

## How to build a File Server with Open-Media-Vault

### Table of Contents

[How to build a File Server with Openmediavault - Technology Definitions - Creating the Virtual Machine](#)

- [Installing Openmediavault](#)
- [Configuring Openmediavault](#)
- [Setting up a user account](#)
- [Setting up a group account](#)
- [SSH](#)
- [SSL](#)
- [Taking this project further](#)
- [Conclusion](#)
- [Issues Encounter](#)
- [Works Cited](#)

### Technology Definitions

**What is Openmediavault?** OpenMediaVault is a free Linux distribution created for network-attached storage. Openmediavault is based on the Debian operating system and is consent through the GNU General Public License v3.

**What is Secure Shell SSH?** The SSH protocol (also referred to as Secure Shell) is a reliable remote login from one computer to another. It implements diverse choices for reliable authentication, and it shields communications security and integrity with strong encryption.

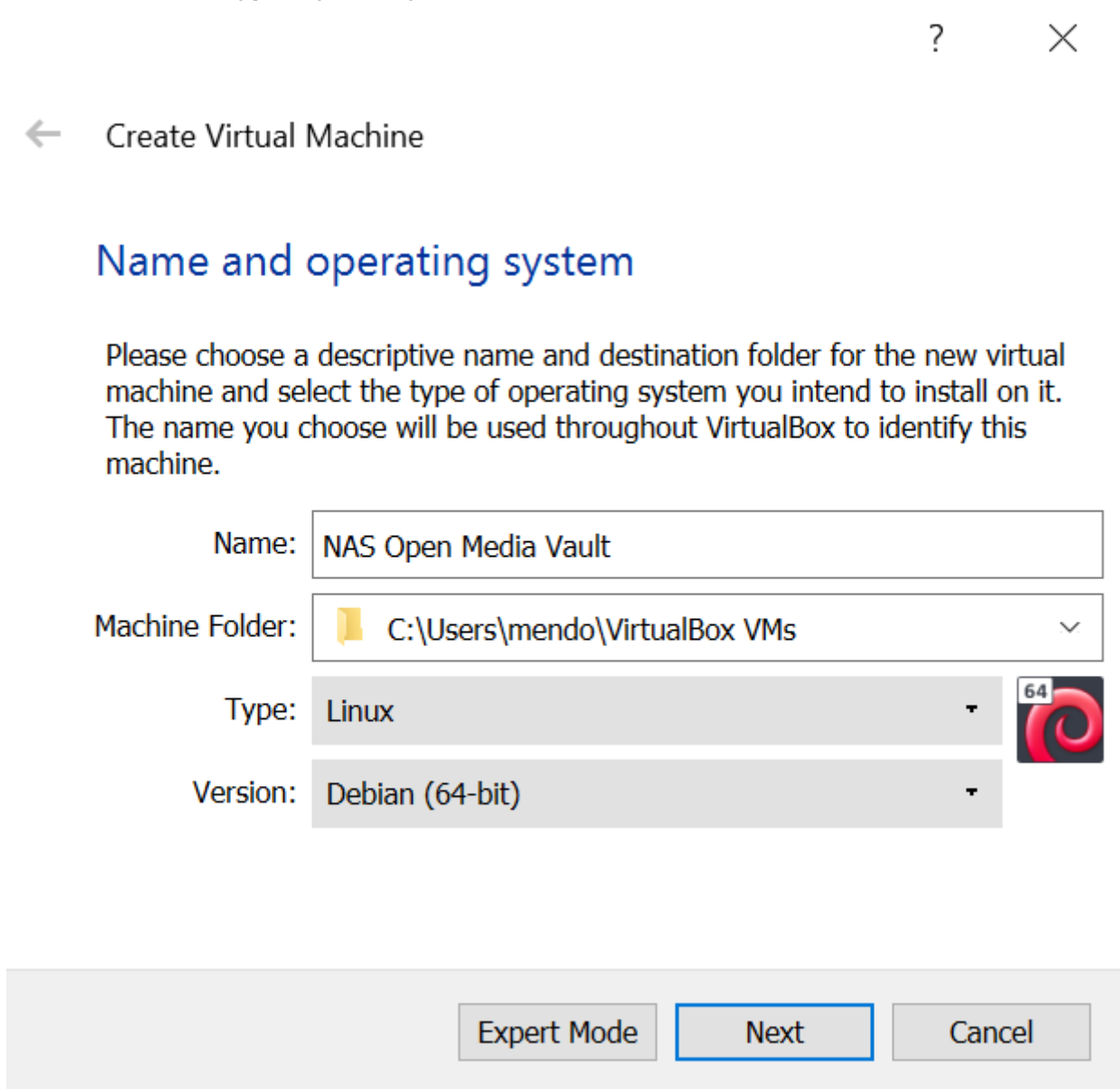
**What is VirtualBox?** VirtualBox is a general-purpose ample virtualizer for x86 hardware, targeted at server, desktop, and embedded use.

**What is the difference between NAT and BRIDGET adapter?** NAT mode will hide all network motion as if it came from the Host OS, and Bridged mode replicates different node on the physical network, and the VM will receive it's own IP address if DHCP is enabled in the network.

**What is omv extras?** Omv Extras is a plugin that enables the user to do several things. For example, Install backports kernel and install even more plugins.

## Creating the Virtual Machine

In the Name, field type any name you choose



← Create Virtual Machine

### Name and operating system

Please choose a descriptive name and destination folder for the new virtual machine and select the type of operating system you intend to install on it. The name you choose will be used throughout VirtualBox to identify this machine.

Name: NAS Open Media Vault

Machine Folder: C:\Users\mendo\VirtualBox VMs

Type: Linux

Version: Debian (64-bit)

Expert Mode Next Cancel

**Apply the default setting for the amount of base memory. In this case, the default value that I chose is 2048**

? ×

← Create Virtual Machine

## Memory size

Select the amount of memory (RAM) in megabytes to be allocated to the virtual machine.

The recommended memory size is **1024 MB**.

4 MB16384 MB

2048

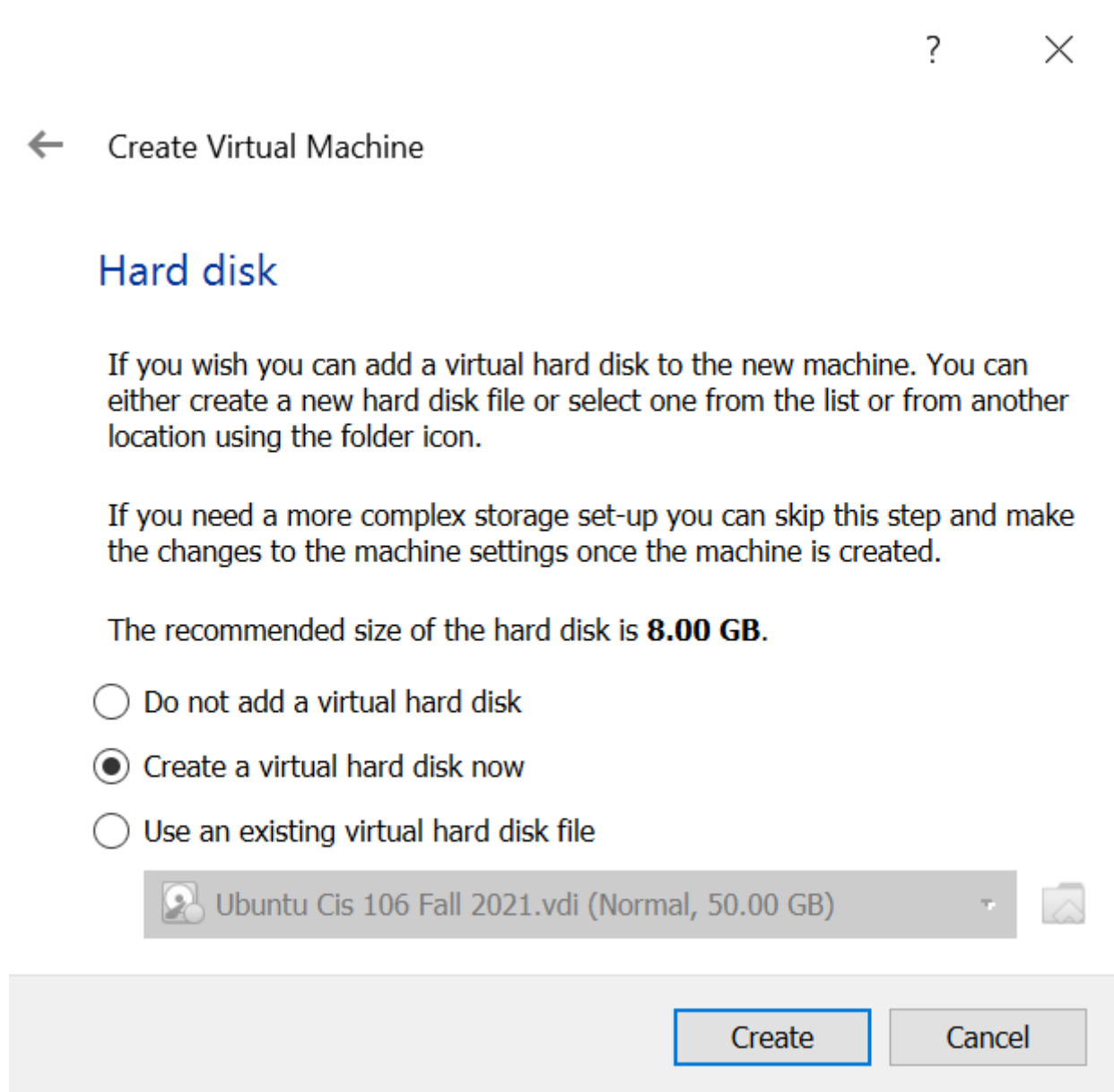
↑  
↓

MB

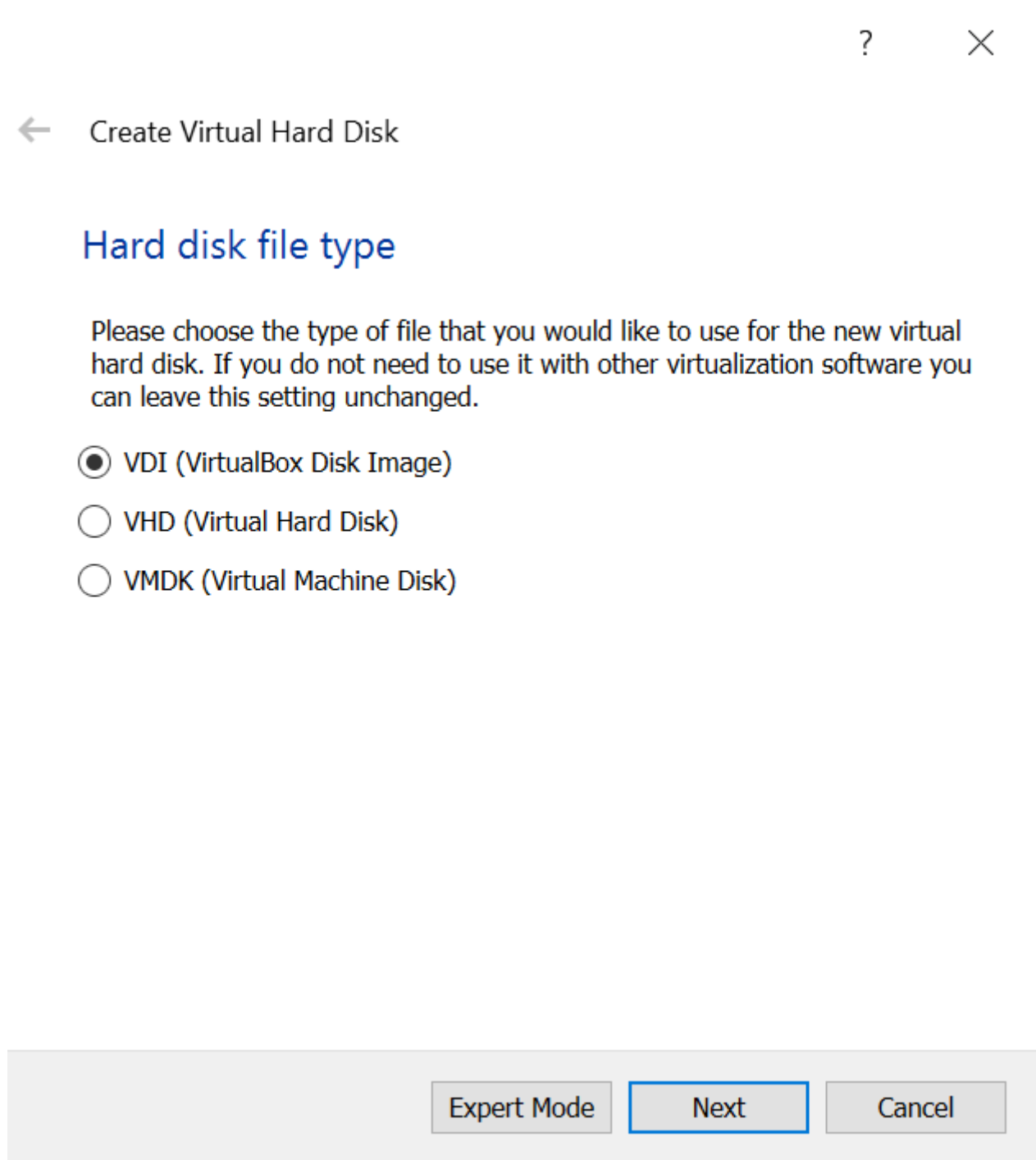
Next

Cancel

Create a new virtual hard disk to use as our VM filesystem. So, use the default setting on this screen.



On the following screen, I select the format for the virtual hard disk. Here, I applied the default settings again. So, I would use the original VirtualBox Disk Image (VDI) format. Then, click Continue.



On the next screen, I needed to choose between a **Dynamically Allocated** or a **Fixed-size** virtual disk file. I picked the “**dynamically allocated**,” which is the default.



← Create Virtual Hard Disk

## Storage on physical hard disk

Please choose whether the new virtual hard disk file should grow as it is used (dynamically allocated) or if it should be created at its maximum size (fixed size).

A **dynamically allocated** hard disk file will only use space on your physical hard disk as it fills up (up to a maximum **fixed size**), although it will not shrink again automatically when space on it is freed.

A **fixed size** hard disk file may take longer to create on some systems but is often faster to use.

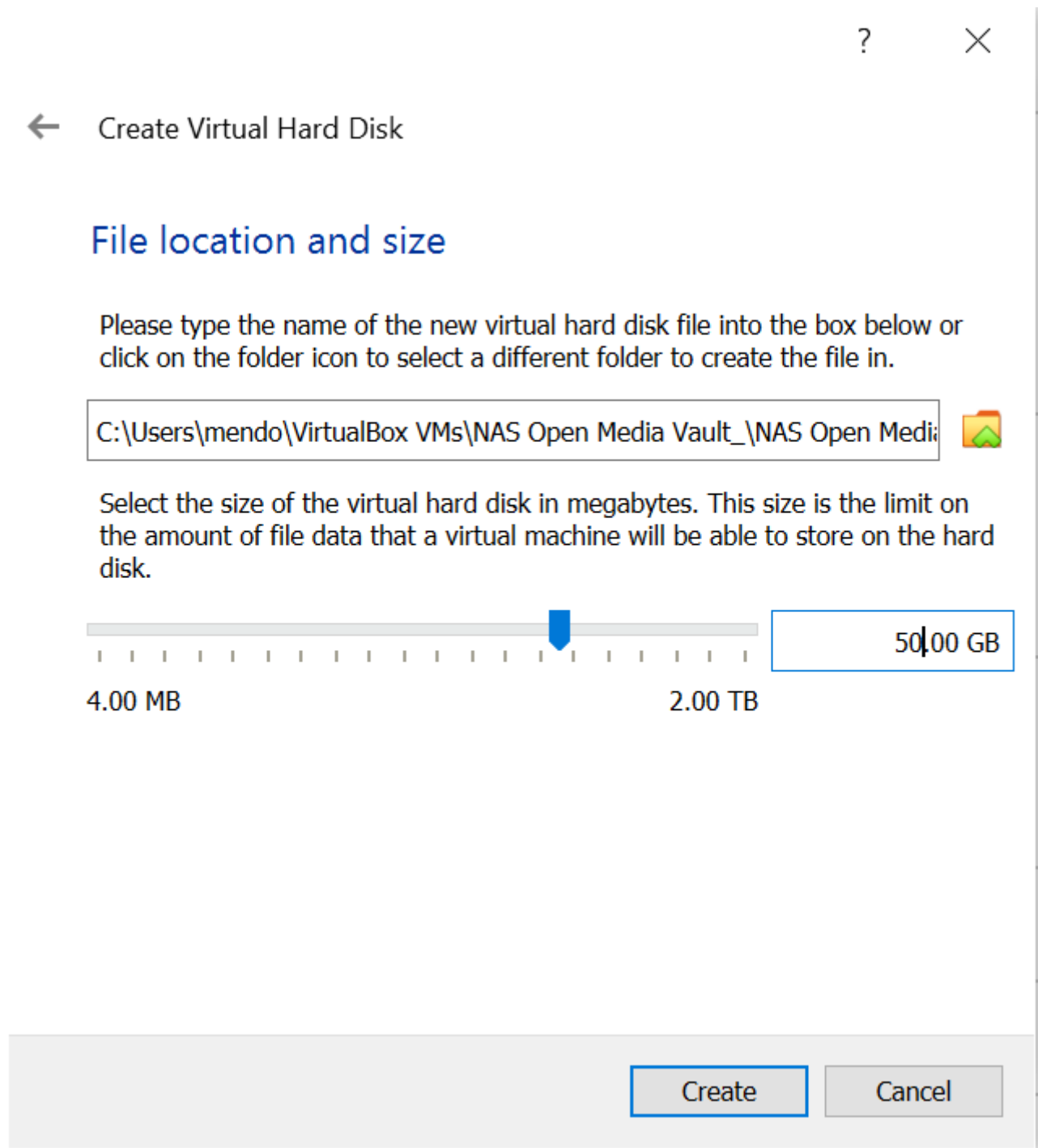
☒ Dynamically allocated

☐ Fixed size

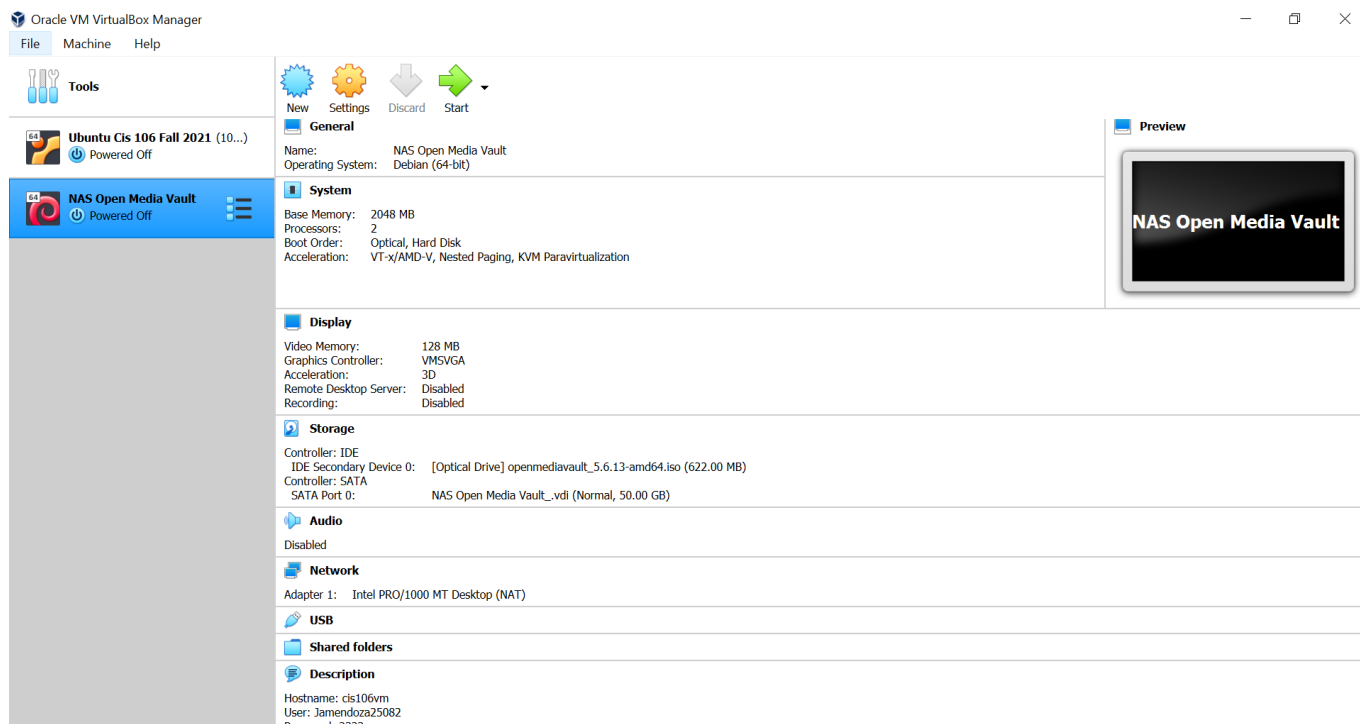
Next

Cancel

Then, choose the VM disk image file's location and maximum size on your host computer's file system.

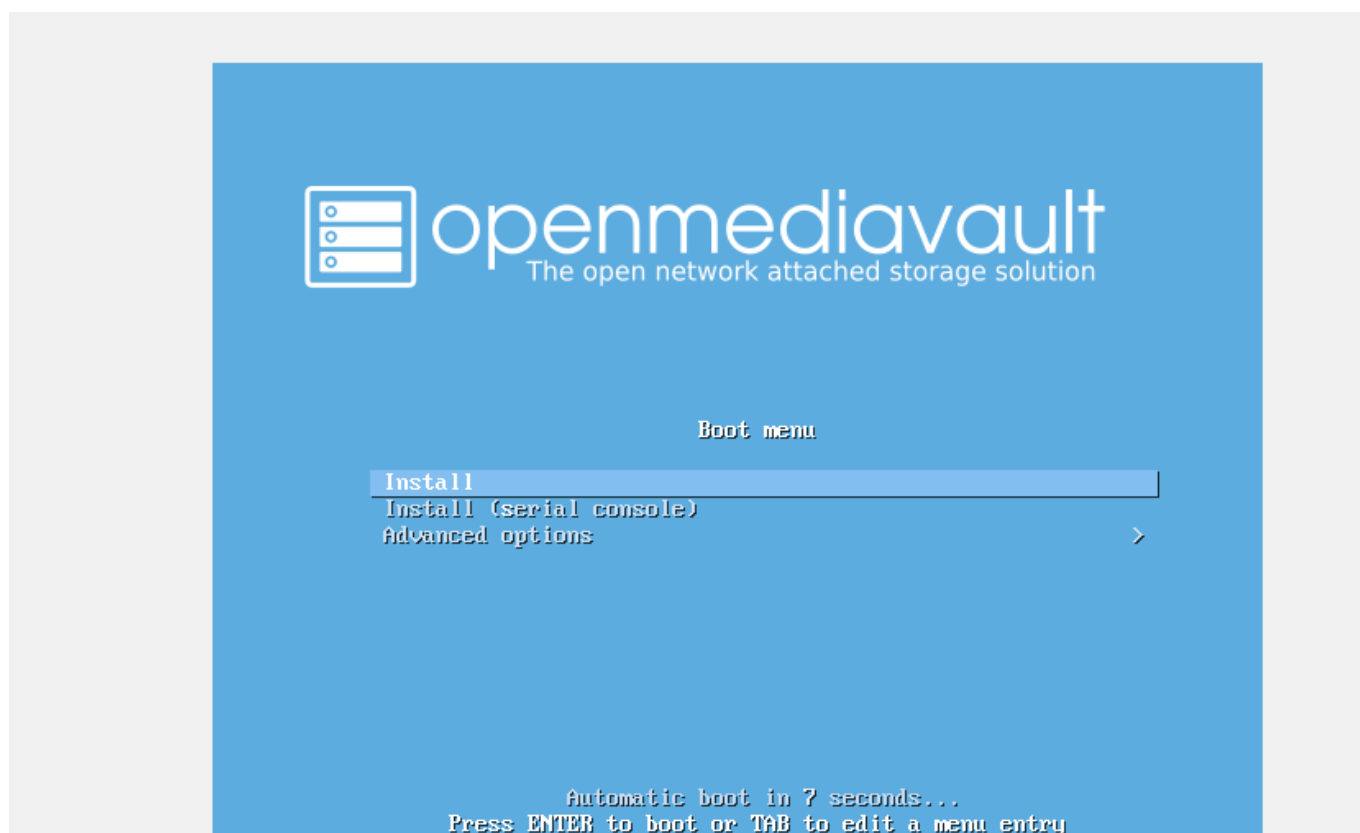


**Now you could see that I have a Debian 50 VM available in VirtualBox and it is in the Powered Off state**



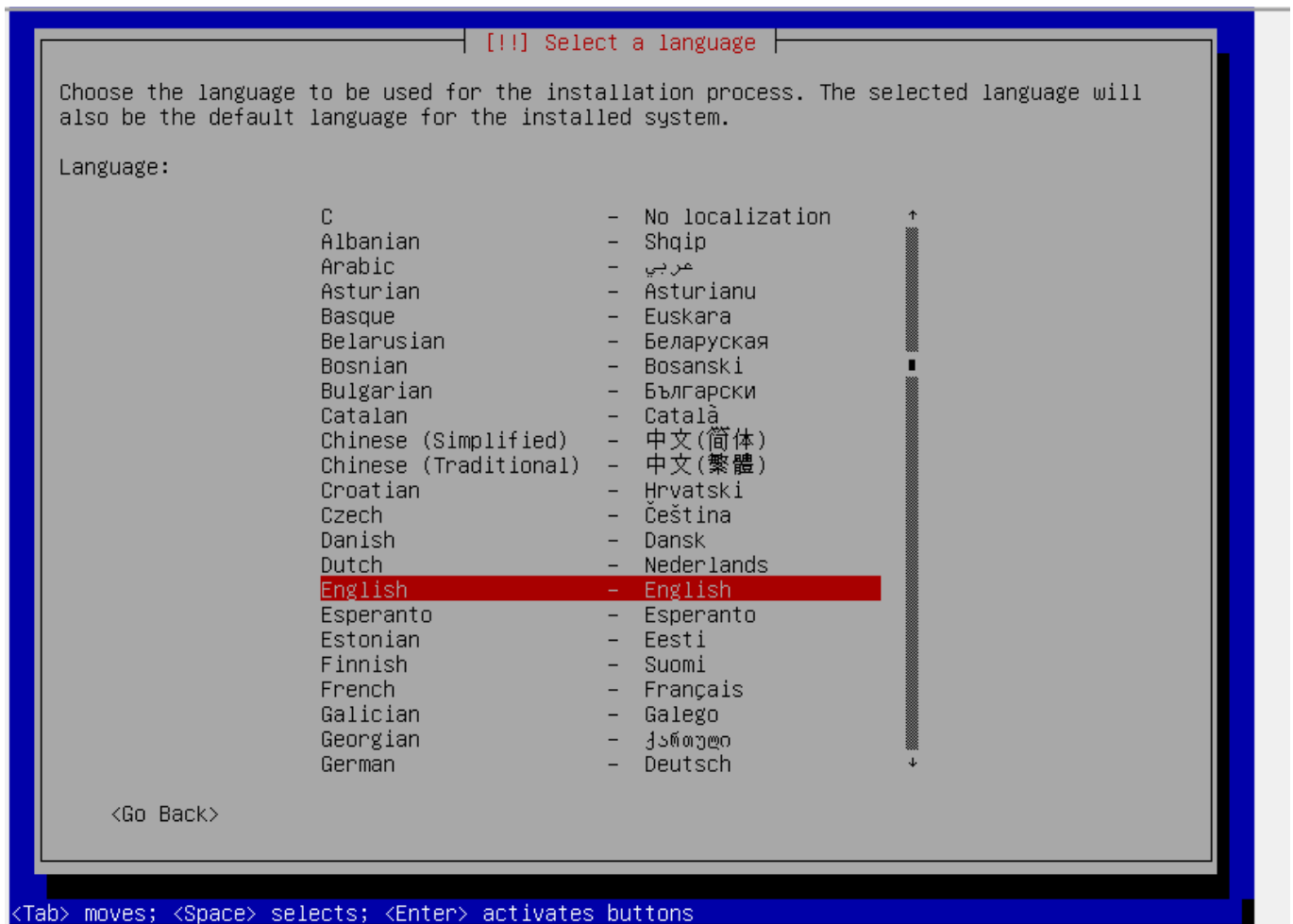
## Installing Openmediavault

The initial installation screen of OpenMediaVault should appear on the screen. Pick Install from the boot menu and press the enter key to proceed.

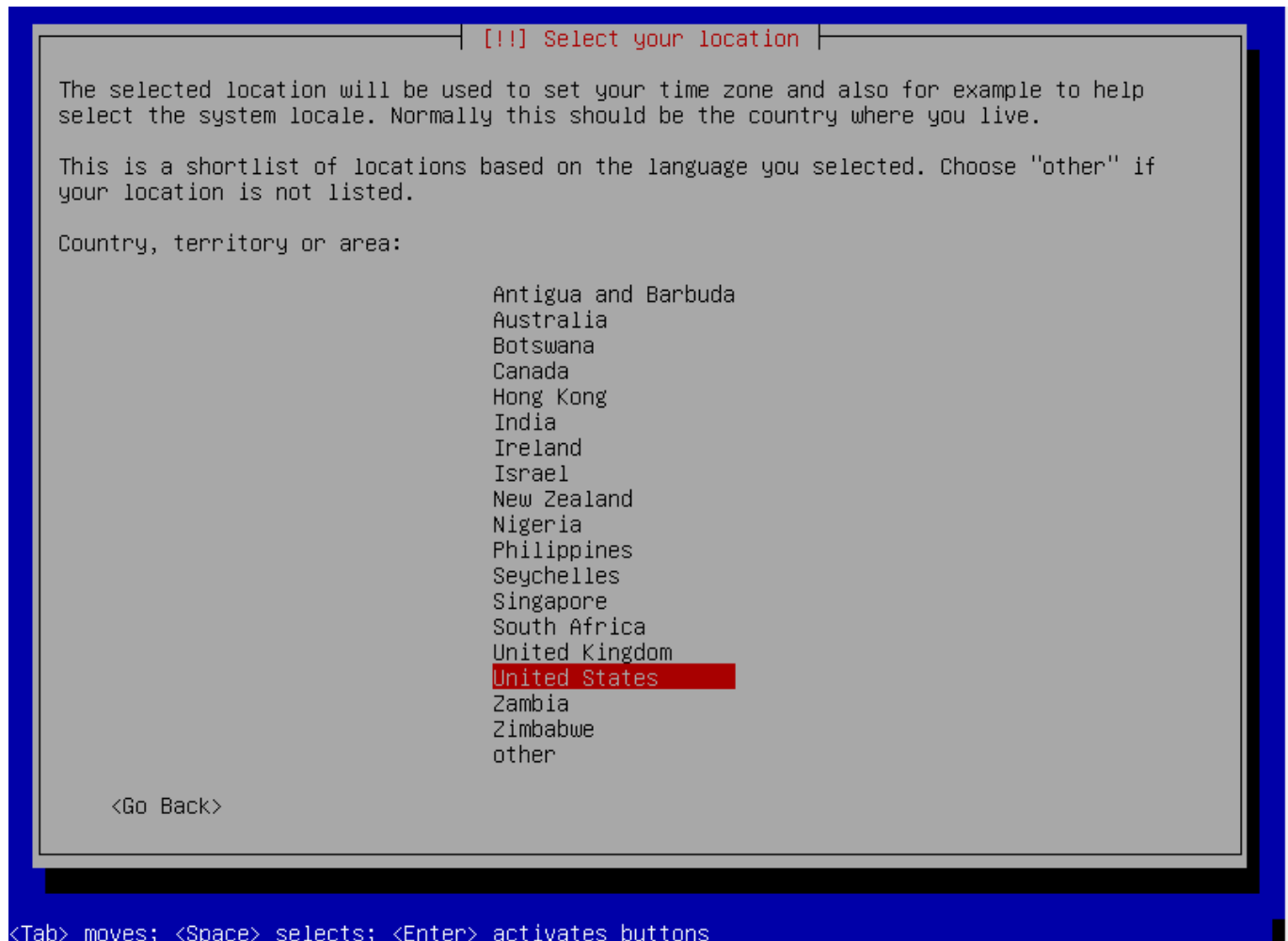


On the following screen, choose the language utilized for the installation method, and default language for the installed system and press enter to proceed.

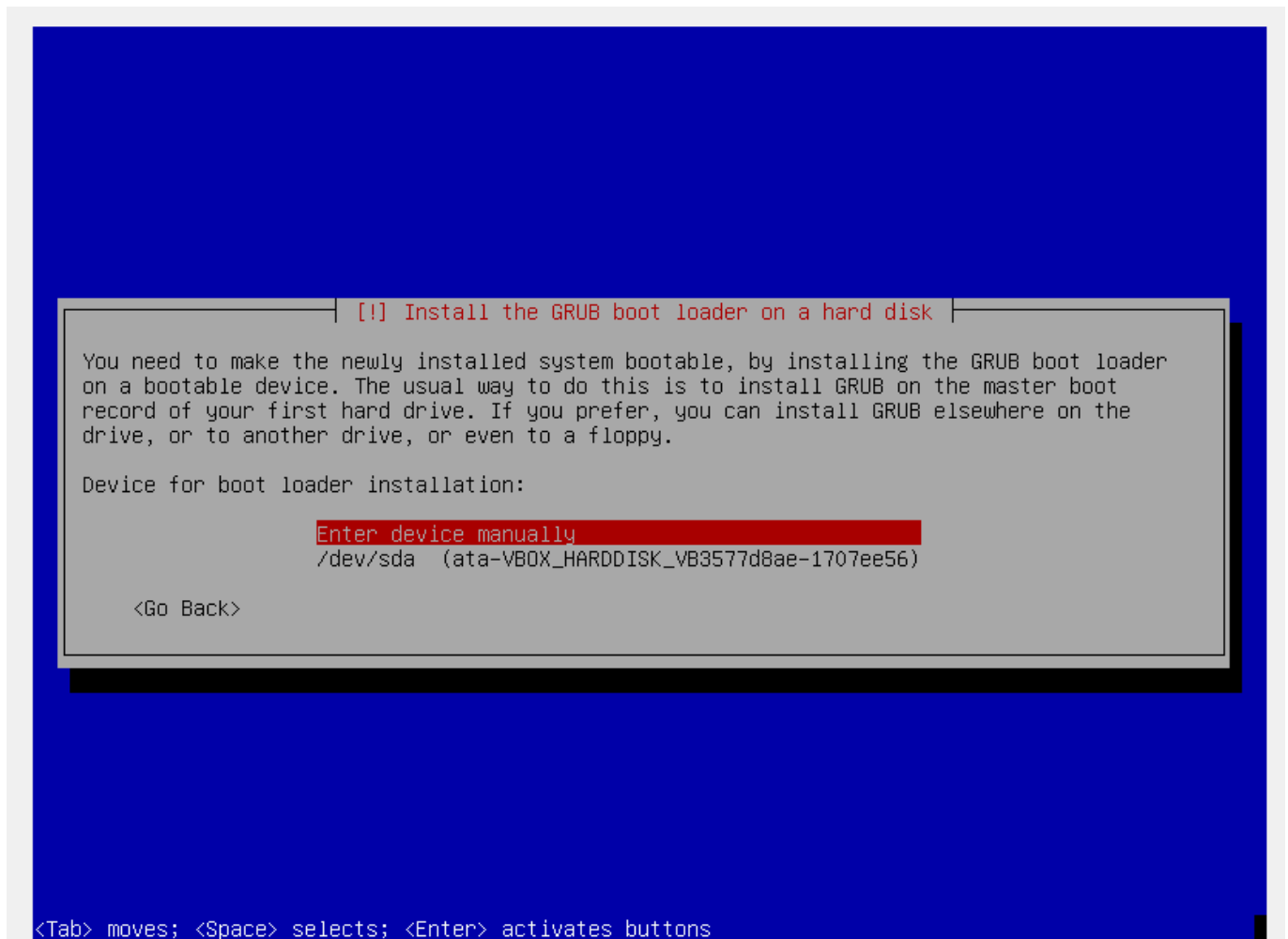




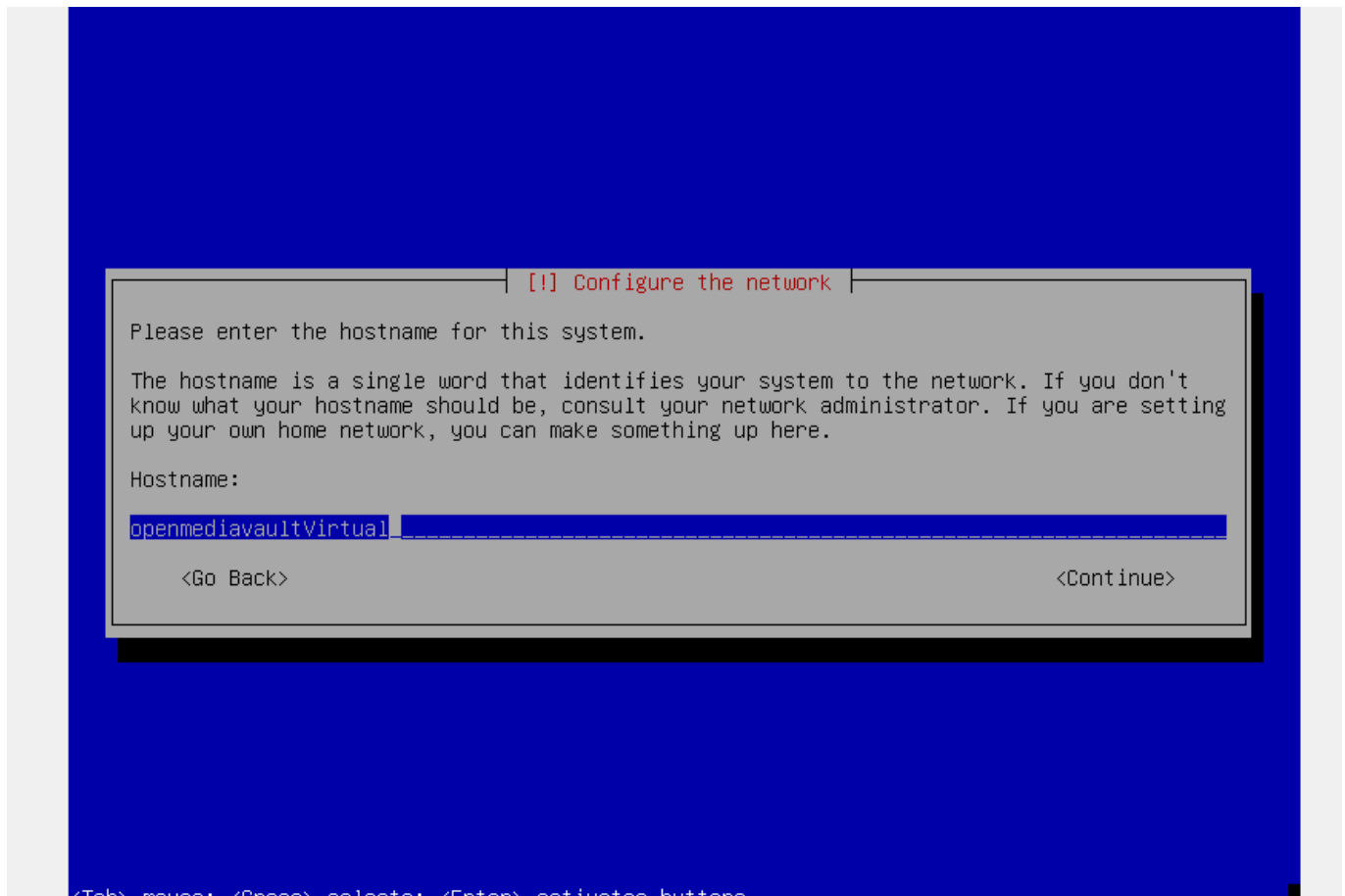
The subsequent screenshot decides the system location from the provided list depending on the geographical location - Continent -> Country- and press the enter key to continue.



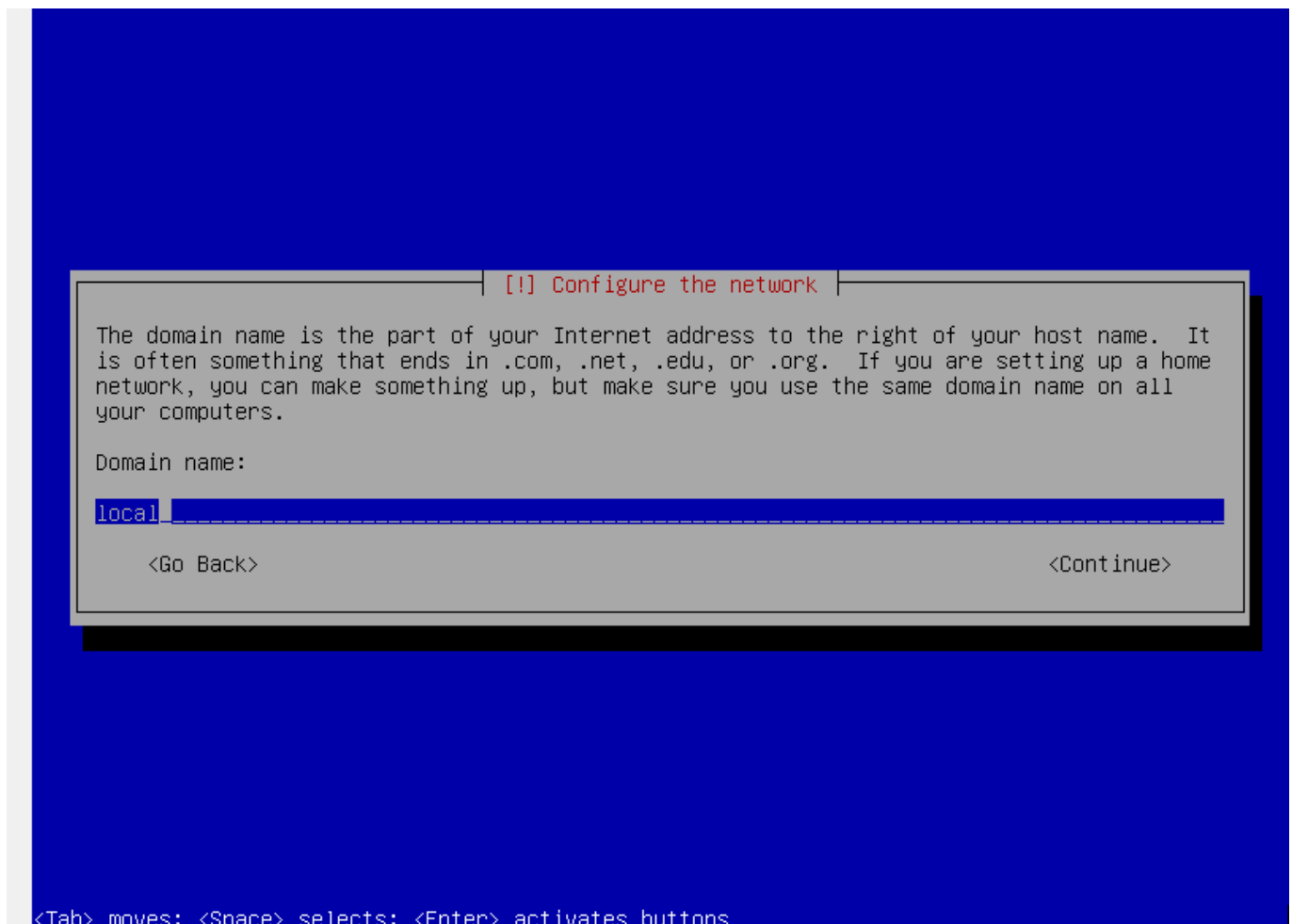
**On the subsequent screen, the next option will seem that will require to configure the network. Elect the initial network interface to be configured more and press the enter key to proceed. Then the network interface will be automatically configured via DHCP protocol.**



**Next, since the network has been configured with the proper IP settings, access the system hostname and press the enter key to advance to the next screen.**



**In this step, inscribe the domain to be used at the premises and press the enter key to continue.**



**A secure password must be set up for the root administrative account; repeat the identical password on the next screen and press enter to continue.**

!!! Set up users and passwords

You need to set a password for 'root', the system administrative account. A malicious or unqualified user with root access can have disastrous results, so you should take care to choose a root password that is not easy to guess. It should not be a word found in dictionaries, or a word that could be easily associated with you.

A good password will contain a mixture of letters, numbers and punctuation and should be changed at regular intervals.

The root user should not have an empty password. If you leave this empty, the root account will be disabled and the system's initial user account will be given the power to become root using the "sudo" command.

Note that you will not be able to see the password as you type it.

Root password:

\*\*\*\*

[ ] Show Password in Clear

<Go Back> <Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons

!!! Set up users and passwords

Please enter the same root password again to verify that you have typed it correctly.

Re-enter password to verify:

\*\*\*\*

[ ] Show Password in Clear

<Go Back> <Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons

**The package manager window will resemble on the screen. Elect a Debian mirror archive close to your physical location, press enter to continue.**

## [!] Configure the package manager

The goal is to find a mirror of the Debian archive that is close to you on the network -- be aware that nearby countries, or even your own, may not be the best choice.

Debian archive mirror country:

New Caledonia  
New Zealand  
Norway  
Philippines  
Poland  
Portugal  
Romania  
Russian Federation  
Réunion  
Serbia  
Singapore  
Slovakia  
Slovenia  
South Africa  
Spain  
Sweden  
Switzerland  
Taiwan  
Thailand  
Turkey  
Ukraine  
United Kingdom  
United States

<Go Back>

<Tab> moves; <Space> selects; <Enter> activates buttons

## [!] 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.

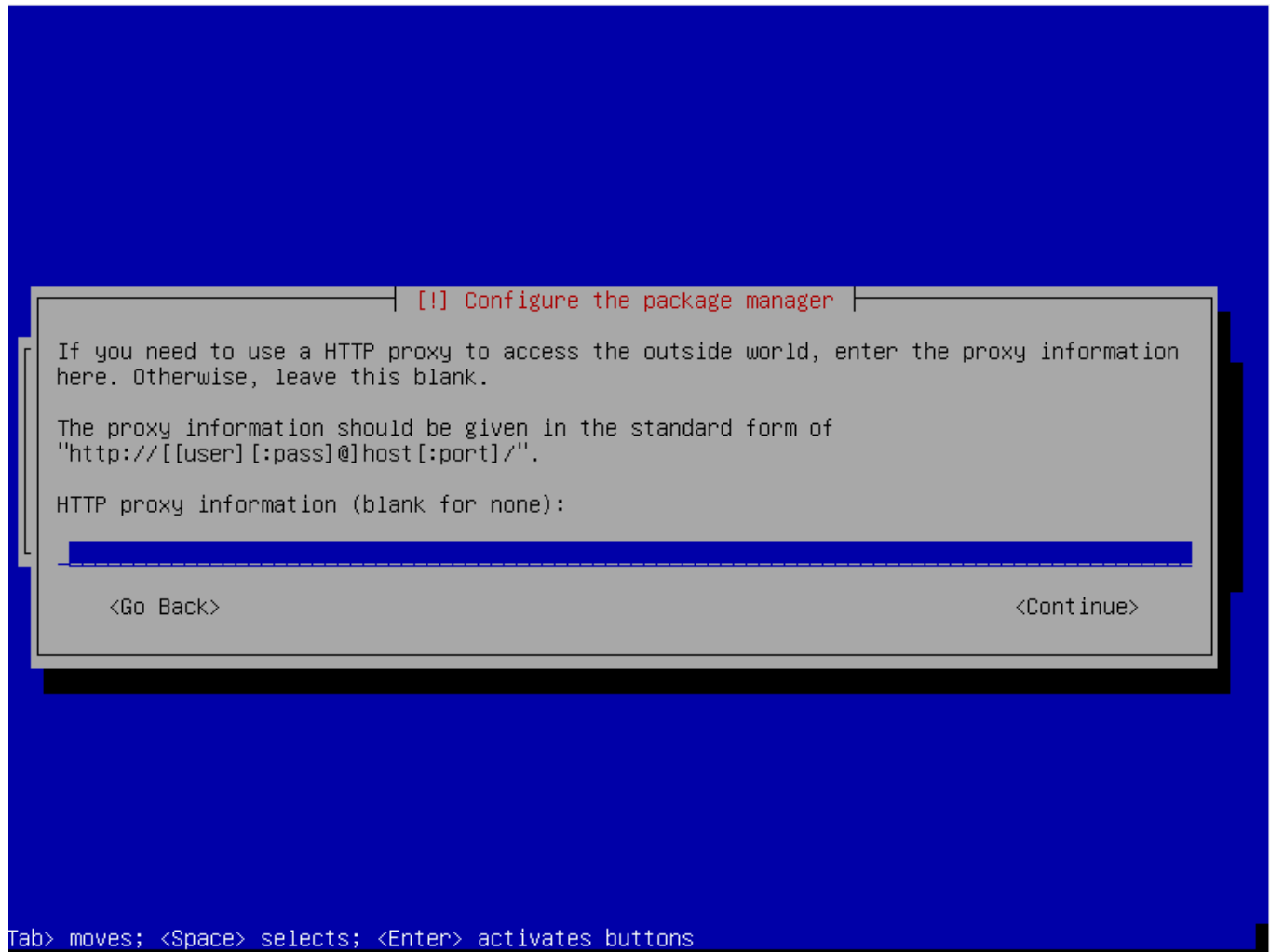
Debian archive mirror:

ftp.us.debian.org  
debian.csail.mit.edu  
debian.osuosl.org  
debian.cc.lehigh.edu  
debian.gtisc.gatech.edu  
mirror.cc.columbia.edu  
deb.debian.org  
debian-archive.trafficmanager.net  
mirrors.lug.mtu.edu  
mirror.us.oneandone.net  
mirrors.bloomu.edu  
mirrors.namecheap.com  
mirrors.ocf.berkeley.edu  
debian.mirror.constant.com  
mirrors.advancedhosters.com  
mirror.cogentco.com  
mirrors.syringanetworks.net  
mirrors.gigenet.com  
mirror.us.leaseweb.net  
debian.ec.as6453.net  
mirrors.accretive-networks.net

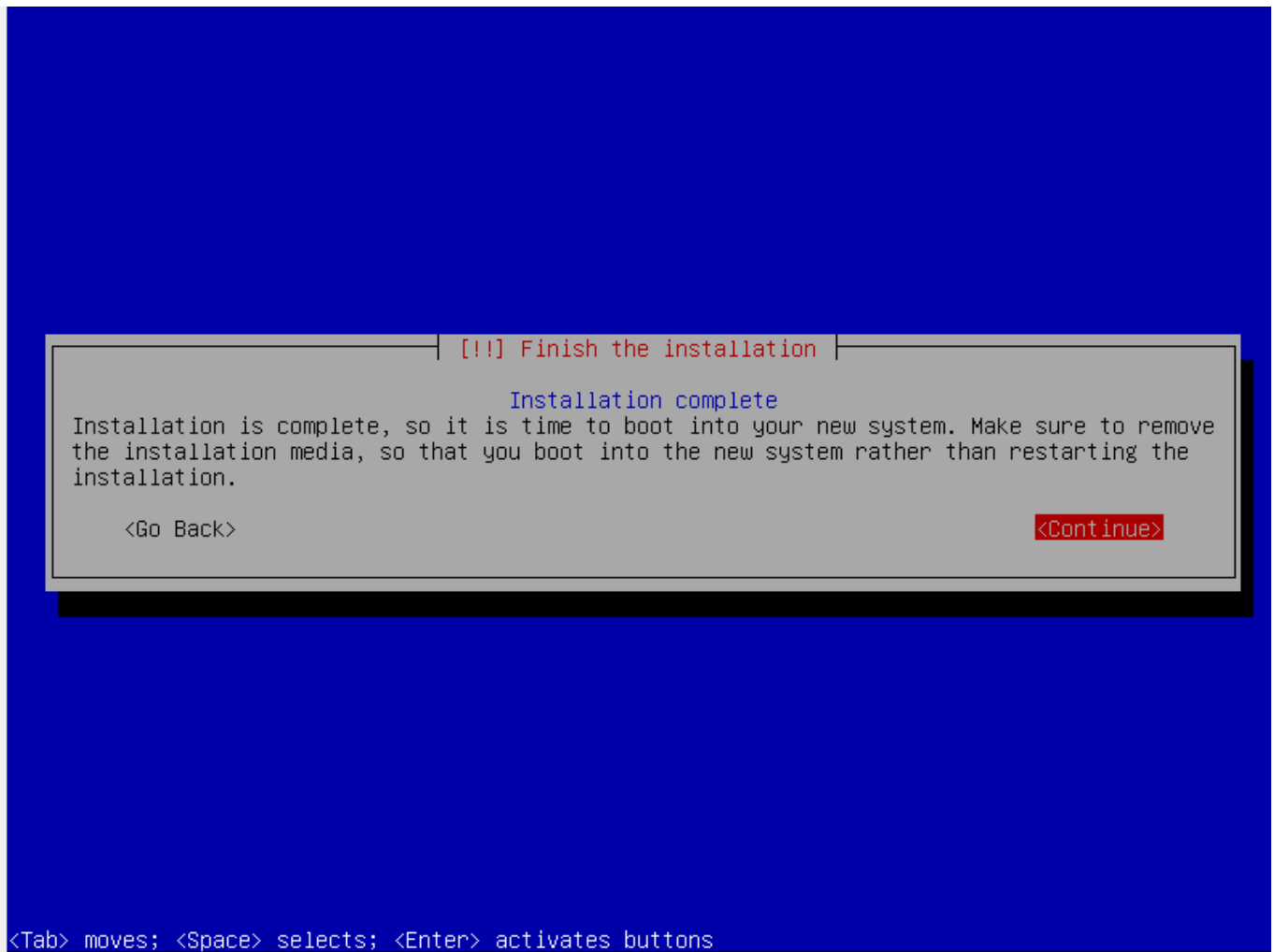
<Go Back>



To configure the Debian package manager's access, the installer will demand proxy information. Likely, this is not a requirement, so leave it blank and move forward.



Subsequent the installation concludes, remove the installation CD or USB and press enter to complete the installation and reboot the machine within the new operating system.



After rebooting the machine enter the username and password that it was set up earlier

```
openmediavault 5.5.11-1 (Usul) openmediavault tty1
Copyright (C) 2009-2020 by Volker Theile. All rights reserved.

To manage the system visit the openmediavault web control panel:

enp5s0: 192.168.178.7
enp5s0: fe80::d93e:4b57:61a8:b72
virbr0: 192.168.122.1

By default the web control panel administrator account has the
username 'admin' and password 'openmediavault'.
It is recommended that you change the password for this account
within the web control panel or using the 'omv-firstaid' CLI
command.

For more information regarding this appliance, please visit the
web site: https://www.openmediavault.org

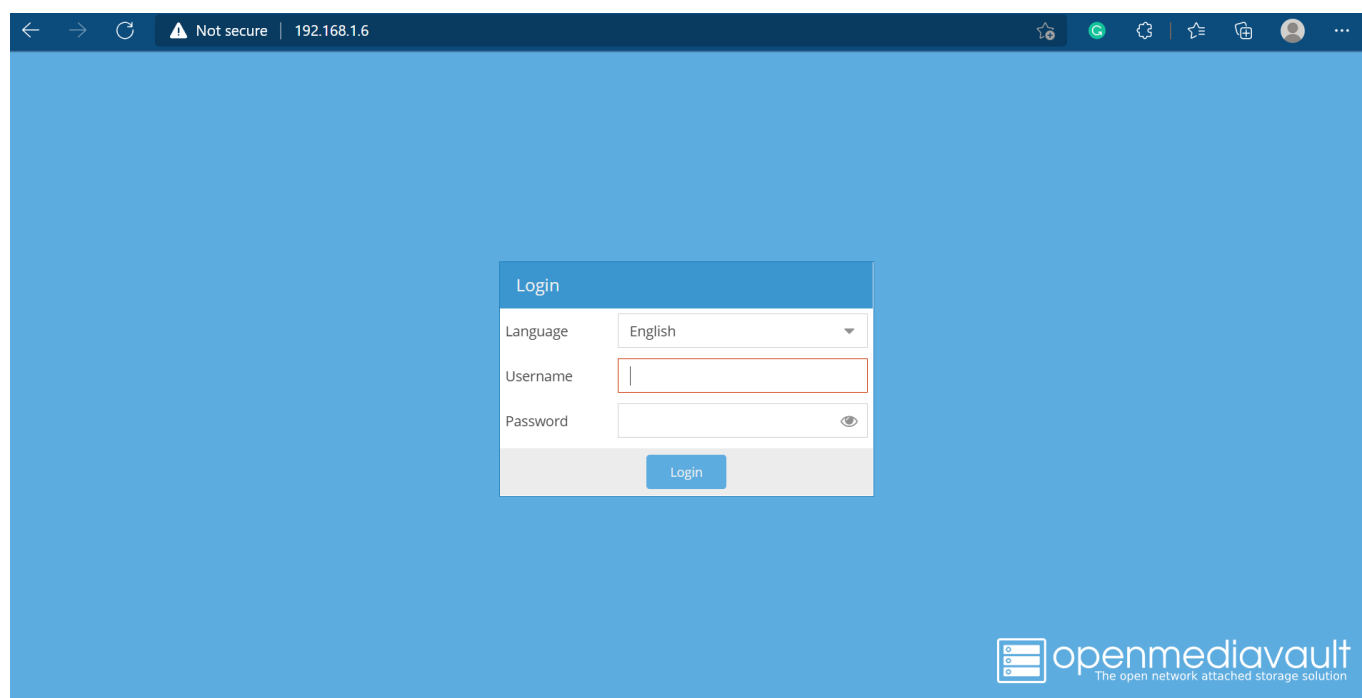
openmediavault login: 123
Password:
Login incorrect
openmediavault login: root
Password:
Linux openmediavault 5.7.0-0.bpo.2-amd64 #1 SMP Debian 5.7.10-1~bpo10+1 (2020-07-30) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

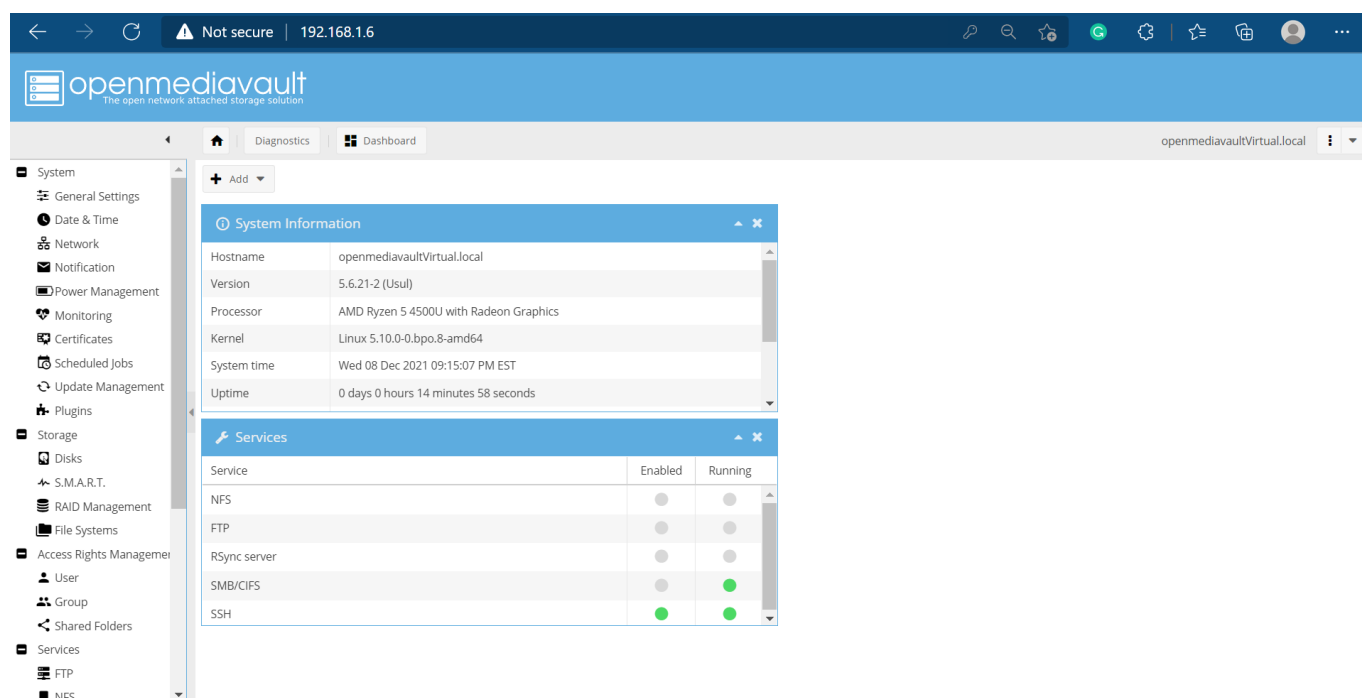
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
root@openmediavault:~#
```

## Configuring Openmediavault

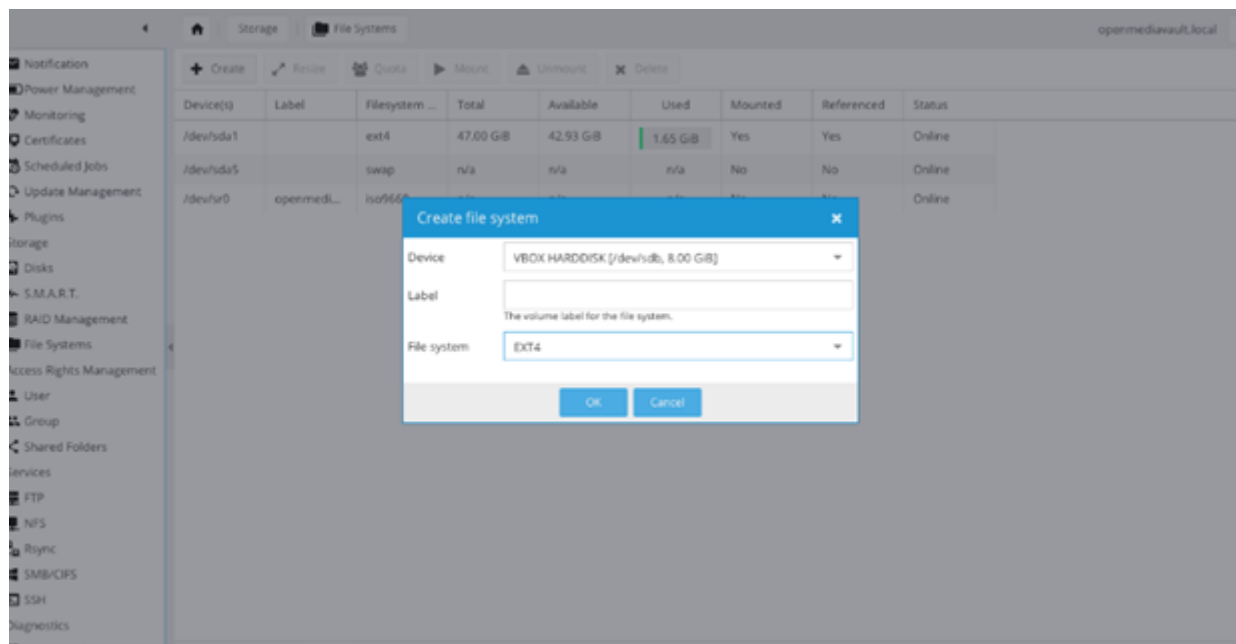
In this screenshot after finding the IP address on the previous screen. The user needs to go to the web browser and type the IP address and it would take it to this website. To mention the username would be admin and password openmediavault.



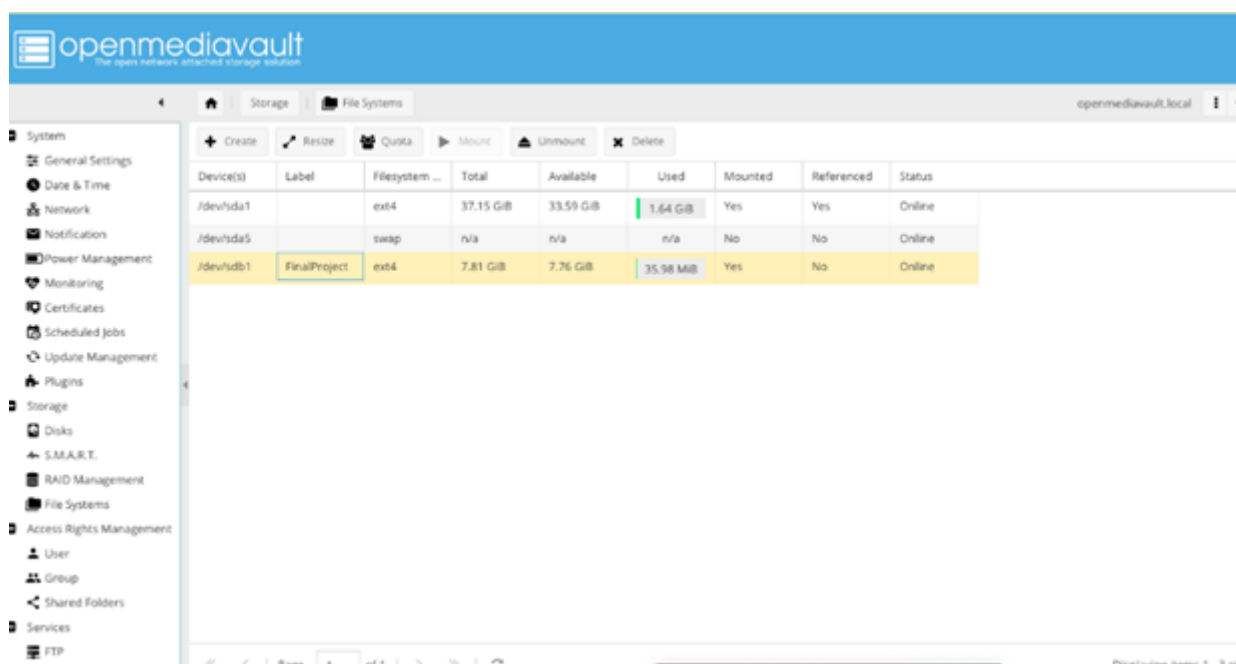
After login, the following information will appear on the screen



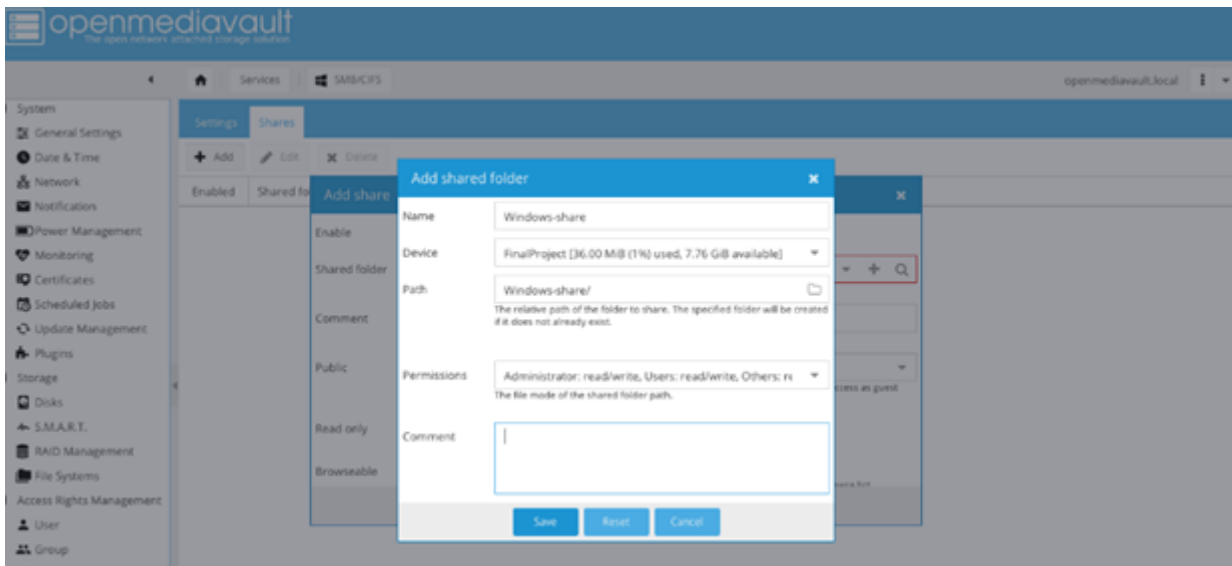
After navigating to Storage -> File Systems, Hit on the Create button., Pick a file system type for the array, such as EXT4. Hit the OK button to perform the file system.



Choose the RAID device array from the file and hit on top the top-mount button to obtain the system's storage available. The apply button needs to be hit to save the changes.

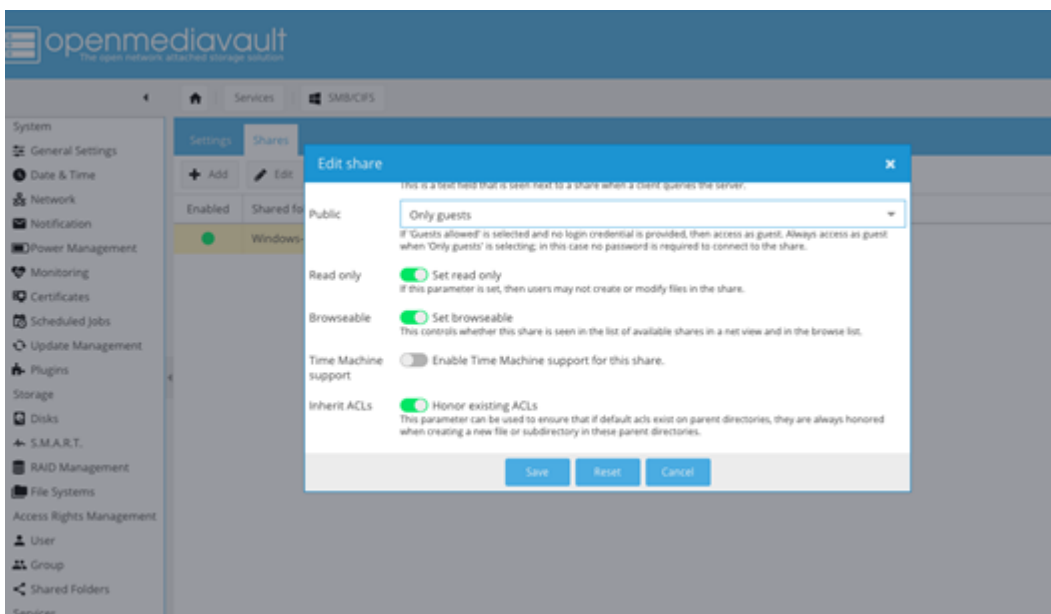
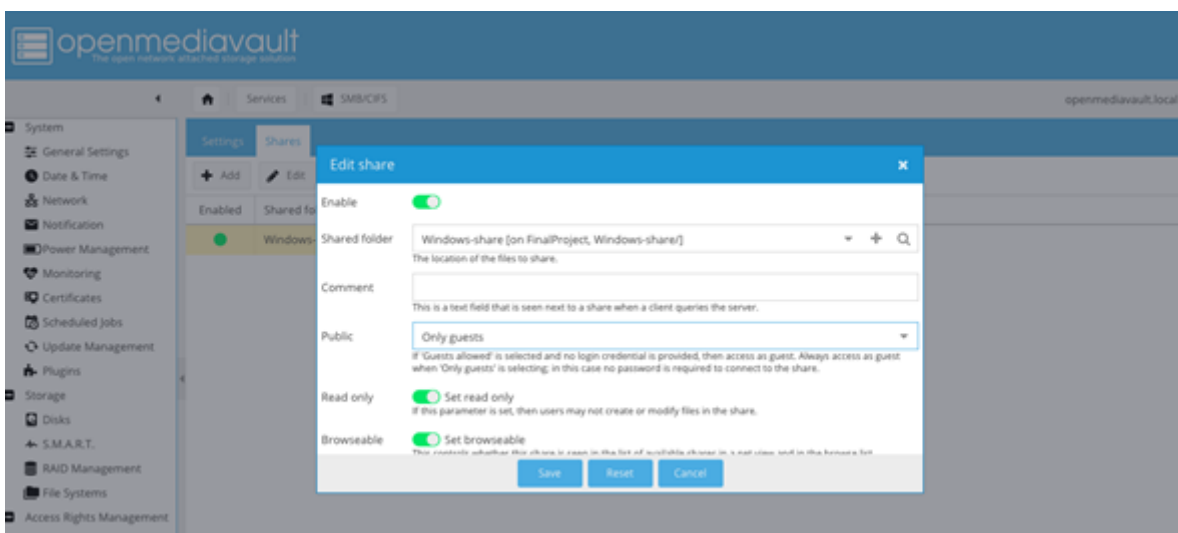


After the previous step, now choose Shared Folders from the Access Rights Management menu at the right. by clicking the choice add, it will appear a busy dialogue box that seems like this.



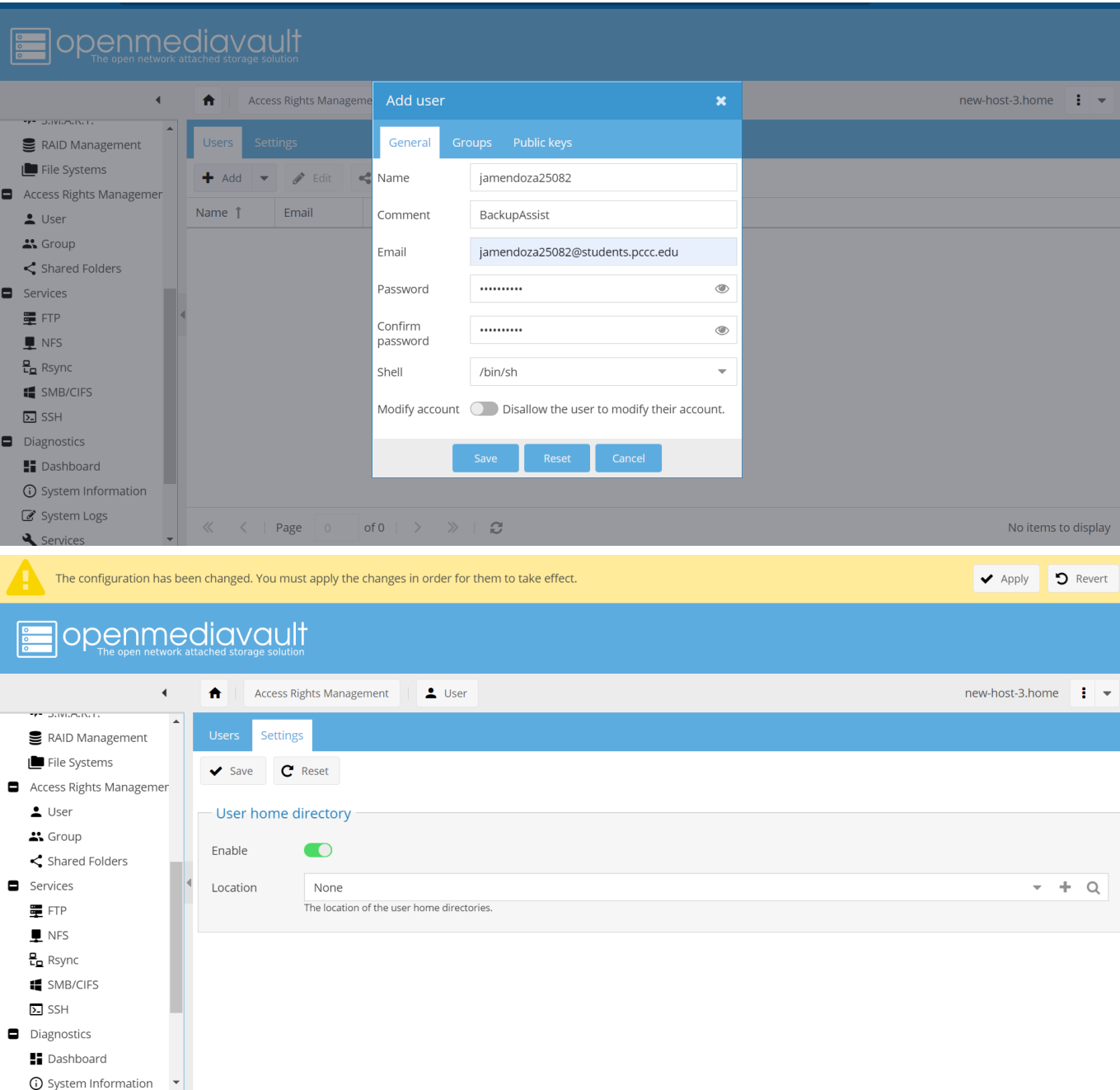
Next, click the Shares tab—this where I configure the shared folders to show up when we access the NAS on the network. Click Add, and a dialogue will appear.

Enables the shared folder in SMB

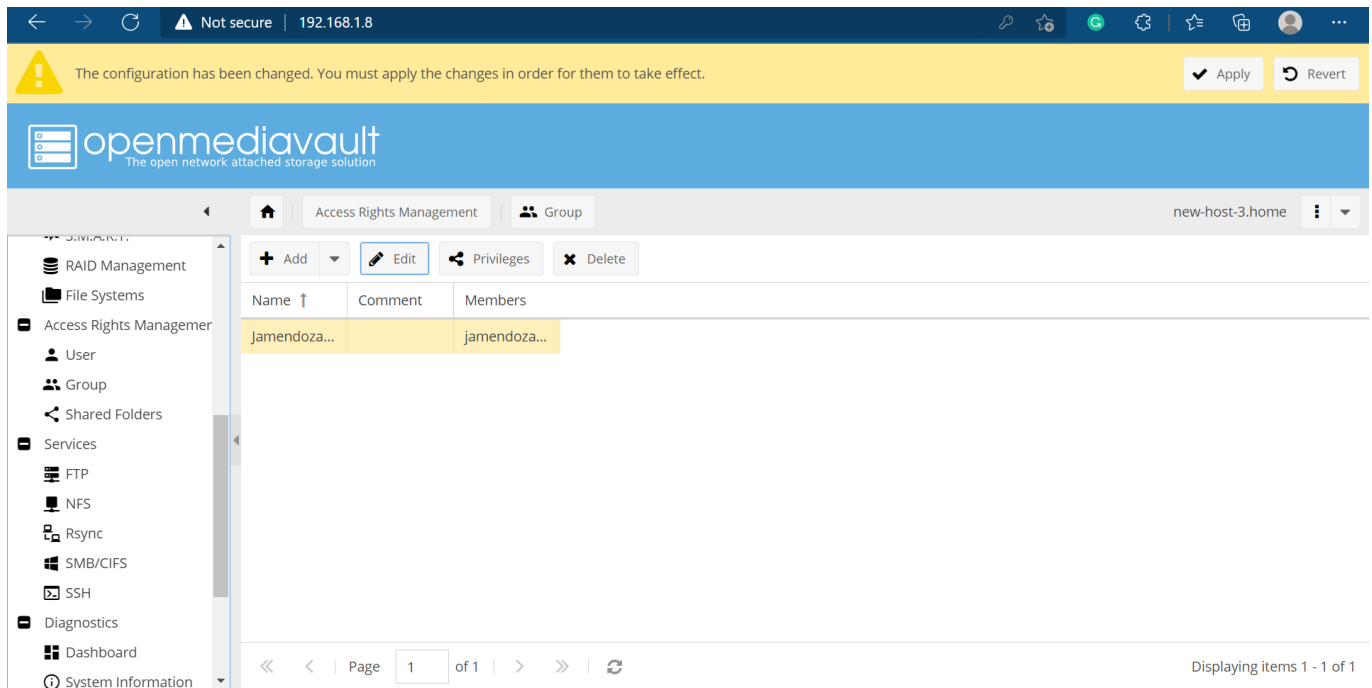


# Setting up a user account

Click **Access right management**, then click **User** and pick **Add** and add a new user using the following details.

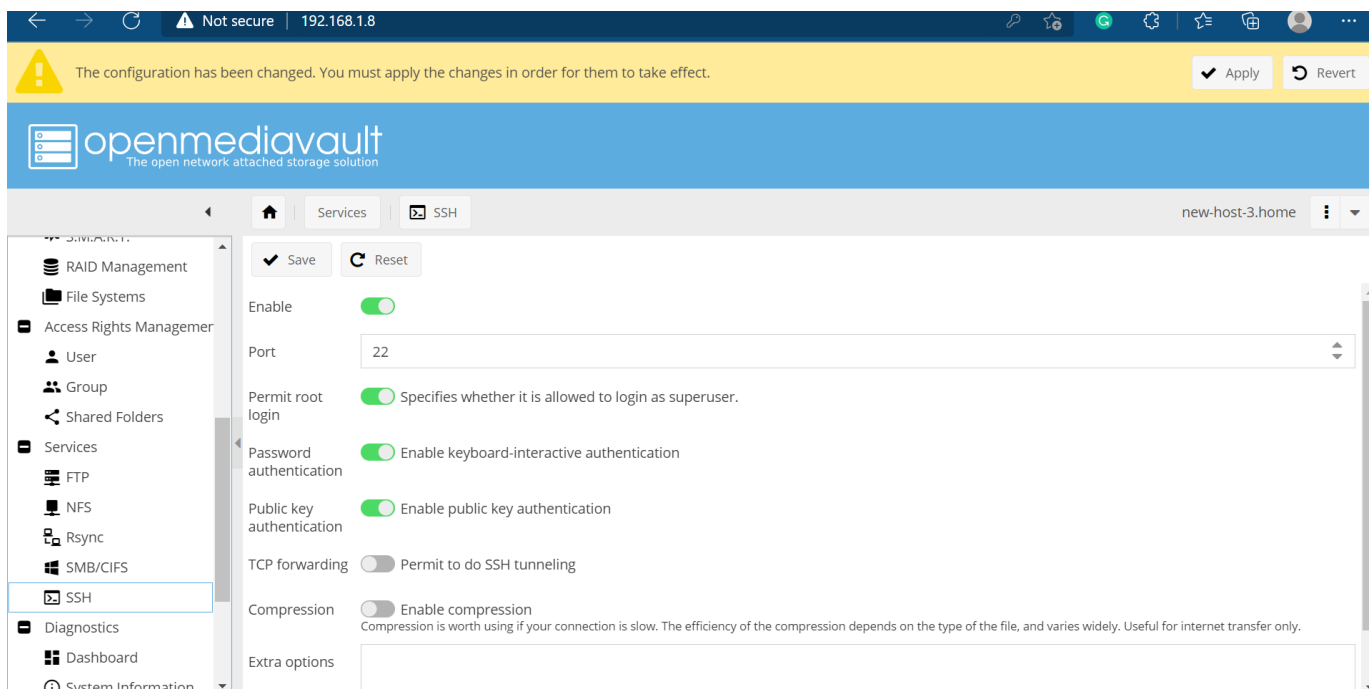


# Setting up a group account



## SSH

**SSH allows the user to practice the command line to access your NAS.**



## SSL

**SSL certificate s can be used for securing the web interface or SSH access**

**The following screenshot will show how to create an SSL certificate.**

← → ↺ ⚠ Not secure | 192.168.1.8 🔍 ⚙️ 🌐 ⚙️ ⭐ 📄 👤 ⋮

openmediavault  
The open network attached storage solution

System Certificates

System

- General Settings
- Date & Time
- Network
- Notification
- Power Management
- Monitoring
- Certificates
- Scheduled Jobs
- Update Management
- Plugins

Storage

- Disks
- S.M.A.R.T.
- RAID Management
- File Systems

Access Rights Manager

SSH SSL

+ Add ▾ ✎ Edit ⓘ

Name ↑	Valid to	Comment
No items to display		

Page 0 of 0 ↺

new-host-3.home ⋮ ▾

Create self-signed SSL certificate ✕

Key size4096b  
The RSA key length.

Period of validity1 year  
The number of days the certificate is valid for.

Common Name192.168.1.8

Organization NameFinalProject

Organizational Unitfinal

CityPaterson

State/ProvinceNJ

CountryUnited States ▾

Emailjamendoza25082@students.pccc.edu

Save Cancel

← → ↺ ⚠ Not secure | 192.168.1.8 🔍 ⚙️ 🌐 ⚙️ ⭐ 📄 👤 ⋮

openmediavault  
The open network attached storage solution

System Certificates

System

- General Settings
- Date & Time
- Network
- Notification
- Power Management
- Monitoring
- Certificates
- Scheduled Jobs
- Update Management
- Plugins

Storage

- Disks
- S.M.A.R.T.
- RAID Management

SSH SSL

+ Add ▾ ✎ Edit ⓘ Detail ✕ Delete

Name ↑	Valid to	Comment
/C=US/ST=...	12/8/2022, ...	/C=US/ST=...

Page 1 of 1 ↺

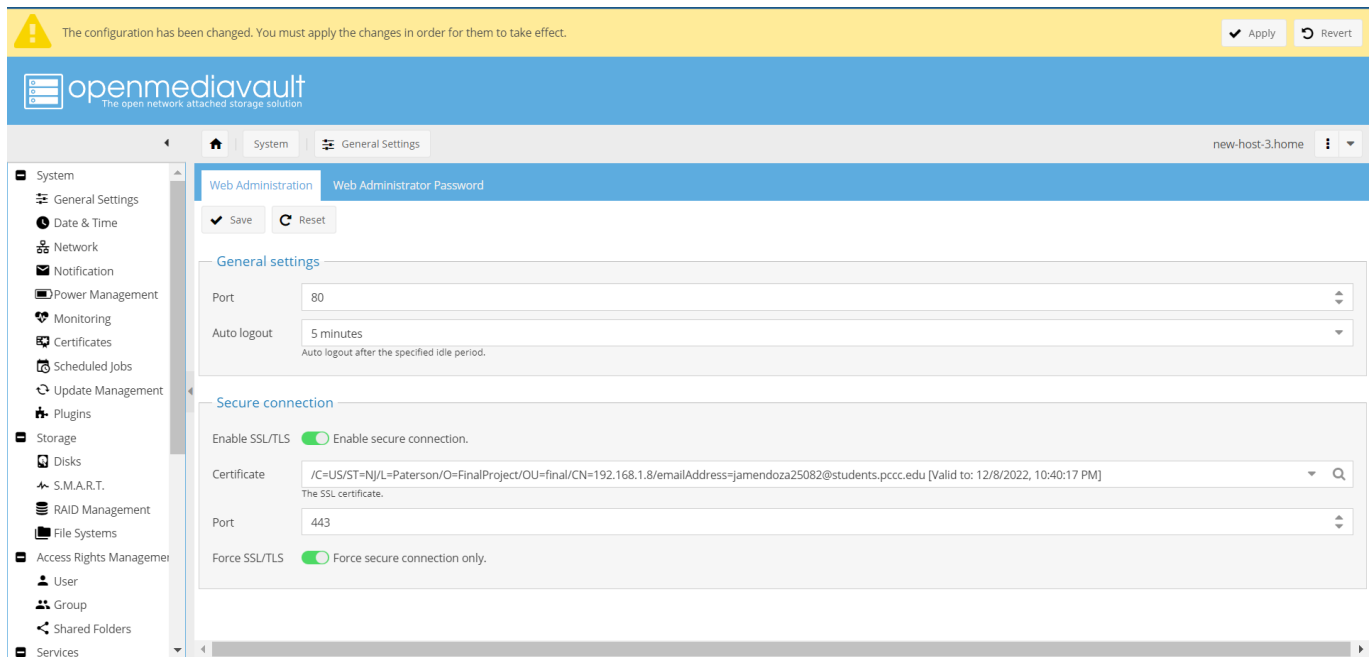
new-host-3.home ⋮ ▾

The configuration has been changed. You must apply the changes in order for them to take effect. ✓ Apply ↺ Revert

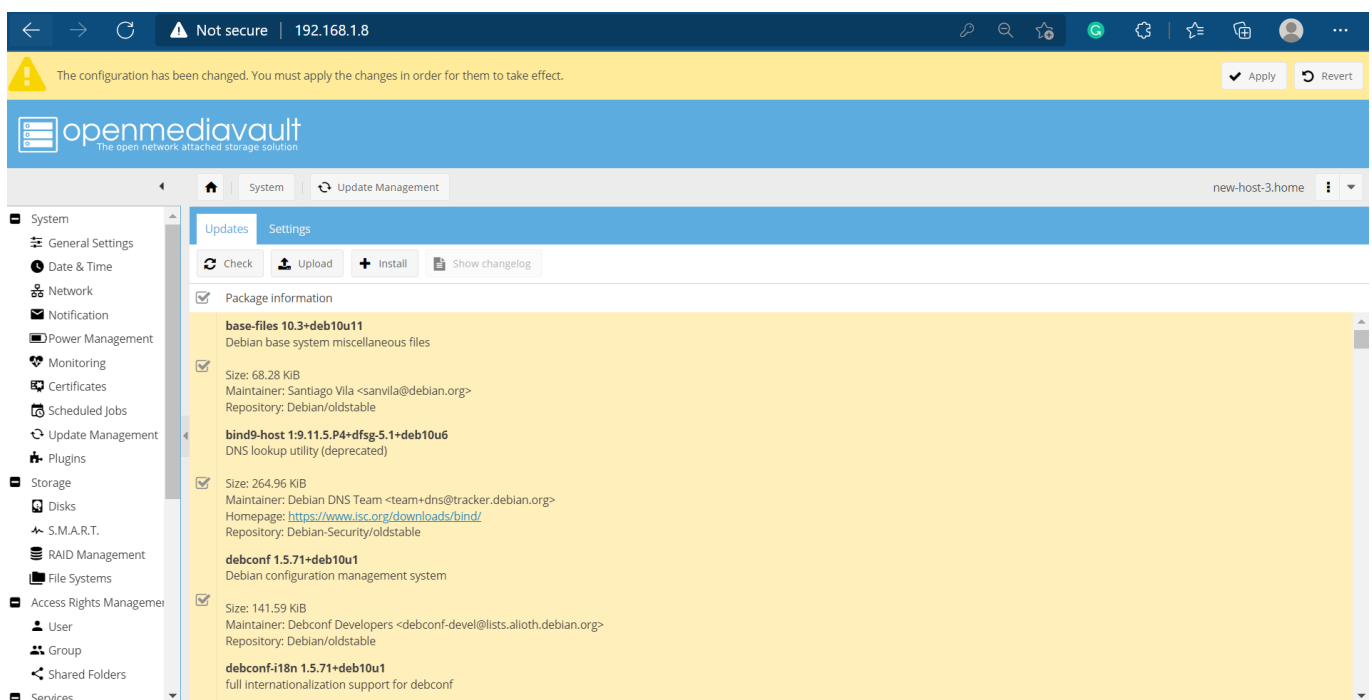
Displaying items 1 - 1 of 1

24 / 27





The following screenshot will display all usable packages that have to be upgraded, this would make the openmediavault more secure.



## Taking this project further

### Why move file server to the Cloud?

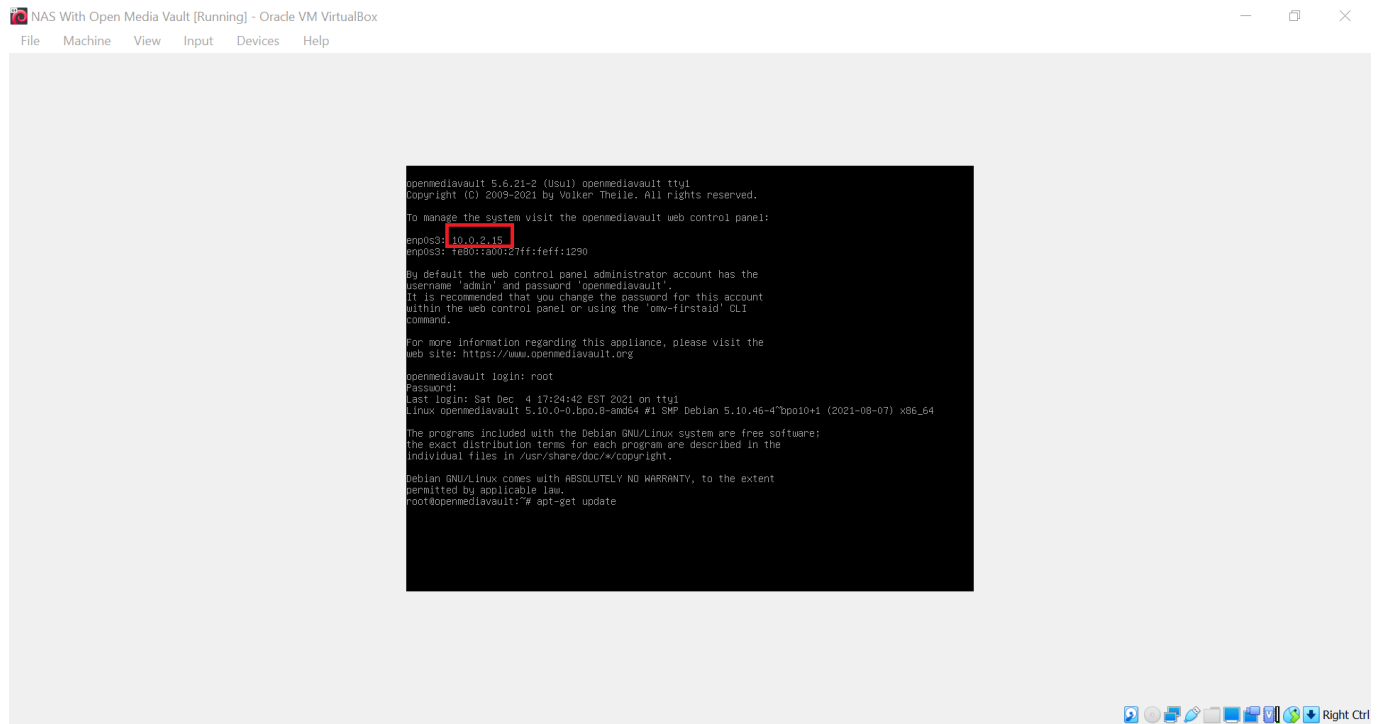
Move file server to cloud for greater helpful remote file access and cloud file sharing. Implement reliable remote access and mobile access to file server network shares with enhanced productivity and mobility. There are many cloud platform that it can be used to create file server such as Microsoft Azure, Centre Stack, many others.

## Conclusion

Momentarily that you have learned how to build a File Server with OpenMediaVault, you can know how to make many useful things. There are many options for taking this project further or making it useful for this project. For example, move the file server to the cloud.

## Issues Encounter

While working in this project, I encounter the following issues while I was trying to get my Ip Address



I Resolved this problem by doing the following commands:

- `sudo ifup enp0s8`
- `ip addr`
- `dhclient -d enp0s8`

## Works Cited

- Ridwan. "Building an Open Media Vault NAS (Part 3— Configuring OMV)." Medium, 25 May 2018, [ridwankhan.com/building-an-open-media-vault-nas-part-3-configuring-omv-ee15322602be](https://ridwankhan.com/building-an-open-media-vault-nas-part-3-configuring-omv-ee15322602be).
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- OnrGoLBD. "How To: Create SMB/CIFS/Windows Share in Open Media Vault (OMV)." Blog-D without Nonsense, 19 Apr. 2020, [dannnyda.com/2019/07/17/how-to-create-smb-cifs-windows-share-in-open-media-vault-omv](https://dannnyda.com/2019/07/17/how-to-create-smb-cifs-windows-share-in-open-media-vault-omv).
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