

OPERATING SYSTEM INSTALLATION **(VIRTUAL MACHINES) REPORT**

Course: Operating Systems

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System Information

Name of my laptop: **Toshiba Satellite E45W – C**

Operating System: **Windows 10 Pro**

Computer Physical Resources

CPU: **Intel64 family 2.10 GHz** RAM: **6 GB** DISK Storage: **256 GB**

```
Select Windows PowerShell
PS C:\Users\Eurlie> systeminfo

Host Name:                DESKTOP-46D5GTO
OS Name:                  Microsoft Windows 10 Pro
OS Version:               10.0.19044 N/A Build 19044
OS Manufacturer:         Microsoft Corporation
OS Configuration:        Standalone Workstation
OS Build Type:             Multiprocessor Free
Registered Owner:         Eurlie
Registered Organization:
Product ID:                00330-80000-00000-AA788
Original Install Date:     6/25/2022, 1:27:08 AM
System Boot Time:          7/8/2022, 2:28:41 PM
System Manufacturer:       TOSHIBA
System Model:              Satellite E45W-C
System Type:               x64-based PC
Processor(s):              1 Processor(s) Installed.
                           [01]: Intel64 Family 6 Model 61 Stepping 4 GenuineIntel ~2100 Mhz
BIOS Version:              INSYDE Corp. 5.00, 7/1/2015
Windows Directory:         C:\Windows
System Directory:          C:\Windows\system32
Boot Device:               \Device\HarddiskVolume1
System Locale:              en-us;English (United States)
Input Locale:              en-us;English (United States)
Time Zone:                 (UTC+00:00) Monrovia, Reykjavik
Total Physical Memory:     6,058 MB
Available Physical Memory: 862 MB
Virtual Memory: Max Size:  7,761 MB
Virtual Memory: Available: 1,231 MB
Virtual Memory: In Use:    6,530 MB
Page File Location(s):     C:\pagefile.sys
Domain:                    WORKGROUP
Logon Server:              \\DESKTOP-46D5GTO
Hotfix(s):                 6 Hotfix(s) Installed.
                           [01]: KB5013887
                           [02]: KB5003791
                           [03]: KB5007401
                           [04]: KB5014699
                           [05]: KB5007273
                           [06]: KB5014035
Network Card(s):           2 NIC(s) Installed.
                           [01]: Intel(R) Dual Band Wireless-AC 3160
                               Connection Name: Wi-Fi 2
                               Status:          Media disconnected
                           [02]: VirtualBox Host-Only Ethernet Adapter
                               Connection Name: VirtualBox Host-Only Network
                               DHCP Enabled:     No
                               IP address(es)
                               [01]: 192.168.56.1
                               [02]: fe80::994c:4fa5:7250:6a9d
Hyper-V Requirements:      VM Monitor Mode Extensions: Yes
```

Description

My laptop runs the Microsoft Windows 10 Pro operating system which I originally installed on 25th June 2022 01:27 am.

I made my system a dual boot operating system i.e. I run two different operating systems on my laptop, Windows 10 Pro and Ubuntu 22.04 LTS.

Details:

Operating Systems	Disk Storage Capacity
Windows 10 Pro	200 GB
Ubuntu 22.04 LTS	56 GB

With the dual boot operating system, the two operating systems have access to the entire memory (in my case, 6 GB) however, Windows 10 Pro has access to 200 GB of the Disk Storage with NTFS file system and Ubuntu 22.04 LTS has access to only 56 GB of the Disk Storage with ext4 Journals file system.

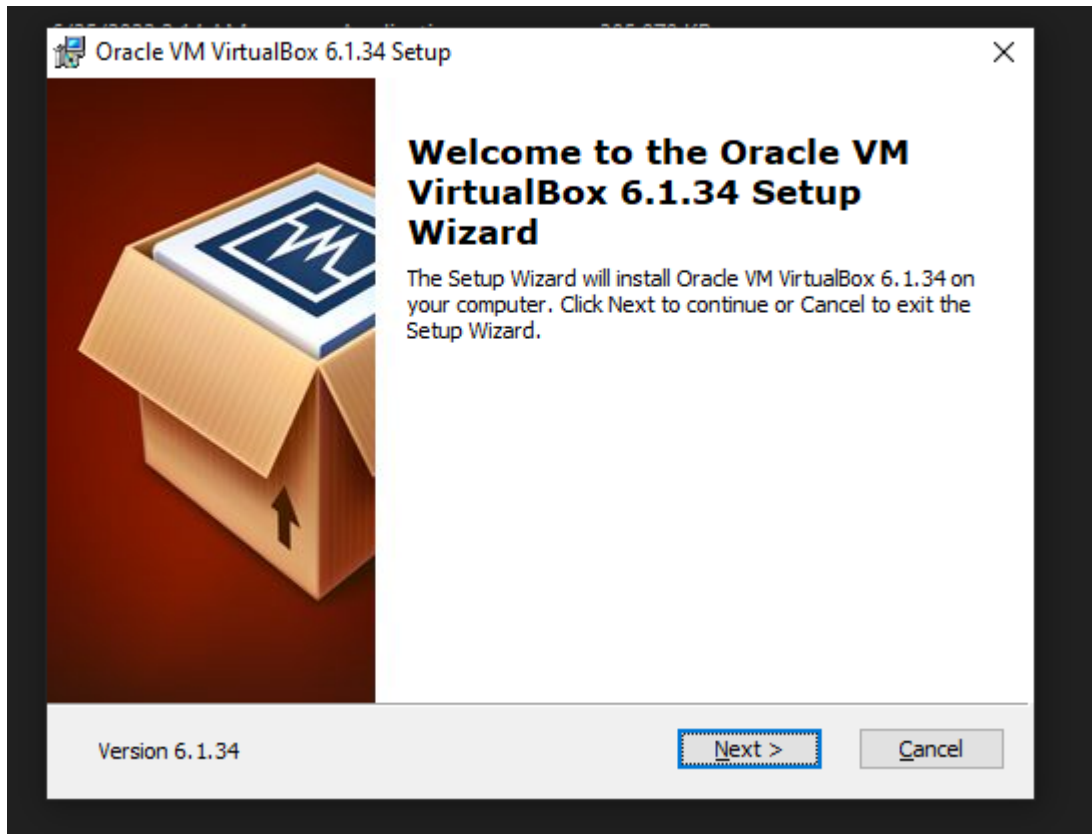
Any other system resource is available to each operating system.

One disadvantage of the dual boot as compared to the Virtual Machine is, the two operating system cannot run concurrently.

Virtual Machines

Virtual Machine on Windows 10 Pro

I used **Oracle VirtualBox** to create two VMs. On these virtual machines, the system runs Windows 11 and Ubuntu Linux Distro.



I installed Oracle VirtualBox.

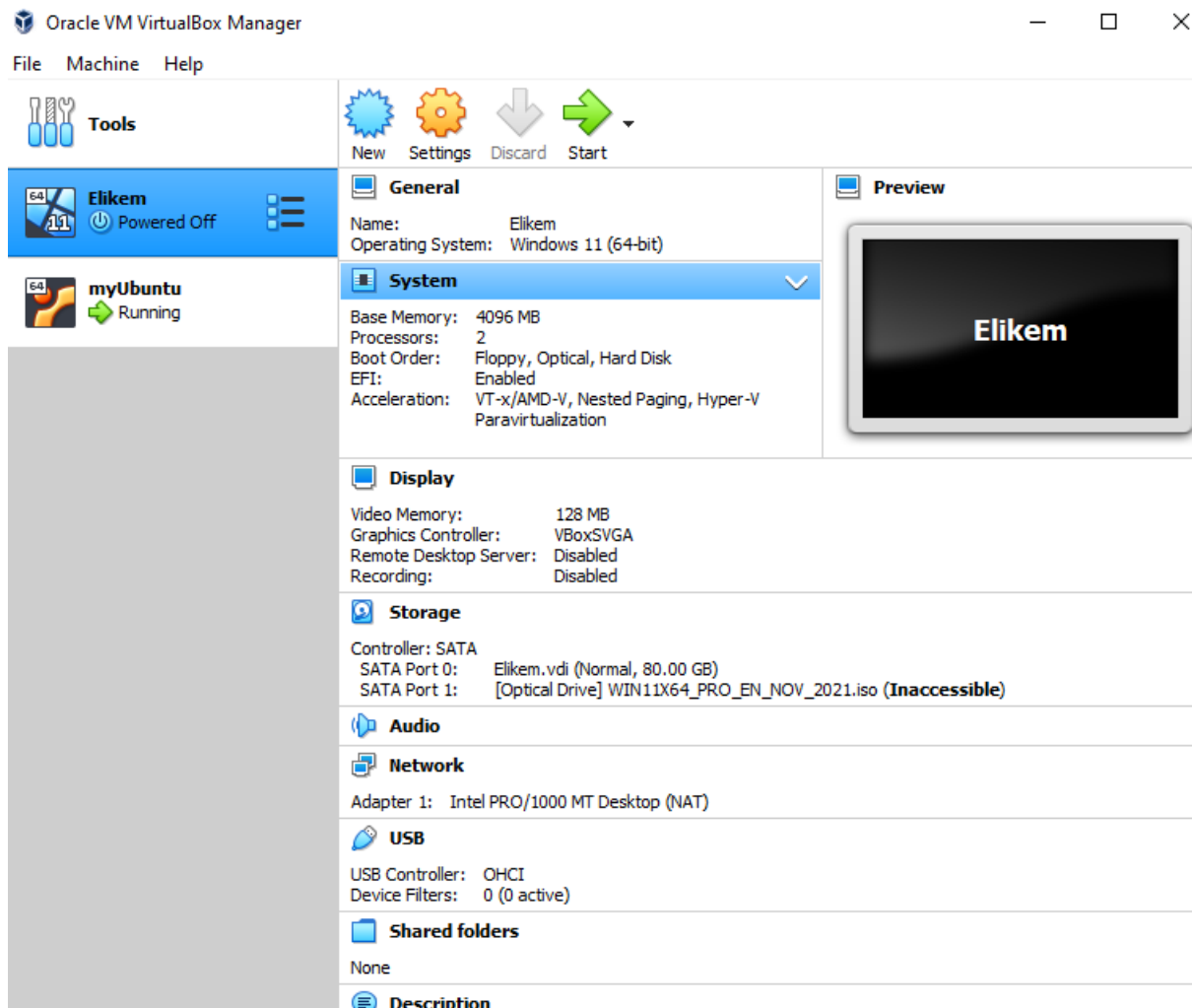
Windows 11 installation and resource allocation

Virtual Windows 11

Name of the machine: **Elikem**

RAM size: **4096 MB**

Disk storage capacity: **80 GB**

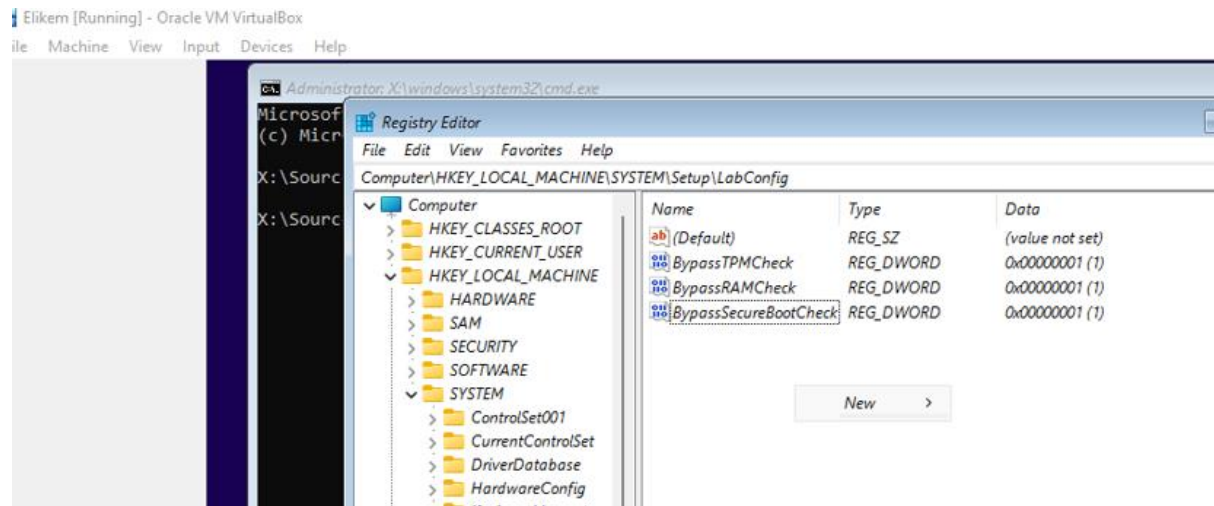


Windows 11 installation process

During the installation, my laptop doesn't meet **Windows 11 system requirements** so entered the system's registry and made changes in order to bypass the system requirement check

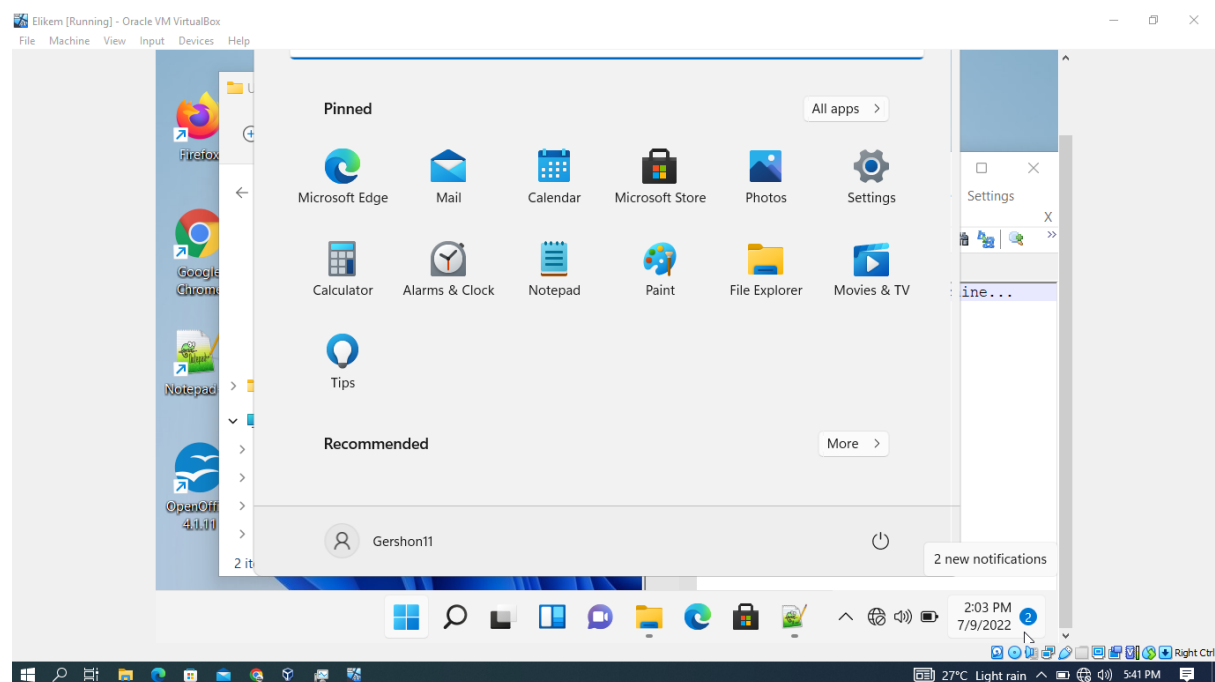
This PC can't run Windows 11

This PC doesn't meet the minimum system requirements to install this version of Windows. For more information, visit <https://aka.ms/WindowsSysReq>



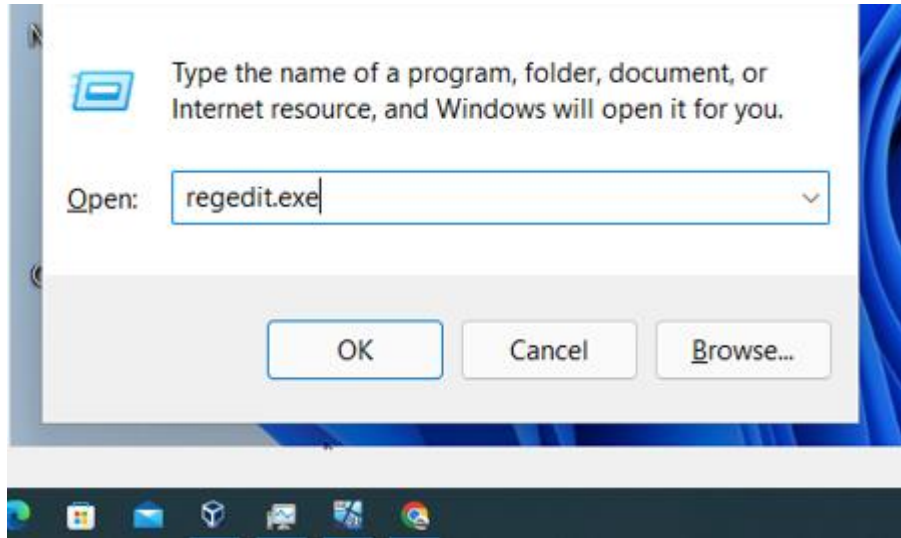
This figure shows the System registry editor and changes I made.

Welcome to the Windows 11 VM

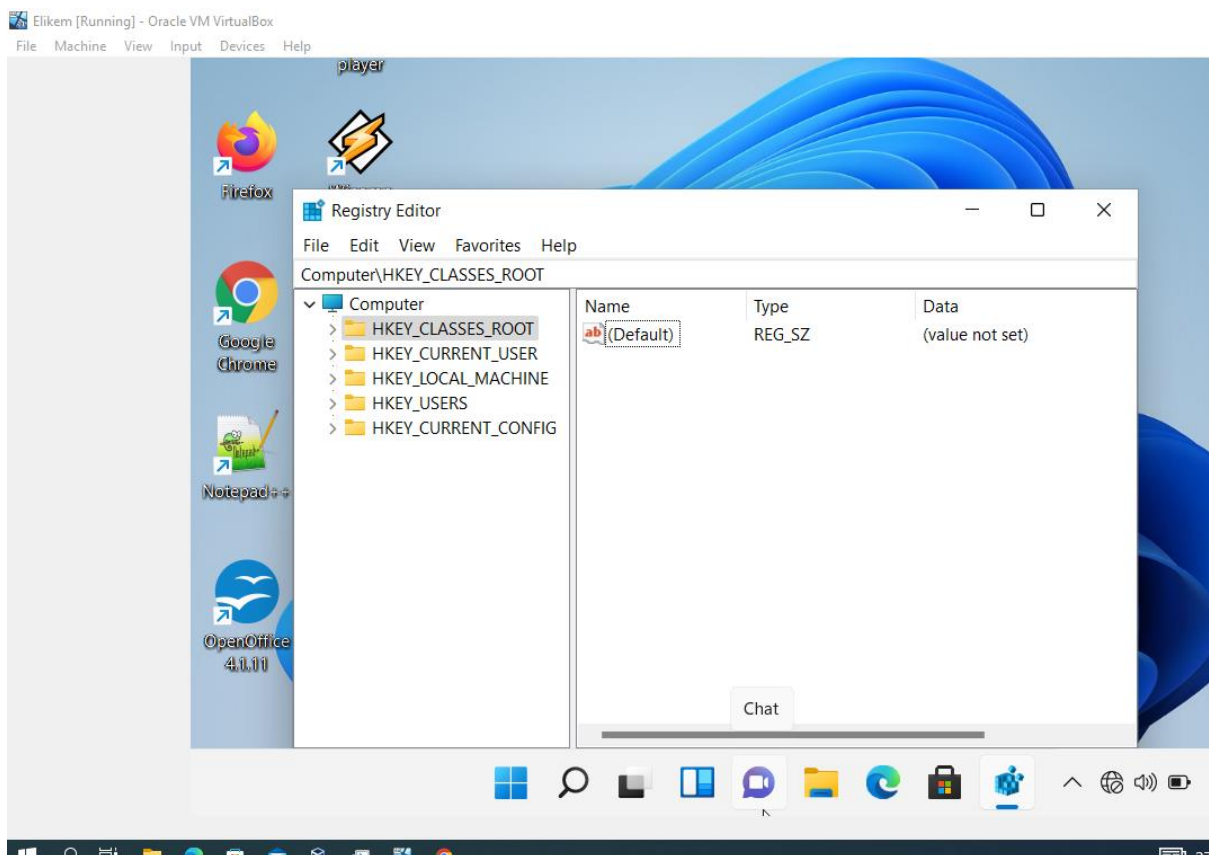


Registry editor on Windows 11.

Windows Key + R, type regedit.exe.
And then press Enter.

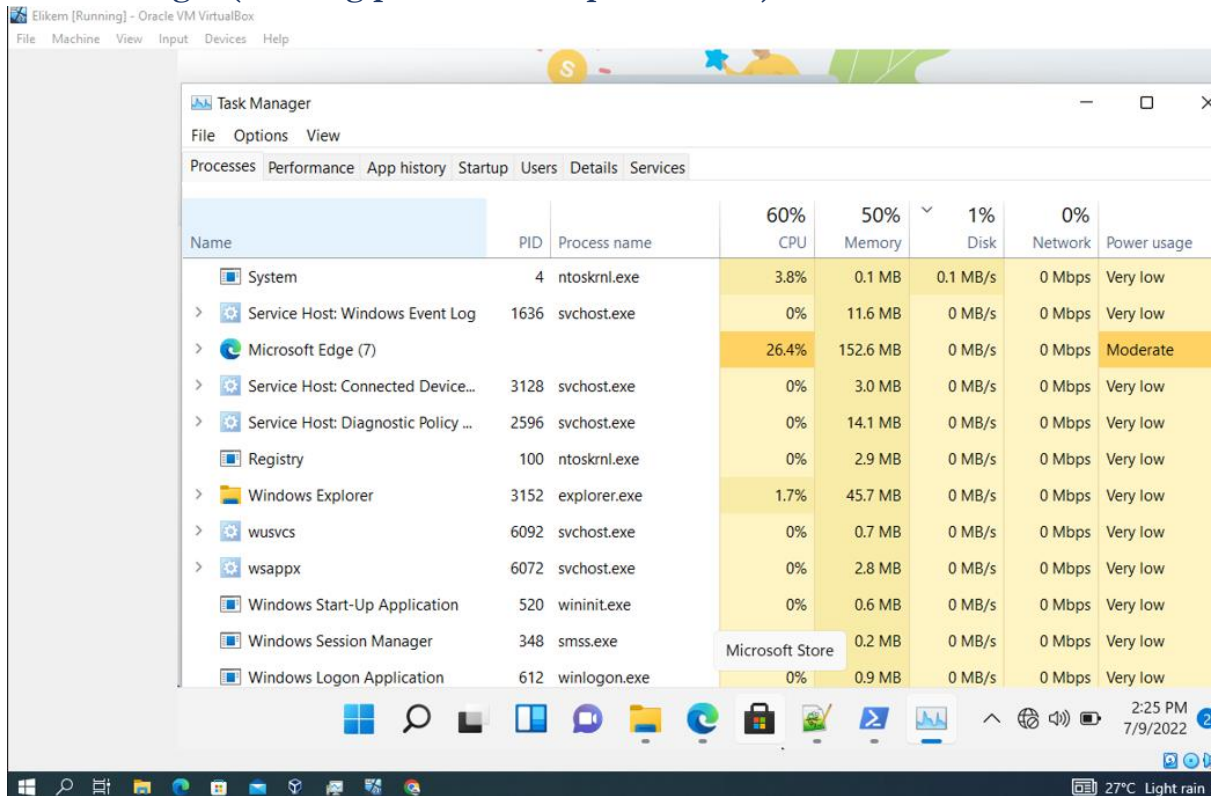


Here comes the Registry editor



This figure shows the registry editor of the Windows 11 Pro running in the VM

Task Manager (showing processes and process IDs)



The screenshot shows the Windows Task Manager application running within an Oracle VM VirtualBox environment. The 'Processes' tab is selected, displaying a list of running processes with columns for Name, PID, Process name, CPU usage, Memory usage, Disk usage, Network usage, and Power usage. The processes are sorted by CPU usage, with Microsoft Edge (7) showing the highest usage at 26.4%.

Name	PID	Process name	CPU	Memory	Disk	Network	Power usage
System	4	ntoskrnl.exe	3.8%	0.1 MB	0.1 MB/s	0 Mbps	Very low
> Service Host: Windows Event Log	1636	svchost.exe	0%	11.6 MB	0 MB/s	0 Mbps	Very low
> Microsoft Edge (7)			26.4%	152.6 MB	0 MB/s	0 Mbps	Moderate
> Service Host: Connected Device...	3128	svchost.exe	0%	3.0 MB	0 MB/s	0 Mbps	Very low
> Service Host: Diagnostic Policy ...	2596	svchost.exe	0%	14.1 MB	0 MB/s	0 Mbps	Very low
Registry	100	ntoskrnl.exe	0%	2.9 MB	0 MB/s	0 Mbps	Very low
> Windows Explorer	3152	explorer.exe	1.7%	45.7 MB	0 MB/s	0 Mbps	Very low
> wusvcs	6092	svchost.exe	0%	0.7 MB	0 MB/s	0 Mbps	Very low
> wsappx	6072	svchost.exe	0%	2.8 MB	0 MB/s	0 Mbps	Very low
Windows Start-Up Application	520	wininit.exe	0%	0.6 MB	0 MB/s	0 Mbps	Very low
Windows Session Manager	348	smss.exe	0%	0.2 MB	0 MB/s	0 Mbps	Very low
Windows Logon Application	612	winlogon.exe	0%	0.9 MB	0 MB/s	0 Mbps	Very low

The following figure shows Processes, Process IDs (PIDs) etc

Ubuntu 22.04 LTS installation and resource allocation

Virtual Ubuntu 22.04 LTS

Name of the machine: **myUbuntu**

RAM size: **2031 MB**

Disk storage capacity: **15.34 GB**

Oracle VM VirtualBox Manager

Machine Help

Tools

New Settings Discard Start

Elitem Powered Off

myUbuntu Powered Off

General

Name: myUbuntu
Operating System: Ubuntu (64-bit)

System

Base Memory: 2031 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, KVM Paravirtualization

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Controller: IDE
IDE Secondary Device 0: [Optical Drive] Empty
Controller: SATA
SATA Port 0: myUbuntu.vdi (Normal, 15.34 GB)

Audio

Network

Adapter 1: Intel PRO/1000 MT Desktop (NAT)

USB

USB Controller: OHCI
Device Filters: 0 (0 active)

Shared folders

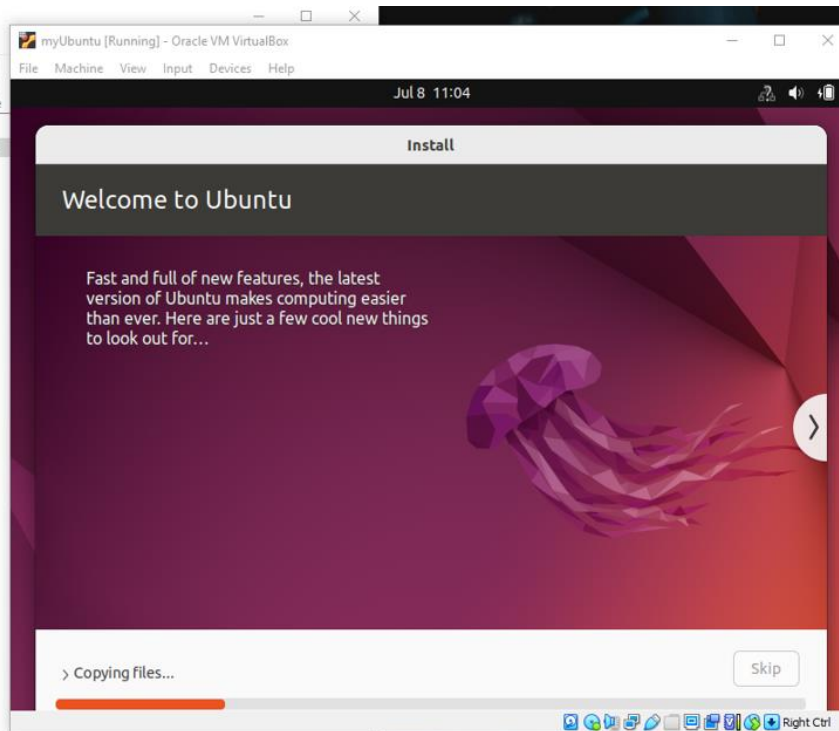
None

Description

Preview

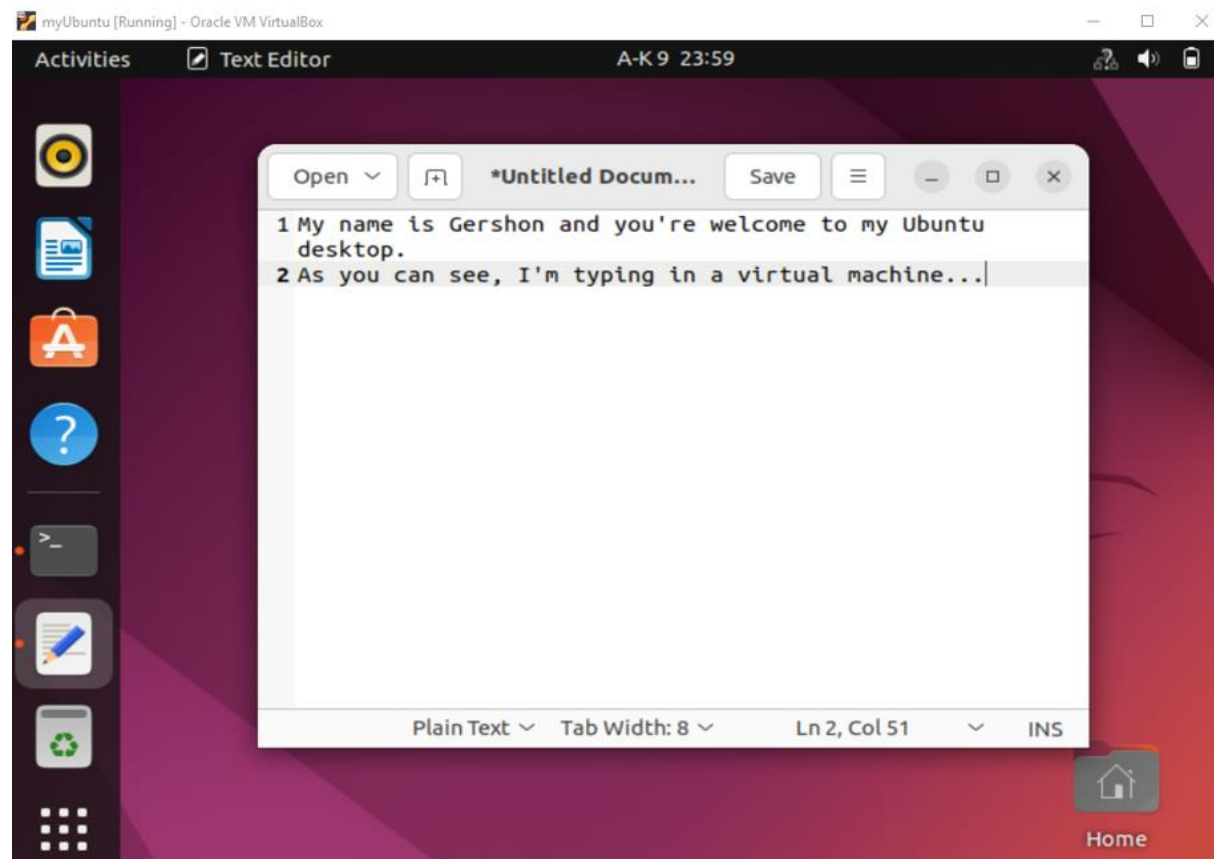
myUbuntu

Oracle VM VirtualBox Manager



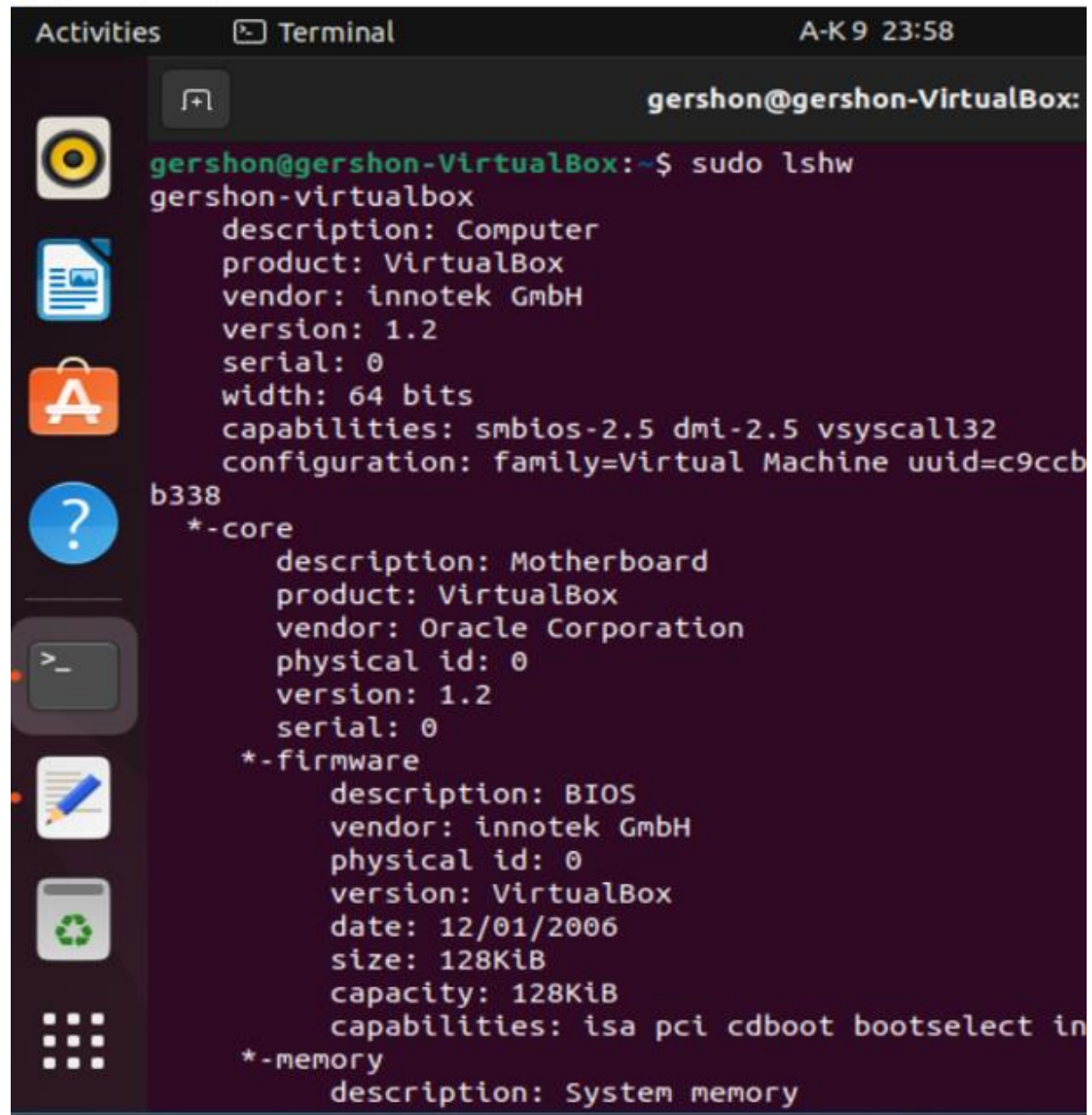
The figure below shows the welcome screen of the Ubuntu page.

The figure below shows the welcome screen of the Ubuntu page.



Ubuntu virtual machine System information

myUbuntu [Running] - Oracle VM VirtualBox



The screenshot shows a terminal window titled "myUbuntu [Running] - Oracle VM VirtualBox". The terminal prompt is "gershon@gershon-VirtualBox:". The user has entered the command "sudo lshw". The output displays system information for the virtual machine, including details about the computer, motherboard, firmware (BIOS), and memory.

```
gershon@gershon-VirtualBox:~$ sudo lshw
gershon-virtualbox
  description: Computer
  product: VirtualBox
  vendor: innotek GmbH
  version: 1.2
  serial: 0
  width: 64 bits
  capabilities: smbios-2.5 dmi-2.5 vsyscall32
  configuration: family=Virtual Machine uuid=c9ccb
b338
*-core
  description: Motherboard
  product: VirtualBox
  vendor: Oracle Corporation
  physical id: 0
  version: 1.2
  serial: 0
*-firmware
  description: BIOS
  vendor: innotek GmbH
  physical id: 0
  version: VirtualBox
  date: 12/01/2006
  size: 128KiB
  capacity: 128KiB
  capabilities: isa pci cdboot bootselect in
*-memory
  description: System memory
```

Ubuntu (System Monitor) Task Manager

This figure shows processes and process IDs in the ubuntu system monitor (task manager in Windows)

myUbuntu [Running] - Oracle VM VirtualBox

A-K 10 00:09

Activities

System Monitor

Processes

Resources

File Systems

Process Name

User

% CPU

ID

Memory

Disk r

at-spi2-registryd

gershon

0.00

1627

708.6 kB

at-spi-bus-launcher

gershon

0.00

1422

753.7 kB

dbus-daemon

gershon

0.00

1273

2.0 MB

dbus-daemon

gershon

0.00

1446

491.5 kB

dconf-service

gershon

0.00

1557

618.5 kB

desktop-launch

gershon

0.00

3102

7.5 MB

4

evolution-addressbook-factory

gershon

0.00

1561

3.4 MB

evolution-alarm-notify

gershon

0.00

1704

15.1 MB

evolution-calendar-factory

gershon

0.00

1518

4.0 MB

evolution-source-registry

gershon

0.00

1511

3.8 MB

gdk-pixbuf-query-loaders

gershon

14.05

3336

1.9 MB

gdm-wayland-session

gershon

0.00

1309

495.6 kB

gedit

gershon

0.00

2877

14.6 MB

gjs

gershon

0.00

1628

4.9 MB

gjs

gershon

0.00

1837

5.0 MB

gjs

gershon

0.00

1865

15.7 MB

gnome-calendar

gershon

0.00

2081

14.6 MB

gnome-keyring-daemon

gershon

0.00

1269

737.3 kB

4

gnome-remote-desktop-daemon

gershon

0.00

1364

11.3 MB

gnome-session-binary

gershon

0.00

1316

1.7 MB

End Process

Ubuntu Registry

Registry in Ubuntu is called “**deconf-editor**”

Ubuntu, unlike Windows, does not have registry entries. Instead, is relying on text/flat files placed in the /etc/ directory for configuration and settings.

Equivalently, there’s an editor called dconf-editor that needs to be installed and this could show all the registry file settings as shown below.

