Western Digital WDS400T2R0A

Western Digital WD Red SA500 NAS SATA SSD User Manual

Model: WDS400T2R0A (4TB, 2.5"/7mm)

1. Introduction

This manual provides essential information for the installation, operation, and maintenance of your Western Digital WD Red SA500 NAS SATA SSD. This solid-state drive is specifically engineered for Network Attached Storage (NAS) systems, offering enhanced performance and reliability for 24/7 operating environments. Its design focuses on efficient caching and superior endurance to manage the demanding read and write workloads typical of NAS applications.

This image displays the Western Digital WD Red SA500 NAS SATA SSD, a 4TB solid-state drive designed for Network

2. Setup

2.1 Pre-installation Checklist

- Ensure your NAS system or computer supports 2.5-inch SATA SSDs.
- Verify that your system's firmware/BIOS is up to date.
- Gather necessary tools: screwdriver (if required for your enclosure), anti-static wrist strap (recommended).
- Back up any critical data from your existing drives before proceeding.

2.2 Physical Installation

1. **Power Down:** Completely shut down your NAS system or computer and disconnect the power cable.
2. **Open Enclosure:** Open the NAS enclosure or computer case to access the drive bays. Refer to your system's manual for specific instructions.
3. **Mount SSD:** Securely mount the 2.5-inch WD Red SA500 SSD into an available drive bay using the appropriate screws or mounting brackets.
4. **Connect Cables:** Connect the SATA data cable from the SSD to an available SATA port on your NAS motherboard or controller. Connect the SATA power cable from your system's power supply to the SSD.
5. **Close Enclosure:** Carefully close the NAS enclosure or computer case.
6. **Power On:** Reconnect the power cable and power on your system.

2.3 Initializing and Formatting

After physical installation, the SSD needs to be initialized and formatted by your operating system or NAS software. The exact steps vary depending on your specific NAS OS (e.g., Synology DSM, QNAP QTS, TrueNAS) or computer operating system (Windows, macOS, Linux).

- Access your NAS administration interface or computer's Disk Management utility.
- Locate the newly installed SSD. It may appear as an unallocated drive.
- Initialize the drive (e.g., MBR or GPT partition style).
- Create a new volume or add the drive to an existing storage pool/RAID configuration.
- Format the volume with the desired file system (e.g., EXT4, Btrfs, NTFS, HFS+).

3. Operating

The WD Red SA500 NAS SATA SSD is designed to enhance the performance and responsiveness of your NAS system. It is ideal for caching frequently accessed data, improving application load times, and accelerating tasks such as database transactions, multi-user access, and multimedia editing (4K/8K video).

- **Caching:** Configure your NAS software to utilize the SSD as a read-only or read-write cache to speed up access to hot data.
- **Tiered Storage:** Integrate the SSD into a tiered storage solution, allowing your NAS to automatically move frequently accessed data to the faster SSD tier.
- **Dedicated Volume:** Use the SSD as a dedicated high-performance volume for specific applications or virtual machines that require fast I/O.

4. Maintenance

Proper maintenance ensures the longevity and optimal performance of your WD Red SA500 SSD.

- **Firmware Updates:** Periodically check the Western Digital support website for firmware updates for your SSD. Firmware updates can improve performance, stability, and compatibility.
- **Monitor Drive Health:** Utilize your NAS system's built-in monitoring tools (e.g., SMART data) to keep track of the SSD's health status, temperature, and remaining endurance (TBW - Terabytes Written).
- **Data Backup:** Regularly back up all critical data stored on your NAS. While SSDs are reliable, no storage device is immune to failure.
- **Environmental Conditions:** Ensure your NAS operates within recommended temperature ranges to prevent overheating, which can impact drive performance and lifespan.

5. Troubleshooting

If you encounter issues with your WD Red SA500 SSD, consider the following troubleshooting steps:

- **Drive Not Detected:**
  - Verify that the SATA data and power cables are securely connected.
  - Check your NAS or computer's BIOS/UEFI settings to ensure the SATA port is enabled.
  - Try connecting the SSD to a different SATA port or with different cables.
  - Ensure the drive is properly initialized and formatted by your operating system or NAS software.

- **Performance Issues:**
  - Confirm that your NAS system's SATA controller supports SATA III (6 Gb/s) speeds.
  - Check for background processes or other drives that might be impacting performance.
  - Ensure the SSD firmware is up to date.
  - Monitor the SSD's health and temperature using SMART tools.

- **Data Access Problems:**
  - Run a file system check on the volume where the SSD is located.
  - If part of a RAID array, check the array status for any degraded drives.

If these steps do not resolve the issue, consult your NAS system's documentation or contact Western Digital support.

6. Specifications

Model Number	WDS400T2R0A
Capacity	4 TB
Form Factor	2.5-inch / 7mm
Interface	SATA III (6 Gb/s)
Max Sequential Read Speed	Up to 560 MB/s
NAND Type	3D NAND
Designed For	NAS Systems (24/7 operation)

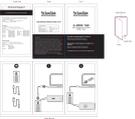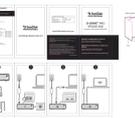|	
Dimensions (LxWxH)	11.81 x 11.81 x 11.81 inches (Product Dimensions)
Weight	1.22 ounces
Compatible Devices	macOS v.10.9+, Windows 10+ (and compatible NAS operating systems)

7. Warranty and Support

Western Digital provides a limited warranty for the WD Red SA500 NAS SATA SSD. For detailed warranty terms and conditions, please refer to the official Western Digital website or the warranty information included with your product packaging.

For technical support, product registration, and access to drivers and firmware updates, please visit the official Western Digital support website. You may also find helpful resources and FAQs there.

Consider Western Digital's data recovery plans for additional peace of mind, available for purchase separately, to protect against unforeseen data loss scenarios.

Related Documents - WDS400T2R0A

	[SanDisk Professional G-DRIVE SSD: Ultra-Rugged Portable NVMe SSD Quick Start Guide](#) Get started with your SanDisk Professional G-DRIVE SSD. This guide provides technical support contacts, setup instructions, product specifications, and legal information for this ultra-rugged portable NVMe SSD.
	[SanDisk Professional G-DRIVE™ PRO STUDIO SSD - Setup and Support Guide](#) Get detailed setup instructions, technical support contacts, and product specifications for the SanDisk Professional G-DRIVE™ PRO STUDIO SSD, an enterprise-class desktop NVMe storage solution.
	[How to Partition, Format, and Troubleshoot WD External Hard Drives on Windows and macOS](#) A comprehensive guide from Western Digital (WD) detailing how to partition and format WD external hard drives for compatibility with Windows and macOS operating systems. It includes troubleshooting steps for common connection and recognition issues, guidance on using WD utilities like WD Security and WD Drive Utilities, and information on drive management.
	[Western Digital WD SATA Hard Drive Quick Install Guide](#) A concise guide for installing Western Digital WD SATA Hard Drives, covering pre-installation steps, physical installation, jumper settings, and using Data Lifeguard Tools for setup and management. Includes alternate installation methods for Windows XP/2000.

Documents - Western Digital – WDS400T2R0A

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[WD Red SA500 NAS SATA SSD Product Brief](#)
Product brief for the WD Red SA500 NAS SATA SSD, detailing its features, specifications, and benefits for Network Attached Storage (NAS) systems. Optimized for caching, endurance, and performance in 24/7 environments.
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