

TerraMaster U4-500

Integrated Backup Server

Datasheet



TerraMaster Backup Server is an integrated data backup solution designed for small and medium-sized businesses. With a one-time payment, it eliminates additional software fees and places no limits on backup tasks or storage capacity. This solution combines a professional storage management system, backup software tools, and a hardware platform, offering deep integration and comprehensive backup services. We employ advanced security strategies to ensure system stability and data security across all aspects. TerraMaster Backup Server provides a one-stop enterprise data backup solution for data stored on employee personal computers, physical servers, or virtual machines. With multiple protection mechanisms, including backup, snapshot, synchronization, and remote disaster recovery, we establish a robust data protection barrier to ensure the security of data across various terminals and servers in diverse enterprise application scenarios.

Necessity of Data Protection

Globally, both large and small enterprises are facing the threat of data security incidents every day, such as ransomware attacks, employee's accidental deletion of data, and unexpected server downtime. These incidents will not only have a significant impact on the core information and business continuity of the enterprise, but may even directly threaten the survival and development of the enterprise. Especially in the digital and information age nowadays, data has become the most valuable asset of the enterprise. Once the data is lost or leaked, the consequences will be disastrous.

BBS (Business Backup Suite)

BBS (Business Backup Suite) is a comprehensive commercial backup solution developed by TerraMaster. Its core components include Duple Backup (DB), Centralized Backup (CB), TerraSync (TS), CloudSync, and Snapshot. Duple Backup is designed for off-site disaster recovery of data on TerraMaster backup servers. Centralized Backup handles the centralized backup of data from employee computers, file servers, virtual machines, and more to the local TerraMaster backup server. TerraSync enables data synchronization between multiple backup servers and between backup servers and PCs. CloudSync facilitates cloud-based disaster recovery solutions. The Snapshot feature provides snapshots and restoration of file systems and folders, offering protection against ransomware attacks.

BBS (Business Backup Suite) is specifically designed for business applications, offering complete functionality and meeting the high-performance requirements of enterprise environments. Users can flexibly combine TerraMaster's BBS backup components based on their specific needs to create diverse backup strategies, effectively addressing the majority of backup requirements for small and medium-sized enterprises.

Advantages of TerraMaster BBS:

Flexible Combination for Deployment in All Scenarios

Depending on application scenarios, enterprise size, or security level requirements, core applications can be flexibly combined to implement diverse backup strategies. For instance, enterprises with 50 or fewer employees can use a single-server deployment with off-site disaster recovery to save costs. In contrast, enterprises with 100 to 200 or more employees can opt for a dual-server deployment, integrating off-site disaster recovery with cloud disaster recovery solutions.

Simple and Efficient Deployment

BBS features a fully graphical user interface, simplifying configuration and eliminating the need for coding. This user-friendly design reduces the learning curve, enhances deployment

efficiency, and lowers management and operation costs.

Powerful and Secure

BBS supports high storage efficiency, capable of handling file backup demands at a scale of tens of millions of files. It employs global LTS encryption technology and offers a variety of security strategies, combining active and passive protection to meet the data security needs of different organizations.

Computer Backup of Employees

The data stored on employees' personal computers, including work results, design plans, and other information, are not only key intellectual properties and compliance elements of an enterprise but also crucial for operational development. For R&D-based enterprises, the R&D materials and innovative ideas within this data are essential for maintaining technological innovation and competitiveness. Thus, ensuring the integrity and security of this data is vital for enterprises.

Challenges in Backing Up Employee Computers

Backing up data from employee computers in enterprises presents several challenges, including the tedium of manual backups, complexity in data management, human error, cost concerns, and the need for robust security and privacy protections. Additionally, network performance can impact backup processes. To address these challenges, enterprises should implement centralized backup solutions and establish comprehensive backup management systems and strategies.

Active Backup Solution for Employee Computers

Centralized Backup (CB) is a backup tool developed by TerraMaster that offers a centralized, proactive backup solution tailored to the needs of business users. By deploying CB on an integrated backup server, IT administrators can centrally back up the storage space or even system partitions of employee computers within the enterprise. The backup server initiates the process, eliminating the need for individual configuration on each host.

Windows PC Data Backup	Multi-Version Recovery Management	MacOS Computer Data Backup
Using Centralized Backup (CB), employees don't need to be involved in the backup process. IT administrators can initiate backup requests from the server using the PC backup module of Centralized Backup to actively back up folders, disk partitions, or system partitions on hundreds of employees' computers. Centralized Backup effectively safeguards digital assets scattered across employees' computers and significantly reduces the workload for IT administrators.	CB offers multi-version management for backup targets. In the event of a disaster, IT administrators can roll back to a specific version in the version library and restore data to the designated host. Each CB backup task supports up to 9,999 backup versions.	It offers protection for critical data and systems through Time Machine Backup. The backup server can serve as the destination for Time Machine, automatically backing up data from multiple Macs. Time Machine Backup also includes space quota settings to prevent Mac backups from consuming excessive server storage.

Passive computer backup solution for employees

In addition to Centralized Backup for IT administrators, TerraMaster backup server offers TerraSync, a computer backup tool that employees can manage independently. TerraSync provides both data synchronization and backup functions, enabling employees to create their own synchronization or backup strategies based on the importance and frequency of data use. Employees can synchronize or back up data from their computers to TerraMaster backup servers. TerraSync also supports data synchronization across multiple devices and platforms, such as Windows computers, macOS computers, and iOS/Android mobile devices, enhancing mobile office convenience and improving employee work efficiency.

Multi-Client Support	Smart and Efficient Synchronization Strategies	Historical Version Recovery Management
The TerraSync service supports a range of commonly used clients, including backup servers, Windows and macOS computers, and iOS/Android mobile devices. It can synchronize with up to 2,000 clients.	By monitoring folder and file statuses, the TerraSync client can promptly detect changes and quickly synchronize new or modified files by comparing them with the server.	TerraSync Server manages historical versions of synchronized and backup files. In the event of accidental data deletion or a disaster, users can search historical version records via the client and select the appropriate version for restoration. Each file can retain up to 32 versions.

Team Collaboration	Directory Backup	Data Security
By configuring personal and team folders, users can protect private data and create collaboration groups with specific permissions for group members. TerraSync facilitates file sharing and teamwork, enhancing overall team efficiency.	In addition to file synchronization, TerraSync's Windows and macOS desktop clients offer the ability to back up computer directories. Users can back up specified folders on their computers to your TNAS. In the event of accidental data deletion or a disaster, users can access historical version records through the client and restore the appropriate version.	To ensure robust data security, TerraSync employs SSL certificate encryption for all backup and synchronization tasks between the client and server. Users also have the option to import and configure their own trusted digital certificates.

Server Backup Solution

The server is the central hub for enterprise digital information, running essential applications like OA, CRM, and ERP, and storing crucial business data. TerraMaster Centralized Backup (CB) provides a comprehensive solution by using the backup server to centrally back up storage spaces or system partitions of enterprise computing and file servers.

One Machine, Multiple Uses	Server Backup	File Server Backup
Deploying CB on the TerraMaster backup server enables enterprises to meet the backup needs of employee computers, servers, file servers, virtual machines, and workstations with a single device. It supports backups for up to 200 devices, significantly reducing IT investment costs.	The CB server backup function allows IT administrators to simultaneously back up the systems and data of up to 200 servers to the backup server. In case of an incident, they can quickly restore affected hosts, minimizing the impact of equipment failures on business operations. Supported Versions: Windows Server 2022, 2019, 2016, 2012	File servers are central to storing an enterprise's digital assets. Disasters such as power outages, equipment failures, or system malfunctions can lead to the loss of these valuable assets. By using CB's file server backup function, IT administrators can back up file directories from multiple file servers simultaneously, supporting up to 108TB of storage space. This significantly mitigates the risk of data loss due to disasters. CB supports servers running SMB and Rsync 3.0 or above (Linux) protocols.
Multi-Version Recovery Management	Complete Process Control	
CB offers multi-version management for backup	CB provides detailed historical records of	

targets. In the event of a disaster, IT administrators can roll back to a specific version in the version library and restore the data to the designated destination host.	backup and restoration configurations and access to millions of logs. This allows users to monitor backup progress and detect any exceptions. With the notification feature enabled, administrators can promptly track the status of backups and restorations.	
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Virtual Machine Backup Solution

Virtual machine backup is crucial for maintaining the integrity and recoverability of critical business systems and data. In the face of risks such as hardware failure, software errors, human mistakes, or natural disasters, backups can swiftly restore the virtual machine to its most recent stable state, minimizing service interruption, ensuring business continuity, and preventing data loss and potential financial impact. Therefore, regular virtual machine backups are an essential component of any enterprise risk management strategy.

TerraMaster Centralized Backup (CB) offers a comprehensive, one-stop solution for virtual machine backup and recovery. It supports backups for VMware vSphere and Windows Hyper-V virtual machines, integrating VMware's Changed Block Tracking (CBT) and Microsoft's Resilient Change Tracking (RCT) to ensure only changed data is transmitted, greatly enhancing backup efficiency. With CB's virtual machine backup functionality, administrators can easily manage backup operations for up to 200 virtual machines from a single backup server.

Centralized Backup excels in disaster recovery as well. In the event of an incident, IT administrators can quickly locate and select the appropriate backup version using the time rollback function in the version library, allowing for swift data restoration to the specified destination host.

Additionally, Centralized Backup is highly compatible with various virtual machine versions, including VMware ESXi 8.0, 7.0, 6.7, and 6.5, VMware vCenter 8.0, 7.0, 6.7, and 6.5, as well as Windows Server Hyper-V 2019 and 2016. This ensures comprehensive backup and protection for all your virtual machine environments.

Disaster Recovery Solution

To safeguard against data threats from hardware failures, system malfunctions, theft, and natural disasters, TerraMaster's enterprise data backup solution includes a secondary layer of protection called Duplicate Backup (DB). DB is a robust disaster recovery tool with a user-friendly interface. It enables IT administrators to back up important folders, entire data volumes, or iSCSI LUNs from the backup server to remote locations such as another backup server, file server, or cloud storage. Supporting various backup strategies, including incremental and multi-version backups, DB ensures a straightforward and efficient backup and restoration process, facilitating rapid data recovery in the event of equipment failure. To prevent data loss in the event of an accident, the 3-2-1 backup strategy is widely used. This approach involves maintaining at least 3 backups of the data, with 2 stored on different devices and at least 1 stored off-site. Duple Backup, a professional tool designed specifically for TerraMaster backup servers, is ideal for implementing the 3-2-1 backup strategy.

Multiple Backup Targets	Multiple Destinations	Diverse Backup Strategies
Duple Backup supports the backup of shared folders, specific file directories, iSCSI LUNs and their configurations, or entire volumes on the backup server. It can handle up to 10 million files and provide up to 108TB of storage space for backups.	Depending on your business needs, you can choose up to 4 different backup destinations for your data, including another TerraMaster backup server, a file server, a WebDAV server, or multiple mainstream cloud storage options. Using the Duple Backup Vault client, you can simplify the backup configuration process by setting up mutual backups between two TerraMaster backup servers.	Depending on business needs and storage resource allocation, you can select incremental backup, multi-version backup, or hybrid-mode backup. TerraMaster's unique hybrid-mode strategy offers data deduplication to enhance storage space utilization and supports up to 9,999 backup versions.
Data Security	Efficient Transmission	Easy Restoration
To ensure data security, Duple Backup uses SSL certificate encryption throughout the backup process, protecting data transmission.	To enhance backup efficiency, data is compressed before transmission, achieving up to 30% compression. This reduces network bandwidth usage, saves storage space, and lowers IT investment costs for customers.	Duple Backup offers an intuitive graphical interface that provides tailored restoration methods for various destinations. In the event of an accident, users can quickly restore data using Duple Backup's tool, minimizing losses and reducing recovery time.

Cloud Data Backup

By using TerraMaster's CloudSync service with the integrated backup server, enterprises can fully protect their network disk and cloud SaaS data. As an advanced cloud disk synchronization application, CloudSync enables high-speed, real-time synchronization between local backup servers and cloud storage. It efficiently downloads cloud data for easy access, overcomes Internet bandwidth limitations, and significantly boosts work efficiency. This cost-effective solution offers reliable off-site disaster recovery strategies, ensuring data integrity and business continuity.

Advantages of the CloudSync Cloud Disaster Recovery Solution:

- Supports synchronization with major cloud storage services, including Google Drive, OneDrive, Amazon S3, Dropbox, and Baidu Cloud.
- . Offers bidirectional disaster recovery strategies, including cloud-to-local and local-to-cloud.
 - . Monitors file changes in real-time and triggers immediate data synchronization.
 - . Supports various synchronization strategies to accommodate flexible data utilization needs.
 - . Provides data encryption during upload to prevent sensitive data leakage on cloud storage.
 - . Offers flexible synchronization options and scheduled tasks to avoid network bandwidth congestion during peak business hours.

Avoid Ransomware Attacks

Ransomware poses a major threat to data security. A single compromised device can swiftly and discreetly infect your entire network, including network-connected backups, often without detection. Ransomware not only encrypts your data but can also delete, overwrite, or destroy it. Failing to pay the ransom risks permanent loss of critical business data. In addition to backup and disaster recovery solutions, TerraMaster Backup Server offers a powerful tool against ransomware attacks: folder and file system snapshots.

Folder Snapshot

- . Leveraging the COW (Copy-on-Write) feature of the Btrfs file system, snapshots are highly efficient and storage space is optimized.
- . The scheduled task can take a snapshot of the folder or iSCSI LUN every hour.
- . Each folder can hold up to 1,024 snapshots.
- . Arranged chronologically, browsing and restoring snapshots are quick and easy.
- . Enhance snapshot security by supporting incremental snapshot replication.
- . When the server goes down, the business can swiftly switch to the backup server and resume operations.

File System Snapshot (TFSS)

- . TerraMaster's Unique Snapshot Protection Solution.

- . Minimize human error, create full system or volume snapshots, and enhance data security.
- . Adopt a read-only snapshot storage method to minimize the risk of ransomware affecting snapshots and enhance overall snapshot security.
- . Customizable snapshot scheduling tasks allow for flexible arrangement in alignment with the business operation cycle.
- . One-click activation and restoration simplify IT administrators' tasks.

Applications of TerraMaster Backup Servers

The TerraMaster integrated backup server offers enterprise-grade disaster recovery solutions tailored to meet the demands of freight, efficiency, collaboration, compatibility, and security in a digitally centralized enterprise environment. It is ideal for data disaster recovery in small to medium-sized enterprises, campus cloud disk and backup solutions, document management for design institutions, and PACS digital medical data storage.

Application Case	Usage scenario
Design institution	. Share encrypted drawings and build a file server with internal and external network isolation; . Hierarchical permission design supports AD/LDAP to smoothly integrate into the enterprise environment; . Virtualized deployment improves the security of design software and saves IT budget; . Supervise behavior records and trace operation logs; . Centrally protect design drawings and defend against ransomware threats; . Improve the efficiency of massive drawing backup and streamline storage space utilization; . Self-contained disaster recovery to deal with ransomware, and off-site backup quickly restores business operations; . Easy to operate, no need to change existing access habits;

Powerful Backup Server

The U4-500 is equipped with an Intel Pentium Gold 8505, featuring 5 cores, 6 threads, and a turbo frequency of up to 4.4GHz. It includes Intel UHD Graphics with a dynamic frequency of 1.1GHz and supports AES NI hardware encryption. With 8GB of DDR5 4800MHz memory and two 10 Gigabit Ethernet ports, it ensures robust performance. Additionally, it has two M.2 NVMe slots for Hyper Cache acceleration, enhancing disk array storage efficiency. This makes it an ideal high-performance backup solution for small to medium-sized businesses.

96 TB High-Capacity Storage Space

The U4-500 can accommodate up to 4 3.5-inch SATA hard drives, offering a remarkable maximum storage capacity of up to 96TB (using 24TB HDDs as an example). This is sufficient to meet the backup and storage needs of most small and medium-sized enterprises. Additionally, through the USB3.2 10Gbps interface, the U4-500 can easily connect to external USB storage devices, enabling further storage expansion. For example, when used with the TerraMaster D6-320, it can increase storage capacity by an additional 132TB, meeting your ever-growing data storage demands.

20Gb Lightning-Fast Throughput Performance

The U4-500 is equipped with two 10GbE copper cable 10 Gigabit Ethernet ports, offering up to 20Gbps of bandwidth for data transmission. In real-world scenarios, combined with SMB multichannel, the U4-500 delivers impressive throughput performance: sequential write speeds up to 2090MB/s and 4K random read/write speeds up to 450MB/s. This exceptional performance ensures smooth image and video read/write capabilities, making it ideal for film and video production, post-production in audio-video studios, and production teams. It also provides outstanding random read/write performance for virtualized environments and database applications.

Versatile Storage Options, Configure as You Wish

The U4-500 offers a comprehensive range of storage configurations, supporting various RAID types including Single, RAID 0, 1, 5, 6, and 10. It also introduces TerraMaster's innovative flexible array (TRAID/TRAID Plus), which enables online capacity expansion, migration, and redundant disk configuration within the array. Users can create multiple storage spaces and choose between ext4 or Btrfs file systems based on their business needs. For added flexibility, pair the U4-500 Max with the TerraMaster USB DAS disk array to seamlessly expand storage capacity as needed.

A New Generation Operating System

The U4-500 features the latest TOS 6 operating system, introducing over 40 new features and optimizing more than 370 details for an unparalleled upgrade experience. TOS 6 boasts a completely revamped user interface, transforming the system from the inside out. Enhanced security measures ensure even more secure and reliable data storage. Additionally, TOS 6 is fully compatible with the Ubuntu root file system, making it familiar and easy to maintain for a wide range of users.

Across-Platform File Services

The U4-500 supports mainstream file services including SMB, SFTP/FTP, iSCSI, NFS, and WebDAV, fully meeting cross-platform file service needs in various network environments. It is compatible with Windows AD domain and LDAP, making it easy to integrate into existing enterprise IT environments and improve management efficiency. Additionally, it offers multi-level permission management for users, user groups, and file directories, addressing comprehensive cross-department collaboration and data security requirements for enterprises.

Virtualization Tools to Facilitate Every Project

Leveraging the virtualization tools and hybrid storage architecture of the Terramaster Operating System (TOS), the U4-500 offers exceptional advantages in virtualization. The Docker Manager visualization tool makes managing containers and projects effortless. Additionally, with VirtualBox support, you can create a highly efficient virtualized environment, enabling your business to launch and become operational in a very short time.

System Level Security Protection

Facing increasingly rampant cyber attacks, network device security encounters unprecedented challenges. TOS offers a comprehensive suite of security measures, including PAM authentication, OTP two-factor authentication, AES 256 encryption, automatic account lockout, anti-DoS attack protocols, firewalls, and security isolation modes, all designed to effectively reduce the risk of malicious attacks. The recently introduced SPC (Security and Privacy Control) module has enhanced system security tenfold. SPC ensures that all executable programs running on the system are authorized and legitimate, further protecting user data from hackers and ransomware.

Multiple Commercial Applications

TNAS allows business users to easily build file servers, mail servers, web servers, FTP servers,

MySQL databases, CRM, Node.js, Java VMs, and many other services, thereby satisfying the commercial requirement of various SMBs in such fields as education, consulting, finance, scientific research, and law.

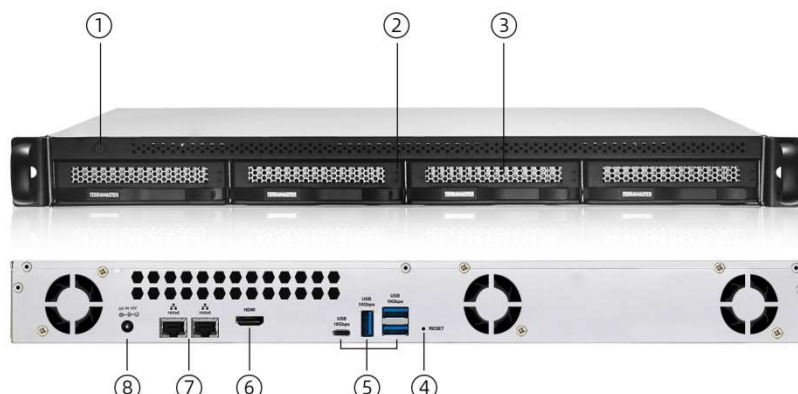
Powerful Multimedia Service

The U4-500 Max's formidable 4K video decoding prowess offers seamless compatibility with the uPnP/DLNA protocol. When paired with TerraMaster's dedicated Multimedia Server application, or even third-party servers such as Plex, Emby, and Jellyfin, it effortlessly streams videos to a myriad of multimedia devices including PCs, smartphones, media players, and televisions. Enjoy uninterrupted and immersive viewing experiences at the touch of a button.

Miniaturized Rack-mounted Server

The U4-500 adopts 1U Rackmount case with a depth of only 360mm (14.17 inches) weighs merely 3.2kgs, which saves a lot of space. It features simple installation without any rail, it is applicable to most 2-column cabinets and wall-mounted small cabinets, and can be used in a machine room, storage room, staircase, office along with a plethora of other places. Suitable for small office users. With a high-quality silent fan and specially optimized internal structure, the U4-500 maintains relatively low noise level when working conditions at full load.

Panel Illustration:



SN	Item	Description
①	Power switch	On: Power on; Off: Power off
②	Hard drive indicator	Green: Normal operation status Green (flickering): Reading/writing data Off: No hard drive detected
③	Hard drive tray	3.5" SATA HDD; 2.5" SATA HDD; 2.5" SATA SSD

Rear Cover Illustration:

SN	Item	Description
④	RESET	When the device is powered off, use a pin to continuously press and hold the RESET button on the back of the product. While keeping the RESET button pressed, briefly press the power button to start the device. Wait for approximately 30 seconds until you hear three consecutive "beep beep beep" sounds, then release the pin. Next, use the TNAS PC client software to perform a new search for the TNAS device and follow the client's instructions to restart the TOS system initialization process.
⑤	USB host (x4)	Use to connect USB storage device or USB wireless adaptor
⑥	HDMI interface	For displaying the software codes or commands, not for video playing.
⑦	Network interface	10000M/2500M/1000M/100Mbps network interface
⑧	Power interface	DC12V input

Specifications:

Processor	
Processor Model	Intel® Pentium® 8505
Processor Architecture	X.86 64-bit
Processor Frequency	5-Core (Max burst up to 4.4 GHz)
CPU Single-Core Score	/
Hardware Encryption Engine	√
Hardware Transcoding Engine	H.264, H.265, MPEG-4, VC-1; maximum resolution: 4K (4096 x 2160); maximum frame rate per second (FPS): 60
Memory	
System Memory	8 GB DDR5 non-ECC SODIMM
Pre-installed Memory module	8 GB DDR5 non-ECC SODIMM (1x 8 GB)
Total Memory Slot Number	2 (DDR5 SODIMM)
Maximum Supported Memory	64 GB DDR5 non-ECC SODIMM
Note	TerraMaster reserves the right to replace memory modules with the same or higher frequency based on supplier's product life cycle status. Rest assured that the compatibility and stability have been strictly verified with the same benchmark to ensure identical performance.
Storage	
Disk Slot Number	4
Compatible Drive types	3.5" SATA HDD
	2.5" SATA HDD
	2.5" SATA SSD
Maximum Internal Raw Storage Capacity	96 TB (24 TB x 4) (Capacity may vary by RAID types)
Drive Hot Swap	√
Note	. Hard drive vendors will release their latest models of hard drives, and Maximum internal raw storage capacity may be adjusted accordingly. . The maximum single volume size is not directly related to the maximum raw capacity.
File System	
Internal Drive	Btrfs, EXT4
External Drive	EXT3, EXT4, NTFS, FAT32, HFS+, BTRFS
External Ports	
RJ-45 1GbE Network Jack	/
RJ-45 2.5GbE Network Jack	/
RJ-45 10GbE Network Jack	2
SFP+ 10GbE Network Jack	/
USB3.1 Host Port	Type A *3 (10 Gbps) ; Type C *1 (10 Gbps)
USB2.0 Host Port	/

COM	/
HDMI	1
VGA	/
PCIe Slots	1 (PCIe 3.0 x4)
M.2 2280 NVMe Slot	2 (PCIe 4.0 x4)
Appearance	
Size (H*W*D)	45*440 *360 mm
Packaging Size (H*W*D)	95*545 *453 mm
Weight	6.8 Kg
Others	
System Fan	40 x 40 x 28 mm 3PCS
Fan Mode	Smart, High speed, Middle speed, Low speed
Noise Level	34.5 dB(A) (Using 2 SATA HDDs/SSDs in standby mode; Test environment noise: 17.3dB(A); Test distance: 1m)
Power Supply	90 W
Redundancy Power Supply	/
AC Input Voltage	100V - 240V AC
Current Frequency	50/60 Hz, Single frequency
Power Consumption	40.2 W(Fully loaded WD RED WD221KFGX 22TB hard drive(s) in read/write state)
	18.9 W (Fully loaded WD RED WD221KFGX 22TB hard drive(s) in hibernation)
Limited warranty	3 years
Certificate	FCC, CE, CCC, KC
Environment	RoHS, WEEE
Temperature	
Working Temperature	0°C ~ 40°C (32°F ~ 104°F)
Storage Temperature	-20°C ~ 60°C (-5°F ~ 140°F)
Relative Humidity	5% ~ 95% RH
Package Contents	
	Host unit (x1)
	Power cord (x1)
	RJ-45 network cable (x1)
	Quick Installation Guide (x1)
	Limited Warranty Note(x1)
	Screws(a few)

TOS Features	
OS Supported	
Supported Client OS	Windows OS, Mac OS, Linux OS
Supported Web Browsers	Google Chrome 97.0.xxxx, Mozilla Firefox 9.3, Apple Safari 12.1 ; Microsoft Edge 99.0.xx or later version.
Supported mobile OS	iOS14.0, Android 10.0 or later version
Storage Management	
Supported RAID Types	TRAIID, TRAIID+, Single, JBOD, RAID 0, RAID 1, RAID5, RAID 6, RAID 10
Maximum Internal Volume Number	256
Maximum iSCSI Target	128
Maximum iSCSI LUN	256
Volume Expansion with Larger HDDs	TRIAD,TRAIID+,RAID1,RAID5,RAID6,RAID10
Volume Expansion by Adding a HDD	TRIAD, TRAIID+, RAID5, RAID6
RAID Migration	√
SSD Cache	√
Hot Spare	√
SSD TRIM	√
Hard Drive S.M.A.R.T.	√
Seagate IHM	√
NVRAM write cache(BBU-protected)	/
Shared Folder Snapshot	√
LUN Snapshot	√
File Services	
File Protocol	SMB/AFP/NFS/FTP/SFTP/WebDAV
Maximum Concurrent SMB/AFP/FTP/SFTP Connections	512
Windows Access Control List (ACL) Integration	√
NFS Kerberos Authentication	√
Account & Shared Folder	
Maximum local user's account number	2048
Maximum local group number	512
Maximum shared folders number	512
Maximum shared folders syncing tasks	8

Backup	
Rsync Backup	√
Duple Backup	√
Centralized Backup	√
Snapshot	√
USB Backup	√
Cloud Sync	√
Time Machine Backup	√
File System Snapshot	√
TFM Backup	√
Networking	
TCP/IP	IPv4/IPv6
Protocols	CIFS/SMB, NFS, FTP, SFTP, HTTPS, SSH, iSCSI, SNMP
Link Aggregation	√
DLNA Compliance	√
VPN Client	√
VPN Server	√
Proxy Client	√
Proxy Server	/
UPnP/Bonjour Discovery	√
TNAS.online Remote Access	√
DDNS	√
Access Right Management	
Batch users creation	/
Import/Export users	√
User Quota Management	√
Local user access control for CIFS/SAMBA and FTP	√
Domain Authentication	
AD Domain	√
LDAP Client	√
LDAP Server	/
Security	
Firewall Protection	√
Account Auto-block Protection	√
AES Volume and Shared Folder Encryption	√
Importable SSL certificate	√
Instant Alert via email, Desktop Notification, Beep	√
RSA 2048 Encryption (TOS 5.0)	√
PAM (Pluggable Authentication Modules)	√

OTP Authentication (TOS 5.0)	√
HyperLock File System (TOS 5.0)	√
Power Management	
Power Resume	√
Scheduled Power On/Off	√
Wake up On LAN (WOL)	√
UPS Supported	√
Administration	
Multi-window, Multi-task System Management	√
Custom Desktop	√
Control Panel	√
Resource Monitor	√
Syslog	√
OS UI Language	English, German, French, Spanish, Italian, Magyar, Chinese, Japanese, Korean, Turkish, Portuguese, Russian
Applications	
Application Center	√
iSCSI Target	√
Terra Photos	√
TerraSync	√
Duple Backup	√
CloudSync	√
Centralized Backup	√
USB Backup	√
VPN Server	√
Transmission	√
qBittorent	√
Aria 2	√
Terra Search	√
Deduplication	√
Web Server	√
Clam Antivirus	√
EMBY	√
Multi Media Server	√
Plex Media Server	√
Docker Manager	√
Snapshot	√

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