TrueNAS®
Expansion Shelves

Scale Storage Effortlessly

To meet the demands of today's applications, businesses need to keep pace with massive data growth. The modern business has to support a full range of storage protocols for Windows, Apple, Unix, and mobile devices. Thousands of terabytes of data need to be retained for analysis by Big Data applications.

To support these and other business requirements, and to reduce storage sprawl, the TrueNAS Enterprise "pay as you grow" pricing model offers storage, power, and space efficiency with the ability to expand capacity on an as-needed basis.

Five expansion shelf options make TrueNAS capacity expansion effortless. Every TrueNAS model has enclosure management, supports storage controller redundancy and global hot spares, zero downtime firmware updates, upgrades, and offers around the clock support. Without disruption, you can add expansion shelves and drives to TrueNAS to keep pace with growing storage needs.
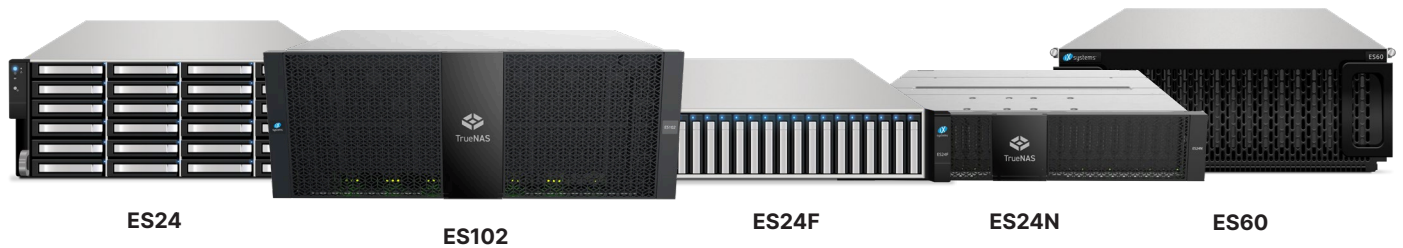
Max Capacity

Base Unit		ES24	ES24F	ES24N	ES60	ES102
TrueNAS H10	250 TB	500 TB (one shelf)	500 TB (one shelf)	Not Supported	1 PB one shelf)	Not Supported
TrueNAS H20	250 TB	500 TB (one shelf)	500 TB (one shelf)	Not Supported	1 PB (one shelf)	2.5 PB (one shelf)
TrueNAS M30	500 TB	1 PB (two shelves)	1 PB (two shelves)	Not Supported	1 PB (one shelf)	Not Supported
TrueNAS M40	500 TB	1 PB (two shelves)	1 PB (two shelves)	Not Supported	3 PB (two shelves)	5 PB (two shelves)
TrueNAS M50	500 TB	4 PB (eight shelves)	4 PB (eight shelves)	Not Supported	10 PB (eight shelves)	15 PB (eight shelves)
TrueNAS M60	500 TB	5 PB (twelve shelves)	5 PB (twelve shelves)	Not Supported	15 PB (twelve shelves)	25 PB twelve shelves)
TrueNAS F60	500 TB	N/A	N/A	2 PB (two shelves)	5 PB (four shelves)	N/A
TrueNAS F100	500 TB	N/A	N/A	3.5 PB (four shelves)	7 PB four shelves)	N/A

ES24   **ES102**   **ES24F**   **ES24N**   **ES60**

Hardware Specifications

TrueNAS ES60	TrueNAS ES102	

• 4U: 60× 3.5"/2.5" hard drive bays (top-loading, hot swap)
• Redundant, hot-swap SAS3 (12 Gb/s) controllers
• 6x Mini-SAS HD Host Connections per Controller (SFF-8644)
• Physical Dimensions of Shelf (L x W x H):
   28.03 × 19 × 6.9" │ 712 × 483 × 176 mm
• Physical Dimensions of Shelf with Cable Management
• Arm (L x W x H): 35.04 × 19 × 6.9" │ 890 × 483 × 176 mm
• Designed to fit in a standard 19" wide, 1000 mm depth cabinet
• Rackmount Rail Depth: 24" to 32" (610 to 813 mm) with Cable Management
• Empty weight: 82 lbs │ 37.2 kg
• Fully-loaded weight: 178 lbs │ 80.8 kg
• Power Draw with 60 HDDs: 1000W (typical); 1250W (max)
	• 4U: 102 × 3.5" hard drive bays (top-loading, hot swap)
	• Redundant, hot-swap SAS4 (24 Gb/s) controllers
	• 4x Mini-SAS HD Host Connections per Controller (SFF8644)
	• Physical Dimensions of Shelf (L x W x H)
	   º 38.6 × 19 × 6.9" │ 980.4 × 482.6 × 175.3 mm
	• Physical Dimensions of Shelf with Dual Cable Management
	• Arm (L x W x H)
	   º 39.4 × 19 × 6.9" │ 1197 × 482.6 × 1000 mm
	• Designed to fit in a standard EIA-310 compliant rack, 17.72" - 18.31" wide, 1000 mm deep cabinet
		• Narrow cabinets could require a rack-mounted PDU to properly allow the enclosure to be fully installed into the rack and properly cabled with the included Cable Management Arms
		• Rackmount Rail Depth
		   º 32" to 36" (813 to 914 mm) with Cable Management
		   º Balance Warning: The ES102 also extends 37.4 in outward when fully extended from rack
		• Rack Width: 17.72" to 18.31" (450mm to 465mm) + 1.5mm nominal hole spacing (EIA-310 standard)
		• Fully-loaded weight: 262 lbs │ 118.8 kg
		• Power Draw: 707W (typical); 1228W (max)

TrueNAS ES24	TrueNAS ES24F

• 4U: 24× 3.5"/2.5" hard drive bays (front-loading, hot swap)
• Redundant, hot-swap SAS3 (12 Gb/s) controllers
• 3x Mini-SAS HD Host Connections per Controller (SFF-8644)
• Physical Dimensions (length x width x height):
   20.5 × 19 × 7" │ 521 × 483 × 178 mm
• Rackmount Rail Depth: 26 to 36.5"
• Empty weight: 40 lbs │ 18 kg
• Fully-loaded weight: 76 lbs │ 34.5 kg
• Power Draw: 316W (typical); 400W (max)
	• 2U 24×2.5" tool-less hard swap bays (front-loading, hot swap)
	• Redundant, hot-swap SAS3 (12 Gb/s) controllers
	• 3x Mini-SAS HD Host Connections per Controller (SFF8644)
	• Physical Dimensions of Shelf (L x W x H):
	   21.5" x 19 × 3.5" │ 546 × 483 × 88 mm
	• Rackmount Rail Depth: 23 to 35.75" (584mm to 908mm)
	• Empty weight: 34.1 lbs │ 15.5 kg
	• Fully-loaded weight: 43.4 lbs │ 19.7 kg
	• Power Draw: 316W (typical); 400W (max)

TrueNAS ES24N
• 2U: 24× 2.5" NVMe SSD drive bays (front-loading, hot swap) • Redundant, hot-swap fabric modules • Physical Dimensions of Shelf with Cable Management Arm (L x W x H):   º 38.9" x 19 × 3.5" │ 988 × 483 × 88 mm • Rackmount Rail Depth: 27" - 37" Empty weight: 43 lbs │ 19.5 kg • Fully-Loaded weight: 56.2 lbs │ 25.4kg • Power Draw: 558W (typical); 825W (max)

Available Storage Media	Power Management

• Enterprise Nearline Hard Drives (7200 RPM SAS3 - 12 Gb/s)
   Capacities available from 4 TB to 22 TB
   Self-Encrypting Drives (SED) Available, FIPS 140-2 Options
• Enterprise Solid State Drives (SAS3 - 12 Gb/s)
   Capacities available from 1.92 TB to 15.3 TB
   Self-Encrypting Drives (SED) Available, FIPS 140-2 Options
• Enterprise-Class NVMe Gen4 SSD (Dual Port)
   Capacities from 3.8 TB to 30 TB
   Self-Encrypting Drives (SED) Available, FIPS 140-3 Options
	• Redundant, hot-swappable, high-efficiency (90%+) power supplies
	• 100-240V 50/60Hz input power on TrueNAS ES24/ES24F/ES24N (Auto-Switching)
	• High-line (200-240V 50/60HZ) input power only on TrueNAS ES60/ES102
	• UPS signal response and alerts
	• Redundant cooling
	• All expansion shelves are RoHS 6/6 compliant

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