Template Week 5 – Operating Systems

Student number:

Assignment 5.1: Unix-like

a) Find out what the difference is between UNIX and unix-like operating systems?

b) Study the image above named UNIX timeline. Find out who Ken Thompson, Dennis Ritchie, Bill Joy, Richard Stallman, and Linus Torvalds are and what they have contributed to the development of UNIX or unix-like systems and to IT in general. **TIP!** English-language sources often contain more detailed information about these individuals.

c) What is the philosophy of the GNU movement?

d) Does Ubuntu as a Linux operating system conform to the philosophy of the GNU movement? Please explain your answer.

e) Find out what is the Windows Subsystem for Linux?

f) Find out, which operating system family belongs to Android, iOS and ChromeOS?

Assignment 5.2: Supercomputers and gameconsoles

a) Research on this site what supercomputers are used for and write a short summary of it:
https://www.computerhistory.org/timeline/search/?q=Supercomputer

b) IBM is a company that has already built a number of supercomputers. One of them is IBM's Roadrunner. The CPU developed for this supercomputer was further developed at a later stage as the CPU for the PlayStation 3 console. Find out what a **PlayStation 3 cluster** is and what it was used for?

c) You can build a supercomputer by putting a few computers together in a cluster. Here's what Oracle did with a collection of Raspberry Pi's, for example:
https://blogs.oracle.com/developers/post/building-the-worlds-largest-raspberry-pi-cluster
What specific operating system is running on this cluster?

d) Does Oracle's Raspberry Pi supercomputer appear in the list of the 500 fastest supercomputers in the world? Make a logical decision for this, without going through the entire list.
https://www.top500.org/lists/top500/list/2023/06/

e) What CPU architecture is used for the PlayStation 5 and Xbox Series X?
What operating systems run on these consoles?
What conclusion can you draw from the answer to the previous question?

Assignment 5.3: Working with Windows

Take relevant screenshots of the assignments below

a) Practice for about 10 minutes with the ⊞ keyboard shortcuts combinations, skip the general shortcuts in this exercise. Take a look at which screens are opened.

b) The file explorer can be opened with ⊞ + E, Which key combination could you also use?

c) Open the system properties with a ⊞ key combination, take a screenshot of the open screen. Paste this screenshot into this template.

d) Open task manager with a key combination. Take screenshots of the tabs: processes (shows active processes), performance, and users. Place these three screenshots in this template.

e) If you're giving a PowerPoint presentation and you connect your laptop to a projector, Windows can use the projector as a second screen. For example, you may have Outlook open on your first screen that you don't show over the projector, while the PowerPoint presentation is displayed on the projector, or the second screen. Which key combination should you use for this?

f) If you leave the classroom for a while and you leave your laptop behind, it is wise to lock the screen. Your Apps will continue to run in the background. So, for example, if you're waiting for a download that takes a while, lock the screen and get a cup of coffee. Which key combination do you use for this?

g) Open the Run screen with a key combination. On this screen, type CMD and press <enter>. Take a screenshot of this result and paste it into this template.

Working in the File Explorer

Relevant screenshots **copy** command:

Relevant screenshots **tree** command:

Relevant screenshots in the file explorer of the folder c:\Saxion + created zip file.

Terminating Processes

Relevant Screenshots Task Manager Window:

Install Software

Relevant screenshots that the following software is installed:

- WinSCP
- Notepad++
- 7zip

Assignment 5.4: Working with Linux

Relevant screenshots + motivation

Assignment 5.5: Users and permissions on Linux

Relevant screenshots + motivation

Assignment 5.6: View the contents of files

Relevant screenshots + motivation

Assignment 5.7: Digital forensics

Relevant screenshots + motivation

Assignment 5.8: Steganography

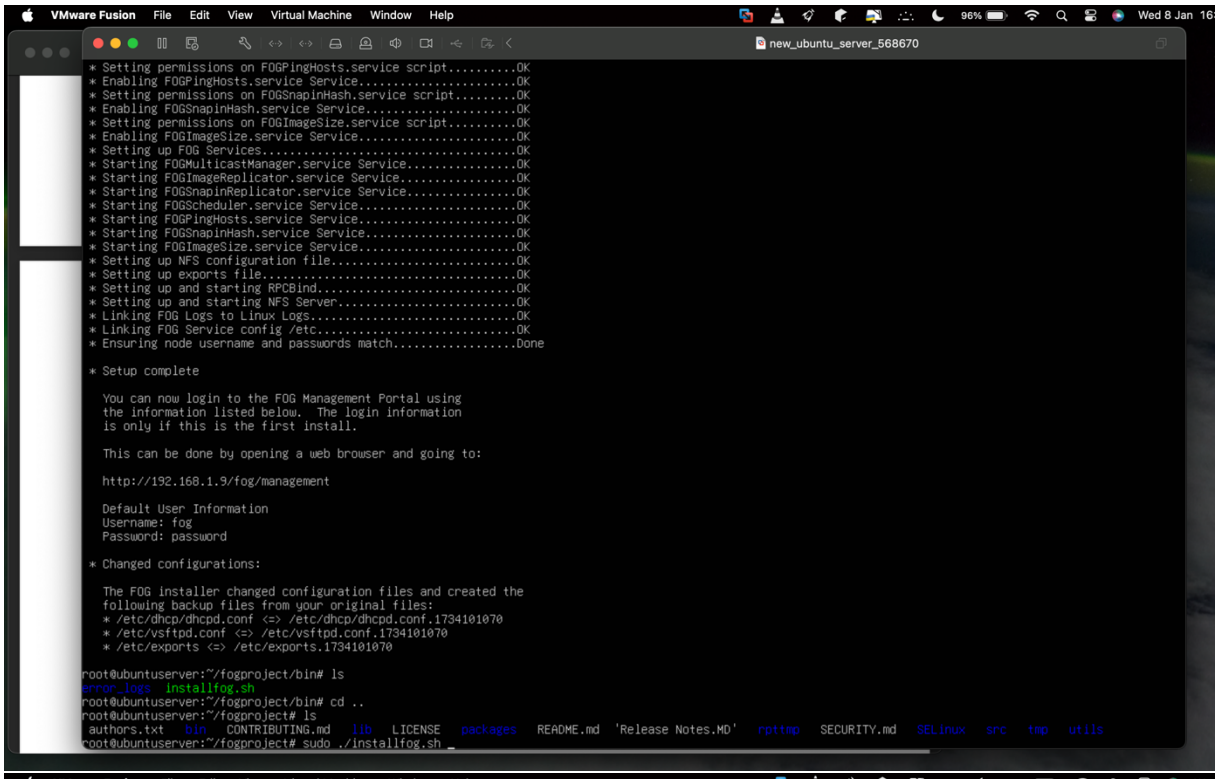
Relevant screenshots + motivation

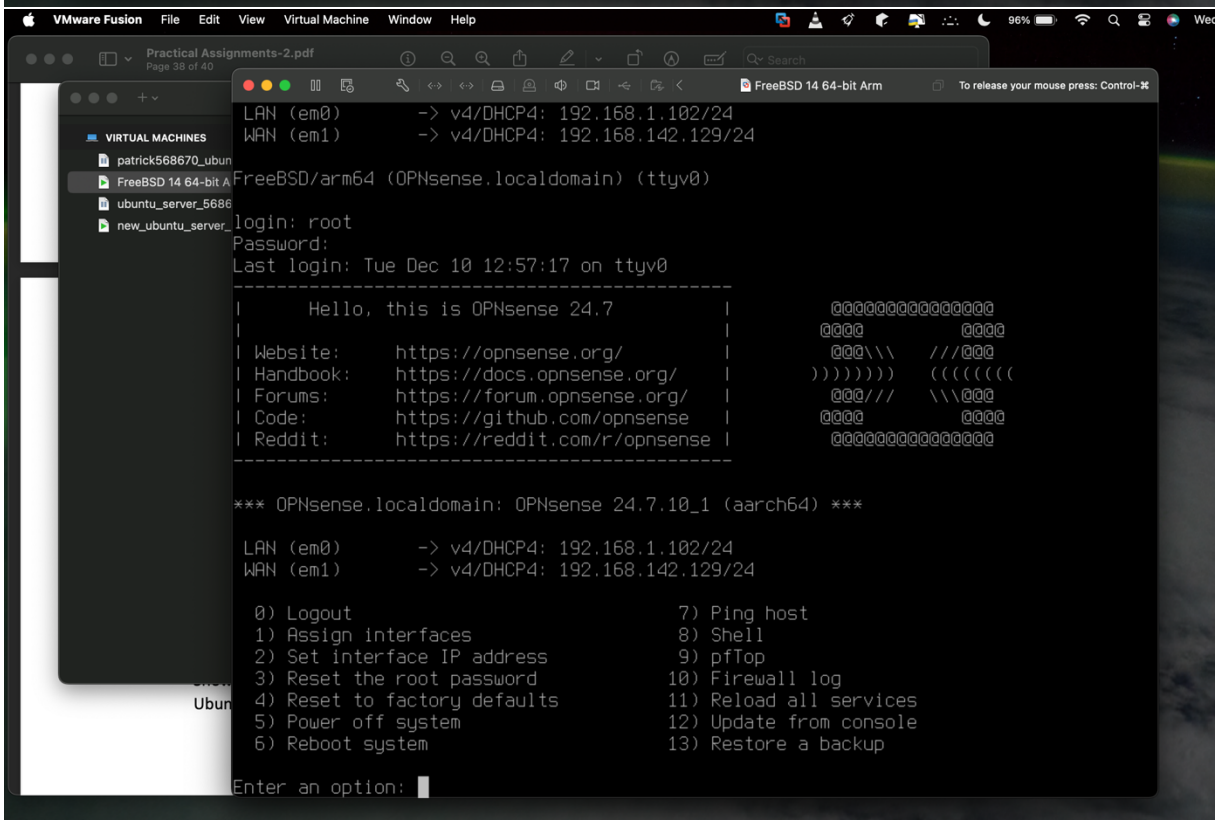
Bonus point assignment – week 5

Make relevant screenshots + motivation:

- Proof that the FOG server is installed and is functioning correctly.
- Proof that the FOG server has made a back-up of the Windows11 VM or the Ubuntu 24.04 Desktop VM.

Important note: because im using Macbook I was not allowed to finish the full bonus assignment as mentioned during class. Important screenshots provided bellow.


VMware Fusion File Edit View Virtual Machine Window Help
new_ubuntu_server_568670
* Setting permissions on FOGPingHosts.service script.....OK
* Enabling FOGPingHosts.service Service.....OK
* Setting permissions on FOGSnapinHash.service script.....OK
* Enabling FOGSnapinHash.service Service.....OK
* Setting permissions on FOGImageSize.service script.....OK
* Enabling FOGImageSize.service Service.....OK
* Setting up FOG Services.....OK
* Starting FOGMulticastManager.service Service.....OK
* Starting FOGImageReplicator.service Service.....OK
* Starting FOGSnapinReplicator.service Service.....OK
* Starting FOGScheduler.service Service.....OK
* Starting FOGPingHosts.service Service.....OK
* Starting FOGSnapinHash.service Service.....OK
* Starting FOGImageSize.service Service.....OK
* Setting up NFS configuration file.....OK
* Setting up exports file.....OK
* Setting up and starting RPCBind.....OK
* Setting up and starting NFS Server.....OK
* Linking FOG Logs to Linux Logs.....OK
* Linking FOG Service config /etc.....OK
* Ensuring node username and passwords match.....Done
* Setup complete
You can now login to the FOG Management Portal using
the information listed below. The login information
is only if this is the first install.
This can be done by opening a web browser and going to:
http://192.168.1.9/fog/management
Default User Information
Username: fog
Password: password
* Changed configurations:
The FOG installer changed configuration files and created the
following backup files from your original files:
* /etc/dhcp/dhcpd.conf <=> /etc/dhcp/dhcpd.conf.1734101070
* /etc/vsftpd.conf <=> /etc/vsftpd.conf.1734101070
* /etc/exports <=> /etc/exports.1734101070
root@ubuntuserver:~/fogproject/bin# ls
error_logs installfog.sh
root@ubuntuserver:~/fogproject/bin# cd ..
root@ubuntuserver:~/fogproject# ls
authors.txt bin CONTRIBUTING.md lib LICENSE packages README.md 'Release Notes.MD' rpttmp SECURITY.md SELinux src tmp utils
root@ubuntuserver:~/fogproject# sudo ./installfog.sh


VMware Fusion File Edit View Virtual Machine Window Help
Practical Assignments-2.pdf
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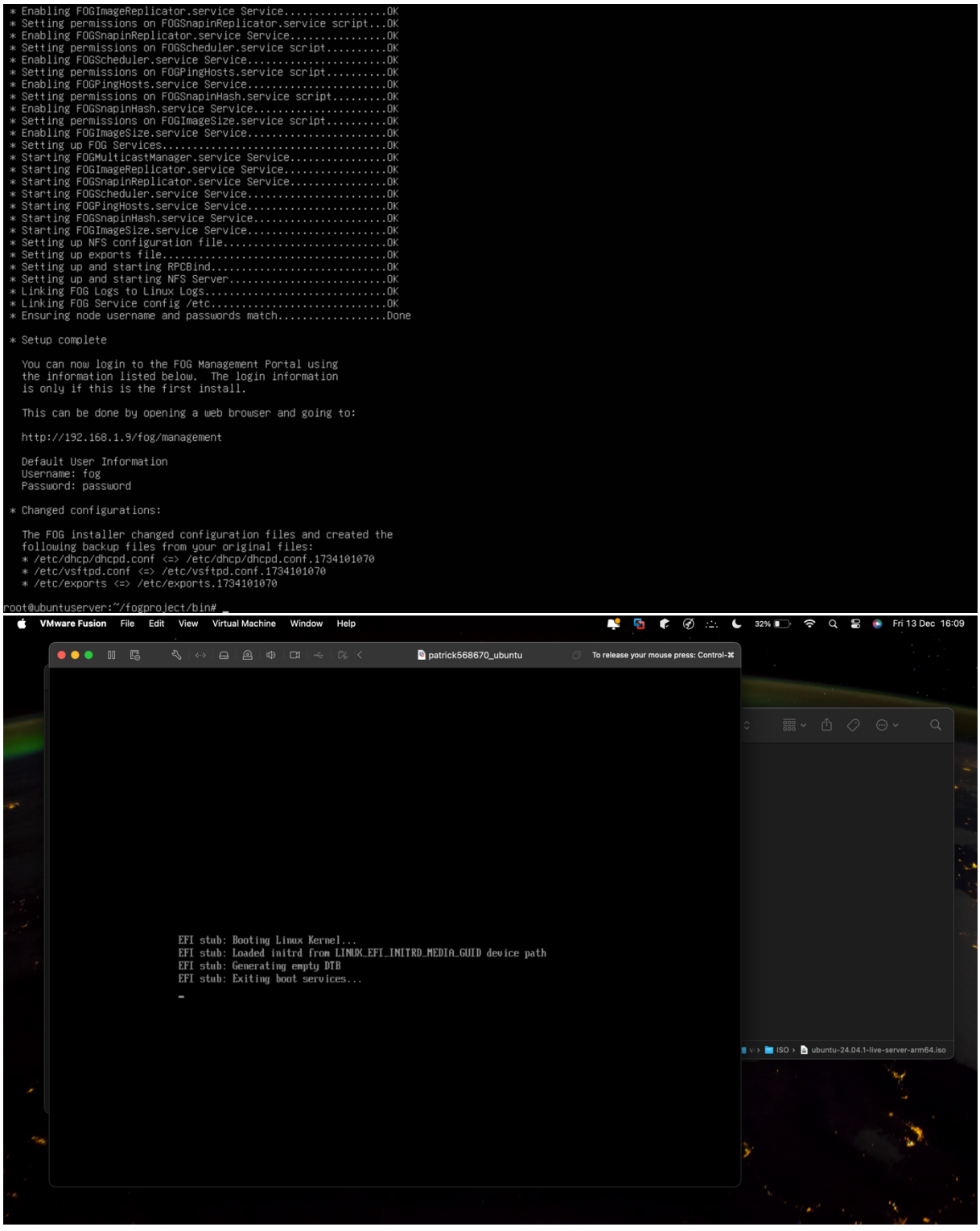
VIRTUAL MACHINES
patrick568670_ubun
FreeBSD 14 64-bit A
ubuntu_server_5686
new_ubuntu_server_
FreeBSD 14 64-bit Arm
To release your mouse press: Control-⌘
LAN (em0) -> v4/DHCP4: 192.168.1.102/24
WAN (em1) -> v4/DHCP4: 192.168.142.129/24
FreeBSD/arm64 (OPNsense.localdomain) (ttyv0)
login: root
Password:
Last login: Tue Dec 10 12:57:17 on ttyv0
Hello, this is OPNsense 24.7
Website: https://opnsense.org/
Handbook: https://docs.opnsense.org/
Forums: https://forum.opnsense.org/
Code: https://github.com/opnsense
Reddit: https://reddit.com/r/opnsense
*** OPNsense.localdomain: OPNsense 24.7.10_1 (aarch64) ***
LAN (em0) -> v4/DHCP4: 192.168.1.102/24
WAN (em1) -> v4/DHCP4: 192.168.142.129/24
0) Logout
1) Assign interfaces
2) Set interface IP address
3) Reset the root password
4) Reset to factory defaults
5) Power off system
6) Reboot system
7) Ping host
8) Shell
9) pfTop
10) Firewall log
11) Reload all services
12) Update from console
13) Restore a backup
Enter an option:


* Enabling FOGImageReplicator.service Service.....OK
* Setting permissions on FOGSnapinReplicator.service script...OK
* Enabling FOGSnapinReplicator.service Service.....OK
* Setting permissions on FOGScheduler.service script.....OK
* Enabling FOGScheduler.service Service.....OK
* Setting permissions on FOGPingHosts.service script.....OK
* Enabling FOGPingHosts.service Service.....OK
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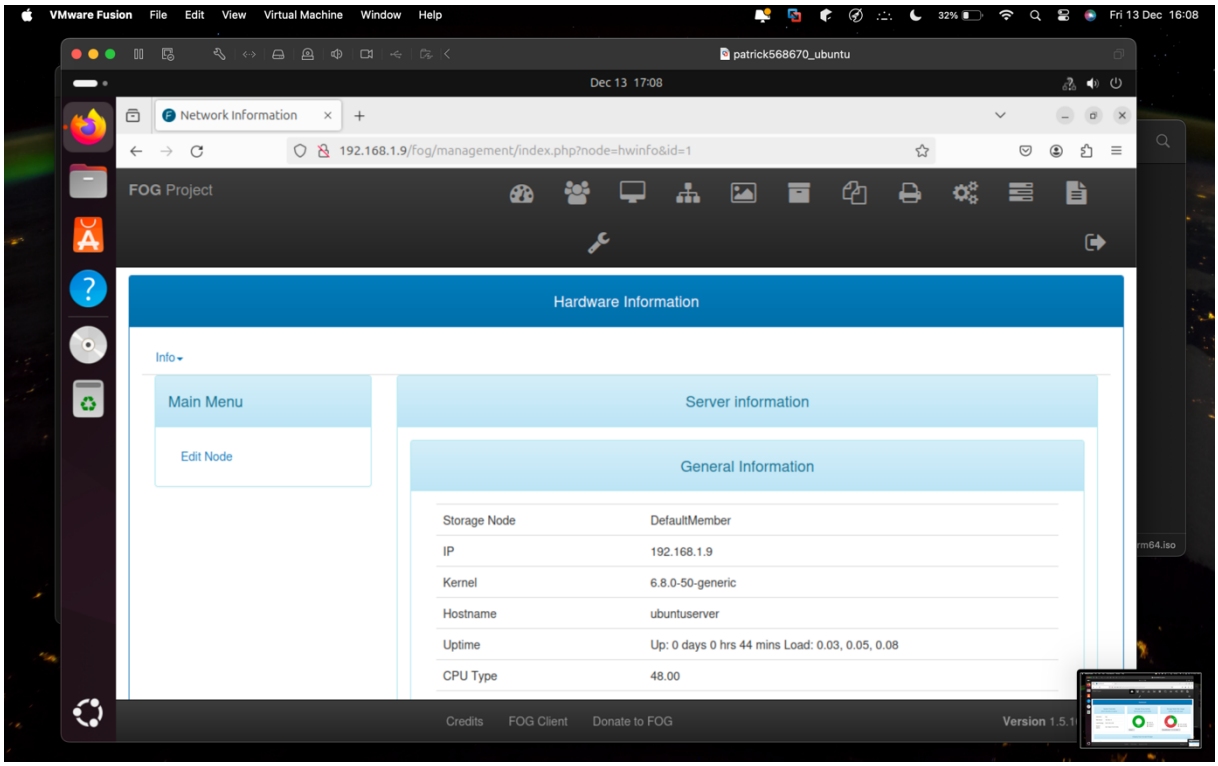
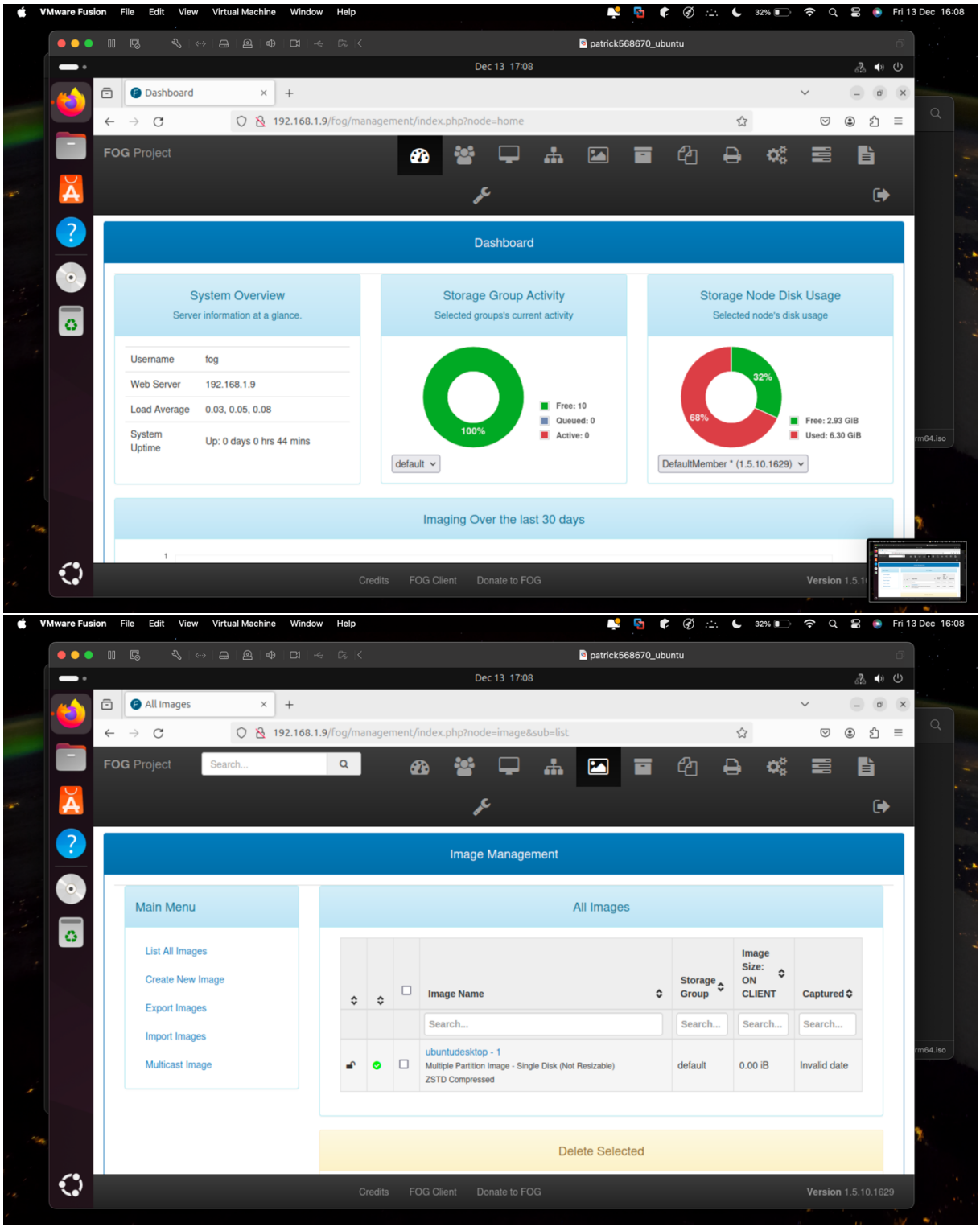
* /etc/vsftpd.conf <=> /etc/vsftpd.conf.1734101070
* /etc/exports <=> /etc/exports.1734101070
root@ubuntuserver:~/fogproject/bin#
VMware Fusion File Edit View Virtual Machine Window Help
Fri 13 Dec 16:09
patrick568670_ubuntu
To release your mouse press: Control-⌘
EFI stub: Booting Linux Kernel...
EFI stub: Loaded initrd from LINUX_EFI_INITRD_MEDIA_GUID device path
EFI stub: Generating empty DTB
EFI stub: Exiting boot services...
ISO
ubuntu-24.04.1-live-server-arm64.iso

r


VMware Fusion File Edit View Virtual Machine Window Help
Fri 13 Dec 16:08
patrick568670_ubuntu
Dec 13 17:08
Network Information
192.168.1.9/fog/management/index.php?node=hwinfo&id=1
FOG Project
Hardware Information
Info
Main Menu
Edit Node
Server information
General Information
Storage Node DefaultMember
IP 192.168.1.9
Kernel 6.8.0-50-generic
Hostname ubuntuserver
Uptime Up: 0 days 0 hrs 44 mins Load: 0.03, 0.05, 0.08
CPU Type 48.00
Credits
FOG Client
Donate to FOG
Version 1.5.1



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