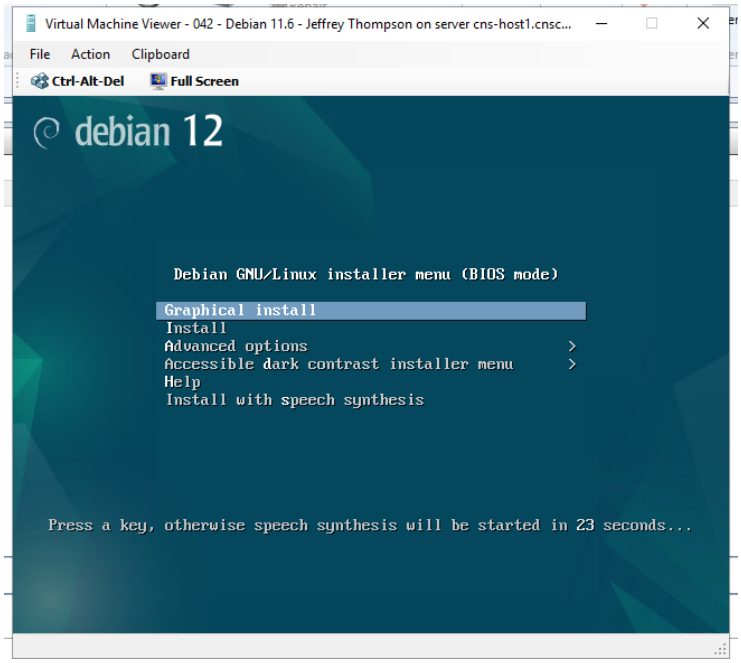
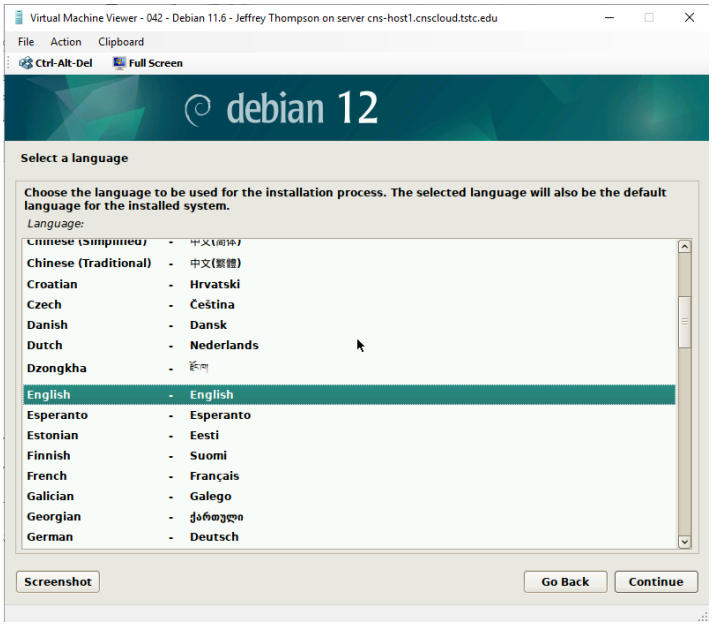
The purpose of this task was to install and configure a basic web server on a Debian 11.6 virtual machine as part of Module 1. This included assigning a static IP address, installing the Apache web server, creating a static HTML file, and verifying successful web service delivery via a browser.

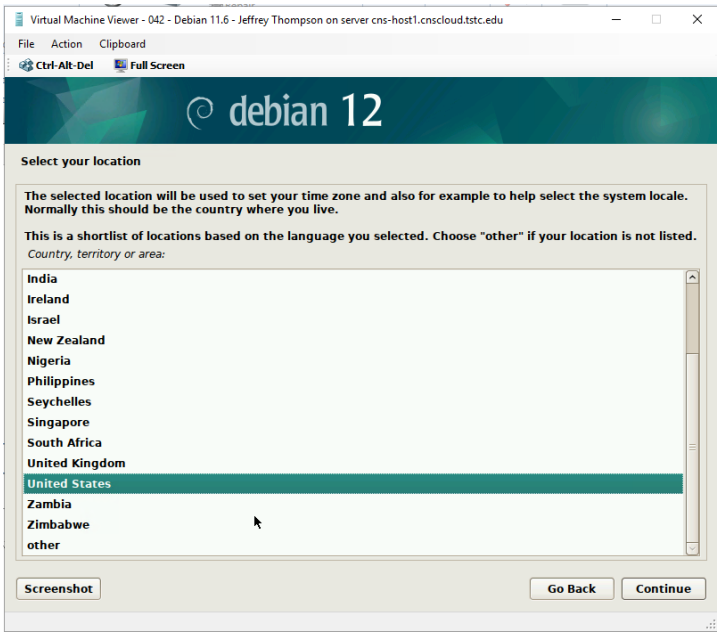
1. Install Debian 11.6 using the setting identified in the “Specifications for ITNW-2354 Labs.pdf” document.

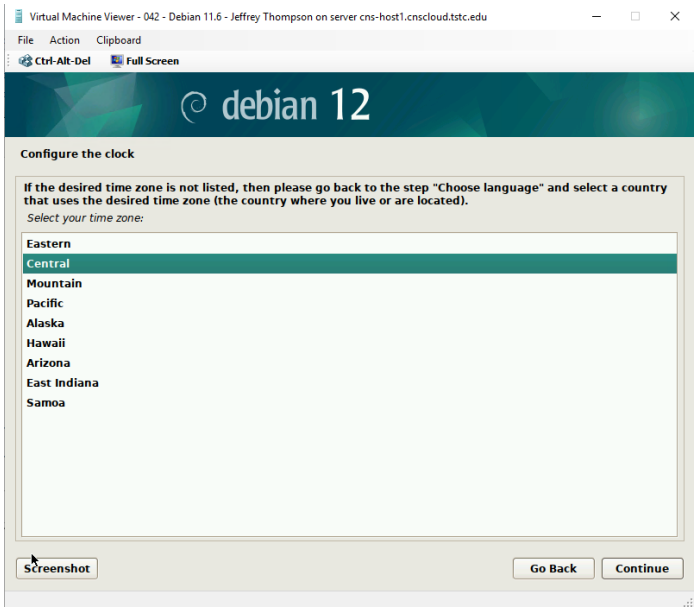
    - Install by selecting graphical install



    - Select the appropriate language, location, and keyboard settings

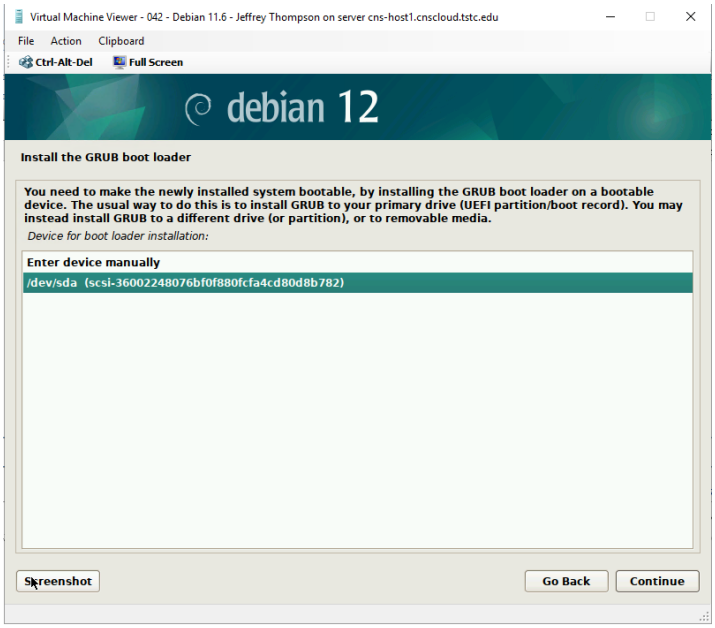

Virtual Machine Viewer - 042 - Debian 11.6 - Jeffrey Thompson on server cns-host1.cnscloud.tstc.edu
File Action Clipboard
Ctrl-Alt-Del Full Screen
debian 12
Select a language
Choose the language to be used for the installation process. The selected language will also be the default language for the installed system.
Language:
Chinese (Traditional) - 中文(繁體)
Croatian - Hrvatski
Czech - Čeština
Danish - Dansk
Dutch - Nederlands
Dzongkha - རྫོང་ཁ
English - English
Esperanto - Esperanto
Estonian - Eesti
Finnish - Suomi
French - Français
Galician - Galego
Georgian - ქართული
German - Deutsch
Screenshot
Go Back
Continue

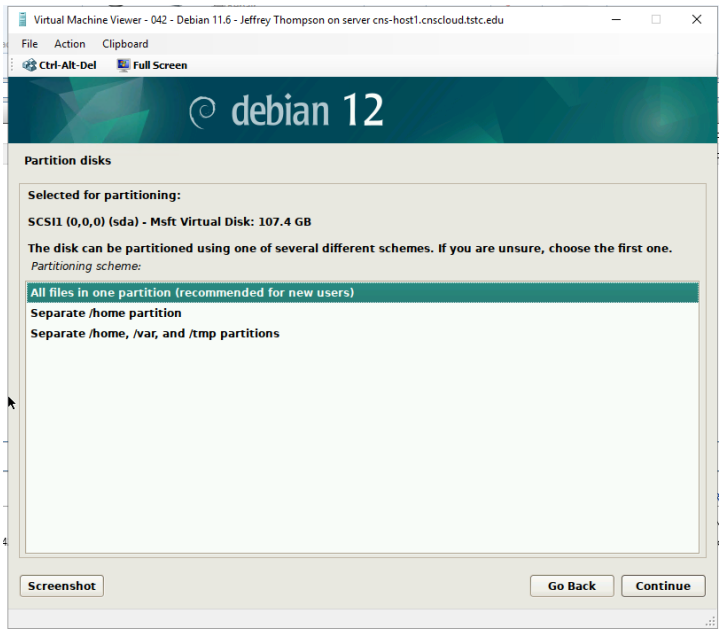

Virtual Machine Viewer - 042 - Debian 11.6 - Jeffrey Thompson on server cns-host1.cnscloud.tstc.edu
File Action Clipboard
Ctrl-Alt-Del Full Screen
debian 12
Select your location
The selected location will be used to set your time zone and also for example to help select the system locale. Normally this should be the country where you live.
This is a shortlist of locations based on the language you selected. Choose "other" if your location is not listed.
Country, territory or area:
India
Ireland
Israel
New Zealand
Nigeria
Philippines
Seychelles
Singapore
South Africa
United Kingdom
United States
Zambia
Zimbabwe
other
Screenshot
Go Back
Continue

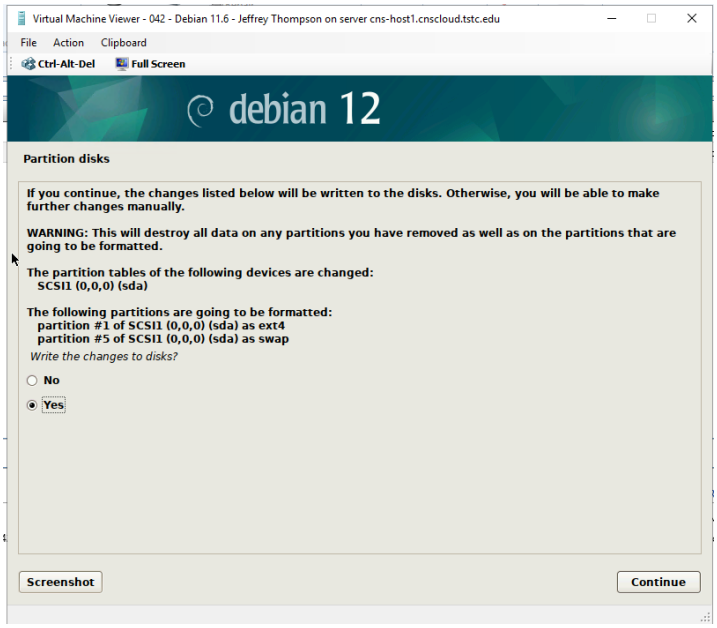


- Select the appropriate partition. In this case we will use guided the partition of the entire disk without volumes.

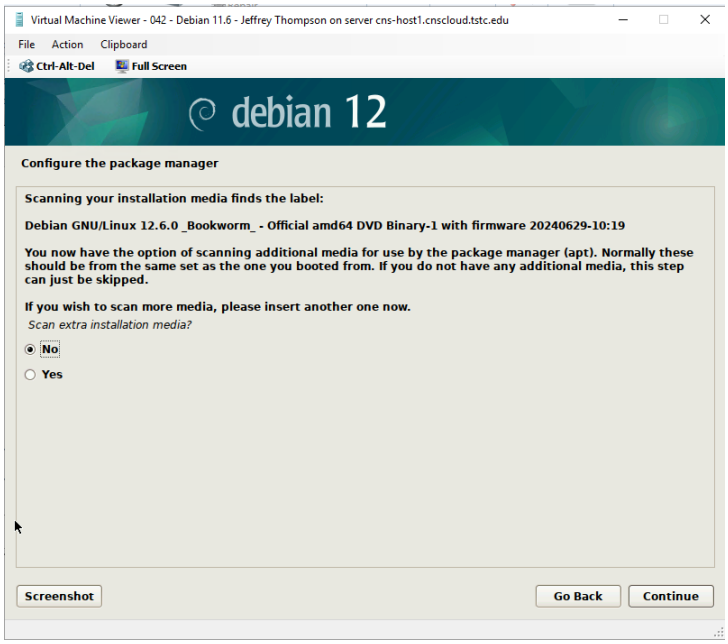
- Install the Grub bootloader- select the available disk

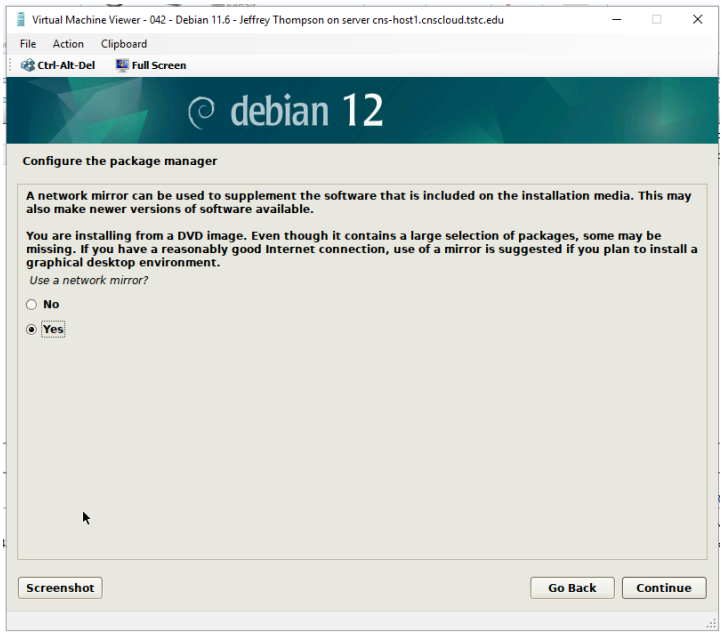

Virtual Machine Viewer - 042 - Debian 11.6 - Jeffrey Thompson on server cns-host1.cnscloud.tstc.edu
File
Action
Clipboard
Ctrl-Alt-Del
Full Screen
debian 12
Install the GRUB boot loader
You need to make the newly installed system bootable, by installing the GRUB boot loader on a bootable device. The usual way to do this is to install GRUB to your primary drive (UEFI partition/boot record). You may instead install GRUB to a different drive (or partition), or to removable media.
Device for boot loader installation:
Enter device manually
/dev/sda (scsi-36002248076bf0f880fcfa4cd80d8b782)
Screenshot
Go Back
Continue

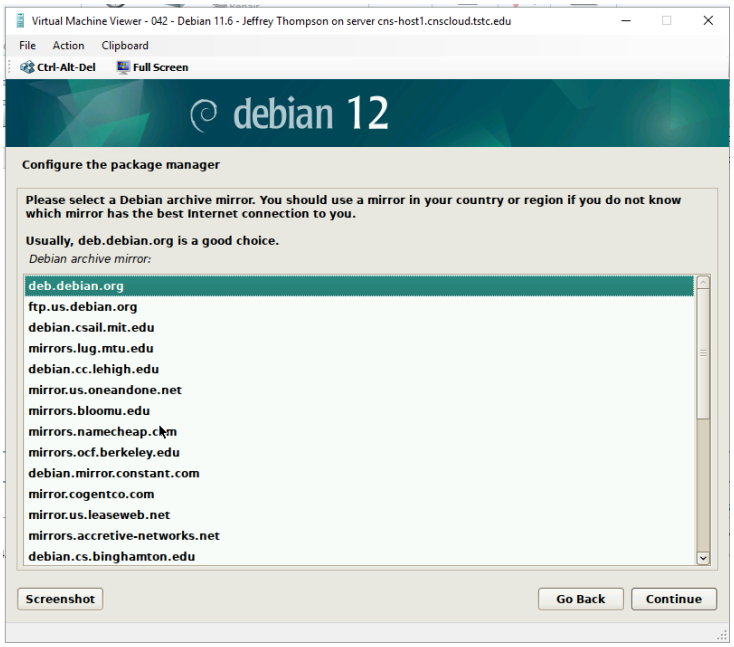
- 

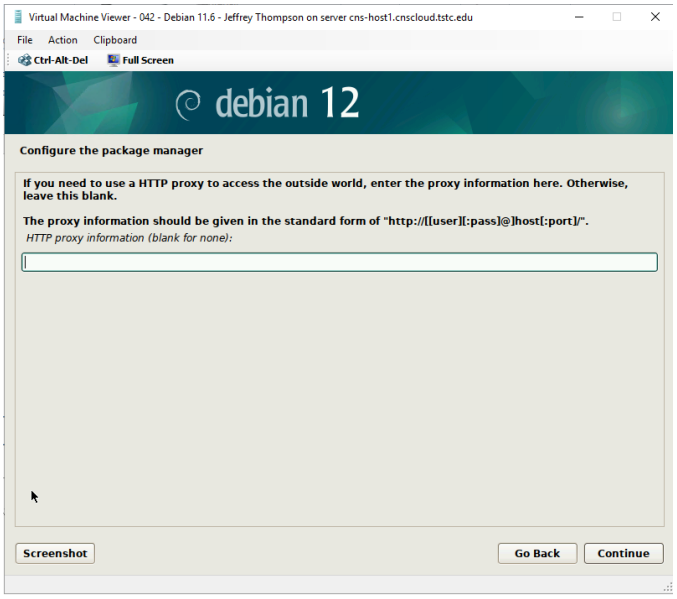


- Select defaults to install package manager


Virtual Machine Viewer - 042 - Debian 11.6 - Jeffrey Thompson on server cns-host1.cnscloud.tstc.edu
File
Action
Clipboard
Ctrl-Alt-Del
Full Screen
debian 12
Configure the package manager
Scanning your installation media finds the label:
Debian GNU/Linux 12.6.0 _Bookworm_ - Official amd64 DVD Binary-1 with firmware 20240629-10:19
You now have the option of scanning additional media for use by the package manager (apt). Normally these should be from the same set as the one you booted from. If you do not have any additional media, this step can just be skipped.
If you wish to scan more media, please insert another one now.
Scan extra installation media?
No
Yes
Screenshot
Go Back
Continue

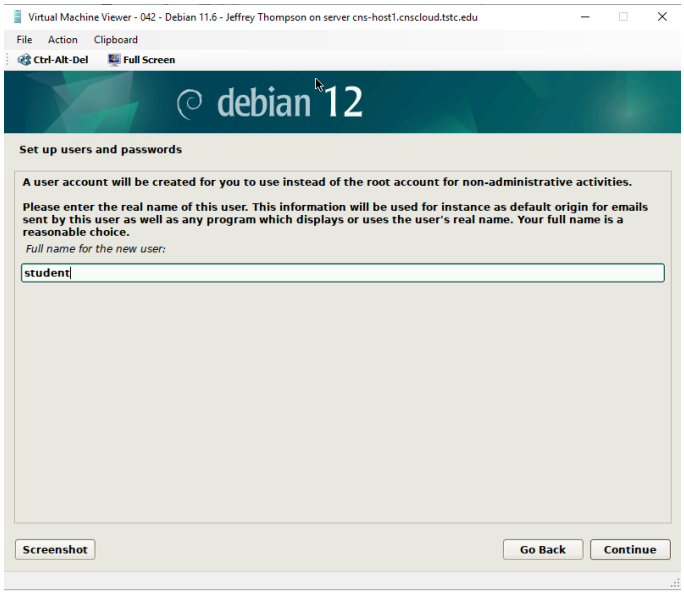

Virtual Machine Viewer - 042 - Debian 11.6 - Jeffrey Thompson on server cns-host1.cnscloud.tstc.edu
File Action Clipboard
Ctrl-Alt-Del Full Screen
debian 12
Configure the package manager
A network mirror can be used to supplement the software that is included on the installation media. This may also make newer versions of software available.
You are installing from a DVD image. Even though it contains a large selection of packages, some may be missing. If you have a reasonably good Internet connection, use of a mirror is suggested if you plan to install a graphical desktop environment.
Use a network mirror?
No
Yes
Screenshot
Go Back
Continue

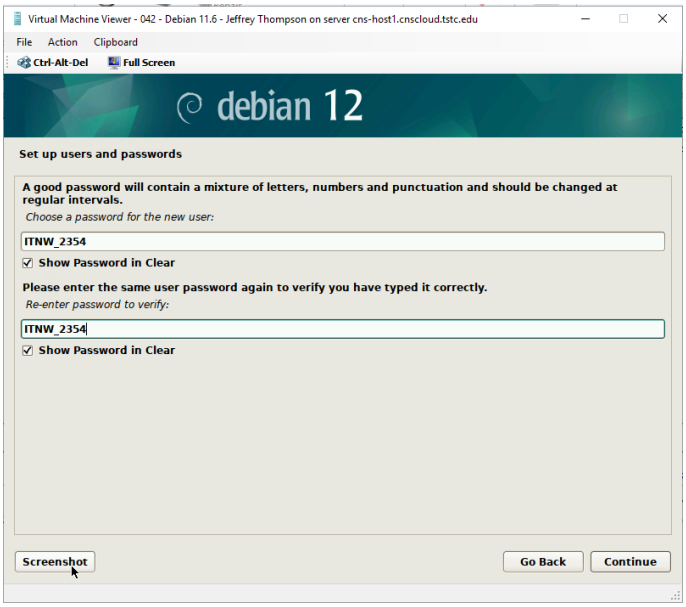

Virtual Machine Viewer - 042 - Debian 11.6 - Jeffrey Thompson on server cns-host1.cnscloud.tstc.edu
File Action Clipboard
Ctrl-Alt-Del Full Screen
debian 12
Configure the package manager
Please select a Debian archive mirror. You should use a mirror in your country or region if you do not know which mirror has the best Internet connection to you.
Usually, deb.debian.org is a good choice.
Debian archive mirror:
deb.debian.org
ftp.us.debian.org
debian.csail.mit.edu
mirrors.lug.mtu.edu
debian.cc.lehigh.edu
mirror.us.oneandone.net
mirrors.bloomu.edu
mirrors.namecheap.com
mirrors.ocf.berkeley.edu
debian.mirror.constant.com
mirror.cogentco.com
mirror.us.leaseweb.net
mirrors.accretive-networks.net
debian.cs.binghamton.edu
Screenshot
Go Back
Continue



2. Assign usernames and passwords as specified.
   User Account = student
   Password = ITNW_2354

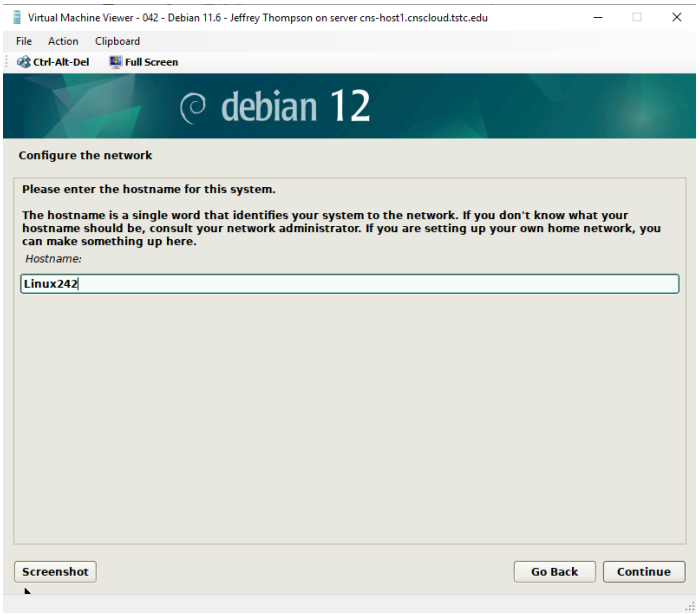
   Root Password = Password1



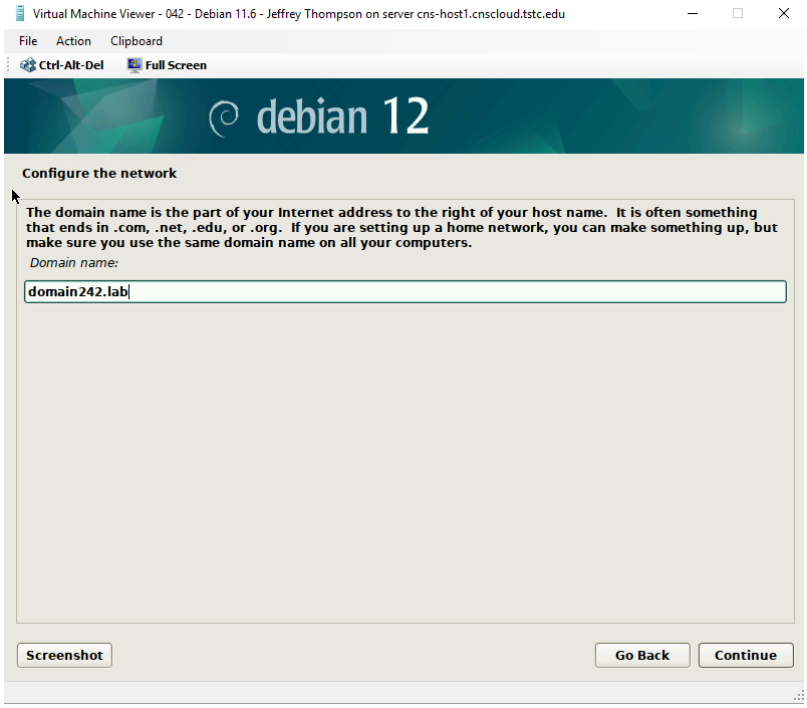


3. Configure hostname as per the specifications identified in the document titled "Specifications for ITNW-2354 Labs.pdf"

   Hostname= Linux242

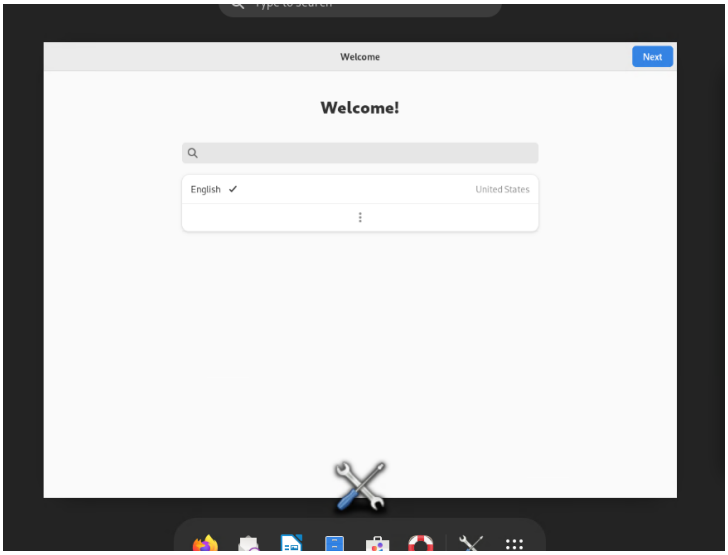


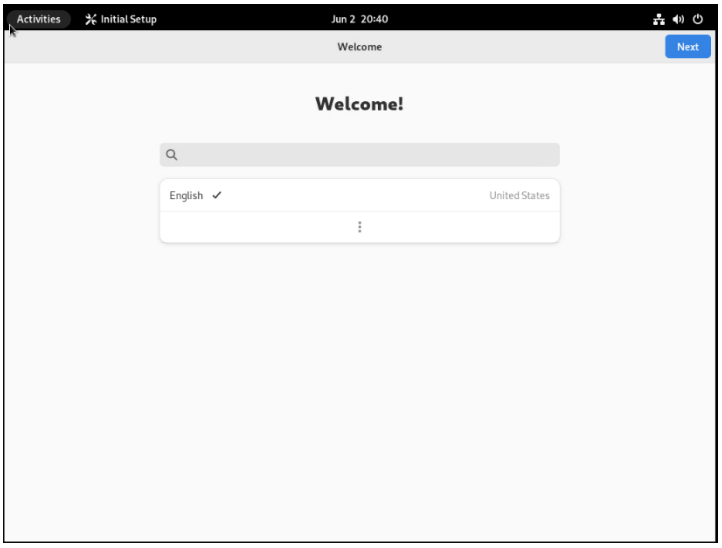
4. Statically configure TCP/IP settings as per the specifications identified in the document titled "Specifications for ITNW-2354 Labs.pdf"
   - Domain name = domain242.lab

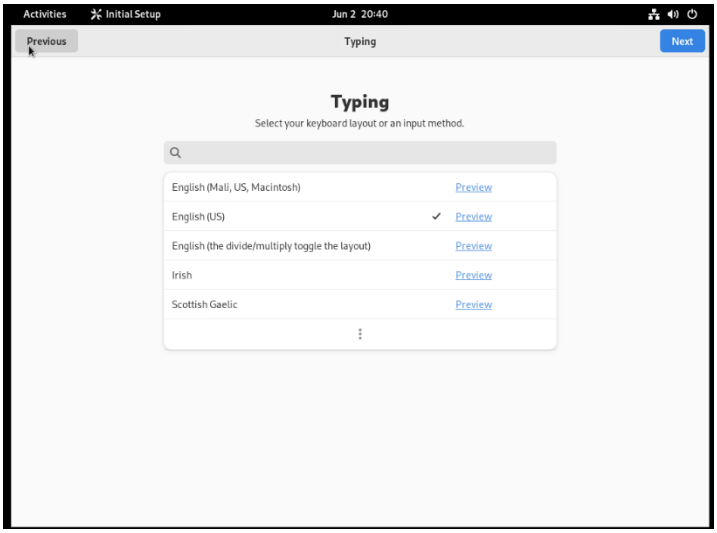


After installation is complete, the system will reboot.

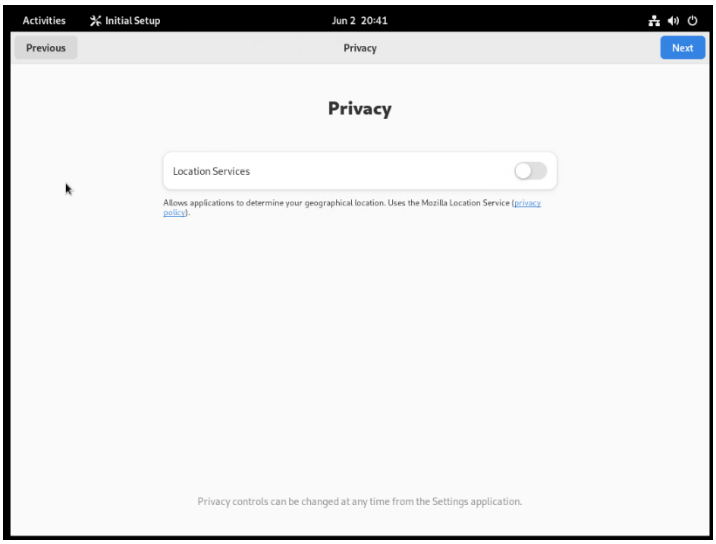
Sign-in and complete the initial setup

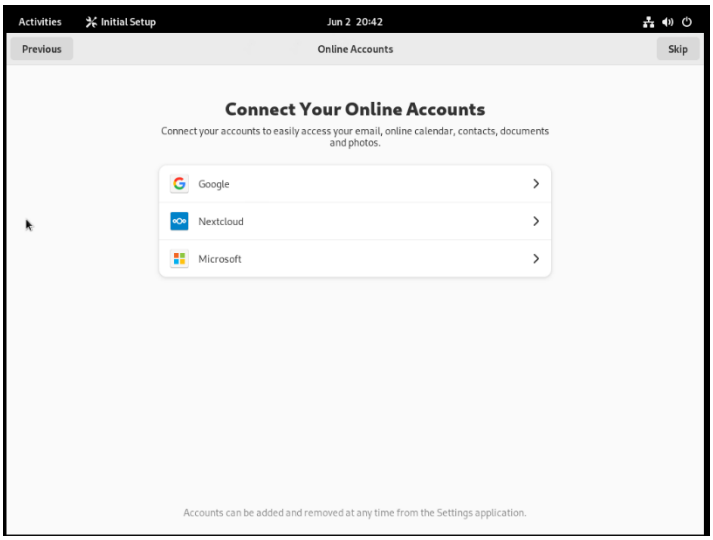

Welcome
Next
Welcome!
English
United States

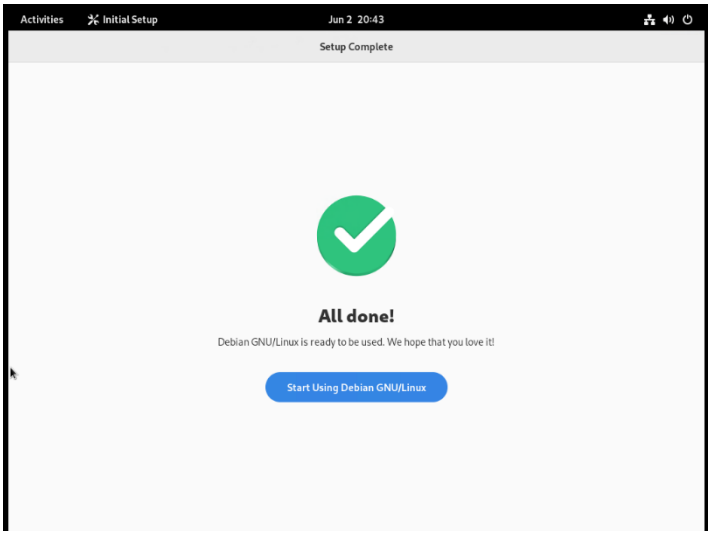

Activities
Initial Setup
Jun 2 20:40
Welcome
Next
Welcome!
English
United States


Activities
Initial Setup
Jun 2 20:40
Previous
Typing
Next
Typing
Select your keyboard layout or an input method.
English (Mali, US, Macintosh)
Preview
English (US)
Preview
English (the divide/multiply toggle the layout)
Preview
Irish
Preview
Scottish Gaelic
Preview

For security purposes I turn location services off

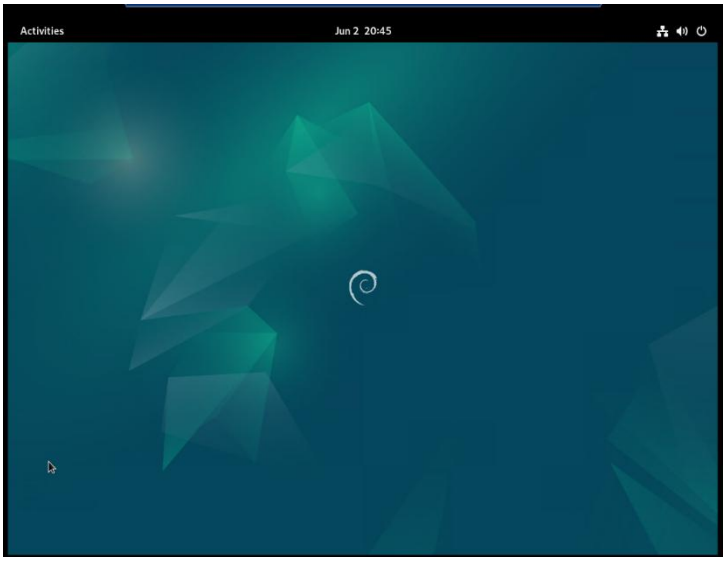




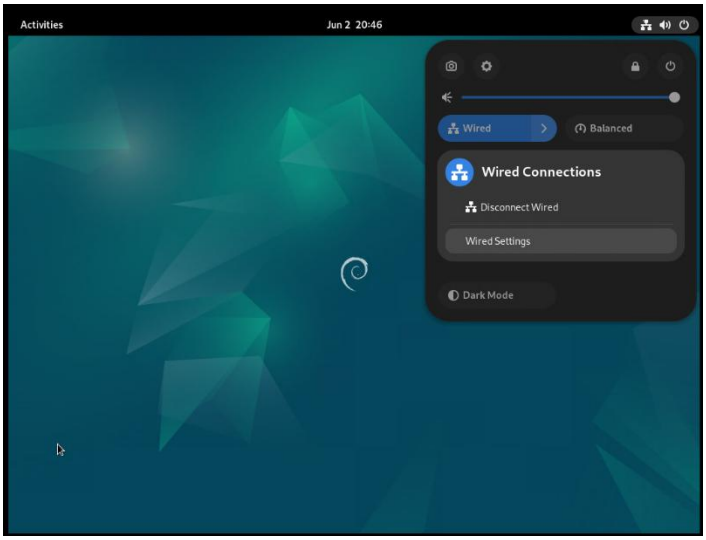


Using the GUI interface is the easiest method to assign the static IP information.

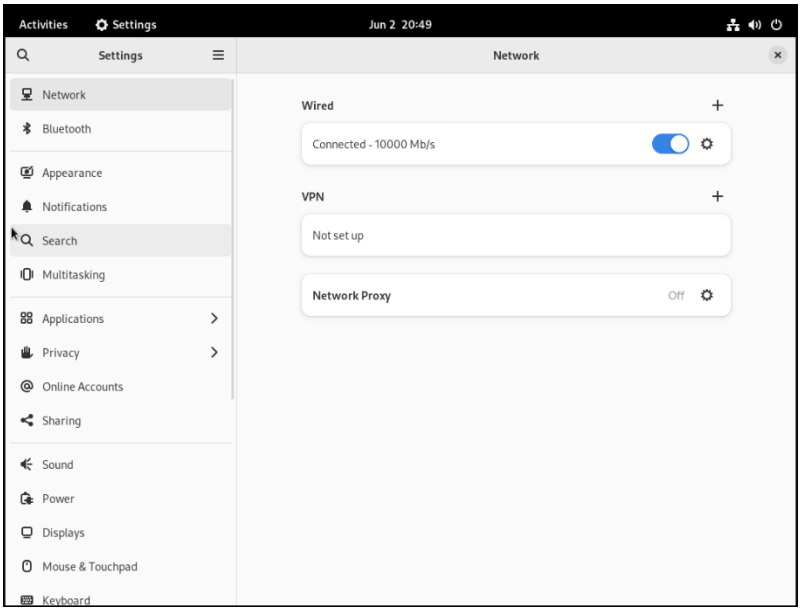
Select the Network Icon in the upper right coner of the desktop next to the volume and power icons.



Select wired and wired settings



Click the gear in the “Wired” connected link



Click the IPv4 tab, the “Manual” IPv4 Method, and enter the appropriate IPv4 information

Static TCP/IP: (TCP/IP settings are subject to change per semester)

IP: 172.16.254.42

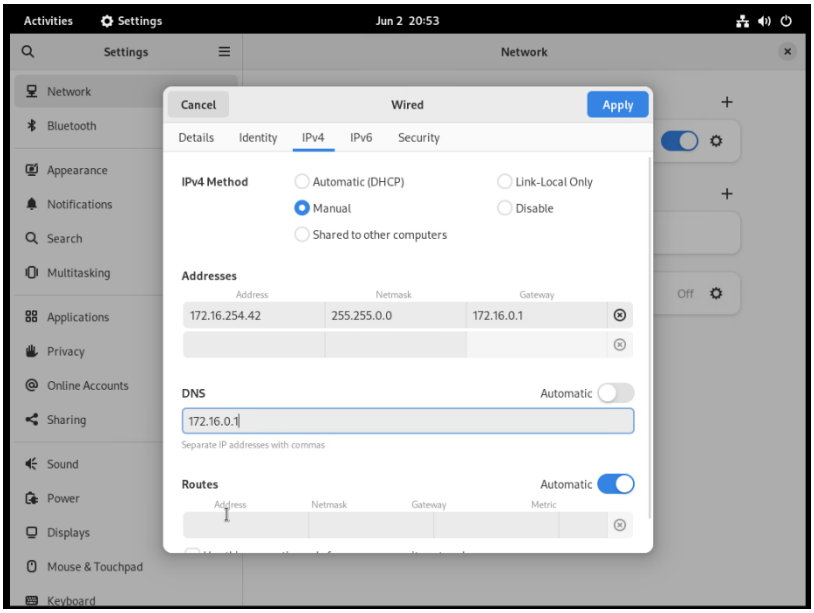
SM: 255.255.0.0

GW: 172.16.0.1

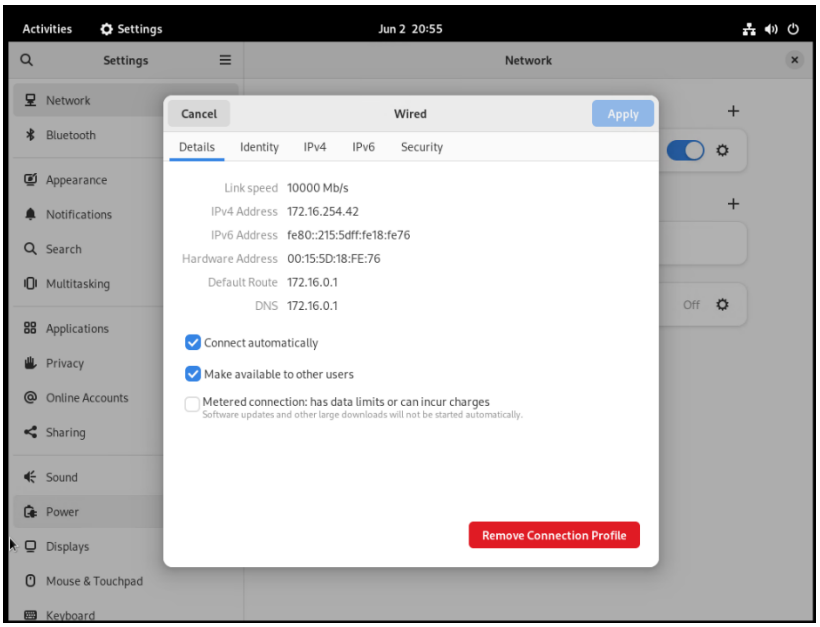
Change DNS to Manual

DNS: 172.16.0.1

Select Apply once complete



Toggle the connection off and back on to update the network settings.
Verify the wired settings details

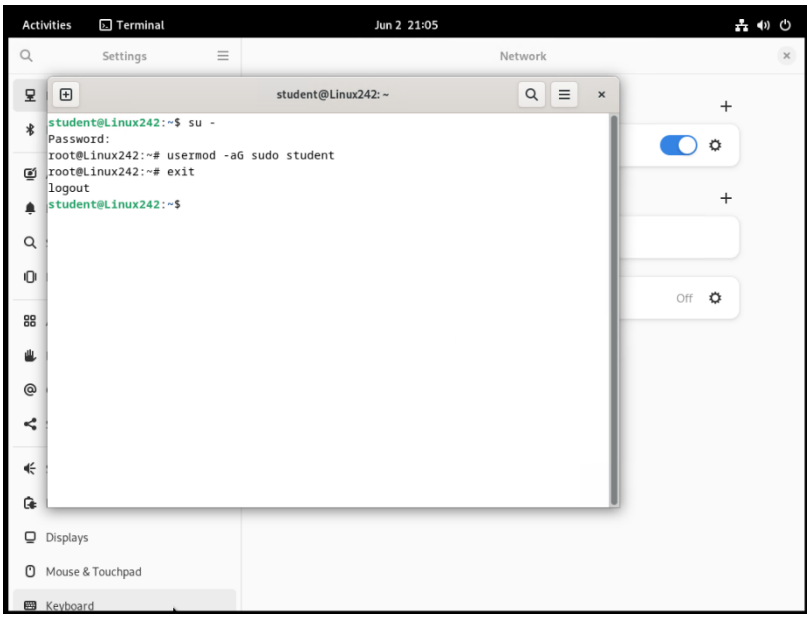


5. Install Apache Web Server and configure the service to automatically start on boot Make sure you add the ‘student’ user to the sudoers security group.

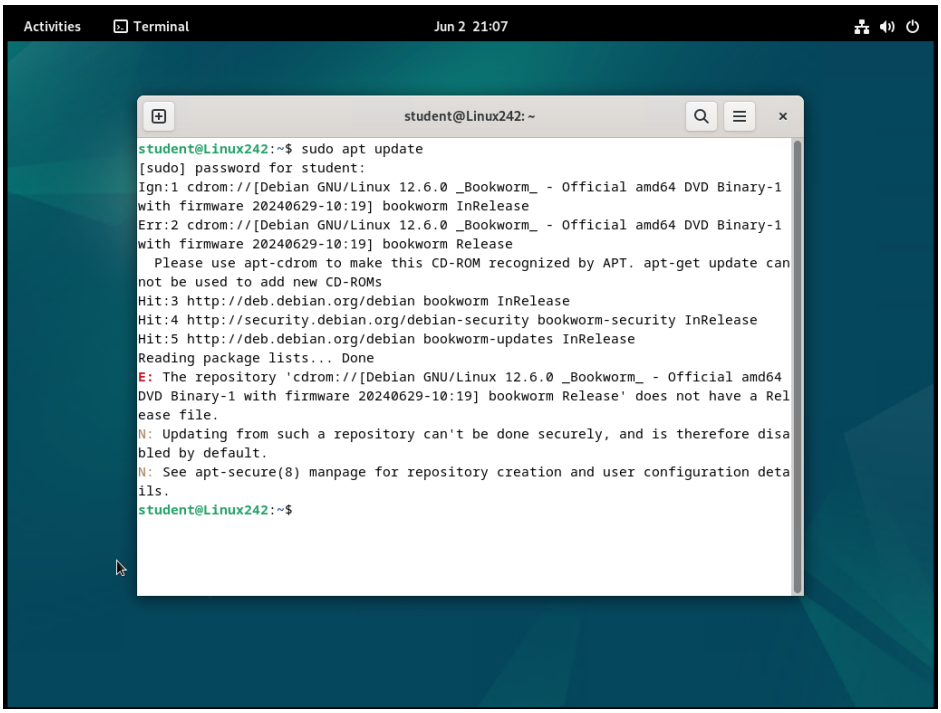
   - Open the terminal

- Switch to root:
- Enter root password
- Switch studen to sudoers group
- Return to student
- Logout and log back in or reboot for the changes to take affect

Commands:
Su -
Password1
Usermod –aG sudo student
exit

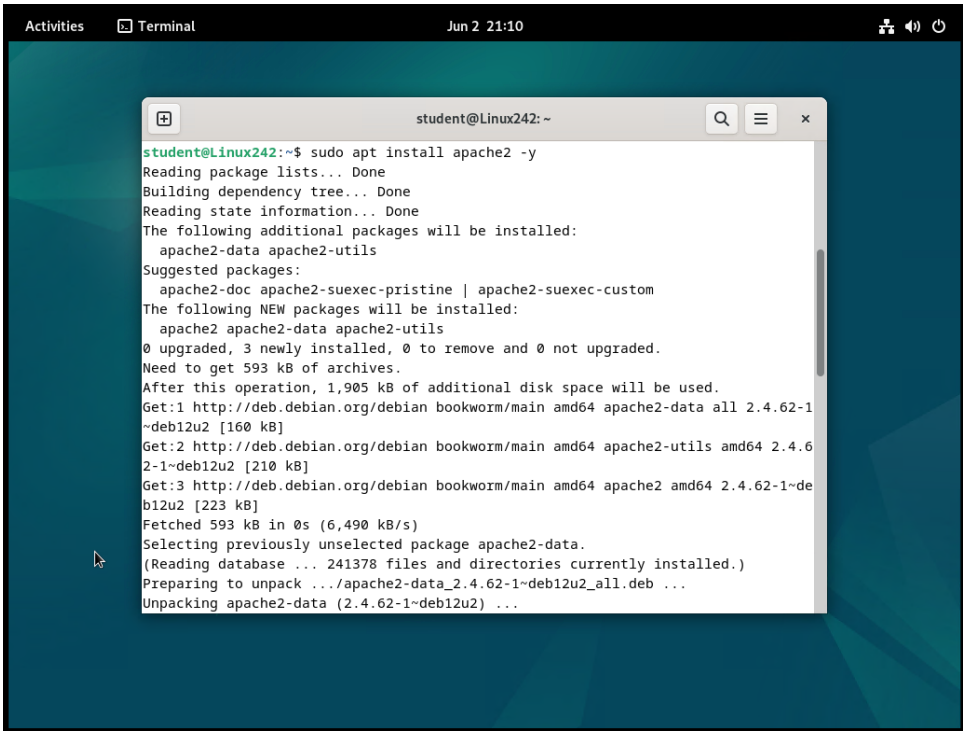


Run sudo apt update to test



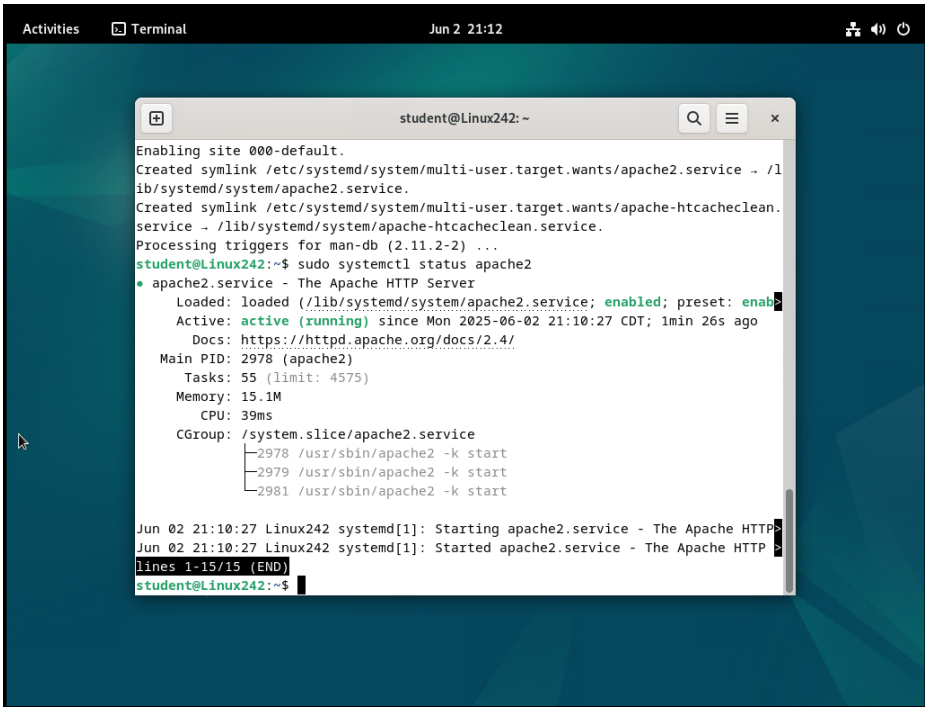
Install apache- https://itslinuxfoss.com/install-apache-web-server-debian-12-linux/

Sudo apt install apache2 –y



Verify installation

Sudo systemctl status apache2



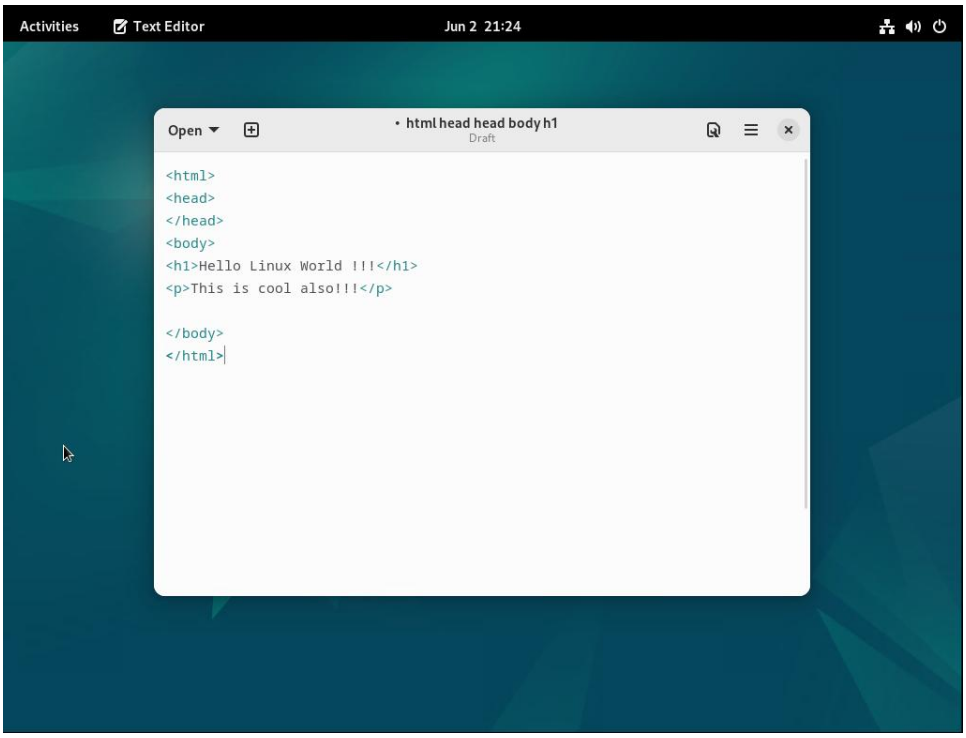
6. Create a basic “index.html” file using HTML code that will display a web page that says “Hello Linux World” (Be sure to document the HTML code)

Save the index.html file in Apache’s Web Root (/var/www/html/)

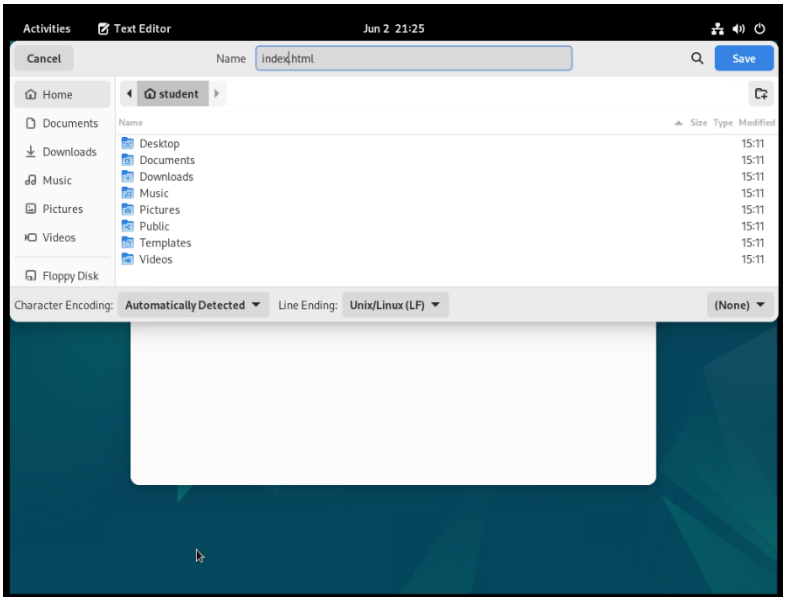
Open text editor and enter the code<ht

<html>
<head>
</head>
<body>
<h1>Hello Linux World!!!</h1>
This is cool also !!!

</body>
</html>



Click the options icon in the upper right hand corner and save as



7. Save the “index.html” file in the default Apache file location

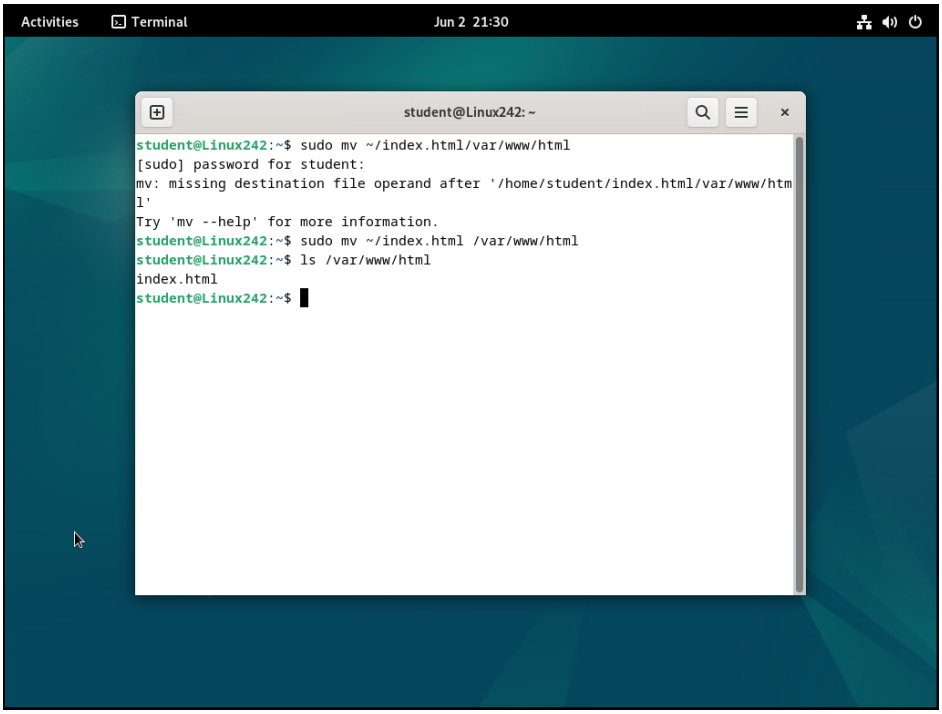
Move the index.html file to the Apache web root.

Sudo mv ~/index.html /var/www/html

Verify the move

Ls /var/www/html

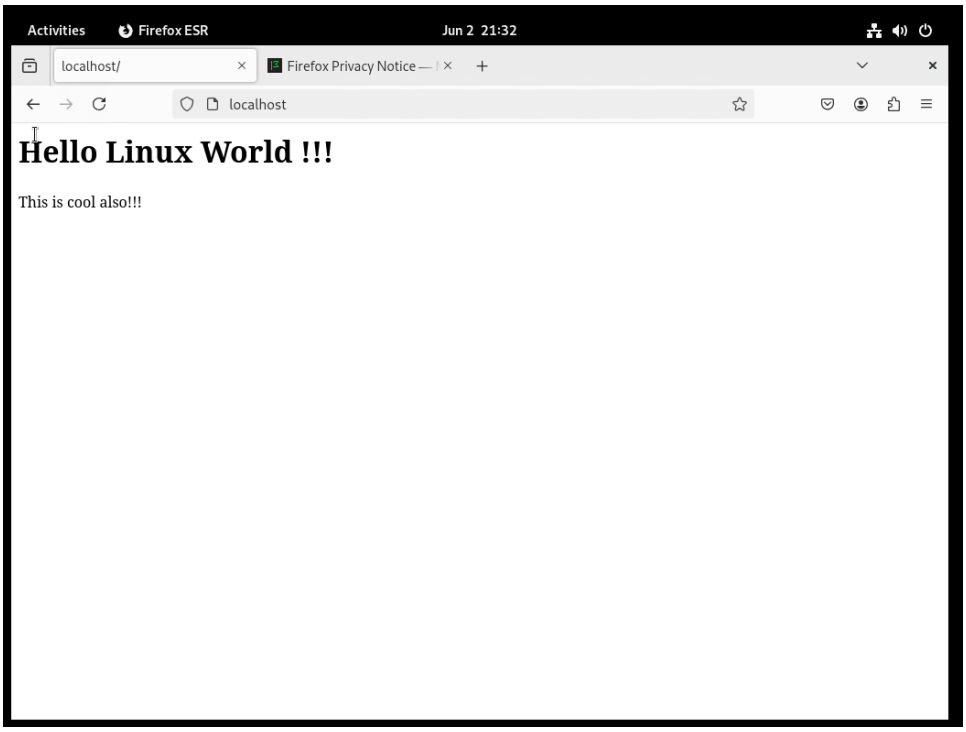
The index.html file is present



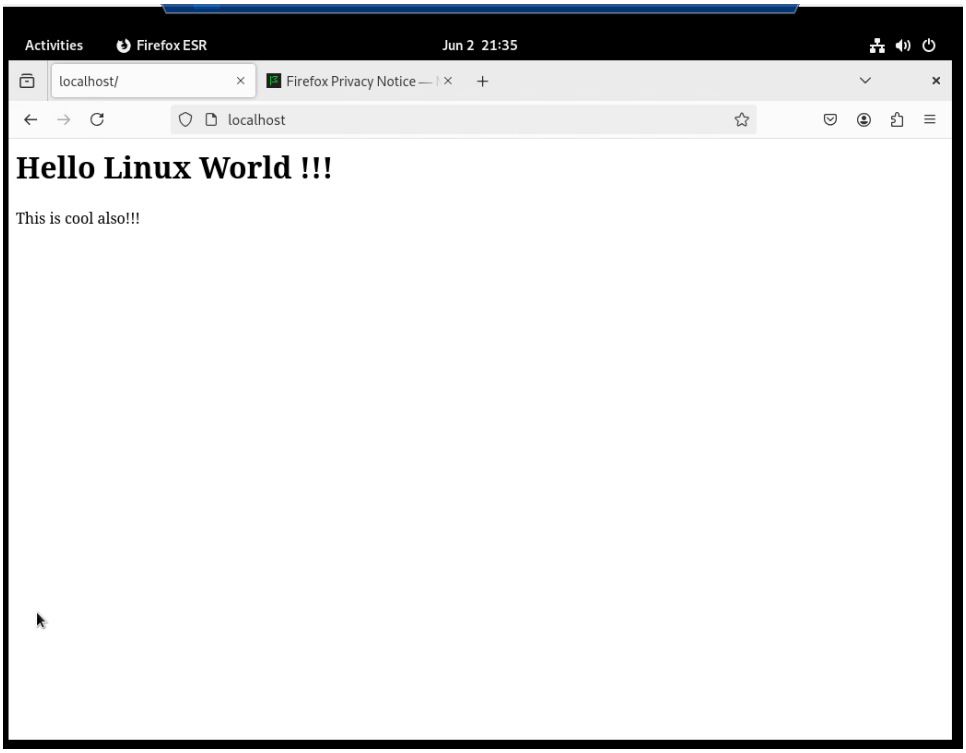
Open terminal

8. Using a browser, navigate to your new default web site on your Linux Server by entering your server URL in the address bar.

Open the Firefox browser and enter http:/localhost/



9. REBOOT YOUR SERVER AND REPEAT THE PREVIOUS STEP



The Linux web server was successfully configured using Debian 11.6 with a static IP address, Apache web services, and a custom HTML page. After rebooting, the system automatically launched the GUI, maintained internet access, and correctly served the static “Hello Linux World” webpage through the browser, confirming full functionality of the web server setup.