

# Infortrend Hardware Manual

## EonNAS 3000 Series



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# Contact Information

**Customer Support** Contact your system vendor or visit the following support sites.

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  - [ESVA Support](#)
  - [EonNAS Support](#)
- 

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# Safety Precautions

Read these instructions carefully before you install, operate, or transport the system.

- Install the rack cabinet and the associated equipment at a site where the ambient temperature stays lower than 35°C.
- Install the power source socket outlet near the enclosure where it is easily accessible and ground the rack cabinet.
- Secure airflow clearance inside and around the rack cabinet.
  - Secure at least an 18 to 20cm clearance on the rear side of the enclosure.
  - Do not cover enclosure openings.
  - Route the cables inside the rack cabinet.
  - Do not leave the drive bays empty. Always install drive trays even if without a hard drive otherwise it will affect airflow efficiency of the enclosure.
- Secure each enclosure module using its retaining screws.
- Put the power cords and other cables away from foot traffic. Do not place items over power cords and make sure they do not rest against data cables.
- Install all modules to the enclosure before powering on the system.
- Should a module fail, leave it in its place until you have the replacement item on-hand to take its place.
- Ensure that the correct power range is being used before powering the device.
- None of the covers or replaceable modules should be removed during operation.
- If the enclosure is not used for a long time, disconnect it from mains to avoid transient over-voltage.
- For power source redundancy, please make sure that the two PSUs are plugged into two different power sources (ie. to different circuit breakers).

## Compatibility Notice

The use of Infortrend certified components is strongly recommended to ensure compatibility, quality and normal operation with your Infortrend products. Please contact your distributor for a list of Infortrend certified components (eg. SFP, SFP+, HBA card, iSCSI cable, FC cable, memory module, etc.).

# Service and Maintenance

- Keep the faulty module in place until you have a replacement unit in hand; an empty module greatly affects the efficiency of the airflow within the enclosure.
- During service operation, place the enclosure on soft and clean surface to prevent damaging its exterior. Do not place power tools or other items on top.
- When transporting the enclosure, repackage all disk drives separately in the original package foam blocks. Replaceable modules can stay in the enclosure if you are using the original package; if not, repackage them separately as well.
- Disconnect the power cords before servicing or cleaning the enclosure.
- Use a slightly moistened paper sheet or cloth for cleaning. Avoid using liquid or sprayed detergent.
- When replacing components, insert them as gently as possible while assuring full engagement. Vibration and shock can easily damage hard drives.
- Only qualified service personnel should open the enclosure.
- Contact service personnel if any of the following situations occurs:
  - The power cord or plug is damaged.
  - The enclosure has been exposed to moisture.
  - The system has not been working properly.
  - The enclosure was dropped against a hard surface.
  - The enclosure shows obvious signs of breakage.
- To move the enclosure, more than one person might be necessary due to its weight. Drives should be removed from the enclosure beforehand.

# ESD Precautions

- Handle the modules by their retention screws, ejector levers, or the module's metal frame/faceplate only. Avoid touching the PCB boards or connector pins.
- Use a grounded wrist strap and an anti-static work pad to discharge static electricity when installing or operating the enclosure.
- Avoid dust, debris, carpets, plastic, vinyl, and styrofoam in your work area.
- Do not remove any module or component from its anti-static bag before installation.
- Drives must not be stacked on top of each other without their protective drive trays. Even when drives are fixed in the drive trays, contacting the exposed PCB or rear-side interface may damage the drives.

# Table of Contents

Legal Information .....	2
Contact Information .....	3
Copyright Notice .....	4
Safety Precautions .....	5
Compatibility Notice.....	5
Service and Maintenance .....	6
ESD Precautions .....	7
Table of Contents .....	8
About This Manual .....	10

## 1 Introduction

<b>1.1 Product Overview .....</b>	<b>11</b>
1.1.1 Front panel components .....	12
1.1.2 Rear panel components .....	13
1.1.3 Drive Slot Designation .....	14
1.1.4 Drive Tray .....	14
1.1.5 Controller I/O.....	15
<b>1.2 Front Panel LEDs &amp; Button Definitions .....</b>	<b>17</b>
<b>1.3 Rear Panel LEDs.....</b>	<b>19</b>
1.3.1 Host Management Port LEDs .....	19
1.3.2 1Gb iSCSI Host Port LEDs .....	20
1.3.3 10Gb iSCSI Host Port LEDs (Fibre).....	21
1.3.4 10Gb iSCSI Host Port (RJ45) .....	22
1.3.5 16Gb Fibre Channel Host Port LEDs .....	23
1.3.6 PSU LEDs.....	24
1.3.7 Cooling Module LED .....	25
<b>1.4 System Monitoring Features .....</b>	<b>26</b>
1.4.1 Monitoring .....	26
1.4.2 I <sup>2</sup> C bus .....	26
1.4.3 Audible Alarms .....	26
<b>1.5 Hot Swapping .....</b>	<b>27</b>

## 2 Hardware Installation

<b>2.1 Before You Start.....</b>	<b>28</b>
2.1.1 Hot-swappable components.....	28
2.1.2 Airflow concerns.....	28
<b>2.2 Installing Hard Drives.....</b>	<b>29</b>
2.2.1 Prerequisites .....	29
2.2.2 Installing 2.5" HDD / Solid State Disk (SSD) .....	31
2.2.3 Inserting the Drive into the Drive Tray .....	32
2.2.4 Inserting the Drive Tray into the Enclosure .....	33
<b>2.3 Connections.....</b>	<b>34</b>
2.3.1 Connection Concept .....	34
2.3.2 SAS Expansion Port .....	35
2.3.3 Power Cable Connection .....	38
2.3.4 Powering on the System .....	39
2.3.5 EonNAS System Initialization.....	40
2.3.6 Configuring Your NAS System .....	42

## 3 System Maintenance

<b>3.1 Replacing the Controller.....</b>	<b>45</b>
<b>3.2 Replacing the Cooling Module .....</b>	<b>46</b>
<b>3.3 Replacing the Power Supply .....</b>	<b>47</b>
3.3.1 PSU (Type I) .....	47
3.3.2 PSU (Type II) .....	48



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<b>3.4</b>	<b>Replacing / Installing a Memory Module.....</b>	<b>50</b>
3.4.1	Default and Upgrade DRAM Installation Slots .....	50
3.4.2	Replacing / Installing a DRAM Module.....	52
<b>3.5</b>	<b>Replacing Hard Drives .....</b>	<b>53</b>
3.5.1	Detecting a Failed Hard Drive .....	53
3.5.2	Replacing a Hard Drive.....	53
<b>4</b>	<b>Appendix</b>	
<b>4.1</b>	<b>Technical Specifications .....</b>	<b>56</b>
4.1.1	Hardware .....	56
4.1.2	Operating Environment .....	56
4.1.3	Power Supply.....	56
<b>4.2</b>	<b>Certifications .....</b>	<b>57</b>
4.2.1	Summary .....	57
<b>5</b>	<b>Slide Rail Kit Installation Guide</b>	
<b>5.1</b>	<b>Enclosure Installation Prerequisites.....</b>	<b>58</b>
<b>5.2</b>	<b>IFT-9373 / 9CC / 9N1 Slide Rail Kit.....</b>	<b>60</b>
5.2.1	IFT-9373 / 9CC / 9N1 Kit Contents .....	60
5.2.2	Installation Procedure .....	61
5.2.3	Removing the Enclosure.....	64
<b>5.3</b>	<b>Slide Rail Kit .....</b>	<b>65</b>
5.3.1	Kit Contents .....	65
5.3.2	Installation Procedure .....	66
	<b>Once Installed.....</b>	<b>68</b>
	<b>Safety Reminders.....</b>	<b>68</b>

# About This Manual

This manual introduces the hardware components of EonNAS unified storage system and describes how to install and maintain them.

For the following subjects, consult other resources for more information:

- Components that are not user-serviceable. Please contact our [support sites](#).
- Software operation: Consult the User Manual in the CD-ROM.

## Revision History

Version	Date	Description
1.0	Apr. 2011	Initial release
1.1	Ju., 2011	Updated <a href="#">memory installation guide</a> . Added EonNAS 3230.
1.2	Nov. 2011	<a href="#">Copyright</a> and <a href="#">Contact</a> update.
1.3	Dec. 2011	Added 3220-1 / 3230-1 / 3230-2 / 3230-3 models.
1.4	Jan. 2012	Added <a href="#">SSD installation</a> instructions.
1.5	May 2012	Updated <a href="#">memory upgrade / installation</a> . Updated <a href="#">JBOD rotary ID</a> . Updated <a href="#">Certifications</a> .
1.6	Aug. 2012	Added EonNAS 3310 & 3510 ( <a href="#">rear panel</a> & <a href="#">memory configuration</a> ).
1.7	Aug. 2012	Updated <a href="#">10Gb iSCSI</a> descriptions.
1.8	Aug. 2013	Updated Americas contact information. Updated <a href="#">USB ports</a> reserved for maintenance purposes only! Added EonNAS 3012 and 3016 models.
1.9	Oct. 2013	Updated hard drive configuration.
2.0	Nov. 2013	Updated initialization process.
2.1	Jun. 2014	Updated EonOne information.
2.2	Jun. 2014	Removed generic NAS systems (3x10, 3x20 and 3x30) Added 3000-1 models
2.3	Jul. 2014	Added 3012-1 systems

# 1 Introduction

## 1.1 Product Overview

The NAS series server is a high-performance storage appliance for sharing files and volumes across Ethernet network. Network Attached Storage (NAS) separates application servers and data, and stores data on storage devices that perform dedicated file serving tasks. It is a dedicated, high-performance system providing files or shares for numerous clients to access. The advantages offered include:

- Improved performance based upon dedicated file service processing
- Ease of administration
- The ability to serve a common set of files to a heterogeneous client population
- Ease of installation
- High bandwidth connectivity on selected models (iSCSI / SAS / Fibre) to RAID
- SAS port for JBOD storage expansion

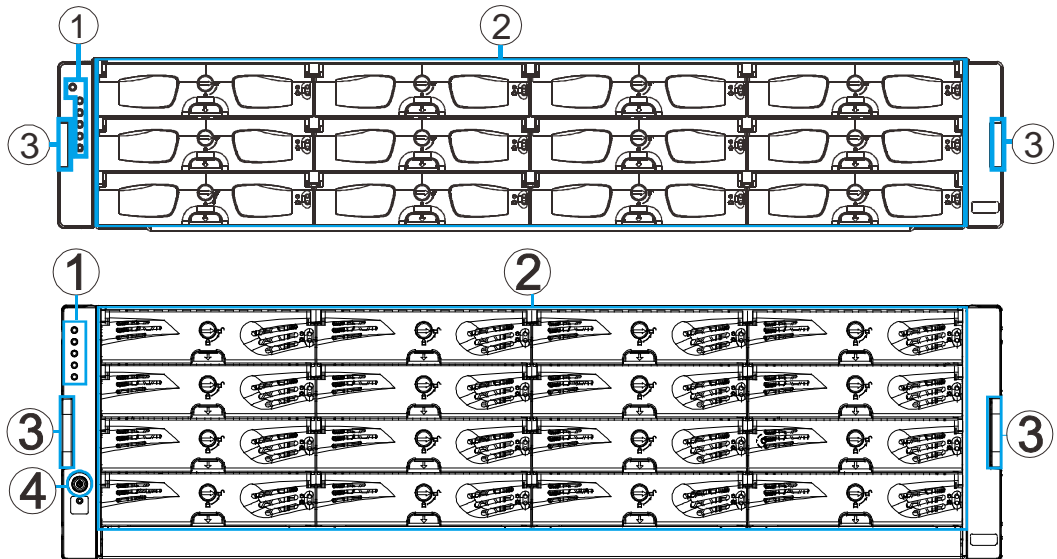
The NAS System comes with one of the four configured options that you may choose to purchase from and will be ready-configured by your vendor.

Models	Host Connectivity	4x 1Gb	Option 1	Option 2	Option 3	Option 4
		iSCSI				
EonNAS 3000 series		V				

Option	Host board expansion
1	Add-on 4x 1Gb iSCSI host ports
2	Add-on 2x 10Gb iSCSI host ports (SFP+)
3	Add-on 2x 10Gb iSCSI host ports (RJ45)
4	Add-on 2x 16Gb Fibre host ports

### 1.1.1 Front panel components

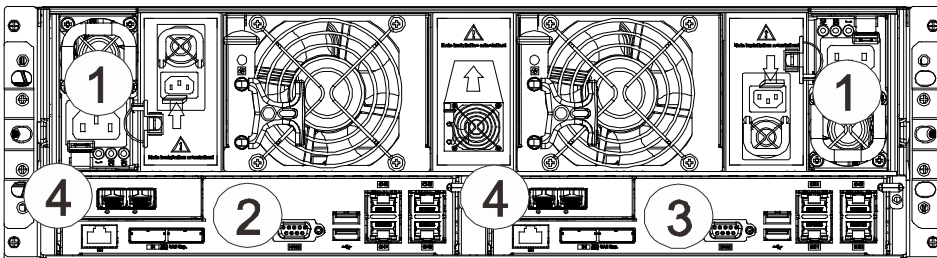
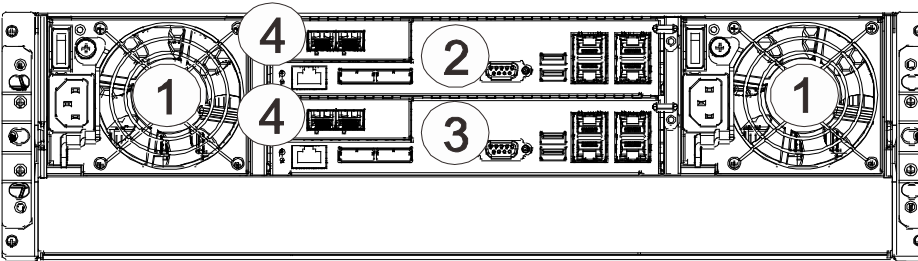
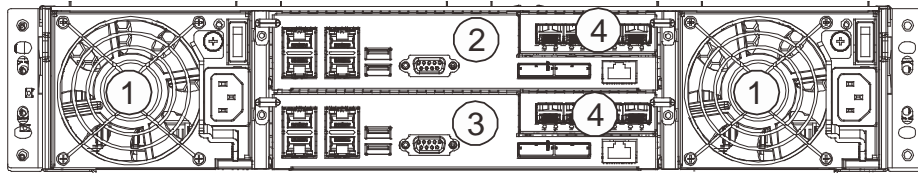
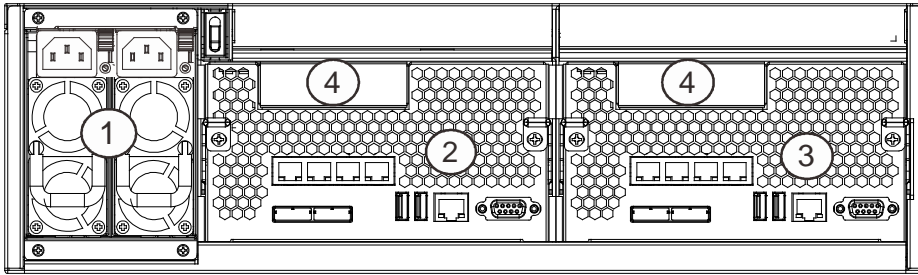
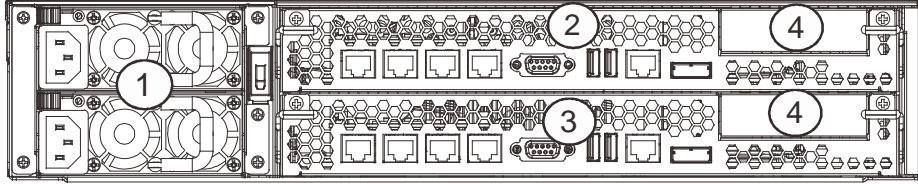
The Front panel has a column of system status LEDs (1), hard drive slots (2) and power button (3).



- **System status LEDs (1):** A 16 characters x 2 rows LCD panel and function keys allows you to view system events and configure the firmware.
- **Drive trays (2):** Each drive tray is hot-swappable and holds a 3.5-inch hard drive.
- **Handles (3):** There are handles on both sides of the enclosure for users to pull / push the enclosure out and into the cabinet.
- **Power button (4):** For some systems, the power button is located at the front and some at the rear.

### 1.1.2 Rear panel components

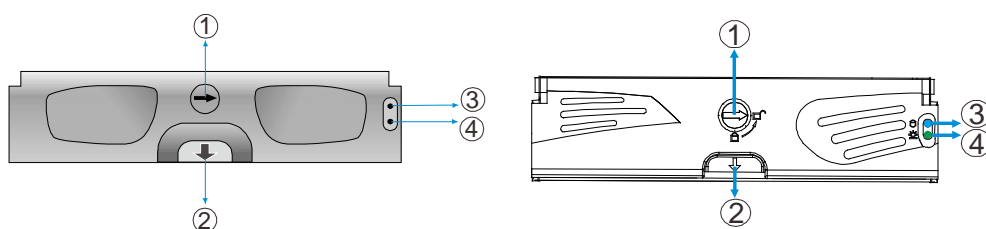
Rear panel components comprise of power supply units (1), controller A (2) & controller B (3) and dummy cage or expansion host ports (4).



### 1.1.3 Drive Slot Designation

Slot 1 (ID0)	Slot 2 (ID1)	Slot 3 (ID2)	Slot 4 (ID3)
Slot 5 (ID4)	Slot 6 (ID5)	Slot 7 (ID6)	Slot 8 (ID7)
Slot 9 (ID8)	Slot 10 (ID9)	Slot 11 (ID10)	Slot 12 (ID11)
Slot 13 (ID12)	Slot 14 (ID13)	Slot 15 (ID14)	Slot 16 (ID15)

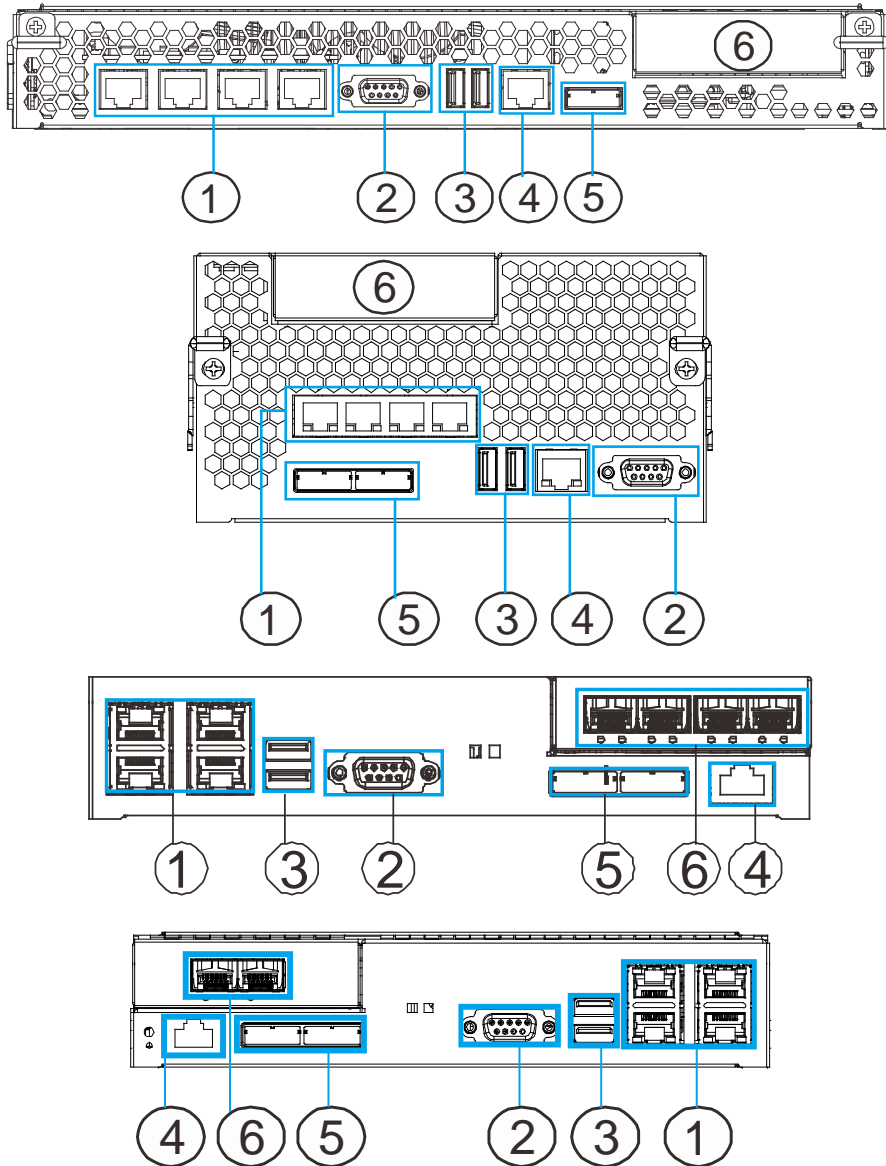
### 1.1.4 Drive Tray



The drive tray is designed to accommodate separately purchased 3.5-inch SAS or SATA interface hard disk drives. There is a rotary bezel lock **(1)** that secures the drive tray in chassis, while a release button **(2)** can be used when retrieving disk drives from the chassis. To the right of the bezel plate, there is a drive busy LED **(3)** and a power status LED **(4)**.

No.	Item	Description
1.	<b>Rotary bezel lock</b>	The rotary bezel lock secures drive trays in bay and prevents disconnection
2.	<b>Release button</b>	The release button opens the front bezel.
3.	<b>Drive Busy LED</b>	<b>FLASHING BLUE</b> indicates data is being written to or read from the drive. The drive is busy. <b>OFF</b> indicates that there is no activity on the disk drive.
4.	<b>Power Status LED</b>	<b>GREEN</b> indicates the drive bay is populated and working normally. <b>Red</b> indicates the disk drive has failed, or a connection problem has occurred.

### 1.1.5 Controller I/O

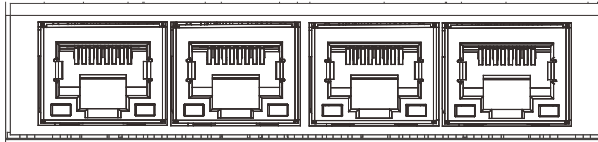


Item	Description
<b>1. 1Gb iSCSI host ports</b>	The 1Gb iSCSI host ports are for host connections and can be trunked.
<b>2. Serial Port</b>	The serial port is for maintenance purposes.
<b>3. USB ports</b>	The USB ports are for connecting to external devices.
<b>4. Host management port</b>	The host management port is for accessing and configuring the system (default IP addresses controller A: 10.0.0.2 / controller B: 10.0.0.3).
<b>5. SAS Exp. Port</b>	The SAS expansion port is for JBOD storage connections.

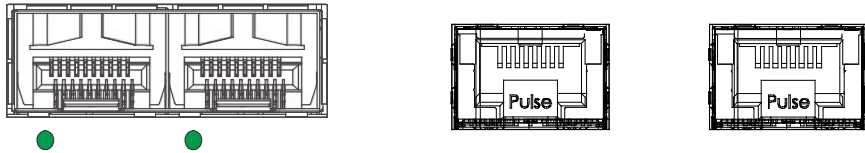
<p><b>6. Add-on expansion connectivity ports</b></p>	<p>The high speed expansion connectivity ports apply to selected models. It is used for connecting to RAID storage devices.</p>
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**Add-on expansion connectivity ports**

- For selected models with additional 1Gb iSCSI host ports



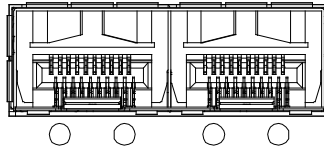
- For selected models with 10Gb iSCSI SFP connections



**10Gb iSCSI Fibre**

**10Gb iSCSI RJ45**

- For selected models with 8/16Gb iSCSI SFP connections

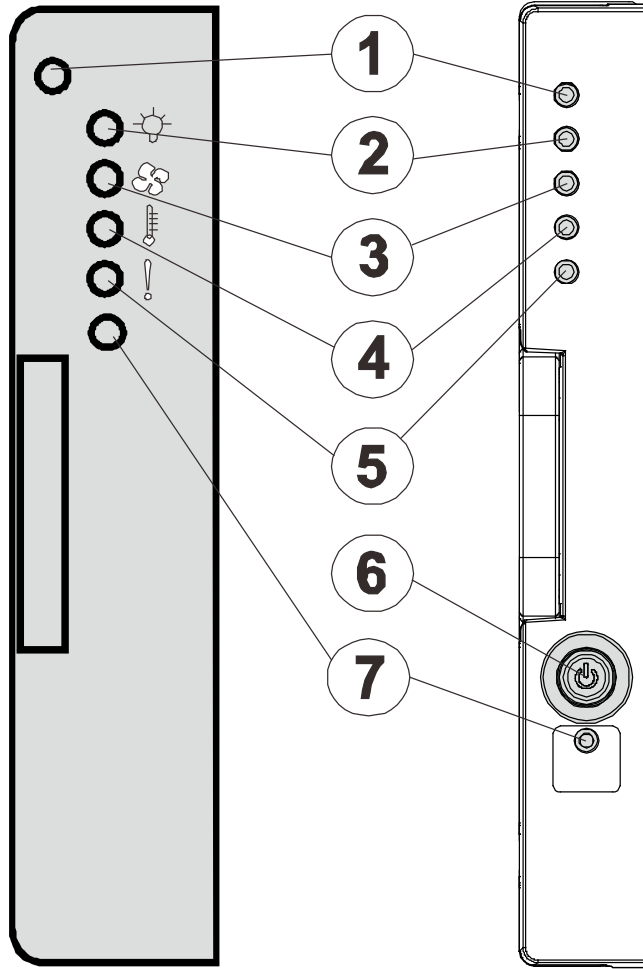


**16Gb Fibre**



## 1.2 Front Panel LEDs & Button Definitions

The NAS system is equipped system LED indicators on its left-hand side chassis ear. These LEDs provide constant monitoring of basic system statuses, and visual cues to system health. The Service LED will light up in the event of controller, power supply, cooling fan failures, or enclosure events that require maintenance services.



No.	Name	Color	Status
1.	Service	White	<p><b>White</b> indicates the system is being serviced or is requiring services.</p> <p><b>OFF</b> indicates the system is not being serviced nor is requiring services.</p>
2.	Power	Green / Amber	<p><b>Green</b> indicates the power supply unit is operating properly.</p>

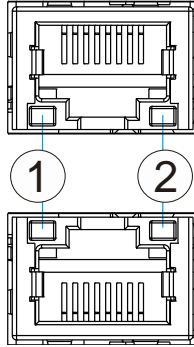
			<b>Amber</b> indicates the power supply unit has failed.
3.	<b>Cooling fan</b>	<b>Green / Amber</b>	<b>Green</b> indicates the cooling fan is operating properly. <b>Amber</b> indicates there is a cooling fan failure in the system.
4.	<b>Thermal</b>	<b>Green / Amber</b>	<b>Green</b> indicates the internal temperature is within the safety threshold. <b>Amber</b> indicates the internal temperature has exceeded the safety threshold.
5.	<b>System fault</b>	<b>Green / Amber</b>	<b>Green</b> indicates the system is operating normally. <b>Amber</b> indicates the system has encountered abnormal conditions:
6.	<b>Power button</b>	<b>N/A</b>	<b>Press and release</b> instantly to turn on the system. <b>To force system to shutdown</b> , press and hold till system shuts down! <b>Note:</b> Some systems' power button is located at the rear.
7.	<b>Mute/ service button</b>	<b>N/A</b>	<b>Press the button once</b> mutes the audible alarm. <b>Press and hold for more than two seconds</b> sends a service notification to the host computer.

**WARNING**

If critical faults are indicated on the front status LED panel, verify the cause of the problem as soon as possible and contact your system vendor and arrange for a replacement module.

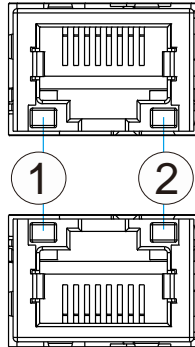
## 1.3 Rear Panel LEDs

### 1.3.1 Host Management Port LEDs



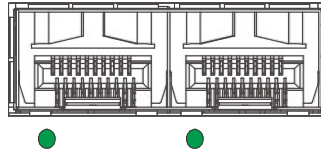
No.	Item	Status
1.	Speed LED	<b>Green</b> indicates GbE connection established <b>Off</b> indicates 100Mb connection established
2.	Link Status LED	<b>Amber</b> indicates connection established <b>Flashing amber</b> indicates data activity

### 1.3.2 1Gb iSCSI Host Port LEDs



No.	Item	Status
1.	Speed LED	<b>Green</b> indicates GbE connection established <b>Off</b> indicates 10/100 connection established
2.	Link Status LED	<b>Amber</b> indicates connection established <b>Flashing amber</b> indicates data activity

### 1.3.3 10Gb iSCSI Host Port LEDs (Fibre)

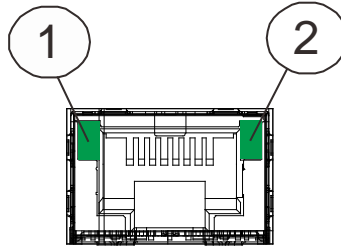


LED status	Color	Status
Steady ON	Green	<b>Steady green</b> indicates a link has been established
Flashing	Green	<b>Flashing green</b> indicates an active link
Off	Off	<b>Off</b> indicates a link has not been established

For selected models that come with 10Gbps iSCSI channel host ports. The 10Gbps host connectivity is achieved by transferring data using iSCSI ports while data signals are sent through optical cables.

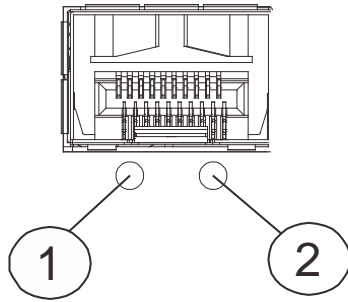
The 10Gbps iSCSI channel standard allows for optical connections only. Optical cables can be used over longer distances and have been shown to be more reliable. Due to the demands of high transfer rates, optical cables are preferred for 10Gb iSCSI connectivity. Optical cables are also less susceptible to EMI.

### 1.3.4 10Gb iSCSI Host Port (RJ45)



No.	Item	Status
1.	Speed LED	<b>Green</b> indicates 10Gb connection established <b>Amber</b> indicates 1Gb connection established <b>Off</b> indicates 10/100 connection established
2.	Link Status LED	<b>Green</b> indicates connection established <b>Flashing green</b> indicates data activity <b>Off</b> indicates connection not established

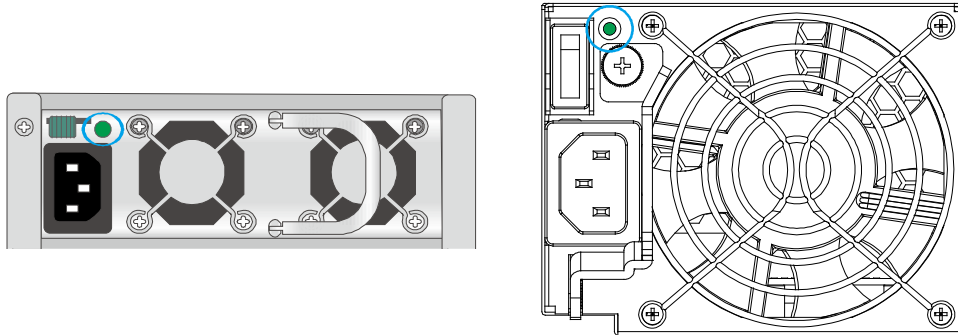
### 1.3.5 16Gb Fibre Channel Host Port LEDs



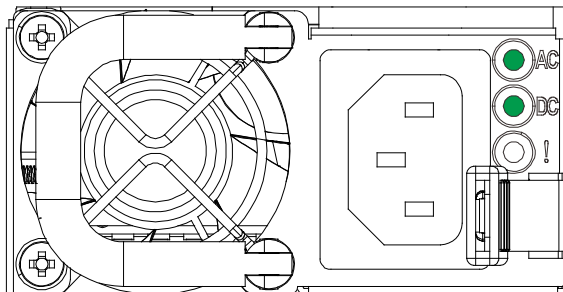
No.	Item	Status
1.	Link Status LED	<p><b>Green</b> indicates connection established</p> <p><b>Flashing green</b> indicates data activity</p> <p><b>Off</b> indicates connection not established</p>
2.	Speed LED	<p><b>Green</b> indicates 16Gb connection established</p> <p><b>Yellow</b> indicates 8Gb connection established</p> <p><b>Off</b> indicates 4Gb or slower connection established</p>

### 1.3.6 PSU LEDs

The PSU LEDs are indicated by the **blue circles**. Systems may have different PSU orientations.



Item	Description
Flashing <b>green</b>	PSU is online but not powered on
Steady <b>green</b>	Power on and status normal
<b>Red</b>	PSU failed

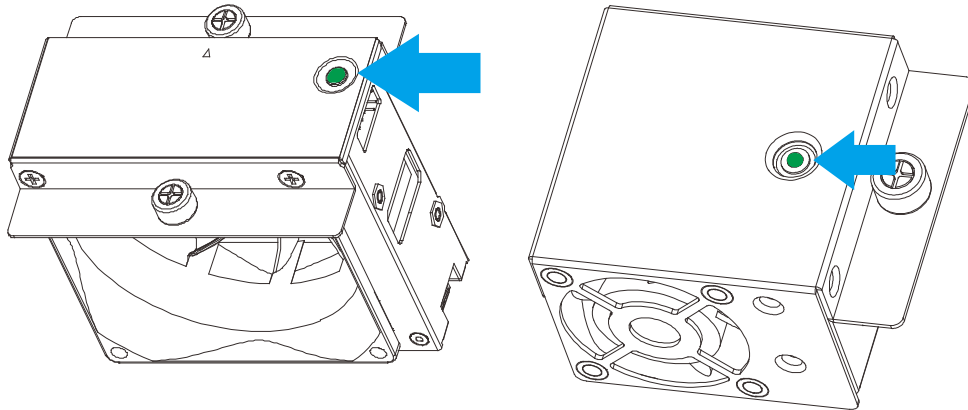


LED	Description
AC off / DC off	No power supplied
AC <b>green</b> / DC off	AC power supply present
AC <b>green</b> & DC <b>green</b>	DC power supply present
<b>! Amber</b>	Steady indicates PSU failure
	Flashing indicates PSU warning



### 1.3.7 Cooling Module LED

There is a LED (indicated by the blue arrow) situated at the top of each cooling module. The cooling modules can be located at the top of the enclosure. To determine if the cooling module is faulty when the front panel cooling module status LED lights up, you will need to slide the enclosure out of the rack to look at the LED.



LED Status	Description
Off or green steady on	Online and normal
Red steady on	Module failed



#### NOTE

For cooling modules, a lit Red LED indicates module failure and should be replaced as soon as possible. Under normal operation, the LEDs on these modules should all light green. The PSU LED will blink intermittently if the power cord is attached but the PSU is not turned on.

## 1.4 System Monitoring Features

There are a number of monitoring approaches that provide the operating status of individual components.

### 1.4.1 Monitoring

The system can monitor the following:

- PSU
- Cooling module

#### **Cooling Module Speed Adjustment:**

If temperature reading(s) exceed the temperature threshold, the firmware automatically raises the rotation speed of all cooling fans.

- Enclosure thermal sensor
- Hard drive

### 1.4.2 I<sup>2</sup>C bus

The presence detection circuitry and temperature sensors are interfaced through a non-user-serviceable I<sup>2</sup>C bus. When JBODs are attached to the NAS system, JBOD component statuses are reported through the in-band methodology over the expansion links that is managed by a proprietary enclosure service.

### 1.4.3 Audible Alarms

The system comes with audible alarms that are triggered when certain active components fail or when certain controller or system thresholds are exceeded. Whenever you hear an audible alarm, it is imperative that you determine the cause and rectify the problem immediately.

Event notification messages indicate the completion or status of array configuration tasks and are always accompanied by two or three successive and prolonged beeps. When sounded, please use the mute button on the [front status panel](#) to turn it off.



#### **WARNING**

Failing to respond when an audible alarm is heard can lead to permanent damage to the system. When an audible alarm is heard, rectify the problem as soon as possible.

## 1.5 Hot Swapping

The system comes with a number of hot-swappable components that can be exchanged while the system is still online without affecting the operational integrity. These components should only be removed from the system when they are being replaced.

The following components are hot-swappable:

- PSU (including cooling modules)
- System cooling modules
- Hard drives



### NOTE

Normalized airflow ensures sufficient cooling of the system and is only attained when all components are properly installed. Therefore, a failed component should only be removed when a replacement is available. Instructions on how to replace these hot-swappable components are given in [System Maintenance](#).

# 2 Hardware Installation

## Component Compatibility

The use of compatible components is strongly recommended to ensure compatibility, quality and normal operation with your system. Please contact your vendor for a list of compatible components.

### 2.1 Before You Start

Some components are configured into fault-tolerant pairs and are independently hot-swappable while the failure of other components such as server board or the RAID controller can cause a down time.

#### 2.1.1 Hot-swappable components

- Power supplies (PSUs)
- HDDs in drive trays (RAID-5 configuration allows 1 hard drive to fail at any given time without data lost; RAID-6 configuration allows 2 hard drives to fail at the same time at any given time without data lost. Please refer to the Software Operation Manual for RAID configuration details and the maintenance section of this manual on how to replace hard disk drives)
- Controllers
- Cooling modules (selected systems only)

#### 2.1.2 Airflow concerns

Allow 20cm of ventilation clearance in front and rear of the enclosure. Make sure cables are also placed well clear of the ventilation area behind the enclosure.

## 2.2 Installing Hard Drives

Hard drives are purchased separately (please contact your vendor for details).



### WARNING

**DUAL CONTROLLER REDUNDANT SYSTEMS:** You **MUST** install at least 4 hard drives. Hard drive slots 1, 2, 3 and 4 are system dedicated drives. If removed, they **MUST** be re-inserted in the exact same slots in the enclosure!

**SINGLE CONTROLLER SYSTEMS:** You **MUST** install at least 2 hard drives. Hard drive slots 1 and 2 are system dedicated drives. If removed, they **MUST** be re-inserted in the exact same slots in the enclosure!

### 2.2.1 Prerequisites

**Enclosure hard drive slot sequences:** Tray numbering sequence is important because if any faults occur to disk drives, you should be able to identify the location of a faulty drive. If you mistakenly remove 2 drives from a RAID5 logical drive, data will be lost.

<b>Slot 1</b>	<b>Slot 2</b>	<b>Slot 3</b>	<b>Slot 4</b>
<b>Slot 5</b>	<b>Slot 6</b>	<b>Slot 7</b>	<b>Slot 8</b>
<b>Slot 9</b>	<b>Slot 10</b>	<b>Slot 11</b>	<b>Slot 12</b>
<b>Slot 13</b>	<b>Slot 14</b>	<b>Slot 15</b>	<b>Slot 16</b>

**System dedicated hard drives:** It is recommended for system dedicated hard drives to be the same brand, capacity, rotational speed and model.

**RAID Configuration:** Below is a list of the level of fault tolerance for different RAID levels:

<b>RAID Level</b>	<b>Max. No. of Failed Drives without Data Loss</b>
0	No fault tolerance. 1 drive fails and the data is lost.
1	1 (mirrored pair)
5	1
6	2

**Caching for performance with Solid State Disk (SSD):** With the exception of hard drive slots 1 & 2 that are dedicated to OS hard drives, SSD(s) can be installed into all other slots (starting from slot 3) to cater for desired performances (please refer to the documents on the CD-ROM for configurations and contact your vendor for SSD purchase details). You must also purchase a SSD-dedicated tray!

**SAS / SATA hard drive for storage:** It is recommended to use hard drives that are of the same brand, capacity, rotation speed and same model in an enclosure. RAID arrays use a “least-common-denominator” approach meaning the maximum capacity used in each drive for comprising a logical configuration is the maximum capacity of the smallest drive. **Profile:** The enclosure drive trays are designed for 3.5-inch wide x 1-inch pitch hard drives.



**WARNING**

Make sure all enclosure tray slots are filled a hard drive tray (with or with a hard drive) as an empty tray slot may affect the airflow efficiency of the enclosure!

The hard drives should only be installed into the system **AFTER** the enclosure has been rack mounted as the combined weight will be too heavy to handle.

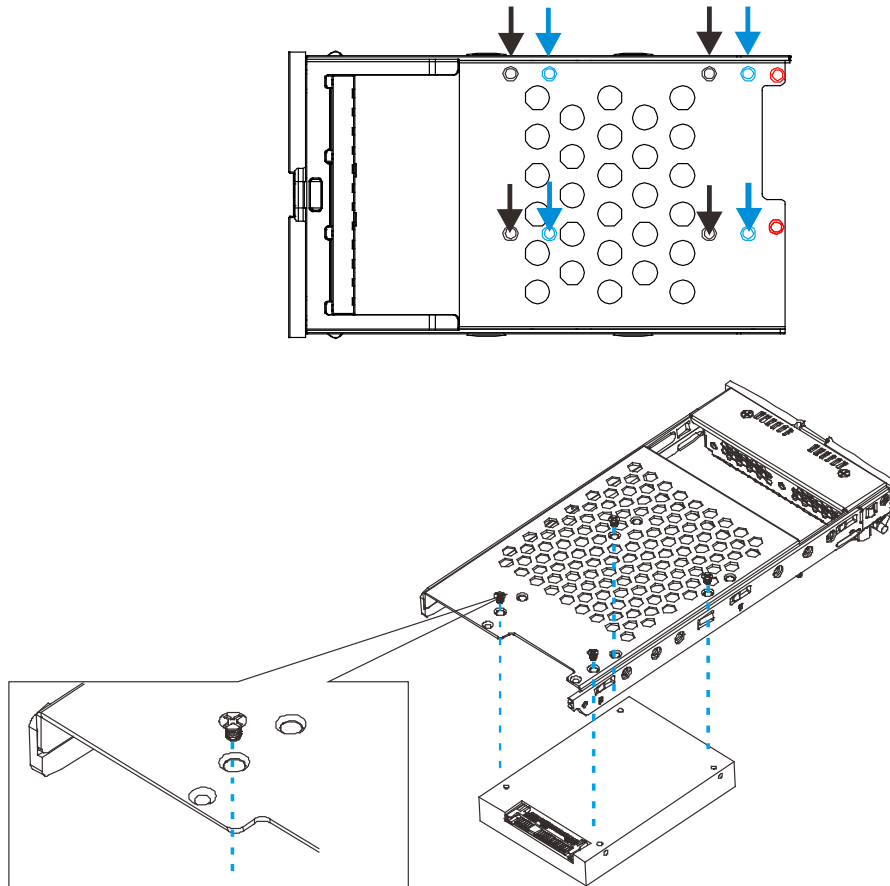
Handle hard drives with extreme care and observe all ESD prevention methods when installing drives.

Only use screws supplied with the system package. Longer screws may damage the drive.

## 2.2.2 Installing 2.5" HDD / Solid State Disk (SSD)

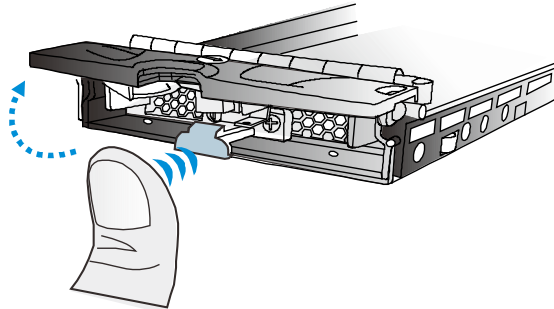
Install the SSD into the dedicated hard drive tray (separately purchased). With the connectors facing the open end of the tray, secure the SSD to the tray (refer to the blown-up view below) with a supplied flathead screw. Once secured, three other screw-holes on the SSD will match the holes on the tray. Secure the three holes with the supplied flathead screws.

- 2.5" SAS HDD (without MUX) ↓
- 2.5" SATA HDD (with MUX) ↓
- MUX board screw locations ○



### 2.2.3 Inserting the Drive into the Drive Tray

Remove the hard drive tray from the enclosure by pressing on the release button.



Place the hard drive into the drive tray. Make sure the hard drive is oriented that the drive's interface connector is facing the open side of the drive tray and its label side facing up. Adjust the drive's location until the mounting holes in the drive canister are aligned with those on the hard drive. Secure the drive with four (4) supplied 6/32 flathead screws.

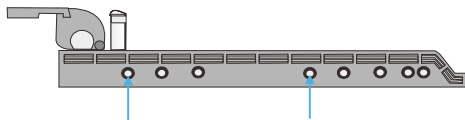
**Type I Tray**



**Type II Tray**



**Without MUX**



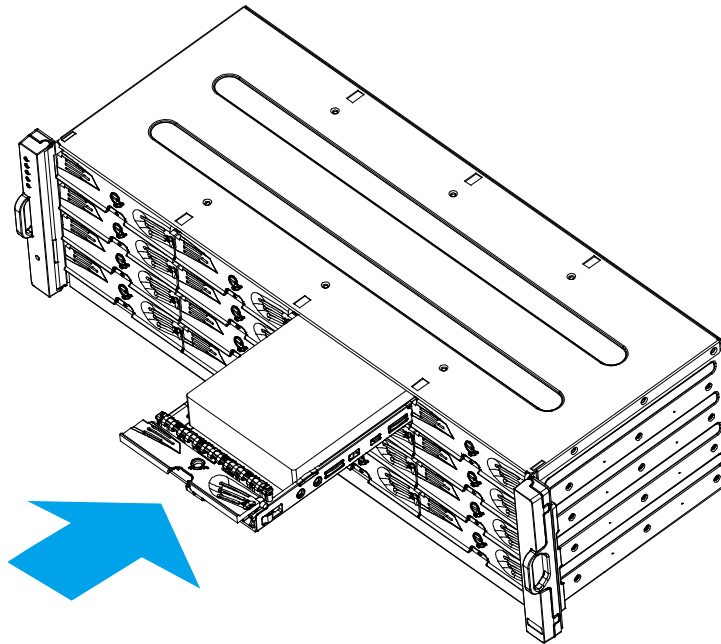
**With Mux**



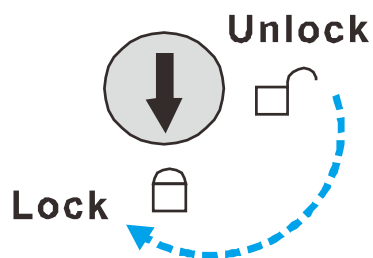
## 2.2.4 Inserting the Drive Tray into the Enclosure

Once the SSDs/ hard drives have been installed in the drive trays, the drive trays are ready to be installed into the system.

With the tray bezel opened, gently insert the hard drive tray and the hard drive into the enclosure.



Once inserted into the enclosure, close the tray bezel and use a small flat-blade screwdriver to turn the bezel lock from unlock to the lock position.



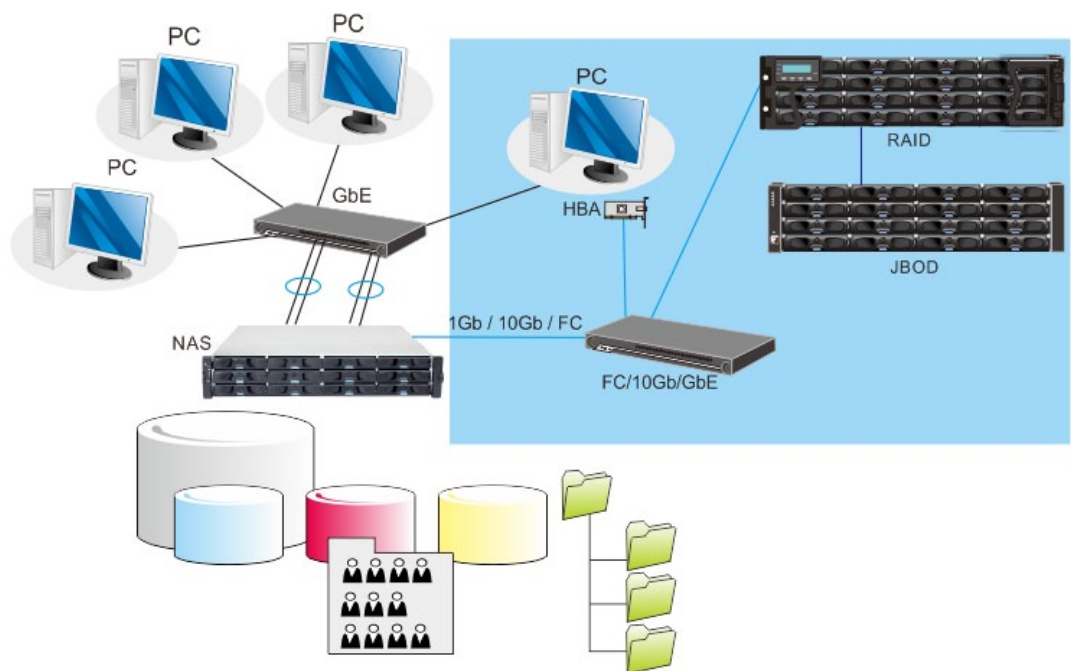
Repeat procedures mentioned above to install the other hard drives.

Once all drive trays are properly installed, the server will recognize the disk drives and scan them in automatically.

## 2.3 Connections

This chapter outlines some general configuration rules you should follow when cabling NAS systems. For detail Fibre Channel RAID and 10G iSCSI host connections and topologies, please refer to the respective RAID manuals. You can use these topologies or refer to them as a guide for developing your own unique topologies. A complete description of the powering-on procedures is also given in this chapter.

### 2.3.1 Connection Concept

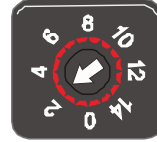


The system connection concept is shown above where it connects to multiple client PCs and for the variant models, they provide additional host connections (indicate by the **blue line** connecting to the shaded area) such as 1Gb/s iSCSI, 10Gb/s iSCSI, 8Gb/s Fibre channel or 16Gb/s Fibre channel host connections to RAID and JBOD expansion enclosures. The onboard four 1Gb/s iSCSI ports can be trunked (shown by the **blue circle**). For detail RAID host port connections, please refer to the Hardware Manual that came with your RAID storage system(s).


### 2.3.2 SAS Expansion Port

To connect JBODs, use the included SAS cable (SFF-8088 to SFF-8088) to connect the expansion port on server in a sequence as shown below.

Each JBOD should be configured with a unique enclosure ID using the rotary switch on its LED panel.

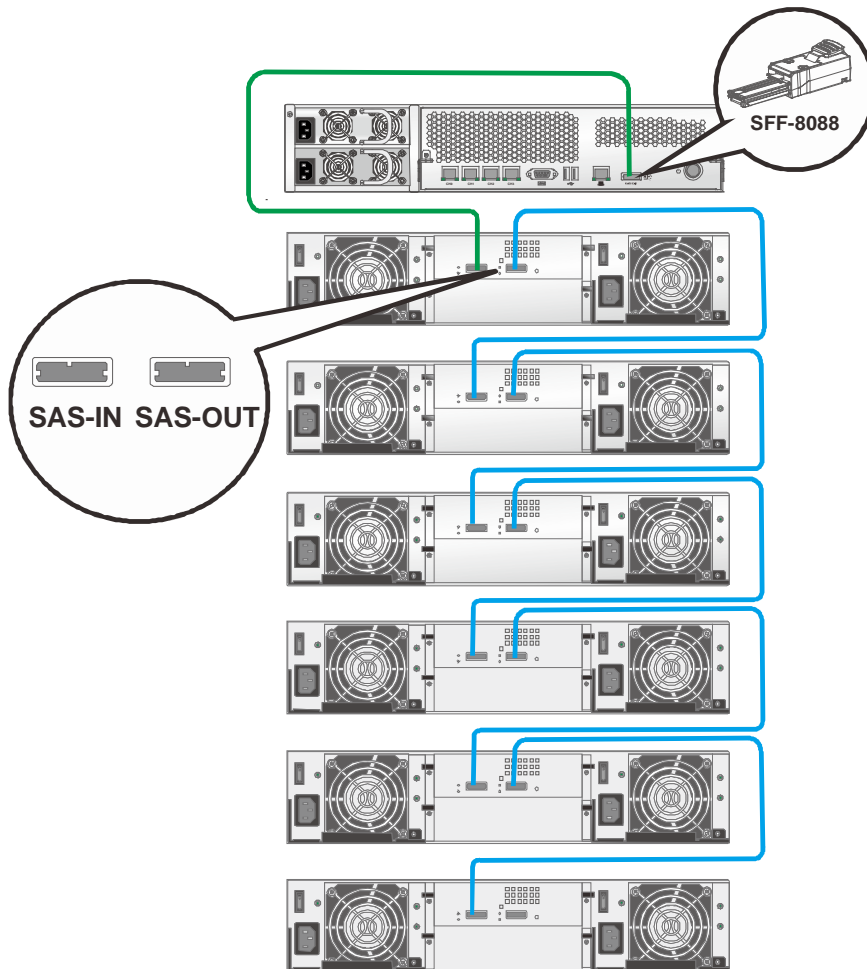


Use a small-size flathead screwdriver to change the ID.

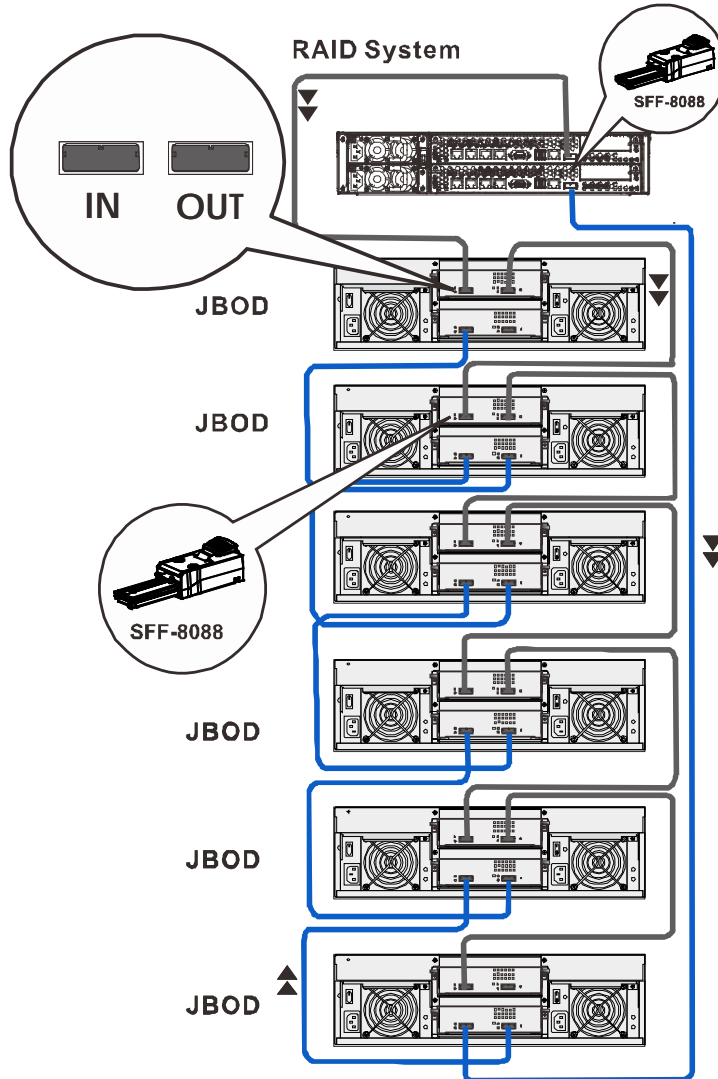
 **NOTE**

Setting an identical ID on two JBODs will cause ID conflicts. The enclosure ID determines the WWN addresses for individual disk drives in each enclosure. For detail JOBD enclosure connectivity support, please refer to your system's [specifications](#).

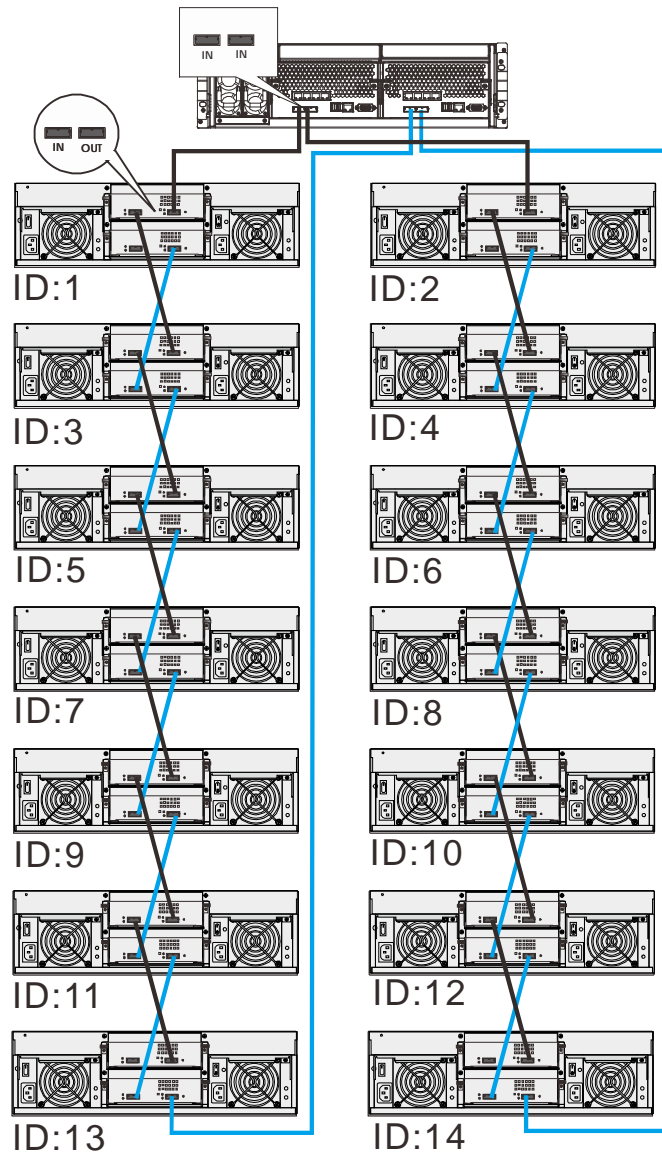
#### Single SAS expansion out to single controller JBOD systems



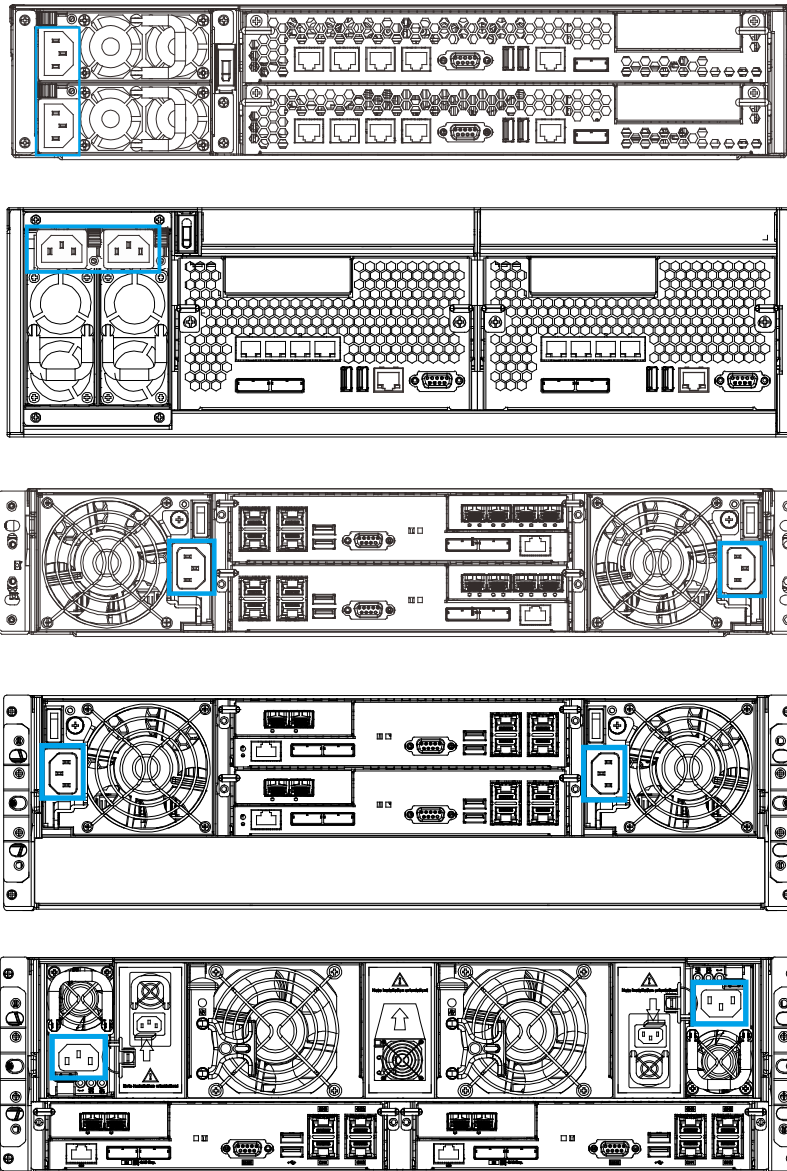
### Dual Controller, dual SAS-port JBOD expansion



### Dual controller, quadruple SAS-port JBOD expansion



### 2.3.3 Power Cable Connection



Plug both power cables into the PSU power sockets. Please do tuck the cables away neatly and keep them out of frequently walked areas. To ensure PSU redundancy, please make sure that the two PSUs are plugged into two different power sources (ie. to different circuit breakers).

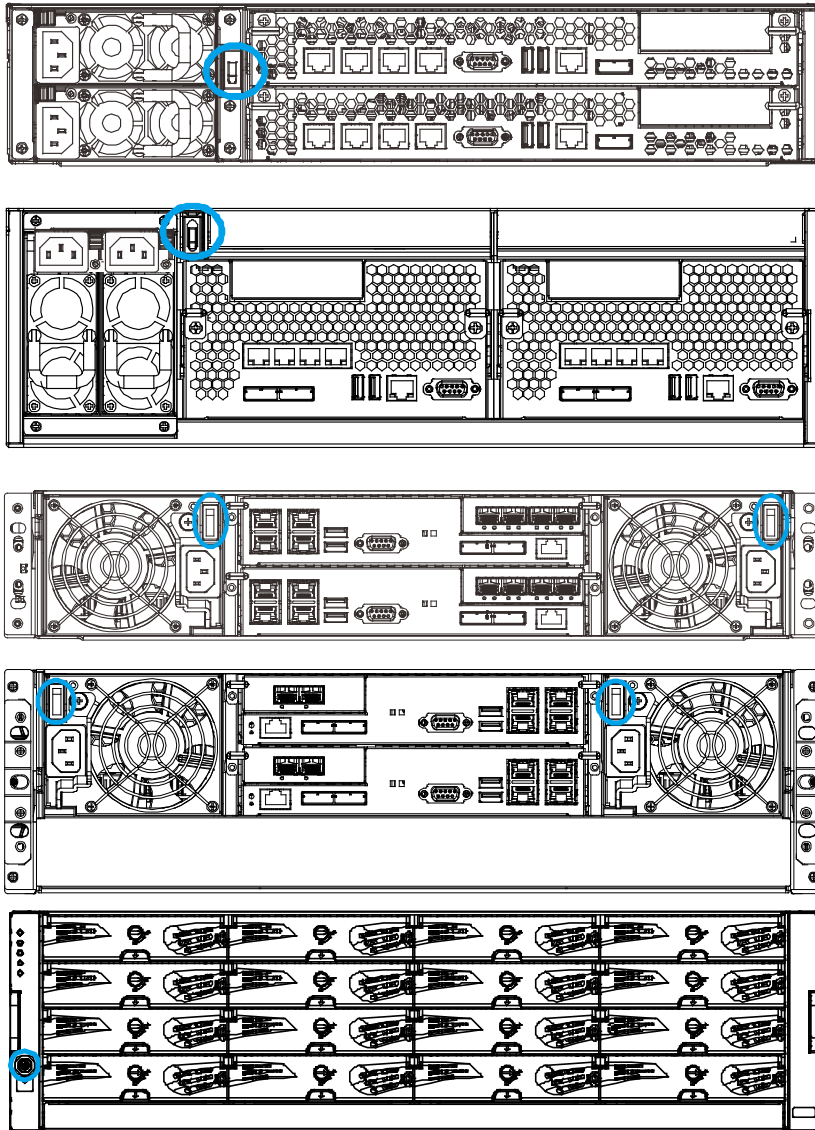


#### NOTE

Make sure you use the power cables provided that are at least 1.2 meters in length. **DO NOT** use extension cables as the power cables are designed to connect **ONLY** and **DIRECTLY** to relocatable power taps (RPTs) on server cabinets.

### 2.3.4 Powering on the System

Please turn on your external peripheral devices first (JBODs, switches, etc.) and then turn on the NAS system by pressing the “Power Button” (shown below in blue).



When turned on, the service LED should remain off while the rest of the status LEDs on the front panel should light up green to indicate normal operation.

Service LED: Off

Power LED: **Green**

Cooling fan LED: **Green**

Thermal LED: **Green**

System fault LED: **Green**



## 2.3.5 EonNAS System Initialization



### WARNING

**DUAL CONTROLLER REDUNDANT SYSTEMS:** You **MUST** install at least 4 hard drives. Hard drive slots 1, 2, 3 and 4 are system dedicated drives. If removed, they **MUST** be re-inserted in the exact same slots in the enclosure!

**SINGLE CONTROLLER SYSTEMS:** You **MUST** install at least 2 hard drives. Hard drive slots 1 and 2 are system dedicated drives. If removed, they **MUST** be re-inserted in the exact same slots in the enclosure!

When you power on the system for the first time, you will need to initialize it using the following procedure.

### Locating Your NAS System



### NOTE

You need a Windows OS computer and you **MUST** turn off the firewall!

1. Turning off Windows firewall:

To turn off the Windows firewall, please refer to the instructions below.

#### Windows 7/ Vista:

Click on the Start button > Control Panel > Security > Windows Firewall > turn off Firewall.

You may be prompted for an administrator password or confirmation, type the password or provide confirmation.

#### Windows XP:

Click on the Start button > Control Panel > Windows Firewall > turn off Firewall

2. Approximately 5 minutes after pressing the power button (if the user is near the system, after pressing the power button a beep will sound after 2 minutes and two beeps will sound 3 minutes thereafter) double click on EonOne.exe found in the "fsccommand" folder on the CD. EonOne window will appear.
3. Select your language preference.



4. Wait for your NAS system to appear in the list. Highlight and proceed to the



next step.

Name	Model	IP Address
NAS_3016	EonNAS 3016	10.0.0.2



#### NOTE

If no NAS device was found

- Make sure your PC and NAS are connected to the same switch / router!
- Turning off the antivirus' firewall (please refer to its manual) then close the existing EonOne, start up a new EonOne and start from step 3.
- Please refer to the setup instructions in the User Manual on the CD.

5. When the "Set IP" button lights up, Click on it and EonOne will automatically assign an IP address for your NAS. Wait for an IP settings window to appear. You may be prompted for a password. If so, please enter "admin" and click OK.

6. Use EonOne to find the NAS system with the matching IP address and click the connect button.



#### NOTE

Default addresses / password for Ethernet management port:

**Controller A** ~ 10.0.0.2 / **Controller B** ~ 10.0.0.3

Username: admin      Password: admin

### 2.3.6 Configuring Your NAS System

1. Configure the basic system parameters.

Host Name: Enter a unique name for your EonNAS system.

Timezone: Select your local time zone.

Password: Enter a new password for the admin account (the default is admin).

Host Name	<input type="text" value="EonNAS_3xxx"/>
Timezone	<input type="text" value="(GMT-08:00)America/Los_Angeles"/>
Password	<input type="password" value="••••"/>
Confirm Password	<input type="password" value="••••"/>

2. The current IP address setting appears. Make changes if necessary and click "OK".

Interface	IP Address	Netmask	Gateway	Link
Mgmt0 (Primary)	<input type="radio"/> DHCP <input checked="" type="radio"/> 192.168.0.2	255.255.255.0		<input checked="" type="radio"/>
Ch0 (Controller A)	<input checked="" type="radio"/> DHCP <input type="radio"/> 10.0.0.4	255.255.255.0		<input type="radio"/>
Ch1 (Controller A)	<input checked="" type="radio"/> DHCP <input type="radio"/> 10.0.0.5	255.255.255.0		<input type="radio"/>
Ch2 (Controller A)	<input checked="" type="radio"/> DHCP <input type="radio"/> 10.0.0.6	255.255.255.0		<input type="radio"/>
Ch3 (Controller A)	<input checked="" type="radio"/> DHCP <input type="radio"/> 10.0.0.7	255.255.255.0		<input type="radio"/>
Mgmt0 (Slave)	<input checked="" type="radio"/> DHCP <input type="radio"/> 10.0.0.3	255.255.255.0		<input checked="" type="radio"/>
Ch0 (Controller B)	<input checked="" type="radio"/> DHCP <input type="radio"/> 10.0.0.8	255.255.255.0		<input type="radio"/>
Ch1 (Controller B)	<input checked="" type="radio"/> DHCP <input type="radio"/> 10.0.0.9	255.255.255.0		<input type="radio"/>
Ch2 (Controller B)	<input checked="" type="radio"/> DHCP <input type="radio"/> 10.0.0.10	255.255.255.0		<input type="radio"/>
Ch3 (Controller B)	<input checked="" type="radio"/> DHCP <input type="radio"/> 10.0.0.11	255.255.255.0		<input type="radio"/>

3. By default, a new pool will be created. Change the pool name and RAID level if necessary and click OK. You can also choose to create the pool after initialization.

Pool Name:

Data Protection Level:

- RAID 1: Provides best protection. Your data will be mirrored.
- RAID 6: Provides protection against two simultaneous drive failures.
- RAID 5: Provides protection against one drive failure.
- RAID 0: Provides no protection but offers maximum capacity.
- Configuring storage after system initialized.

- A user account Guest (username: guest, password: guest) will be created.

Add new users or modify existing accounts and click OK.


Name	Password	Confirm Password	Home Directory
guest	●●●●●●	●●●●●●	<input checked="" type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>

- A new share folder will be created. Add more share folders or modify existing folders and click OK.

Folder	Access Rights
Share	<input checked="" type="radio"/> Full Control <input type="radio"/> Read Only
	<input type="radio"/> Full Control <input type="radio"/> Read Only
	<input type="radio"/> Full Control <input type="radio"/> Read Only

- View the summary of configurations. Click Back to modify the parameters or Apply to complete the Startup Wizard. Press OK to initialize or to reboot when prompted!

Upon reboot, a beep will sound to indicate successful startup and when you hear two beeps, you may log into and use your EonNAS system (the whole process takes approximately 10 minutes).



**NOTE**

Remember to turn your firewall(s) back on!

For more details on system functions, please refer to the User Manual on the CD that came with the NAS system.

## 3 System Maintenance



### WARNING

Do not remove a failed component from the system until you have a replacement on hand. If you remove a failed component without replacing it, the internal airflow will be disrupted.

Qualified engineers who are familiar with the system should be the only ones who make component replacements.

When inserting a removable module, do not use excessive force. Forcing or slamming a module can damage the connector pins either on the module itself or on the backplane.

Hot-replaceable components:

- Controllers
- Cooling modules (selected systems)
- Hard drives
- Power supplies
- Hard drives

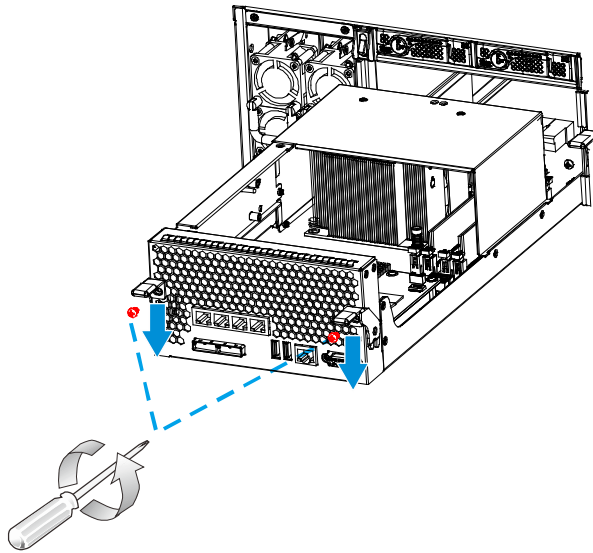
## 3.1 Replacing the Controller



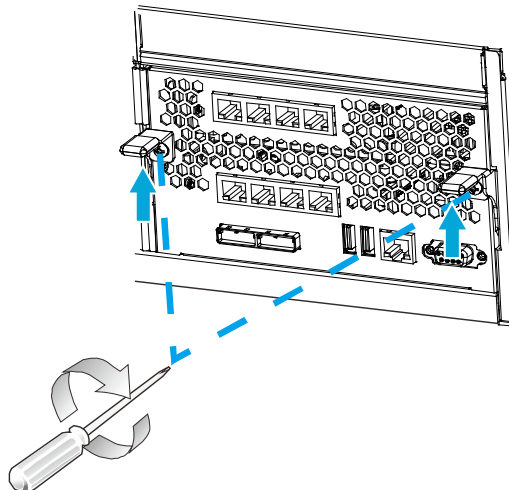
### NOTE

Single controller systems will need to stop all I/Os and shut down the system. Redundant controllers must both be in “Active” state before unplugging one of the controllers. Please activate the controller if it is not “Active”.

Remove the screws underneath the controller levers and push down on both levers simultaneously to release the controller from the enclosure.

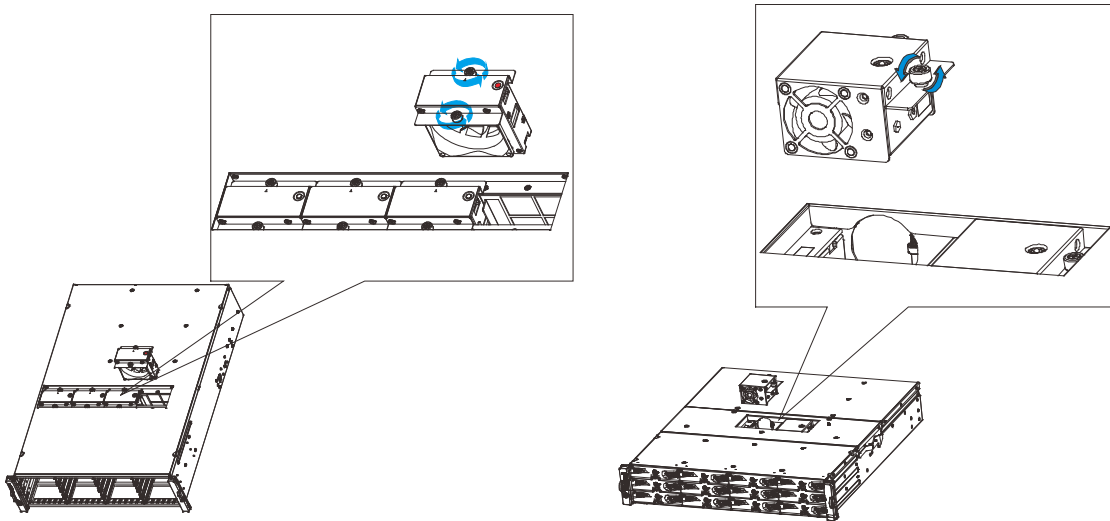


To install the new controller, align it to both sides of the controller slot opening. Gently slide and push the controller into the slot until you feel the connectors mate. Push the two levers upwards and secure the two screws.

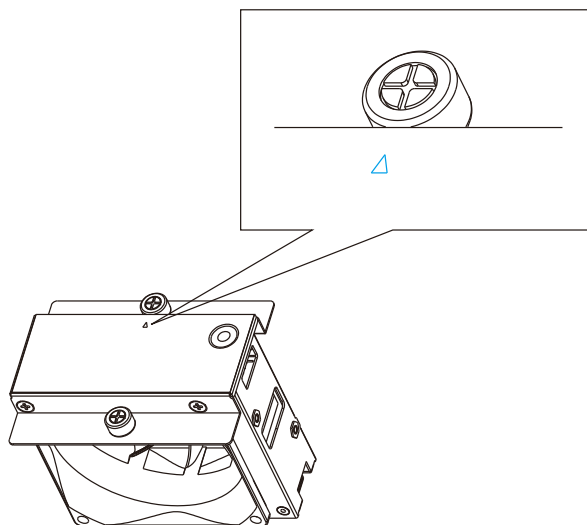


## 3.2 Replacing the Cooling Module

When the cooling module status LED is lit, you should identify the exact failed module and contact your supplier for a replacement. If the server is mounted in a rack cabinet, you will need to slide out the enclosure from the rack to replace the system cooling fans on the top of enclosure. To extract the system fans:



To install a new cooling module, simply slide the replacement cooling module back into the slot while making sure the triangle alignment markers (indicated in **blue**) is pointing towards the back of the enclosure.



## 3.3 Replacing the Power Supply



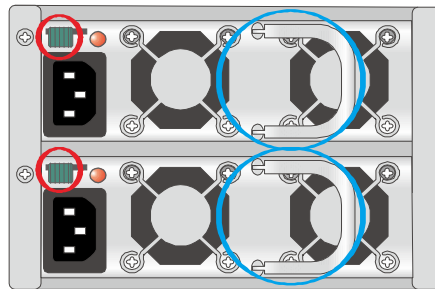
### WARNING

Although the system can operate with a failed PSU in a system, it is not recommended to run the system with a failed PSU for an extended period of time. The failed spare redundant PSU should be replaced as soon as possible!

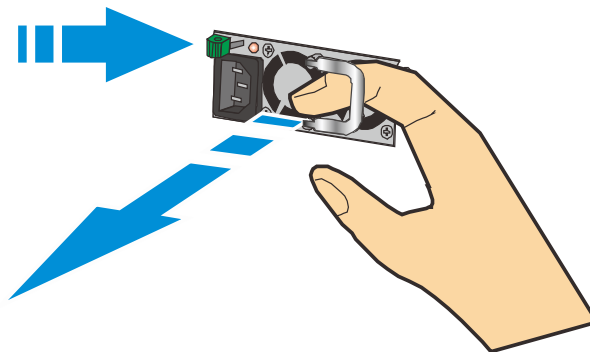
Power supplies are redundant and load-sharing. PSUs are hot swappable!

### 3.3.1 PSU (Type I)

1. Disconnect the power cord from the failed power supply. (Its LED should light static Red).
2. Place your thumb around the side of the PSU ejection lever (circled in **red**) while hooking your index and middle finger around the PSU handles (circled in **blue**).



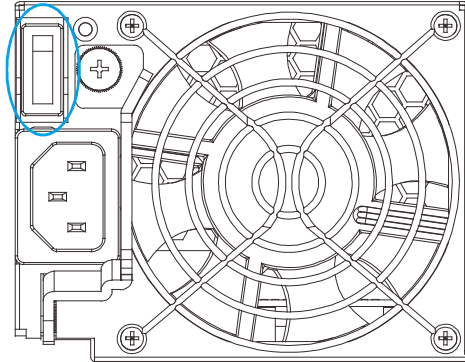
3. Use your thumb to push the lever in the direction of black arrow (shown below) to disengage the power supply and use your index or middle finger hooked around the ejection lever to pull out the PSU.



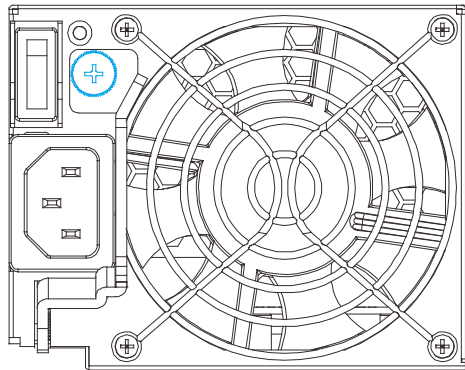
4. Gently inserted the replacement module until the ejection lever clicks-on..
5. Connect the power cord, power on, and check if the LED lights static **Green**.

### 3.3.2 PSU (Type II)

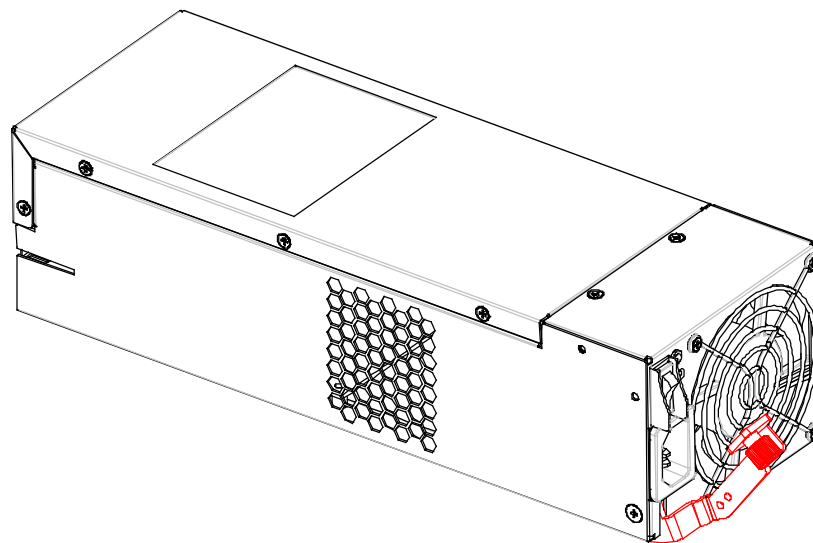
1. [Power off the system](#), turn off the PSU and unplug the power cord.



2. Loosen the retention screw that secures the extraction handle to the chassis.

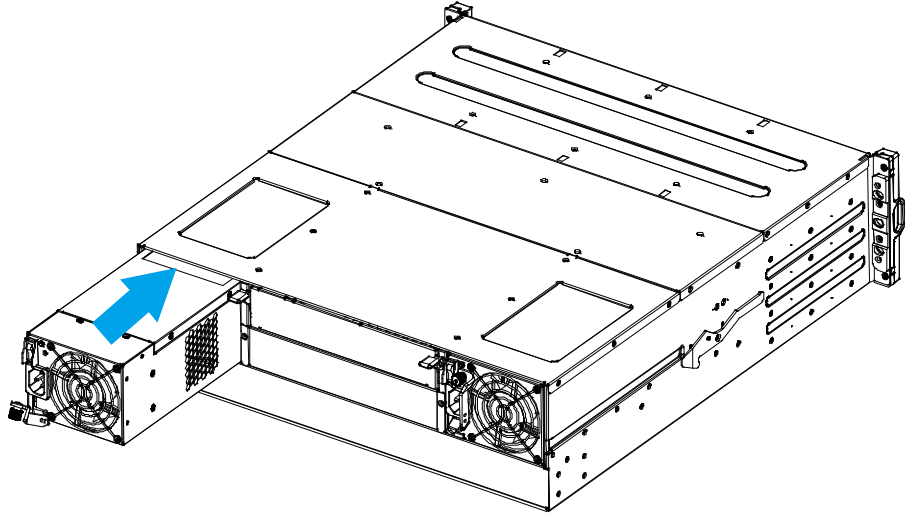


3. To remove the PSU module, pull the extraction handle downwards to disengage the PSU from the backplane connectors. Once dislodged, gently pull the PSU out of the system. If the system is mounted in a rack, use the hand to support its weight while removing the module.






4. Insert the replacement module. Make sure the extraction handle is pointing outwards. Push the replacement PSU into the chassis, and when you feel the contact resistance, push the extraction handle towards the PSU module and it should engage the back-end connectors.



### 3.4 Replacing / Installing a Memory Module



**WARNING**

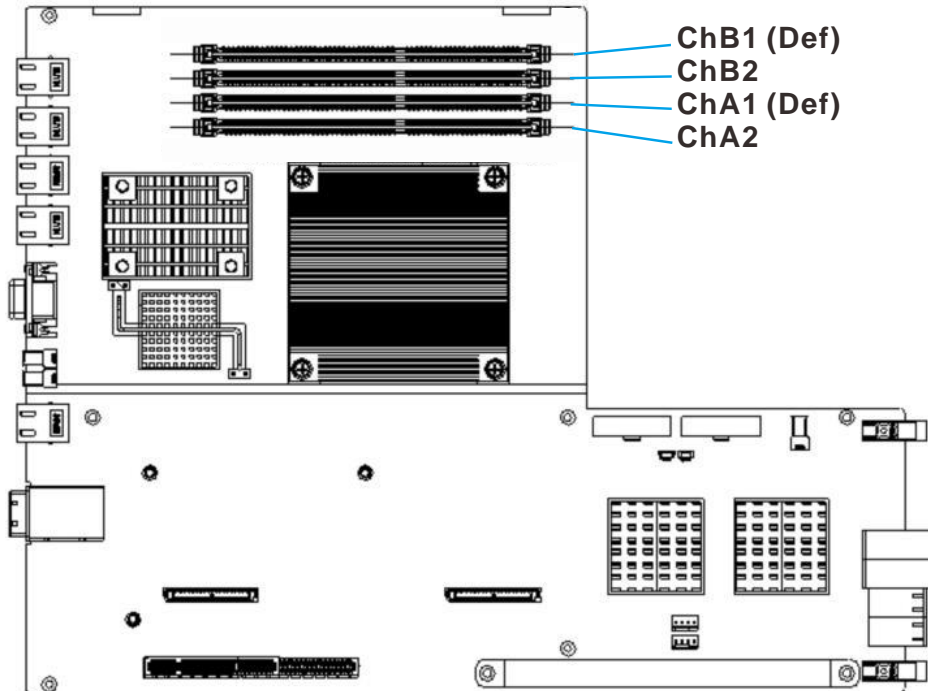
Upgrading the system beyond the maximum memory configurations is not guaranteed to sustain normal functions and may result in system instability issues!

Before you purchase replacement or upgrade the module(s), please consult with your vendor on qualified components.

#### 3.4.1 Default and Upgrade DRAM Installation Slots

Please install according to the following default / upgrade DIMM channel configuration; for detailed memory specifications, please click [here](#).

ChNo.	ChA2	ChA1	ChB2	ChB1
<b>NAS System</b>				
<b>301x</b>	V (Upgrade)	V (Default)	V (Upgrade)	V (Default)
<b>301x-1</b>	V (Upgrade)	V (Default)	V (Upgrade)	V (Default)



To replace or upgrade system memory, please do the following:

1. Click on this [link](#), select your corresponding model and download the latest product datasheet.
2. From the memory section on the datasheet, locate your system's default memory size and upgradeability.
3. Order replacement / upgrade memory module from your vendor.



**WARNING**

Make sure both controller statuses are "Active".

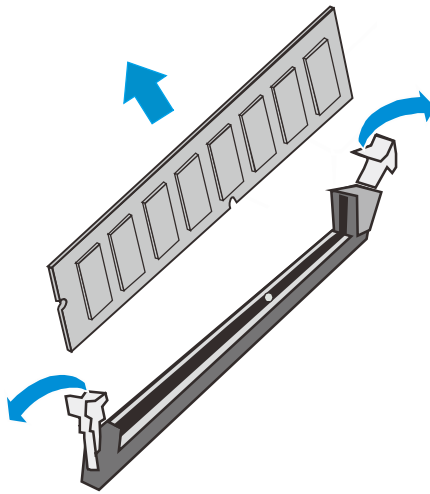
Remove **ONLY** one controller to upgrade at a time!

When reinserting the memory-upgraded controller, make sure the controller is "Active" before you remove the other controller to upgrade!

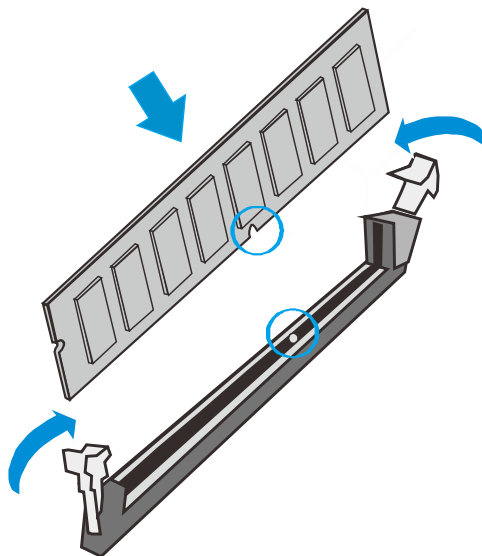
4. [Remove the controller](#) to gain access to the memory modules.
5. Follow the instructions on "[Replacing / Installing a DRAM Module](#)" and install memory module(s) into the desired slot(s) to complete the upgrade/ replacement process. Please refer to the above table for default/ upgrade memory slots.

### 3.4.2 Replacing / Installing a DRAM Module

1. **Shut down** the NAS server and disconnect both power cords.
2. **Wait for one minute** for the remaining electricity on the main board to disperse.
3. **Remove the controller** from the chassis (please refer to [Replacing the Controller](#)).
4. **Push the clips outward** on both sides of the DIMM slots and the DIMM module will eject automatically.



6. **To install the new module**, match the module polarization notch to the DIMM notch and applying force evenly on both sides, push the module into the DIMM socket until the clip latches onto the module.



## 3.5 Replacing Hard Drives



### WARNING

Keep a replacement on hand before replacing the hard drive. Do not leave the drive tray open for an extended period of time or the internal airflow will be disrupted.

Handle the drives with extreme care. Carry them only by the edges of their metal covers and avoid touching their circuits part and interface connectors.

### 3.5.1 Detecting a Failed Hard Drive

If a hard drive fails, the system notifies you through the following indicators:

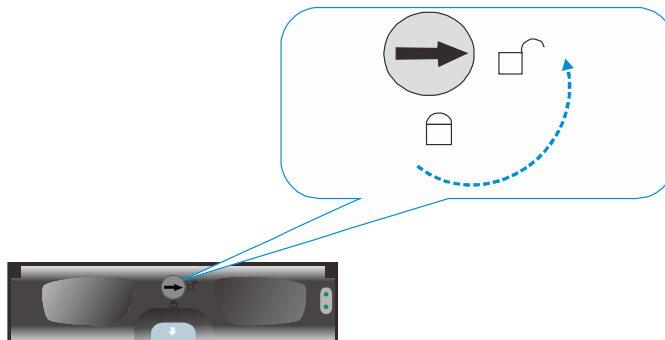
- Audible alarm (refer to [Audible Alarms](#))
- [Hard drive tray status LED](#)

### 3.5.2 Replacing a Hard Drive

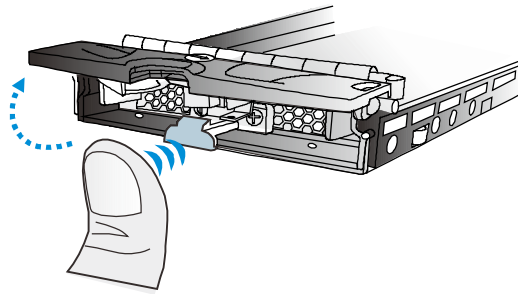
1. Familiarize yourself with the hard drive allocation. The hard drive numbering sequence are as below:

<b>Slot 1</b>	<b>Slot 2</b>	<b>Slot 3</b>	<b>Slot 4</b>
<b>Slot 5</b>	<b>Slot 6</b>	<b>Slot 7</b>	<b>Slot 8</b>
<b>Slot 9</b>	<b>Slot 10</b>	<b>Slot 11</b>	<b>Slot 12</b>
<b>Slot 13</b>	<b>Slot 14</b>	<b>Slot 15</b>	<b>Slot 16</b>

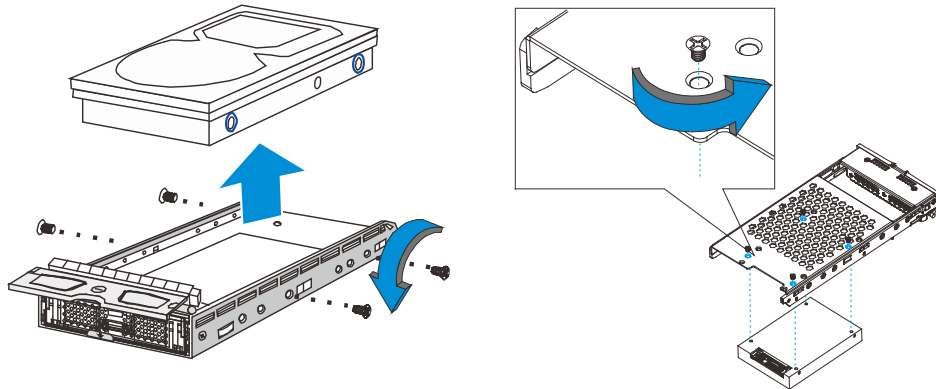
2. **Unlock the drive tray bezel (indicated by the blue arrow).** Use a flat-blade screwdriver to set the groove in the horizontal orientation.



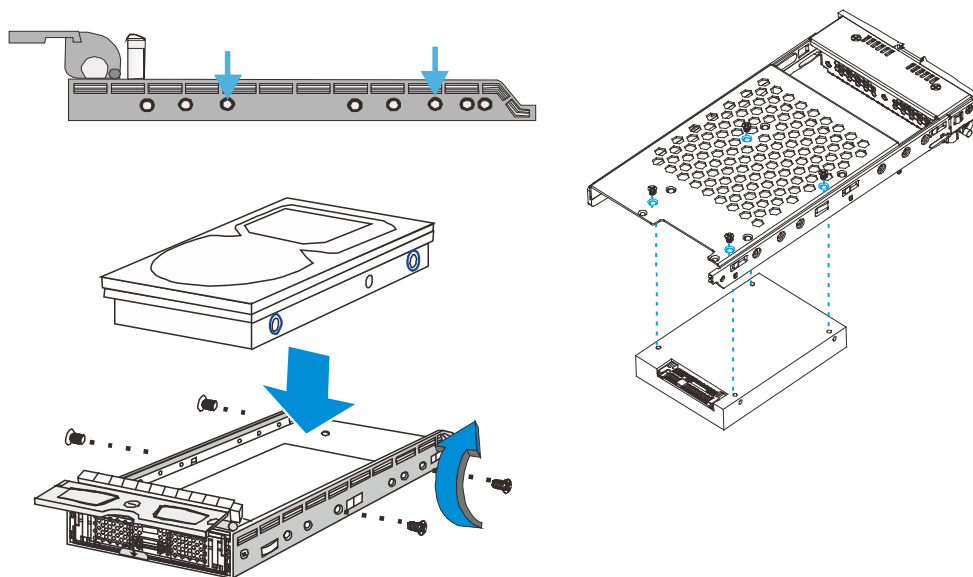
3. **Open the drive tray.** Press the button. The tray bezel will pop out.



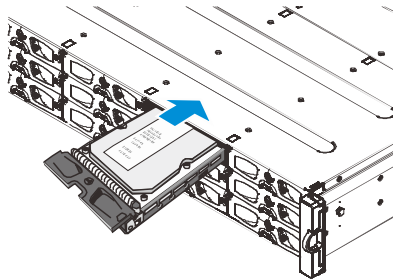
4. **Remove the drive tray.** Pull the tray one inch away from the enclosure. Wait for at least 30 seconds for the disk drive to spin down, and then gently withdraw the drive tray from the chassis.
5. **Remove the retention screws.** Remember the screws locations as the replacement drive need to be re-secured onto the drive tray.



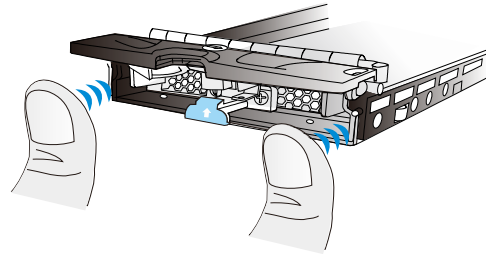
6. **Replace the drive.** Secure the hard drive.



7. Insert the tray with the bezel opened and place your thumbs in front, on both sides of the tray, gently push the tray into the enclosure until you feel the connectors have met.

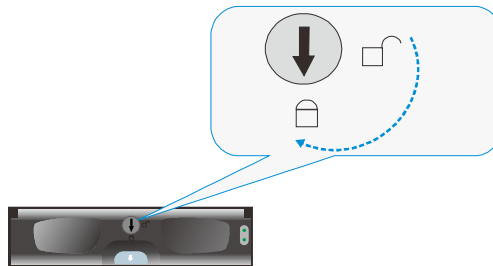



**Insert with bezel opened**



**Place thumbs on both sides**

8. **Lock the drive tray.** Turn the bezel lock to the vertical orientation (locked position) using a flat blade screwdriver. Do not push the bezel lock while turning it, otherwise the spring handle will pop out again.



 **NOTE**

Never leave the bezel lock unlocked – the controller may consider it as a faulty drive.

9. **Check for hard drive error(s)** by looking at hard drive status LEDs. Make sure the status LED lights up green (shown below).



# 4 Appendix

## 4.1 Technical Specifications

### 4.1.1 Hardware

Dimensions	2U chassis: 445.6(W) x 650.25 (D) x 88.0 (H) mm 3U chassis: 445.6(W) x 650.25 (D) x 132.0 (H) mm
Chassis	2U / 3U rack-mount chassis
Storage	12 or 16 hot-swappable 2.5" or 3.5" SAS or SATA HDDs; RAID levels: 0, 1, 5, 6, 10, 50, 60
Backplane	SAS/SATA backplane for 12 or 16 HDDs (2.5' or 3.5")
Onboard LAN	1x GbE Ethernet RJ-45 ports
Cooling	Hot-swappable system fans, PSU fans
Mounting	Rackmount rails for 19" rack cabinets

### 4.1.2 Operating Environment

Temperature	Operating: 5 to 35°C (32° F to 95° F)
Humidity	Operating: 5% to 80%, non-condensing

### 4.1.3 Power Supply

AC Input	Minimum Rating	Maximum Rating	Max. Current
115V AC	90V AC	132V AC	10A
230V AC	180V AC	264V AC	5A
Frequency	47Hz	63Hz	



#### NOTE

Due to system variations, details specifications may differ system to system. For details, please refer to the [product data sheet](#) of your system.



## 4.2 Certifications

### 4.2.1 Summary

<b>Safety</b>	UL (60950-1 2'nd) BSMI CNS 14336: 2005 CB IEC 60950-1, 2'nd Edition GOST-R GOST R 60950-1-2005
<b>EMC</b>	EN 55022: 2006/A1:2007 EN 55024:1998/A1:2001/A2:2003 EN 61000-3-2:2006/A1:2009/A2:2009 EN 61000-3-3:2008 BSMI (CNS 13438) FCC (FCC Part 15,subpart B )
<b>Environment</b>	IEC 60068-2 MIL-STD-810E/883E ISTA ASTM-D3332 ISO 4180 ISO 7779/3744
<b>Others</b>	EU RoHS China RoHS

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# 5 Slide Rail Kit Installation Guide

This section contains multiple types of slide rail installation instructions. Do confirm your slide rail kit to matching instructions before you begin installation.

System Slide Rail Kit	EonNAS 301x	EonNAS 301x-1
<a href="#">9373 / 9CC / 9N1 Kit</a>	v	x
<a href="#">Slide Rail Kit</a>	x	v

If you are unable to locate clear instructions on installing your enclosure, please contact Technical Support!

## 5.1 Enclosure Installation Prerequisites

To ensure proper installation and functionality of the RAID system, please observe the following warnings:

- Cross check all components have been received against the “Unpacking List”. Contact your vendor immediately if anything is missing
- Install the enclosure as-is out of the packaging; install hard drives and optional modules (FBM / Supercapacitor battery) after the enclosure has been mounted
- Wear an anti-static wristband before and during the installation procedure
- It is recommended to plug the system into two different power sources (eg. into a power outlet and another into a UPS)
- Ensure the rack which the enclosure will be mounted onto has proper grounding and over-current protection
- Do not obstruct ventilation openings; provide 20cm of free space at the front and back of the enclosure for air circulation; keep the ambient temperature below 35 degrees Celsius

## Unpacking the System

Use the “Unpacking List” to cross check all components have been received. The basic contents include one GUI CD pack, Quick Installation Guide and RAID Enclosure Installation Guide. For details on each slide rail kit contents, please refer to specific kit installation details in this manual.

## Component Installation Procedure

Please install components in the following order:

1. Rackmount rails onto the enclosure / rack / cabinet
2. Enclosure onto the slide rail and into the cabinet
3. Hard drives into drive trays and then into the enclosure.
4. Drive trays (with or without hard drives) into the enclosure
5. If Supercapacitor battery / FBM were purchased as an optional component, the controller must be removed from the enclosure for installation.



### NOTE

For detail procedures from step 3 and onwards, please refer to the earlier sections in this hardware manual.

## Tools Required

For each of the slide rail installation procedures, you will need the following tools:

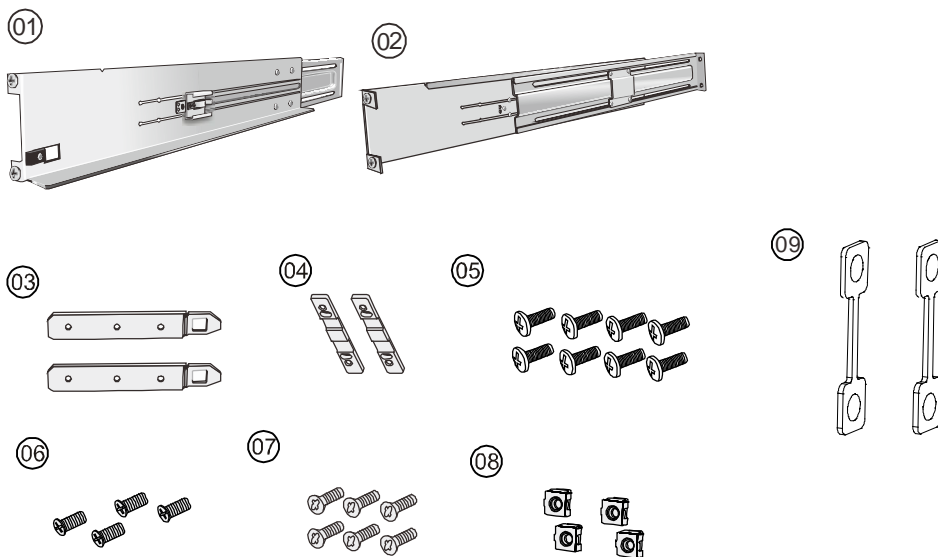
- One medium sized Phillips screwdriver
- One small sized Phillips screwdriver
- One medium size flat blade screwdriver

## 5.2 IFT-9373 / 9CC / 9N1 Slide Rail Kit

The following table shows all accessories that came with the IFT-9373CSlider36 - 0010 / 9CCSlider36 - 0010 / 9N1CSlider36 - 0010 rackmount rail installation kit. The slide stopper requires an extra installation step (mentioned in the procedure), while the difference in bracket lengths has no effect on the installation procedure:

### 5.2.1 IFT-9373 / 9CC / 9N1 Kit Contents

Item	Description	Quantity
01	Mounting bracket assembly, L-shaped, Left side	1
02	Mounting bracket assembly, L-shaped, right side	1
03	Inner glides	2
04	Flange filler plates (fixed behind chassis ears)	2
05	Truss head screws M5 x 9.0mm	8
06	Flathead screws #6-32 x10 (12) mm	4
07	Flathead screws #6-32 L6	6
08	M5 cage nuts	4
09	Slide stopper (CCSlider36-0010 only)	2



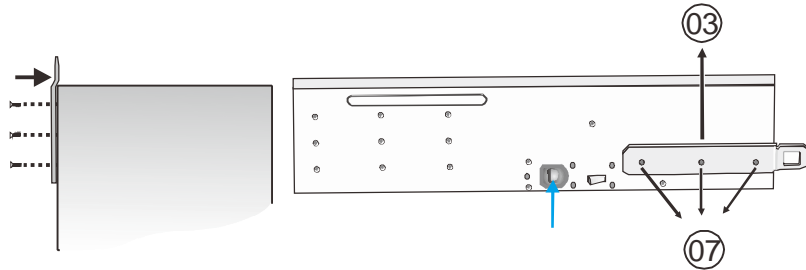


NOTE

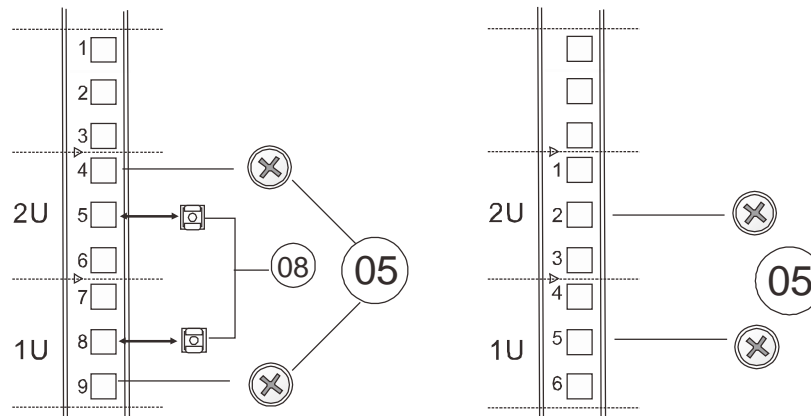
Compared to 9373CSlider kit, the other two slide rail kits differ in that the 9CCSlider kit has a “Slide Stopper” and 9N1CSlider kit’s left and right brackets are longer in length.

### 5.2.2 Installation Procedure

The installation begins with installing the inner glides **(03)** to the left and right side of the enclosure using #6-32 L6 flathead screws **(07)**. Make sure the protruding end (indicated by the **black arrow**) is bent inward as shown in the top view illustration.

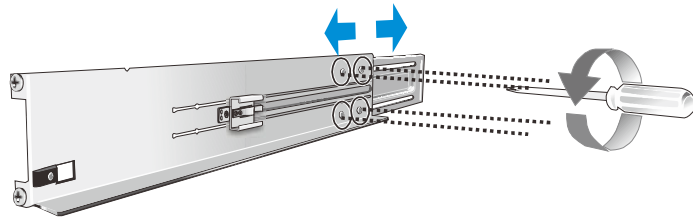


If the cage posts do not have threaded holes, cage nuts **(08)** are provided to be mounted onto the posts for cross recess truss head screws M5 x 9.0mm **(05)** to secure the enclosure. Please refer to the illustration below that matches your enclosure dimensions.

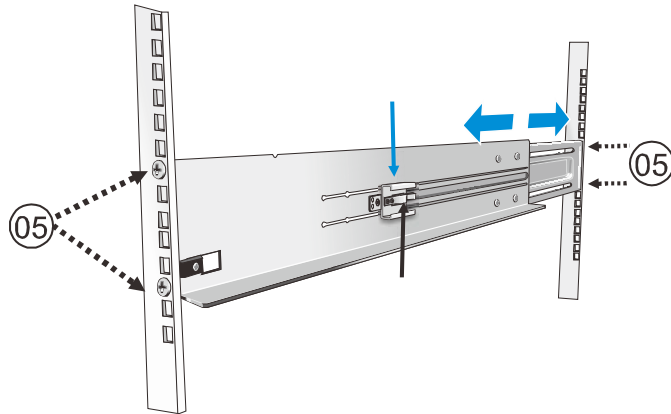


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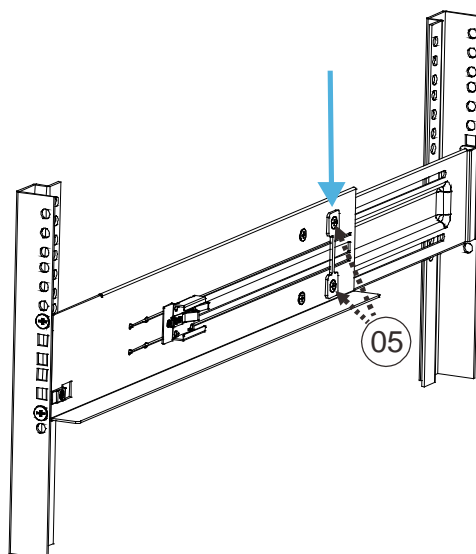
When adjusting the slide rail assembly to its appropriate lengths, make sure the L-shape rail **(01)** bend faces inwards, loosen the four screws to adjust its length.



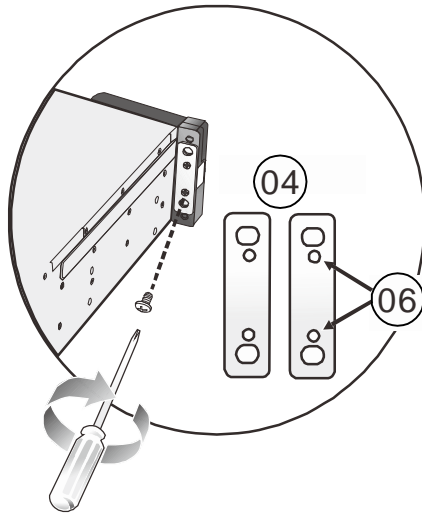
Secure the front end of the L-shape rail below the top cage nut (use for securing the enclosure). Extend the rail to the appropriate length where it meets the rear post and secure the front and rear using M5x0.9mm screws **(05)**. Slide runner (indicated by the **blue arrow**) and catch latch (indicated by the **black arrow**) is to meet with the inner glides.



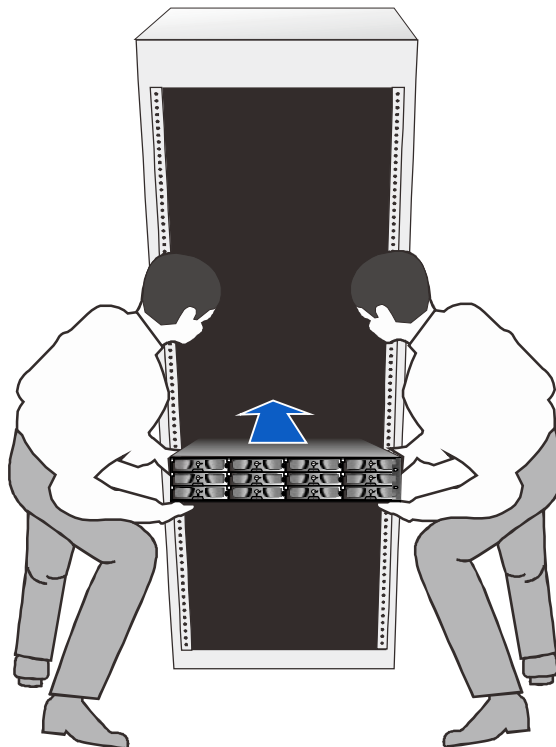
Attach the slide stopper (indicated by the **blue arrow**) to fix the length of the rail in place **(9CCSlider rail kit only)** and fix the slide rail onto the front and rear of the rack using M5x9.0mm screws **(05)**.



Attach the filler plates **(04)** behind the enclosure ears using two 32x10mm flathead screws **(06)** on each side (filler plates come with the system).

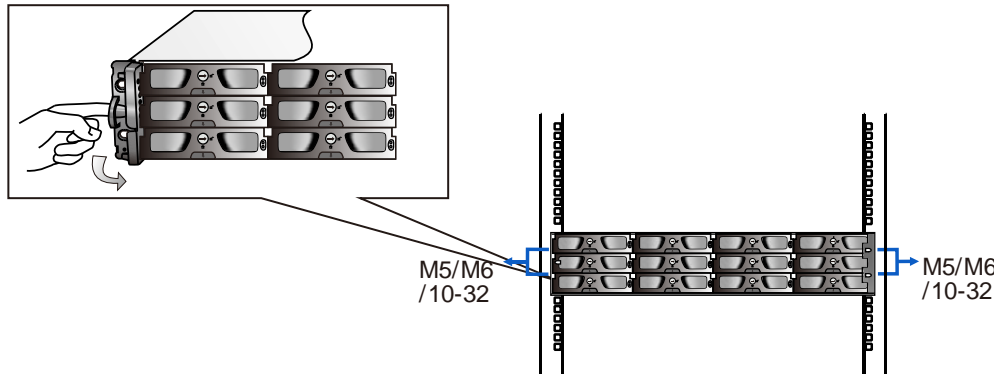


It is strongly recommended that two people perform this procedure together! To mount the enclosure onto the rail and into the rack, place the enclosure on the installed rails and slide it into the rack until the front ears of the enclosure meets the front rack posts.



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Secure the enclosure by using two #6 32x10mm flathead screws at the rear and four M5 x30mm screws on the forearm handles (forearm handles can also be secured using M6 / 10-32 screws from the system accessory box).

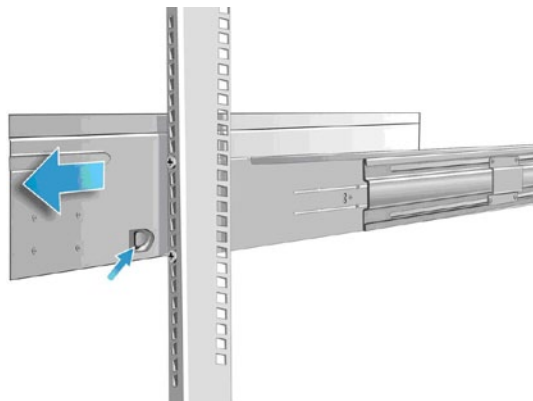


### 5.2.3 Removing the Enclosure

\*Prior to removing the enclosure, power down your system (stop all I/O actions, please refer to Users' manual) and all hard drives have been removed!

\*It is strongly recommended that two people work together on this procedure

1. Remove the screws on the enclosure's ears (shown above).
2. Pull the enclosure out until it is stopped by the release latch.
3. Use both hands to support the enclosure weight and use your index finger to press and pull the release latches (indicated by the small **blue arrow**) towards you. The larger blue arrow indicates the direction the enclosure should be pulled towards.



With another person's help, slowly pull the enclosure out of the rack.

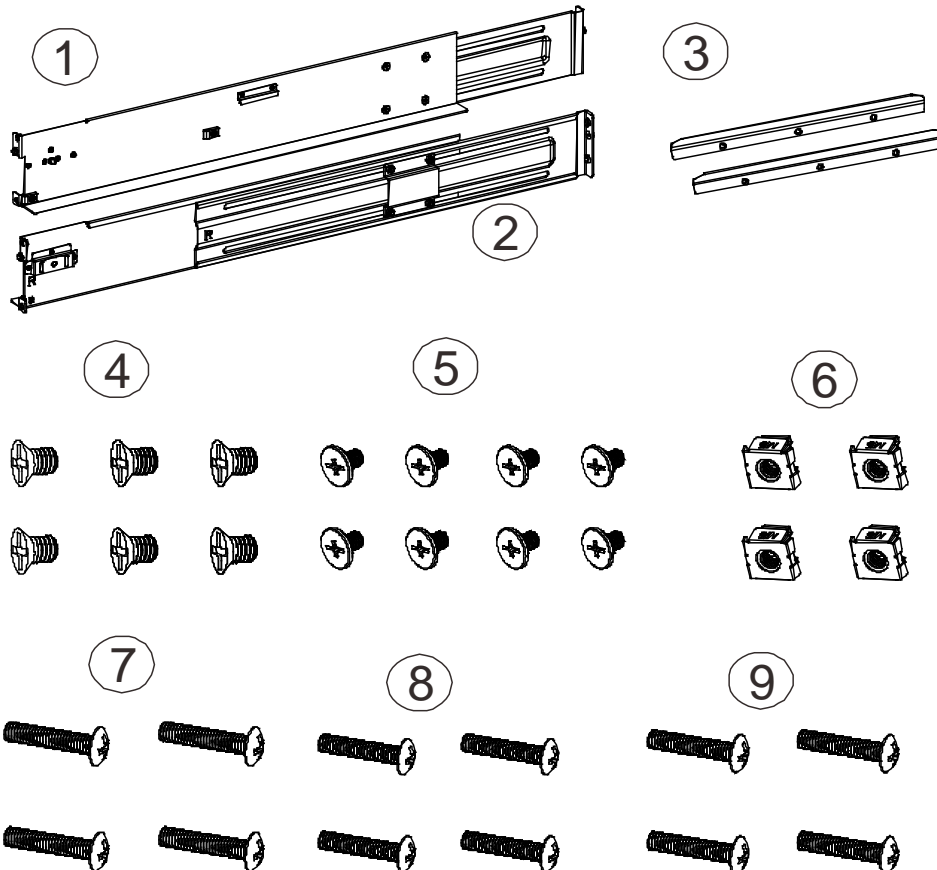


## 5.3 Slide Rail Kit

The following table shows all accessories that came with the slide rail kit.

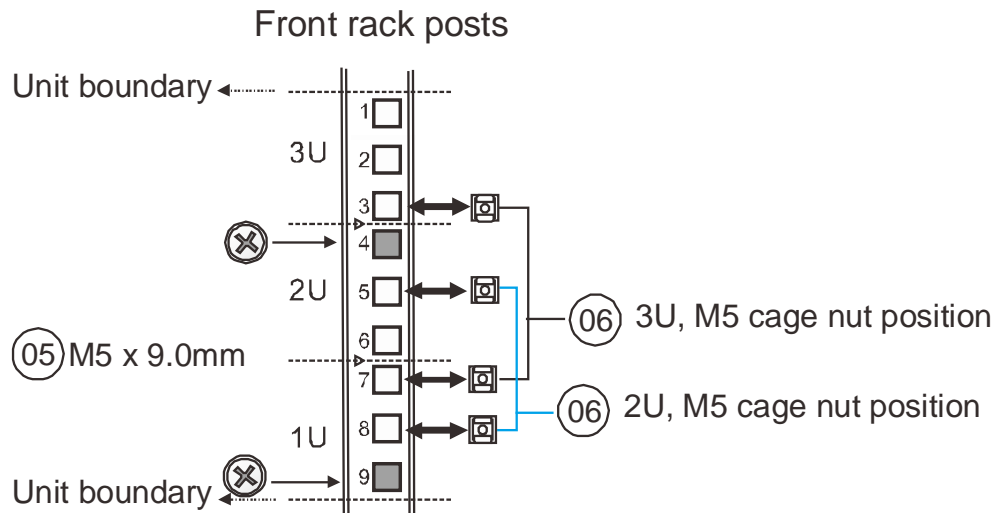
### 5.3.1 Kit Contents

Item	Description	Quantity
01	Mounting bracket assembly, left-side	1
02	Mounting bracket assembly, right-side	1
03	Inner glides	2
04	Flathead screws #6-32 L4	6
05	Truss head screws M5 x9.0mm	8
06	M5 cage nuts	4
07	M5 x 25mm	4
08	M6 x 25mm	4
09	#10-32 x 25.4mm	4

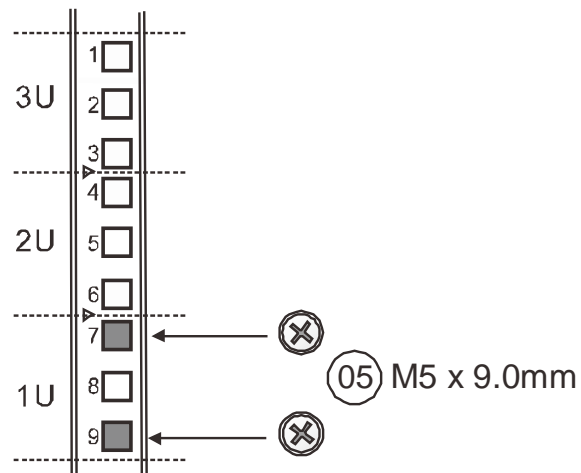


### 5.3.2 Installation Procedure

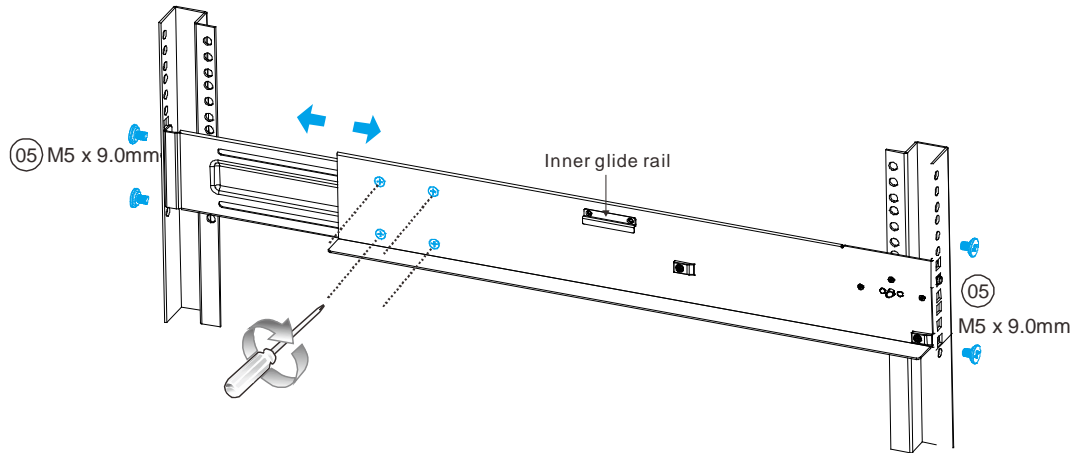
1. The installation begins with determining the installation position (front and rear rack positions) and M5 cage nut (5) insertion location.



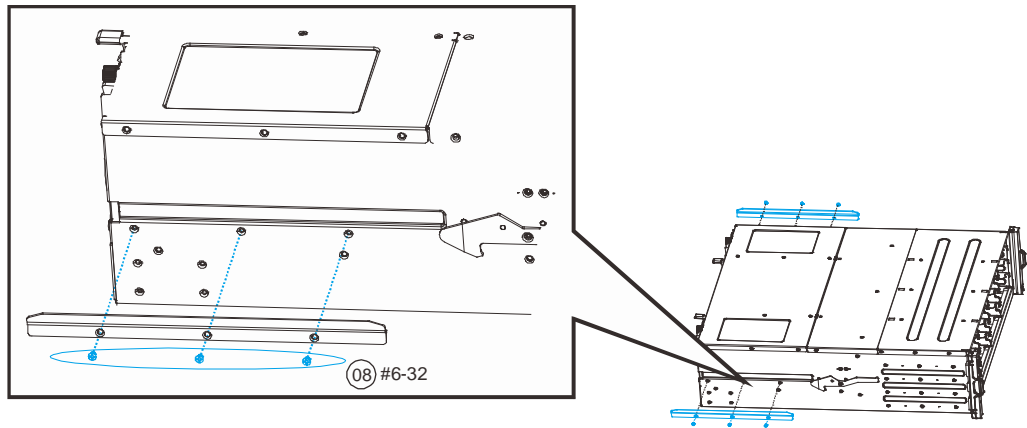
### Rear rack posts



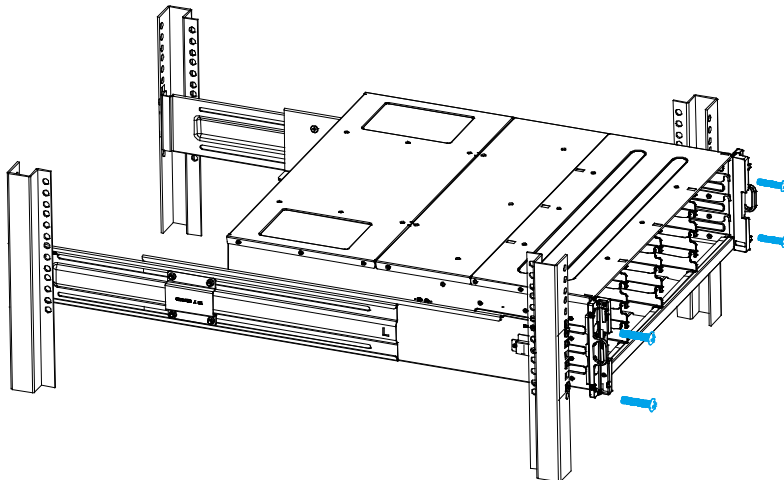
- Adjust the length by loosening the four screws on the slide rail. Secure the slide rails to front and rear posts using truss head screws. Tighten the four screws on the slide to fix the length.



- Attach inner glides to BOTH sides of the enclosure using flathead screws #6-32 (8)



- With the assistance of another person, lift and insert the enclosure onto the slide rail. Make sure the inner glides on both sides of the enclosure meet the inner glide rail. Secure the enclosure with M5 or M6 screws from the front.



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# Once Installed

Once the enclosure has been installed, you may refer to the Users Manual that came with your system for further instructions on completing the hardware installation process. The Users Manual will go on to explain details on installation / maintenance of hard drives, controllers, optional modules (Supercapacitor battery, CBM, etc.), cooling modules, power supplies, cable connections, topology configurations, etc.

## Safety Reminders

### **If you must relocate the enclosure after installation**

- Cease all input / output transactions, shutdown the system, disconnect all the cables (please refer to the User Manual for details)
- Empty all drive bays (hard drives + hard drive trays) and transport them separately in safe packaging
- Modules came installed within the enclosure need not be removed

### **When the system is in operation**

- Module and drive bays must not be empty! They must have a dummy cover / plate in place to stabilized internal airflow!
- Should a module fail, leave it in its place until you have the replacement item on-hand to take its place
- Allow at least 18~20cm of clearance space at the rear of the enclosure for ventilation  
Avoid touching the PCB and gold-finger connections.