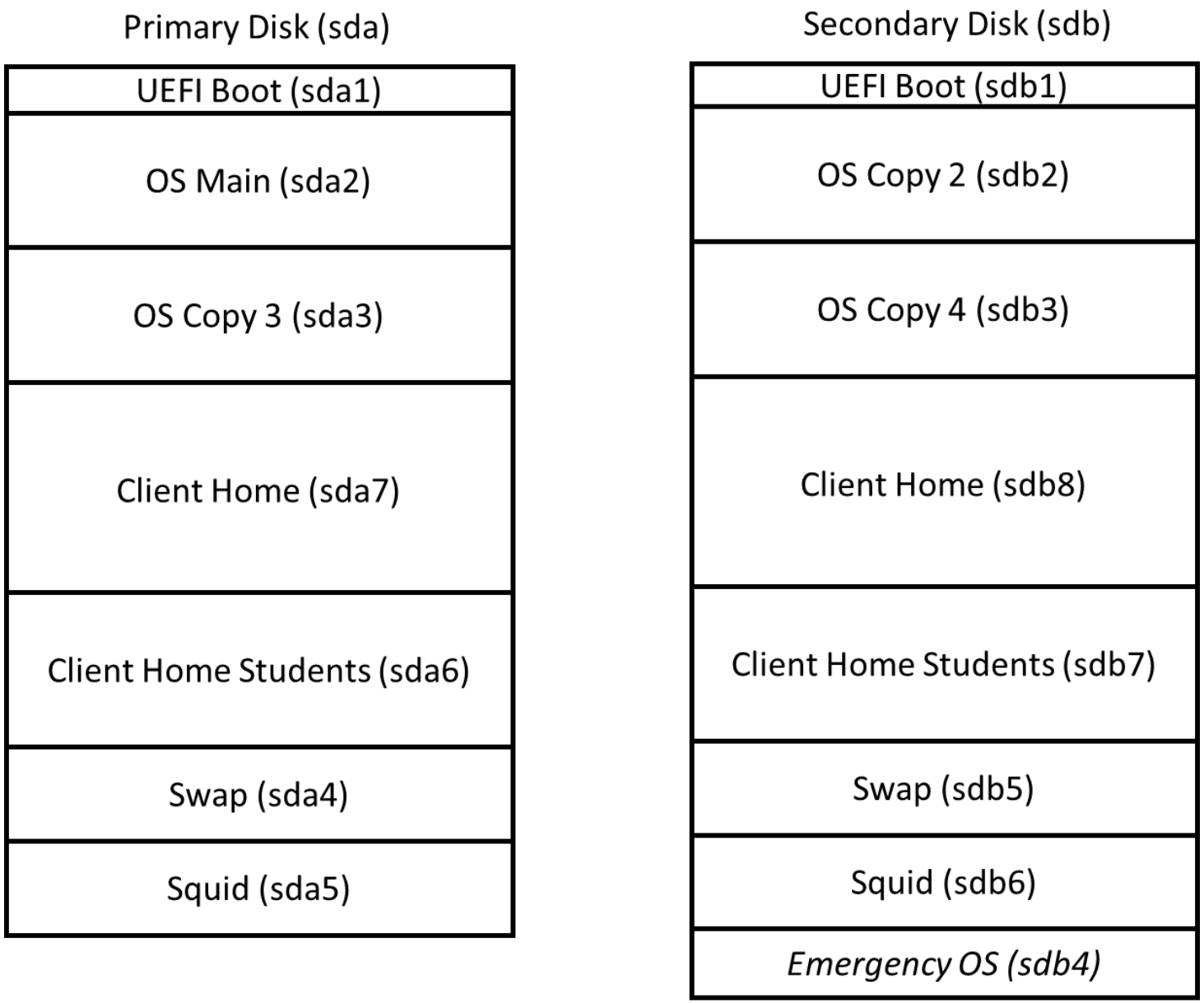
Reneal Server

September 11, 2025

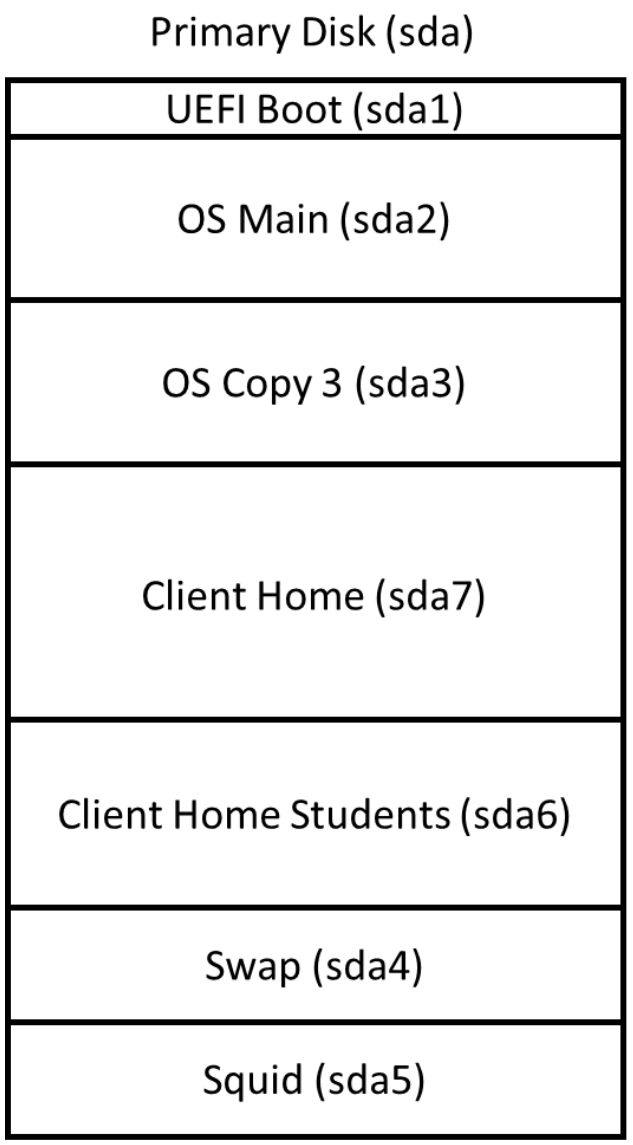
SERVER PARITIONS

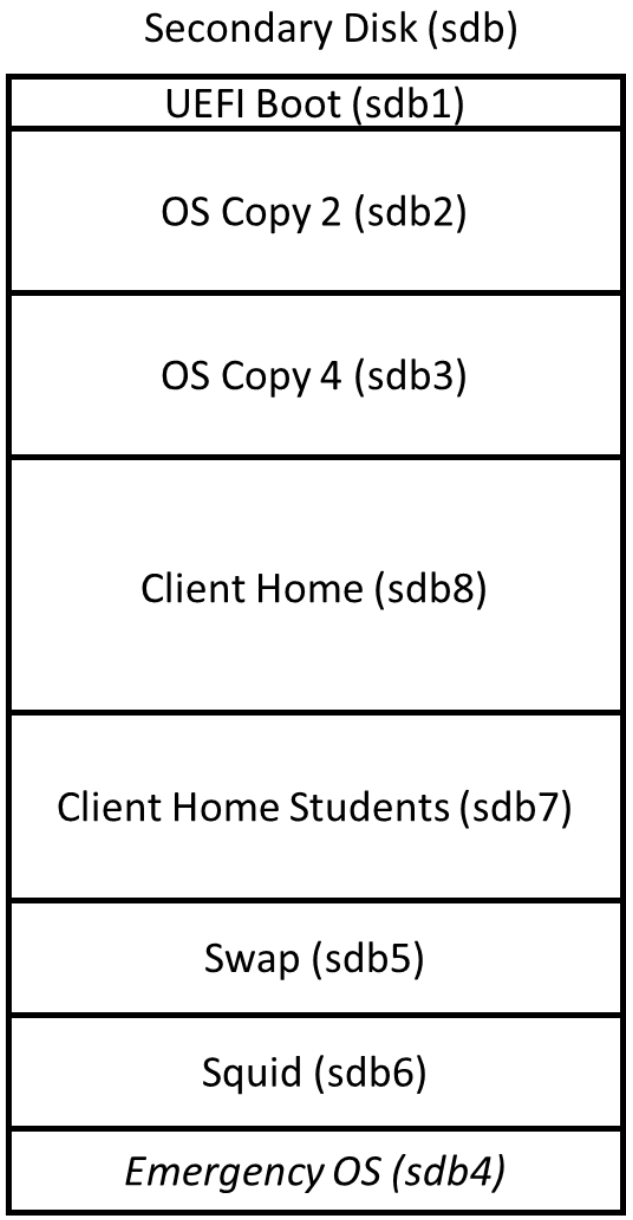


For servers that have NVMe for primary storage instead of a hard disk, the names are:

nvme0: primary
sda: secondary

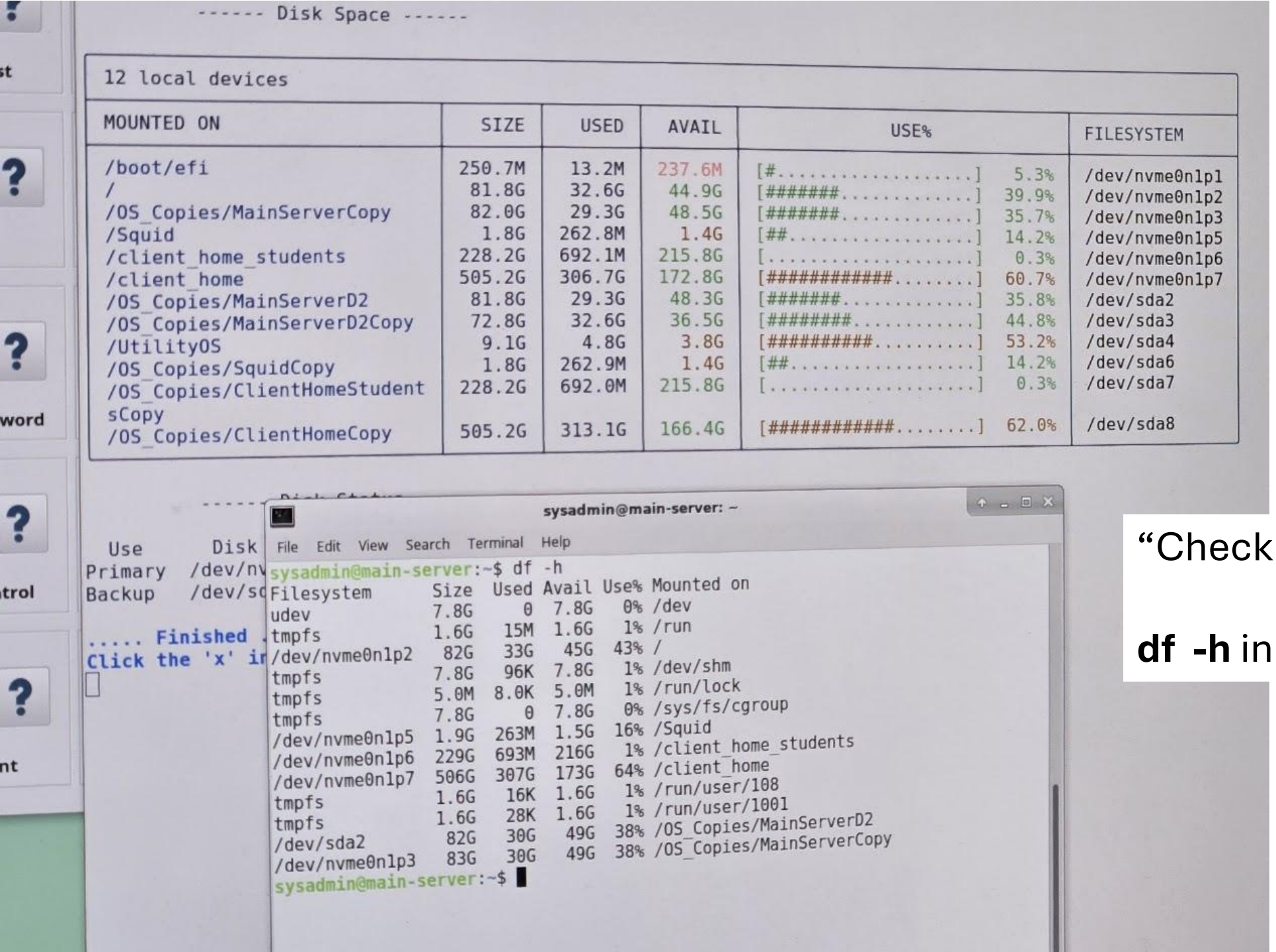
DAILY BACKUPS





- sdb2 to sda3 (OS Copy 2 to OS Copy 3)
- sda2 to sdb2 (OS Main to OS Copy 2)
- sda7 to sdb8 (Client Home)
- sda6 to sdb7 (Client Home Students)

Please note that sdb3 (OS Copy 4) is minimally disturbed, so it will always contain the original copy of the operating system. Only the passwd and shadow files and a list of users are updated on sdb3 during each system backup.



“Check Disks” in Dashboard

df -h in terminal

client_home partition

- teachers
  - Includes folders for each teacher (rw permission for owner)
- TeachersShared
  - rw permission for anyone in teacher group
- AllUsersShared
  - rw permission for anyone in teacher group, r permission for anyone in student group
- EducationalMaterial
- share
  - student_list.csv and student_source_lists for building annual student list
  - [Note: webdev_student_list.csv is in /client_home_students/webdev]

client_home_students partition

- Folders for students (organized by Form/Stream)
- GuestUser
- last_year
  - Archive of last year’s student files (with movie/music/photo files removed)
- Classes
  - Where information for ManageClasses Program is stored

Emergency Partition

- If you cannot boot to any of the OS partitions, boot to the emergency partition
- There is a command to try all repairs
- You can also try to mount the OS partition to see if you can fix the problem

- Note that the OS Copy 4 should never have been changed (except for updating user/password information)

Servers deployed before 2025
(through 2024 Phase 1 projects)

Servers deployed starting in 2025
(Projects starting with 2024 Phase 2)

Two virtual machines for new capabilities

- Webdev
- Reneal wireless

Kolibri for some educational content

How can you identify these servers?
Will have Kolibri on browser home page

Hardware change:
Four network interfaces on regular server
OR
MicroDesktop server

Useful places for learning

- NEVER make changes to server software or settings without discussing it with me first
  - The Reneal system is highly integrated, and changing something in one place can affect other things
  - Every change must be carefully tested
  - It will be much easier to keep all server software identical as much as possible
- Much of the custom Reneal system software is stored here:
  - **/user/local/share/apps**
- I also spend a lot of time in /etc and /var looking at settings

Preparing to Build a Server

- The server build process uses .fsa files to build each partition
- New .fsa files are created whenever there is a major server change
- Once anything (software/configuration/educational content) on a development server has been updated and carefully tested, then fsarchiver is run on each partition that has been updated (usually the OS partition, client_home, or client_home_student – the EFI boot and emergency boot partitions usually don't change)
- These .fsa files are saved on a USB Server Build disk, along with the programs that will prepare a new server (partitioning and writing the .fsa files to the correct partitions)

Building a New Server - 1

- Programs need to be run to generate the VPN files for the new school(s)
- Then the USB Server Build disk is used to partition the storage devices on the new server and write the .fsa files (makeServer.py)
- Now reboot to the new server – write the VPN information to the server
- Then a program is run to configure the network interfaces on the new server – this program reads the MAC addresses of each interface and assigns them to the internet and network switch (and wireless router, for new servers)

Building a New Server - 2

- Finally, a script is run to finish the build:
  - create 5 numbered teacher accounts
  - write the updated configuration and VPN files to all OS partitions (including the 4th)
  - run system backup
- Then test, test, test

- NOTE: makeServer.py copies over anything already on the disks, no existing files are saved – it makes a completely clean copy of a new server

Smaller Server Updates

- For smaller server updates, like adding new educational content, a “runner” file has been used in the past
- A runner file is a self-contained file that includes everything (content and script)
- These updates must be done on all servers by the Team during school visits

- I would like to do an update of National Exams in early 2026 (this includes new exam papers and new html index files) – this update will probably be using a USB with a script file and a folder with all of the new files, if I can’t figure out how to do a runner file yet

Server Update Preserving School Files

- In 2022, Neal updated the OS and client_home on all servers to be the same
- He used a special program he had developed to do this in 2022
- This special program preserved the unique school files (teacher files, student files, AllUserShared, etc.)
- My goal is to review and understand this software so we can use it in the future – that will make OS updates easier