Sharif University of Technology

Department of Computer Engineering

Operating Systems

Installing Ubuntu Server on VMware virtual machine

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CE424

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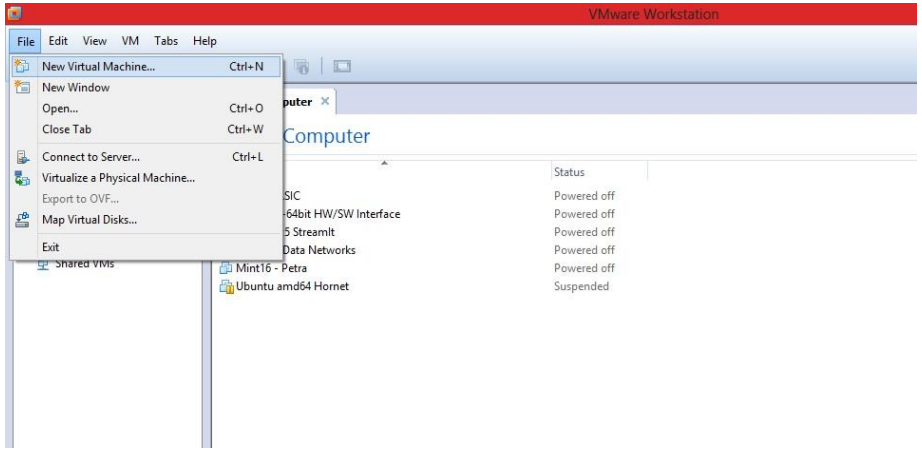
Creating Virtual Machine

- You can use any Virtual Machine Software (such as VMware Workstation, VirtualBox, Parallel Desktop, …)
- In order to install Ubuntu Server on VMware Workstation, first we should create a virtual machine
- To create virtual machine , open VMware Workstation and click on the File
- In this menu you will find option “New Virtual Machine…” which you need to click on

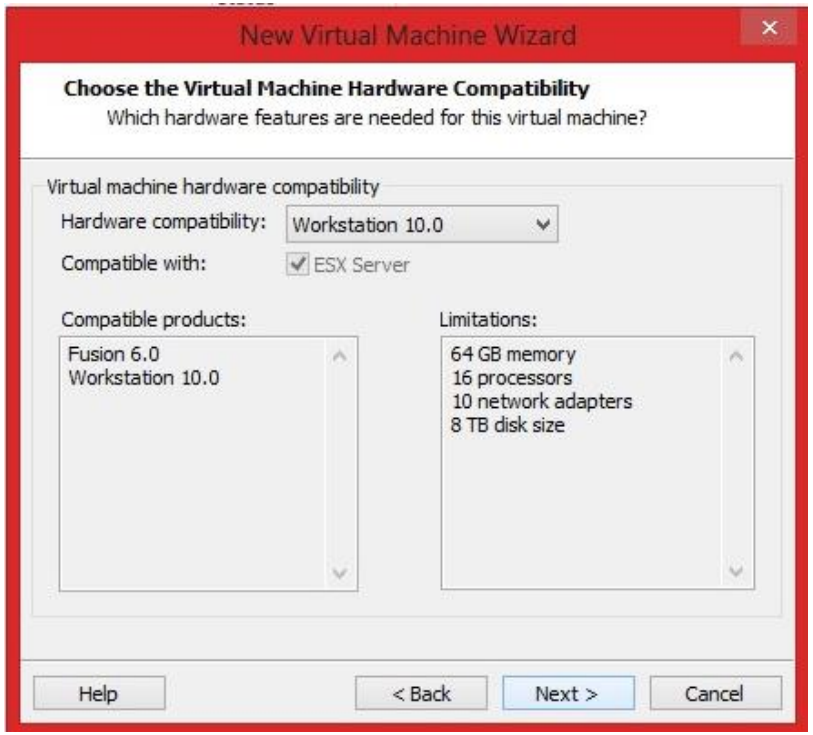


Creating Virtual Machine

- After clicking on “New Virtual Machine…” menu, VMware will ask you if you want “typical” configuration or “custom” one
- To prevent VMware from installing Ubuntu automatically you should select “Custom”

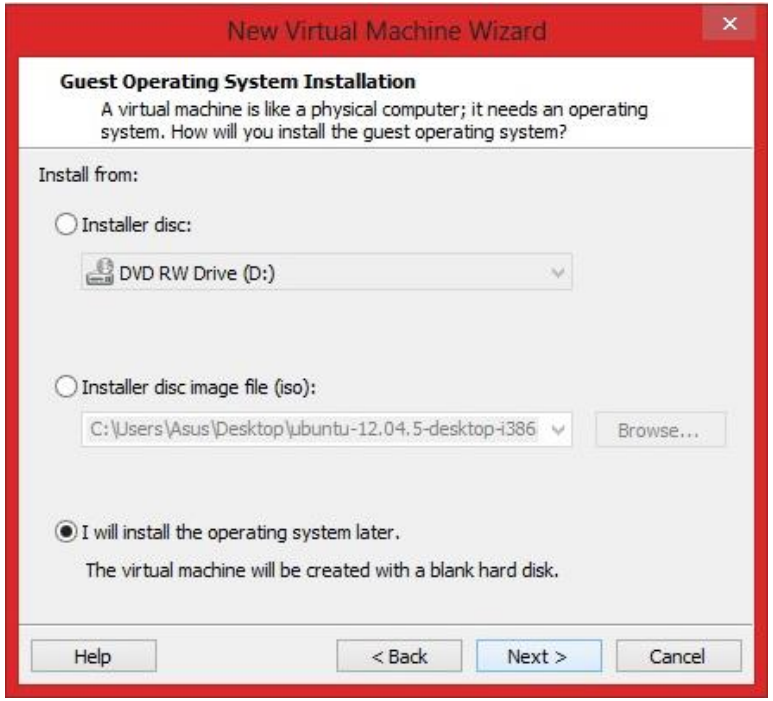
Creating Virtual Machine

- After choosing configuration, VMware will ask about “Hardware Compatibility”
- Just click on “Next”



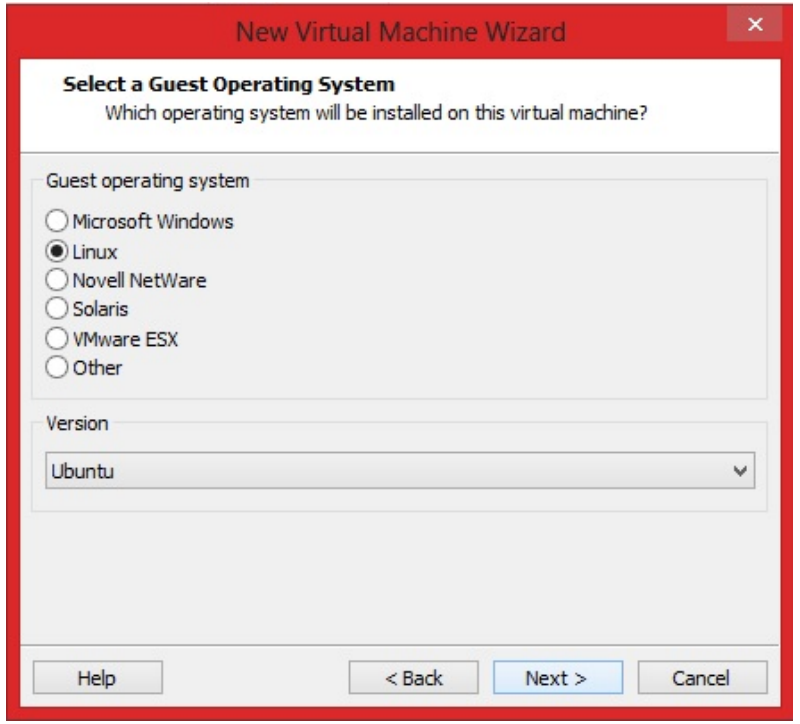
Creating Virtual Machine

- Next you need to choose , how would you like to install “Guest Operating System”
- Again, to get rid of VMware automatic installation, select “I will install the operating system later”



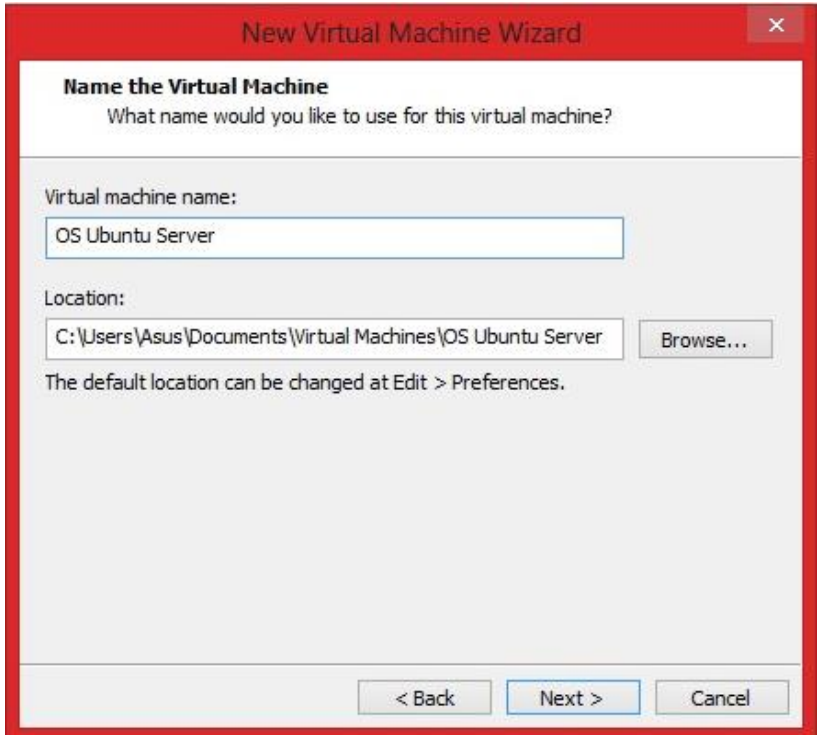
Creating Virtual Machine

- Next you need to select “Guest Operating System”
- Since we are installing 32-bit Ubuntu Server, choose “Linux” in upper part and “Ubuntu” in bottom part of window and click “Next”



Creating Virtual Machine

- Name your virtual machine in this window and click on “Next”
- Specify the VM location, wherever you have enough (about 30GB) free space

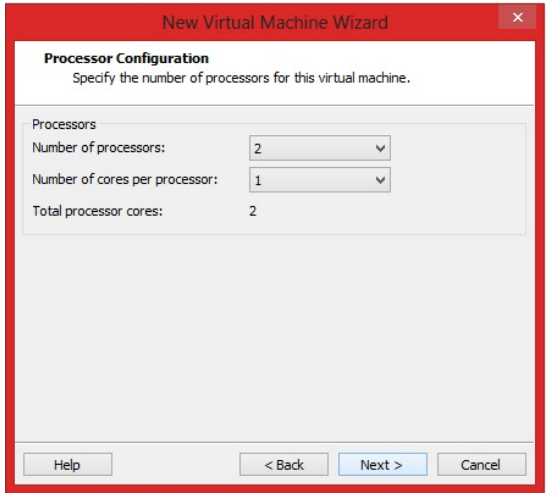


Creating Virtual Machine

- Specify “number of processors” and “number of cores per processor” of your virtual machine in this window based on your machine configuration
- Having more number of cores allocated to VM will speed up kernel compilation process
- If your CPU supports Hyper Threading

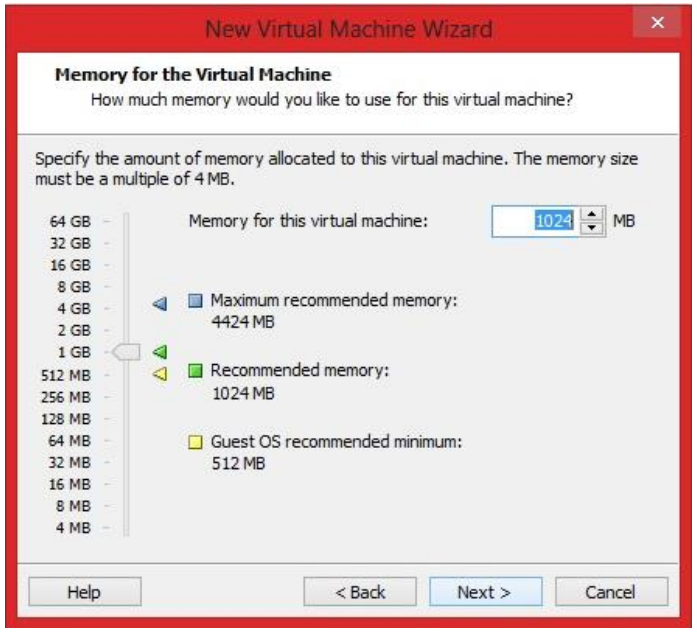
  (as most Intel processors does) you may

  set “number of cores per processor” to 2



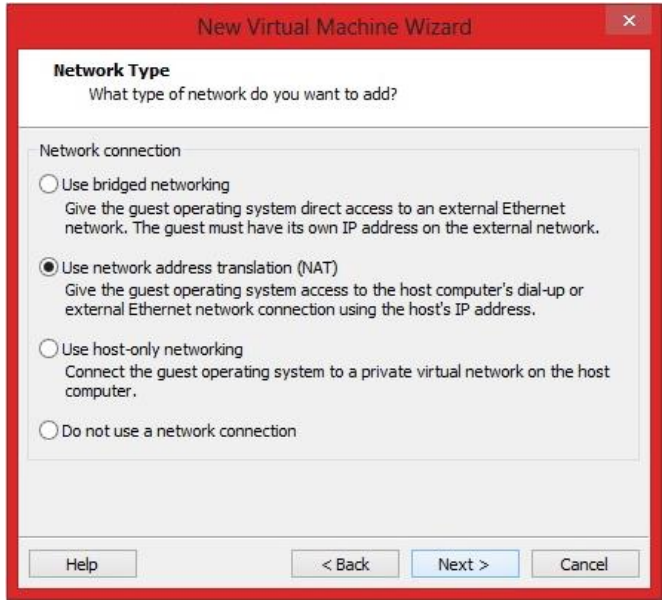
Creating Virtual Machine

- Determine how much memory you want to allocate to your VM in this window
- 1024MB of memory is quite enough for kernel compilation



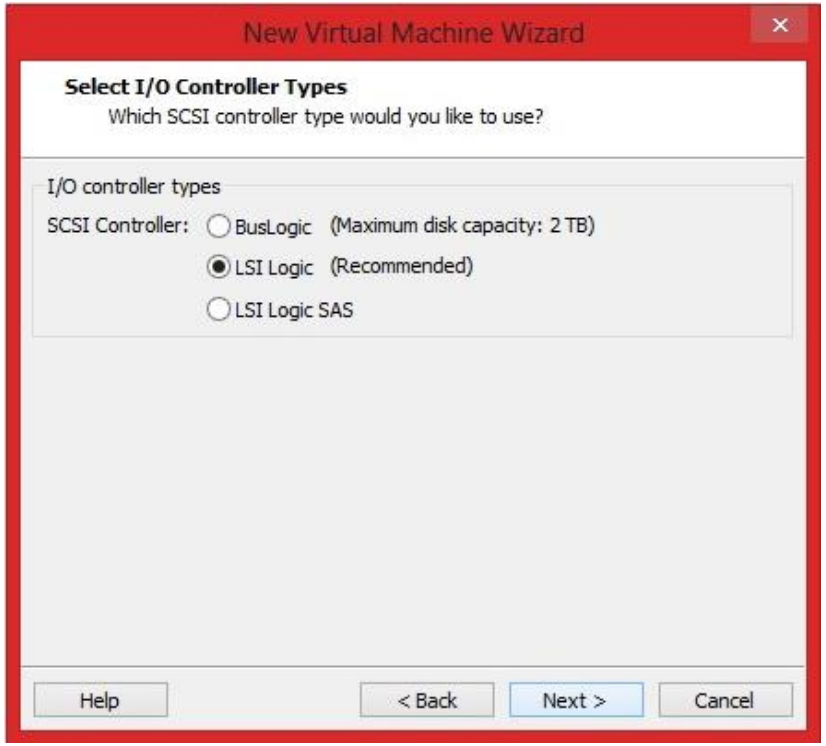
Creating Virtual Machine

- Select the type of network you would like to use in your VM
- For ordinary purposes, such as connecting to Internet from VM and connecting to VM from host using SSH and sFTP,
  Network Address Translator (NAT)
  works well



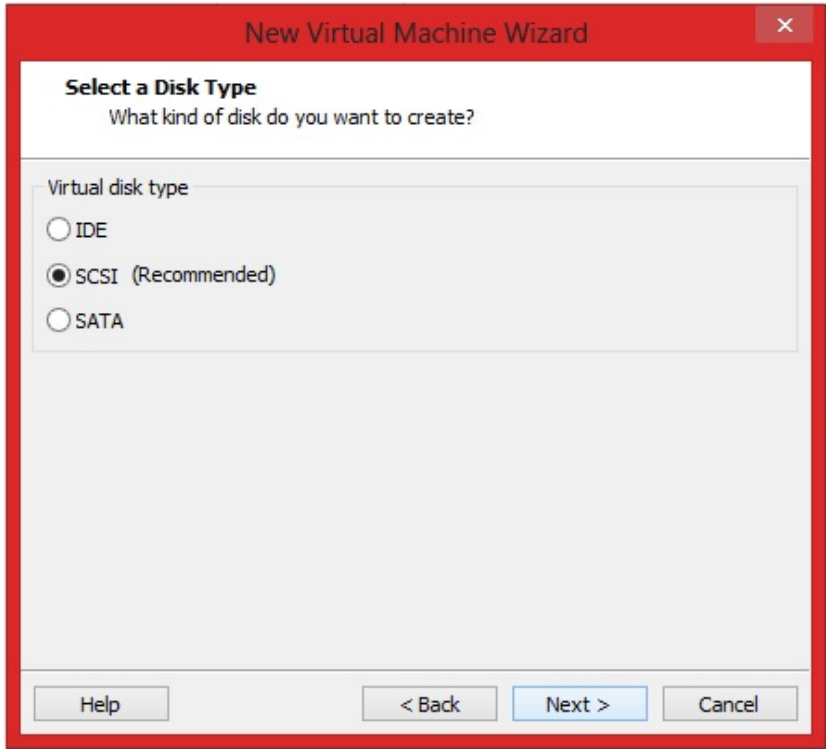
Creating Virtual Machine

- Choose type of I/O controller for your VM
- Select recommended option (LSI Logic) and click on “Next”



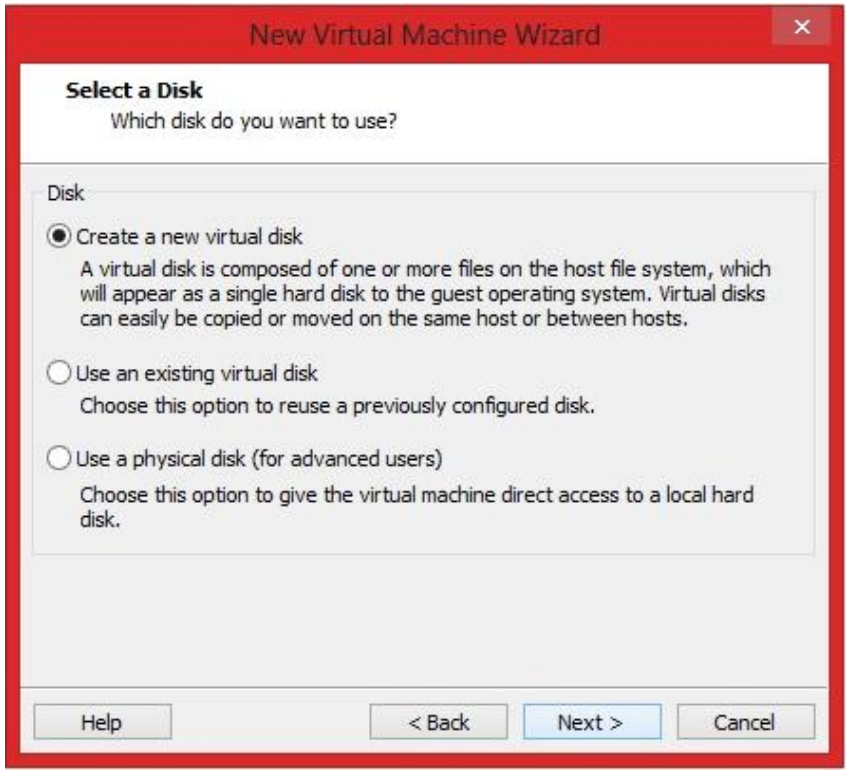
Creating Virtual Machine

- Choose type of your virtual disk
- Select recommended option (SCSI) and click on “Next”



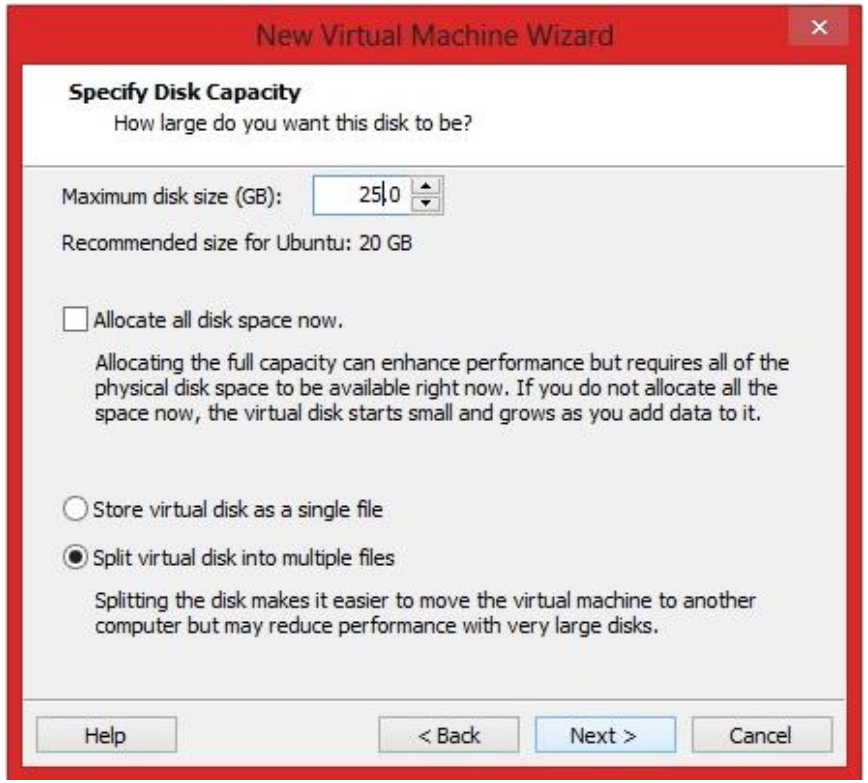
Creating Virtual Machine

- You need to select the disk you want to use
- Select “Create a new virtual disk” and click on “Next”



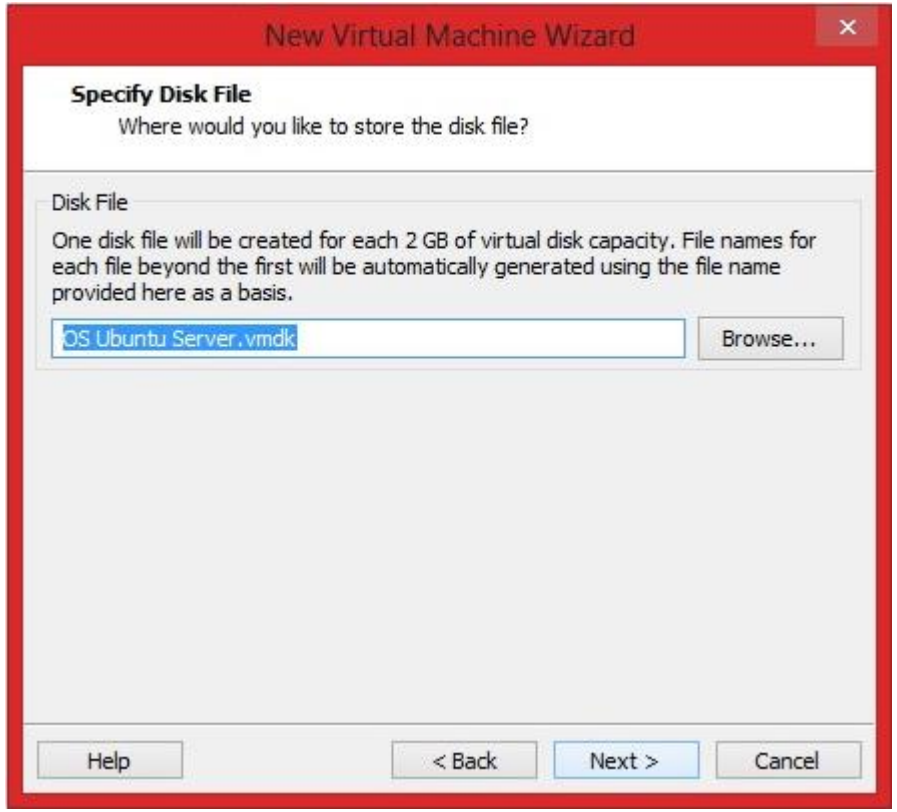
Creating Virtual Machine

- Next you will specify disk capacity
- It is best to choose “25.0” GB for kernel compilation and leave other options unchanged



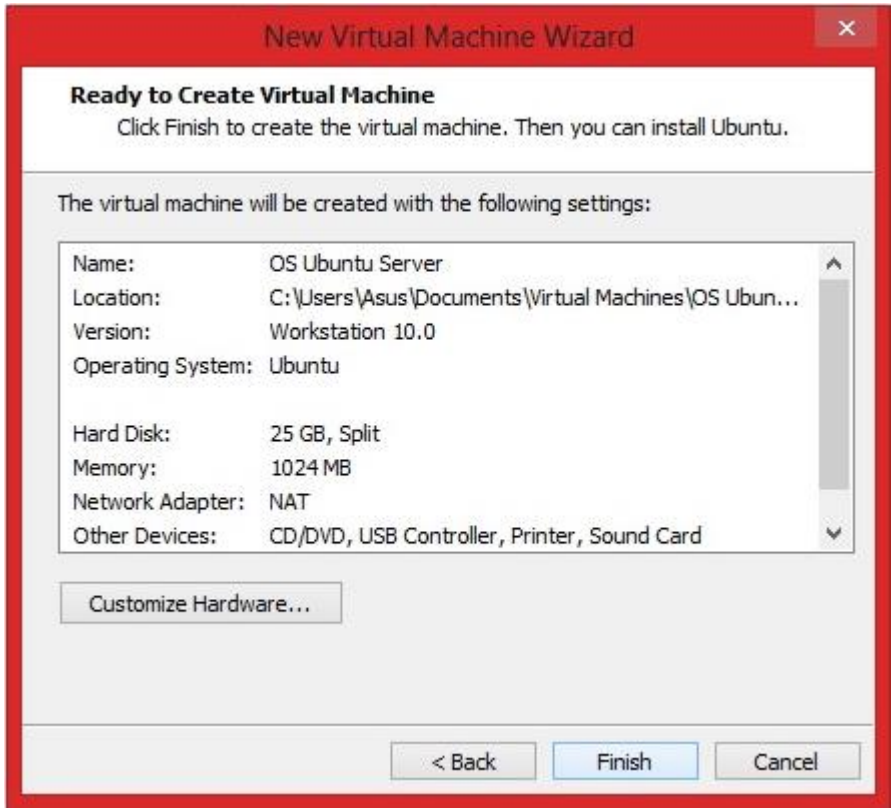
Creating Virtual Machine

- Browse to the path you would like your virtual disk to be stored and specify its name



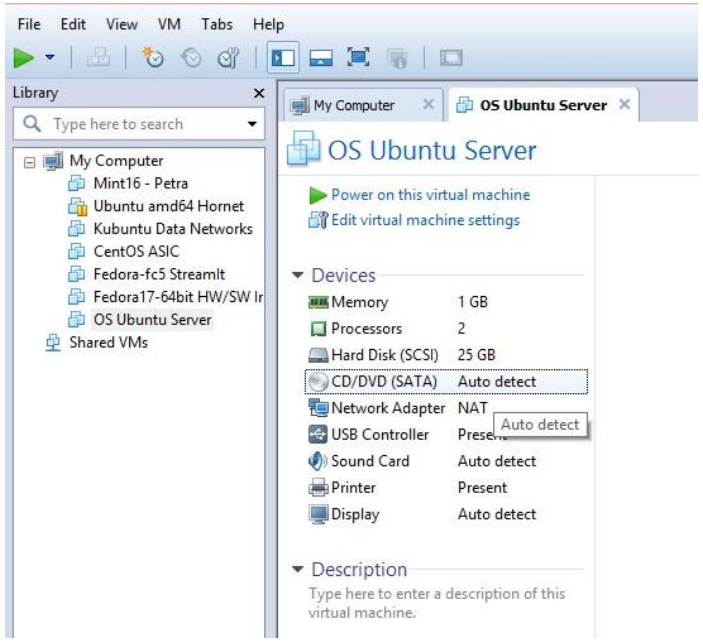
Creating Virtual Machine

- Click on “Finish” to create virtual machine



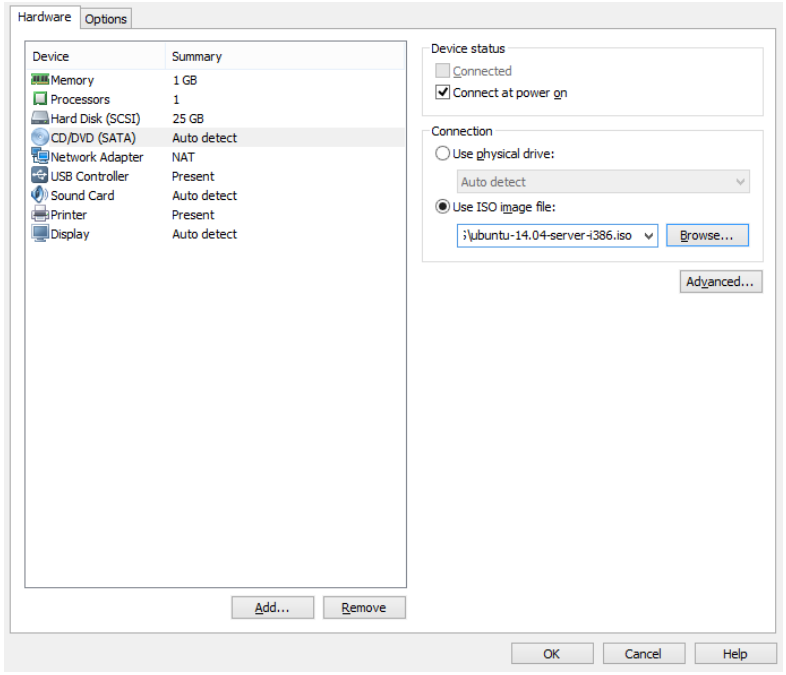
Installing Ubuntu Server

- To install guest operating system, first you need to insert Ubuntu Server Installation Image in VM's CDRom
- To do so, click on "CD/DVD"



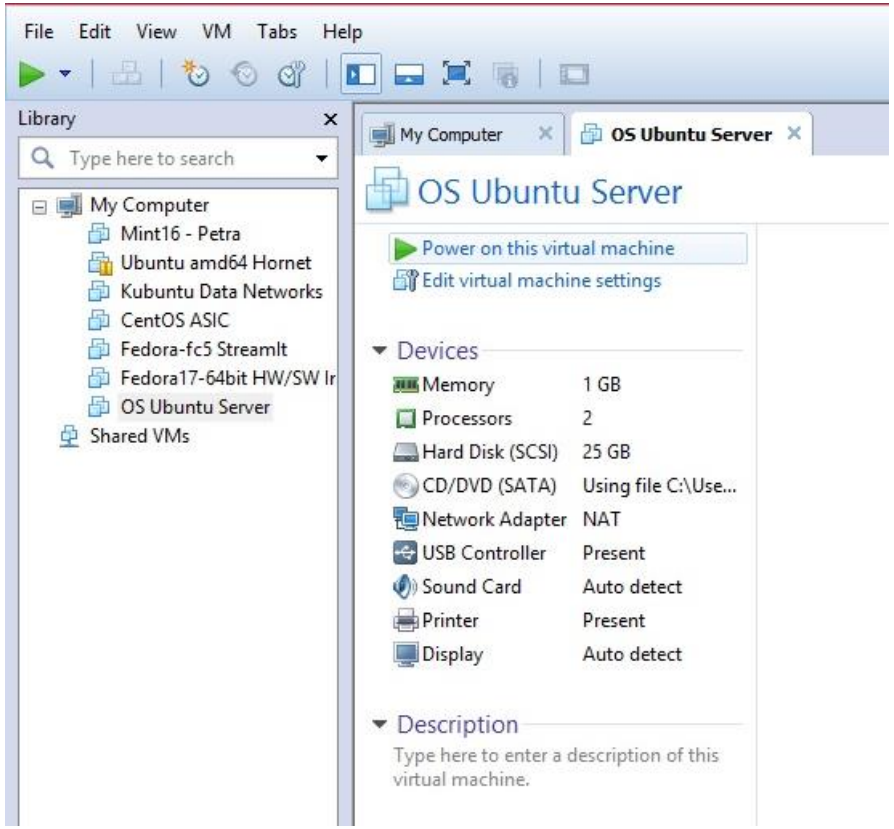
Installing Ubuntu Server

- Here you need to select option “Use ISO image file” and browse to .iso file
- Make sure “Connected at power on” is enabled
- Once done, click on “OK”



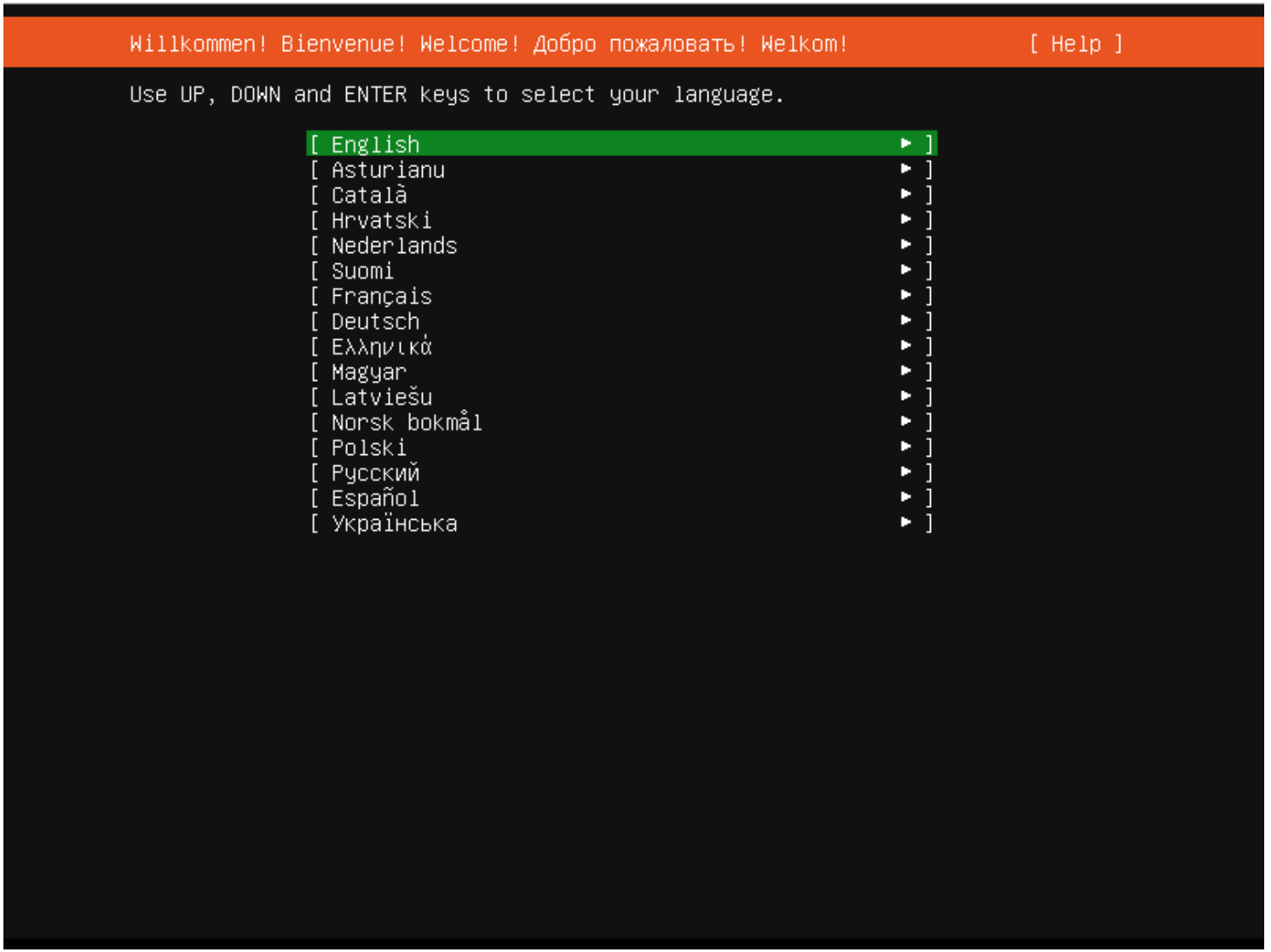
Installing Ubuntu Server

- Now your VM is ready to be started
- Click on “Power on this virtual machine”



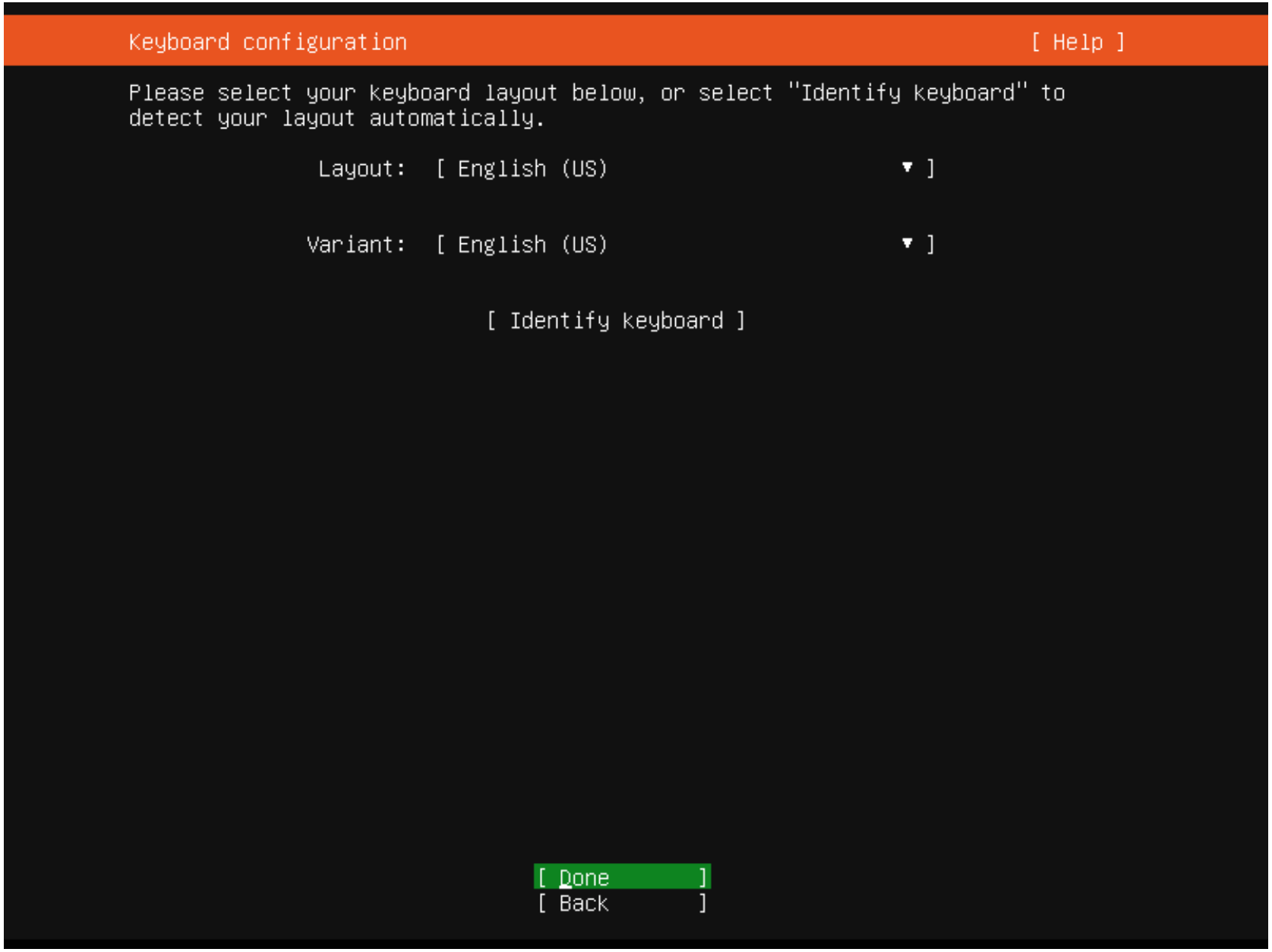
Installing Ubuntu Server(Language)

Once the system has booted, you will land on the installer welcome interface shown in the following screenshot asking you to select the installation language. Press **Enter** to continue.



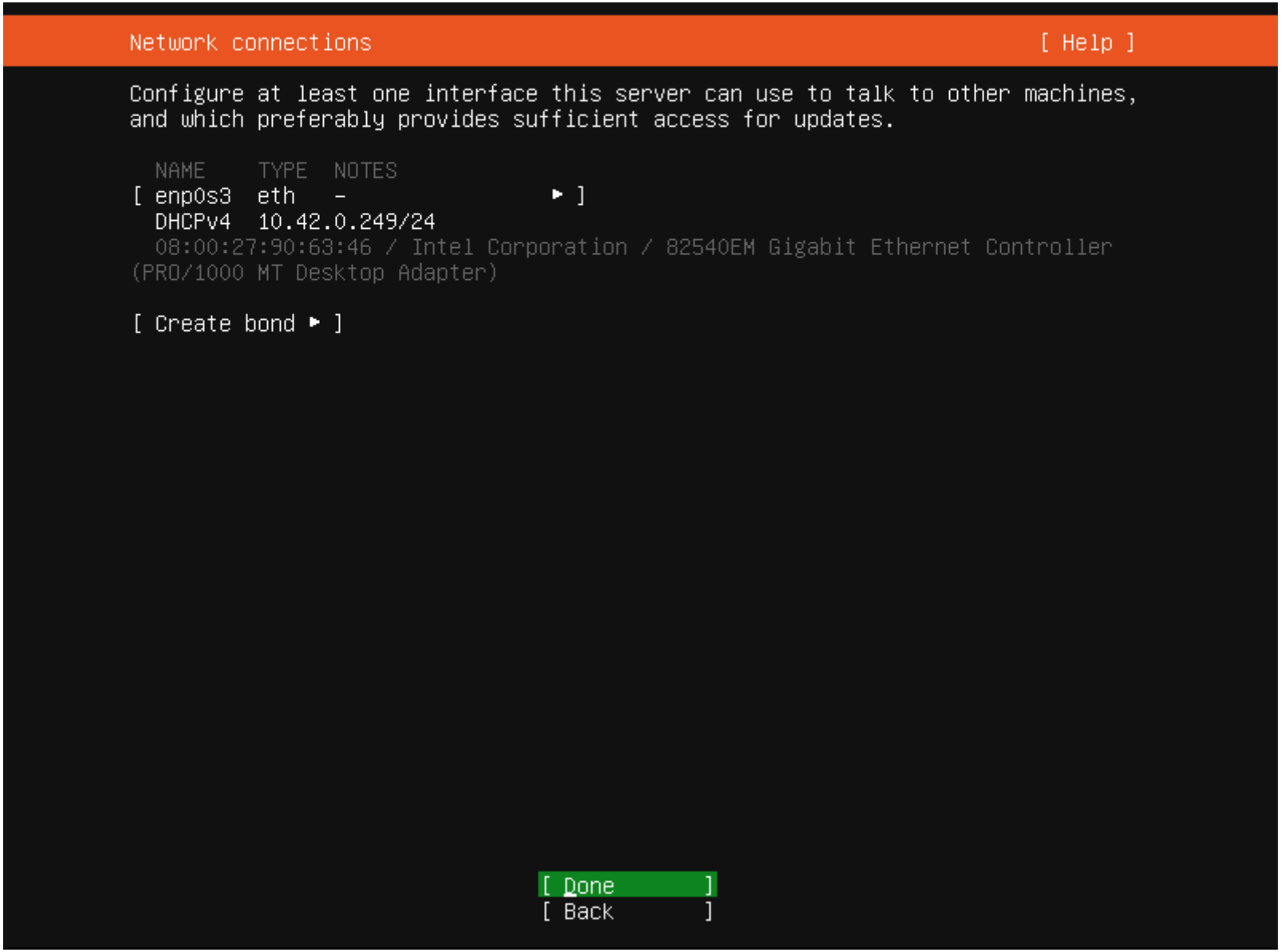
Installing Ubuntu Server(Keyboard)

Next, select your **keyboard** layout and press **Enter** to proceed.



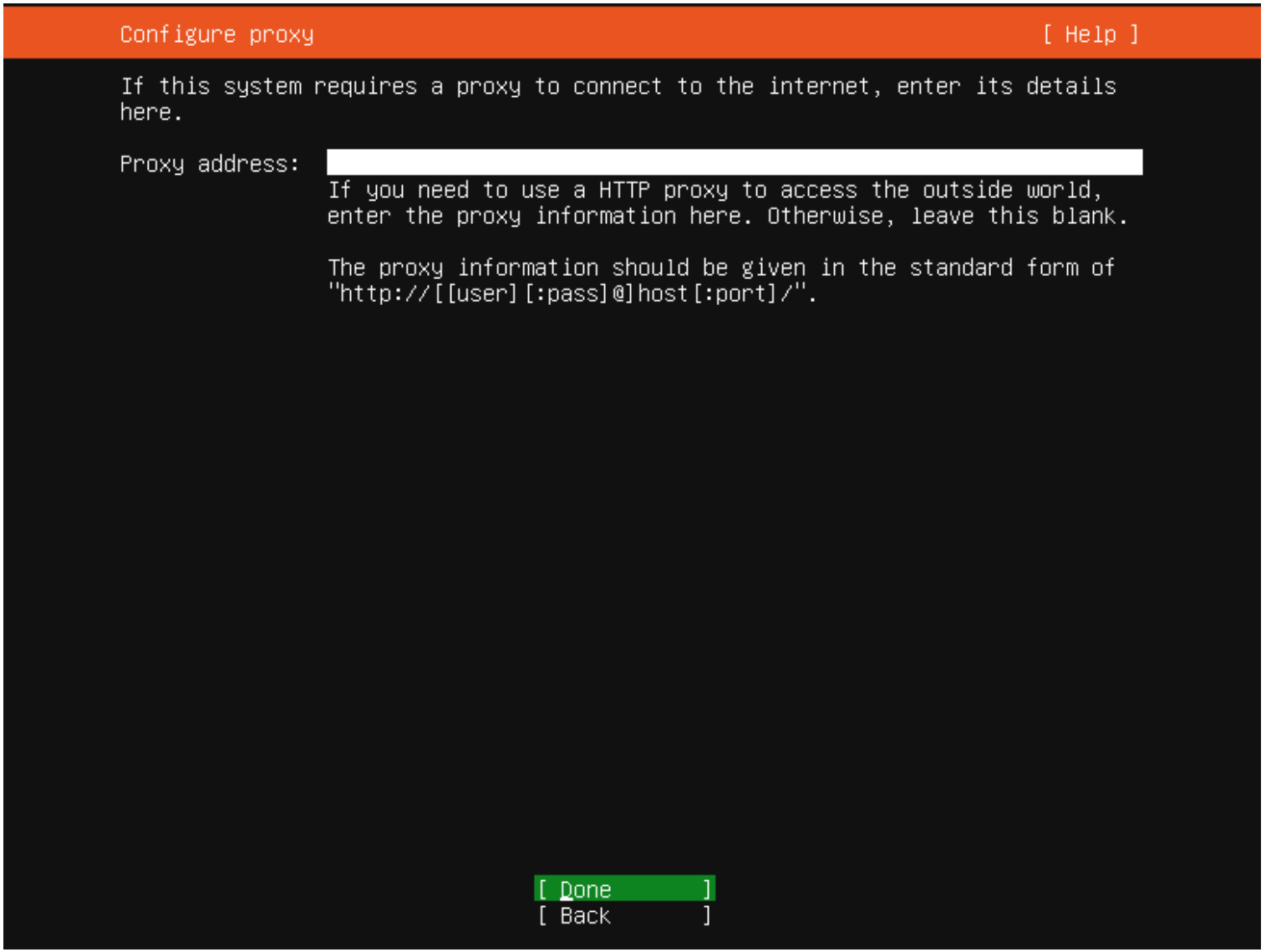
Installing Ubuntu Server(Network)

If your system is connected to a network, it should receive an IP address from your DHCP server. Press **Done** to continue.



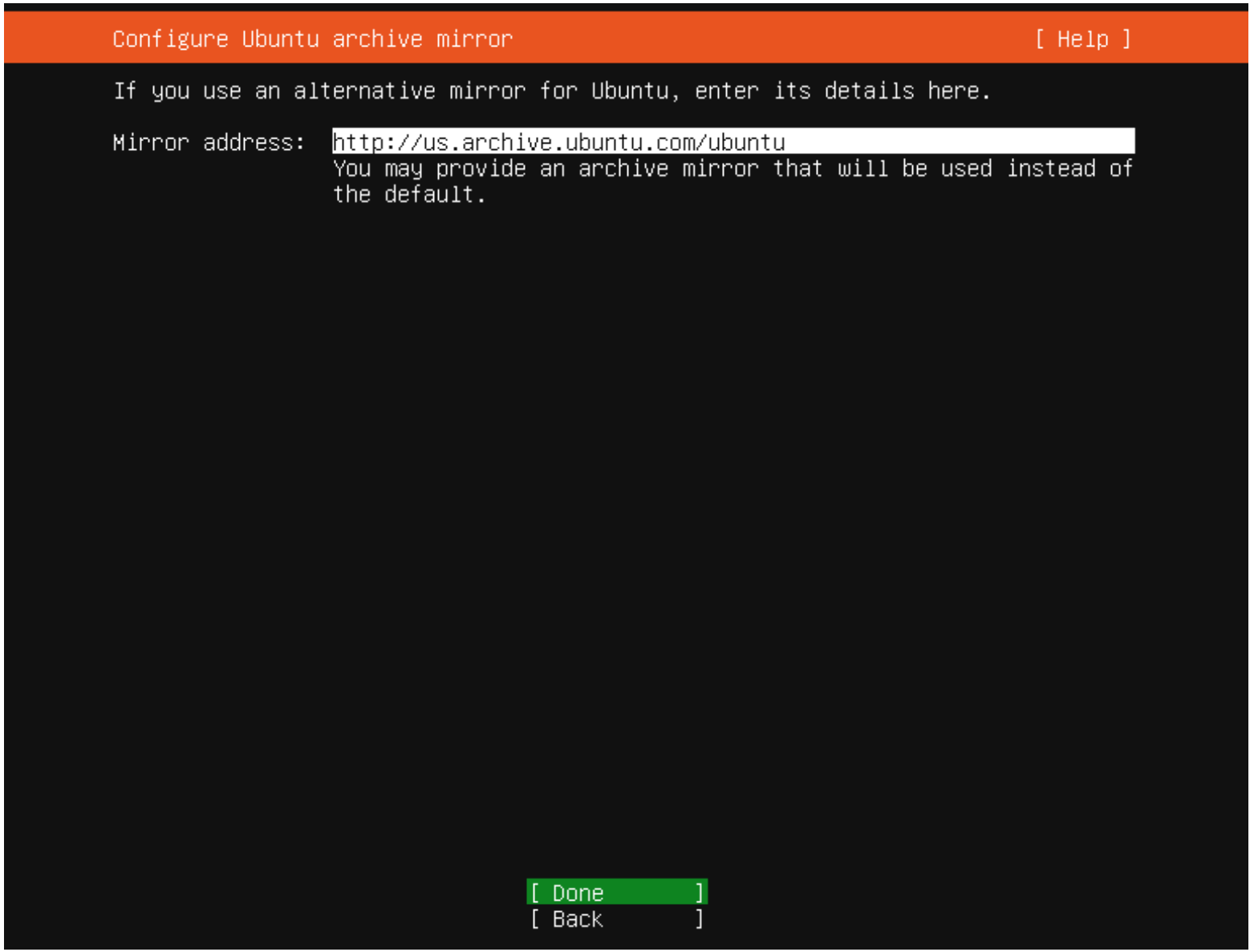
Installing Ubuntu Server(Proxy Server)

Based on your network set up, if you need a proxy server to connect to the internet, enter its details here. Otherwise, leave it empty and press **Done**.



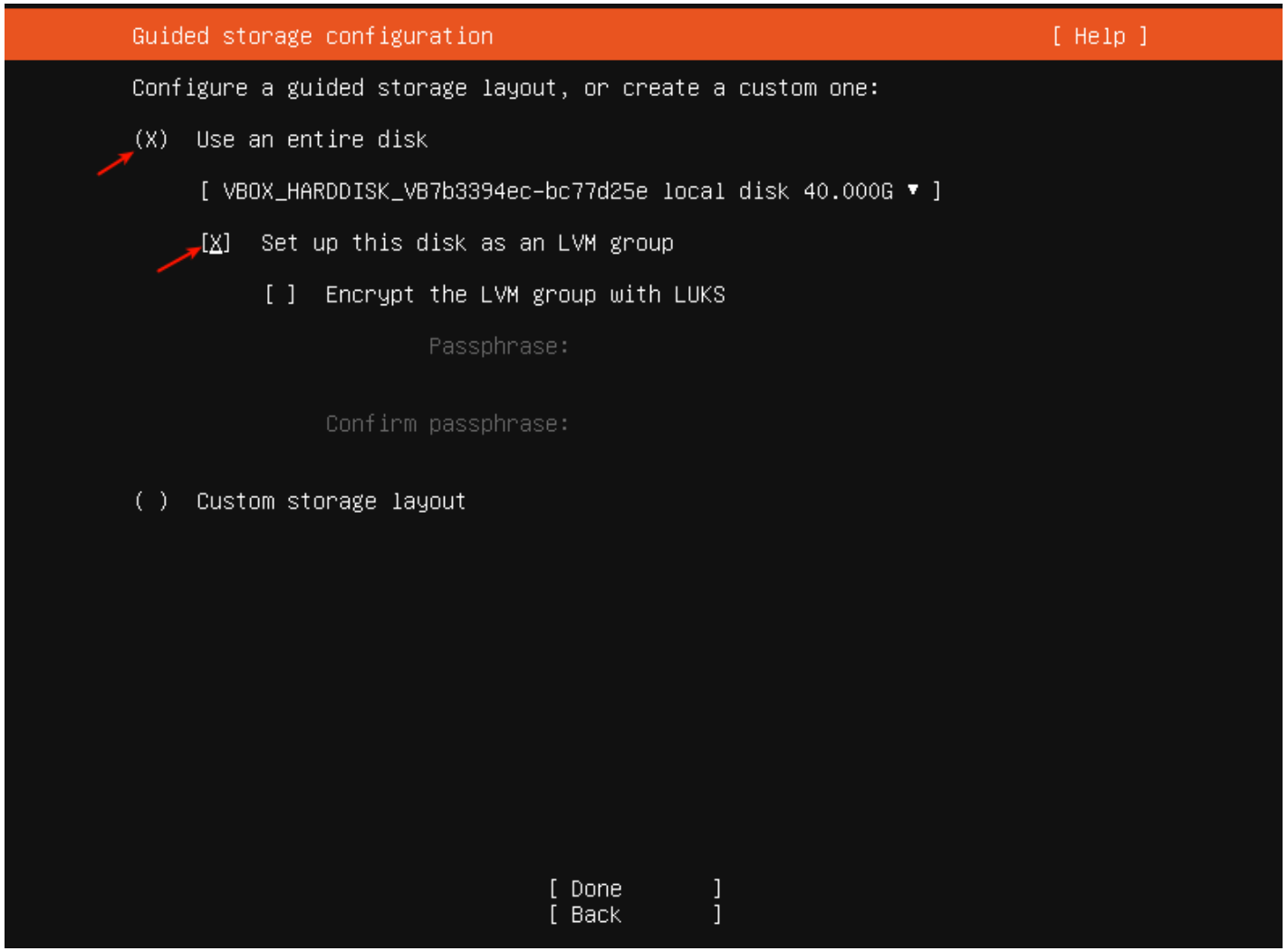
Installing Ubuntu Server(Archive Mirror)

Next, you need to configure the Ubuntu archive mirror. The installer will select it automatically based on your country. Press **Done** to proceed.



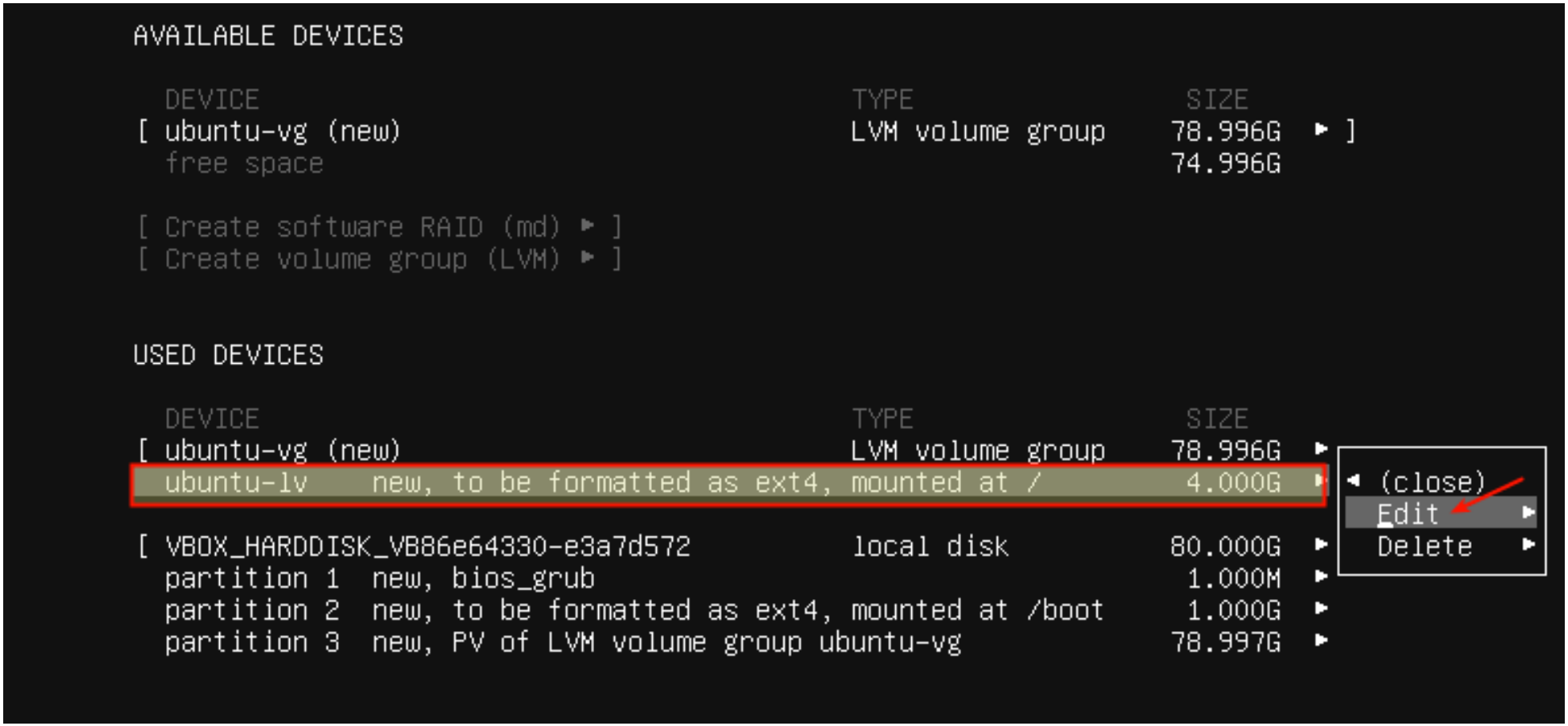
Installing Ubuntu Server(Disk Config)

Now its time to configure your storage. You need to create the storage layout as explained below. For this guide, we will show how to do this manually, therefore, go to **Use an entire disk** and then select check the option **Set up this disk as an LVM group**.



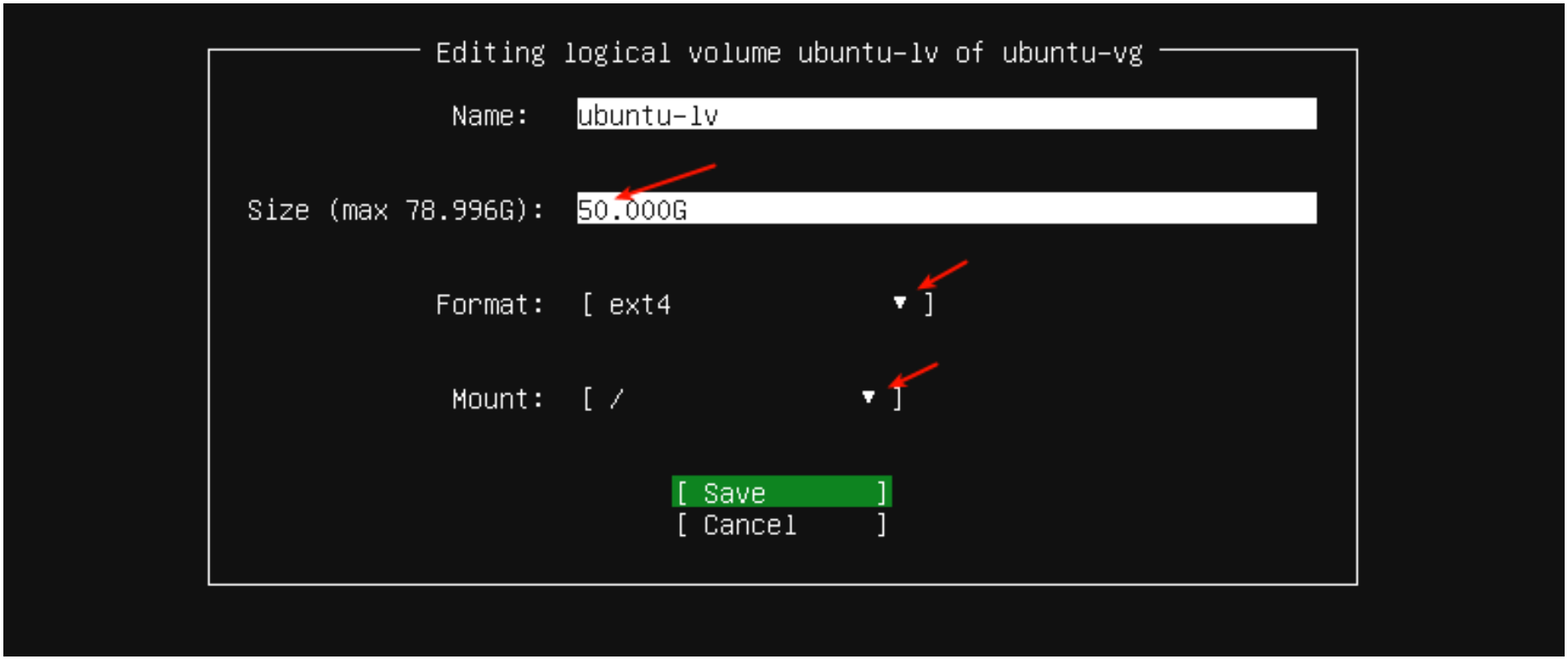
Installing Ubuntu Server(root partition)

Next, under **USED DEVICES**, scroll to the **root** partition and press enter to get partitioning options. Select **Edit** as shown in the following screenshot, and press **Enter**.



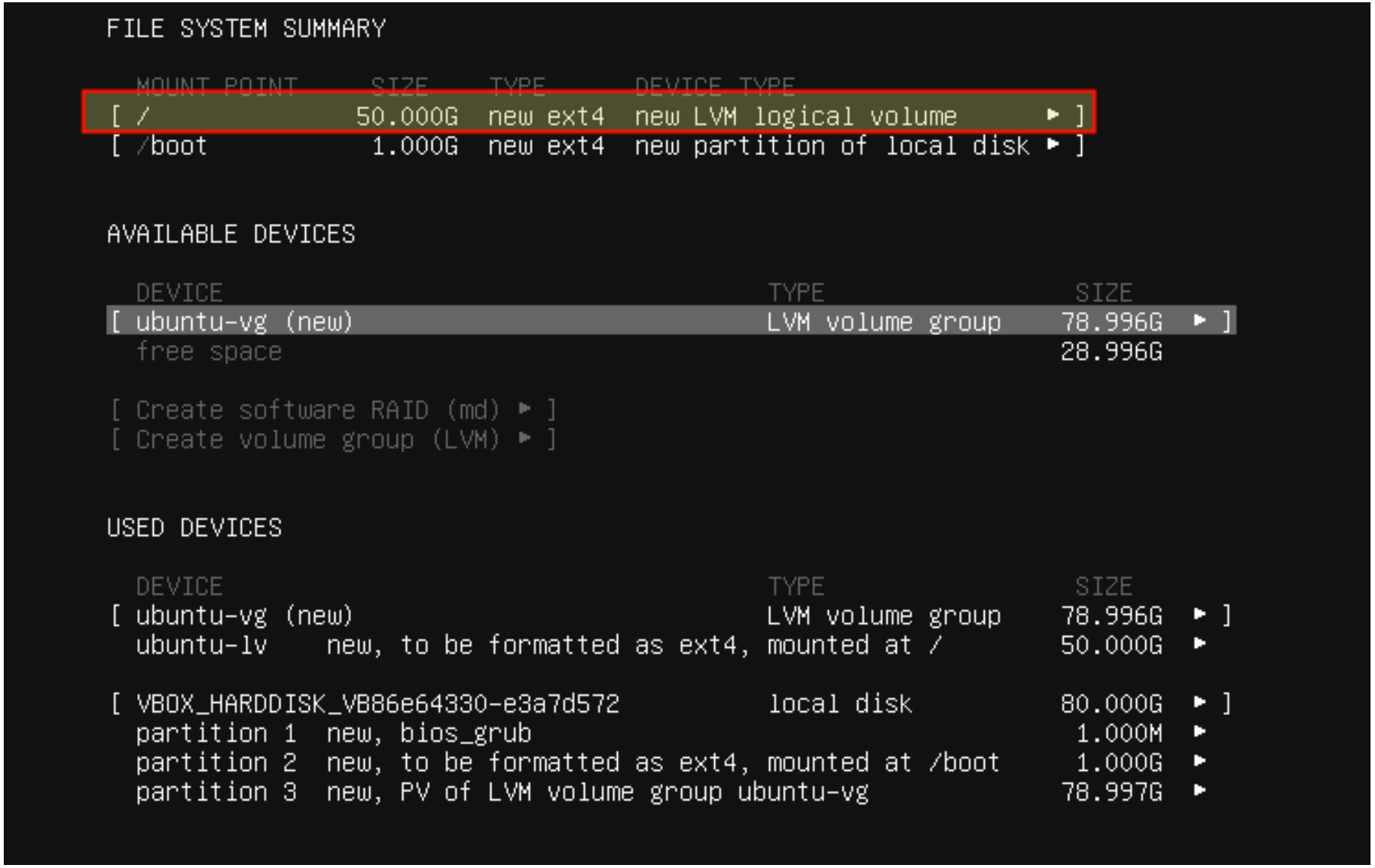
Installing Ubuntu Server(root partition)

Then edit the partition size as shown in the following screenshot. For example, set it to **50GB** and scroll down or use tab to go to **Save** and press **Enter**.



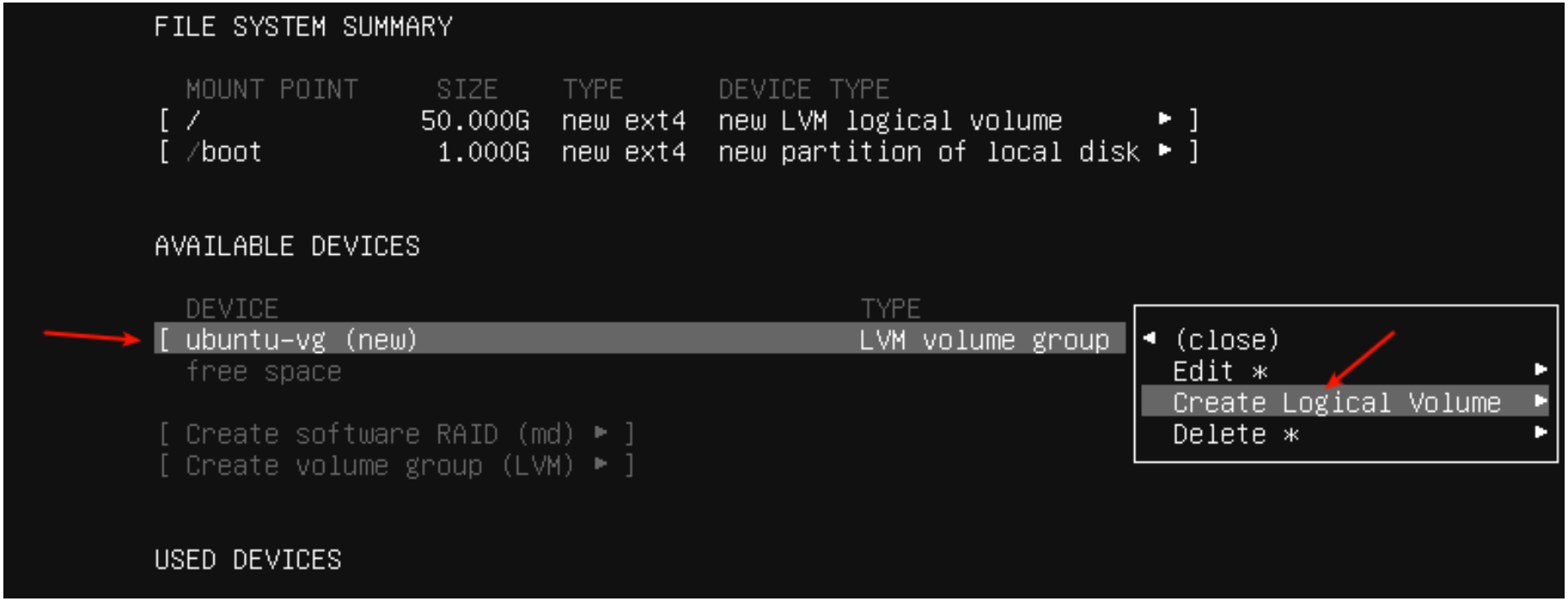
Installing Ubuntu Server(root partition)

Now the **root** partition should have a size amounting to what you specified while editing it. Root partition is shown with “/” symbol.



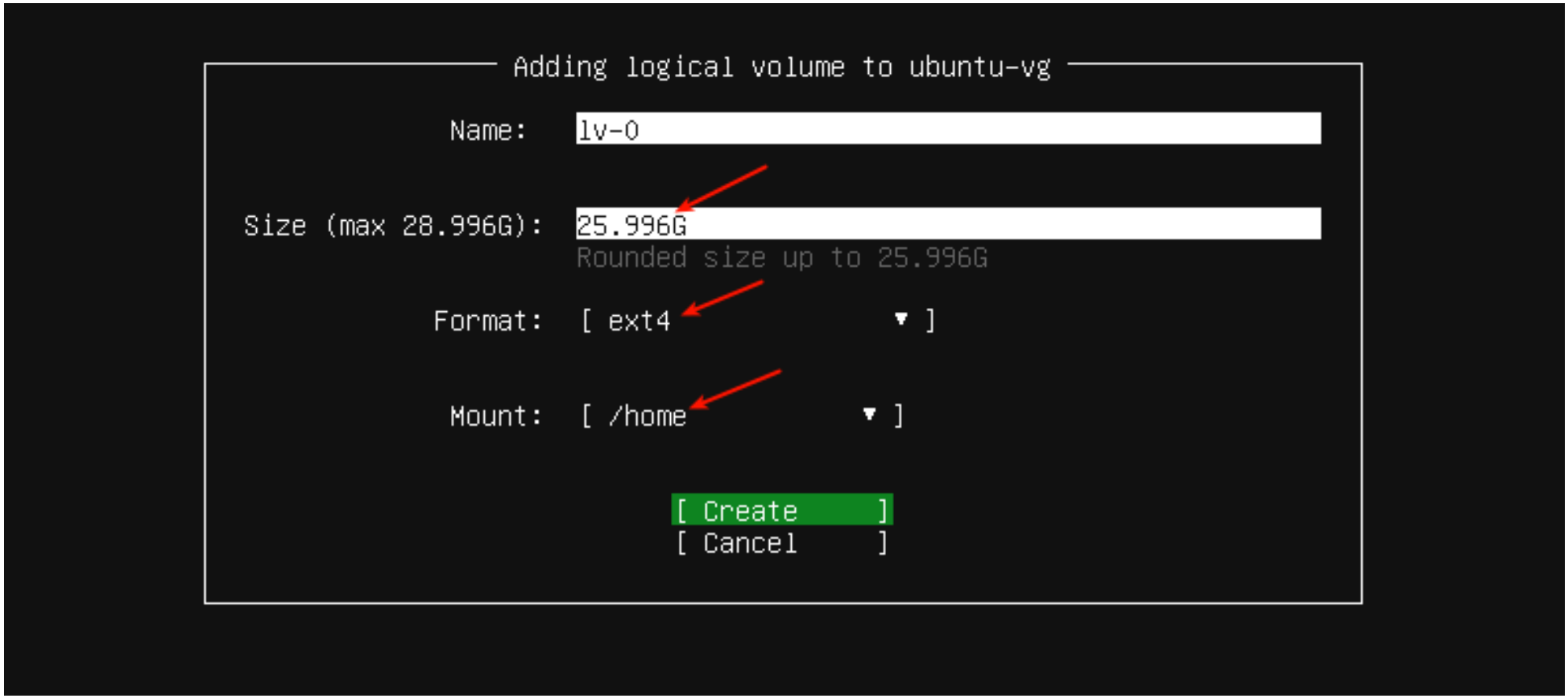
Installing Ubuntu Server(home partition)

Next, you need to create a home partition for storing user files. Under **AVAILABLE DEVICES**, select the **LVM** volume group and press **Enter**. In the partitioning options, scroll down to **Create Logical Volume**.



Installing Ubuntu Server(home partition)

Next, enter the home partition size. Set it appropriately so that you leave some space for a swap partition. Under **Format**, select **ext4** and **Mount** should be /home as highlighted in the following screenshot. Then scroll down to **Create** and press **Enter**.

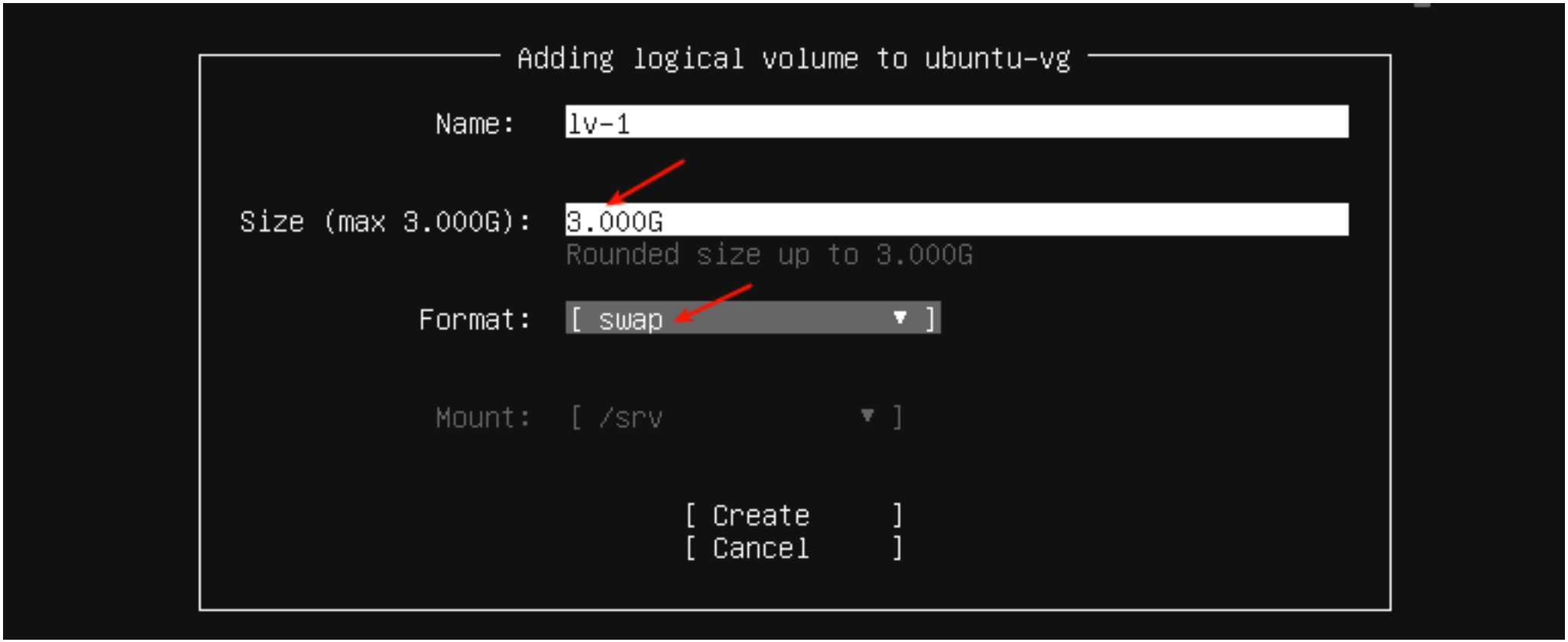


Installing Ubuntu Server(swap partition)

Now you need to create a **swap** partition. Under **AVAILABLE DEVICES**, select the **LVM** volume group and press **Enter**. In the partitioning options, scroll down to **Create Logical Volume**.

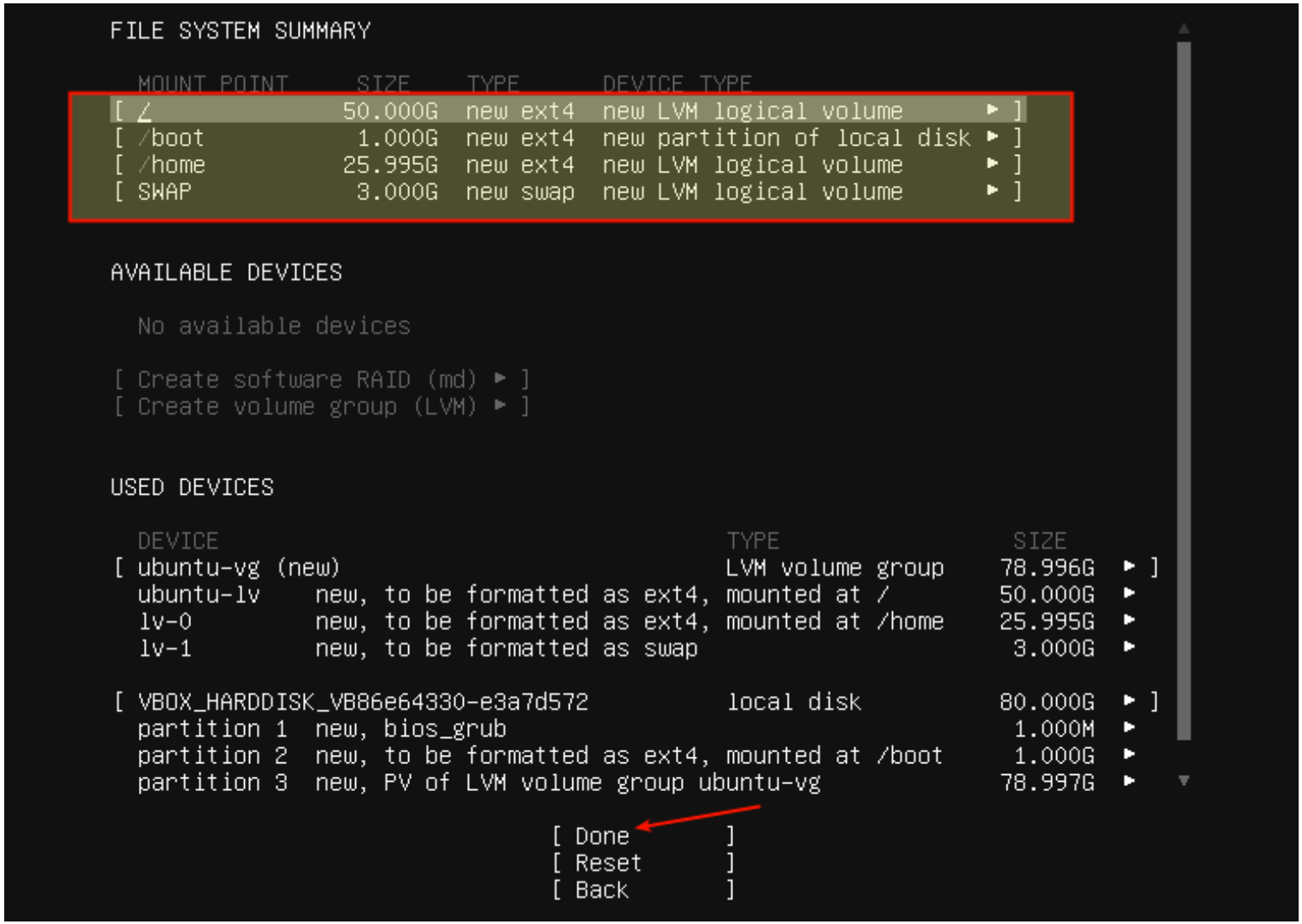
Installing Ubuntu Server(swap partition)

Then edit the partition size and set the **Format** field to **swap** as highlighted in the following screenshot and press Enter.



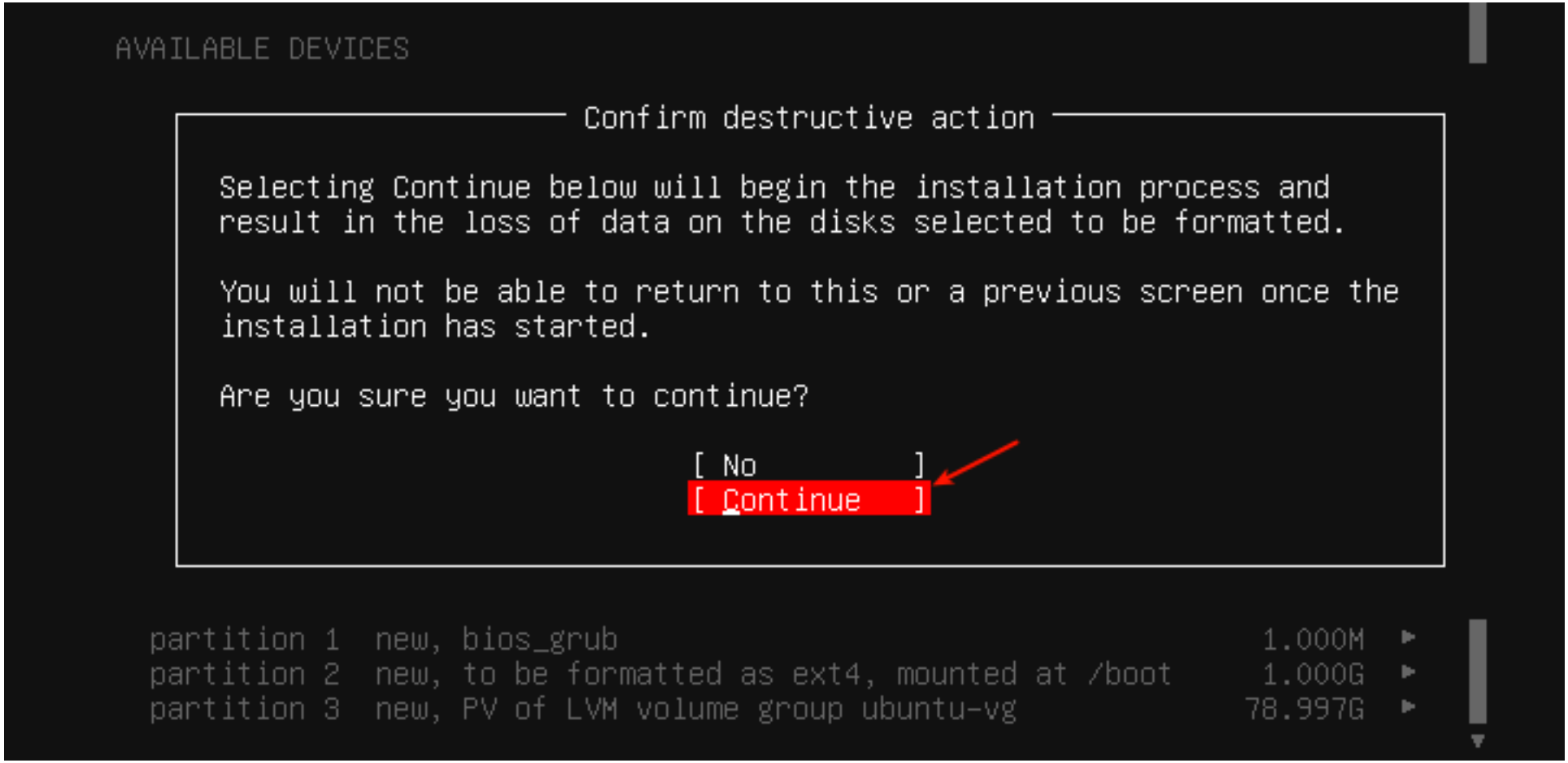
Installing Ubuntu Server(Disk Config)

Your new file system summary should now have a /boot, /root, /home, and swap partition as shown in the following screenshot. To write the changes to the harddisk, scroll down to **Done**, and press **Enter**.



Installing Ubuntu Server(Disk Config)

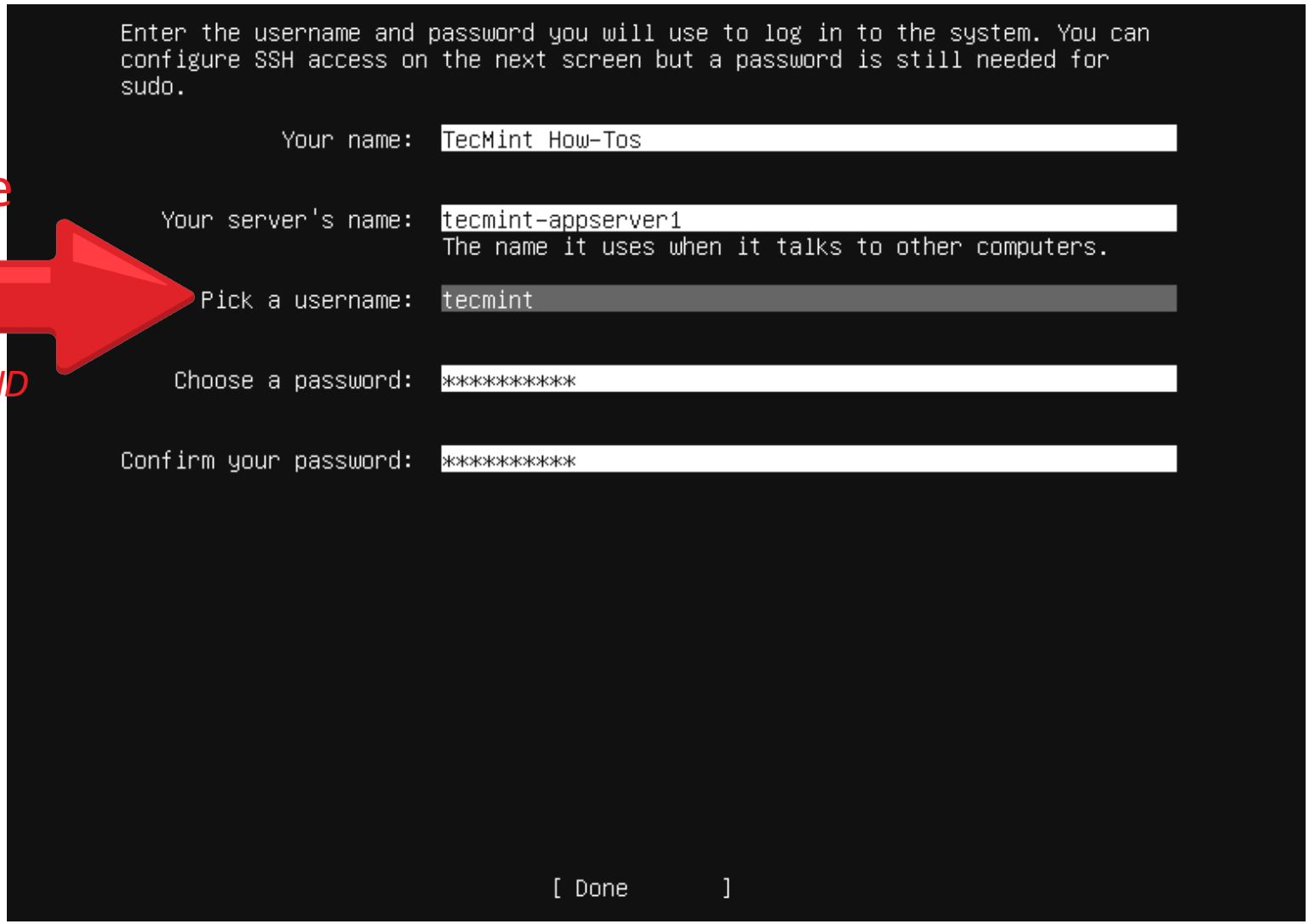
Confirm the action by selecting **Continue** and press **Enter**.



Installing Ubuntu Server(User Account)

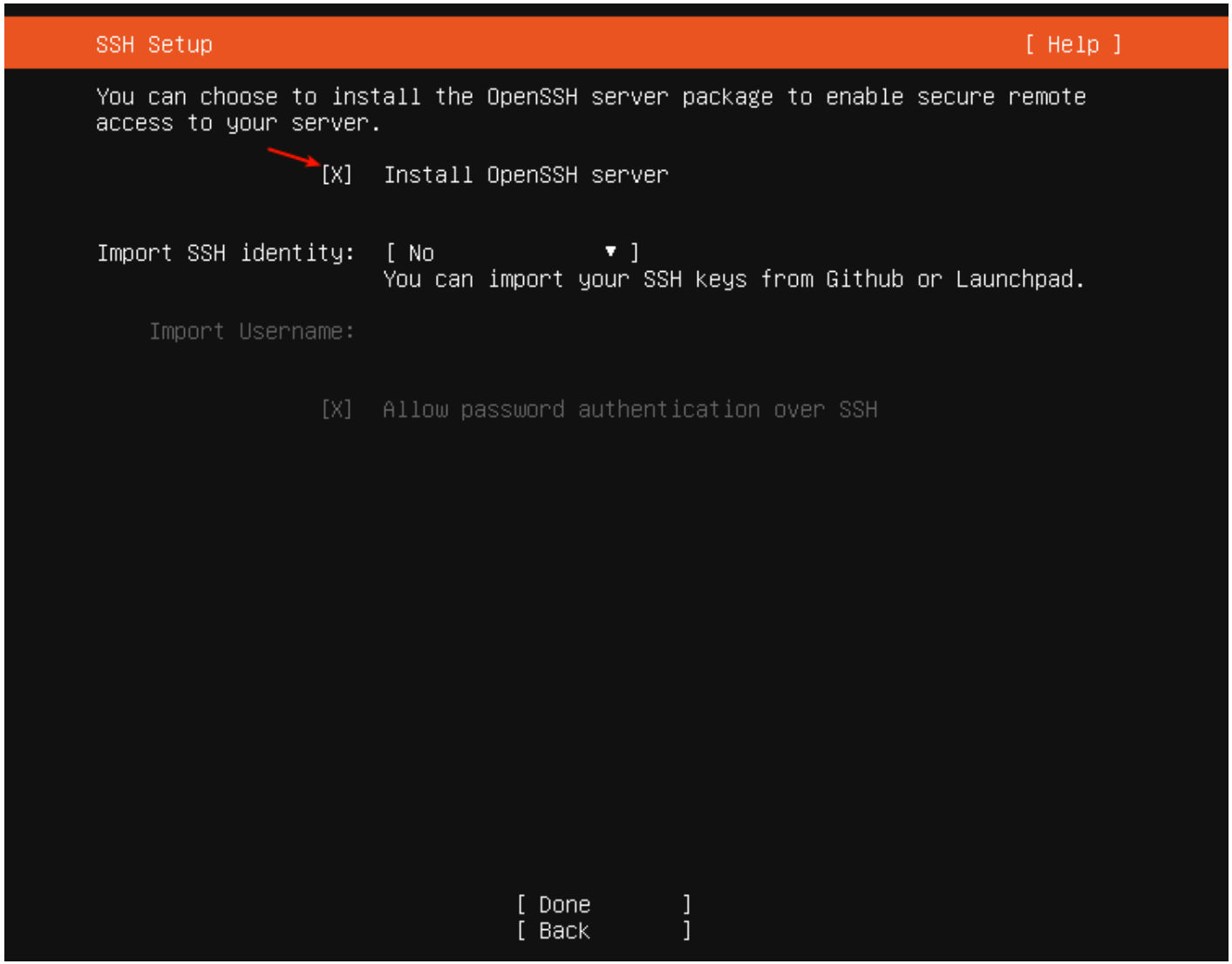
Now create a user profile by typing your name, server's name, username(as described beside the image), and a password. Now select **Done** & **Enter**.

You must enter the username as follows:
firstName_lastName_studentID



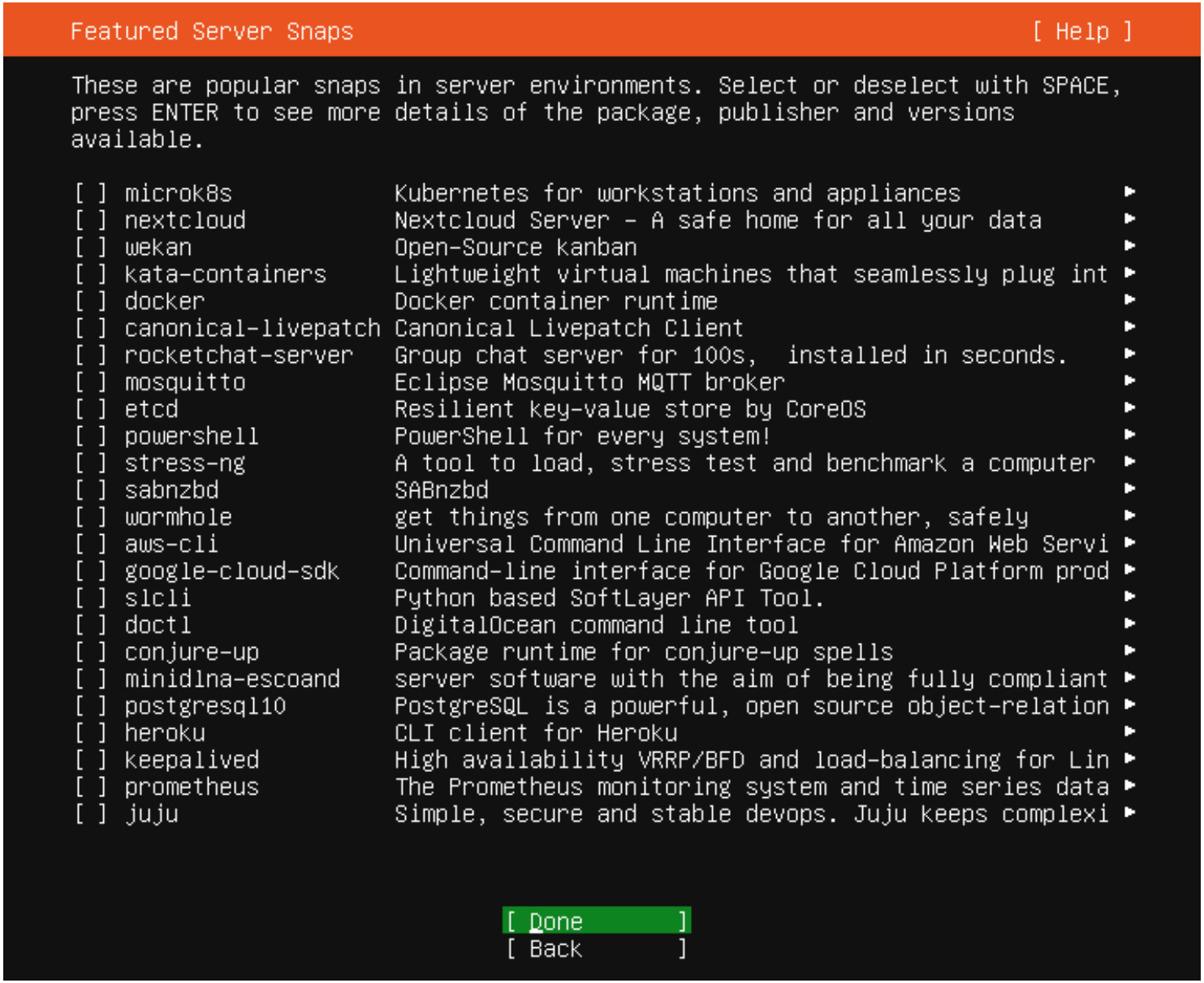
Installing Ubuntu Server(OpenSSH)

Next, the installer will prompt you to install the **OpenSSH** package for remote access. Use space to choose that option. Then scroll down to Done and press Enter.



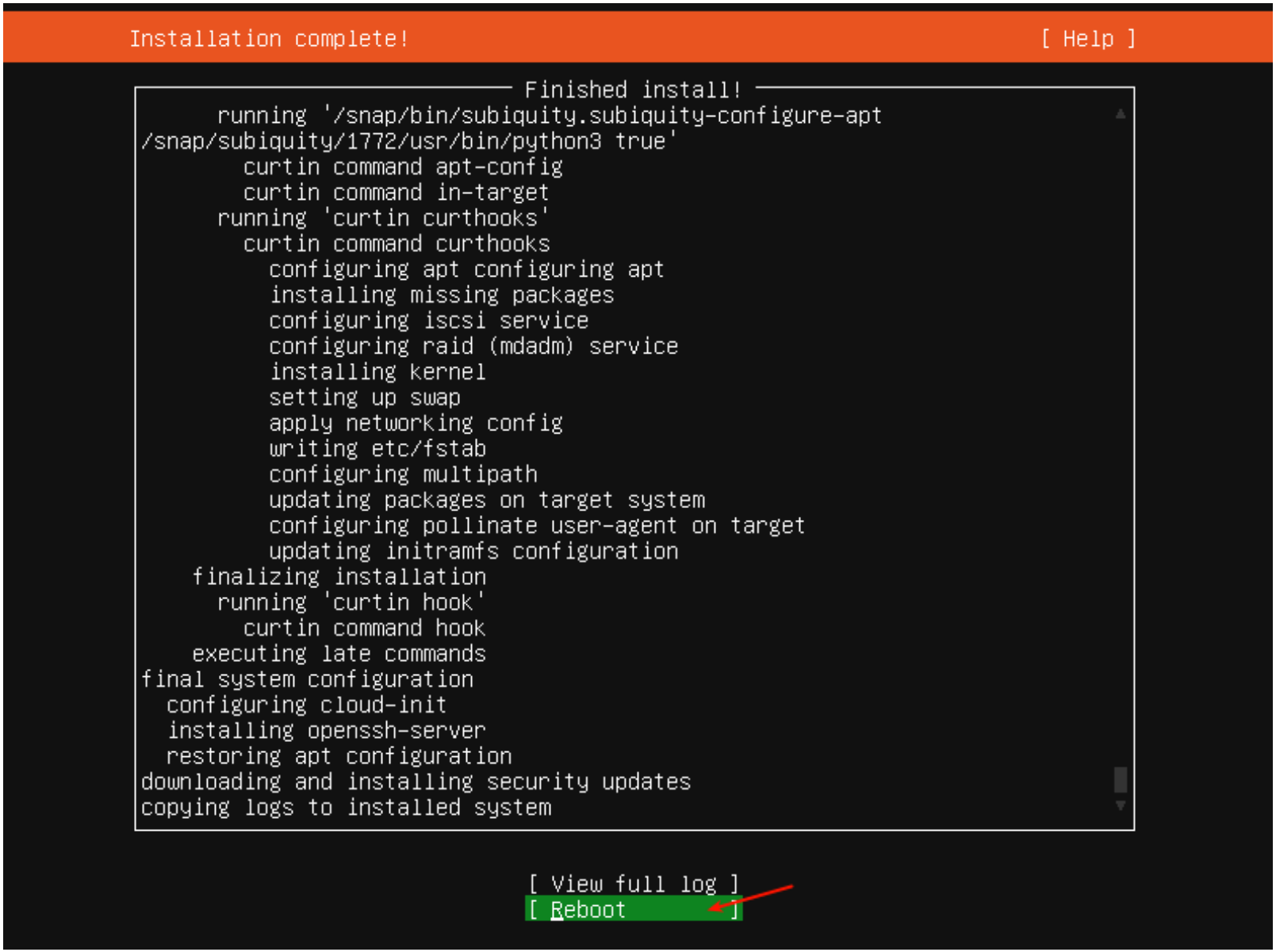
Installing Ubuntu Server(Utility Apps)

If you want to install some **snaps**, select them from the provided list. Use the space bar to select a **snap**. Then go to Done and press Enter.



Installing Ubuntu Server(Finish & Reboot)

The installation process should now start as shown in the following screenshot. Once it is done, press Enter to reboot the system.

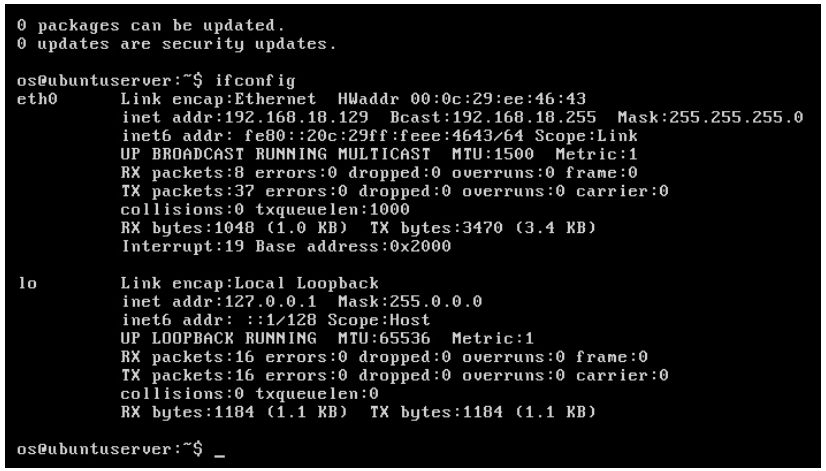


Installing Ubuntu Server(First Login)

Congrats! You're almost there.
Enter your username and password to login.

Connecting to Guest

- In case you want to connect your guest using SSH or sFTP, you need to know its IP address
- To get IP address of machine running Linux , enter “ifconfig” in terminal
- This will print all network information in format below
- Your IP address is address specified by **“inet addr”** field of **“eth0”** (since we are using NAT) and it’s something like 192.168.x.x

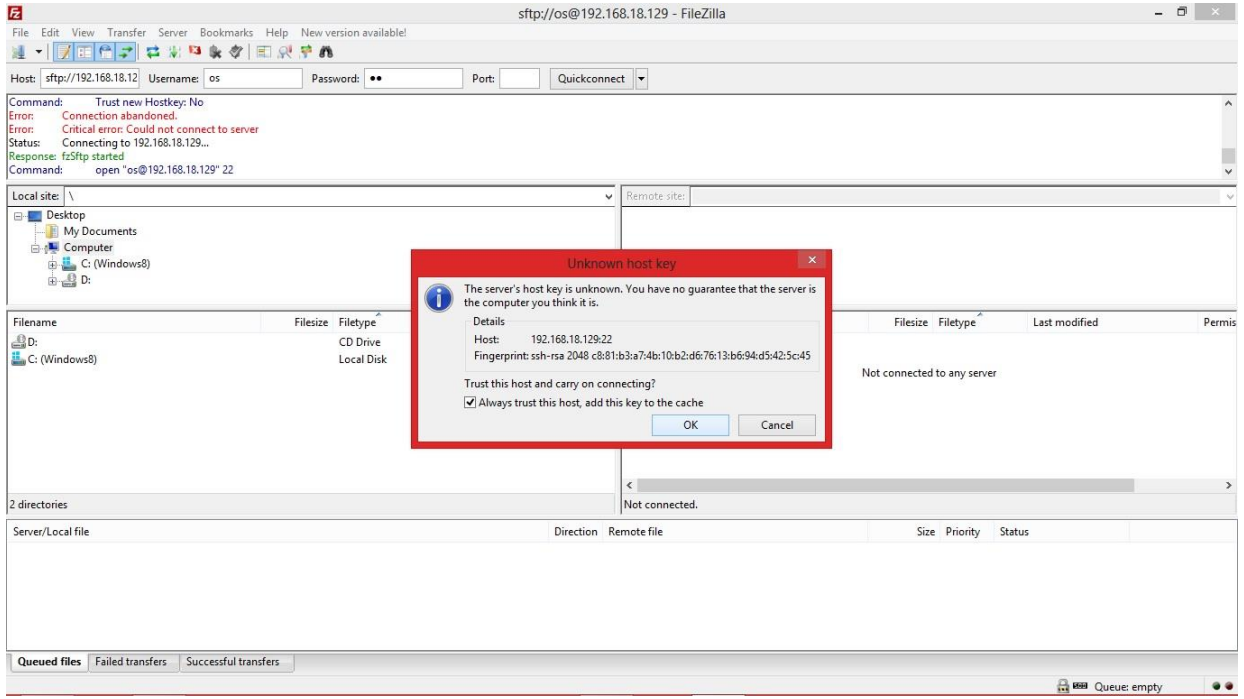


Connecting to Guest

- If you like to transfer some files (such as kernel source code) to your guest or from your guest (such as Makefiles you are required to submit along HWs) you need to connect to your guest using a sFTP client
- One very popular open-source FTP client is FileZilla or WinSCP. To use these FTP clients you need to enter **IP address of FTP Server , username , password and port number to be used** (which is 22 for sFTP)
- We've used FileZilla in this tutorial!

Connecting to Guest

- In first attempt to connect to FTP server, FileZilla will ask you about trusting FTP server fingerprint to your system.
- Check “always trust” to avoid this question appearing each time



Connecting to Guest

- After connecting to FTP server, you should be able to see server's directory as below
- If you would like to connect to your guest using ssh , you need to enter "ssh username@hostip" in any Linux/MAC terminal or PuTTY in Windows