

# NAS Drive Cost vs Usable Storage

Cheat Sheet – RAID Overhead, Usable Capacity & Expansion Trap

## ▲ USABLE CAPACITY REFERENCE – WHAT YOU ACTUALLY GET (RAID OVERHEAD INCLUDED, ~10% HEADROOM)

DRIVE SIZE	RAID 5 USABLE	RAID 6 USABLE	SHR USABLE (MATCHED)	RAID 1 USABLE (2-BAY)
4 × 4 TB	~10.8 TB	~7.2 TB	~10.8 TB	—
2 × 4 TB	—	—	~3.6 TB	~3.6 TB
4 × 8 TB	~21.6 TB	~14.4 TB	~21.6 TB	—
4 × 12 TB	~32.4 TB	~21.6 TB	~32.4 TB	—
4 × 16 TB	~43.2 TB	~28.8 TB	~43.2 TB	—
4 × 20 TB	~54 TB	~36 TB	~54 TB	—

Usable capacity includes ~6% binary overhead + 10% headroom recommendation. For current AU drive pricing and live \$/TB calculation: [needtoknowit.com.au/tools/raid-calculator/](https://needtoknowit.com.au/tools/raid-calculator/) – or check [StaticICE.com.au](https://StaticICE.com.au) for current NAS drive prices.

## ! THE EXPANSION TRAP

Most home NAS users plan to "start small and upgrade later." Here's why that's expensive:

**Standard RAID (RAID 5/6/10):** To expand a 4 × 8TB RAID 5, you must replace ALL four drives one at a time with larger drives and wait for rebuild after each swap. Full 4-rebuild cycle at 12–24 hrs each = 3–4 days of risk.

**SHR Exception:** Synology Hybrid RAID can mix drive sizes and expand by adding one new larger drive — no full rebuild required. Better upgrade path for home users.

⚠ Buying smaller drives to "save money now" often costs more long-term — plan your final capacity first, then buy accordingly.

## ▶ RECOMMENDED STARTING SIZES

USE CASE	BAY COUNT	STARTING DRIVE	SWEET SPOT
Home backup	2-bay	4 TB × 2	~3.6 TB
Home + media	4-bay	8 TB × 4	~21 TB
Power user / Plex	4-bay	12 TB × 4	~32 TB
Small business	4–6 bay	12–16 TB × N	Scale to need
Video editing	6+ bay	16+ TB × N	10GbE required



RAID Calculator

Verify your exact usable capacity: [needtoknowit.com.au/tools/raid-calculator/](https://needtoknowit.com.au/tools/raid-calculator/)

## MORE FREE NAS PLANNING TOOLS

[needtoknowit.com.au/tools](https://needtoknowit.com.au/tools) – RAID Calculator · Drive Failure Risk · NAS Sizing Wizard  
Power Calculator · Backup Calculator · Transfer Speed Estimator

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