



TTL-NAS
RN422/RN424

High Performance Storage for Small Businesses

Every business faces the same challenges - the increasing amount and criticality of data, and the need to access data securely by multiple users at a fast speed both in and outside of the office. The TTL-NAS 420 Series, with 2-bay and 4-bay models, is a high performance network storage solution that meets the demands of every business by offering high performance data backup and access to workgroups, an industry unique 5 Levels of Data Protection, and ReadyCLOUD® for secured and automated VPN access to data.

TTL-NAS brings state-of-the-art data storage and protection technologies in an affordable and easy-to-use system to the SMB. All TT-NAS are built on the revolutionary TT-NAS OS 6 operating system and next-gen BTRFS file system. A best-in-class 5 Levels of Data Protection - XRAID, Unlimited Snapshots, Bit rot protection, real-time anti-virus and ReadyDR easy offsite replication work in concert to securely protect your data from common risks.

All TTL-NAS systems utilize proprietary ReadyCLOUD technology. With ReadyCLOUD, remotely accessing and sharing files in your own secure private cloud has never been easier. No VPN setup, no port forwarding, no dynamic DNS required.

Data collaboration and protection are now made compatible and simple with TTL-NAS for business productivity and continuity for all. TTL-NAS – EASY, RELIABLE and SECURE storage.

All Inclusive Solution for Data Sharing, Storing & Securing



- **File Sharing:** Unified storage platform for sharing files between Windows, Mac and Linux-based computers



- **Hard Drive Redundancy:** RAID redundancy with automatic expansion and unlimited data snapshots for point-in-time restore.



- **Cloud Collaboration:** Share selected folders and files with ReadyCLOUD with partners, clients or internal teams



- **Backup & Recovery:** ReadyDR disaster recovery solution based on block level replication technology



- **High Scalability:** TT-NAS grows with your business data with 5Bay expansion chassis availability



- **Virtualization:** Thin provisioning, iSCSI support and certified with VMware

Key Business Features



- **Automatic Backup & Sync:** Using the ReadyCLOUD app for PC, scheduled protection is easier than ever before



- **Bit Rot Protection:** A proprietary technology protecting your files from unplanned degradation



- **Unlimited Snapshots:** Unlimited data snapshot capability for on-box protection and flexible data recovery



- **X-RAID & Instant Provisioning:** Easily expand capacity and feel confident knowing that data is always protected



- **Cloud-managed Replication:** Maintain data sets in multiple locations or ensure protection of data from remote or branch office locations



- **iSCSI and Thin Provisioning:** Powerful tools for a business taking advantage of virtual infrastructures



- **Anti-virus & Encryption:** Keep data protected from outside threats and safe from prying eyes

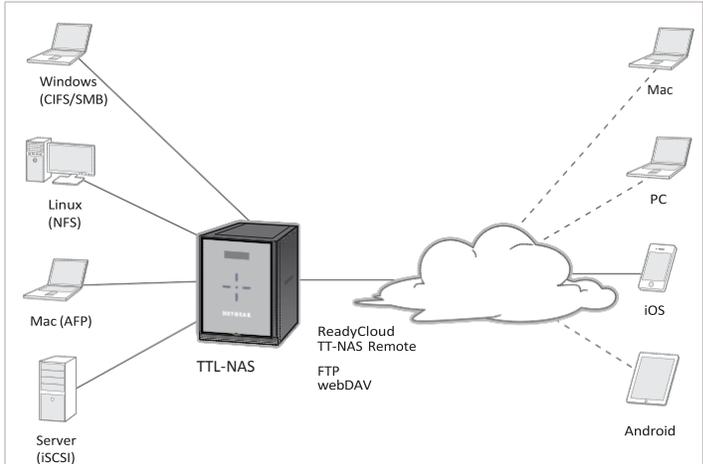
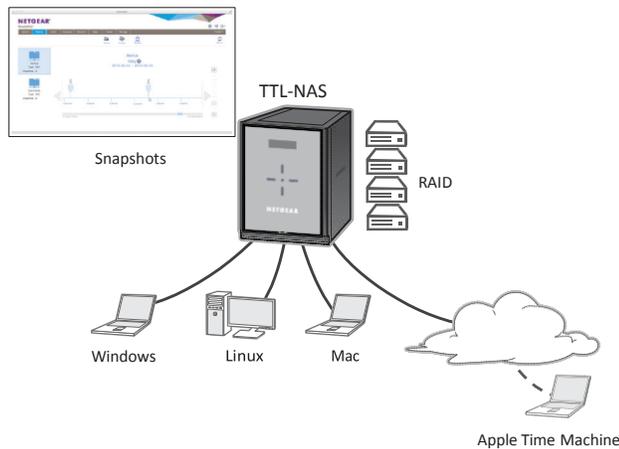


- **Modern GUI and Cloud/Remote Access from Anywhere:** Sleek modern interface and patented technology for secure remote access without configuration effort

TTL-NAS Solutions for total data protection

File Sharing

These days, running a successful business often depends on successful file sharing—application data, virtual images, client files, email, all the digital files that make your business go. With TT-NAS, you finally have an advanced and easy-to-use solution for centralizing, securing, and sharing those critical assets. Faster processors mean more simultaneous users can access unified storage—across PC, Mac and Linux environments. ReadyCLOUD and full Dropbox integration make it easier than ever to sync your important files, photos or videos across all of your web-connected devices.

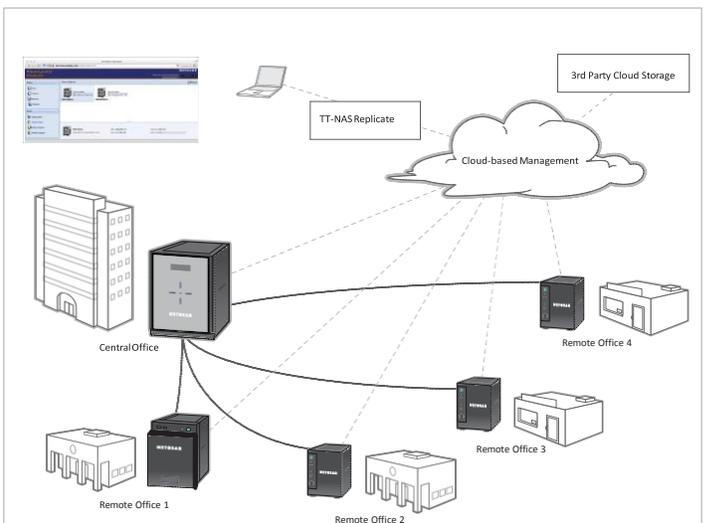
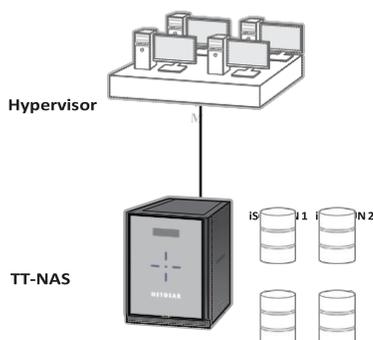


Computers Backup

Unlimited snapshots give you complete control over the past, present, and future of your data. This enterprise-class feature copies any point of time in the file system, can be manually or automatically scheduled, and can restore any version with a simple click. Other data protection innovations for disk-based storage like Real Time Anti-Virus and Encryption bring new confidence to the integrity of your data and back-ups.

Data Backup & Recovery

With the built-in ReadyDR disaster recovery solution, you can backup your data to any other TTL-NAS, and recover the data rapidly in the event of a disaster to ensure business continuity. Combined to ReadyCLOUD file sharing, TTL-NAS becomes your ultimate solution for information distribution, data collection and comprehensive data security between your headquarters and your branch offices.



Virtualization for Private Cloud deployment

TT-NAS is also VMWare vSphere ESXi 6.0 certified for high-performance virtualized storage with workload-heavy VM support, unlimited Snapshots, thin provisioning, and improved iSCSI support. Build your own Private Cloud for data compliance and privacy which might not be compatible with public cloud solutions.

TTL-NAS 420 Series Network Attached Storage (NAS)

TT-NAS Desktop Model Comparison - 420 Series



	TTL-NAS 422	TTL-NAS 424
CPU	Intel® Atom C3338 Dual Core Processor	Intel® Atom C3338 Dual Core Processor
Memory	2GB DDR4	2GB DDR4
Drive Bays	2	4
Drive Types Supported	SATA/SSD 2.5" or 3.5"	SATA/SSD 2.5" or 3.5"
Hot Swappable Drives	Yes	Yes
Tool-less 3.5" disk installation	Yes	Yes
eSATA Expansion Ports	1	1
Internal Capacity and Optional EDA500 Expansion Total Capacity	20TB/70TB	40TB/90TB
Gigabit LAN Ports	2	2
USB Ports	Two (2) USB 3.0 (1 front, 1 rear)	Two (2) USB 3.0 (1 front, 1 rear)
Power Supply	60W Power Adapter input 100-240V AC, 50/60Hz	90W Power Adapter input 100-240V AC, 50/60Hz
BTU at Full power supply utilization	40.15W	57.4W
Power consumption: Operation	34.86W	43.09W
Power consumption: (Wake on LAN)	4.5W	4.4W
Power consumption: (Power Off)	270mW	400mW
2-Line LCD Display	Yes	Yes
Touch Screen Navigation	Yes	Yes
Fan (mm)	92	120
Dimensions DxWxH (mm)	239 x 135.5 x 194	239 x 185 x 194
Weight (kg)	3.52Kg	3.95Kg
ProSUPPORT Service Packs Available On Call 24x7	1-year: PMB0312 3-year: PMB0332 5-year: PMB0352	1-year: PMB0312 3-year: PMB0332 5-year: PMB0352
Bluetooth dongle	No	No
Recommended max of users	40	40
Available configurations	Diskless and populated models with desktop or enterprise HDD available	

Technical Specifications

Data Protection (Backup & Replication)

- Unlimited block-based snapshots for continuous data protection
- Restore Snapshots to any point in time
- Restore Snapshot data from local admin GUI, ReadyCLOUD, or native Windows File Explorer
- Scheduled and manual snapshots
- Instantly clone snapshots
- File Synchronization (rsync)
- Encrypted Remote Replication
- Cloud managed Remote Replication (TT-NAS to TT-NAS). No licenses required for TT-NAS OS 6 devices.
- AES 256-bit volume based encryption
- X-RAID™ (automatic single volume online expansion)
- Expand multiple RAID groups (vdev)
- Single Disk, JBOD
- RAID Levels: 0, 1, 5, 6, 10
- RAID Global Hot Spare
- eSATA Expansion
- Backup to external storage (USB/eSATA)
- Apple Time Machine support
- Remote Apple Time Machine backup and restore (over TT-NAS Remote)
- TT-NAS Vault Cloud backup (optional service)
- Amazon Cloud Drive synchronization (requires Amazon account)
- DropBox file synchronization (requires DropBox account)
- Real-time Anti-Virus scanning using signature and heuristic algorithms. (No end-user licenses required) Protection for viruses, malware, worms, and Trojans.
- Bitrot automatic detection & correction for degraded media
- ReadyDR block level replication technology
- ReadyDR backup from any TT-NAS to any TT-NAS (Intel based)
- ReadyDR for shares and LUNs backup

Storage Area Networks (SAN), Virtualization

- Unlimited iSCSI LUN Snapshot
- Thin or thick provision LUNs
- Multi-LUN per target
- LUN mapping
- LUN masking
- SPC-3 Persistent Reservation (iSCSI)
- MPIO (iSCSI)
- MC/S (iSCSI)
- Max # iSCSI Target: 256

- Max # iSCSI LUN: 256
- VMware vSphere 5
- Citrix XenServer 6
- Windows Server 2008 Hyper-V
- Windows Server 2008 Failover Clustering
- Windows Server 2012 R2

ReadyCLOUD (cloud access to TT-NAS)

- ReadyCLOUD portal based data access and management
- Upgrade firmware remotely
- VPN quality remote data transfer and management
- Share data with external parties & co-workers directly from portal
- Share file via email link

ReadyCLOUD Client Applications

- ReadyCLOUD client applications for Apple OS X, Microsoft Windows, Android, and Apple iOS
- VPN quality remote data transfer and management
- Simple remote access through ReadyCLOUD client (no firewall or router configuration needed)
- Sync files/folders between PC (Mac/Windows) & TT-NAS
- Sync files/folders between multiple PCs and TT-NAS
- Sync files/folders between multiple users & TT-NAS
- Backup files/folders from PC to TT-NAS
- Sync files/folders between PC (Mac/Windows) & TT-NAS
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- Backup files/folders from PC to TT-NAS

File System & Transfer Protocols

- TT-NAS OS 6.6 (RN422/424) or later
- Linux 4.x
- Internal File System: BTRFS
- External File System: EXT3, EXT4, NTFS, FAT32, HFS+
- Copy-on-write file system
- Data Compression
- Microsoft Network (CIFS/SMB 3)
- Apple OS X (AFP 3.3)
- Linux/Unix (NFS v4)
- Internet (HTTP)

- Secure Internet (HTTPS)
- File Transfer Protocol (FTP)
- FTP over SSL/TLS (explicit)
- FTP Passive mode with port range setup
- FTP Bandwidth control
- FTP Anonymous
- FTP Transfer Log
- Secure Shell (SSH)
- Web Authoring (WebDAV)
- Storage Array Network (iSCSI)
- File Synchronization (rsync)
- Local web file manager

Users/Groups:

- Max # Users: 8192
- Max # User Groups: 8192
- Max # Share Folder: 1024
- Max # Concurrent Connections: 1024
- Share Folder Level ACL Support
- Advanced Folder Permissions with Subfolder ACL support for CIFS/SMB, AFP, FTP
- Microsoft Active Directory (AD) Domain Controller Authentication
- Local access list
- ReadyCLOUD based ACL
- Domain user login via CIFS/SMB, AFP, FTP

Management

- ReadyCLOUD cloud-based discovery and management
- RAIDar local discovery agent (Windows/Mac)
- Save and restore system configuration (clone devices)
- Local event log
- Connection reporting (SMB)
- Local Graphical User Interface (GUI) Languages: English, German, French, Japanese, Chinese (Traditional & Simplified), Russian, Swedish, Portuguese, Italian, Spanish, Polish, Czech, Dutch, Korean
- Unicode support
- Volume Management
- Thin provision Shares and LUNs
- Instant Provisioning/Expansion with data protection
- Restore to factory default
- Operating Systems supported: Microsoft Windows 7, 8/8.1, 10, Microsoft Windows Server 2008 R2/2012, Apple OS X, Linux/Unix, Solaris, Apple iOS, Google Android
- Supported Web Browsers (Microsoft Internet Explorer 9+, Microsoft Edge, Mozilla Firefox 14+, Google Chrome 20+, Apple Safari 5+)

Technical Specifications

System Monitoring

- Device capacity, performance, resource and health monitoring
- Bad block scan
- Hard Drive S.M.A.R.T.
- File System Check
- Disk Scrubbing
- Disk Defragment
- Volume balance
- Alerts (SMTP email, LCD, SNMP, local log)
- Auto-shutdown (hard drive, fan, UPS)
- Auto-restart on power recovery

Networking Protocols

- TCP/IP
- IPv4
- IPv6
- Static IP Address
- Dynamic IP Address
- Multiple IP Settings
- DHCP Client
- UPnP Discovery
- Bonjour Discovery
- Link Aggregation IEEE 802.3ad
- Port Trunking (balanced round robin, active backup, balance xor, broadcast, 802.3ad link aggregation LACP, transmit load balancing, adaptive load balancing)
- Hash Types IEEE 802.3ad LACP or XOR (Layer 2, Layer3, Layer 4)
- Jumbo Frames
- Static routes
- Secure Shell (SSH)
- Simple Network Management Protocol v2, v3
- Network Time Protocol (NTP)

Media

- ReadyDLNA (UPnP DLNA Media Server)
- ReadyDLNA streams to any compliant device including Playstation and Xbox
- ReadyDLNA mobile clients for remote media streaming (iOS, Android)
- ReadyDLNA supported music formats (wav, wma, pcm, ogg, mp3, m4a, flac, aac)
- ReadyDLNA supported photo formats (jpg, jpeg)
- ReadyDLNA supported video formats (3gp, mp4, wmv, xvid, vob, ts, tivo, mts, mpeg, mpg, mp4, mov, mkv, m4v, m4p, m2t, m2ts, flv, flc, fla, divx, avi, asf)
- ReadyDLNA supported playlist formats (pls, m3u)
- TT-NAS Surveillance (free trial, license required) supports over 85 brands and 2000 models of IP cameras
- TT-NAS Surveillance supports up to 32 cameras for RN422/424
- iTunes Server
- iTunes supported audio formats (mp3, m4a, m4p, wav, aif)
- iTunes supported video formats (m4v, mov, mp4)
- iTunes supported playlist formats (m3u, wpl)
- TiVo Archiving (varies by model and region)
- Plex Media Server streams to DLNA and Plex clients

Compliance

- ENGR 10049 EST Environmental Stress Test Guideline
- ENGR 10045 EVT Engineering Validation Test Guideline
- ENGR 10048 CVT Compliance Validation Test Guideline
- ENGR 10046 System Validation Test Guideline
- ENGR 10023 HALT Accelerated Life Test Guideline
- ENGR 10036 CDG Component Derating Guideline

Environment

- Noise levels: <28dBA @ 30C (TT-NAS 516/716), <24.9dBA @ 30C (all other units)
- Operating Temperature: 0-45C
- Operating Humidity: 5-95% relative humidity, non-condensing
- Smart Fan
- Scheduled Power on/off
- UPS Support
- Network UPS with SNMP Management
- Wake on LAN
- Hard drive disk spin down
- Schedule power on/off
- Auto-power on (after shutdown)
- AC Input Power Voltage 100V to 240V
- Power Frequency: 50Hz to 60Hz, Single Phase
- Certification: FCC Class B, CE Class B, RoHS, VCCI Class B

Accessories

- RTRAY05: Replacement/additional 3.5" or 2.5" disk drive tray
- **Add-on Applications**
- One click installation of add-on applications directly through local GUI
- Application available for productivity, media, backup, surveillance, and many others
- NETGEAR applications include Surveillance, Photo Sharing, Advanced configuration tools
- Partner applications include BitTorrent Sync, Plex, Memeo, DVblink
- Community applications include Transmission, ownCloud, qBittorrent, MySQL, VPN server, Syslog, Wordpress, Joomla, Media Wiki, and others
- Application availability subject to change
- Applications may impact overall performance
- Software Development Kit (SDK) available for 3rd party developers



INDUSTRY-LEADING 5-YEAR HARDWARE WARRANTY

5-year next-business-day replacement, 90 day complimentary technical support

* including HDD on populated models