

Why The Heck Would I Want A Server In My House?

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K7DAA

9/19/2024

Some Reasons You Might Want a Server

- **Backup** for your existing computers and smartphones
 - Buy once, compared to monthly charges and **PRIVACY** worries for cloud services—Microsoft OneDrive, Google, Apple iCloud, etc
- **Safe storage** for videos, files and photos you want to keep
- Easy **sharing** of files between computers & devices in your home
- Running multimedia server to **watch videos** your TV or computer
- Internet control services such as a **firewall, router, ad killer**
- Editing and **sorting photos** using AI to ID and categorize them
- Running **virtual machines** such as various Linux flavors, Windows
- **Home surveillance** video recorder and **Home Automation**
- Host your own **website**
- Run **FT8** or other comms software **unattended**
- Use **RemoteHams.com** to **control your own radio** from another room

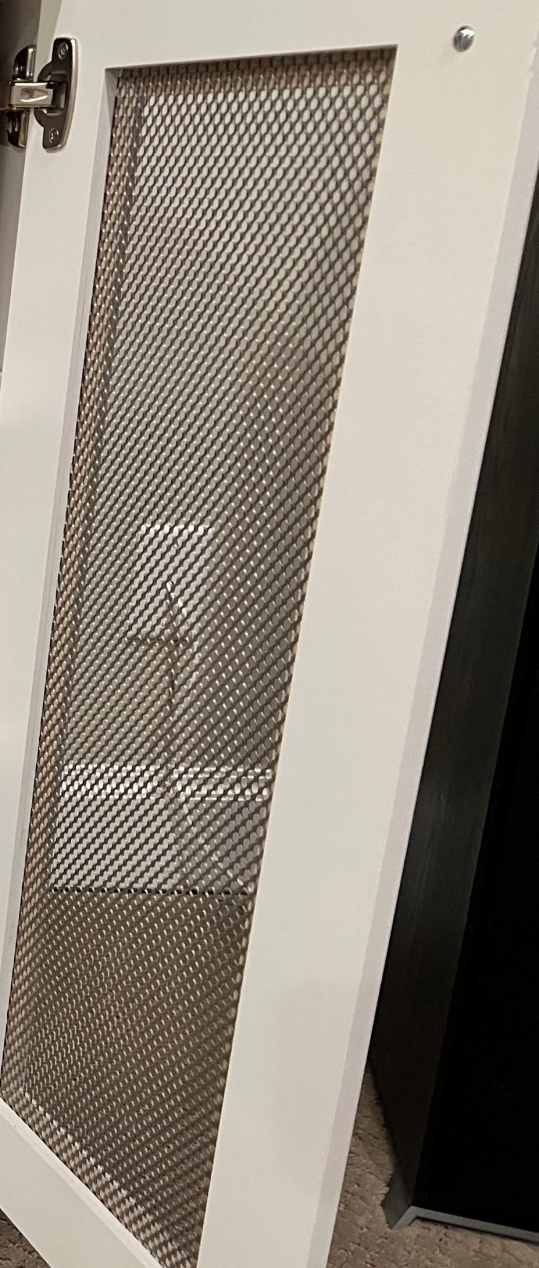


RemoteHams from my front yard in Provo



Cost Per Month For Cloud-Based Services

- My **Apple iCloud**: \$35.88/yr for 200 GB
- Microsoft **OneDrive**: Included with \$99/yr for Office 365
- **iDrive**: \$99/yr for 5 TB (\$9.99 first year)
- **Google Drive** or **Dropbox** or other cloud storage: \$50-150
- **Streaming video & music services that are becoming cable companies all over again in their pricing and advertising:**
 - Disney, HBO/Max, Hulu, Netflix, YouTubeTV, Prime Video, Vudu (Fandango), Peacock, SiriusXM, AppleTV, Paramount+, Showtime, etc
 - Easily as much as **\$1500/yr** (excluding Prime and YTTV)
 - Some can be **replaced by a home server** & buying/ripping DVDs & CDs



7 (or 8) Simple Steps For Watching My DVD

1. Open media cabinets and drawers
2. Guess where the movie is by reading each jacket (tilt head sideways)
3. If movie not found, go to step 1 with new cabinet and repeat
4. Pull movie out and load it into nearest DVD player
5. Turn on TV and set it to DVD input
6. Now where did I put the DVD player remote...?
7. Watch movie and enjoy (2-15 minutes after starting my search)
8. Oh, no DVD player on this TV? Darn! Let's try another room!

The Plex logo is displayed in white text on a black background. The word "PLEX" is in a bold, sans-serif font, with the letter "X" highlighted in a bright yellow color. A small, faint blue square is visible in the bottom-left corner of the image.

PLEX

The Jellyfin logo is displayed on a dark blue background. It features a stylized, multi-colored triangle (purple, blue, and teal) on the left, followed by the word "Jellyfin" in a white, sans-serif font. A small, faint black square is visible in the bottom-left corner of the image.

Jellyfin

- **Free (mostly) media servers for TV, Movies, Photos, Music**
- **Servers: can be set up on Windows, Linux, NAS boxes, Macs**
- **Clients: Roku TV, Fire TV, Google TV, PC, Mac, iOS & Android, web browsers**
- **Can also be watched outside the home**
- **Plex also has lots of free ad-supported movies and TV shows**

4 Things To Convert Your DVDs Into Digital Files

1. DVD/Blu-ray drive on a PC or Mac
2. (Optional) New firmware to open regions/encryption on DVD drive
3. Ripping software
4. Storage (hard drive)
5. (Optional: Handbrake for transcoding and VLC video player)

DVD/Blu-ray Drive



Roll over image to zoom in



ASUS Powerful Blu-ray Drive with 16x Writing Speed and USB 3.0 for Both Mac/PC Optical Drive BW-16D1X-U

Visit the [ASUS Store](#)

4.4 2,061 ratings | [Search this page](#)

Amazon's Choice

400+ bought in past month

-11% \$124⁹⁹

List Price: ~~\$139.99~~

Or \$41.67/mo (3 mo). Select from 2 plans

One-Day

FREE Returns

Thank you for being a Prime member. Get \$100 off: Pay

~~\$24.99~~ ~~\$124.99~~ upon approval for Prime Visa.

May be available at a lower price from other sellers, potentially without free Prime shipping.

Operating System Windows

Special Feature M DISC support

Hardware Interface USB

Brand ASUS

Optical Storage Write Speed 16x

Delivery

Pickup

Buy new:

\$124⁹⁹

One-Day

FREE Returns

FREE delivery **Tomorrow, September 17**. Order within 8 hrs 46 mins

Deliver to David - Pleasant Grove 84062

In Stock

Quantity: 1

Add to Cart

Buy Now

Ships from Amazon.com

Sold by Amazon.com

Returns 30-day refund/replacement

Packaging Ships in product packaging

See more

Add a Protection Plan:

DVD Drive Firmware

- New firmware removes Region Codes (US vs EU and rest of world)
- Allows software to query a database over the Internet for the exact settings to decrypt an individual movie (you won't notice it)
- Drive becomes a “LibreDrive” that chews through encryption
- Firmware is totally reversible, takes less than a minute, does not “zombify” the drive, so it does everything else normally
- Only select drives can be updated, so buy carefully, or get one that is pre-modified
- Manufacturers are pressured by movie industry to change firmware on newer models, so the “right” drive can be a moving target
- Not all drives need firmware changes, especially non-Blu-ray DVDs

Ripping Software

- MakeMKV is my favorite
- It's free(ish)
- Great support forums
- Also has drive firmware
- Lists of best drives
- www.makemkv.com

The screenshot shows the MakeMKV website and a window of the software. The website has a green header with the 'MakeMKV' logo. A navigation menu on the left includes links for Home, Download, About MKV, Online Help, F.A.Q., and Forum. Below the menu is a green button that says 'Download MakeMKV for Windows'. A '100% CLEAN' badge from Softpedia is also visible, certifying the software. The main content area features a 'Welcome to MakeMKV beta' heading, followed by a paragraph explaining the software's purpose as a one-click solution for converting video to MKV. Below this is a list of features, including support for DVD and Blu-ray discs, preservation of metadata, and fast conversion. A 'Download your copy now!' link is provided. The software window, titled 'MakeMKV BETA', shows a 'Source' dropdown menu with 'DVD+R-DL MATSHITA DVD-RAM UJ-842 RB01' selected. The 'Info' panel displays drive details such as 'Current profile: DVD-ROM', 'Manufacturer: MATSHITA', and 'Product: DVD-RAM UJ-842'.

MakeMKV

- ▶ Home
- ▶ Download
- ▶ About MKV
- ▶ Online Help
- ▶ F.A.Q.
- ▶ Forum

[Download MakeMKV for Windows](#)

100% CLEAN
NO SPYWARE
NO ADWARE
NO VIRUSES
SOFTPEDIA™
certified by www.softpedia.com

Welcome to MakeMKV beta

MakeMKV is your one-click solution to convert video that you own into free and patents-unencumbered format that can be played everywhere. MakeMKV is a format converter, otherwise called "transcoder". It converts the video clips from proprietary (and usually encrypted) disc into a set of MKV files, preserving most information but not changing it in any way. The MKV format can store multiple video/audio tracks with all meta-information and preserve chapters. There are many players that can play MKV files nearly on all platforms, and there are tools to convert MKV files to many formats, including DVD and Blu-ray discs.

Additionally MakeMKV can instantly stream decrypted video without intermediate conversion to wide range of players, so you may watch Blu-ray and DVD discs with your favorite player on your favorite OS or on your favorite device.

- Reads DVD and Blu-ray discs
- Reads Blu-ray discs protected with latest versions of AACS and BD+
- Preserves all video and audio tracks, including HD audio
- Preserves chapters information
- Preserves all meta-information (track language, audio type)
- Fast conversion - converts as fast as your drive can read data.
- No additional software is required for conversion or decryption.
- Available for Windows, Mac OS X and Linux
- Functionality to open DVD discs is free and will always stay free.
- All features (including Blu-ray decryption and processing) are free during BETA.

Give it a try. [Download your copy now!](#)

MakeMKV BETA

File View Help

Source: DVD+R-DL MATSHITA DVD-RAM UJ-842 RB01

Type: DVD
Label: [ISO9660: DAVINCI_CODE_BONUS_DISC]
Protection: CSS/CPPM

Info

Drive Information
Current profile: DVD-ROM
Manufacturer: MATSHITA
Product: DVD-RAM UJ-842
Revision: RB01
Serial number: [REDACTED]

Disc Information



Type	Description
▼ Blu-ray disc	Doctor Who Series 4 Disc 1
> <input checked="" type="checkbox"/> Title	Doctor Who Series 4 Disc 1 - 13 chapter(s) , 13.7 GB
> <input checked="" type="checkbox"/> Title	Doctor Who Series 4 Disc 1 - 13 chapter(s) , 9.9 GB
> <input checked="" type="checkbox"/> Title	Doctor Who Series 4 Disc 1 - 13 chapter(s) , 9.9 GB
> <input checked="" type="checkbox"/> Title	Doctor Who Series 4 Disc 1 - 13 chapter(s) , 9.0 GB
> <input checked="" type="checkbox"/> Title	Doctor Who Series 4 Disc 1 - 4 chapter(s) , 163.4 MB
> <input checked="" type="checkbox"/> Title	Doctor Who Series 4 Disc 1 - 9 chapter(s) , 627.9 MB
> <input checked="" type="checkbox"/> Title	Doctor Who Series 4 Disc 1 - 52 chapter(s) , 42.6 GB
> <input checked="" type="checkbox"/> Title	Doctor Who Series 4 Disc 1 - 11 chapter(s) , 248.0 MB
> <input checked="" type="checkbox"/> Title	Doctor Who Series 4 Disc 1 , 523.7 MB
> <input checked="" type="checkbox"/> Title	Doctor Who Series 4 Disc 1 , 926.4 MB
> <input checked="" type="checkbox"/> Title	Doctor Who Series 4 Disc 1 , 396.0 MB

Output folder

Properties

Info

Source information

Type: Blu-ray disc
Name: Doctor Who Series 4 Disc 1 (English)

Make MKV

Profile

Title #00055.m2ts has length of 43 seconds which is less than minimum title length of 120 seconds and was therefore skipped
 Title #00056.m2ts has length of 23 seconds which is less than minimum title length of 120 seconds and was therefore skipped
 Title #00057.m2ts has length of 13 seconds which is less than minimum title length of 120 seconds and was therefore skipped
 Title #00058.m2ts has length of 93 seconds which is less than minimum title length of 120 seconds and was therefore skipped
 Title #00059.m2ts has length of 43 seconds which is less than minimum title length of 120 seconds and was therefore skipped
 Title #00060.m2ts has length of 22 seconds which is less than minimum title length of 120 seconds and was therefore skipped
 Title #00061.m2ts has length of 12 seconds which is less than minimum title length of 120 seconds and was therefore skipped
 Title #00062.m2ts has length of 26 seconds which is less than minimum title length of 120 seconds and was therefore skipped
 Title #00063.m2ts has length of 26 seconds which is less than minimum title length of 120 seconds and was therefore skipped
 Title #00064.m2ts has length of 106 seconds which is less than minimum title length of 120 seconds and was therefore skipped
 Title #00065.m2ts has length of 75 seconds which is less than minimum title length of 120 seconds and was therefore skipped
 Operation successfully completed

Your Library Or Mine?

- How many DVDs do you own now? Start with your favorites
- Both eBay and Amazon sell used DVDs from reputable vendors
- Goodwill, second-hand stores, Walmart bargain bins
- \$25 Blu-rays can be had for \$3-\$7 used
- Trade with friends or family
- Torrents from the Interwebs (careful...)
- jDownloader app on a web browser can capture many videos
- Once added to your collection, can be shared from your server
- Same idea applies to CDs and music files

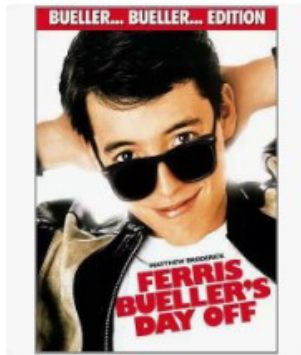
1) My Recent Buys on eBay
Most Are With Free Shipping
Good Place for Rare Stuff

2) Blu-ray is usually 1080p or 4K
“DVD” is usually 720p or 480p

3) You can use free apps like
Handbrake to convert MKV files
to MP4 to reduce file size to
about 10-20% with hardly any
noticeable loss of sharpness

4) In MKV wrapper:
A 4K movie is about 60 GB
A 1080p movie is about 22 GB
An MP4 of that movie is 2-4 GB

5) An MP4 version takes up way
less disk space, and is also way
better for Wi-Fi streaming



Delivered on Wed, Jun 12

Return Window Closed on Jul 12.

Ferris Bueller's Day Off (Bueller...Bueller... Edition) - DVD - GOOD

US \$3.68

Sold by: [second.sale](#)

Buy again

[View seller's other items](#)

[More actions](#) ▾



Delivered on Wed, Jun 12

Return Window Closed on Jul 12.

Firefly: The Complete Series - DVD - VERY GOOD

US \$7.20

Sold by: [second.sale](#)

Buy again

[View seller's other items](#)

[More actions](#) ▾



Delivered

Order date: Aug 03, 2024 • Order total: US \$7.95 • Order number: 17-11890-16738

[View order details](#)



Delivered on Sat, Aug 10

Returns accepted through Oct 9.

Top Gear: The Complete Season 14 [Blu-ray]

US \$7.40

Sold by: [goodwill houston](#)

[View similar items](#)

[View seller's other items](#)

[More actions](#) ▾

Server Suggestions

- Windows server is the easiest to set up and use
- Downside is your PC or laptop needs to be on all the time (optionally)
- Windows updates cause issues, but you are probably used to this
- Macs are good servers
- Dedicated PC Linux server, CasaOS, TrueNAS, UnRAID are most stable
 - Downside: Learning curve steep, helps to have some Linux familiarity
- Network Attached Storage (NAS): Synology, QNAP, Asustor, Terramaster
- The NAS appliance bottom line: You have a standalone, low-power, always-ready place to store and retrieve files, photos and media. And as a bonus, to play them anywhere



Synology

2-Bay NAS DS223 (Diskless)

★★★★☆ 384

400+ bought in past month

\$249⁹⁹

FREE delivery for Prime members

Add to cart

More Buying Choices

\$247.49 (36 used & new offers)

Best Seller



Synology

2-Bay DiskStation DS223j (Diskless)

★★★★☆ 980

1K+ bought in past month

\$189⁹⁹

✓prime Same-Day

FREE delivery **Today 7 AM - 11 AM**

Add to cart

More Buying Choices

\$145.19 (37 used & new offers)

asustor

DRIVESTOR 2 Lite AS1102TL

It's the Little NAS That Can

- Equipped with Realtek RTD1619B 1.7GHz quad-core processor
- 1 GB DDR4 RAM
- Enjoy, download, upload and stream content with 4K transcoding.
- Supports Wake on LAN (WOL)
- Btrfs/iSCSI Snapshots
- Tool-free installation



All-New Realtek RTD1619B
Quad-Core Processor at 1.7
GHz



Upgraded powerful internal
display, smooth transcoding
of 4K videos



Btrfs/iSCSI Snapshots



Supports Wake on LAN

Roll over image to zoom in

Asustor Drivestor 2 Lite AS1102TL, 2 Bay NAS, 1.7GHz Quad Core, 1GbE Port, 1GB RAM DDR4, Network Attached Storage, Home Personal Private Cloud (Diskless)

[Visit the Asustor Store](#)

4.5 45 ratings

[Search this page](#)

50+ bought in past month

\$175⁰⁰

Or \$17.59 /mo (12 mo). [Select from 1 plan](#)

prime

FREE Returns

30-day refund/replacement | [Product support included](#)

Brand	Asustor
Color	Drivestor Lite
Product Dimensions	8.27"D x 3.94"W x 6.3"H
Size	2 Bay
Compatible Devices	Server, CPU, Laptop, Desktop



Asustor Drivestor 4 Pro Gen2 AS3304T v2, 4 Bay NAS, 1.7GHz Quad-Core, 2.5GbE Port, 2GB RAM DDR4, Small Home Media...

★★★★☆ 38

\$339⁰⁰

✓prime Two-Day
FREE delivery Sat, Sep 21

Add to cart



TERRAMASTER

F4-212 4 Bay NAS - Quad Core CPU, 2GB DDR4 RAM, Network Attached Storage Personal Cloud with Rich Backup Solutions...

★★★★☆ 2,230

\$299⁹⁹

✓prime Same-Day
FREE delivery Today 2 PM - 6 PM

Add to cart



Roll over image to zoom in



Asustor Lockerstor 6 Gen2 AS6706T - 6 Bay NAS, Quad-Core 2.0 GHz CPU, 4X M.2 NVMe Slots, Dual 2.5GbE, Upgradable to 10GbE, 8GB DDR4 RAM, Content Creation Network Attached Storage (Diskless)

Visit the Asustor Store

4.4 ★★★★★ 883 ratings | Search this page

-5% \$769⁰⁰

List Price: \$809.00 ⓘ

Or \$45.41 /mo (24 mo). Select from 1 plan

✓prime

FREE Returns ▾

30-day refund/replacement ▾ | Product support included ▾

Size: 6 Bay



Color: AS67



\$769⁰⁰

✓prime

FREE Returns ▾

FREE delivery **Thursday, September 19.** Order within 13 hrs 15 mins

📍 Deliver to David - Pleasant Grove 84062

Only 6 left in stock - order soon.

Quantity: 1 ▾

Add to Cart

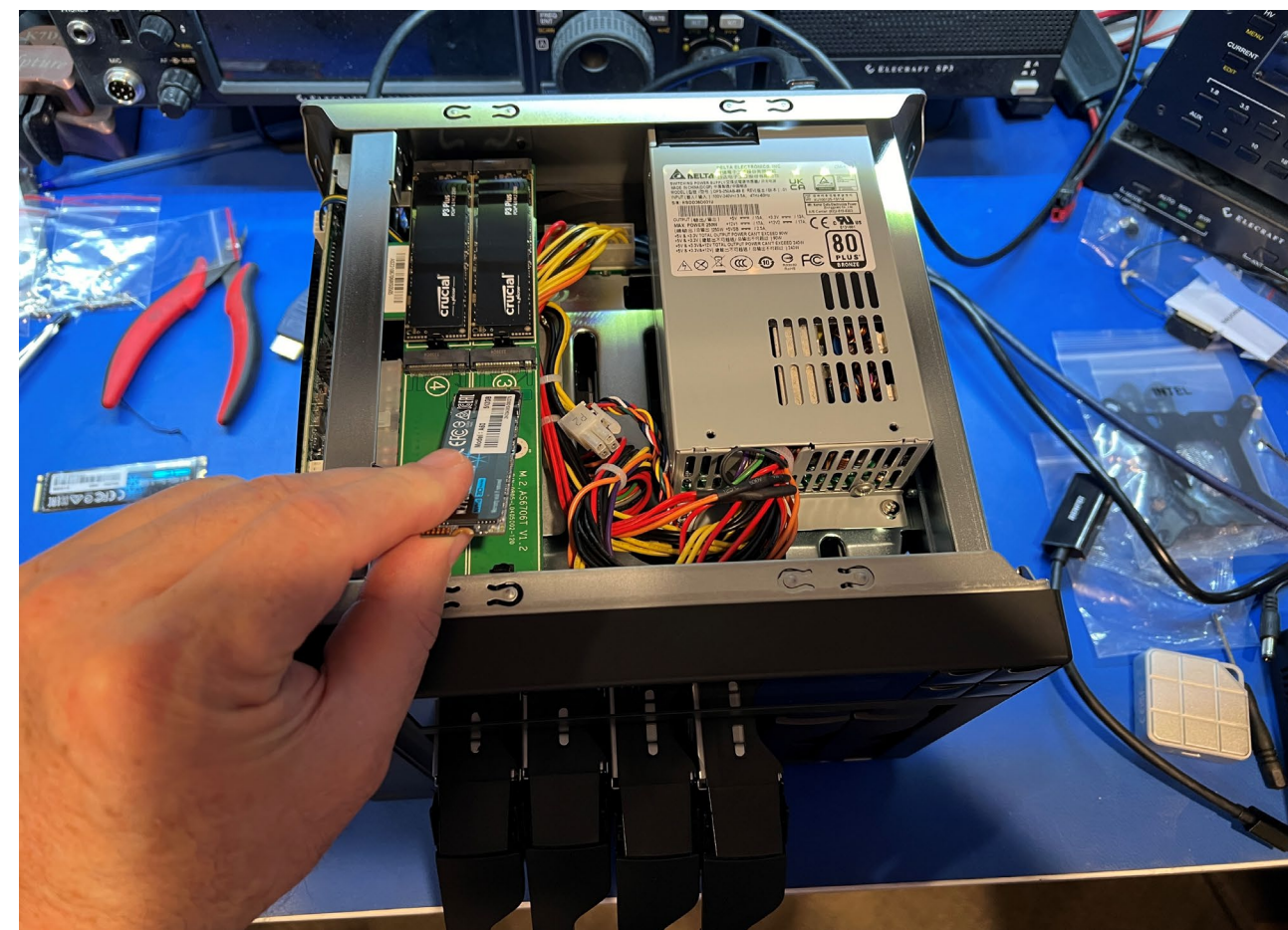
Buy Now

Ships from Amazon
Sold by Platinum Micro, Inc.
Returns 30-day refund/replacement

Customer service Amazon
▾ See more

Add a Protection Plan:

Asustor Lockerstor 6 has 6 HDD/SSD bays plus 4 NVME slots = 10 drives



NVME (or M.2) drives are as much as 10-20 times faster than hard disks

Drive Speeds - MB/s



Storage Cost Per Terabyte

- NVME = \$60-90
- SSD = \$55-85
- New Enterprise HDD = \$20 - \$25
- Refurbished (5 yr warranty) Enterprise HDD = \$6 - \$12
- (HDD's are enterprise grade 24/7 use)
- Note: Buy SATA, not SAS, drives and cut the 3.3V (usually orange) wire!



Roll over image to zoom in



Seagate IronWolf 12TB
NAS Internal Hard Drive
HDD – CMR 3.5 Inch SATA
6Gb/s 7200 RPM 256MB
Cache for RAID Network
Attached Storage
(ST12000VNZ008/ST1200
0VN0008)

[Visit the Seagate Store](#)

4.6  29,197 ratings

| [Search this page](#)

Amazon's Choice Overall Pick

1K+ bought in past month

\$239⁹⁹

Or **\$48.00**/mo (5 mo). [Select from 2 plans](#)



FREE Returns 

Get a \$100 Amazon Gift Card instantly upon approval for Prime Visa. No annual fee.

May be available at a lower price from [other sellers](#), potentially without free Prime shipping.



Roll over image to zoom in

MDD - HC520 HUH721212ALE601 12TB 7200RPM 128MB Cache SATA 6.0Gb/s 3.5inch Enterprise Hard Drive - 5 Year Warranty (Renewed)

Brand: Amazon Renewed

4.1 ★★★★★ 63 ratings | [Search this page](#)

50+ bought in past month

Typical price: \$89.99 [Details](#)

Price: **\$84.99**

FREE Returns ▼

You Save: **\$5.00 (6%)**

Or **\$15.69**/mo (6 mo). [Select from 1 plan](#)

Get \$10 off instantly: Pay **\$74.99** ~~\$84.99~~ upon approval for the Prime Store Card. No annual fee.

May be available at a lower price from [other sellers](#), potentially without free Prime shipping.

This product is inspected, tested, and refurbished, as necessary to be fully functional according to Amazon Renewed standards. [Learn about Amazon Renewed](#)

Digital Storage Capacity	12 TB
Hard Disk Interface	Serial ATA-600
Connectivity Technology	SATA
Brand	MDD MAXDIGITALDATA

It's A RAID!

- Grouping drives together to **protect against a drive failure**
- RAID0 through 10 = different combos of disks
- **JBOD** – Just a box of disks with no failure protection
- **RAID0** – 2 drives “striped” for speed but no protection
- **RAID1** – 2 drives “mirrored” for simple protection
- **RAID5** – 3 or more drives with an extra “parity” drive for protection
- **RAID6** – Group of drives plus 2 parity drives for 2-drive protection
- OR no RAID but use external drive for manual backups
- Pros advise using **3-2-1** protection method: **3** copies, **2** different media, plus **1** other location

Buy Or Build?

- Consider cost of buying a 2nd PC or Mac or NAS appliance
 - \$180--\$800 less drives (Mac is more \$\$)
- Building is fun, **can be frustrating**, might cost less...or not
 - More flexibility, only need a screwdriver to build
- Home-built computer vs **easy-to-use software included with NAS**
 - Linux servers, UnRAID, CasaOS, TrueNAS simplify with a Web interface
 - BUT! They still have significant learning curves for less tech-savvy folks
 - NAS boxes' main value is their included software—**very hard to beat**
- Easy to spend the same or more on a home-built system!
 - You'll likely have more CPU power than lower-end ready-made NAS
 - Might consider some relatively cheap used business computers--\$100

Cheapest 2-Bay Ready-To-Go NAS Setup

- **Synology DS-223j: \$190** (strongly recommended for their software)
- Asustor Drivestor 2 Lite: \$175
- Terramaster F2-212: \$136 (normally \$169, but on sale today on Amazon)

- A pair of 4TB enterprise hard drives (renewed): $\$49.99 \times 2 = \100
- Gives you either 4TB (mirror) or 8TB (JBOD) of storage

- You can also just start with 1 drive and expand as finances allow

- Regardless of what you buy or build, drives are always likely to be the largest cost outlay depending on how much storage you want

- A **UPS** is strongly recommended!

Even Cheaper

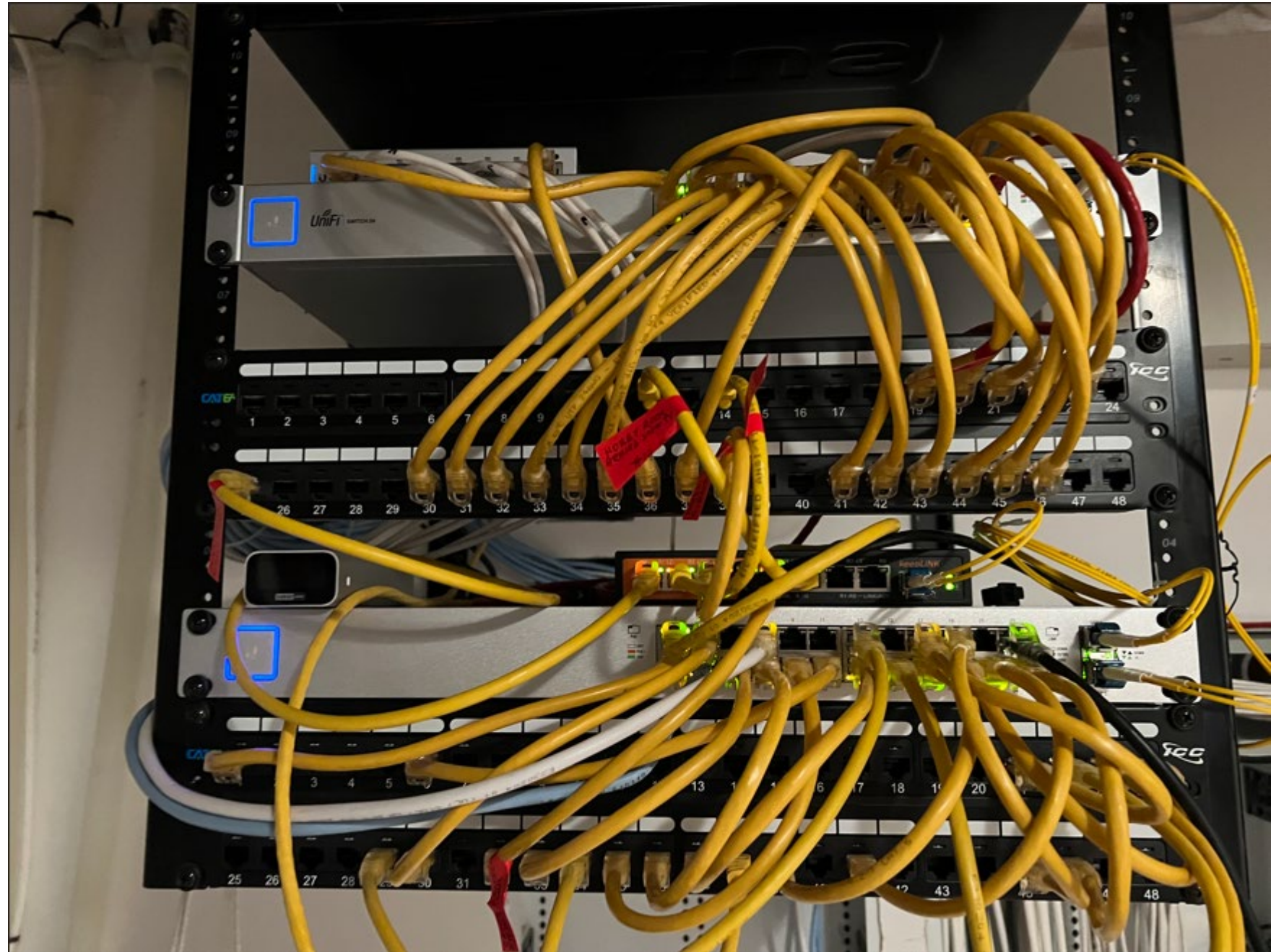
- Use your existing PC or Mac with an external hard drive: \$100-200
- All apps mentioned (Plex, Jellyfin, web server, file sharing) will run
- Or an older \$75-100 business PC with internal/external hard drives
- Having a separate PC makes it easy to leave it on all the time
 - Most laptops and business PCs idle at 5-20 watts, or can be set to wake

The Full Monty: Build a Full NAS From Scratch

- Advanced user, but not Superman-level (and YouTube is your friend)
- Buy an enclosure—many available for NAS, or just a desktop case
- Buy a CPU and motherboard
 - Many cheap used combos on eBay for \$50-150
 - Doesn't need to be a high-power system. Most NAS' are Celeron or lower
- Buy a standard desktop or SFF power supply - \$40-80
- DRAM can be cheap: 8-16GB DDR3 or DDR4 less than \$40
- Add a cheap 256GB SSD for Windows or Linux-based NAS SW
 - I use TrueNAS, but CasaOS or Debian Linux Server are good as well

Spaghetti?

Why yes please!





**60 TB TrueNAS server made from an old PC case
Core i7-12700, 32 GB DRAM, no video card needed
This is my main Plex server for the house
Also runs some home automation, iTunes music,
Virtual Debian Linux server, etc.**



24 TB “Sandbox”
TrueNAS 2U
rackmount server

Runs Jellyfin
experiments with
video file
transcoding

Asustor 6-bay
Lockerstore
server next to it.
Same internal
CPUs!



Intel N5150 Celeron, TrueNAS, 32 GB DRAM, 4 8TB HDDs in RAID5, way-overkill 750W “normal” PC power supply just barely fits



“Thanks for your concern, but this IS my comfortable position!” --Violet



Links:

- Linus Tech Tips explains why you'll want to rip and archive your DVD's sooner or later, including limited lifespan of 5-20 years: <https://www.youtube.com/watch?v=GdQ5bClEgHg>
- MakeMKV ripping software: <https://makemkv.com>
- Handbrake for transcoding video files: <https://handbrake.fr/downloads.php>
- Video LAN Client (VLC) plays any media: <https://www.videolan.org/vlc/>
- Synology NAS products: <https://synology.com>
- QNAP NAS products: <https://qnap.com>
- Asustor NAS products: <https://asustor.com>
- Terramaster NAS products: <https://www.terra-master.com/global/>
- Amazon link to 12TB renewed enterprise disk: <https://a.co/d/2EEx8Lg>
- Amazon link to Asustor 6-bay NAS box: <https://a.co/d/i0LLNu6>
- NASCompares reviews this NAS: <https://www.youtube.com/watch?v=2TCzA9OHC44>
- Amazon link to \$189 Synology DS-223j 2-bay NAS: <https://a.co/d/dcKmDjy>
- Link to \$169 mini-ITX N5150 NAS motherboard with 6 SATA ports: <https://a.co/d/cjWx99B>