PANDA Ubuntu 20.04 Server Installation and Configuration Guide

This guide provides step-by-step instructions to install Ubuntu 20.04 Server and configure it with necessary packages, ZFS, network settings, master and worker nodes, and a local Docker registry. Follow each section carefully to ensure a successful setup.

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Prerequisites

Before starting, ensure you have the following:

- **Hardware Requirements:**
  - A machine compatible with Ubuntu 20.04 Server.
  - **USB Drive:** At least 4GB for installation media.
- **Software Requirements:**
  - **Access to Jenkins artifacts.**
  - **SSH Access Configured:** Ensure SSH is set up for remote access.
  - **Necessary Scripts and Configuration Files:** Available locally on your machine.
- **Network Configuration:**

- Decide on a subnet octet for your machine, e.g., `10.10.<subnet-octet>.150`.

Copy Artifacts from Jenkins

1. **Access Jenkins Artifacts:**
   - Ensure all necessary artifacts from Jenkins are available for the next steps. If not, download here:

http://build.prismaphotonics.net:8080/view/panda/job/Get-offline-install-artifacts/lastSuccessfulBuild/artifact/*zip*/artifacts.zip

Prepare USB Drive with artifacts.zip and unzip.deb

On the USB Drive containing the file artifacts.zip, make sure you also have the unzip.deb package.

If it doesnt exist: Download unzip.deb here

Download Ubuntu 20.04 Server

1. **Download the Ubuntu 20.04.6 Live Server ISO:**
   - Ubuntu ISO Download

Create and Boot from USB

1. **Create a Bootable USB:**
   - Use tools like Rufus (Windows) or `dd` command (Linux) to create a bootable USB from the downloaded ISO.
2. **Boot from USB:**
   - Insert the USB drive into your machine.
   - Restart the machine and press `F11` (or the appropriate key for your system) to enter the boot menu.
   - Select the USB device to boot from.

Install Ubuntu Server

Language Selection

1. **Choose Language:**
   - Select **English** from the language options.

Update Settings

1. **Continue Without Updating:**

- Choose to **continue without updating** during the installation process.

Keyboard Layout

1. **Set Keyboard Layout:**
   - Select the default keyboard layout and proceed by clicking **Next**.

Network Connection

1. **Configure Network:**
   - Choose **DHCP** to automatically configure the network.
   - Alternatively, select **continue without network** if you are offline.

Storage Configuration

1. **Configure Storage:**
   - Select **Custom Storage Layout** and click **Done**.
   - Create a new partition with **500 GB** as per the provided screenshots.

   Placeholder for storage configuration screenshot

###See down for Screenshots step by step###

User Configuration

1. **Create User:**
   - **Username:** `prisma`
   - **Password:** `PASSW0RD`

     Note: The password contains a zero (`0`).

SSH Server Installation

1. **Install SSH Server:**
   - Ensure the **Install SSH server** option is checked.

Complete Installation

1. **Finish Installation:**
   - Click **Reboot Now**

Post-Installation Steps

Remove the USB Drive when told to and press ENTER

Preparing the Panda Installation:

Use the:

```
lsblk
```

command, and then find the usb drive in the list of devices (something like sda1).

Run the following commands:

```
sudo mkdir /media/panda_dok
sudo mount /dev/sda1 /media/panda_dok/   ***might be different from sda1
lsblk
```

Make sure the device is now mounted (seen in the lsblk output)

Install unzip.deb:

```
sudo dpkg -i /media/panda_dok/unzip_6.0-25ubuntu1.2_amd64.deb
```

Copy the artifacts to your desktop at /home/prisma/

```
unzip artifacts.zip -d /home/prisma
sudo chmod +x /home/prisma/articats/offline_deploy.sh
/home/prisma/articats/offline_deploy.sh
sudo chmod +x /home/prisma/offline_deploy/offline_install_panda.sh
/home/prisma/offline_deploy/offline_install_panda.sh
```

The script will install all parts that were not installed yet. For example if the script fails at step 3, when you rerun it, it will skip steps 1,2. To force reinstalling all steps from step 1, you can use the flag --reinstall.

```
/home/prisma/offline_deploy/offline_install_panda.sh --reinstall
```

On stage install master node you need to install VM for a dev environment.

```
Do you want to install the Kubernetes master node VM? (yes/no): yes for dev or no for staging
```

Only for dev:

Installation process of the master node VM:

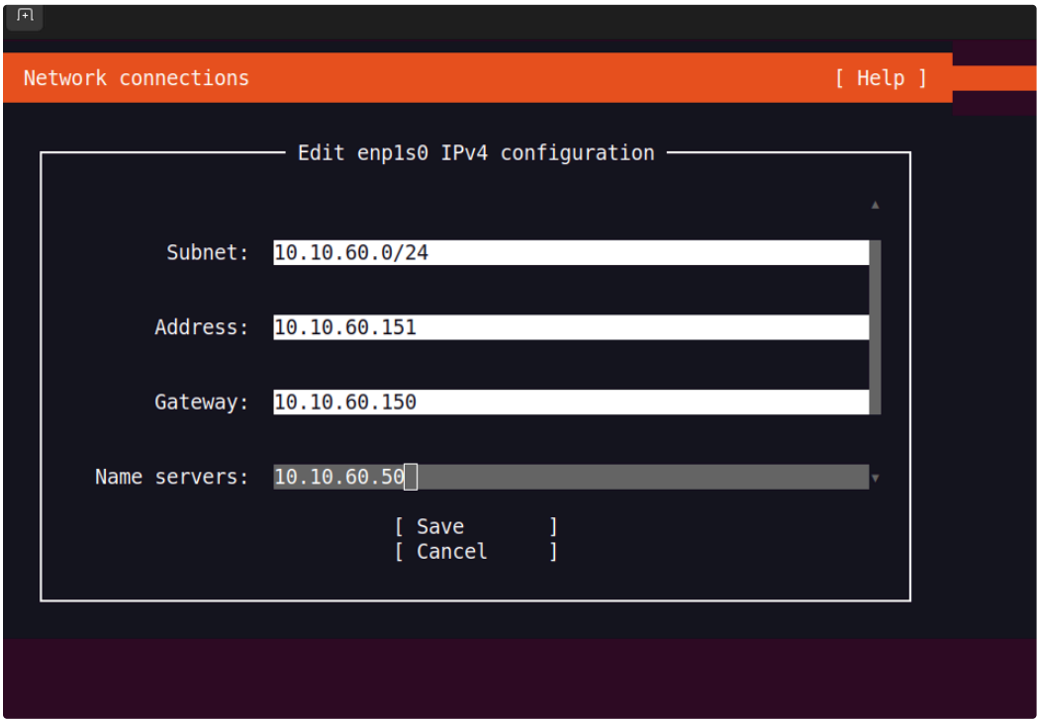
In this part you'll have to manually configure the ubuntu server machine that will run the master node.

This is required as a replacement to the actual master node component that exists in the real panda environment.

Steps:

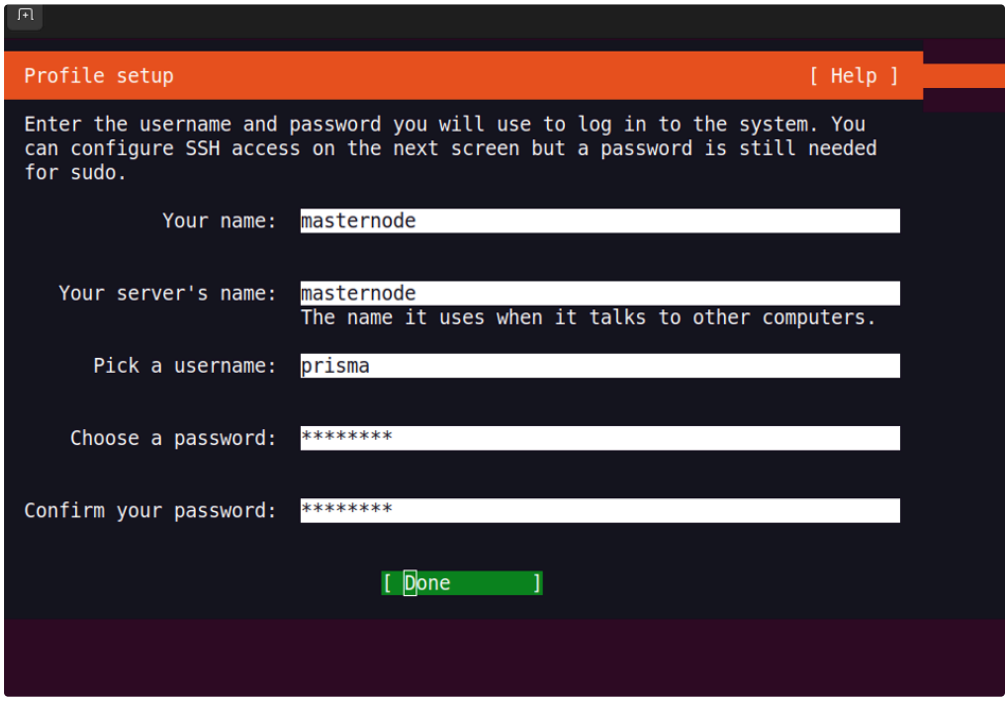
- Click "continue in rich mode"
- Choose English and click "done"
- Choose the main interface (something like enp1s0), click "Edit IPv4"

- Change from Automatic (DHCP) to Manual
- Input the following values:(change 60 to your actual third octet)



Leave other fields blank and click save.

- Click done and skip updates until you get to this screen (Fill those values - password is “PASSW0RD” in capital case and with a zero.):



- Check “Install OpenSSH server” and click done
- Wait for the installation process to finish and click “Reboot now”.

After this step you'll need to open a new terminal and start the installation process again without --reinstall flag.

```
/home/prisma/offline_deploy/offline_install_panda.sh
```

The next needed action stage is on CUDA Driver installation.

This stage is run on 2 parts

- First running for cleaning the old driver and preparing the system to the new driver
- Second running is for actual install the driver

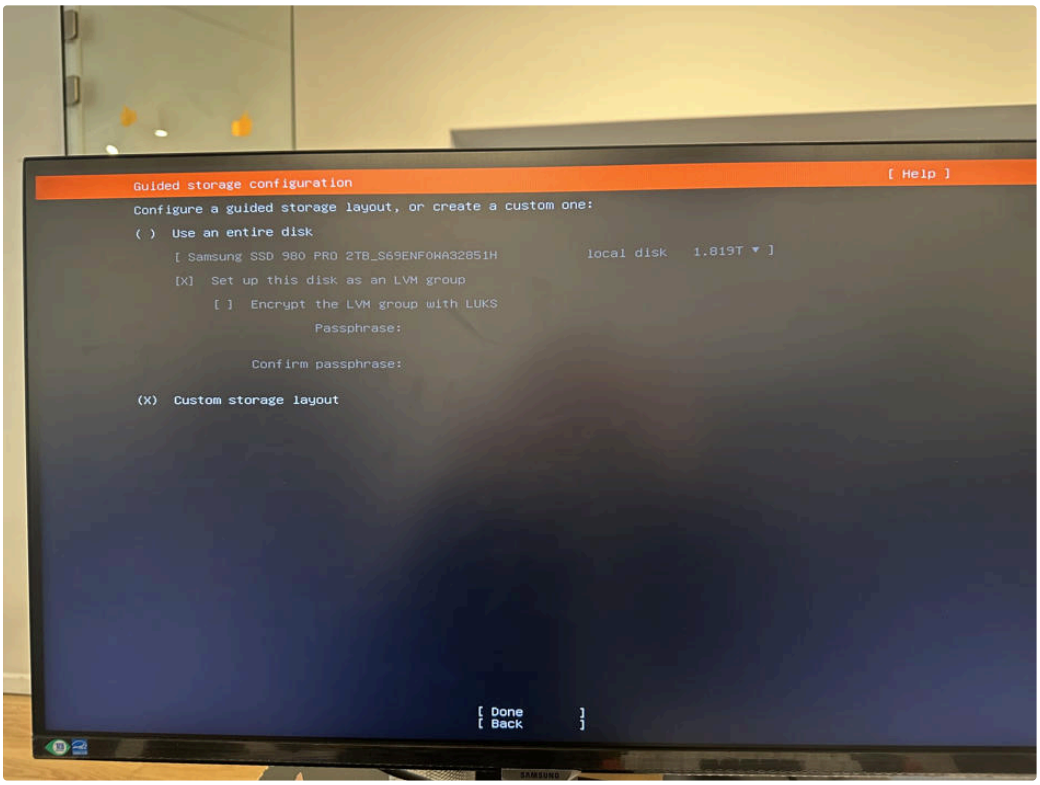
the system need to reboot between the parts, so it will reboot automatically, you just need to reconnect the system again and rerun this script using the same command.

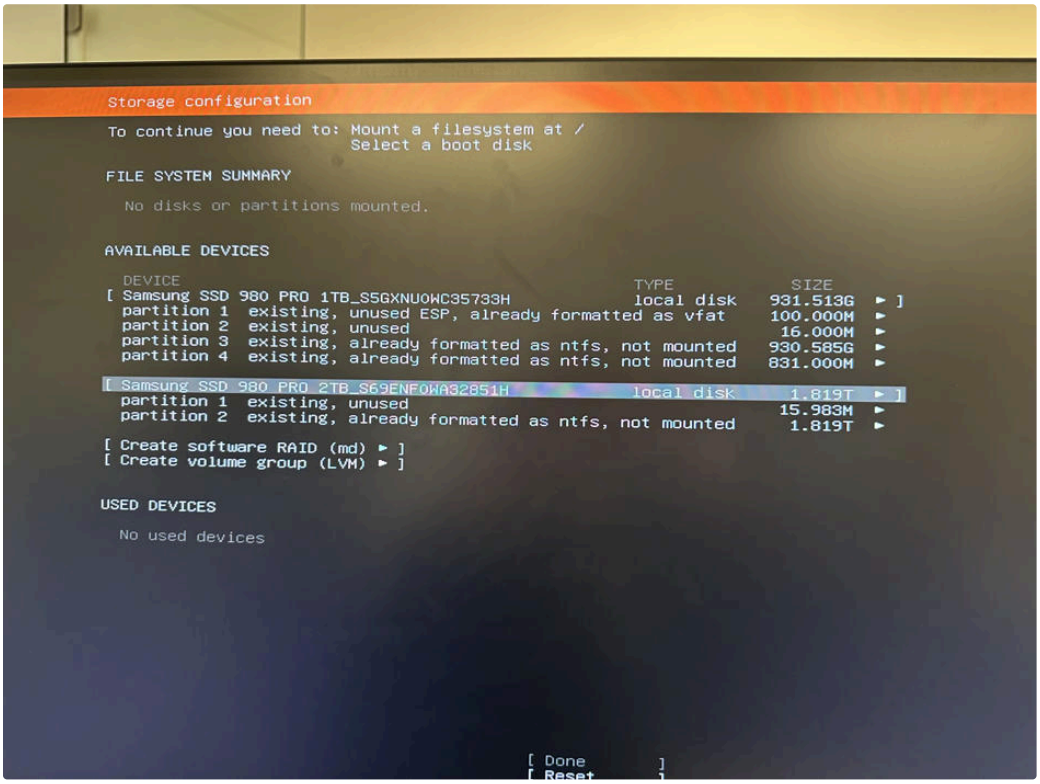
```
/home/prisma/offline_deploy/offline_install_panda.sh
```

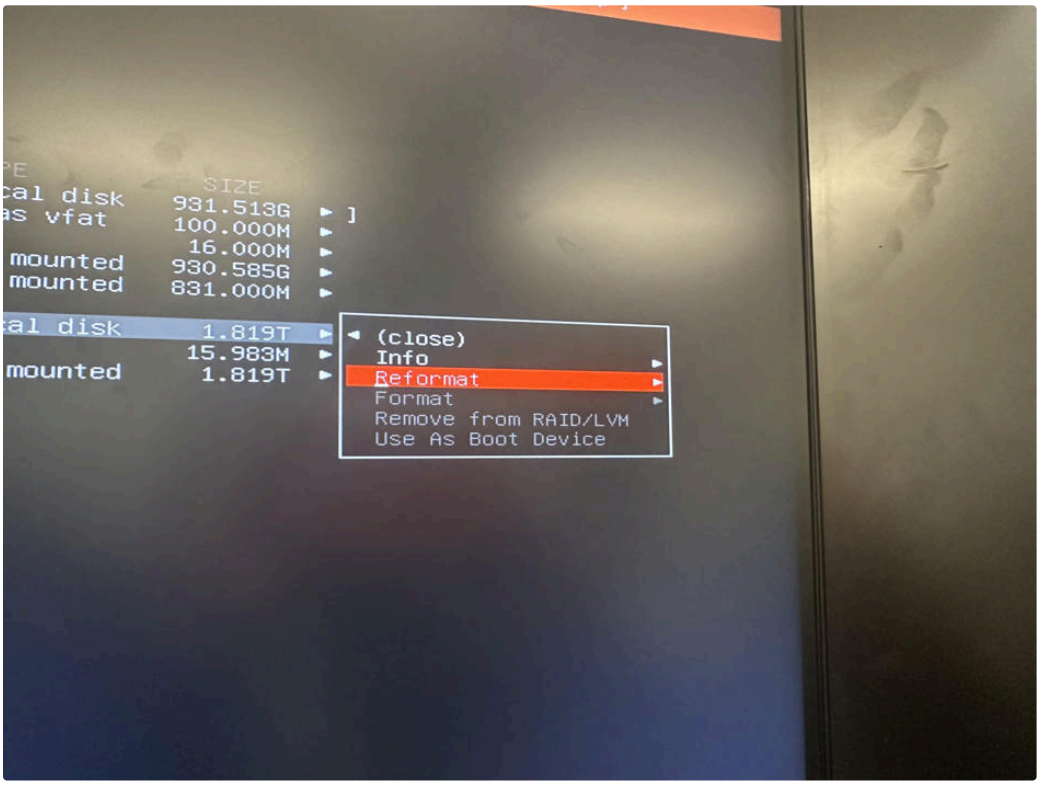
Troubleshooting and Notes

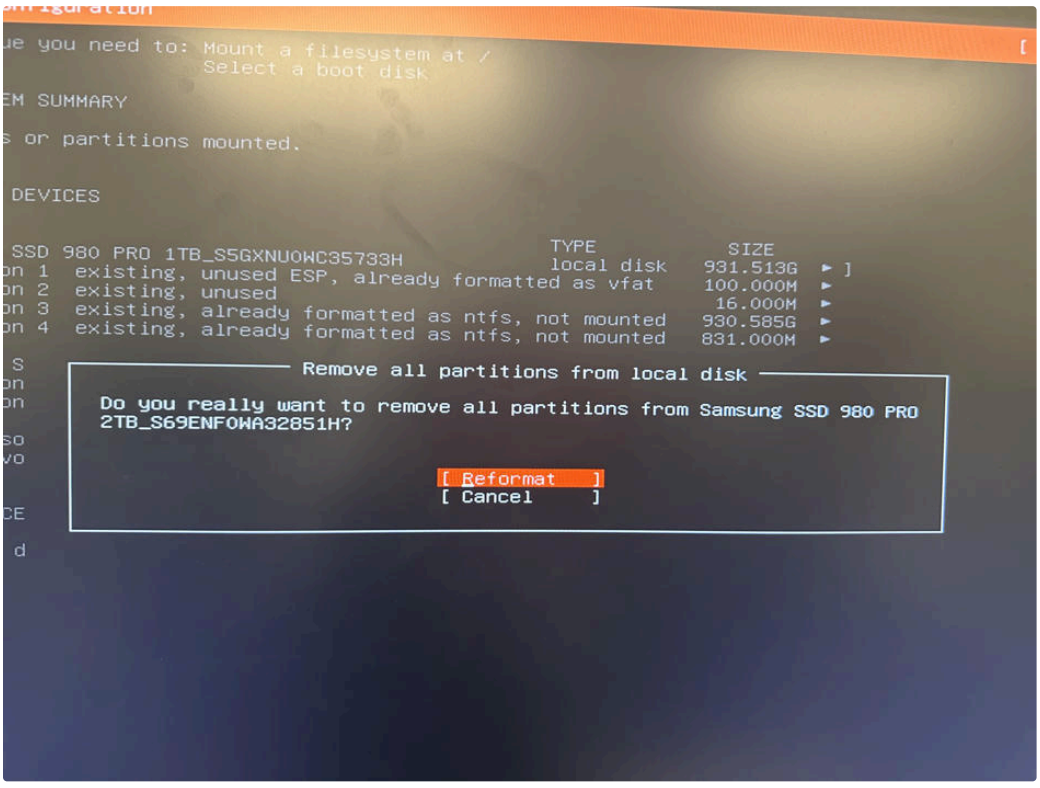
- **Password Note:** Ensure that the password `PASSW0RD` contains a zero (`0`), not the letter `O` .
- **Scripts Execution:** All scripts must have execute permissions. Use `chmod +x` as shown in each step.
- **Network Configuration:** Ensure network settings are correctly configured to allow SSH and other necessary communications between nodes.
- **Placeholders:** Replace `<your_subnet>` and `<WORKER_NODE_IP>` with actual subnet values and worker node IP addresses respectively.
- **Screenshots:** Add relevant screenshots in the designated placeholders to enhance the guide.

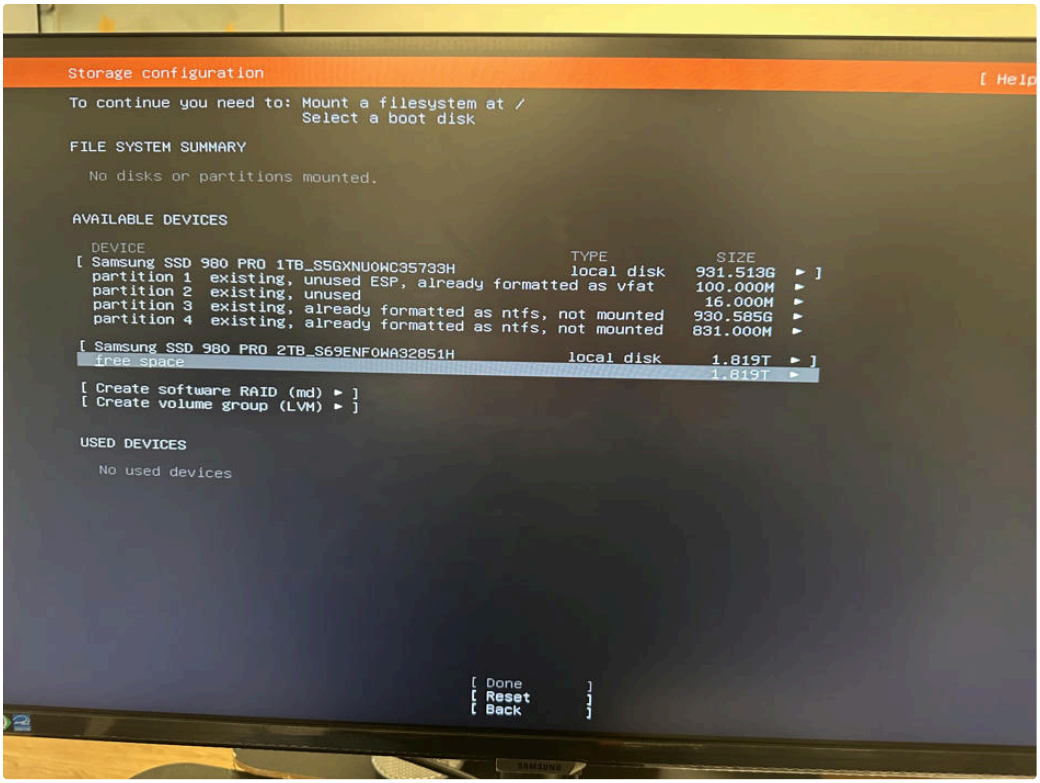
Screenshots for Ubuntu configuration

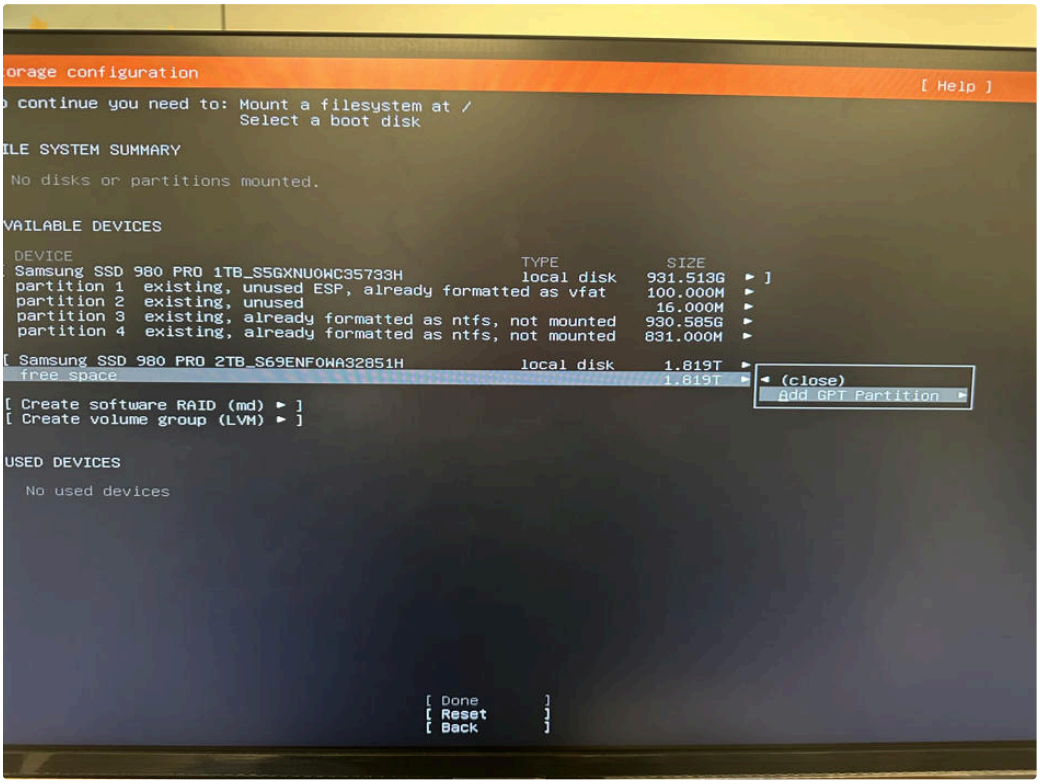


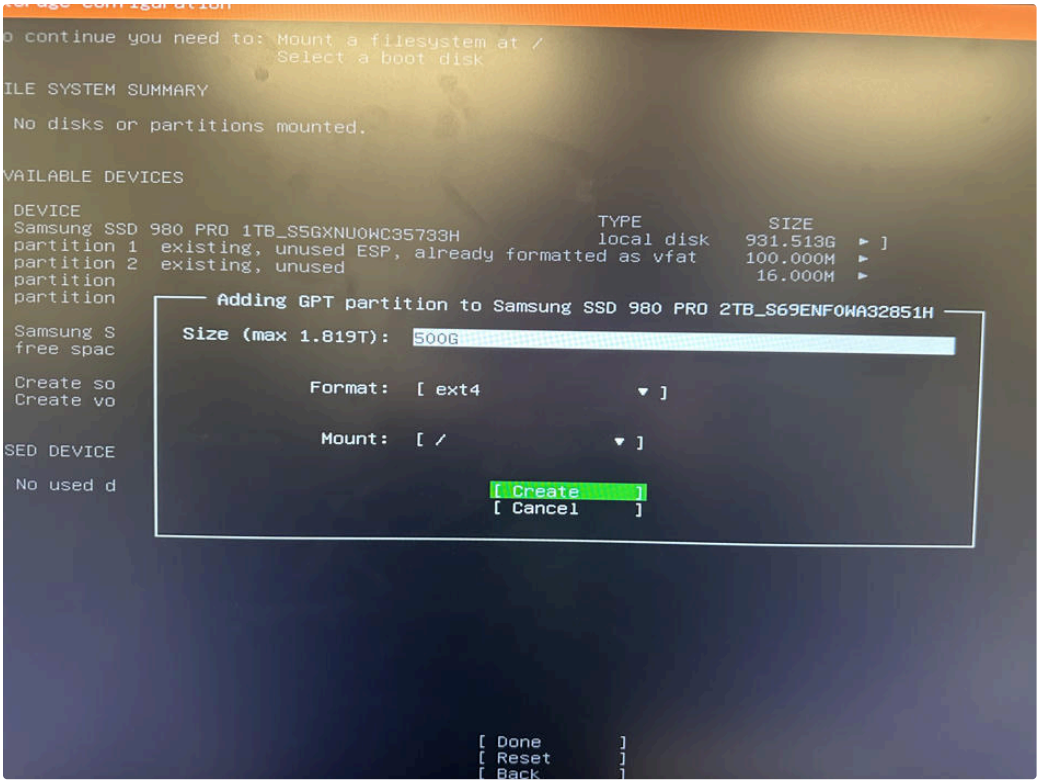


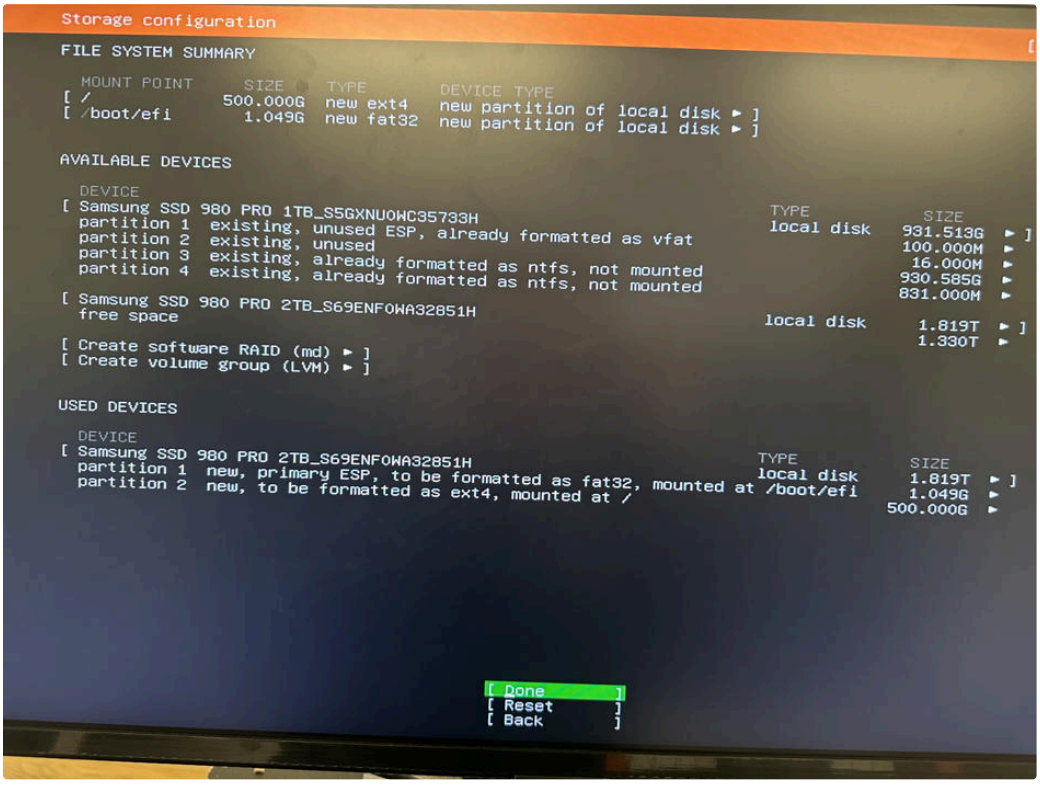

SIZE
cal disk 931.513G ▸]
as vfat 100.000M ▸
16.000M ▸
mounted 930.585G ▸
mounted 831.000M ▸
al disk 1.819T ▸
15.983M ▸
mounted 1.819T ▸
◂ (close)
Info ▸
Reformat ▸
Format ▸
Remove from RAID/LVM
Use As Boot Device

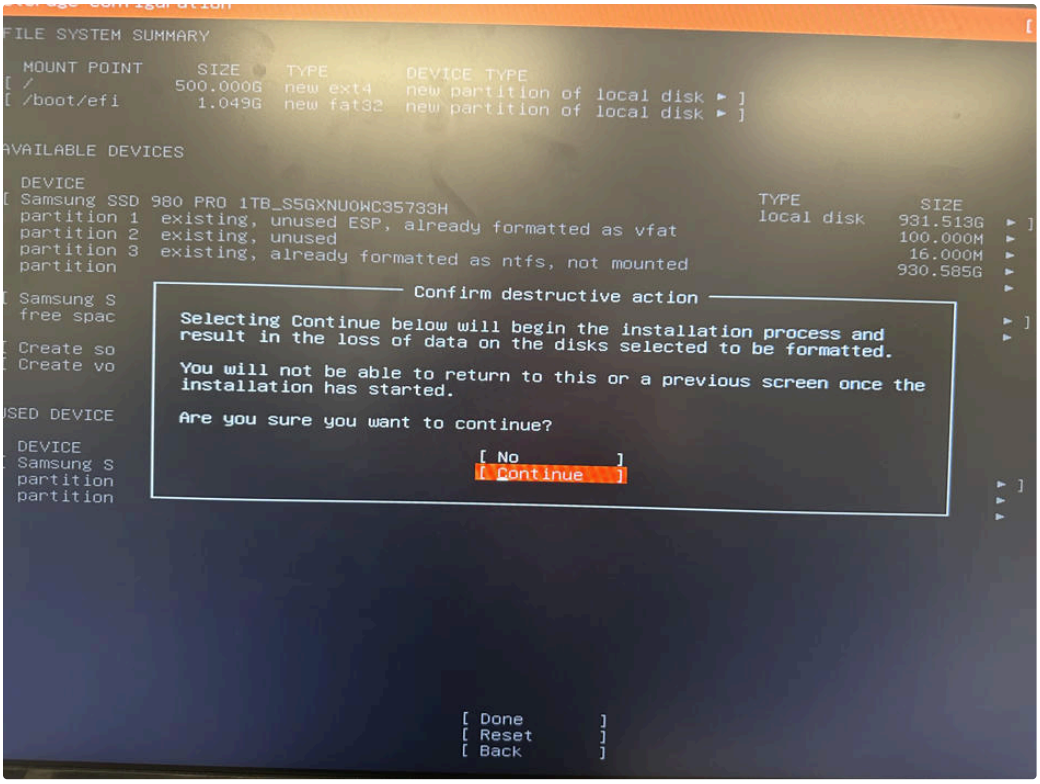

ue you need to: Mount a filesystem at /
Select a boot disk
EM SUMMARY
s or partitions mounted.
DEVICES
TYPE SIZE
SSD 980 PRO 1TB_S5GXNU0WC35733H local disk 931.513G ▸]
on 1 existing, unused ESP, already formatted as vfat 100.000M ▸
on 2 existing, unused 16.000M ▸
on 3 existing, already formatted as ntfs, not mounted 930.585G ▸
on 4 existing, already formatted as ntfs, not mounted 831.000M ▸
Remove all partitions from local disk
Do you really want to remove all partitions from Samsung SSD 980 PRO 2TB_S69ENF0WA32851H?
[Reformat]
[Cancel]

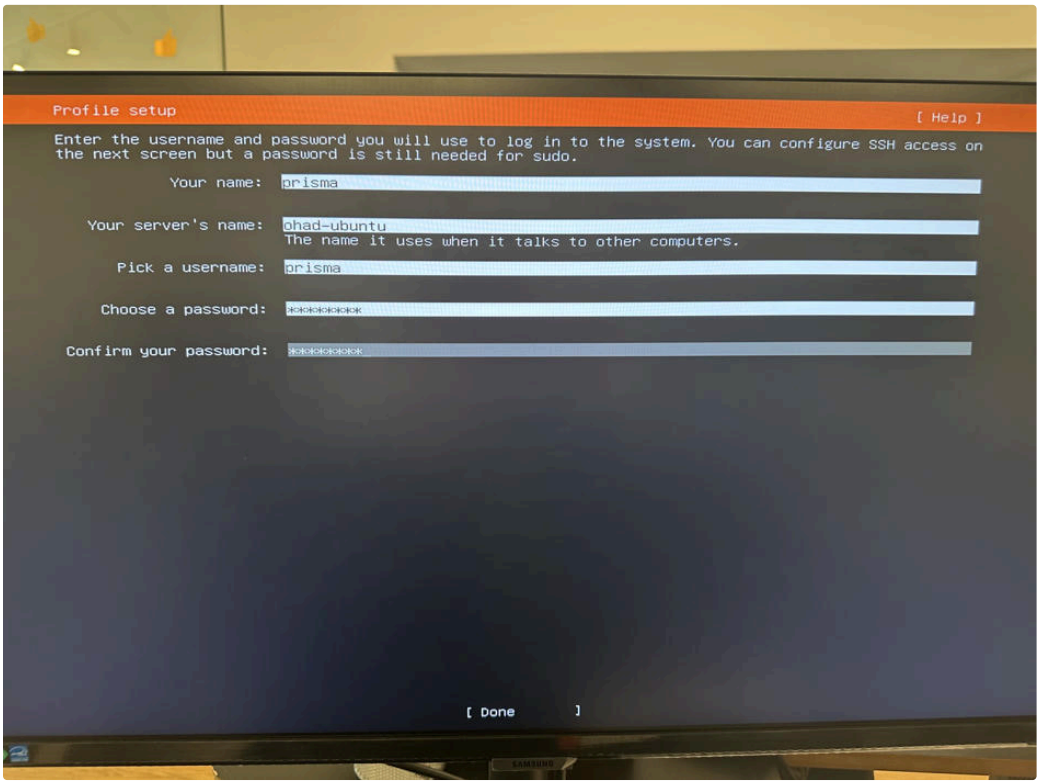

Storage configuration
[Help
To continue you need to: Mount a filesystem at /
Select a boot disk
FILE SYSTEM SUMMARY
No disks or partitions mounted.
AVAILABLE DEVICES
DEVICE
TYPE
SIZE
[Samsung SSD 980 PRO 1TB_S5GXNU0WC35733H
local disk
931.513G ►]
partition 1 existing, unused ESP, already formatted as vfat
100.000M ►
partition 2 existing, unused
16.000M ►
partition 3 existing, already formatted as ntfs, not mounted
930.585G ►
partition 4 existing, already formatted as ntfs, not mounted
831.000M ►
[Samsung SSD 980 PRO 2TB_S69ENF0WA32851H
local disk
1.819T ►]
free space
1.819T ►
[Create software RAID (md) ►]
[Create volume group (LVM) ►]
USED DEVICES
No used devices
[Done]
[Reset]
[Back]


orage configuration
[Help]
continue you need to: Mount a filesystem at /
Select a boot disk
ILE SYSTEM SUMMARY
No disks or partitions mounted.
VAILABLE DEVICES
DEVICE
TYPE
SIZE
Samsung SSD 980 PRO 1TB_S5GXNU0WC35733H
local disk
931.513G ►]
partition 1 existing, unused ESP, already formatted as vfat
100.000M ►
partition 2 existing, unused
16.000M ►
partition 3 existing, already formatted as ntfs, not mounted
930.585G ►
partition 4 existing, already formatted as ntfs, not mounted
831.000M ►
[Samsung SSD 980 PRO 2TB_S69ENF0WA32851H
local disk
1.819T ►
free space
1.819T ►
◄ (close)
Add GPT Partition ►
[Create software RAID (md) ►]
[Create volume group (LVM) ►]
USED DEVICES
No used devices
[Done]
[Reset]
[Back]


o continue you need to: Mount a filesystem at /
Select a boot disk
ILE SYSTEM SUMMARY
No disks or partitions mounted.
VAILABLE DEVICES
DEVICE
Samsung SSD 980 PRO 1TB_S5GXNU0WC35733H
partition 1 existing, unused ESP, already formatted as vfat
partition 2 existing, unused
partition
partition
TYPE
local disk
SIZE
931.513G ▸]
100.000M ▸
16.000M ▸
Adding GPT partition to Samsung SSD 980 PRO 2TB_S69ENF0WA32851H
Size (max 1.819T): 500G
Format: [ext4 ▾]
Mount: [/ ▾]
[Create]
[Cancel]
[Done]
[Reset]
[Back]


Storage configuration
FILE SYSTEM SUMMARY
MOUNT POINT SIZE TYPE DEVICE TYPE
[/ 500.000G new ext4 new partition of local disk ▸]
[/boot/efi 1.049G new fat32 new partition of local disk ▸]
AVAILABLE DEVICES
DEVICE TYPE SIZE
[Samsung SSD 980 PRO 1TB_S5GXNU0WC35733H local disk 931.513G ▸]
partition 1 existing, unused ESP, already formatted as vfat 100.000M ▸
partition 2 existing, unused 16.000M ▸
partition 3 existing, already formatted as ntfs, not mounted 930.585G ▸
partition 4 existing, already formatted as ntfs, not mounted 831.000M ▸
[Samsung SSD 980 PRO 2TB_S69ENF0WA32851H local disk 1.819T ▸]
free space 1.330T ▸
[Create software RAID (md) ▸]
[Create volume group (LVM) ▸]
USED DEVICES
DEVICE TYPE SIZE
[Samsung SSD 980 PRO 2TB_S69ENF0WA32851H local disk 1.819T ▸]
partition 1 new, primary ESP, to be formatted as fat32, mounted at /boot/efi 1.049G ▸
partition 2 new, to be formatted as ext4, mounted at / 500.000G ▸
[Done]
[Reset]
[Back]


FILE SYSTEM SUMMARY
MOUNT POINT SIZE TYPE DEVICE TYPE
/ 500.000G new ext4 new partition of local disk
/boot/efi 1.049G new fat32 new partition of local disk
AVAILABLE DEVICES
DEVICE TYPE SIZE
Samsung SSD 980 PRO 1TB_S5GXNU0WC35733H local disk 931.513G
partition 1 existing, unused ESP, already formatted as vfat 100.000M
partition 2 existing, unused 16.000M
partition 3 existing, already formatted as ntfs, not mounted 930.585G
partition
Confirm destructive action
Selecting Continue below will begin the installation process and result in the loss of data on the disks selected to be formatted.
You will not be able to return to this or a previous screen once the installation has started.
Are you sure you want to continue?
[No]
[Continue]
[Done]
[Reset]
[Back]


Profile setup
[Help]
Enter the username and password you will use to log in to the system. You can configure SSH access on the next screen but a password is still needed for sudo.
Your name: prisma
Your server's name: ohad-ubuntu
The name it uses when it talks to other computers.
Pick a username: prisma
Choose a password:
Confirm your password:
[Done]