



ioSafe 1522+

User Manual

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FCC Compliance Statement: “This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.”

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at this own expense.

In the event that you experience Radio Frequency Interference, you should take the following steps to resolve the problem:

1. Ensure that the case of your attached drive is grounded.
2. Use a data cable with RFI reducing ferrites on each end.
3. Use a power supply with an RFI reducing ferrite approximately 5 inches from the DC plug.
4. Reorient or relocate the receiving antenna.

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1. INTRODUCTION

This User Manual shows you how to set up and maintain the ioSafe 1522+, a fireproof and waterproof five-bay network-attached storage (NAS) storage device, powered by Synology DSM.

The ioSafe 1522+ ensures seamless business continuity with Synology DSM, Synology's prize-winning operating system. The ioSafe 1522+ also protects your data while fully submersed underwater for up to 72 hours and in temperatures up to 1550° F for 30 minutes, ensuring that your data stays protected through floods and fires.

2. GENERAL INFORMATION

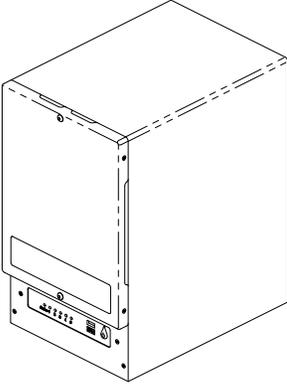
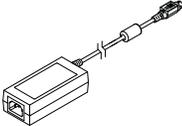
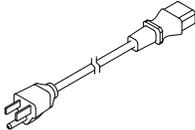
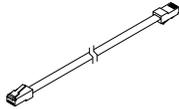
2.1. SAFETY INFORMATION

Please read the following before handling this product.

1. Do not drop the product, submit it to impact, or pierce it.
2. The circuit boards within this product are susceptible to static electricity. Proper grounding is strongly recommended to prevent electrical damage to the product or other connected devices, including the computer host.
3. Avoid placing this product close to magnetic devices, high voltage devices, or in an area exposed to heat, flame, direct sunlight, dampness, moisture, rain, vibration, shock, dust, or sand.
4. To avoid overheating, this product should be operated in a well-ventilated area.
5. Before starting any type of hardware installation, ensure that all power switches have been turned off and all power cords have been disconnected to prevent personal injury and damage to the hardware.

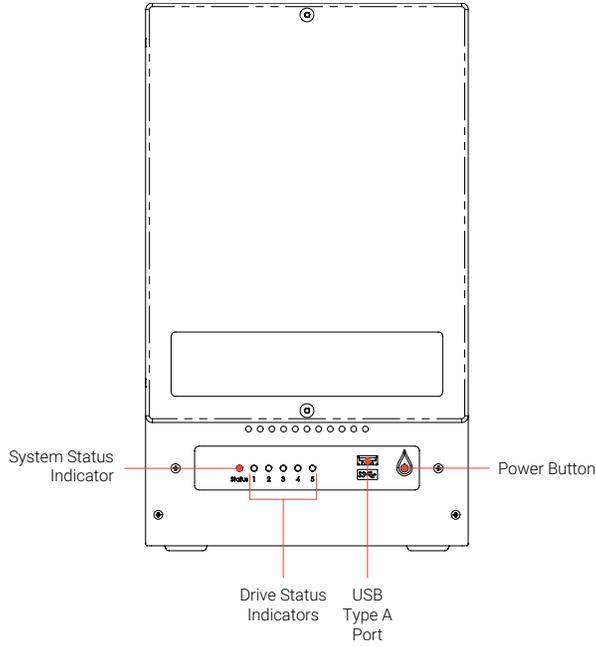
2.2. PACKAGE CONTENTS

Check the package contents to verify that you have received the items below. Please contact ioSafe if any items are missing or damaged (see [Section 8.4: Contact ioSafe Support, page 27](#)).

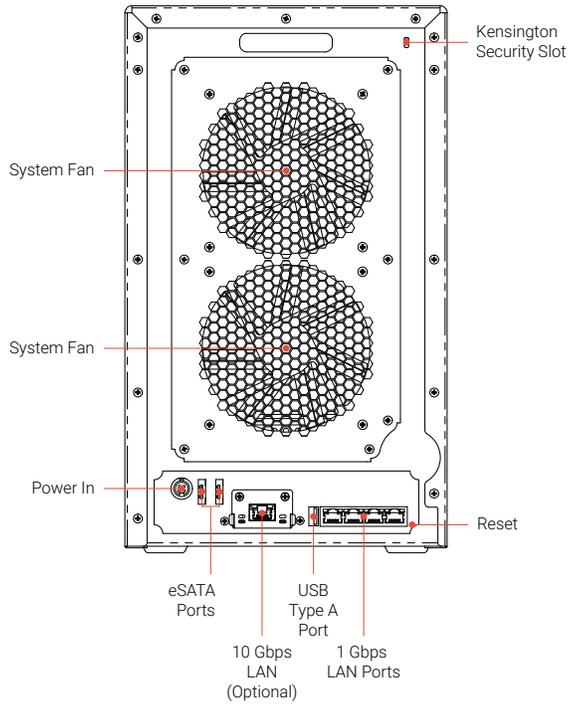
	
ioSafe 1522+	Qty. 1
	
Magnet	Qty. 1
	
Screws	Qty. 24
	
Screws with Washer (for NVMe Cache)	Qty. 2
	
Power Supply	Qty. 1
	
Power Cord	Qty. 1
	
Ethernet Cable	Qty. 1
	
Allen Wrench	Qty. 1

2.3. IDENTIFYING PARTS

Front



Rear



2.4. SYSTEM MODES AND LED INDICATORS

2.4.1. SYSTEM MODES AND DEFINITIONS

There are 7 system modes in the ioSafe 1522+. The system modes and their definitions are below:

System Mode	Definition
Powering on	The ioSafe 1522+ is powering on when you press the power button or restarting when you run operations in DSM. During the boot up process, the device also performs hardware initialization, such as hardware reset or BIOS initialization.
Shutting down	The ioSafe 1522+ is shutting down as a result of pressing the power button or operation in DSM.
Synology DSM not ready	Synology DSM is not ready for use. This could either be: <ul style="list-style-type: none"> The ioSafe 1522+ is powered on, but Synology DSM is not properly installed. The ioSafe 1522+ is currently powering on and initializing services necessary for Synology DSM to fully function. The attached UPS device has insufficient power; Synology DSM stops all services to prevent data loss (enters safe mode).
Synology DSM is ready for use	Synology DSM is fully functioning and users can sign in.
Hibernation	The ioSafe 1522+ has been idle for a while and is now in Hibernation mode.
Application	Certain packages/services (e.g., USB Copy and Find me service) while in operation will control the actions of the LED. After the operation is complete, the LED indicator will return to its normal state.
Powered off	The ioSafe 1522+ is powered off.

2.4.2. IDENTIFY SYSTEM MODES

You can identify the system mode through the **Power** and **Drive Activity LED indicators**. Please refer to below table for more details.

System Mode	LED Indicator		
	Power	Drive Activity	
	Blue	Green	Amber
Powering on	Blinking	Off	Off
Shutting down	Blinking	Solid	Off/Static ¹
Synology DSM not ready	Solid	Blinking	Off/Blinking ¹
Synology DSM is ready for use	Solid	Solid	Off/Solid ¹
Hibernation	Solid	Off	Off/Solid ¹
Application	Solid	Switching	
Powered off	Off	Off	Off

¹If the Drive Activity LED remains static amber or continuously blinks amber, this indicates there are system errors such as fan failure, system overheating, or volume degrade. Please sign in to Synology DSM for detailed information.

2.4.3. TRANSITIONS BETWEEN SYSTEM MODES

To better understand the transition between system modes, please refer to below examples:

- **Powered on with no Synology DSM installed:**

Powered off > Powering on > Synology DSM not ready

- **Powered on with Synology DSM installed:**

Powered off > Powering on > Synology DSM not ready > Synology DSM is ready for use

- **Enter hibernation then wake up from hibernation:**

Synology DSM is ready for use > Hibernation > Synology DSM is ready for use

- **Shut down ioSafe 1522+:**

Synology DSM is ready for use > Shutting down > Powered off

- **Power failure with UPS attached:**

Synology DSM is ready for use > Synology DSM not ready (due to power failure, Synology DSM enters safe mode) > Shutting down > Powered off > Powering on (power has recovered, Synology DSM will reboot) > Synology DSM not ready > Synology DSM is ready for use

2.4.4. OTHER LED INDICATORS

LED Name	Color	State	Description
Drive Activity LEDs #1-5	Green	Solid	The corresponding drive is ready and idle.
		Blinking	The corresponding drive is being accessed.
	Amber	Solid	Indicates a drive error for the corresponding drive.
	Off		No internal drive installed in the corresponding drive bay, or the drive is in hibernation.
Left Rear LAN LEDs #1-4 (left side of each jack)	Green	Solid	The network is connected.
		Blinking	Indicates that network activity is happening.
	Off		There is no network connected or the Ethernet cable is disconnected.
Right Rear LAN LEDs #1-4 (right side of each jack)	Green	Solid	1 Gbps connection
	Amber	Solid	100 Mbps connection
	Off		10 Mbps connection or no network detected



NOTE

1. When the drive LED indicator is amber, we recommend you sign in to DSM and go to **Storage Manager > HDD/SSD** for more information.
2. Try to restart your ioSafe 1522+ or re-insert the drives, then run the HDD/SSD manufacturer's diagnostic tool to check the health status of the drives. If you can sign in to Synology DSM, run the built-in S.M.A.R.T. test to scan the drives. If the problem remains unresolved, please contact ioSafe Technical Support for help. See [Section 8.4: Contact ioSafe Support, page 27](#).

3. HARDWARE INSTALLATION

3.1. TOOLS AND PARTS FOR DRIVE INSTALLATION

- A Phillips screwdriver
- 3mm hex tool (included)
- At least one 3.5-inch or 2.5-inch SATA hard drive or SSD (please visit iosafe.com/support/hardware-compatibility for a list of compatible drive models)



WARNING

Formatting a drive will result in data loss, so be sure to back up your data before beginning this operation.

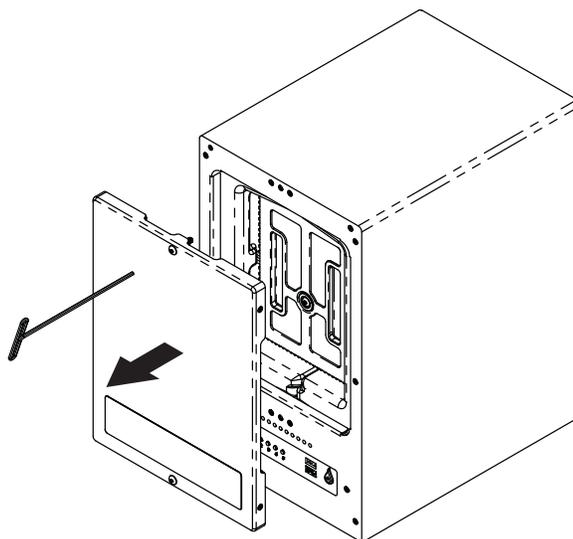
3.2. SATA DRIVE INSTALLATION



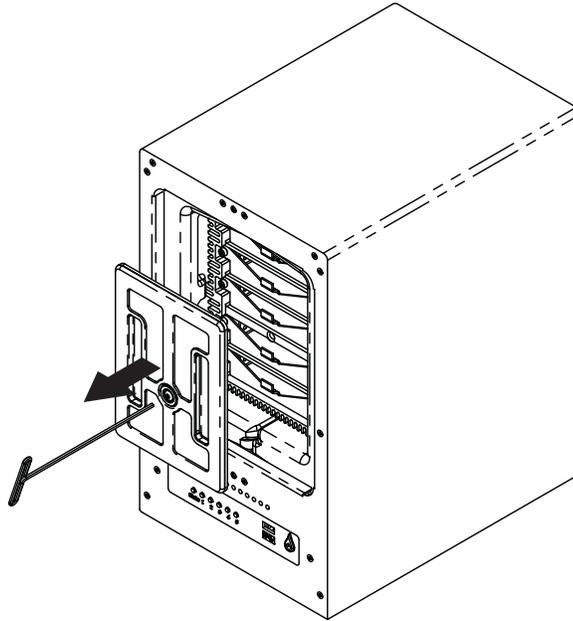
NOTE

If you purchased an ioSafe 1522+ that was shipped with hard drives pre-installed, skip this section and continue on to [Section 3.3: M.2 NVMe SSD Cache Installation, page 14](#).

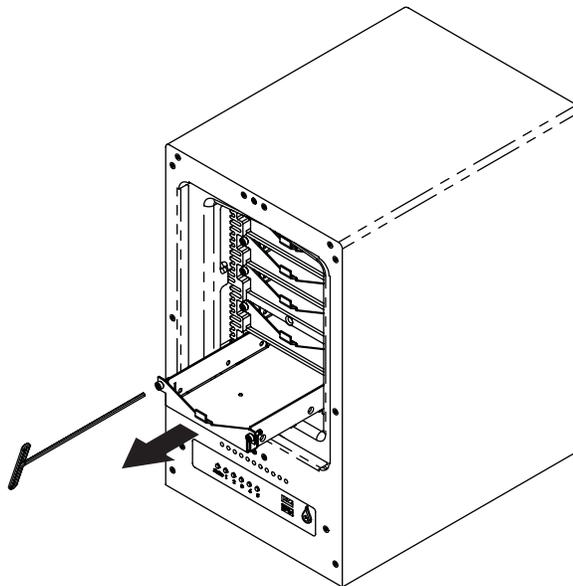
1. Use the included 3mm hex tool to remove the screws on the top and bottom of the front cover. Then remove the front cover.



2. Remove the waterproof drive cover with the 3mm hex tool.



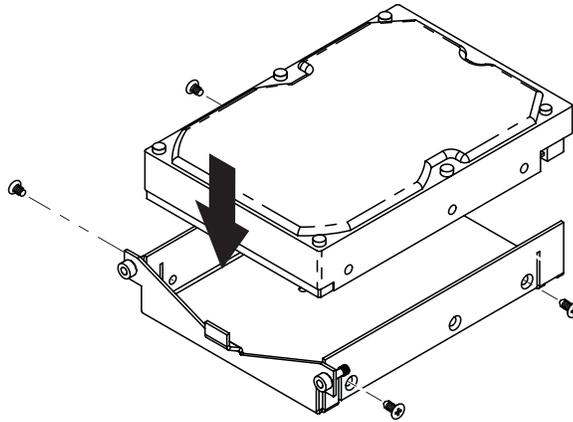
3. Remove the drive trays with the 3mm hex tool.



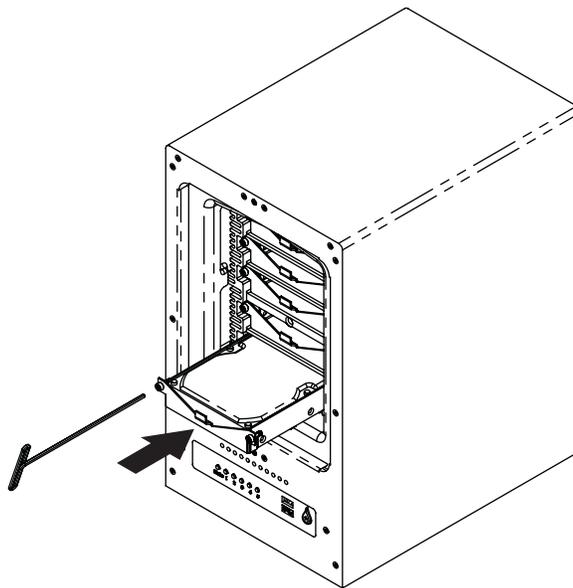
4. Install a compatible drive into each drive tray using (4x) drive screws and a Phillips screwdriver. Visit iosafe.com/support/hardware-compatibility for a list of qualified drive models.

**NOTE**

When setting up a RAID set, it is recommended that all installed drives should be the same size in order to make the best use of drive capacity.



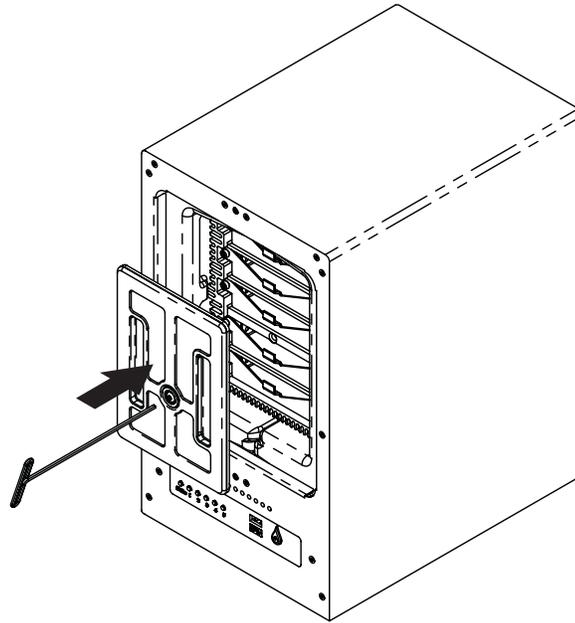
5. Insert each loaded drive tray into an empty drive bay, ensuring that each one is pushed in all the way. Then tighten the screws using the 3mm hex tool.



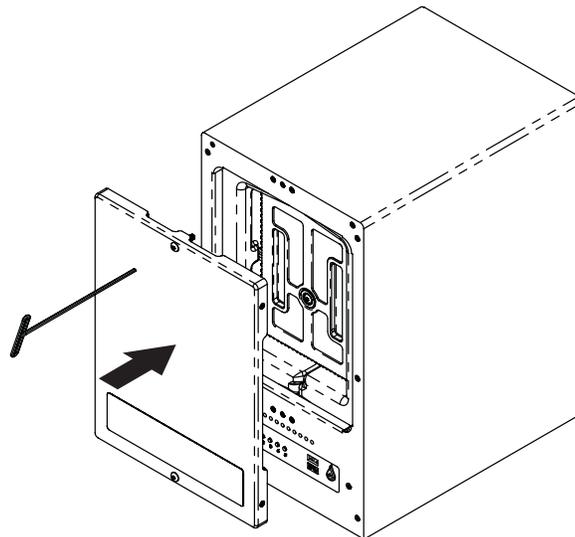
6. Replace the waterproof drive cover and securely tighten it using the 3mm hex tool.

**CAUTION**

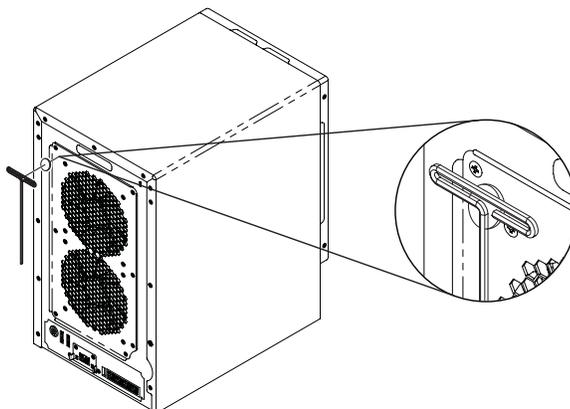
Use only the supplied hex tool to secure the waterproof drive cover as when using other tools you could under-tighten or break the screw. The hex tool has been designed to flex slightly when the screw is sufficiently tight and the waterproof gasket is properly compressed.



7. Install the front cover to finish installation and protect the drives from fire.



8. You may optionally use the round magnet provided to attach and store the hex tool on the back of the unit.



3.3. M.2 NVME SSD CACHE INSTALLATION

You may optionally install up to two M.2 NVMe SSDs into the ioSafe 1522+ to create an SSD cache volume to boost the read/write speed of a volume. You can configure the cache in read-only mode using one SSD or either read-write (RAID 1) or read-only modes (RAID 0) using two SSDs.



NOTE

The SSD Cache must be configured in Synology DiskStation Manager (DSM). Please refer to the section for SSD Cache in DSM Help on the DSM desktop.



TIP

ioSafe recommends that you configure the SSD-cache as read-only. The drives in a RAID 5 mode are faster than the cache at sequential read and write operations. The cache only provides a benefit with random read and write operations.

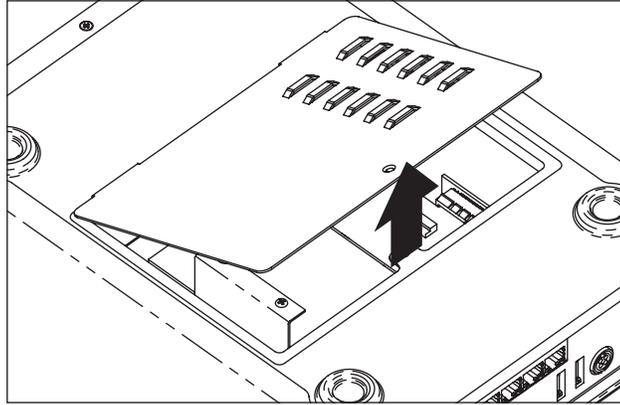


IMPORTANT

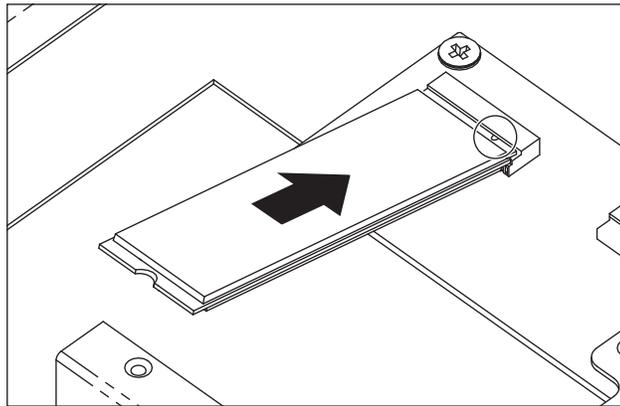
The cache modules are **not** fire and flood protected, so if they are configured as Read/Write, there is a potential for data loss since the cache may not save to the primary disk space if there is a sudden power outage.

1. Shut down your ioSafe 1522+. Disconnect all cables connected to the ioSafe 1522+ to prevent possible damage.

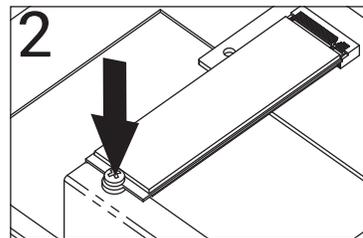
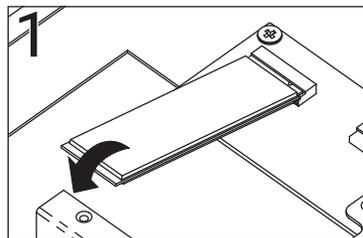
2. Turn the ioSafe 1522+ over so that it's upside down.
3. Use a Phillips screwdriver to remove the screw securing the bottom cover and remove it. You will see four slots; two slots populated with RAM memory and two M.2 SATA slots for your SSD cache.



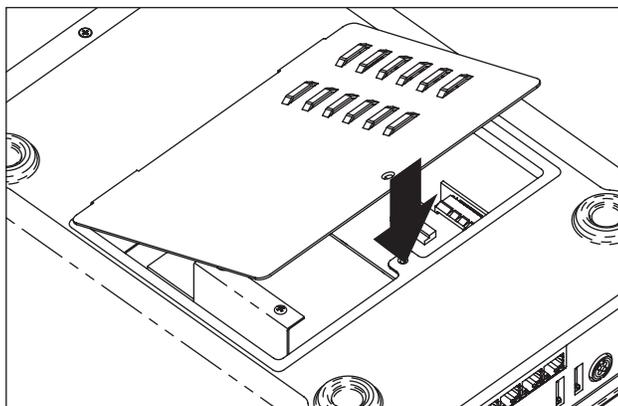
4. Install the SSD. Align the notch on the gold contacts of the SSD with the notch on the empty slot and insert the module into the slot.



5. While holding the SSD down flat against the retaining bracket (Fig. 1), use a screwdriver to insert a retainer screw and plastic washer (included in the accessory bag) into the bracket and secure the SSD (Fig. 2).



6. Repeat the steps above to install another SSD into the second slot if needed.
7. Replace the bottom cover and secure it in place using the screw you removed in Step 3.



8. Turn the ioSafe 1522+ back over and reconnect the cables you removed in Step 1 (see [Section 3.5: Connecting the ioSafe 1522+](#), page 19). Then continue to the next step.
9. Follow the instructions for configuring your SSD Cache in DSM Help on the DSM desktop.

3.4. REPLACE MEMORY MODULES

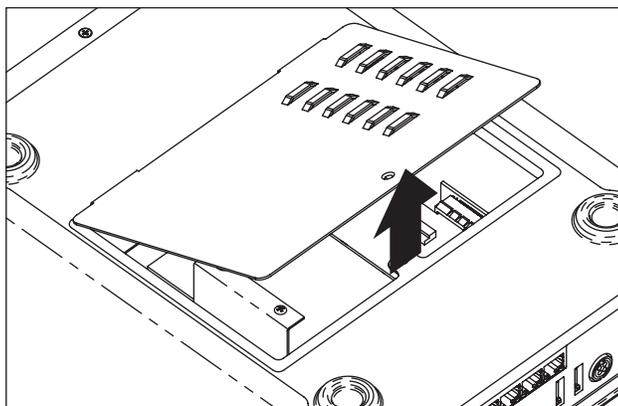
Follow these steps to remove, install, or check a memory module on your ioSafe 1522+.

The following table shows the memory configuration for best practice:

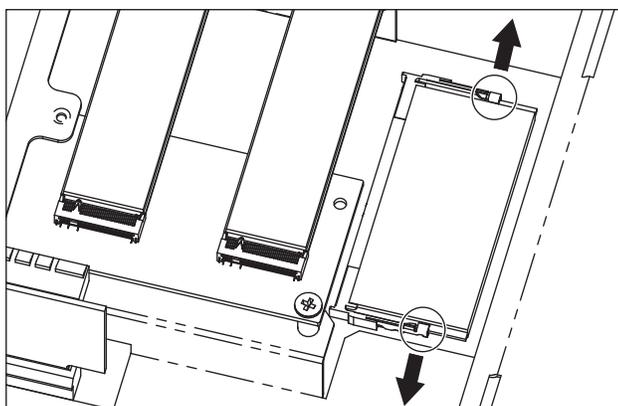
Slot 1	Slot 2	Total Memory
8GB		8GB
8GB	8GB	16GB
16GB	16GB	32GB

1. Shut down your ioSafe 1522+. Disconnect all cables connected to your ioSafe to prevent possible damage.
2. Turn the ioSafe 1522+ over so that it is upside down.

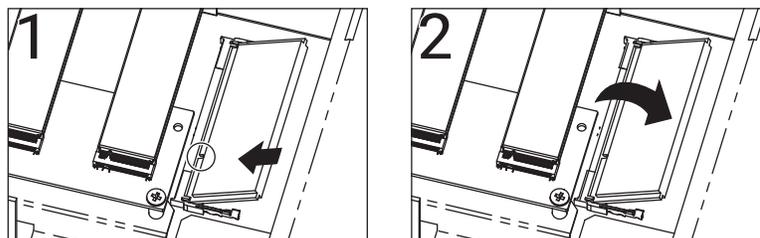
- Use a Phillips screwdriver to remove the screw securing the bottom cover and remove it. You will see four slots; two slots populated with RAM memory and two M.2 SATA slots for your SSD cache.



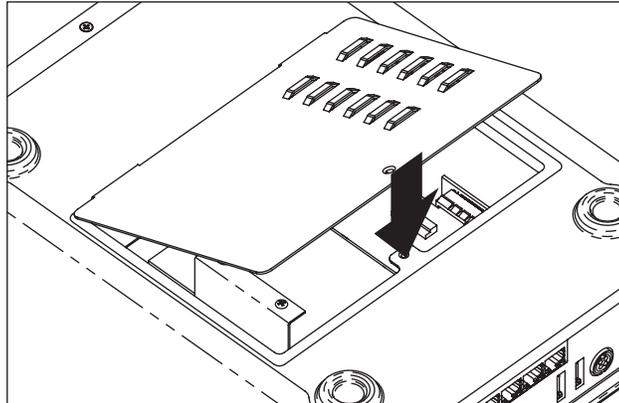
- Pull the levers on both sides of a memory module outward to release the module from the slot.



- Remove the memory module.
- Align the notch on the gold contacts of the memory module with the notch on the empty slot and insert the memory module into the slot (Fig. 1). Push firmly until you hear a click to secure the memory module in the slot (Fig. 2). If you encounter difficulty when pushing down, push the levers on either side of the slot outward.



7. Replace the bottom cover and secure it in place using the screw you removed in Step 3.



8. Turn the ioSafe 1522+ back over and reconnect the cables you removed in Step 1 (see [Section 3.5: Connecting the ioSafe 1522+](#), page 19).
9. If you haven't already, install Synology DiskStation Manager (DSM) (see [Section 4: Install Synology DiskStation Manager](#), page 20).
10. Log into DSM as an administrator (see [Section 5: Connect and Log in to Synology DiskStation Manager](#), page 22).
11. Go to **Control Panel > Info Center** and check **Total Physical Memory** to verify that the correct amount of RAM memory is installed.

**NOTE**

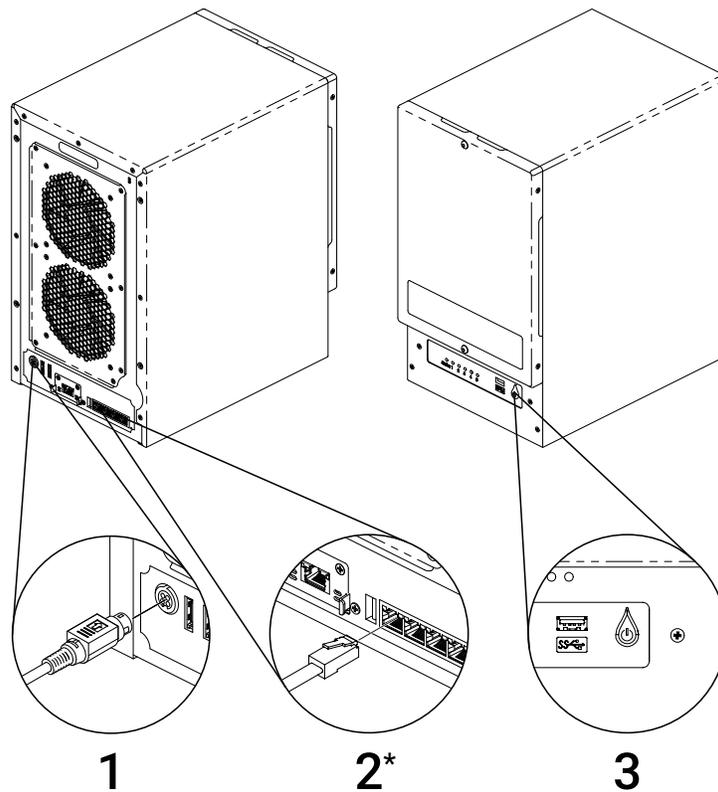
If your ioSafe 1522+ does not recognize the memory or fails to start up, please make sure that each memory module is correctly seated in its memory slot.

3.5. CONNECTING THE IOSAFE 1522+



WARNING

Do not place the ioSafe 1522+ device on a soft surface, such as carpet, that will obstruct air flow into the vents on the underside of the product.



* Insert the Ethernet cable into either the 10 Gbps port (if it's available) or one of the standard 1 Gbps Ethernet ports



NOTE

If you purchased an ioSafe 1522+ without drives pre-installed, the fans inside the unit will spin at full speed until you install Synology DiskStation Manager (see [Section 4: Install Synology DiskStation Manager, page 20](#) for installation instructions) and Synology DiskStation Manager has booted up. This is the default behavior for the cooling fans and is intended.

4. INSTALL SYNOLOGY DISKSTATION MANAGER

Synology DiskStation Manager (DSM) is a browser-based operating system which provides tools to access and manage your ioSafe 1522+. When installation is complete, you will be able to log into DSM and start enjoying all the features of your ioSafe powered by Synology. Before getting started, please check the following:



IMPORTANT

Your computer and your ioSafe 1522+ must be connected to the same local network.



IMPORTANT

To download the latest version of DSM, Internet access must be available during installation.



NOTE

Any ioSafe 1522+ that was shipped with hard drives pre-installed already has Synology DiskStation Manager installed. If you have drives pre-installed, continue on to [Section 5: Connect and Log in to Synology DiskStation Manager, page 22](#).

1. Turn on the ioSafe 1522+ if it is not already powered on. It will beep once when it is ready to set up.
2. Type in one of the following addresses into a web browser to load the Synology Web Assistant. The status of your ioSafe 1522+ should read **Not Installed**.

PURCHASED WITH HARD DRIVES



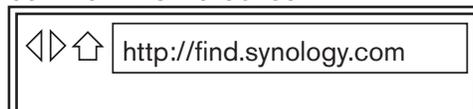
OR

PURCHASED WITHOUT DRIVES

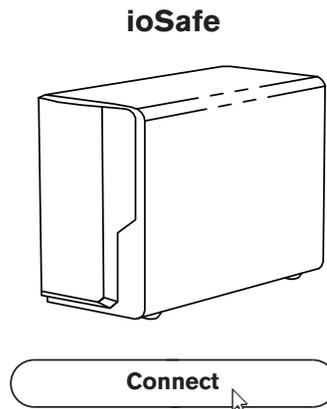


OR

CONNECT VIA SYNOLOGY.COM



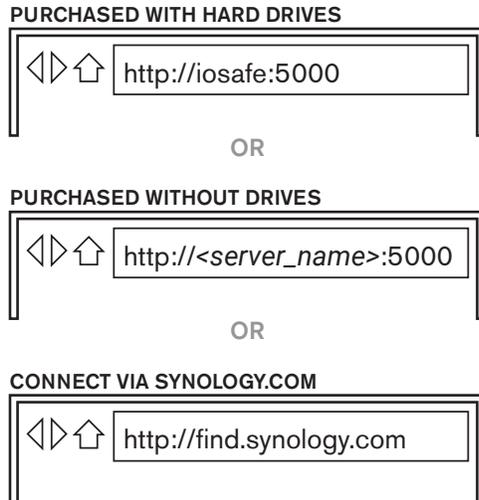
3. Click the **Connect button** to begin the setup process.



4. Follow the on-screen instructions to install Synology DSM. Your ioSafe 1522+ will automatically restart in the middle of setup.

5. CONNECT AND LOG IN TO SYNOLOGY DISKSTATION MANAGER

1. Turn on the ioSafe 1522+ if it is not already powered on. It will beep once when it is ready to set up.
2. Type in one of the following addresses into a web browser to load the Synology Web Assistant. The status of your ioSafe 1522+ should read **Ready**.

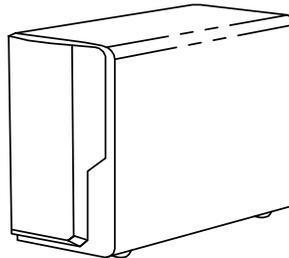


IMPORTANT

If you do not have an Internet connection and you purchased the ioSafe 1522+ without drives pre-installed, you will need to connect using the second method. Use the server name you gave your ioSafe 1522+ while installing Synology DiskStation Manager (see [Section 4: Install Synology DiskStation Manager, page 20](#)).

3. Click the **Connect** button.

ioSafe



Connect

- The browser will display a login screen. If you purchased the ioSafe 1522+ with pre-installed drives, the default username is **admin** and the password is left blank.

For those who purchased the ioSafe 1522+ without drives, the username and password are the ones you created while installing Synology DSM (see [Section 4: Install Synology DiskStation Manager, page 20](#)).

ioSafe

 <username>
 <password>
<input checked="" type="checkbox"/> Stay signed in
<input type="button" value="Sign In"/>



TIP

You can change the username and password with the “User” Control Panel applet in the Synology DiskStation Manager user interface.

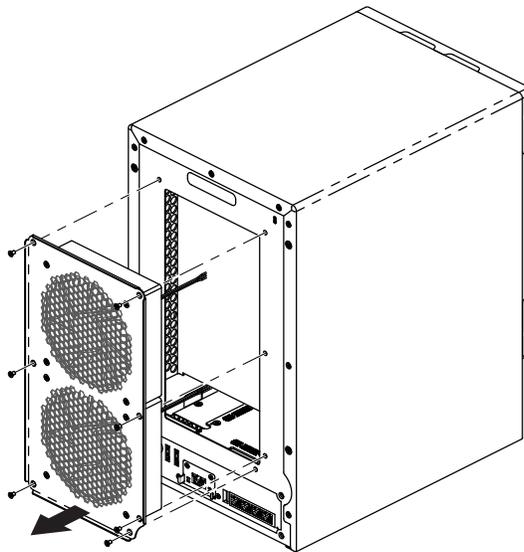
6. USING SYNOLOGY DISKSTATION MANAGER

You can find out more about how to use Synology DiskStation Manager (DSM) by referring to DSM Help on the Synology DSM desktop, or by referring to the Synology NAS User's Guide, available for download from the [Synology.com](https://www.synology.com) Knowledge Center.

7. REPLACE SYSTEM FANS

The ioSafe 1522+ will play beep sounds if either of the system fans is not working. Follow the steps below to replace the malfunctioning fans with a good set.

1. Shut down your ioSafe 1522+. Disconnect all cables connected to your ioSafe 1522+ to prevent possible damage.
2. Remove the seven (7) perimeter screws around the rear fan assembly plate.
3. Pull the assembly from the back panel of your ioSafe 1522+ to expose the fan connections.
4. Disconnect the fan cables from the connector wires attached to the rest of the ioSafe 1522+ and then remove the assembly.



5. Install the new fan assembly or replace the existing fans. Connect the fan cables of the new fans to the fan connector wires attached to the main ioSafe unit.
6. Replace and tighten the seven (7) screws you removed in Step 2.

8. PRODUCT SUPPORT AND DATA RECOVERY SERVICE

Congratulations! You are now ready to manage and enjoy all the features of your ioSafe 1522+ device. For more information regarding specific features, please check out DSM Help or refer to our online resources available at iosafe.com or synology.com.

8.1. ACTIVATE DATA RECOVERY SERVICE PROTECTION

Register your product to activate your Data Recovery Service protection plan by visiting iosafe.com/activate.

8.2. IOSAFE NO-HASSLE WARRANTY

If the ioSafe 1522+ breaks during the warranty period, we will repair or replace it.

The standard term for the warranty is two (2) years from the date of purchase. A five (5) year extended term warranty service is available for purchase upon activation of the Data Recovery Service. See the website or contact customerservice@iosafe.com for help. ioSafe reserves the right to have its representative inspect any product or part to honor any claim, and to receive a purchase receipt or other proof of original purchase before warranty service is performed.

This warranty is limited to the terms stated herein. All expressed and implied warranties including the warranties of merchantability and fitness for a particular purpose are excluded, except as stated above. ioSafe disclaims all liabilities for incidental or consequential damages resulting from the use of this product, or arising out of any breach of this warranty. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives you specific legal rights, and you may have other rights as well, which will vary from state to state.

8.3. DATA RECOVERY PROCEDURE

If the ioSafe 1522+ faces possible data loss for any reason, you should immediately call the ioSafe Disaster Response Team at 1-530-820-3090 option 3. You can also send an email to disastersupport@iosafe.com. ioSafe can determine the best actions to take to protect your valuable information. In some cases a self-recovery can be performed and provide you with immediate access to your information. In other cases, ioSafe may request that the product be returned to the factory for data recovery. In any case, contacting us is the first step.

The general steps for disaster recovery are:

1. Email disastersupport@iosafe.com with your serial number, product type and date of purchase. If you cannot email, call the ioSafe Disaster Support Team at 1-530-820-3090 option 3.
2. Report the disaster event and obtain return shipping address/instructions.
3. Follow ioSafe team instructions on proper packaging.
4. ioSafe will recover all data which is recoverable according to the terms of the Data Recovery Service Terms and Conditions.

5. ioSafe will then place any recovered data on a replacement ioSafe device.
6. ioSafe will ship the replacement ioSafe device back to the original user.
7. Once the primary server/computer is repaired or replaced, the original user should restore the primary drive data with the ioSafe backup data.

8.4. CONTACT IOSAFE SUPPORT

Your investment in ioSafe products is backed up by our free technical support for the lifetime of the product. Use the support resources on our website, iosafe.com/support, email us, or give us a call.

Customer and Technical Support

- Phone: 1-530-820-3090 Option 2
- Email: customersupport@iosafe.com

Data Recovery Services

- Phone: 1-530-820-3090 Option 3
- Email: disastersupport@iosafe.com

APPENDIX A. HARDWARE SPECIFICATIONS

Disaster Protection

Fire Protection	Up to 1550° F, 30 minutes per ASTM E-119
Water Protection	IP68: Fully submersed, fresh or salt water, 10 foot depth, 72 hours
Theft Protection	Metal Kensington Lock Slot (Optional Floor Mount Kit available here: iosafe.com/products/accessories)

CPU

CPU Model	AMD Ryzen R1600
CPU Quantity	1
CPU Architecture	64-bit
CPU Frequency	2-core 2.6 (base) / 3.1 (turbo) GHz
Hardware Encryption Engine (AES-NI)	Yes

Memory

System Memory	8 GB DDR4 ECC SODIMM
Memory Module Pre-Installed	8 GB (8 GB x 1)
Total Memory Slots	2
Maximum Memory Capacity	32 GB (16 GB x 2)

Storage

Drive Bays	<ul style="list-style-type: none"> • 5 (Default) • 15 (with ioSafe x517 Expansion available here: iosafe.com/products/x517-expansion)
SSD Cache	Two (2) M.2 2280 NVMe SSD slots (SSDs not included)
Supported Storage Media 1	<ul style="list-style-type: none"> • 3.5-inch SATA HDD • 2.5-inch SATA HDD • 2.5-inch SATA SSD
Hot Swappable Drive	Yes ²

¹See all supported drives at iosafe.com/support/hardware-compatibility.

²The hot swappable drive feature is not supported by M.2 SSD slots.

External Ports

Interface Types & Speeds	<ul style="list-style-type: none"> • eSATA: up to 6 Gbps • Ethernet: up to 1 GbE (Optional Synology E10G22-T1-Mini 10GbE LAN add-on available) • USB 3.2 Gen 1: up to 5 Gbps
Data Connectors	<ul style="list-style-type: none"> • Two (2) eSATA connectors (for ioSafe x517 Expansion only) • Two (2) M.2 NVMe slots (for SSD Cache only) • One (1) PCIe Gen 3x2 network upgrade slot (for Synology E10G22-T1-Mini 10GbE LAN add-on card) • Four (1) RJ-45 1GbE LAN ports¹ • Two (2) USB Type-A connectors

¹This device's 1GbE LAN ports have a maximum transmission unit (MTU) size of 1,500 bytes.

File System

NAS Operating System	Synology DSM
Supported File Systems (Internal Drives)	<ul style="list-style-type: none"> • Btrfs • EXT4
Supported File Systems (External Drives)	<ul style="list-style-type: none"> • Btrfs • EXT4 • EXT3 • FAT • NTFS • HFS+ • exFAT¹

¹exFAT Access can be installed for free from Package Center in Synology DSM 7.0.

Appearance

Weight	<ul style="list-style-type: none"> • Unpopulated: 25 kg • Populated: 28 kg
Dimensions	<ul style="list-style-type: none"> • Width: 221 mm • Length: 320 mm • Height: 375 mm

Others

System Fan	Two (2) 120 mm x 120 mm fans
Fan Speed Mode	<ul style="list-style-type: none"> • Full-Speed Mode • Cool Mode • Quiet Mode
Brightness Adjustable Front LED Indicators	Yes
Power Recovery	Yes
Scheduled Power On/Off	Yes
Wake on LAN/WAN	Yes
HDD Hibernation	Yes
Power Supply Unit / Adapter	150 W
AC Input Power Voltage	100V to 240V
Power Frequency	50/60 Hz, Single Phase

Temperature

Operating Temperature	0°C to 35°C (41°F to 95°F)
Storage Temperature	-20°C to 60°C (-4°F to 140°F)
Operating Humidity	5% – 95% Relative Humidity
Non-Operating Humidity	100%, Full water immersion, 10 feet, 72 hours

Compliance

Compliance	<ul style="list-style-type: none"> • EMI Standard: FCC Part 15 Class A • EMC Standard: EN55024, EN55032 • CE, RoHS, RCM
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APPENDIX B. SOFTWARE SPECIFICATIONS FOR SYNOLOGY DSM 7

Storage Management

Maximum Single Volume Size	108 TB ^{1,2}
Maximum Internal Volume Number	64
SSD Read/Write Cache	Yes
SSD TRIM	Yes
Supported RAID Type	Basic, JBOD, RAID 0, 1, 5, 6, 10, Synology Hybrid RAID
RAID Migration	Basic to RAID 1, Basic to RAID 5, RAID 1 to RAID 5, RAID 5 to RAID 6
Volume Expansion with Larger HDDs	RAID 1, 5, 6, 10, Synology Hybrid RAID
Volume Expansion by Adding a HDD	JBOD, RAID 5, 6, Synology Hybrid RAID
Global Hot Spare Supported RAID Type	RAID 1, 5, 6, 10, Synology Hybrid RAID

¹Usable capacity for each volume will be lower than the maximum volume size and is dependent on the file system and the amount of system metadata stored.

²Each internal volume (may consist of multiple drives) is expandable up to 108 TB.

File Services

File Protocol	SMB, AFP, NFS, FTP, WebDAV
Maximum Concurrent SMB/AFP/FTP Connections ¹	2,000
Maximum Concurrent SMB/AFP/FTP Connections (with RAM expansion)	2,000 ²
Windows Access Control List (ACL) Integration	Yes
NFS Kerberos Authentication	Yes

¹The testing standard was based on the maximum number of concurrent connections supported by this model. During the testing, 25% of the connections were used to transfer files concurrently. The transfer process guaranteed that the connections were not interrupted; the minimum transfer speed was not guaranteed.

²Regarding data concerning tests with RAM expansion, all memory slots are installed with the maximum capacity of supported RAM.

Account and Shared Folders

Maximum Local User Accounts	2,048
Maximum Local Groups	256
Maximum Shared Folders	512
Maximum Shared Folder Sync Tasks	32

Hybrid Share

Maximum Hybrid Share Folders	10
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High Availability

Synology High Availability	Yes
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Log Center

Syslog Events per Second	Synology DSM
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Virtualization

VMware vSphere with VAAI	Yes
Windows Server 2016	Yes
Windows Server 2019	Yes
Citrix Ready	Yes
OpenStack	Yes

General Specifications

Networking Protocols	SMB1 (CIFS), SMB2, SMB3, NFSv3, NFSv4, NFSv4.1, NFS Kerberized sessions, iSCSI, HTTP, HTTPS, FTP, SNMP, LDAP, CalDAV
Supported Browsers ¹	<ul style="list-style-type: none"> • Google Chrome • Firefox • Microsoft Edge • Safari
Supported Languages	English, Deutsch, Français, Italiano, Español, Dansk, Norsk, Svenska, Nederlands, Русский, Polski, Magyar, Português do Brasil, Português Europeu, Türkçe, Český, Thai, Japanese, Korean, Traditional Chinese, Simplified Chinese

¹For an updated list of supported browser versions, check the DSM Technical Specifications on Synology's website: www.synology.com/en-us/dsm/7.1/software_spec/dsm

APPENDIX C. ADD-ON PACKAGES FOR SYNOLOGY DSM 7

You can view the complete catalog of packages here: synology.com/en-us/dsm/packages

Antivirus by McAfee (Trial)

Included	Yes
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Central Management System

Included	Yes
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Synology Chat

Maximum Number of Concurrent Users	100 ^{1,2}
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¹Measured with simulated users, each with an average record of 20,000 messages, emojis, or stickers. The required server response time is below ten seconds.

²When applicable, systems are tested configured with maximum memory and set to allow the maximum number of connections.

Document Viewer

Included	Yes
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Download Station

Maximum Concurrent Download Tasks	80
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SAN Manager

Maximum iSCSI Target Number	128
Maximum LUN	256
LUN Clone/Snapshot, Windows ODX	Yes

Synology MailPlus / MailPlus Server

Free Email Accounts	5 (Licenses required for additional accounts. See synology.com/en-us/products/MailPlus_License)
Maximum Number of Concurrent Users	100
Maximum Server Performance	1,224,000 emails per day, approx. 37GB ^{1,2,3,4}

¹Tested with two SSDs installed in the SSD cache.

²Tested with the .maximum amount of RAM possible.

³The performance of the mail system will slightly decrease in high-availability mode due to data synchronization between the two servers.

⁴Functions that were enabled in all of the tests above: anti-spam, anti-virus, DNSBL, greylist, content scan, full-text search (English only).

Media Server

DLNA Compliance	Yes
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Synology Photos

Facial Recognition	Yes
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Snapshot Replication

Maximum Snapshots per Shared Folder	1,024
Maximum of System Snapshots	65,536

Surveillance Station

Maximum Number of IP Cams (Licenses required)	40 (including 2 free licenses) (see all supported IP cameras here: synology.com/en-us/compatibility/camera) ¹
Total FPS (H.264)	<ul style="list-style-type: none"> • 1200 FPS @ 720p (1280x720) • 1050 FPS @ 1080p (1920x1080) • 600 FPS @ 3M (2048x1536) • 360 FPS @ 5M (2591x1944) • 200 FPS @ 4K (3840x2160)
Total FPS (H.265)	<ul style="list-style-type: none"> • 1200 FPS @ 720p (1280x720) • 1200 FPS @ 1080p (1920x1080) • 1000 FPS @ 3M (2048x1536) • 600 FPS @ 5M (2591x1944) • 300 FPS @ 4K (3840x2160)

¹Maximum IP cameras and FPS figures are tested with the device fully populated with drives and under a continuous recording setup.

Synology Drive

Recommended Number of Concurrent Sync Clients	350 ^{1,2,3} (the number of connections that can be maintained when the recommended number of hosted files was reached)
Recommended Number of Hosted Files	5,000,000 (applies to files indexed or hosted by Synology Drive. For file access through other standard protocols, refer to the File Services section above.)

¹Exceeding the recommended number will not block application operations, but may result in longer response time.

²Utilizing SSD cache can significantly improve performance.

³The maximum amount of RAM was installed. The Btrfs file system and non-encrypted shared folders were also used during testing.

Synology Office

Maximum Users	1,200 ^{1,2,3}
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¹Multiple files were opened for testing and each file was edited by 30 users simultaneously.

²The maximum amount of RAM was installed.

³Client performance may affect maximum simultaneous editing users. Client PCs used for testing: Intel Core i3-3220 / 8GB RAM

Video Station

Included	Yes
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Virtual Machine Manager

Recommended Virtual Machine Instances	4 (Learn more: synology.com/en-us/products/VMMPro_License_Pack)
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Recommended Virtual DSM Number (Licenses Required)	4, including 1 free license (for additional licenses: synology.com/en-us/products/VDSM_License_Pack)
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VPN Server

Maximum Connections	40
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