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Synology HD6500

Synology High Density HD6500 User Manual

High-Density Network Attached Storage System

1. Introduction

The Synology High Density HD6500 is a robust, high-density Network Attached Storage (NAS) system designed for large-scale data storage applications. This 4U rackmount enclosure offers significant storage capacity and performance, making it suitable for full system backups, video post-production, and extensive surveillance deployments. It is engineered for high reliability and scalability to meet demanding business requirements.

2. Product Overview



Figure 1: Synology HD6500 Front View. This image displays the front of the Synology HD6500, a 4U rackmount enclosure. It features a dark gray front panel with horizontal ventilation slats, two sturdy handles for rack installation, and the Synology logo prominently displayed. On the left side, there are indicator lights and control buttons. The right side shows the model number 'HD6500' and a power button.

Key Features:

- **High-Density Storage:** Supports up to 60 drive bays in a single 4U enclosure, expandable to 300 drives with RX6022sas expansion units.
- **Powerful Processing:** Equipped with 2 x 10-core Intel Xeon Silver processors.
- **High Throughput:** Achieves over 6,688/6,662 MB/s sequential read/write speeds.
- **Expandable Memory:** 64 GB DDR4 ECC, expandable to 512 GB.

- **Reliability:** Features out-of-band (OOB) management, dual power supply, and redundant SAS links.
- **Flexible Networking:** Includes three Gigabit Ethernet and two 10GbE RJ-45 ports, with options for additional 10GbE, 25GbE, or Fibre Channel ports.

3. Setup

3.1 Rack Mounting

The Synology HD6500 is a rack-mountable system designed for standard server racks. Ensure the rack is stable and has adequate space for a 4U device. Use the provided rail kits for secure installation. The front handles facilitate easy insertion and removal from the rack.

3.2 Drive Installation

1. Power off the HD6500 and disconnect all cables.
2. Locate the drive trays on the front panel.
3. Press the release latch on a drive tray and pull it out.
4. Mount your 3.5-inch or 2.5-inch SAS/SATA drives into the trays using the provided screws.
5. Slide the drive tray back into the bay until it clicks into place.
6. Repeat for all desired drives.

3.3 Power and Network Connection

1. Connect the power cords to the redundant power supply units at the rear of the HD6500 and then to separate power sources for redundancy.
2. Connect one or more Ethernet cables from the HD6500's network ports to your network switch or router. For optimal performance, utilize the 10GbE ports.
3. If using expansion units (RX6022sas), connect them via SAS cables to the HD6500.

3.4 Initial Power-On

Press the power button on the front panel. The system will initiate the boot process. Once powered on, you can proceed with the initial configuration via a web browser.

4. Operating

4.1 Accessing DiskStation Manager (DSM)

Synology DiskStation Manager (DSM) is the web-based operating system for your HD6500. To access DSM:

1. Ensure your computer is on the same network as the HD6500.
2. Open a web browser and enter find.synology.com or the IP address of your HD6500.
3. Follow the on-screen instructions to install DSM and create an administrator account.

4.2 Storage Configuration

After DSM installation, configure your storage:

- **RAID Setup:** DSM supports various RAID levels (0, 1, 5, 6, 10, Basic, JBOD) to provide data reliability, fault tolerance, and improved performance. Navigate to **Storage Manager** > **Storage Pool** to create a new storage pool and select your preferred RAID type.
- **Volume Creation:** After creating a storage pool, create one or more volumes to store your data. Volumes can be

configured with different file systems and allocated capacities.

4.3 File Sharing and Data Management

The HD6500 offers comprehensive solutions for file sharing and data management:

- **Synology Drive:** Utilize Synology Drive for private cloud file management, remote data access, synchronization across platforms, and on-demand file restoration.
- **SMB/NFS Shares:** Create shared folders and leverage SMB or NFS protocols for efficient access to company files over local networks or VPNs.
- **Access Control:** Manage data access privileges with Access Control Lists (ACL) through Active Directory/LDAP integration.
- **Snapshot Technology:** Protect files against tampering or accidental removal with built-in snapshot technology.

4.4 Networking Options

Optimize your network performance:

- **Link Aggregation:** Bond multiple network interfaces to enable automatic network failover and load balancing, enhancing both redundancy and throughput.
- **Additional Network Ports:** Install optional network interface cards (NICs) to add up to 10 extra 10GbE SFP+/RJ-45, 25GbE SFP28, or Fibre Channel ports.

5. Maintenance

5.1 Drive Replacement

In the event of a drive failure, DSM will notify you. To replace a faulty drive:

1. Identify the faulty drive via DSM's Storage Manager or the drive indicator lights.
2. If hot-swapping is enabled, you can remove the faulty drive while the system is running. Otherwise, power down the system.
3. Press the release latch and pull out the drive tray.
4. Remove the faulty drive from the tray and install a new, compatible drive.
5. Slide the tray with the new drive back into the bay. DSM will automatically begin rebuilding the RAID array.

5.2 Firmware Updates

Regularly update DSM to ensure optimal performance, security, and access to new features. Updates can be performed via **Control Panel** > **Update & Restore** in DSM.

5.3 System Health Monitoring

Monitor the system's health through DSM's **Resource Monitor** and **Storage Manager**. These tools provide insights into CPU usage, memory, network activity, and drive health, allowing for proactive maintenance.

5.4 Cleaning

Periodically clean the exterior of the HD6500 with a soft, dry cloth. Ensure ventilation openings are free from dust to maintain proper airflow and cooling.

6. Troubleshooting

6.1 Common Issues

- **No Power:** Verify both power cords are securely connected to the HD6500 and active power outlets. Check the power supply status indicators.
- **Network Connectivity Issues:** Ensure Ethernet cables are properly connected and network switch/router is functioning. Check network settings in DSM.
- **Drive Failure:** DSM will alert you to drive failures. Replace the faulty drive as described in Section 5.1.
- **System Overheating:** Ensure adequate ventilation around the unit and that fan modules are functioning correctly.

6.2 Out-of-Band (OOB) Management

The HD6500 features Out-of-Band (OOB) management, which simplifies troubleshooting by allowing remote management of powered-down devices and access to critical logs through a dedicated interface. Refer to the Synology documentation for detailed instructions on configuring and using OOB management.

7. Specifications

Feature	Detail
Brand	Synology
Series	High Density HD6500
Model Number	HD6500
CPU	2 x 10-core Intel Xeon Silver
Memory	64 GB DDR4 ECC (expandable to 512 GB)
Hard Drive Interface	Serial Attached SCSI (SAS)
Supported Hard Drive Type	Mechanical Hard Disk (SAS/SATA)
Max. Drive Bays	60 (expandable to 300 with RX6022sas units)
Ethernet Ports	3 x Gigabit Ethernet, 2 x 10GbE RJ-45 (expandable)
Product Dimensions (LxWxH)	48.5 x 23.8 x 17.3 inches
Item Weight	115 pounds
Form Factor	Rack-mountable (4U)
Operating System	DiskStation Manager (DSM)

8. Warranty and Support

For detailed warranty information, please refer to the warranty card included with your product or visit the official Synology website. Synology provides technical support and resources to assist with product inquiries and troubleshooting.

Online Support: Visit the Synology Support Center for knowledge base articles, downloads, and contact options.

Customer Service: For direct assistance, please contact Synology customer support through their official channels.

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