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Batch: EN2

RTOS LAB Experiment No. 1

Title: Installation of Linux Using VirtualBox.

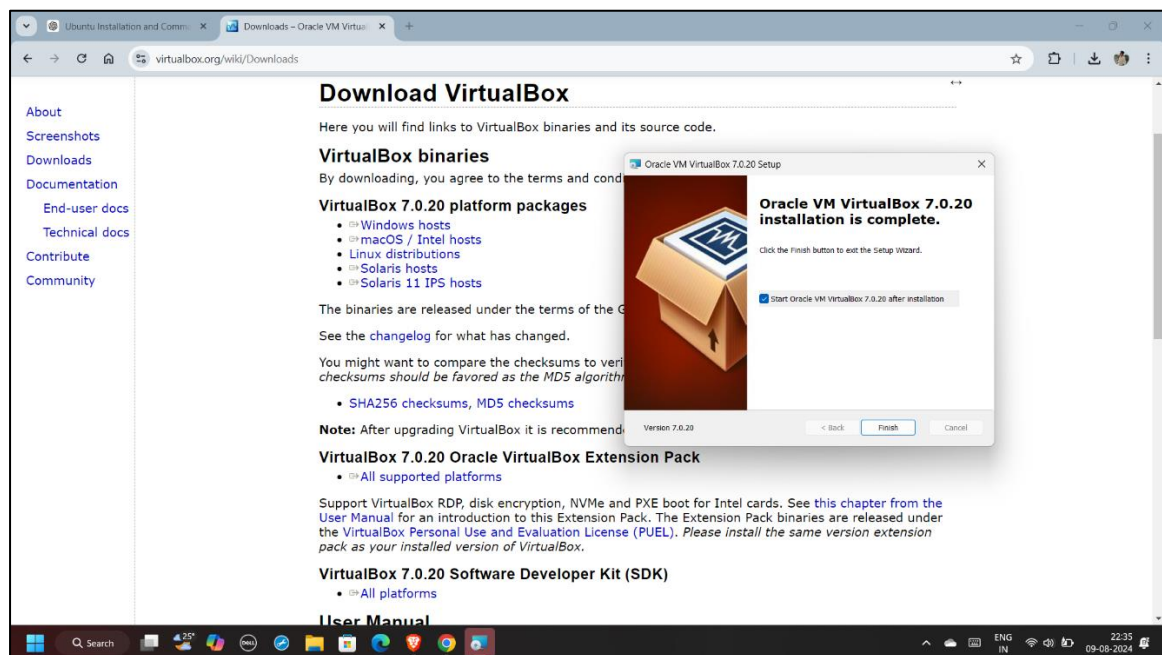
Part A: Installation of Ubuntu Distribution.

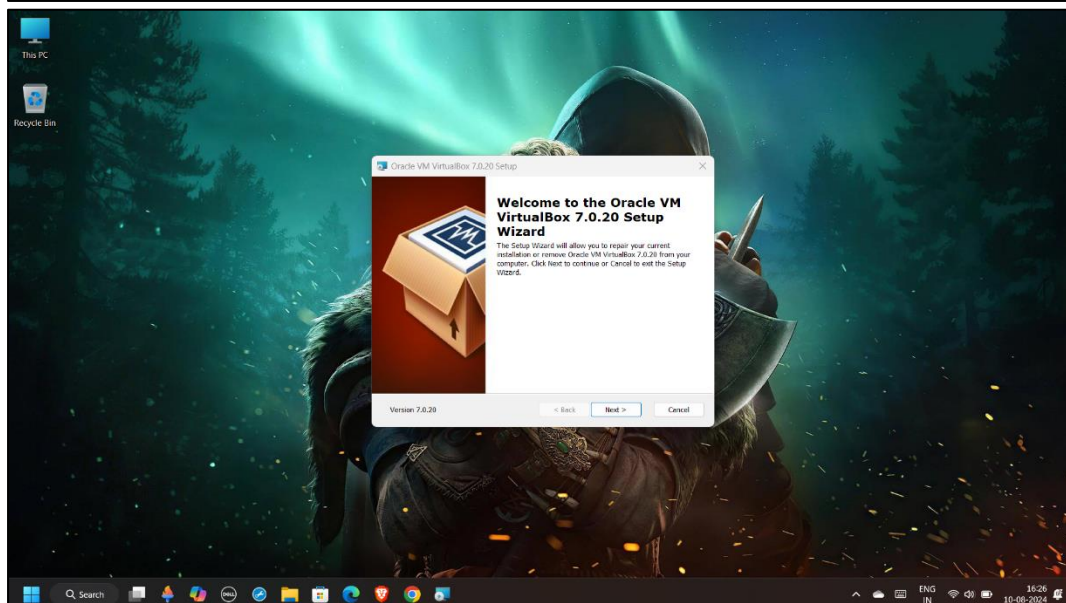
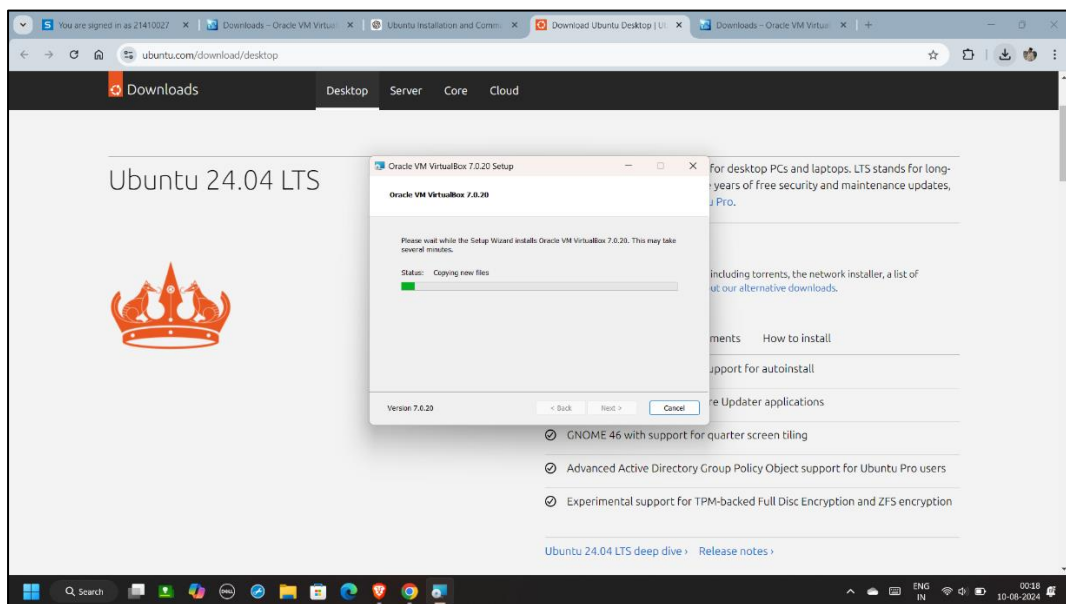
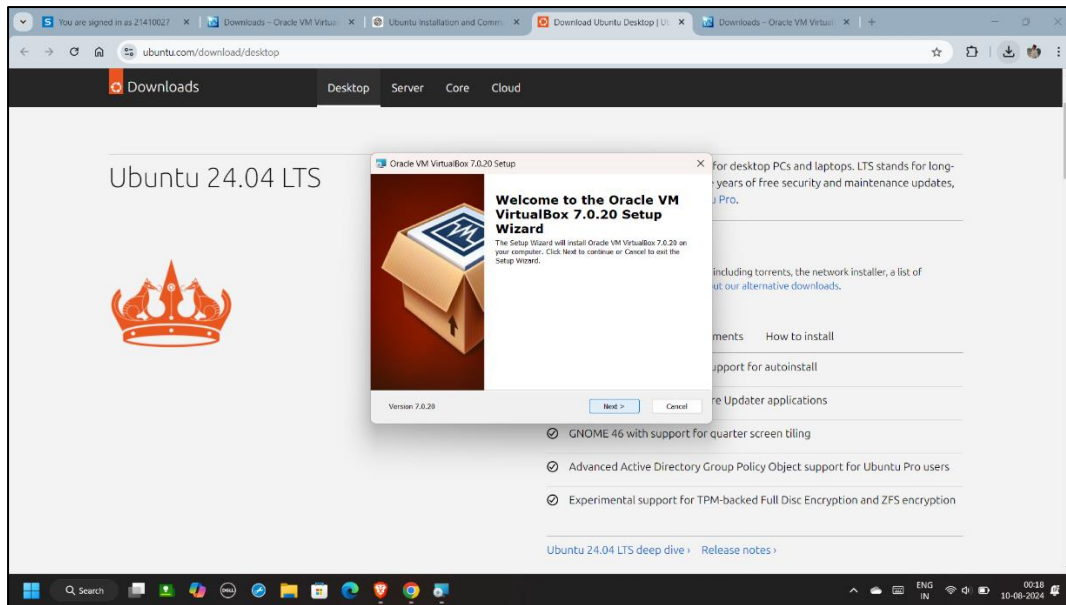
Procedure steps→

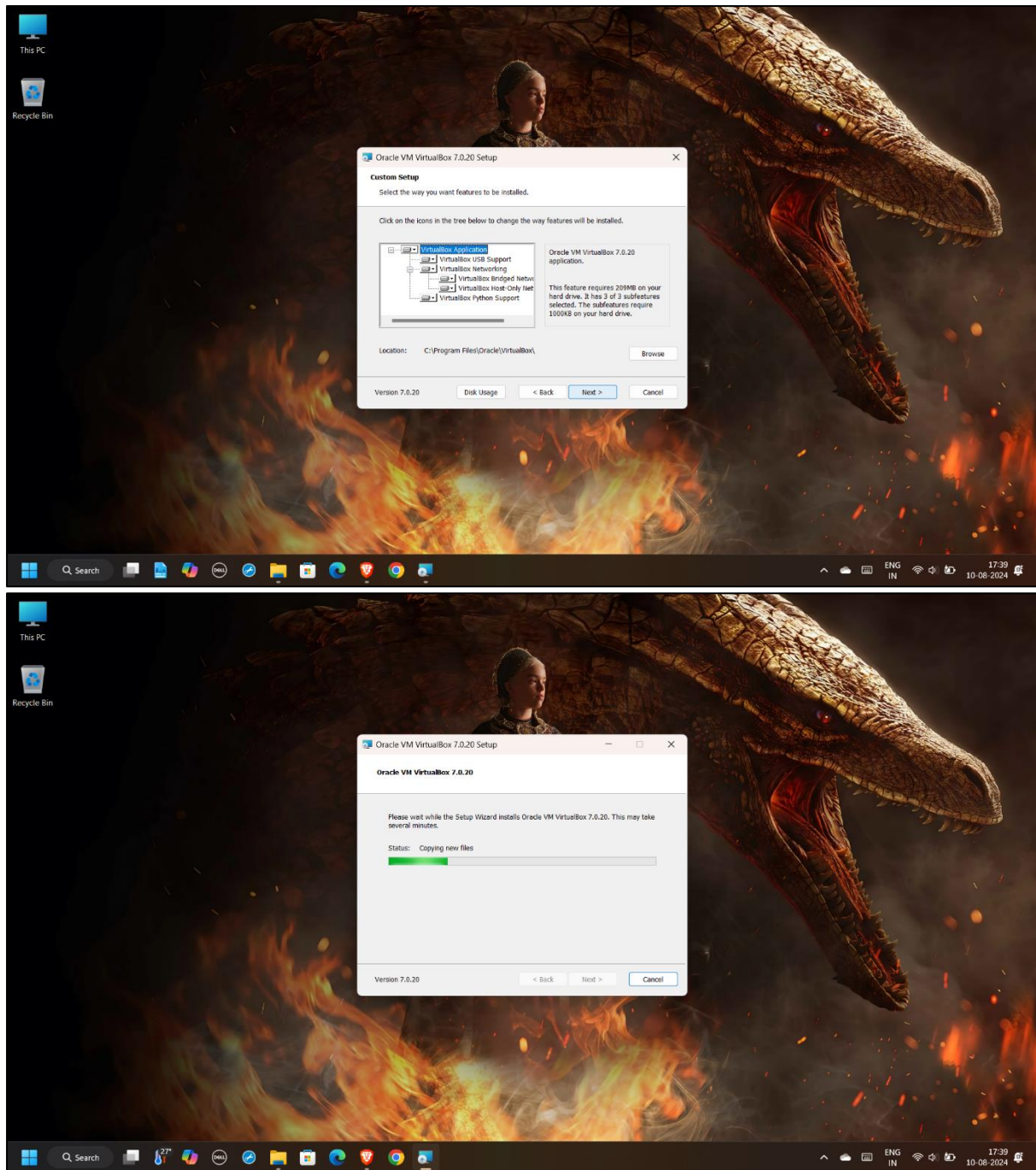
Step 1: Download and Install VirtualBox

Download VirtualBox: Visit the VirtualBox official website and download the latest version suitable for your operating system.

Install VirtualBox: Follow the installation instructions based on your operating system

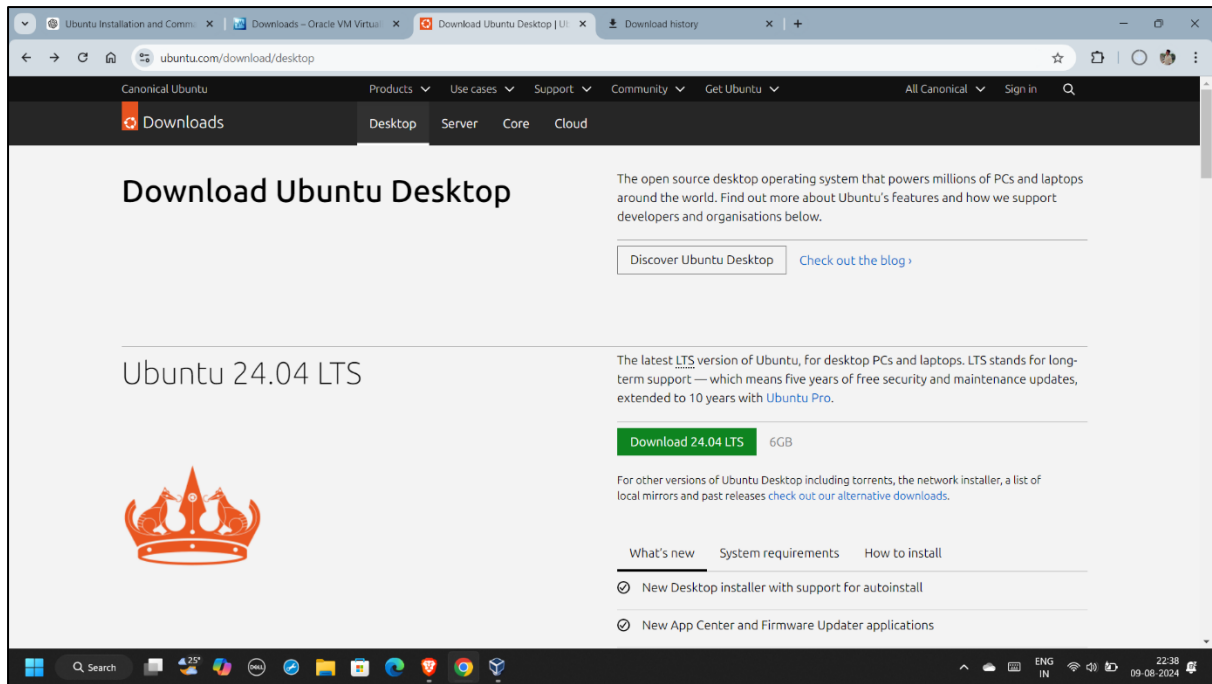






Step 2: Download Ubuntu ISO

Download Ubuntu: Go to the Ubuntu official website and download the latest version of the Ubuntu ISO file.



Step 3: Create a New Virtual Machine

Open VirtualBox: Launch VirtualBox and click on "New" to create a new virtual machine.

Name the Virtual Machine: Give your virtual machine a name (e.g., "Ubuntu") and select "Linux" as the type and "Ubuntu (64-bit)" as the version.

Allocate Memory: Assign the amount of RAM to the virtual machine. A minimum of 2 GB (2048 MB) is recommended.

Create a Virtual Hard Disk: Choose "Create a virtual hard disk now" and follow the prompts to create the disk. Allocate at least 25 GB of space.

Step 4: Install Ubuntu on the Virtual Machine

Start the Virtual Machine: Select the newly created virtual machine and click "Start".

Select Ubuntu ISO: A dialog box will appear asking you to select a start-up disk. Choose the Ubuntu ISO file you downloaded earlier.

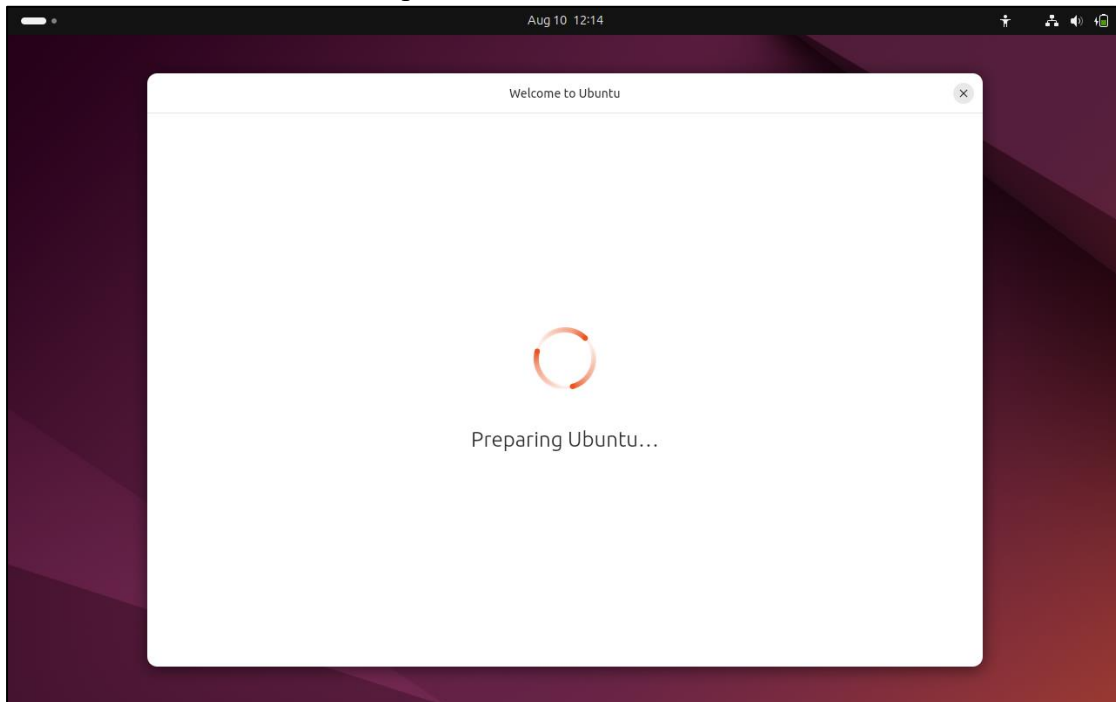
Install Ubuntu:

Follow the on-screen instructions to install Ubuntu.

Choose the installation type (usually "Erase disk and install Ubuntu" is recommended if you are only using the virtual environment).

Set up your username, password, and computer name.

Wait for the installation to complete, and then restart the virtual machine.



Part B: Basic Embedded Linux Commands

ls, pwd, cd, mkdir, touch/nano/gedit, cp, rm

(write commands with necessary explanation)

insert screen shot of every command executed in the terminal

ls - List Directory Contents

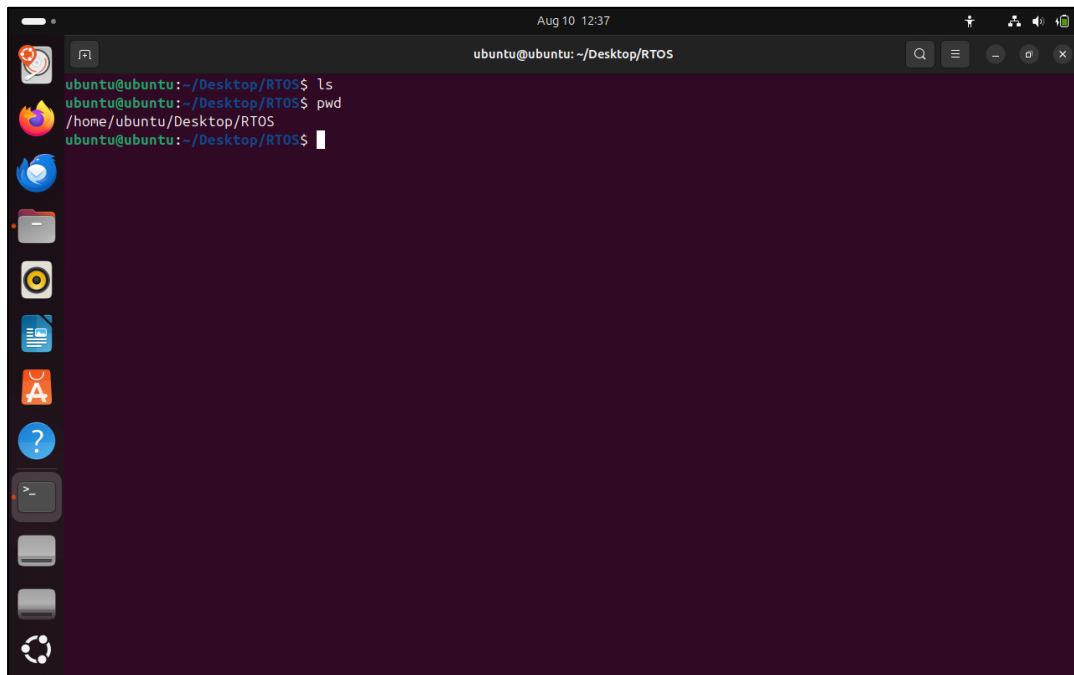
Command: ls

Explanation: Lists all files and directories in the current directory.

pwd - Print Working Directory

Command: pwd

Explanation: Displays the full path to the current directory.

A screenshot of a terminal window on an Ubuntu desktop. The window title is "ubuntu@ubuntu: ~/Desktop/RTOS". The terminal shows the following commands and output:

```
ubuntu@ubuntu:~/Desktop/RTOS$ ls
ubuntu@ubuntu:~/Desktop/RTOS$ pwd
/home/ubuntu/Desktop/RTOS
ubuntu@ubuntu:~/Desktop/RTOS$
```

The terminal has a dark purple background. The desktop environment is visible in the background, showing a dock with various application icons on the left and a top panel with system status icons on the right. The date and time "Aug 10 12:37" are displayed in the top right corner of the window.

cd - Change Directory

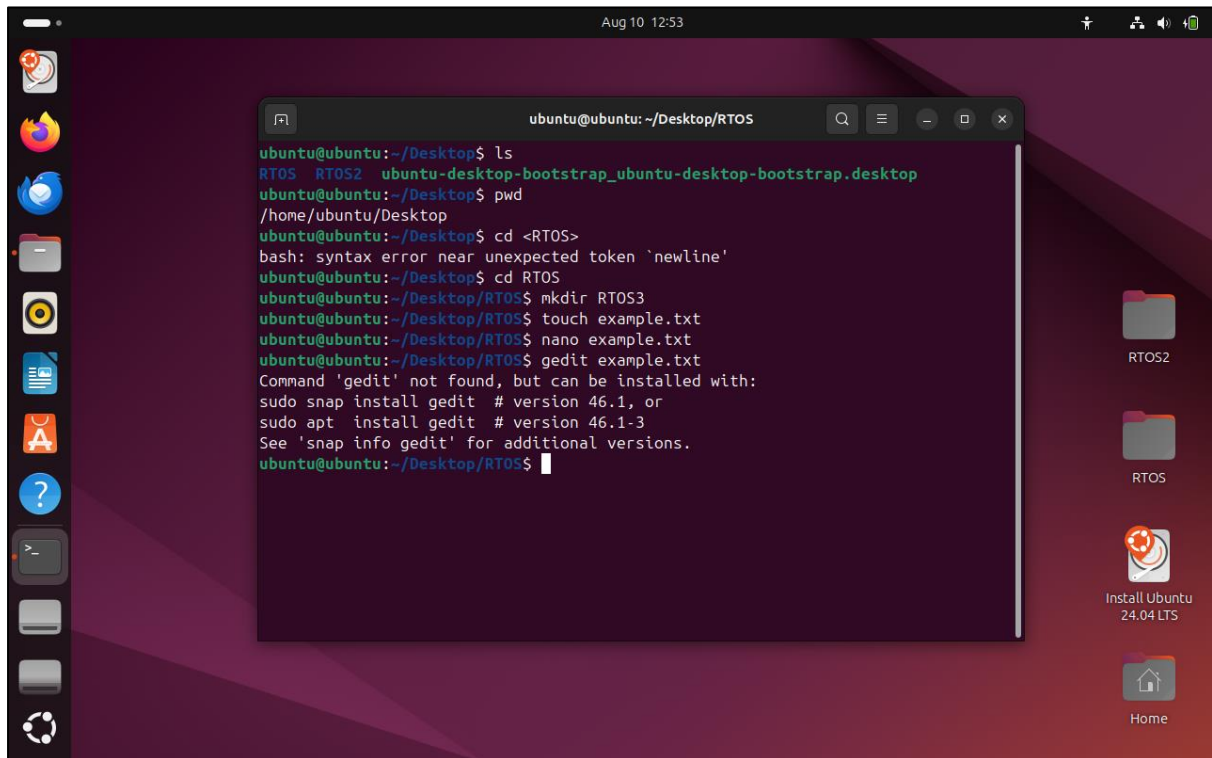
Command: cd <directory>

Explanation: Changes the current directory to the specified directory.

mkdir - Make Directory

Command: mkdir <directory_name>

Explanation: Creates a new directory with the specified name.

A screenshot of an Ubuntu desktop environment. The desktop background is a dark purple gradient. On the left side, there is a vertical dock with several application icons: a red and white icon, a blue and orange icon, a blue and white icon, a folder icon, a yellow and black icon, a blue and white icon, an orange and white icon, a blue and white icon, a terminal icon, a folder icon, and a circular icon. In the center, a terminal window is open with the title bar 'ubuntu@ubuntu: ~/Desktop/RTOS'. The terminal shows the following commands and output:

```
ubuntu@ubuntu:~/Desktop$ ls
RTOS  RTOS2  ubuntu-desktop-bootstrap_ubuntu-desktop-bootstrap.desktop
ubuntu@ubuntu:~/Desktop$ pwd
/home/ubuntu/Desktop
ubuntu@ubuntu:~/Desktop$ cd <RTOS>
bash: syntax error near unexpected token `newline'
ubuntu@ubuntu:~/Desktop$ cd RTOS
ubuntu@ubuntu:~/Desktop/RTOS$ mkdir RTOS3
ubuntu@ubuntu:~/Desktop/RTOS$ touch example.txt
ubuntu@ubuntu:~/Desktop/RTOS$ nano example.txt
ubuntu@ubuntu:~/Desktop/RTOS$ gedit example.txt
Command 'gedit' not found, but can be installed with:
sudo snap install gedit # version 46.1, or
sudo apt install gedit # version 46.1-3
See 'snap info gedit' for additional versions.
ubuntu@ubuntu:~/Desktop/RTOS$
```

On the right side of the desktop, there are four icons: a folder icon labeled 'RTOS2', a folder icon labeled 'RTOS', an 'Install Ubuntu 24.04 LTS' icon, and a 'Home' icon.

touch, nano, gedit - Create/Edit Files

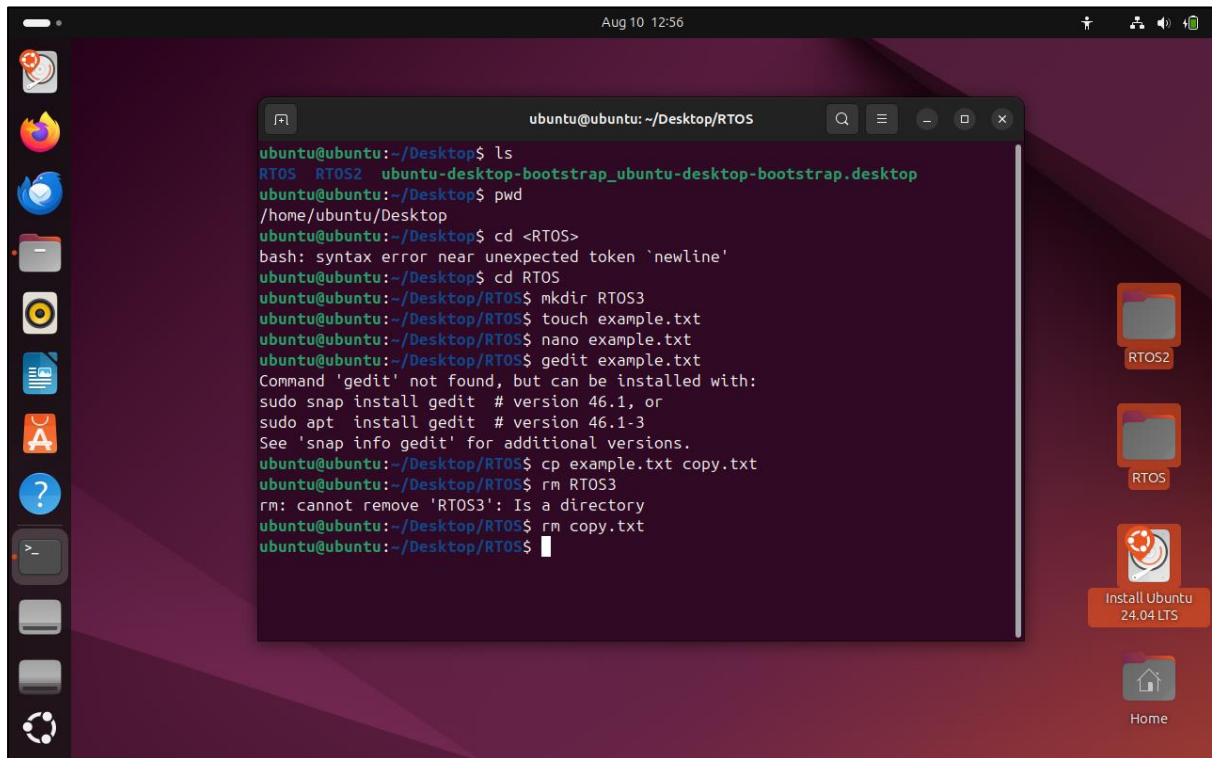
Command:

touch <file_name>: Creates an empty file with the specified name.

nano <file_name>: Opens the file in the nano text editor.

gedit <file_name>: Opens the file in the gedit text editor (GUI).

Explanation: These commands are used for creating and editing text files.



The screenshot shows an Ubuntu desktop with a dark purple background. A terminal window is open in the center, displaying the following commands and outputs:

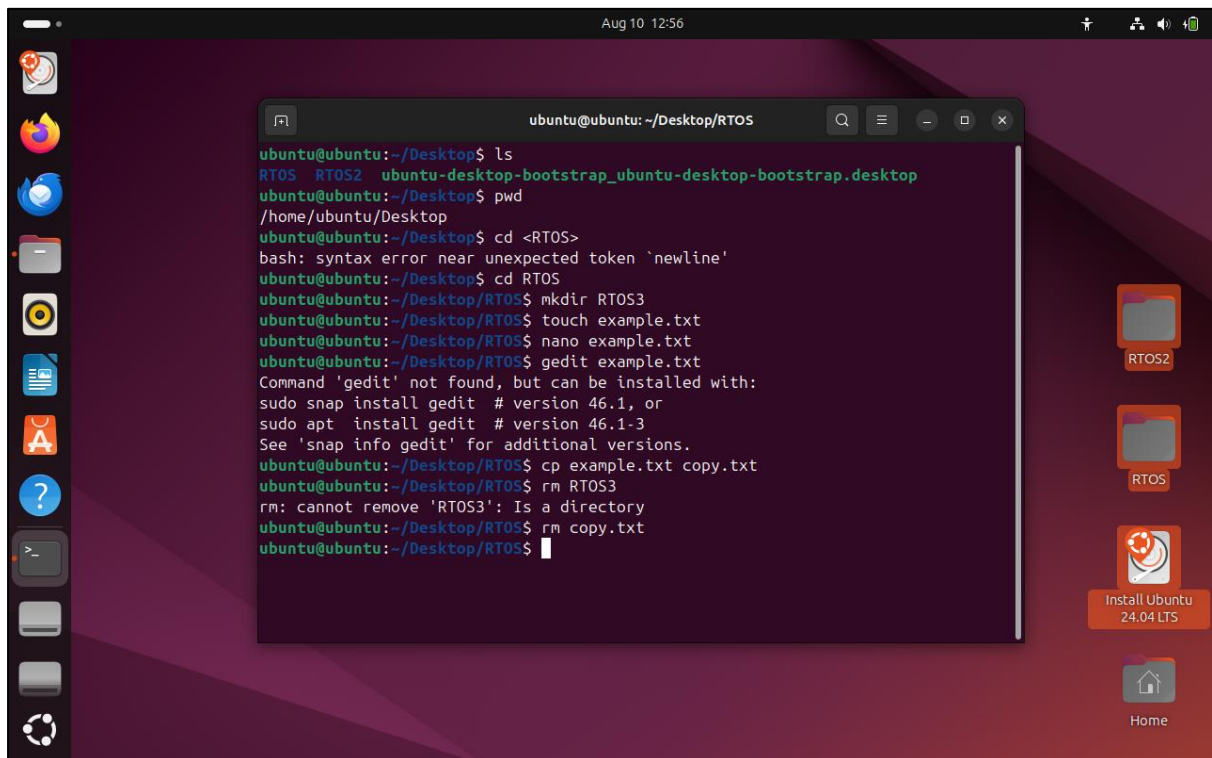
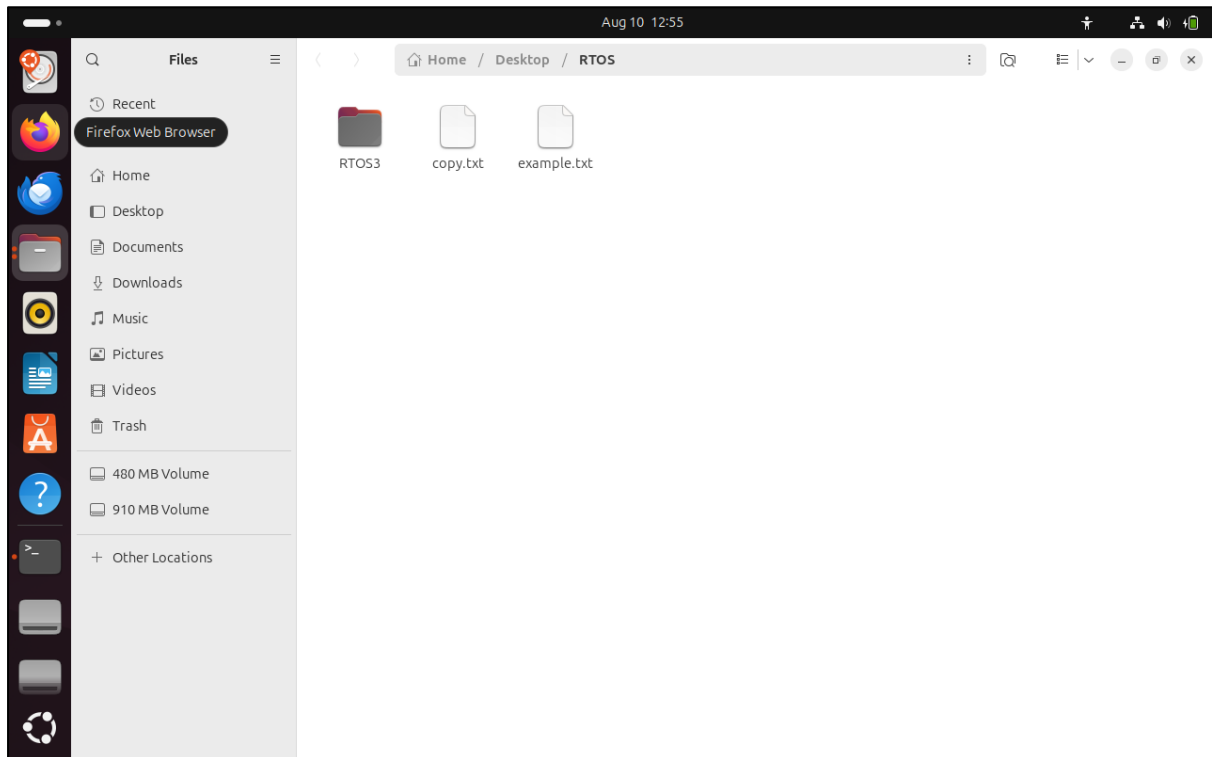
```
ubuntu@ubuntu: ~/Desktop/RTOS
ubuntu@ubuntu:~/Desktop$ ls
RTOS  RTOS2  ubuntu-desktop-bootstrap_ubuntu-desktop-bootstrap.desktop
ubuntu@ubuntu:~/Desktop$ pwd
/home/ubuntu/Desktop
ubuntu@ubuntu:~/Desktop$ cd <RTOS>
bash: syntax error near unexpected token `newline'
ubuntu@ubuntu:~/Desktop$ cd RTOS
ubuntu@ubuntu:~/Desktop/RTOS$ mkdir RTOS3
ubuntu@ubuntu:~/Desktop/RTOS$ touch example.txt
ubuntu@ubuntu:~/Desktop/RTOS$ nano example.txt
ubuntu@ubuntu:~/Desktop/RTOS$ gedit example.txt
Command 'gedit' not found, but can be installed with:
sudo snap install gedit # version 46.1, or
sudo apt install gedit # version 46.1-3
See 'snap info gedit' for additional versions.
ubuntu@ubuntu:~/Desktop/RTOS$ cp example.txt copy.txt
ubuntu@ubuntu:~/Desktop/RTOS$ rm RTOS3
rm: cannot remove 'RTOS3': Is a directory
ubuntu@ubuntu:~/Desktop/RTOS$ rm copy.txt
ubuntu@ubuntu:~/Desktop/RTOS$
```

The desktop environment includes a sidebar with application icons (Dash, Home Folder, Home, Applications, Dash, Home Folder, Home, Applications, Dash, Home Folder, Home, Applications) and a dock on the right with icons for RTOS2, RTOS, Install Ubuntu 24.04 LTS, and Home. The top status bar shows the date and time as Aug 10 12:56.

cp - Copy Files and Directories

Command: `cp <source> <destination>`

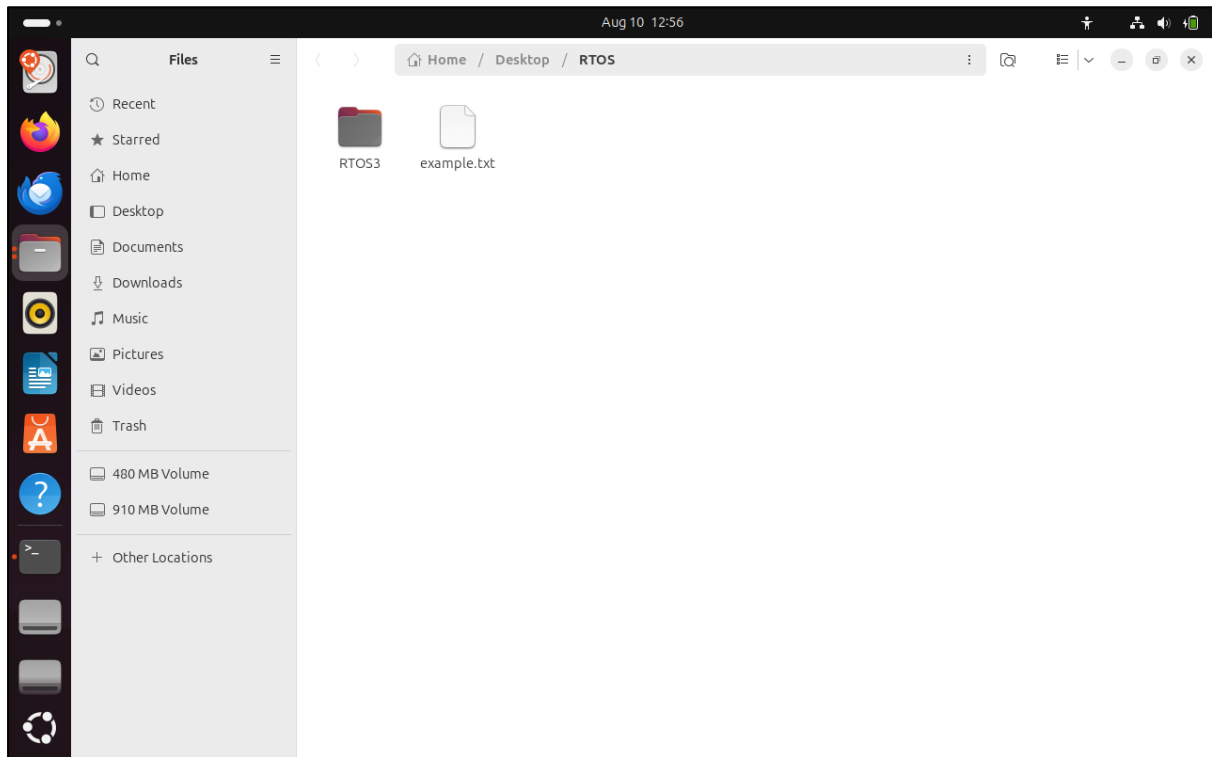
Explanation: Copies files or directories from one location to another.



rm - Remove Files or Directories

Command: `rm <file_name>` (Use `rm -r <directory_name>` to remove directories)

Explanation: Deletes files or directories.



Conclusion

This guide provided step-by-step instructions for installing Ubuntu on VirtualBox and introduced some basic Linux commands that are essential for navigating and managing files in an embedded Linux environment. Understanding these commands is crucial for effectively working within a Linux system, particularly in development and embedded systems.