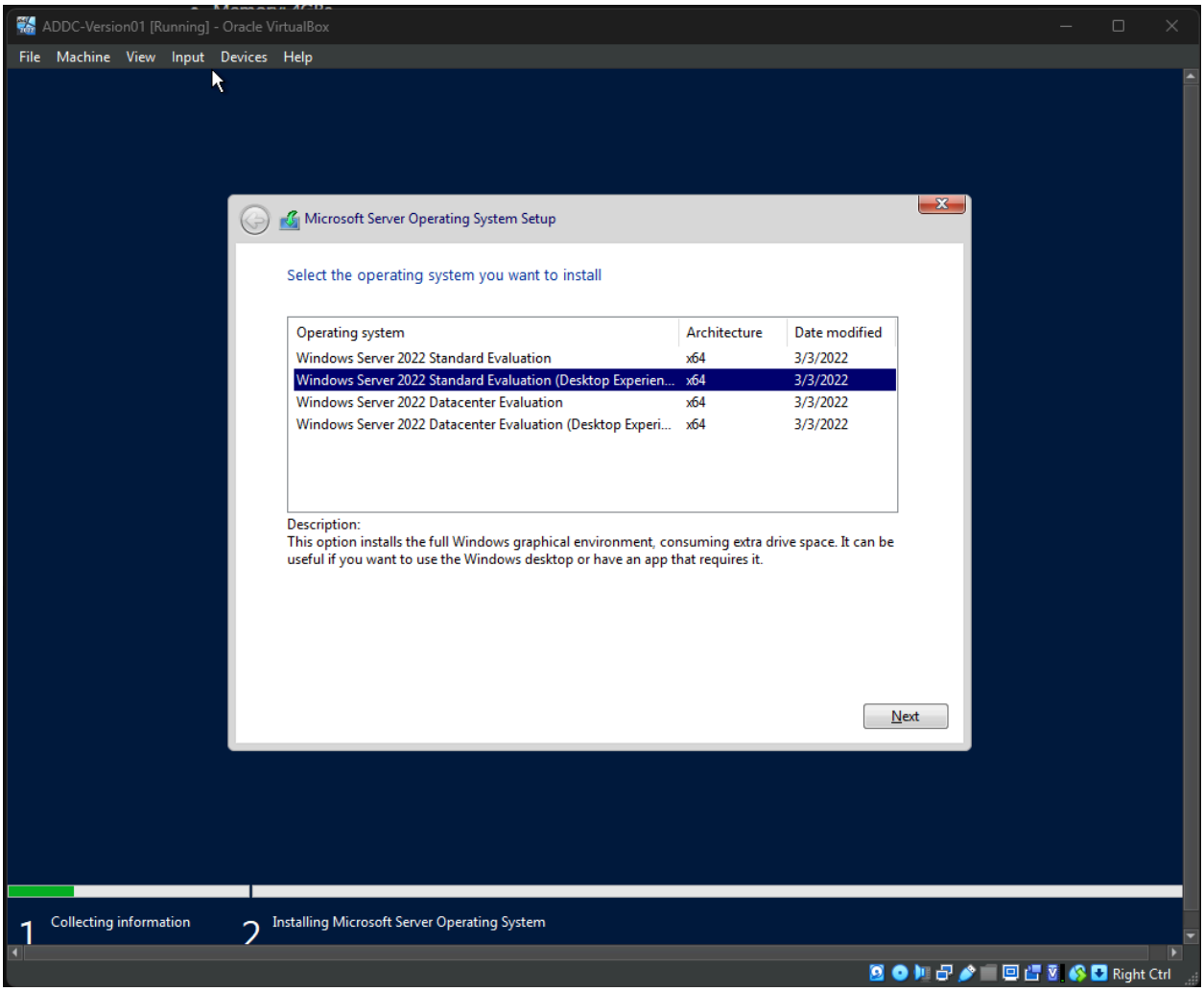


Please note: check the “Skip Unattended Installation” box so we won’t get any “unattended” error in the future if we let the Virtual Box automatically install the server.

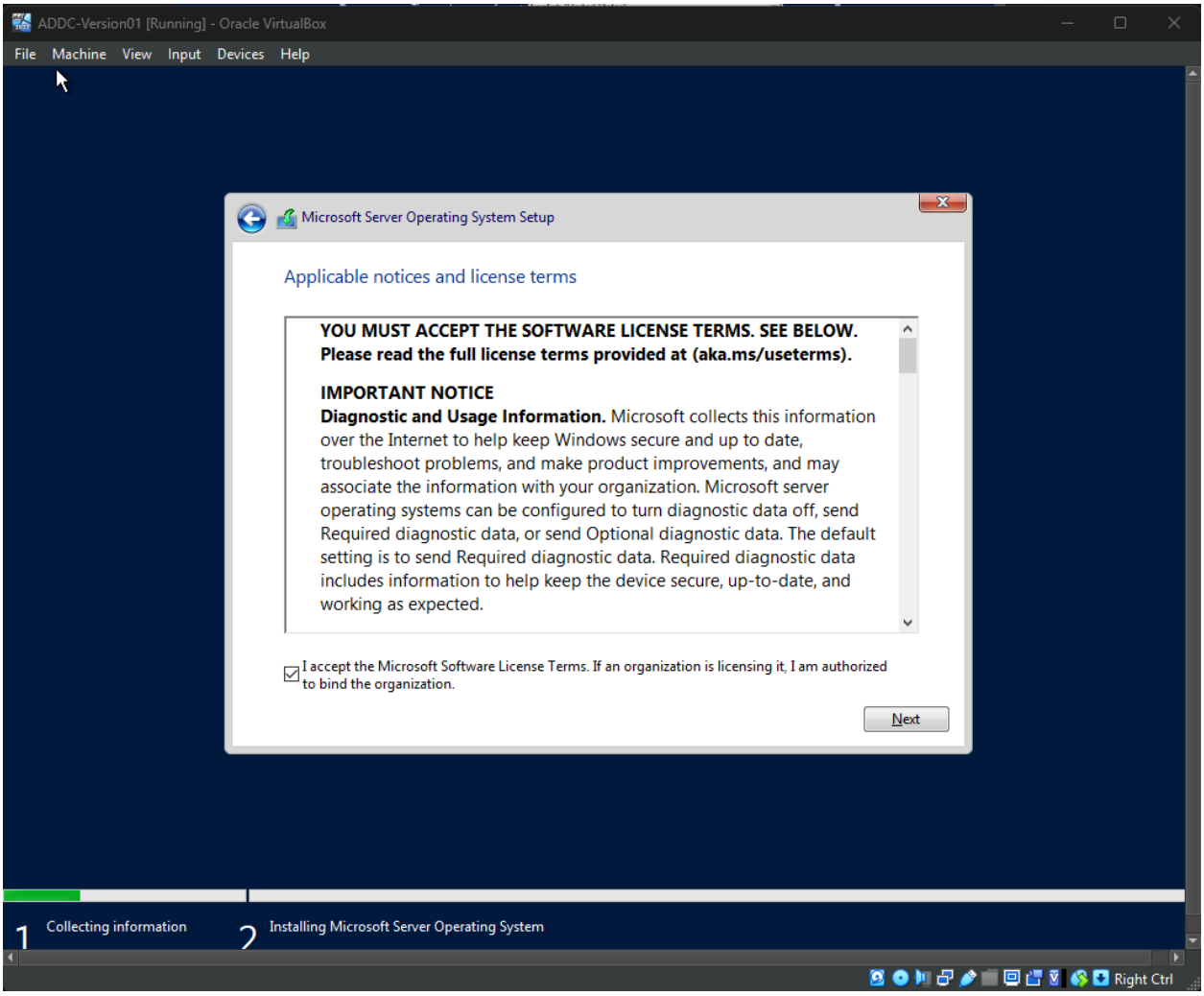
For configure specification, my Windows Server 2022 will have:

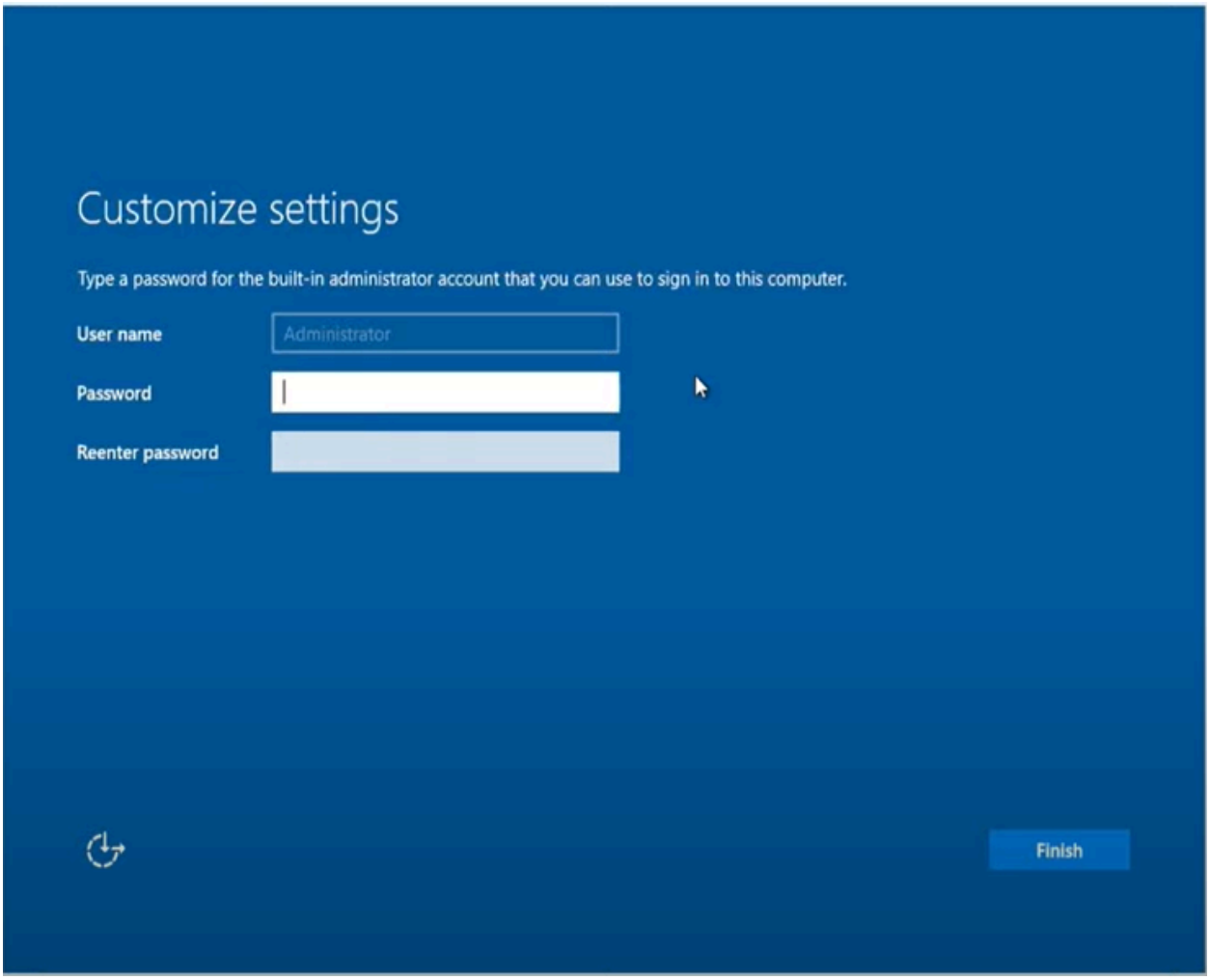
- Memory: 4GBs
- CPU: 1
- Hard Disk: 50Gbs





Please note make sure to choose the Windows Server 2022 Standard Evaluation (Desktop Experience) if you don’t want to work with CLI (Command Line Interface) server


ADDC-Version01 [Running] - Oracle VirtualBox
File Machine View Input Devices Help
Microsoft Server Operating System Setup
Applicable notices and license terms
YOU MUST ACCEPT THE SOFTWARE LICENSE TERMS. SEE BELOW.
Please read the full license terms provided at (aka.ms/useterms).
IMPORTANT NOTICE
Diagnostic and Usage Information. Microsoft collects this information over the Internet to help keep Windows secure and up to date, troubleshoot problems, and make product improvements, and may associate the information with your organization. Microsoft server operating systems can be configured to turn diagnostic data off, send Required diagnostic data, or send Optional diagnostic data. The default setting is to send Required diagnostic data. Required diagnostic data includes information to help keep the device secure, up-to-date, and working as expected.
I accept the Microsoft Software License Terms. If an organization is licensing it, I am authorized to bind the organization.
Next
1 Collecting information
2 Installing Microsoft Server Operating System
Right Ctrl



After it finish installing, create a Administrator password.

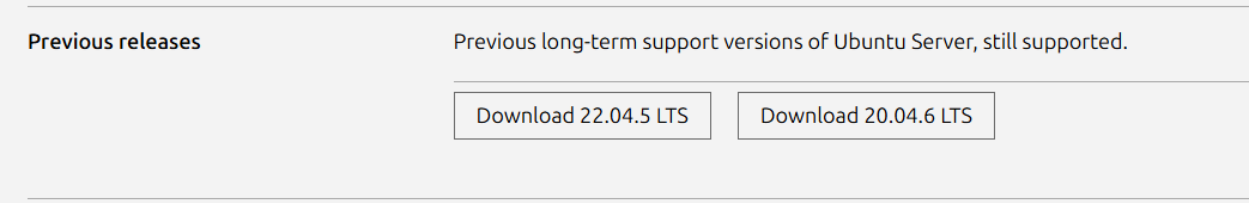
Unlock the screen and enter your password.

Please note in VM sometime you will not be able to do Ctrl - Alt - Del, you can use these input feature on the top of

4. Install Splunk Server

Download Ubuntu Server through this link https://ubuntu.com/download/server#system-requirements-latest to set up Splunk server

For compatible reason we will download any form of Ubuntu 22.04 version (not the latest one)



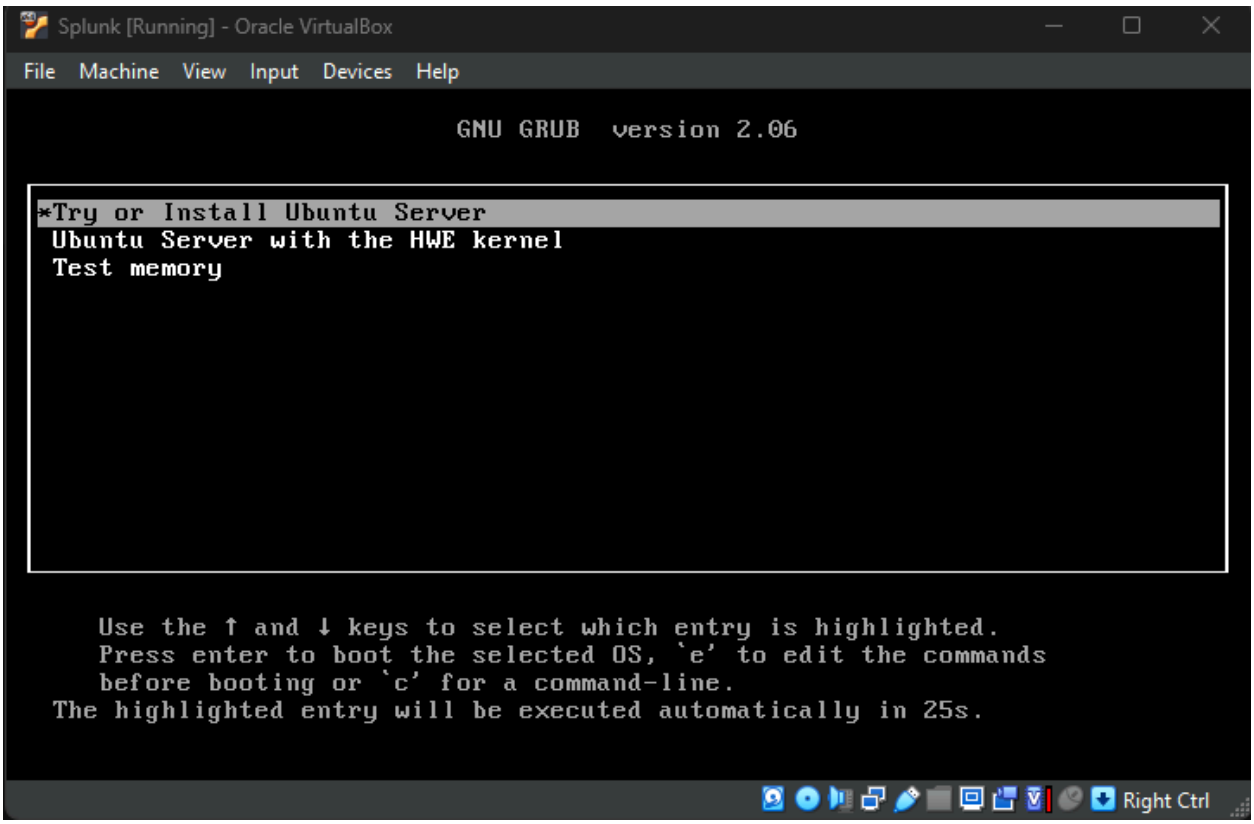
The way to install this to Virtual Box will be the same for Windows 10 and Windows Server 2022 so I won't show fully here.

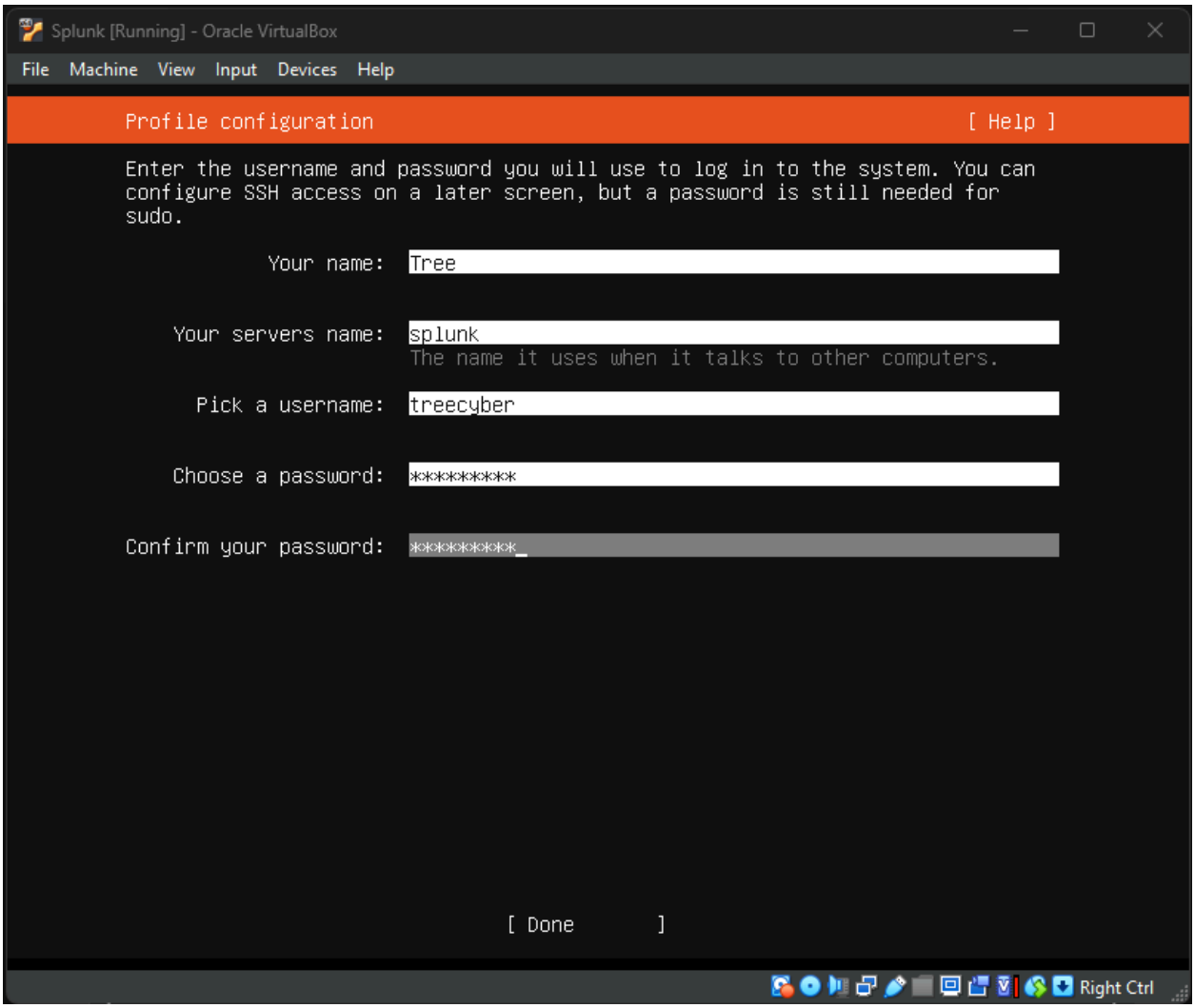
For configure specification, my Windows Server 2022 will have:

- Memory: 8GBs
- CPU: 2
- Hard Disk: 100Gbs

Please note that for Splunk Server, it will going to be ingesting data and running search so the spec will be higher compare to other VM.

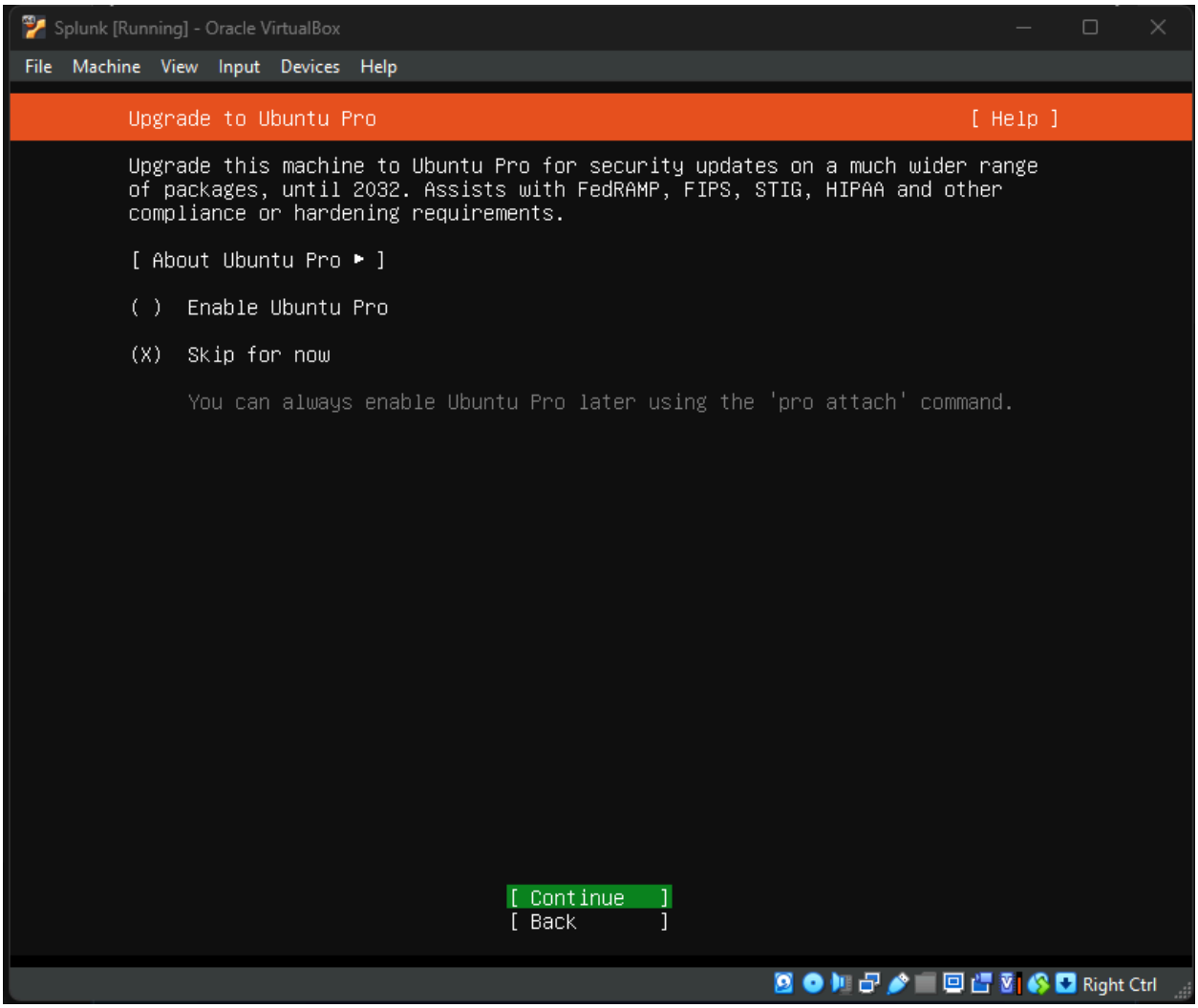
After configuration, let run Ubuntu

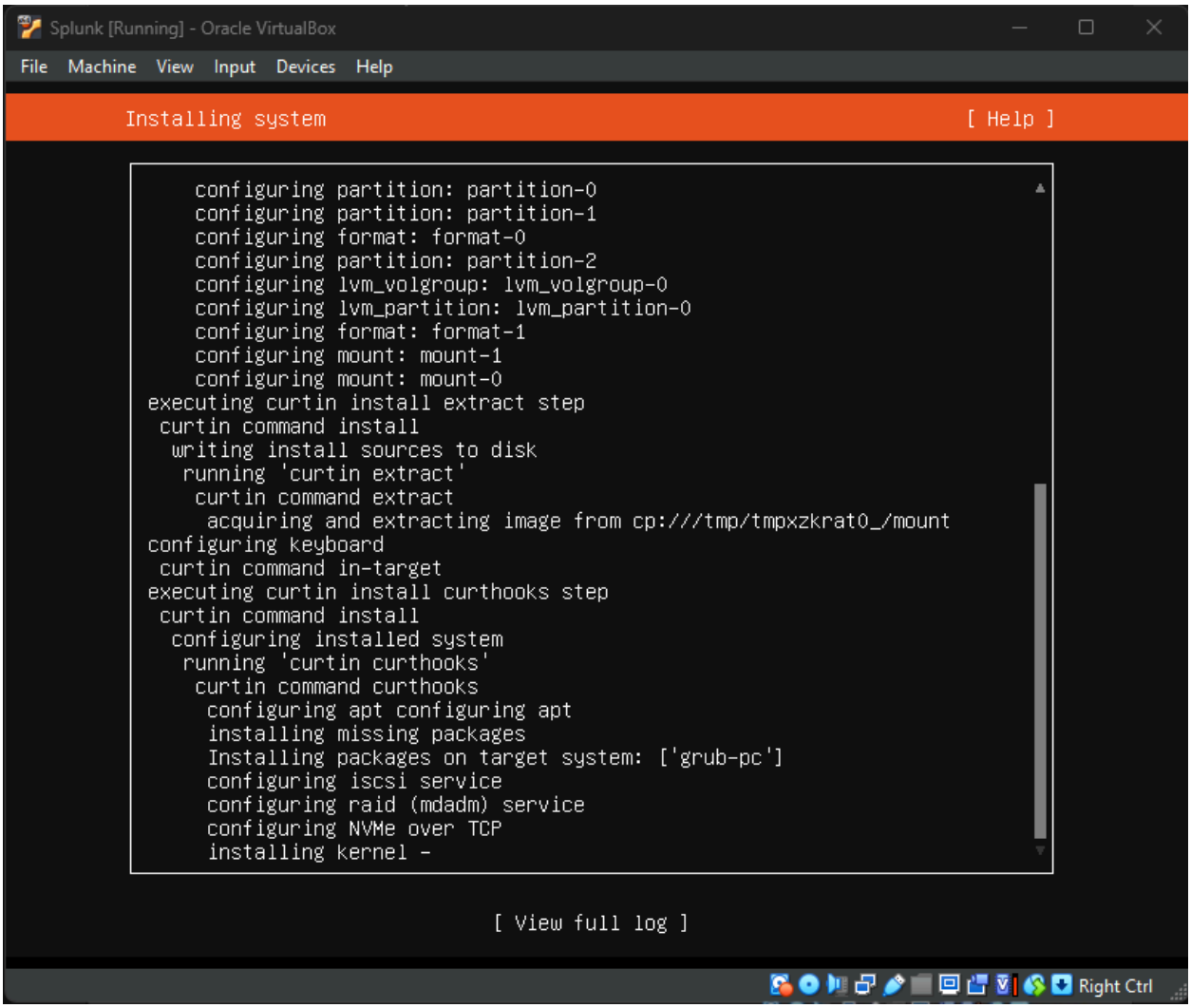


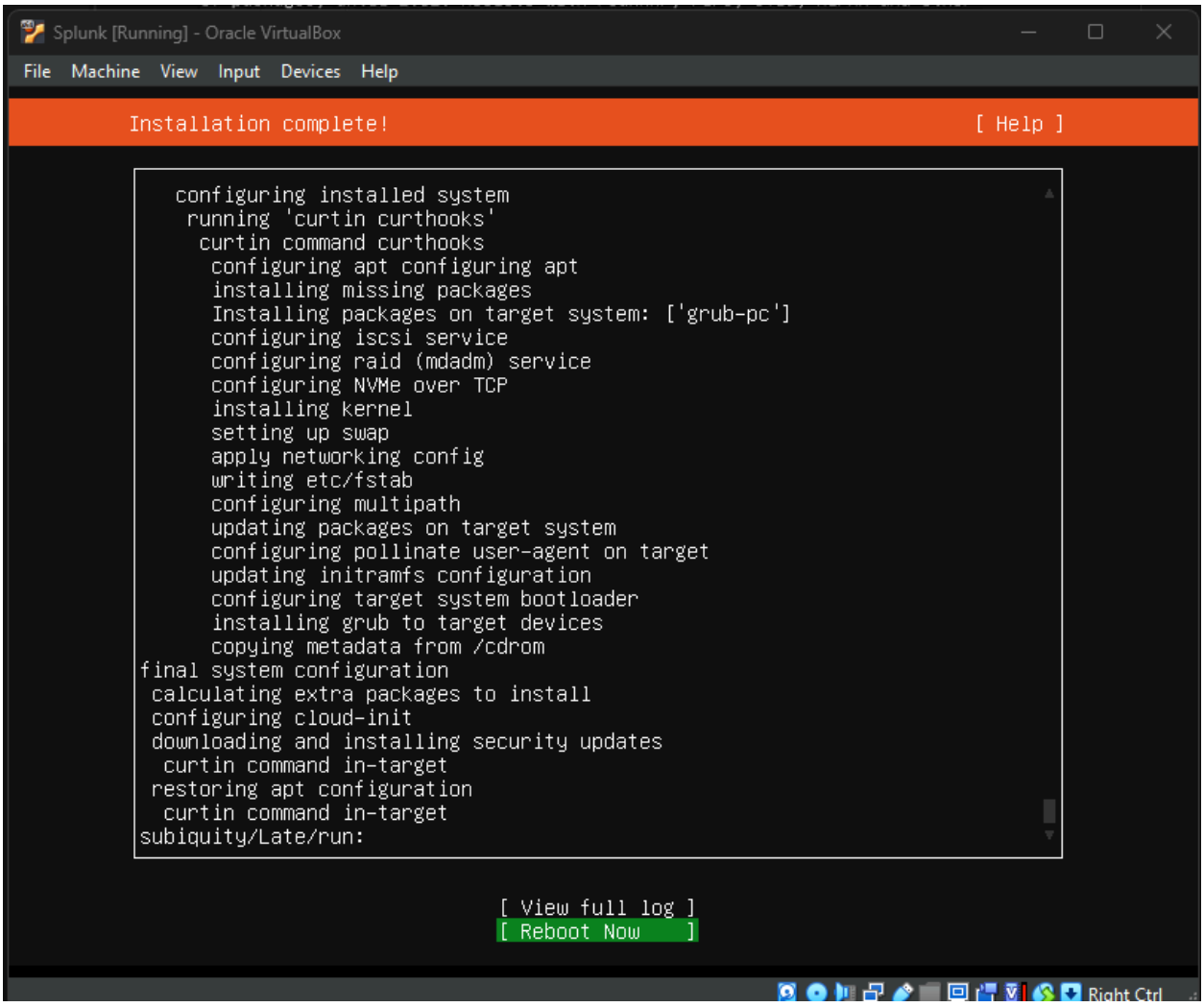


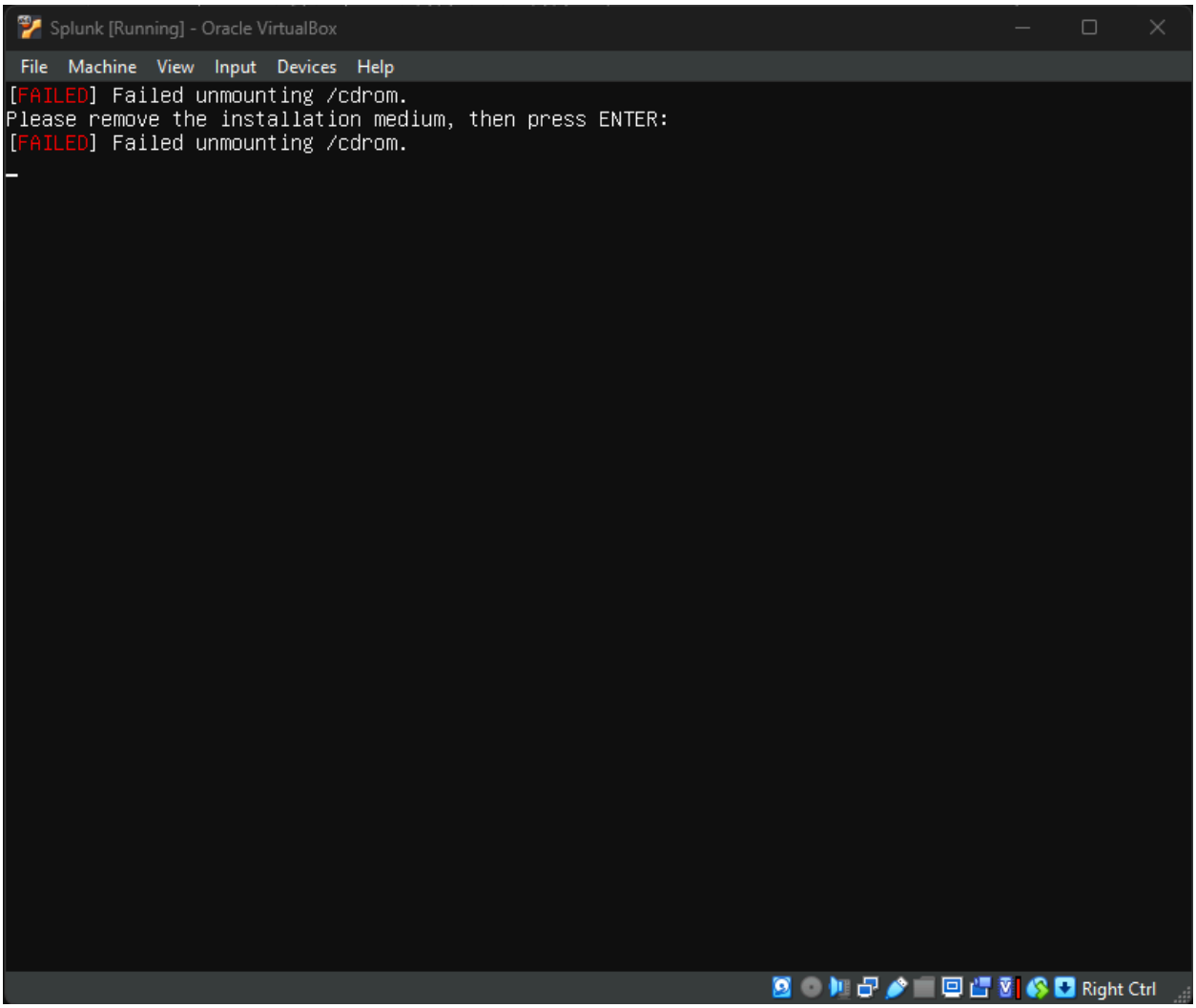
Username: treecyber

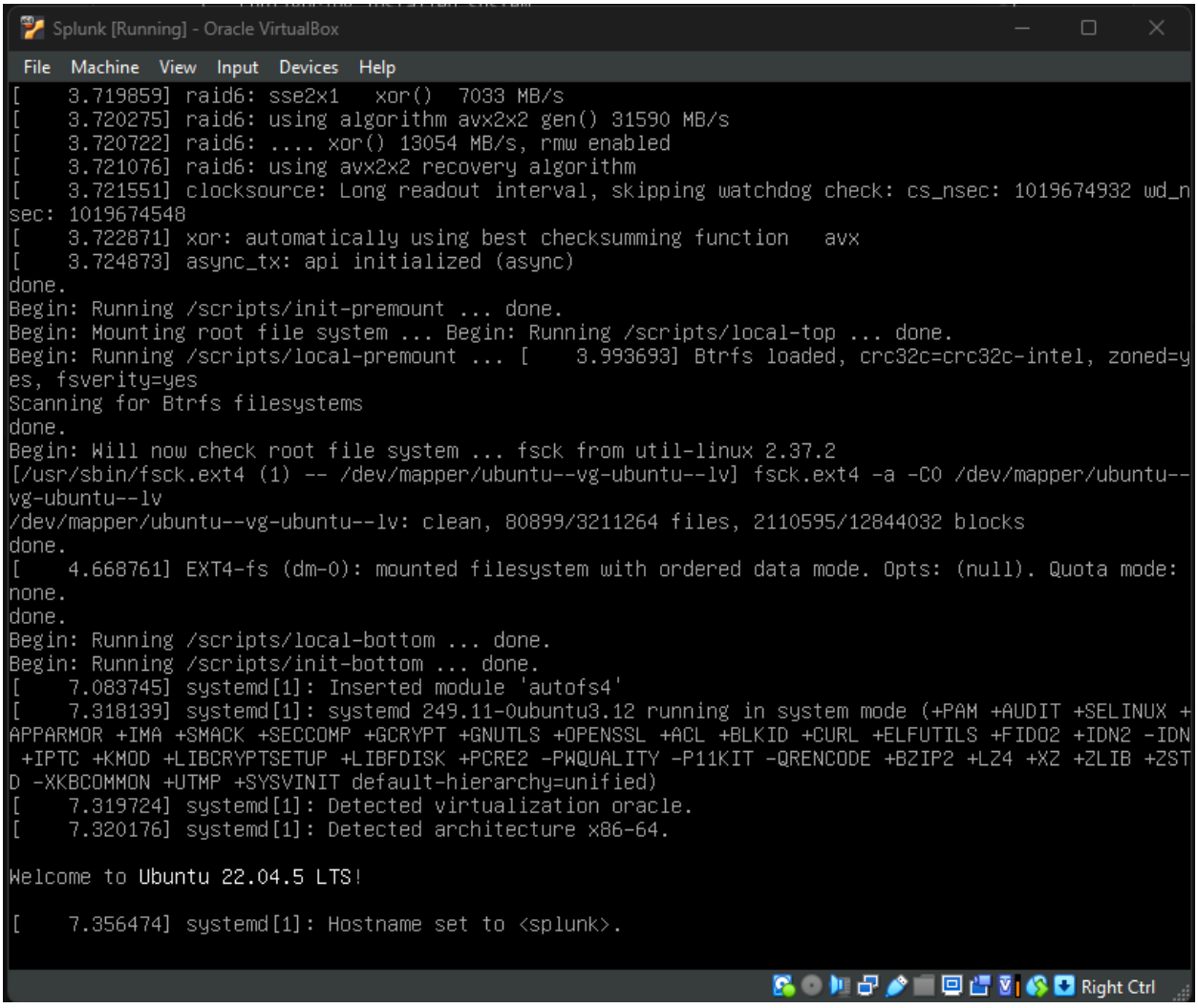
Password: Kim12345$

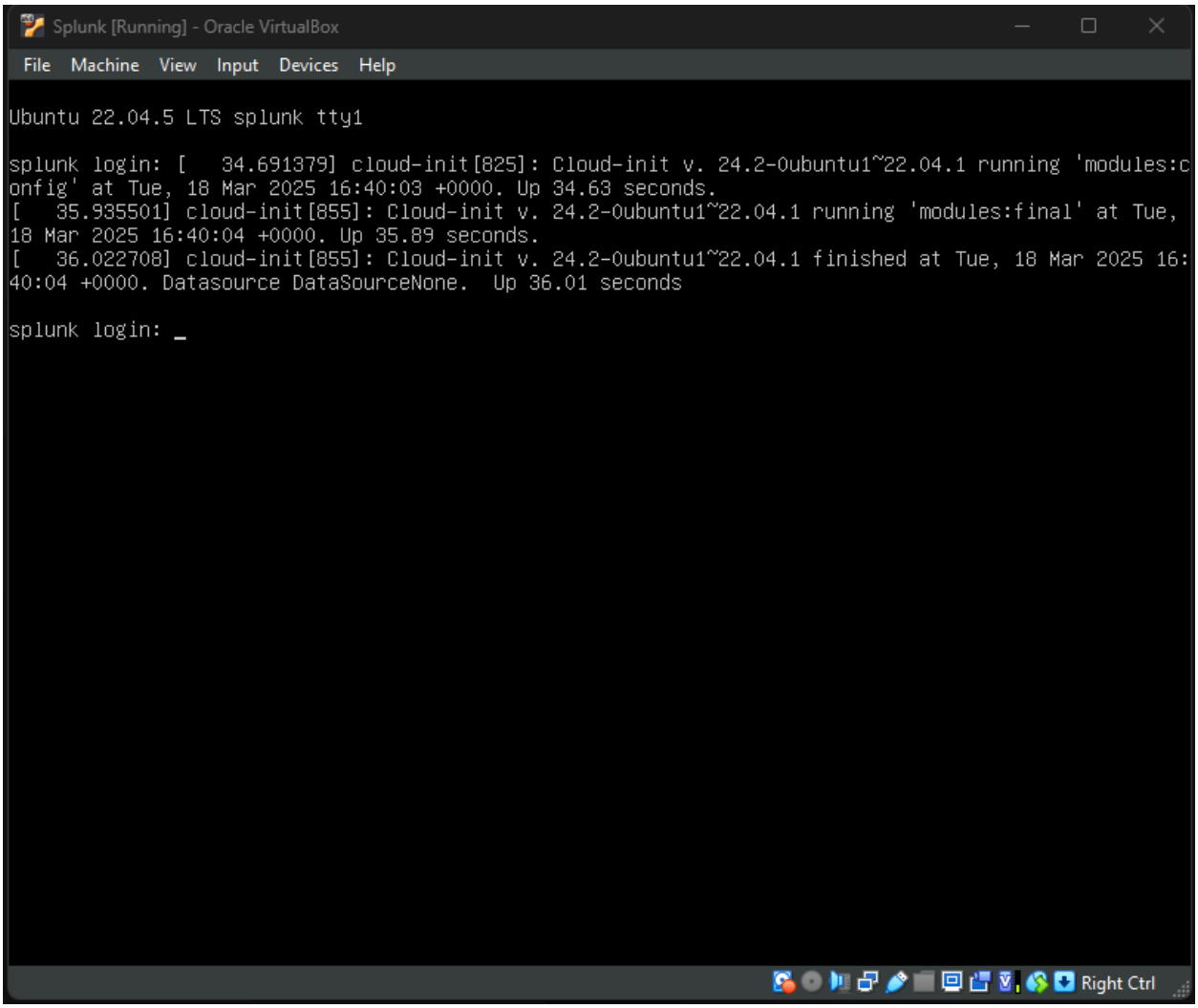

Splunk [Running] - Oracle VirtualBox
File Machine View Input Devices Help
Upgrade to Ubuntu Pro [Help]
Upgrade this machine to Ubuntu Pro for security updates on a much wider range of packages, until 2032. Assists with FedRAMP, FIPS, STIG, HIPAA and other compliance or hardening requirements.
[About Ubuntu Pro ▸]
( ) Enable Ubuntu Pro
(X) Skip for now
You can always enable Ubuntu Pro later using the 'pro attach' command.
[Continue]
[Back]
Right Ctrl

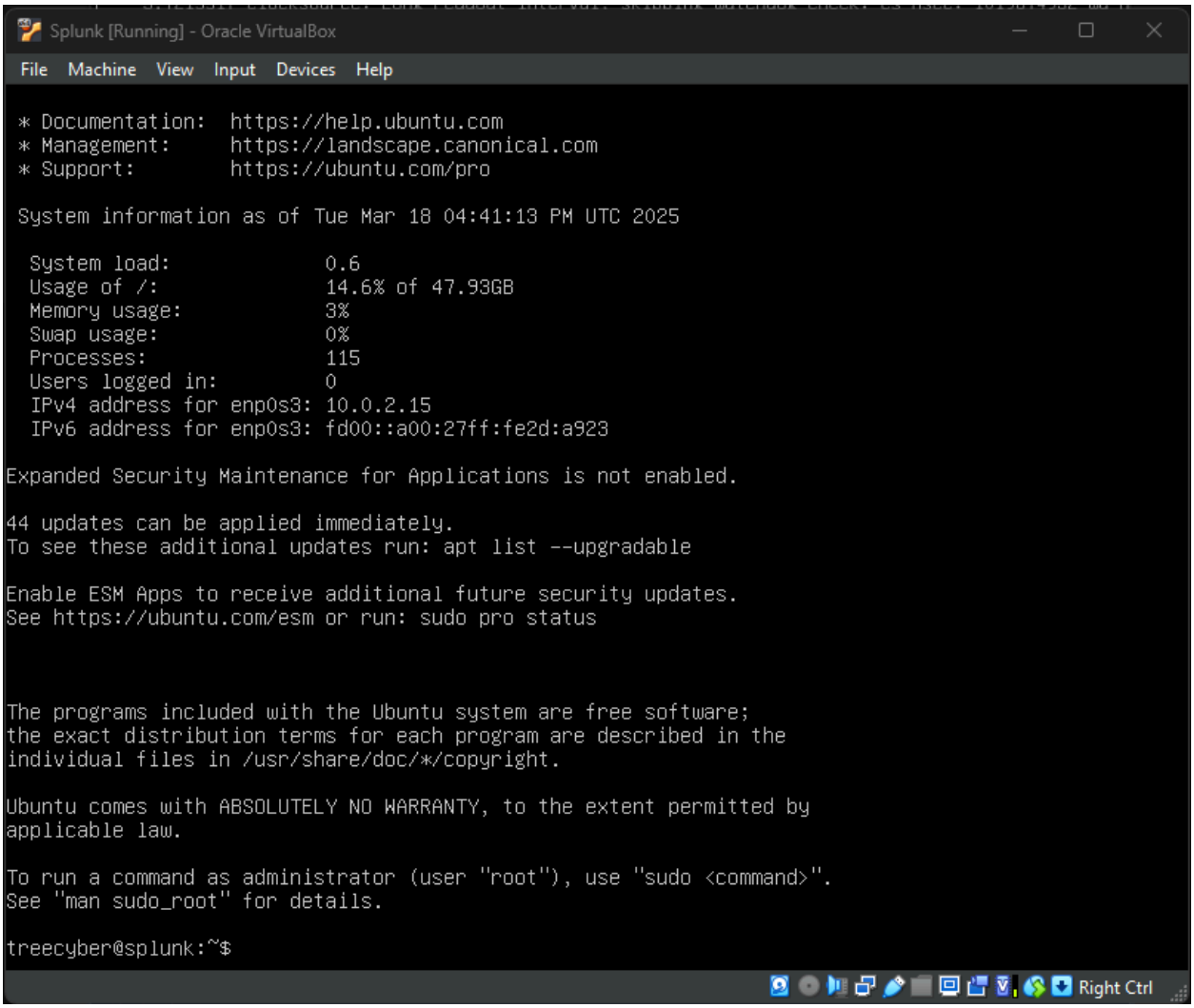

Splunk [Running] - Oracle VirtualBox
File Machine View Input Devices Help
Installing system [Help]
configuring partition: partition-0
configuring partition: partition-1
configuring format: format-0
configuring partition: partition-2
configuring lvm_volgroup: lvm_volgroup-0
configuring lvm_partition: lvm_partition-0
configuring format: format-1
configuring mount: mount-1
configuring mount: mount-0
executing curtin install extract step
curtin command install
writing install sources to disk
running 'curtin extract'
curtin command extract
acquiring and extracting image from cp:///tmp/tmpxzkrat0_/mount
configuring keyboard
curtin command in-target
executing curtin install curthooks step
curtin command install
configuring installed system
running 'curtin curthooks'
curtin command curthooks
configuring apt configuring apt
installing missing packages
Installing packages on target system: ['grub-pc']
configuring iscsi service
configuring raid (mdadm) service
configuring NVMe over TCP
installing kernel -
[View full log]
Right Ctrl


Splunk [Running] - Oracle VirtualBox
File Machine View Input Devices Help
Installation complete!
[Help]
configuring installed system
running 'curtin curthooks'
curtin command curthooks
configuring apt configuring apt
installing missing packages
Installing packages on target system: ['grub-pc']
configuring iscsi service
configuring raid (mdadm) service
configuring NVMe over TCP
installing kernel
setting up swap
apply networking config
writing etc/fstab
configuring multipath
updating packages on target system
configuring pollinate user-agent on target
updating initramfs configuration
configuring target system bootloader
installing grub to target devices
copying metadata from /cdrom
final system configuration
calculating extra packages to install
configuring cloud-init
downloading and installing security updates
curtin command in-target
restoring apt configuration
curtin command in-target
subiquity/Late/run:
[View full log]
[Reboot Now]
Right Ctrl


Splunk [Running] - Oracle VirtualBox
File Machine View Input Devices Help
[FAILED] Failed unmounting /cdrom.
Please remove the installation medium, then press ENTER:
[FAILED] Failed unmounting /cdrom.
Right Ctrl

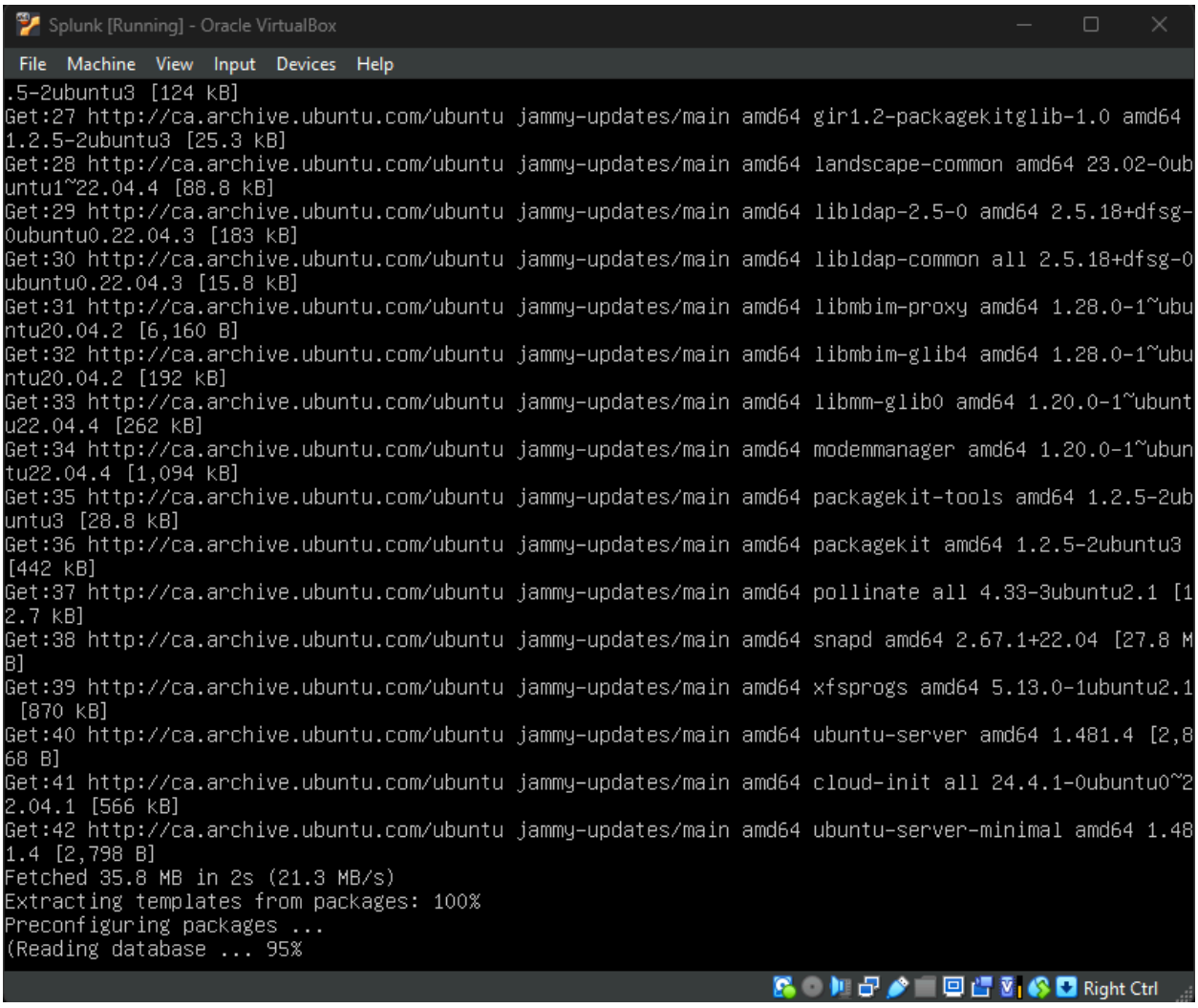

Splunk [Running] - Oracle VirtualBox
File Machine View Input Devices Help
[3.719859] raid6: sse2x1 xor() 7033 MB/s
[3.720275] raid6: using algorithm avx2x2 gen() 31590 MB/s
[3.720722] raid6: .... xor() 13054 MB/s, rmw enabled
[3.721076] raid6: using avx2x2 recovery algorithm
[3.721551] clocksource: Long readout interval, skipping watchdog check: cs_nsec: 1019674932 wd_nsec: 1019674548
[3.722871] xor: automatically using best checksumming function avx
[3.724873] async_tx: api initialized (async)
done.
Begin: Running /scripts/init-premount ... done.
Begin: Mounting root file system ... Begin: Running /scripts/local-top ... done.
Begin: Running /scripts/local-premount ... [3.993693] Btrfs loaded, crc32c=crc32c-intel, zoned=yes, fsverity=yes
Scanning for Btrfs filesystems
done.
Begin: Will now check root file system ... fsck from util-linux 2.37.2
[/usr/sbin/fsck.ext4 (1) -- /dev/mapper/ubuntu--vg-ubuntu--lv] fsck.ext4 -a -C0 /dev/mapper/ubuntu--vg-ubuntu--lv
/dev/mapper/ubuntu--vg-ubuntu--lv: clean, 80899/3211264 files, 2110595/12844032 blocks
done.
[4.668761] EXT4-fs (dm-0): mounted filesystem with ordered data mode. Opts: (null). Quota mode: none.
done.
Begin: Running /scripts/local-bottom ... done.
Begin: Running /scripts/init-bottom ... done.
[7.083745] systemd[1]: Inserted module 'autofs4'
[7.318139] systemd[1]: systemd 249.11-0ubuntu3.12 running in system mode (+PAM +AUDIT +SELINUX +APPARMOR +IMA +SMACK +SECCOMP +GCRYPT +GNUTLS +OPENSSL +ACL +BLKID +CURL +ELFUTILS +FIDO2 +IDN2 -IDN +IPTC +KMOD +LIBCRYPTSETUP +LIBFDISK +PCRE2 -PWQUALITY -P11KIT -QRENCODE +BZIP2 +LZ4 +XZ +ZLIB +ZSTD -XKBCOMMON +UTMP +SYSVINIT default-hierarchy=unified)
[7.319724] systemd[1]: Detected virtualization oracle.
[7.320176] systemd[1]: Detected architecture x86-64.
Welcome to Ubuntu 22.04.5 LTS!
[7.356474] systemd[1]: Hostname set to <splunk>.
Right Ctrl

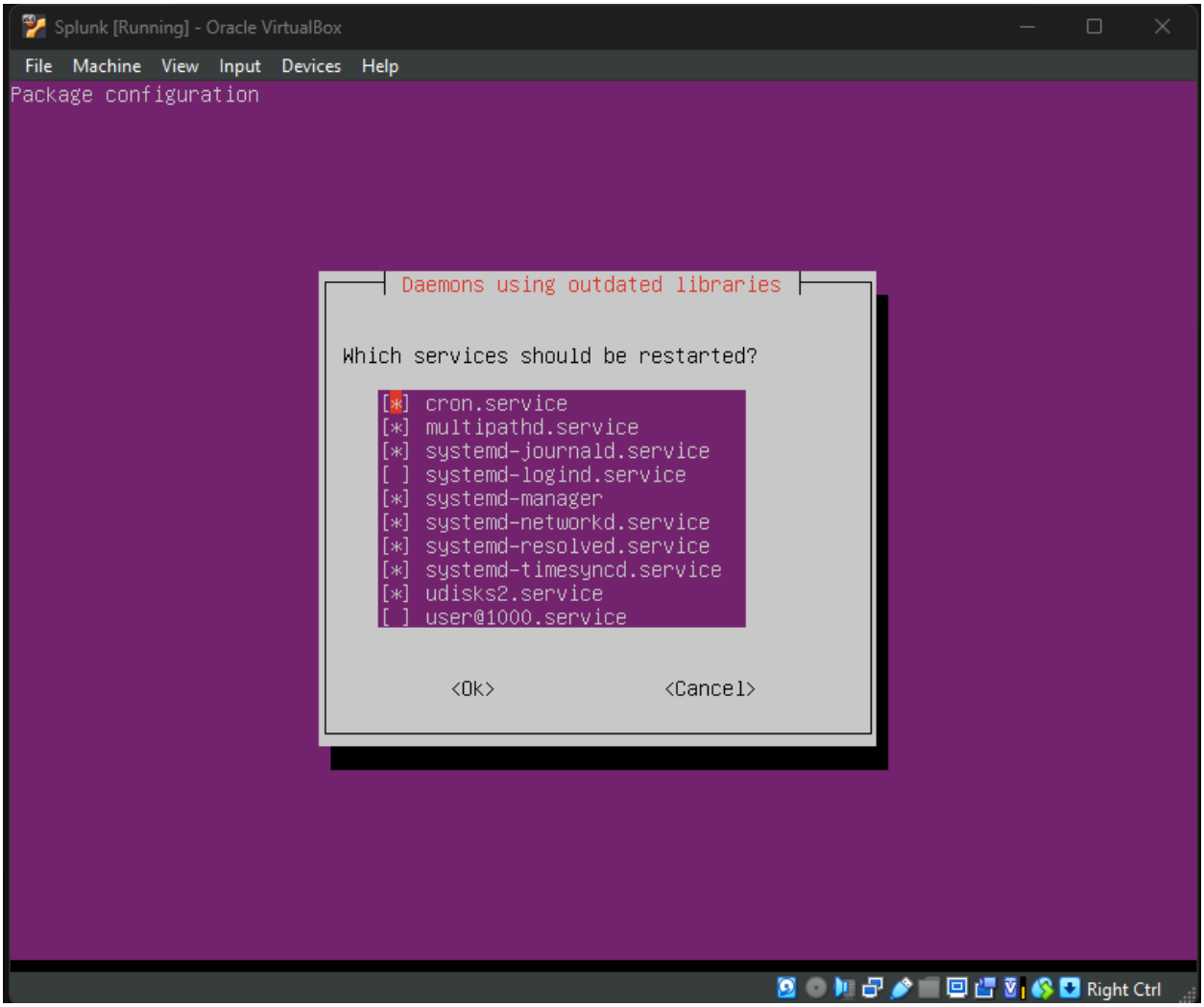

Splunk [Running] - Oracle VirtualBox
File Machine View Input Devices Help
Ubuntu 22.04.5 LTS splunk tty1
splunk login: [34.691379] cloud-init[825]: Cloud-init v. 24.2-0ubuntu1~22.04.1 running 'modules:config' at Tue, 18 Mar 2025 16:40:03 +0000. Up 34.63 seconds.
[35.935501] cloud-init[855]: Cloud-init v. 24.2-0ubuntu1~22.04.1 running 'modules:final' at Tue, 18 Mar 2025 16:40:04 +0000. Up 35.89 seconds.
[36.022708] cloud-init[855]: Cloud-init v. 24.2-0ubuntu1~22.04.1 finished at Tue, 18 Mar 2025 16:40:04 +0000. Datasource DataSourceNone. Up 36.01 seconds
splunk login: _
Right Ctrl



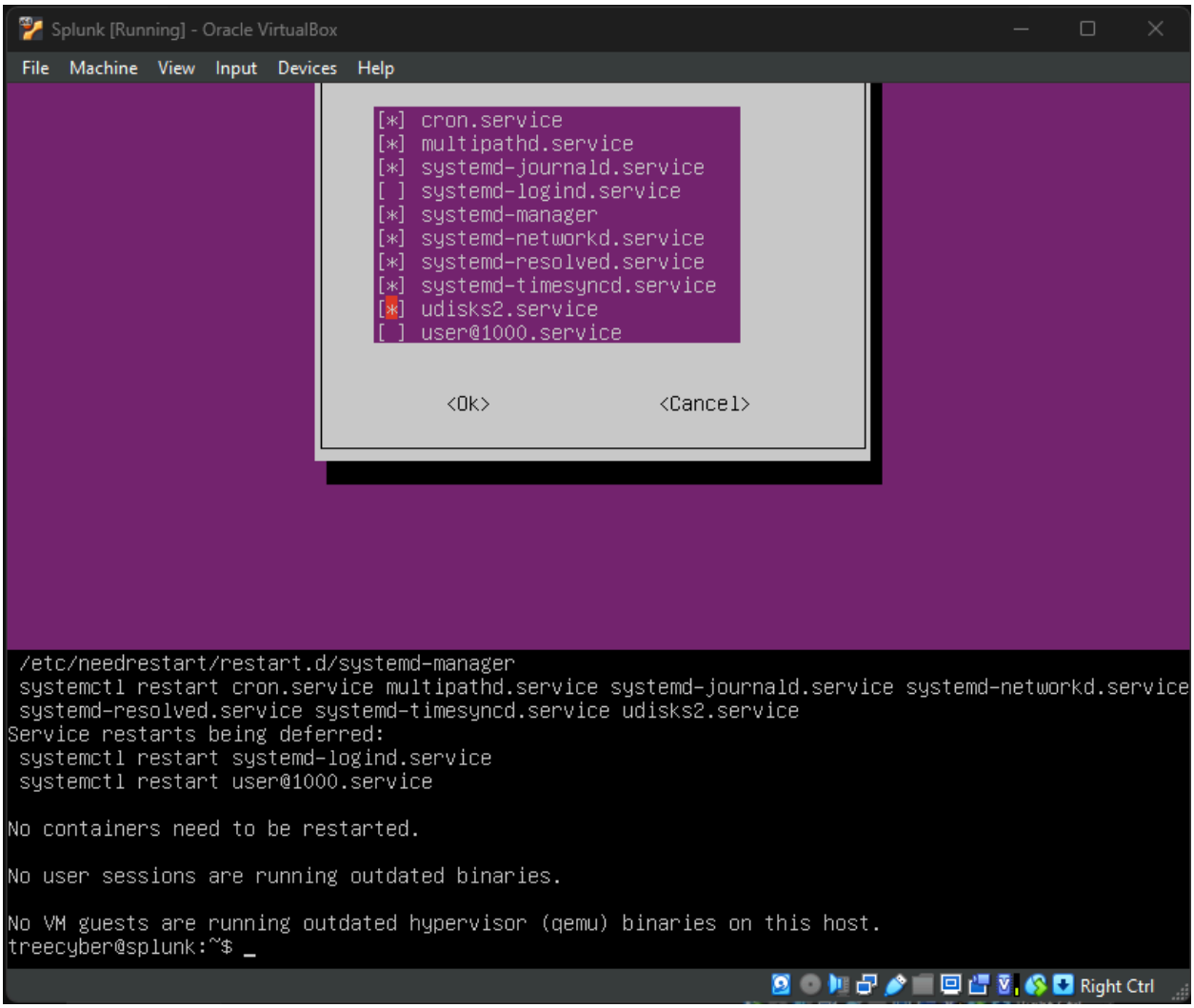
Enter: `sudo apt-get update && sudo apt-get upgrade -y`

This will allow the machine to update and upgrade all of our repository.


Splunk [Running] - Oracle VirtualBox
File Machine View Input Devices Help
.5-2ubuntu3 [124 kB]
Get:27 http://ca.archive.ubuntu.com/ubuntu jammy-updates/main amd64 gir1.2-packagekitglib-1.0 amd64 1.2.5-2ubuntu3 [25.3 kB]
Get:28 http://ca.archive.ubuntu.com/ubuntu jammy-updates/main amd64 landscape-common amd64 23.02-0ubuntu1~22.04.4 [88.8 kB]
Get:29 http://ca.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libldap-2.5-0 amd64 2.5.18+dfsg-0ubuntu0.22.04.3 [183 kB]
Get:30 http://ca.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libldap-common all 2.5.18+dfsg-0ubuntu0.22.04.3 [15.8 kB]
Get:31 http://ca.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libmbim-proxy amd64 1.28.0-1~ubuntu20.04.2 [6,160 B]
Get:32 http://ca.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libmbim-glib4 amd64 1.28.0-1~ubuntu20.04.2 [192 kB]
Get:33 http://ca.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libmm-glib0 amd64 1.20.0-1~ubuntu22.04.4 [262 kB]
Get:34 http://ca.archive.ubuntu.com/ubuntu jammy-updates/main amd64 modemmanager amd64 1.20.0-1~ubuntu22.04.4 [1,094 kB]
Get:35 http://ca.archive.ubuntu.com/ubuntu jammy-updates/main amd64 packagekit-tools amd64 1.2.5-2ubuntu3 [28.8 kB]
Get:36 http://ca.archive.ubuntu.com/ubuntu jammy-updates/main amd64 packagekit amd64 1.2.5-2ubuntu3 [442 kB]
Get:37 http://ca.archive.ubuntu.com/ubuntu jammy-updates/main amd64 pollinate all 4.33-3ubuntu2.1 [12.7 kB]
Get:38 http://ca.archive.ubuntu.com/ubuntu jammy-updates/main amd64 snapd amd64 2.67.1+22.04 [27.8 MB]
Get:39 http://ca.archive.ubuntu.com/ubuntu jammy-updates/main amd64 xfsprogs amd64 5.13.0-1ubuntu2.1 [870 kB]
Get:40 http://ca.archive.ubuntu.com/ubuntu jammy-updates/main amd64 ubuntu-server amd64 1.481.4 [2,868 B]
Get:41 http://ca.archive.ubuntu.com/ubuntu jammy-updates/main amd64 cloud-init all 24.4.1-0ubuntu0~22.04.1 [566 kB]
Get:42 http://ca.archive.ubuntu.com/ubuntu jammy-updates/main amd64 ubuntu-server-minimal amd64 1.481.4 [2,798 B]
Fetched 35.8 MB in 2s (21.3 MB/s)
Extracting templates from packages: 100%
Preconfiguring packages ...
(Reading database ... 95%
Right Ctrl


Splunk [Running] - Oracle VirtualBox
File Machine View Input Devices Help
Package configuration
Daemons using outdated libraries
Which services should be restarted?
[*] cron.service
[*] multipathd.service
[*] systemd-journald.service
[ ] systemd-logind.service
[*] systemd-manager
[*] systemd-networkd.service
[*] systemd-resolved.service
[*] systemd-timesyncd.service
[*] udisks2.service
[ ] user@1000.service
<Ok>
<Cancel>
Right Ctrl

Hit enter



Splunk Server is good to go!