FREE

HOME SERVER

FULL COURSE

- Ubuntu Server
- OpenMediaVault
- TrueNAS



Learn it all @MyWebUniversity

Build a Free Home Server

Ubuntu Server • OpenMediaVault • TrueNAS — Full Course

Learn it all @MyWebUniversity

What You Will Learn

- What a home server and a NAS are, and why they matter
- Key ideas: RAID, file systems, SMB shares, IP addresses, Docker
- Part 1: Ubuntu Server — the command-line way
- Part 2: OpenMediaVault — the easy web dashboard
- Part 3: TrueNAS — ZFS and maximum data protection
- How to choose, and how to keep your data safe

What Is a Home Server?

- A computer that stays on and serves your other devices
- NAS = Network Attached Storage: shared drives on your network
- One place for files, photos, videos, and backups
- Runs apps: media server, photo backup, private cloud
- Your data stays on your own hardware

Hardware You Need

- An old 64-bit PC, laptop, or mini PC
- RAM: 4 GB is enough to start; 8 GB or more for TrueNAS
- A small SSD or drive for the operating system
- One or more data drives (two identical drives for mirroring)
- A USB stick (8 GB+) and a wired network cable

Key Ideas, Part 1: Storage

- File system: how data is organized on a drive (ext4, Btrfs, ZFS)
- RAID / mirror: data written to two or more drives
- If one drive dies, the other still has your data
- RAID is NOT a backup — deleted files are gone from both
- Snapshot: a frozen picture of your files at a moment in time

Key Ideas, Part 2: Network and Apps

- IP address: the server's address on your network (192.168.1.50)
- Static IP: an address that never changes
- SMB share: a folder that Windows, Mac, and Linux can open
- SSH: secure remote control from your main computer
- Docker: runs apps in isolated containers

PART 1 OF 3

Ubuntu Server 26.04 LTS

The command-line way — learn Linux for real

Ubuntu: Install Step by Step

- Download Ubuntu Server 26.04 LTS from ubuntu.com
- Write it to USB with balenaEtcher or Rufus
- Boot from USB (F12, F2, or Esc for the boot menu)
- Storage: choose ONLY the small OS drive
- Profile: server name homeserver, user student
- Check [X] Install OpenSSH server, then reboot

Ubuntu: First Login and Updates

student@homeserver: ~

```
$ ip a                                  # find the IP address
$ ssh student@192.168.1.50              # from your main PC
$ sudo apt update && sudo apt upgrade -y
$ hostnamectl                           # check name and version
```

Run updates first: they fix security holes found after the release.

Ubuntu: Set a Static IP with Netplan

student@homeserver: ~

```
$ sudo nano /etc/netplan/50-cloud-init.yaml
network:
  version: 2
  ethernets:
    enp1s0:                    # your name from 'ip a'
      dhcp4: false
      addresses: [192.168.1.50/24]
      routes: [{to: default, via: 192.168.1.1}]
      nameservers: {addresses: [1.1.1.1, 8.8.8.8]}
$ sudo netplan try               # auto-undo in 120 s if it breaks
```

Easier option: reserve the address in your router's DHCP settings.

Ubuntu: Prepare the Data Drive

student@homeserver: ~

```
$ lsblk                                  # list all drives
$ sudo mkfs.ext4 -L data /dev/sdb        # WARNING: erases sdb
$ sudo mkdir -p /srv/data
$ echo 'LABEL=data /srv/data ext4 defaults,nofail 0 2' \
    | sudo tee -a /etc/fstab
$ sudo mount -a
$ df -h /srv/data                        # check free space
```

nofail lets the server still boot if this drive is missing.

Ubuntu: Share Files with Samba

student@homeserver: ~

```
$ sudo apt install samba -y
$ sudo mkdir -p /srv/data/share
$ sudo chown student:student /srv/data/share
$ sudo nano /etc/samba/smb.conf       # add at the end:
[share]
   path = /srv/data/share
   read only = no
   valid users = student
$ sudo smbpasswd -a student && testparm
$ sudo systemctl restart smbd && sudo ufw allow Samba
```

testparm checks smb.conf for mistakes before you restart.

Connect from Windows, Mac, and Linux

- Windows: File Explorer address bar → \\192.168.1.50\share
- Windows: right-click This PC → Map network drive
- macOS: Finder → Go → Connect to Server → smb://192.168.1.50/share
- Linux: file manager → smb://192.168.1.50/share
- Log in as student with your Samba password

Ubuntu: Add a Media Server with Docker

```
student@homeserver: ~

$ sudo apt install docker.io docker-compose-v2 -y
$ sudo usermod -aG docker student      # then log out and in
$ mkdir ~/jellyfin && cd ~/jellyfin && nano compose.yaml
services:
  jellyfin:
    image: jellyfin/jellyfin
    ports: ["8096:8096"]
    volumes: [./config:/config, /srv/data/media:/media]
    restart: unless-stopped
$ docker compose up -d     # open http://192.168.1.50:8096
```

The same compose.yaml also works in OpenMediaVault.

PART 2 OF 3

OpenMediaVault 8

The easy web dashboard — runs on old PCs and Raspberry Pi

OpenMediaVault: Install and First Login

- Download the ISO from openmediavault.org and write it to USB
- Debian text installer: language, hostname, root password
- Pick the OS drive — the installer erases it
- Browse to http://192.168.1.50 (shown on the console)
- Log in: admin / openmediavault — change it right away
- System → Update Management → install updates

OpenMediaVault: Storage and Shared Folders

- Storage → Disks: wipe the new data drive
- Storage → File Systems → + : create ext4 or Btrfs
- Storage → Shared Folders → + : name it share
- Users → Users → + : add student
- Shared Folders → Permissions: student = Read/Write
- Click the yellow Apply bar to save changes

OpenMediaVault: SMB Share and Docker Apps

student@homeserver: ~

```
# Web UI: Services → SMB/CIFS → Settings → [X] Enabled
# Web UI: Services → SMB/CIFS → Shares → + → share → Apply

# Add omv-extras (once, over SSH as root):
$ wget -O - https://github.com/OpenMediaVault-Plugin-Developers/\
packages/raw/master/install | bash

# Web UI: System → Plugins → openmediavault-compose
# Web UI: Services → Compose → Files → + → paste compose.yaml
```

Same address as before: \\192.168.1.50\share

PART 3 OF 3

TrueNAS Community Edition 25.10

ZFS power — maximum protection for your data

TrueNAS: Requirements and Install

- 64-bit Intel or AMD CPU (no Raspberry Pi)
- 8 GB RAM minimum; 16 GB+ if you run apps
- 20 GB SSD boot drive + two identical data drives
- Installer: 1 Install/Upgrade → pick ONLY the boot SSD
- Set the password for the truenas_admin user
- Reboot, remove USB, open the web address on screen

TrueNAS: Create a Storage Pool

Layout	Drives	Survives	Usable space
Stripe	1+	0 drives — no protection	100%
Mirror	2	1 drive	50%
RAIDZ1	3+	1 drive	about 67% with 3
RAIDZ2	4+	2 drives	about 50% with 4

Storage → Create Pool → name: tank → Layout: Mirror

TrueNAS: Datasets, Users, and SMB

- Dataset = a folder with its own settings and snapshots
- Datasets → Add Dataset → name: share → Preset: SMB
- Credentials → Users → Add → student [X] SMB User
- Shares → Windows (SMB) Shares: share is listed → enable service
- Edit permissions: give student Modify access
- Connect: \\192.168.1.50\share (same as before)

TrueNAS: Snapshots, Scrubs, and Apps

- Data Protection → Periodic Snapshot Tasks → Add
- Dataset: tank/share • Daily • Keep for 2 weeks
- Scrub task: reads every block and repairs errors — keep it on
- Apps → Discover Apps → Jellyfin → Install
- First time: choose the pool where apps will live

Which One Should You Choose?

	Ubuntu Server	OpenMediaVault	TrueNAS CE
Managed by	Commands + SSH	Web dashboard	Web dashboard
Hardware	x86 and ARM	x86 and ARM (Pi)	x86-64, 8 GB RAM
File system	ext4 (your choice)	ext4, Btrfs	ZFS
Apps	Docker Compose	Compose plugin	Apps catalog
Best for	Learning Linux	Easy NAS, old PCs	Protecting data

There is no wrong answer. Try all three in virtual machines first.

Keep Your Data Safe

- 3-2-1 backup: 3 copies, 2 types of media, 1 offsite
- Never open ports to the internet — use a VPN
- WireGuard or Tailscale for safe remote access
- Strong passwords; change every default password
- Install updates regularly; use a UPS if you can

Summary and Homework

- Ubuntu Server: static IP, ext4 drive, Samba share, Docker
- OpenMediaVault: web dashboard, Apply bar, compose plugin
- TrueNAS: ZFS mirror, datasets, snapshots, app catalog
- Homework: build all three in VMs with two virtual disks
- Then copy files, delete one, and restore it from a snapshot

Your Data. Your Hardware. Zero Cost.

Free lessons: MyWebUniversity.com

Wahidullah Lutfy — Founder and Director of IT, MyWebUniversity, and CS teacher

Learn it all @MyWebUniversity