TrueNAS® M-Series

Powerfully-Scalable Enterprise Storage with Open Source Economics

The flagship TrueNAS M-Series is designed to support TrueNAS Enterprise with high-availability and maximum performance in mind. Combining open source economics, hardware with high performance and reliability, and top quality support services,TrueNAS M-Series and TrueNAS Enterprise provide enterprise flexibility and scalability with trust and confidence.

The TrueNAS M-Series integrates the flexibility of unified storage, the performance of solid state flash drives, the capacity of hard disks, the simplified management of a powerful web-based user interface, and white-glove enterprise support. TrueNAS Enterprise inherits the rich functionality and open source economics of TrueNAS CORE and adds Enterprise-class features and capabilities such as High Availability (HA), Fibre Channel, TrueCache® and VMware certification.

TrueNAS M-Series is available in four models. TrueNAS M30, M40, M50 and M60 provide unified file, block, and S3-compliant object storage and are available with single or dual-controller, hybrid, or all-flash configurations. Featuring multiple high-speed networking (up to 4× 100 GbE), system memory up to 1.5 TB, TrueCache NVDIMM and NVMe caching, and up to 20 PB capacity, the TrueNAS M-Series is ideally suited for heavy IT storage workloads, including virtualization, media production, high-speed file sharing, and backup.

The TrueNAS M-Series modular hardware architecture conserves power, space, and cooling while supporting multiple applications with its hybrid flash and disk storage pools. HA ensures storage services are not disrupted, while Intelligent Storage Optimization maximizes storage efficiency with typical data reduction ratios of greater than 2.5x.

The TrueNAS M-Series delivers high-performance, scalability, data integrity, reliability, and ease-of-management with open source economics — for companies that never sleep.

M-Series Features

Performance & Scale without Compromise: Hybrid or All Flash Array? With TrueNAS, you can have both. TrueNAS M-Series leverages industry-leading cache along with open source ZFS by merging DRAM, non-volatile memory (TrueCache NVDIMM), and flash (NVMe/SSD) with high-density disks to deliver low latency flash performance at disk capacity and cost. With up to four 100 Gb/s network ports per controller, the TrueNAS M-Series is designed to move terabytes at maximum speed.

Self-Healing Data Protection: Data integrity is the name of the game, and TrueNAS leaves nothing to chance. In-flight data corruption is automatically detected and repaired before it ever reaches disk. Bit rot and data decay are identified and scrubbed clean. With TrueNAS, your data is always pristine.

Intelligent Storage Optimization: TrueNAS M-Series maximizes storage efficiency by offering compression, efficient snapshots, clones, and thin provisioning at no extra cost. TrueNAS Adaptive Compression (TAC) efficiently boosts performance while maximizing capacity. TAC intelligently adjusts its compression ratio without wasting system resources. Before data is stored, TrueNAS dynamically detects and compresses what it can and skips any data too inefficient to be worthwhile.

Unlimited Snapshots & Replication: Most storage appliances require additional licenses for advanced features — but not TrueNAS. Gain unlimited file version retention, restoration, and replication. Data is automatically protected against unintentional alteration, such as from ransomware or malware, with minimal storage consumption. Data can be replicated locally, remotely, or to the cloud for backups or disaster recovery. TrueNAS snapshots can also be coordinated with VMware snapshots.

With TrueNAS, any data protection or disaster recovery policy is simple to implement and maintain.

TrueCache®: TrueNAS M40, M50, and M60 come equipped with TrueCache NVDIMM; the fastest, most reliable, and low latency Write Cache available. TrueCache NVDIMM stores incoming data prior to it being written to the ZFS pool with its data protection. On High availability systems, each write is stored on the TrueCache NVDIMM of the active controller, then mirrored to the TrueCache NVDIMM of the standby controller. In the event of power failure or loss, TrueCache NVDIMM saves the contents of DRAM to its flash devices.

M-Series Platform

Available Storage Media

- Enterprise Nearline Hard Drives 7200 RPM SAS3:
  - Capacities from 4 TB to 18 TB
  - SED, FIPS 140-2 options
- Enterprise SSDs
  - SAS3: from 1.92 TB to 15.3 TB
  - RI, SED, FIPS 140-2 options
- NVMe SSDs:
  - From 1.6 TB to 3.2 TB

Power Management

- Dual redundant, hot-swappable, high-efficiency (80%+) power supplies
- Auto-switching 100-240V 50/60Hz input power on TrueNAS M30/M40/M50
- High-line 200-240V 50/60Hz input power on TrueNAS M60
- IPMI Remote power on/off

Disk Management

- Global hot spares
- Hot-swappable drives
- Corrupted block scan + HDD S.M.A.R.T.
- Hard drive activity/alert LEDs
- Local and remote (KMIP) key management
- Enclosure monitoring and alerts

Physical Parameters

- 4U: 24× 3.5/2.5" hard drive bays (front-loading, hot swap)
- Dimensions (l x w x h):
  - 27" x 19" x 7" │ 686 × 483 × 178 mm
- Rackmount rails 26" - 36.5"
- Operating temperature: 0°C to 35°C
- Non-operating temperature: -10°C to 70°C
- Humidity: 5% to 95% non-condensing
- Empty weight: 75 lbs │ 34 kg
- Fully-Loaded weight: 114 lbs │ 52 kg
- RoHS 6/6 compliant, CE, FCC Class A, UL, BSMI

TrueNAS® M60 Rear

TrueNAS M-Series Models

	TrueNAS M30	TrueNAS M40	TrueNAS M50	TrueNAS M60
Hybrid or All-Flash Storage	Optional	Optional	Optional	Optional
Dual Controller (HA)	Optional	Optional	Optional	Optional
Controller	64 GB	128 GB - 192 GB	256 GB - 348 GB	768 GB
Read Cache (Max)	800 GB SAS	2.4 TB SAS or 3.2 TB NVMe	6.4 TB NVMe	12.8 TB NVMe
Write Cache	16 GB SAS	16 GB TrueCache® NVDIMM	16 GB TrueCache® NVDIMM	2× 16 GB TrueCache® NVDIMM
Networking	2× 10/25/40 GbE (optical)	2× 10/25/40/100GbE (optical)	2× 10/25/40/100GbE (optical)	4× 10/25/40/100GbE (optical)
	2× 10GBase-T (standard)	2× 10GBase-T (standard)	2× 10GBase-T (standard)	2× 10GBase-T (standard)
Fiber Channel	2× 16 Gb	4× 16 Gb	4× 16 Gb or 2× 32 Gb	4× 32 Gb
Max Storage	432 TB	2 PB	9 PB	20 PB
Max Expansion Shelves	0	2	8	12
Maximum Power Draw:				
Single Controller	450 Watts	825 Watts	975 Watts	1225 Watts
Dual Controller (HA)	600 Watts	950 Watts	1150 Watts	1450 Watts
Heat Output	1535/2047 BTU/h	2815/3241 BTU/h	3327/3924 BTU/h	4180/4947 BTU/h

TrueNAS Enterprise Specifications

File-Based Protocols

- SMB v1/2/3
- NFSv3, v4
- AFP, FTP, WebDAV

Block-Based Protocols

- iSCSI
- Fibre Channel
- OpenStack Cinder

Object Protocols

- S3-compliant
- Minio Management

Directory Services

- Active Directory (AD)
- Kerberos
- LDAP, NIS

Networking

- Port Trunking/NIC Teaming
- IEEE 802.3ad link aggregation
- IEEE 802.1q VLAN support

Virtualization

- Supports VMware and VAAI, ESXi snapshot integration, VM Warn/Stun, vCenter
- Supports KVM, Citrix XenServer, Microsoft Hyper-V, bhyve, and other common hypervisors
- Microsoft VSS, ODX, and CSV
- Integrated Jails and Plugins

File System

- OpenZFS Self-healing file system
- Snapshots and clones
- Thin and thick provisioning
- Online capacity expansion
- Virtual block devices
- In-line compression and deduplication
- ZFS Stripe, Mirror, RAID-Z1/Z2/Z3

High Availability

- Dual controller support
- Automated failover without data loss
- Virtual IP address migration
- Online software updates
- TrueCache® NVDIMM sync between controllers

Backup

- Snapshot-based OpenZFS local/remote replication
- Rsync and cloudsync
- Backup data to public clouds
- Supports Asigra, Acronis, Veeam, Nakivo, NetBackup, and more

Supported Public Cloud Providers

- Amazon Simple Storage Service (S3)
- BackBlaze B2 Cloud
- Google Cloud
- Microsoft Azure

Remote Administration

- Alert notifications via email, AWS-SNS, Hipchat, InfluxDB, Slack, Mattermost, OpsGenie, PagerDuty, and VictorOps
- SSH, Syslog
- Automated backup of system configuration and state
- Graphical reporting, enclosure management
- Signed updates with the ability to rollback
- IPMI Remote Management with iKVM HTML5
- REST APIs and SNMP
- TrueCommand Single Pane of Glass