PROMISE TECHNOLOGY

Vess A-Series
Storage Server Appliance
Vess A8120

Product Manual

Version 1.0

Copyright

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Recommendations

In this *Product Manual*, the appearance of products made by other companies, including but not limited to software, servers, and disk drives, is for the purpose of illustration and explanation only. PROMISE Technology does not recommend, endorse, prefer, or support any product made by another manufacturer.

About this guide

This *Product Manual* describes how to setup, use, and maintain the Vess A8120.

This manual includes a full table of contents, chapter task lists, and numerous cross-references to help you find the specific information you are looking for.

This manual includes are four levels of notices:

Warning

A Warning notifies you of probable equipment damage or loss of data, or the possibility of physical injury, and how to avoid them.

Caution

A Caution informs you of possible equipment damage or loss of data and how to avoid them.

Important

An Important message calls attention to an essential step or point required to complete a task, including things often missed.

Note

A Note provides helpful information such as hints or alternative ways of doing a task.

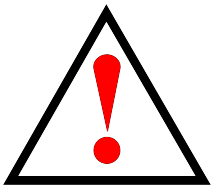
Regulatory compliance identification numbers

For the purpose of regulatory compliance certifications and identification, this product has been assigned a unique regulatory model number. The regulatory model number can be found on the product nameplate label, along with all required approval markings and information. When requesting compliance information for this product, always refer to this regulatory model number. The regulatory model number is not the marketing name or model number of the product.

Compliance information

Global notice for Class A equipment

Operation of this equipment in a residential environment could cause radio interference.



Warning

Operation of this equipment in a residential environment could cause radio interference.

Safety Information

Observe all warnings on the product and in the operating instructions. To reduce the risk of bodily injury, electric shock, fire, and damage to the equipment, observe all precautions included in this guide.

You must become familiar with the safety information in this guide before you install, operate, or service PROMISE products.

Use environment

- Make sure that the area in which you install the equipment is properly ventilated and climate controlled. The operate normally in the temperature of 5 º C – 40º C and relative humidity of 10% – 95%.
- Ensure that the voltage and frequency of your power source match the voltage and frequency inscribed on the electrical rating label of the equipment.
- Never use the equipment in a wet location.

Chassis

- Do not block or cover the openings to the equipment.
- Never push objects of any kind through openings in the equipment. Dangerous voltages might be present.
- Conductive foreign objects can produce a short circuit and cause fire, electric shock, or damage to your equipment.
- Lift equipment using both hands and with your knees bent.

Power Cords

To reduce the risk of electric shock or damage to the equipment:

- Use an approved power cord. If you have questions about the type of power cord to use, contact your PROMISE TECHNOLOGY INC. authorized service provider.
- If you have not been provided with a power cord for your product or for any AC-powered option intended for your product, purchase a power cord that is approved for use in your country.
- You must use a power cord rated for your product and for the voltage and current marked on the electrical ratings label of the product. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.

- Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
- Do not place objects on AC power cords or cables. Arrange them so that no one might accidentally step on or trip over them.
- Do not pull on a cord or cable. When unplugging from the electrical outlet, grasp the cord by the plug.
- To reduce the risk of electrical shock, disconnect all power cords before servicing the equipment.

Equipment Modifications

Do not make mechanical modifications to the system. PROMISE TECHNOLOGY INC. is not responsible for the regulatory compliance of PROMISE TECHNOLOGY INC. equipment that has been modified.

Equipment Repairs and Servicing

The installation of internal options and routine maintenance and service of this equipment should be performed by individuals who are knowledgeable about the procedures, precautions, and hazards associated with equipment containing hazardous energy levels.

- Do not exceed the level of repair specified in the procedures in the product documentation. Improper repairs can create a safety hazard.
- Remove all watches, rings, or loose jewelry when working before removing covers and touching internal components.
- Do not use conductive tools that could bridge live parts.
- Use gloves when you remove or replace internal components; they can become hot to the touch.

If the equipment sustains damage requiring service, disconnect the equipment from the AC electrical outlet and refer servicing to an authorized service provider. Examples of damage requiring service include:

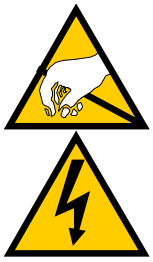
– The power cord, extension cord, or plug has been damaged.

– Liquid has been spilled on the equipment or an object has fallen into the product.

– The equipment has been exposed to rain or water.

– The equipment has been dropped or damaged.

– The equipment does not operate normally when you follow the operating instructions.



CAUTION

The electronic components within the Vess Series enclosure is sensitive to damage from Electro-Static

Caution

To avoid hand contact with an electrical hazard, do not remove more than one drive carrier a time" or the equivalent.

INTRODUCTION

The Vess A8120 can perform one of three roles on the surveillance network: Management Server, Recording Server or AI Server (requires hardware modification). As a management server, the Vess A8120 can run your preferred VMS software to manage the surveillance network, including VMS specific plug-ins to monitor PROMISE storage hardware. As a recording server, the system is used to manage the storage hardware and video data collected. Finally, with a hardware modification (graphics card addition), the Vess A8120 can run AI functions for facial recognition, tracking, contact tracing and other AI functions as they become available on the market.

SHIPPING BOX CONTENTS

Carefully unpack the shipping container and check that the following items are included:

- One Vess A8120
- One Accessory Box (includes 2 power cables)
- Sliding rail hardware for rack installation

SPECIFICATIONS

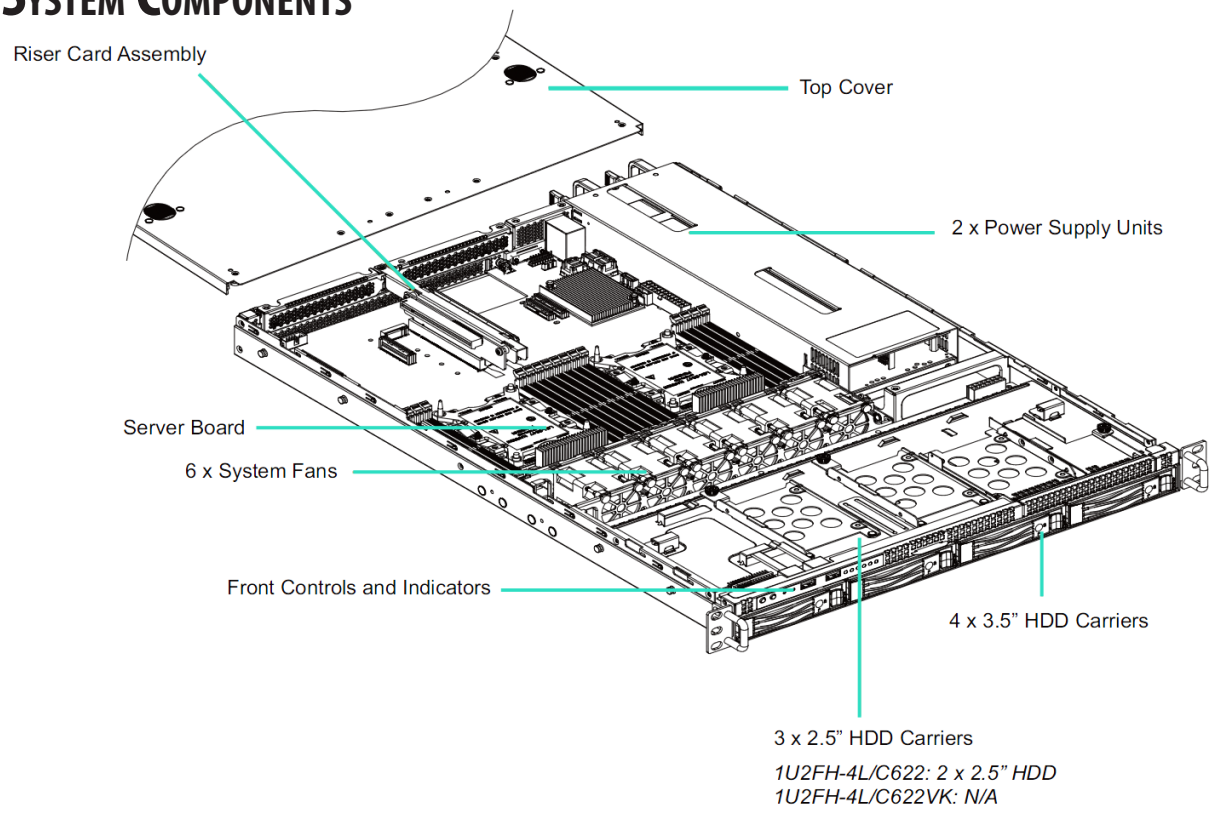
General	
Form Factor	1U 19”Rackmount
Drives	4 x 3.5” + 2 x 2.5”
HDD Type	Enterprise SATA HDD, optional SAS HDD and SSD
Processor	Intel Xeon® Gen II Scalable Silver, Optional for Dual CPU
Memory	16G default; Max.256G (Single CPU) or 512G (Dual CPU)
Interface	
NIC Port	Data: 1000BASE-T x 4 Management: 1000BASE-T x 1
USB Port	USB 3.0 Ports (Front panel) x2 USB 3.0 Ports (I/O panel) x 2
PCI Express	PCIe Gen3-16 (CPU0, CPU1) x 2
Graphics Port	D-Sub (VGA onboard) x 1
RAID	
RAID Level	Intel RAID 0, 1, 5, 10
Hot Spare	Supported
Software	
Supported OS	Microsoft® Windows Server 2019
Management	BMC Controller AST2500 IPMI Supported / Dedicated GLAN

Physical	
Dimensions (H x W x D)	43.4mm x 430.0mm x 625.0mm
Weight	20.50 kgs
AC Input	100-240V AC
Power Supply	Redundant 750W for each power
Hot Swap	HDD Module / PSU Module
Environment	
Temperature Range	Operation Temperature: 10˚C-40˚C
Regulatory / Safety	CE, CB, BSMI
Green Certificate	
Warranty and Support	
Warranty	
Support	

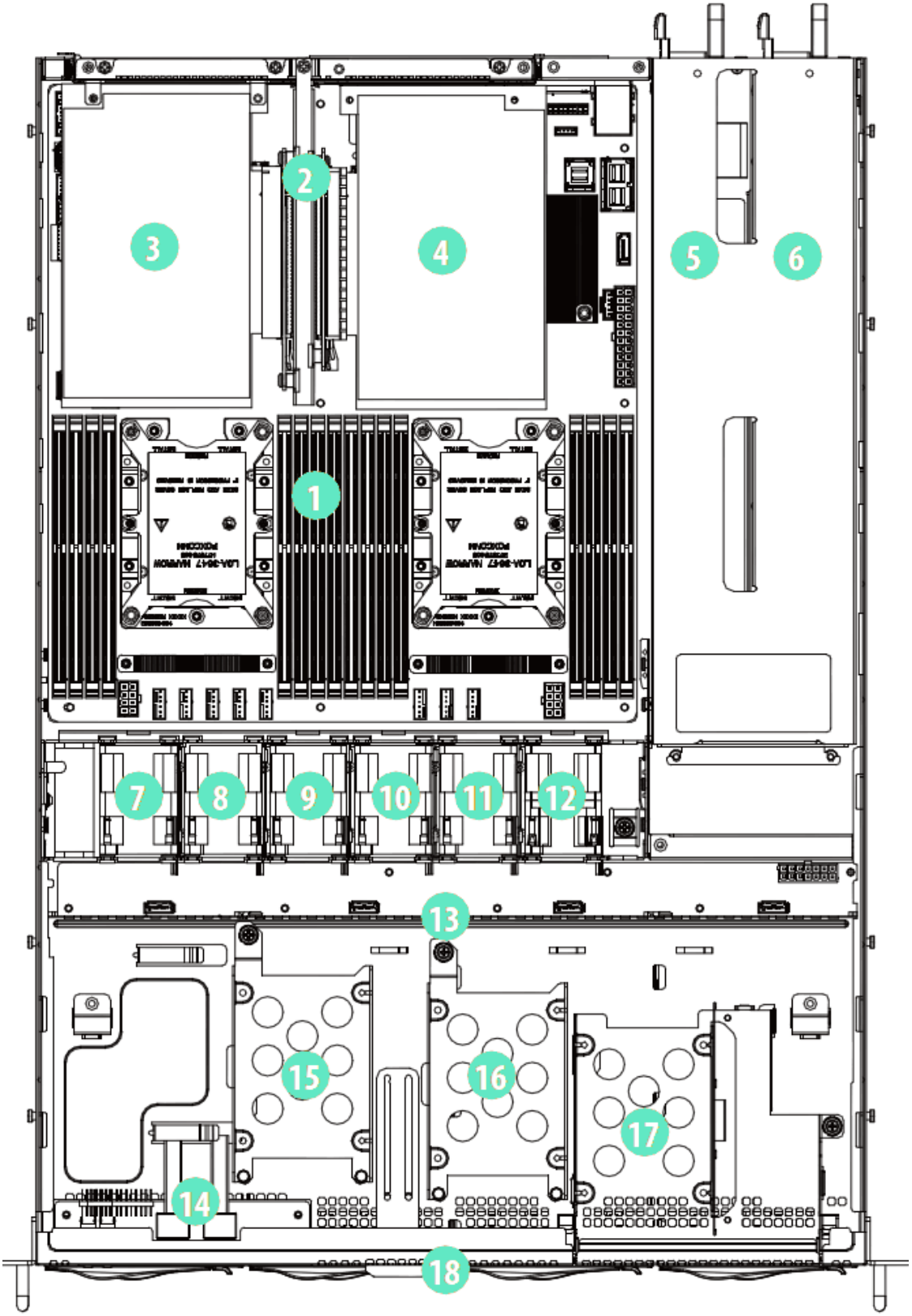
Server System Overview

This chapter provides diagrams and illustrations showing the location of important components of the server system.

System Components



Internal Features



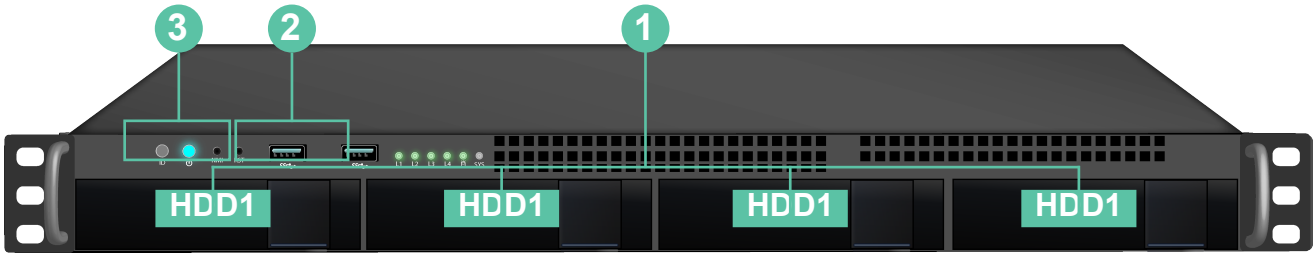
No.	Item
1	Server Board (SB)
2	Riser Card Assembly
3	PCIE Add-in Card 1 (on the riser card assembly)* or Storage Mezzanine Card (on the server board)
4	**Top:** PCIE Add-in Card 2 (on the riser card assembly)* **Bottom:** LAN Mezzanine Card (on the server board)**
5	Power Supply Unit (PSU2)
6	Power Supply Unit (PSU1)
7	System Fan (FAN1)
8	System Fan (FAN2)
9	System Fan (FAN3)
10	System Fan (FAN4)
11	System Fan (FAN5)
12	System Fan (FAN6)
13	HDD Backplane Board (BPB)
14	Front Panel Board (FPB)
15	2.5” HDD Carrier (HDD4)***
16	2.5” HDD Carrier (HDD5)***
17	2.5” HDD Carrier (HDD6)***
18	4 x 3.5’’ Hot-Swap HDD Trays (HDD0~HDD3)

*Supports Low profile and FHHL (Full High Half Length) PCIe cards

**Supports 1GbE x 2, 10GbE x2 BaseT (M557R2) or SFP+ (M599R2) Mezzanie cards

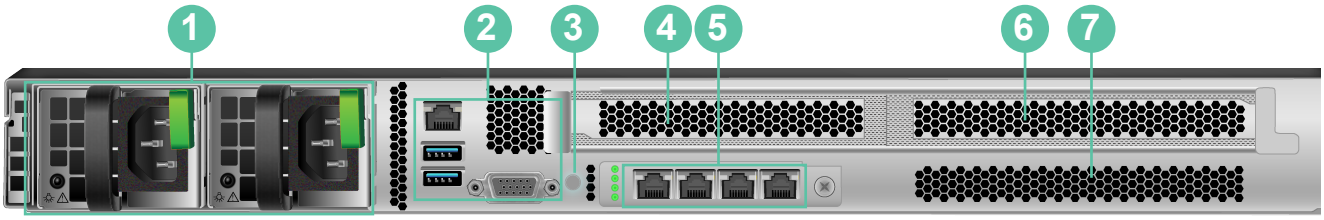
***Supports 7mm 2.5-inch HDD only

Front Panel



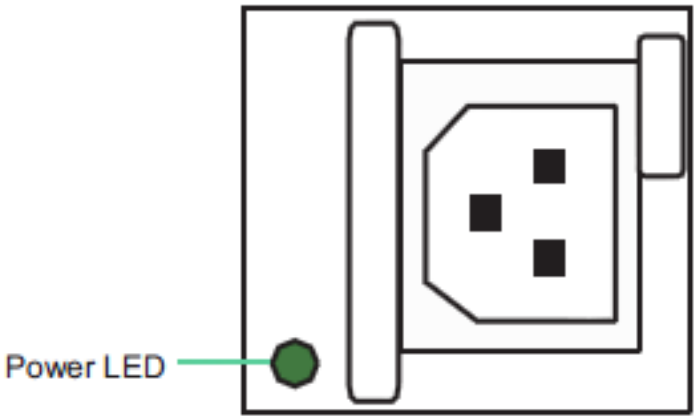
No.	Description
1	4 x 3.5” Hot-Swap HDD Trays (HDD0~HDD3)
2	2 x USB 3.0 Ports
3	Control Panel Buttons and LEDs

Rear Panel



No.	Description
1	2 x Power Supply Units (Redundant PSU 1+1) *Server requires 1 working PSU, with 1 redundant PSU. You must have at least one active supply, installed, functioning and connected to AC. **Only one of the PSUs is allowed to be removed while the server is running.**
2	I/O Ports include 1000BASE-T Management, 2 x USB 3.0, 1 x VGA
3	Unit ID LED (functions same as UID on front)
4	1 x PCI Express Slot 1 (on the riser card assembly) *Supports Low profile and FHHL (Full High Half Length) PCIe cards
5	1 x LAN Mezzanine Card Slot 1000BASE-T x 4
6	1 x PCI Express Slot 2 (on the riser card assembly) *Supports Low profile and FHHL (Full High Half Length) PCIe cards
7	Rear Vent*

PSU LED

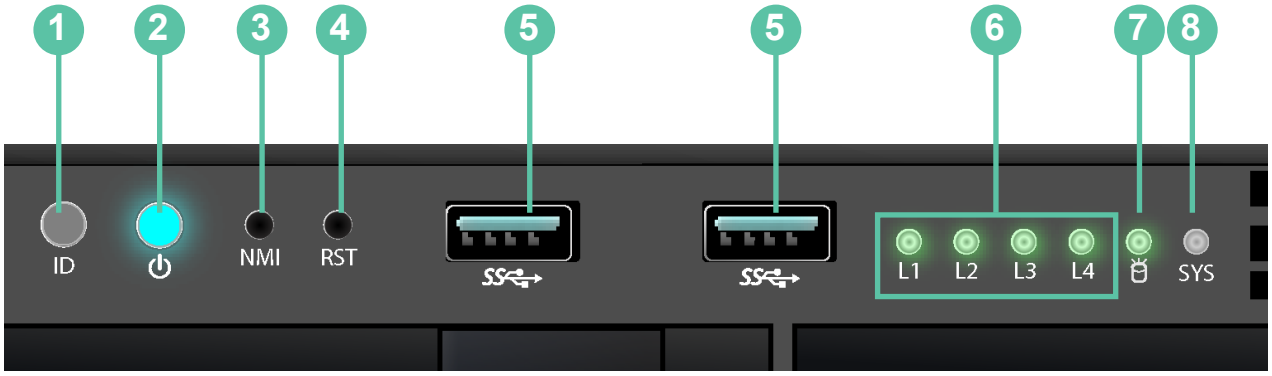


PSU LED Status

Status	Description
Green	Normal work; output ON and OK
Amber	Module fault/protection in operating mode (failure, OCP, OVP, Fan Fail, OTP, UVP) AC cord unplugged)

Front Control Panel Buttons and LEDs

Front Control Panel



No.	Item
1	UID Button and LED
2	Power Button and LED
3	NMI (Non-maskable Interrupt) Button
4	System Reset Button
5	USB 3.0 Ports
6	LAN1, LAN2, LAN3, LAN4 Activity LED
7	HDD Activity LED
8	System Health LED

UID Button

Press the UID button to toggle the front panel UID LED and the baseboard UID LED on and off. You are able to locate the server you're working on from behind a rack of servers.

Power Button

Press the power switch button to toggle the system power on and standby/sleep modes.

To remove all power from the system completely, disconnect the power cord from the server.

Status LEDs

Power LED

Status	Description
Green	Power on
Off	Power off

UID LED

Status	Description
Blue	System identification is active.
Off	System identification is disabled.

System Health LED

Status	Description
Solid Red	There is a fault in the system.
Off	System is normally operating.

HDD Activity LED

Status	Description
Blinking Green	At lease one of the HDDs is accessing data.
Solid Green	At lease one of the HDDs is connected.
Solid Red	At lease one of the HDDs fails.
Off	No HDD is present.

LAN LED

Status	Description
Blinking Green	Network access
Solid Green	MEZZ LAN is present.
Off	No MEZZ LAN is present.

Disk Drive LEDs

No.	Description
1	HDD Power LED
2	HDD Activity LED

HDD Power LED

Status	Description
Blue	HDD powered-on
Off	No power to HDD

HDD Activity LED

Status	Description
Solid Green	HDD active
Blinking Green	HDD accessing or reading
Red	HDD failed
Off	HDD powered-off

Setup Task List

To setup the Vess A8120 system, perform these hardware and configuration tasks in order:

- Task 1: Unpack device
- Task 2: Mount Vess A8120 in a standard rack
- Task 3: Install hard disk drives
- Task 4: Management connections
- Task 5: Connect the power and power on system
- Task 6: Login to Windows
- Task 7: Create RAID Volume

Task 1: Unpack device

Vess A8120 Packing List

The Vess A8120 box contains the following items:

- Vess A8120
- 2 x 1.5m (4.9 ft) Power cords
- Screws for disk drives

  (20 pieces for 4 bays)
- Sliding rail assembly for rack mounting

Task 2: Mounting Vess A8120 in a Rack

The instructions here apply to the all Vess A8120 Series 1U form factor models.

Task 2: Mounting Vess A8120 in a Rack

The Vess A8120 installs in a 19" equipment rack. Please examine the illustrations in this section to make sure you are using the correct type of rack.

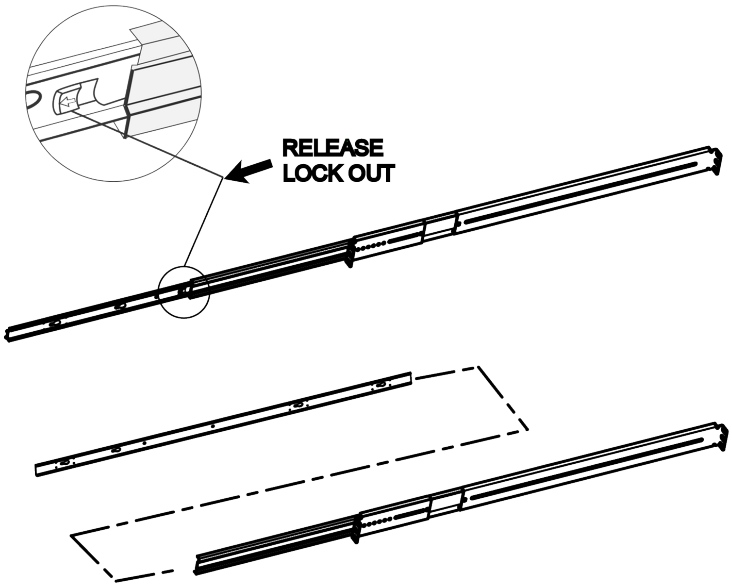
In order to place the system in the rack, first attach the ear brackets to the front of the device. Then install the sliding rail system in the rack. Finally place the device on the sliding rails and secure it to the rack. Use only the screws and fasteners included with the shipment of the sliding rail system, or with the Vess A8120.

Cautions

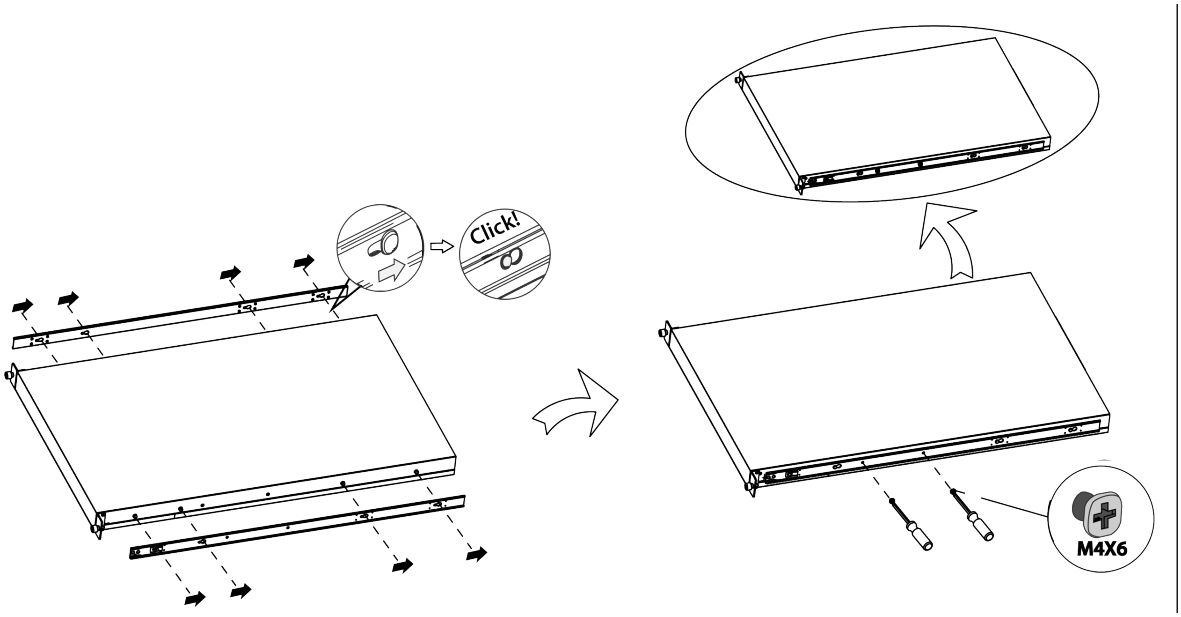
- **At least two persons are required to safely lift, place, and attach the Vess A8120 unit into a rack system.**
- **Do not install the Vess A8120 unit into a rack without rails to support the system.**
- **Mount the rails to the rack using the appropriate screws and flange nuts, fully tightened, at each end of the rail.**
- **Do not load the rails unless they are installed with screws as instructed.**
- **The rails available for the Promise Vess A8120 unit are designed to safely support that Promise Vess A8120 unit when properly installed. Additional loading on the rails is at the customer's risk.**
- **Promise Technology, Inc. cannot guarantee that the mounting rails will support your Promise Vess A8120 unit unless you install them as instructed.**

Follow these steps to install the mounting rails in an equipment rack.

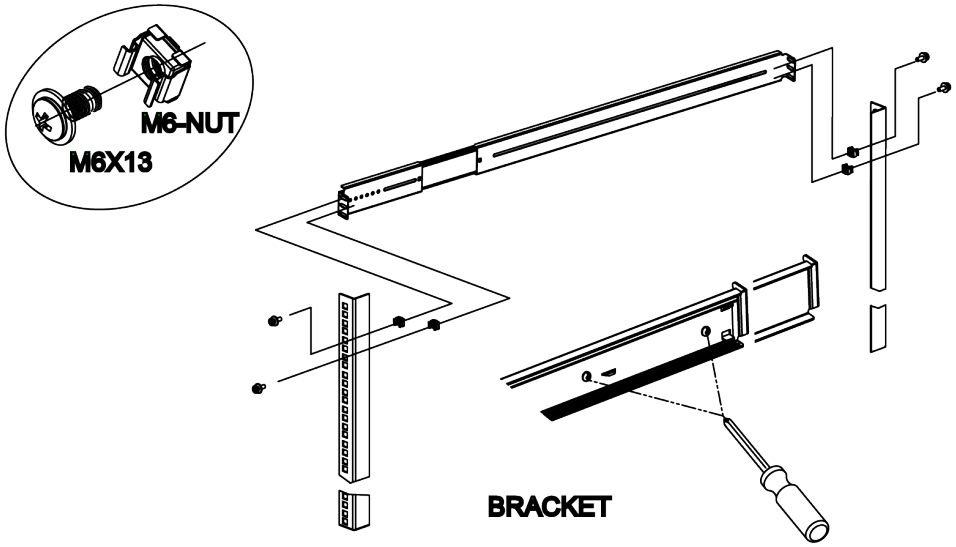
1. For both sliding rail assemblies, release and detach the inner member from the slide.



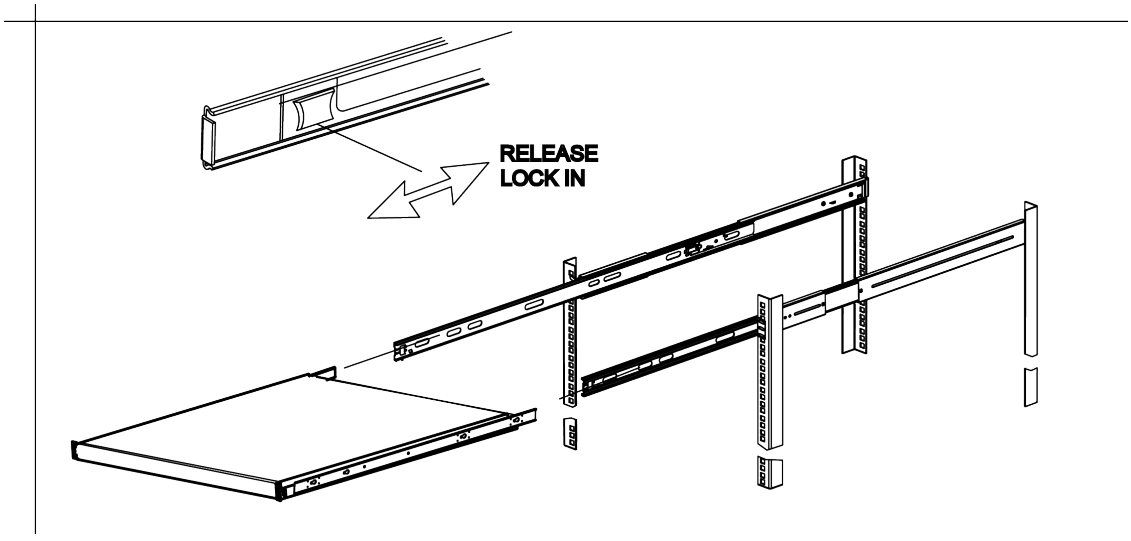
2. Attach the inner member of the sliding rail assembly to each side of the Vess A8120.



3. Fix the outer member of the rail assembly to the rack frame.



4. Carefully insert the Vess A8120 to complete the installation.



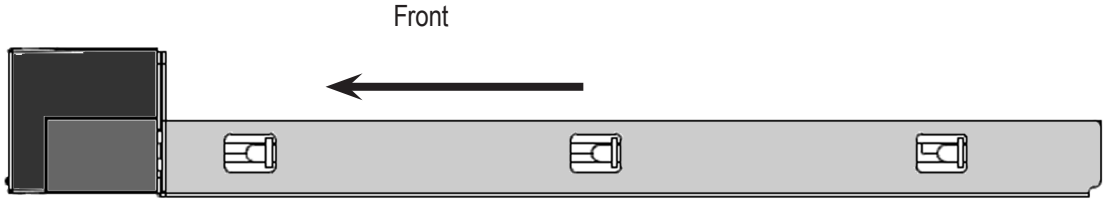
Task 3: Install Hard Disk Drives

The Vess A8120 system supports:

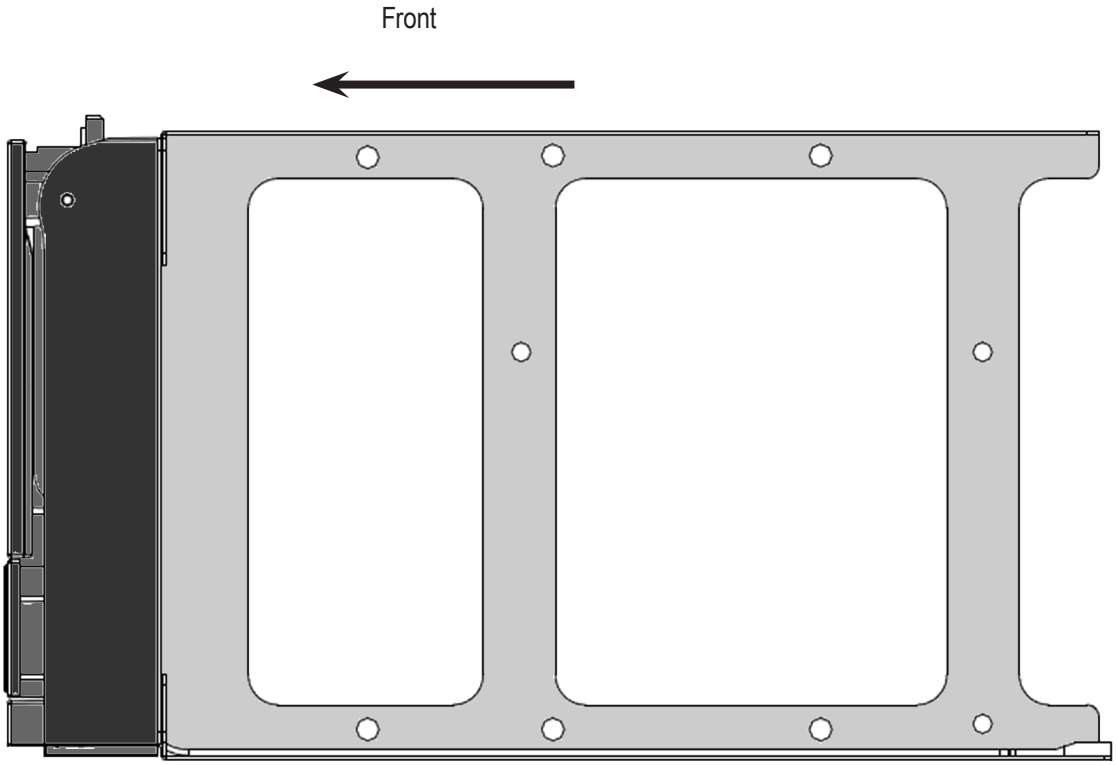
- SATA hard disks
- 3.5-inch hard disk drives

For a list of supported physical drives, download the latest compatibility list from the PROMISE support website.

Empty drive carrier side view



Empty drive carrier top view



Follow these steps to install the hard disks:

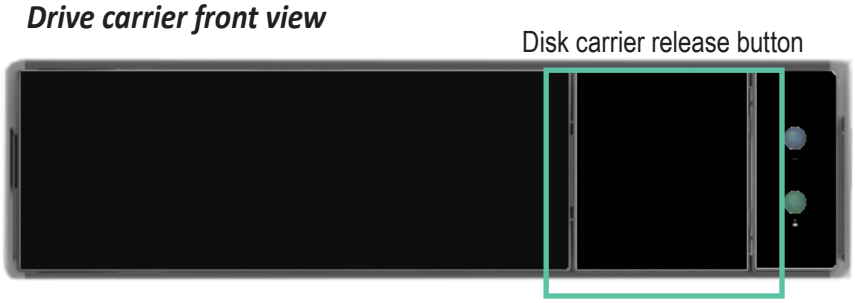
1. Press the drive carrier release button. The handle springs open.
2. Grasp the handle and gently pull the empty drive carrier out of the enclosure.

Caution

Swing open the drive carrier handle before you insert the drive carrier into the enclosure.

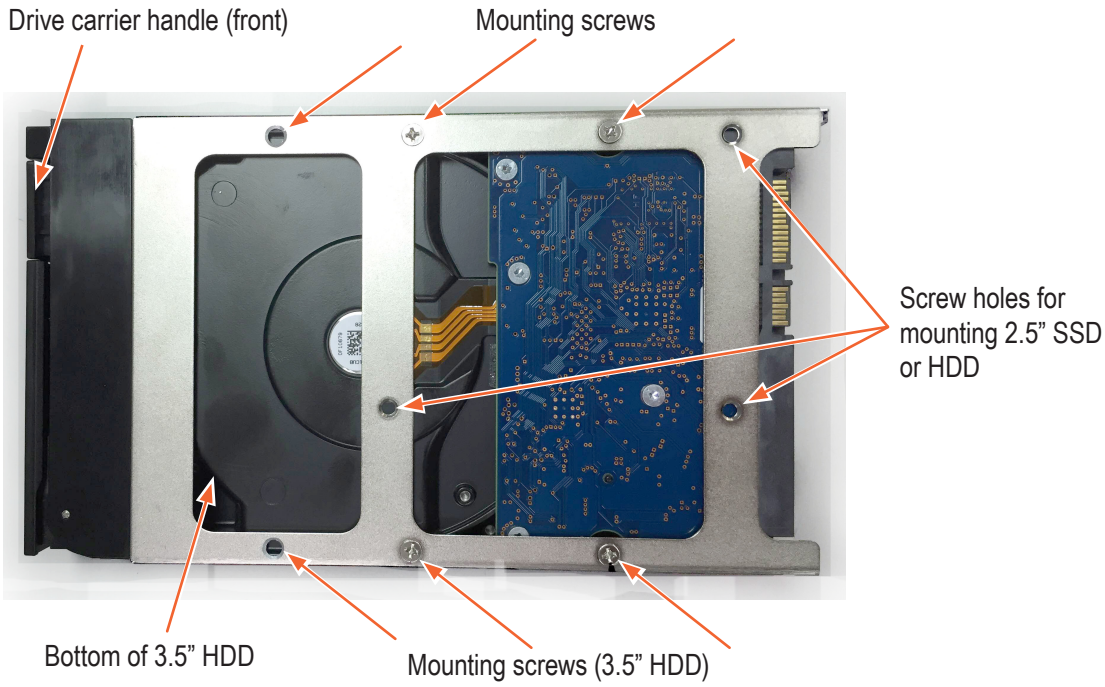
To avoid hand contact with an electrical hazard, remove only one drive carrier a time.

Drive carrier front view



3. Place the physical drive on a table with the bottom side facing up.
4. Position the drive in the carrier over the physical drive so the mounting holes line up (see below)

   Note there are different mounting screw holes for 2.5” drives.



5. Insert the screws through the proper holes in the carrier and into the drive or adapter.
   - Install four screws per drive.
   - Snug each screw. Be careful not to over tighten.
6. With the drive carrier handle in open position, gently slide the drive carrier into the enclosure.

Important

Press the release button to push the drive carrier into position.

Proper drive installation ensures adequate grounding and minimizes vibration. Always attach the drive to the carrier with four screws.

Task 4: Management Connection

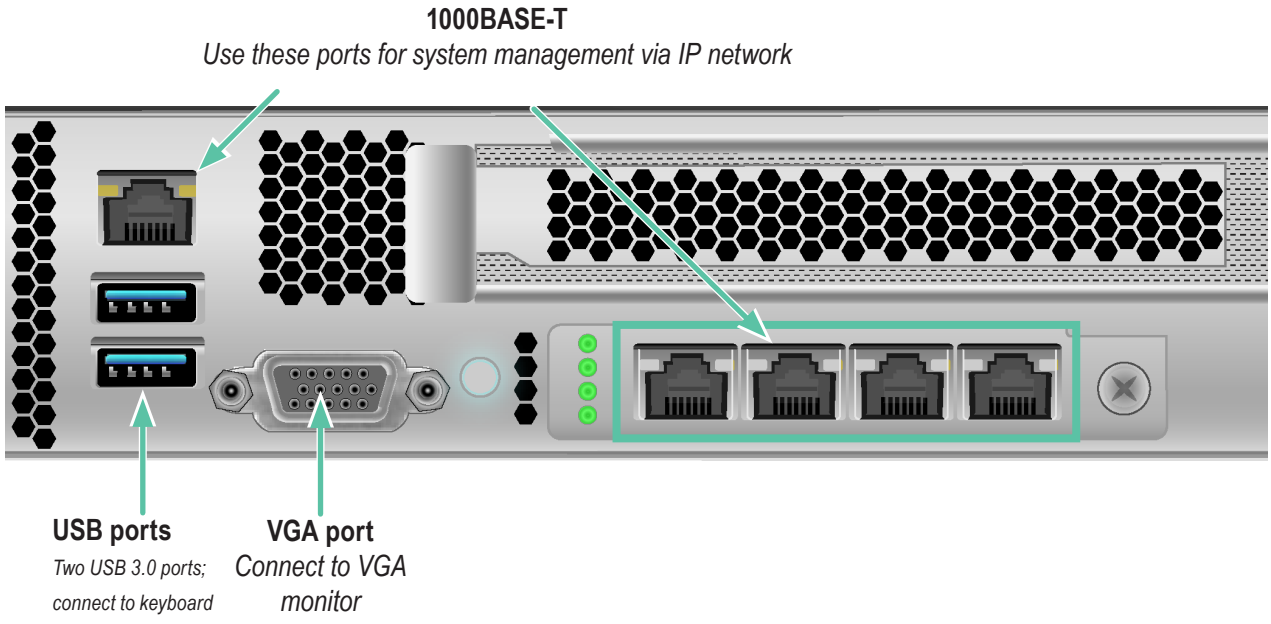
The Vess A8120 can be remotely managed through the IP network. The physical connection for management is provided by connecting to either of the two 1000BASE-T ports on the installed NIC. A lternatively you can attach a monitor to the VGA, and connect a USB keyboard and manage the initial setup configuration via direct connection to the device, using the Command Line Interface. This Quick Start Guide describes only the second option, connecting to the device with a monitor and keyboard. For remote management through the surveillance and data network, please see the Product Manual.

Management Path – on site keyboard and monitor

Use a USB keyboard and a VGA monitor to establish a direct out-of-band connection to the management software. The VGA and USB ports are located on the back of the Vess A8120. Connect a VGA monitor to the appropriate video monitor port, and connect a USB keyboard to any USB port on the rear panel.

Management via direct attached keyboard and monitor is done with the command line interface (CLI). Please see the Product Manual for a list of commands, use and login information.

Vess A8120 rear panel video monitor connections and USB ports



Management Path - network connection

The Gigabit Ethernet RJ-45 ports on the rear panel for the network connection used for device administrator. These ports must be physically and logically located in the IP subnet used by the system administrator.

To establish the management path:

1. Attach one end of an Ethernet cable to the network connector or standard NIC in the Host PC.
   Attach the other end of the Ethernet cable to one of the ports on the standard network switch on the subnet used for system administration.
2. Attach one end of an Ethernet cable to one of the ports on the same network switch or subnet used for system administration. Attach the other end of the Ethernet cable to one of the 1000BASE-T ports on the back of the Vess A8120.
   If you have multiple Vess A8120 systems, Host PCs or Servers, repeat steps 1 and 2 as required.
3. Follow the instructions for connecting to, and configuring the basic settings of the Vess A8120.
   Please note that you do not need to establish a network connection for the initial setup. The web-based management interface is accessible using a keyboard and monitor directly attached to the device. See the next section for instructions.

Drive carrier LEDs

Task 5: Connecting the Power

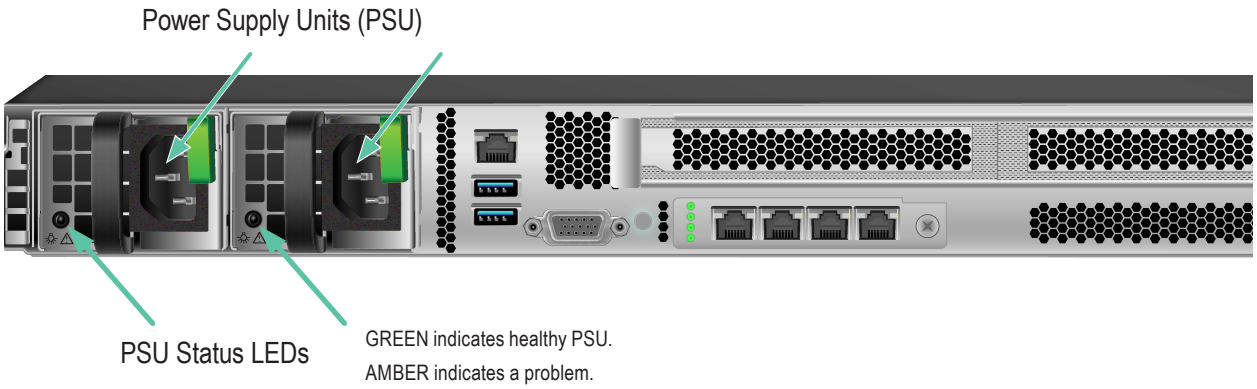
Insert one power cable into the power receptacle for the power supply and connect the PSU to a suitable power source.

Power On Vess A8120 system

With the power supplies connected, the system can now be powered on.

To power on the Vess A8120 system , press the Power button on the front panel. Observe the LEDs on the front panel, and on the back panel, to make certain the boot up proceeds smoothly and the system is connected to the network.

Swappable power supplies on rear panel



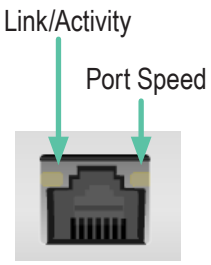
Front Panel LEDs

When boot-up is finished, check the LEDs on the front panel to make sure the system is functioning properly.

See the table below.

No.	LED	Description
1	**ID**	This will be lit BLUE when the system identification feature is active. Otherwise is remains unlit.
2	**Power**	Lights BLUE to indicate the system is powered on.
3	**Network Link/Activity**	One LED for each 1000BASE-T LAN port. These light GREEN to indicate a valid link. A blinking GREEN LED indicates activity on the port.

Management network port LEDs



LED	Description
Link/Activity	This is lit GREEN when a physical link is established; it blinks YELLOW when there is activity on the port.
Port Speed	GREEN indicates 1000 Mbps. Unlit indicates no link.

Task 6: Access Operating System GUI

To access the installed operating system graphical user interface on the Vess A8120, insert a USB keyboard into any USB port, and connect a monitor using the VGA port.

Log in to Windows

For Windows installations, once the system has booted up it will be necessary to choose various options to complete the OS setup. You will be prompted to select a default language and other user interface preferences. Follow the instructions on screen to complete your preferences selection and to establish a user name and password for the administrator. After completing these final tasks, the Windows desktop appears.

As administrator, the user is now able to install VMS and other software on the system.

Device Maintenance

This chapter guides you through the process to open the chassis and install components.

Before You Begin

Before you work with the server, pay close attention to the “Important Safety Instructions” at the beginning of this manual.

1. Make sure the server is powered off.

Power down the server if it is still running.

a. Press the Power button to power off the server from full-power mode to standby- power (sleep) mode. The Power LED at the front turns from solid green to blinking green.

b. Disconnect the power cord first from the AC outlet and then from the server.

The power LED turns off.

2. Ensure you have a clean and stable working environment. Avoid dust and dirt because contaminants may cause malfunctions.

3. Ground yourself properly before touching any system component. A discharge of static electricity may damage components. Wear a grounded wrist strap if available.

Installing Procedures

The following components are installed in the device before shipping:

- Power Supplies (Pre-installed)
- Server Board (Pre-installed)
- Front Panel Board (Pre-installed)
- HDD Backplane (Pre-installed)
- Fans (Pre-installed)

An add-in card is optional to be installed when a riser board has been installed on the server board. Note that some components are already pre-installed. Just connect the relevant cables before or after installation. See the Quick Installation Guide for more details.

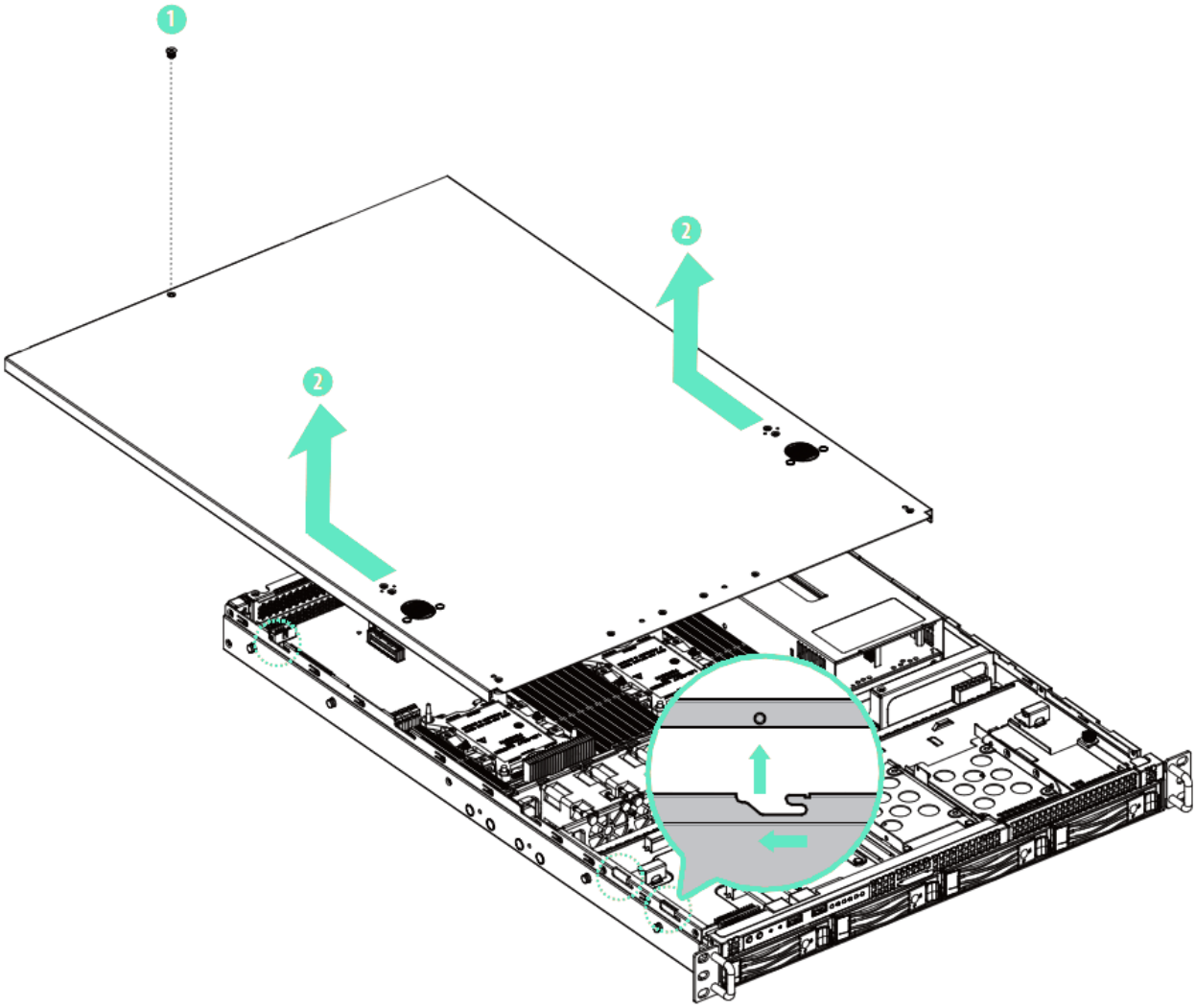
Server Top Cover

Warning

- **Before removing the top cover, power off the server and unplug the power cord.**
- **The system must be operated with the chassis top cover installed to ensure proper cooling.**

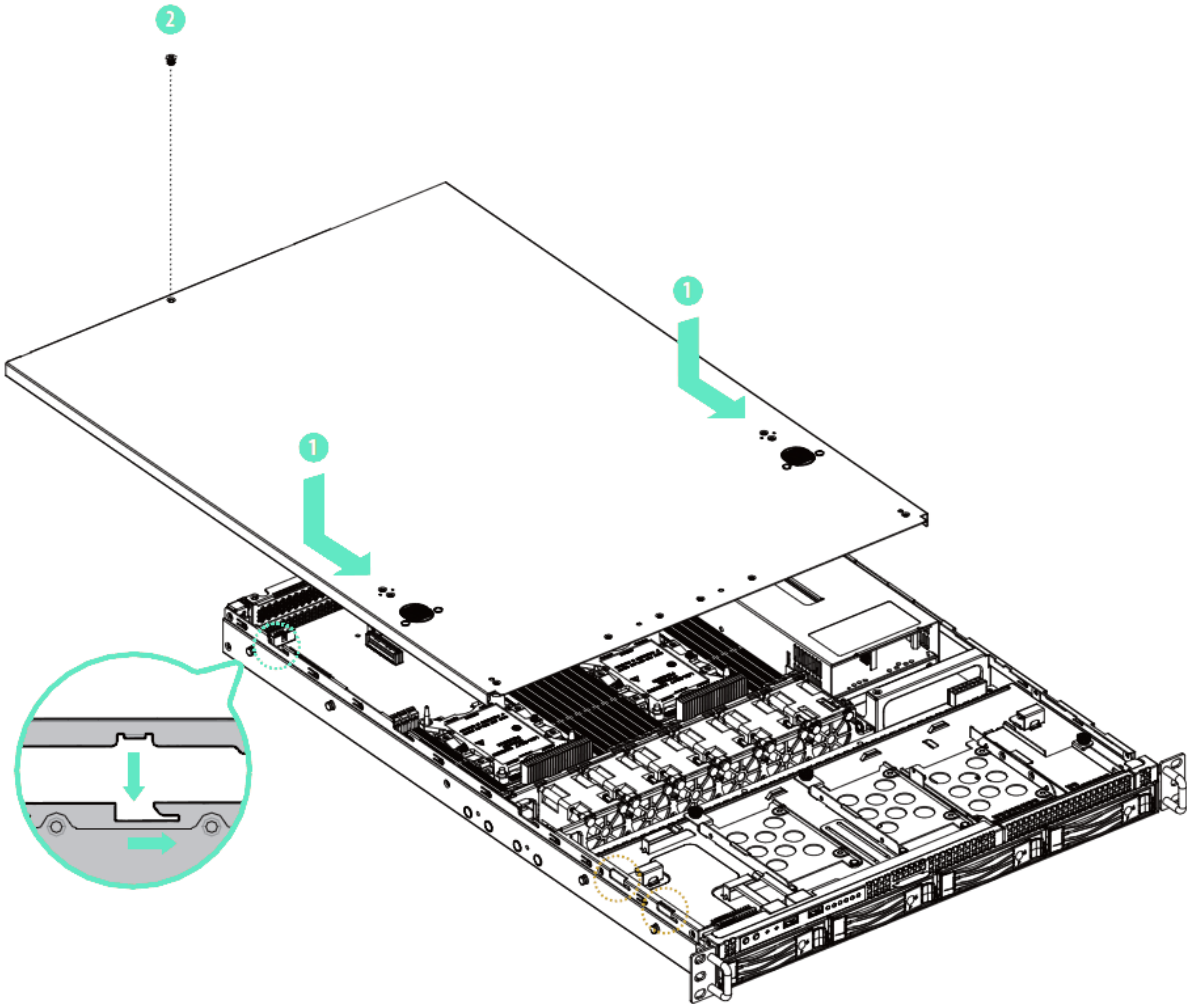
Removing the Server Top Covers

1. Remove the screws that secure the top rear cover to the chassis.
2. Press the tabs and push straight back to remove cover from locked position. Then lift up and remove the cover.



Installing the Server Top Cover

1. Lower the top front cover on the chassis, making sure the side latches align with the cutouts. Slide the top front cover toward the front.
2. Secure the both covers with the screws.

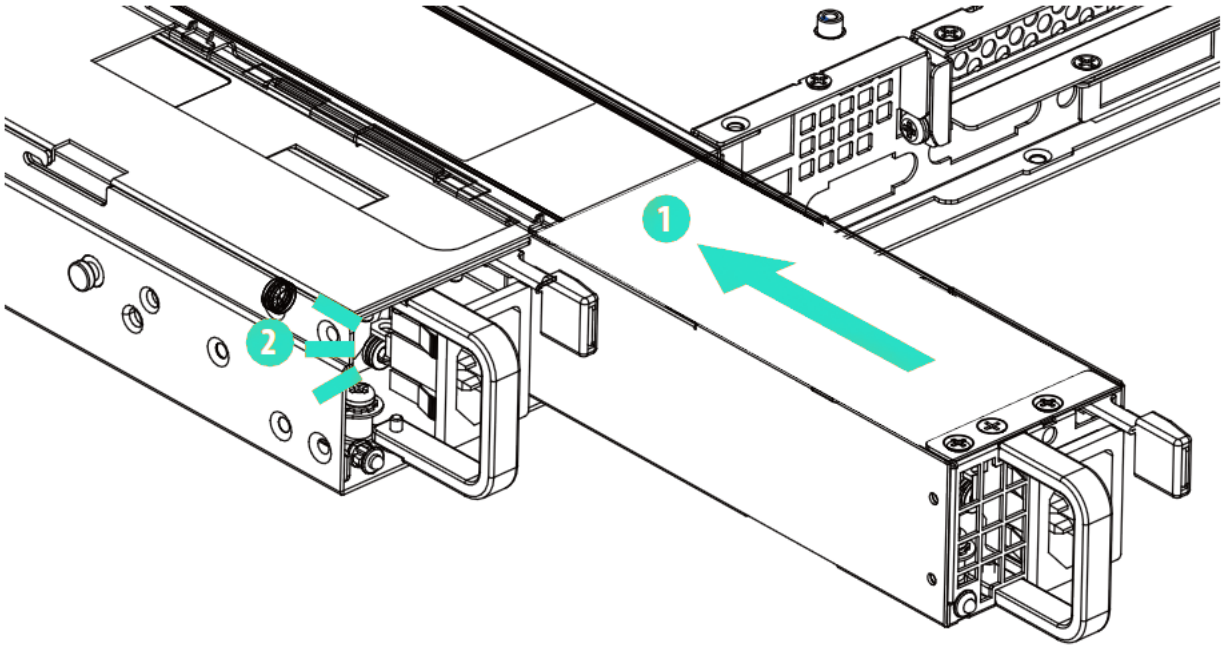


Power Supply

The system can accommodate two AC supplies in the bay at the rear of the chassis. Each unit provides up to 750 Watts of power. Only a single power supply is required for operation, with the second power supply purely as a redundant, load-sharing backup. It can be removed without affecting system operation.

Installing and Removing the Power Supply

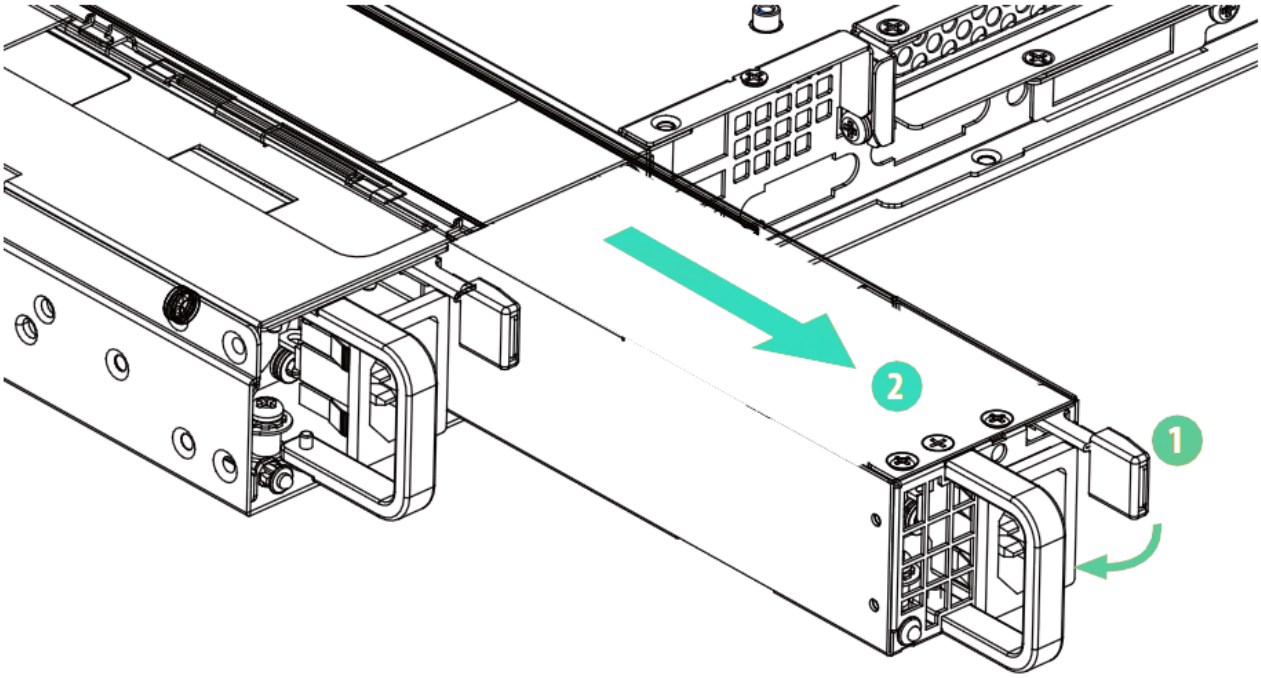
1. Align the power supply unit with the power supply slot. Ensure that the LED appears on the left when you are installing the power supply unit.
2. Carefully slide the PSU all the way into the power supply bay until it clicks into place.



Removing the Power Supply Unit

To remove a failed power supply, please first identify the failed power supply .

1. Hold onto the power supply handle while pressing the locking lever towards the power supply handle.
2. Pull to remove the power supply from the chassis.



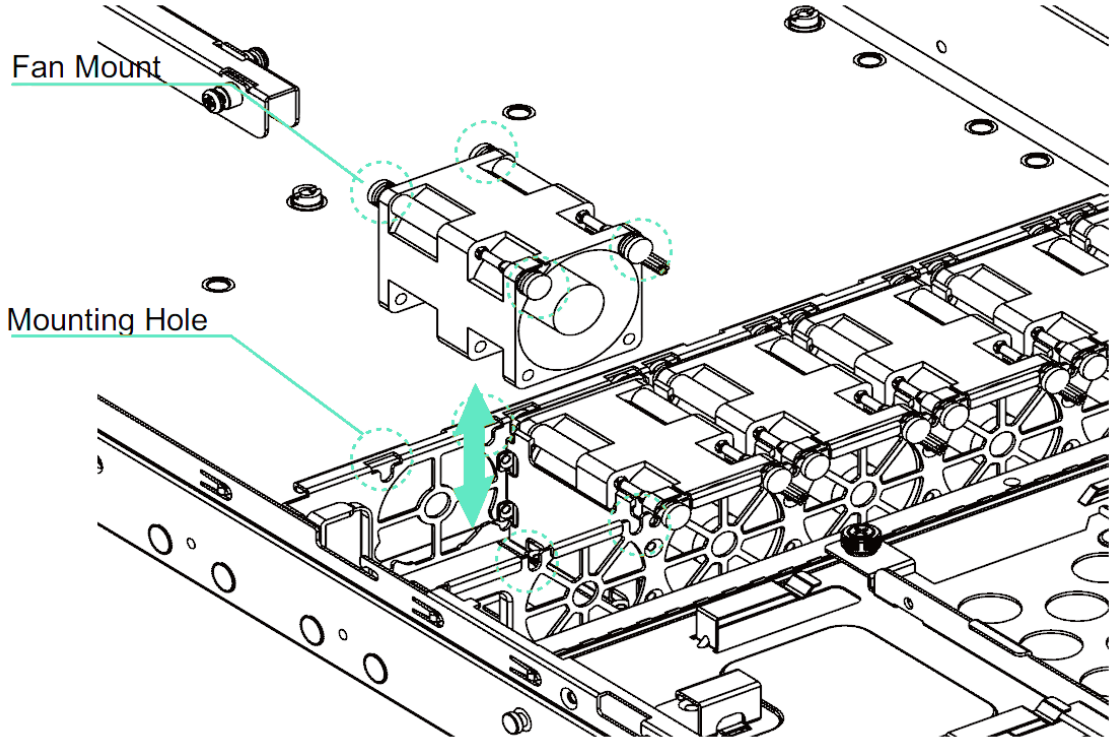
Warning

- **Before replacing the power supply, power off the server, unplug the power cord, and disconnect all wiring from the power supply.**
- **In a redundant system, you do not need to power down the server.**

System Fan

Replacing the System Fan

1. Unplug the fan connector and remove the failed fan.
2. Align the mounting holes on the fan bar with the fan mounts on the replacement fan.
3. Gently place the fan on the fan bar. Make sure the fan is well seated.
4. Connect the end of the fan cable to the fan connector.



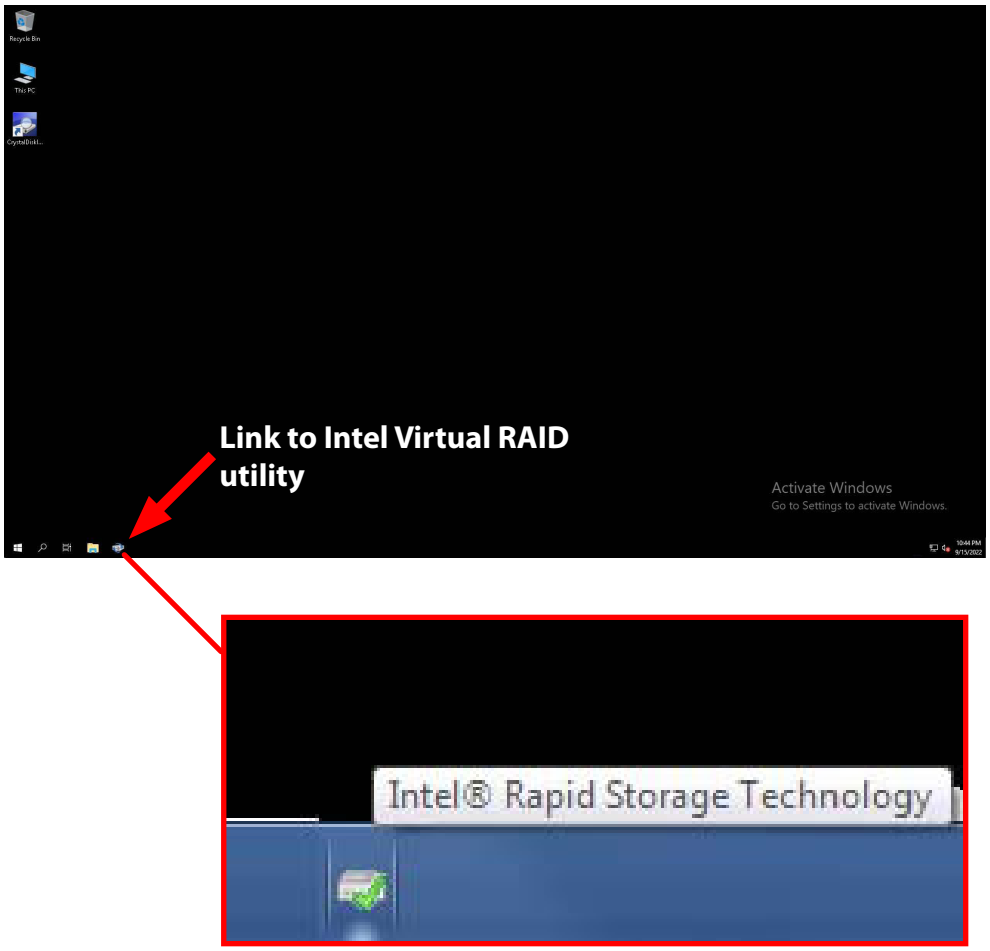
RAID Setup

This chapter describes the steps needed to use Intel Virtual RAID on CPU (VROC) to create a RAID volume using the installed HDD.

Log in to Windows

For Windows installations, once the system has booted up it will be necessary to choose various options to complete the OS setup. You will be prompted to select a default language and other user interface preferences. Follow the instructions on screen to complete your preferences selection and to establish a user name and password for the administrator. After completing these final tasks, the Windows desktop appears.

Windows desktop



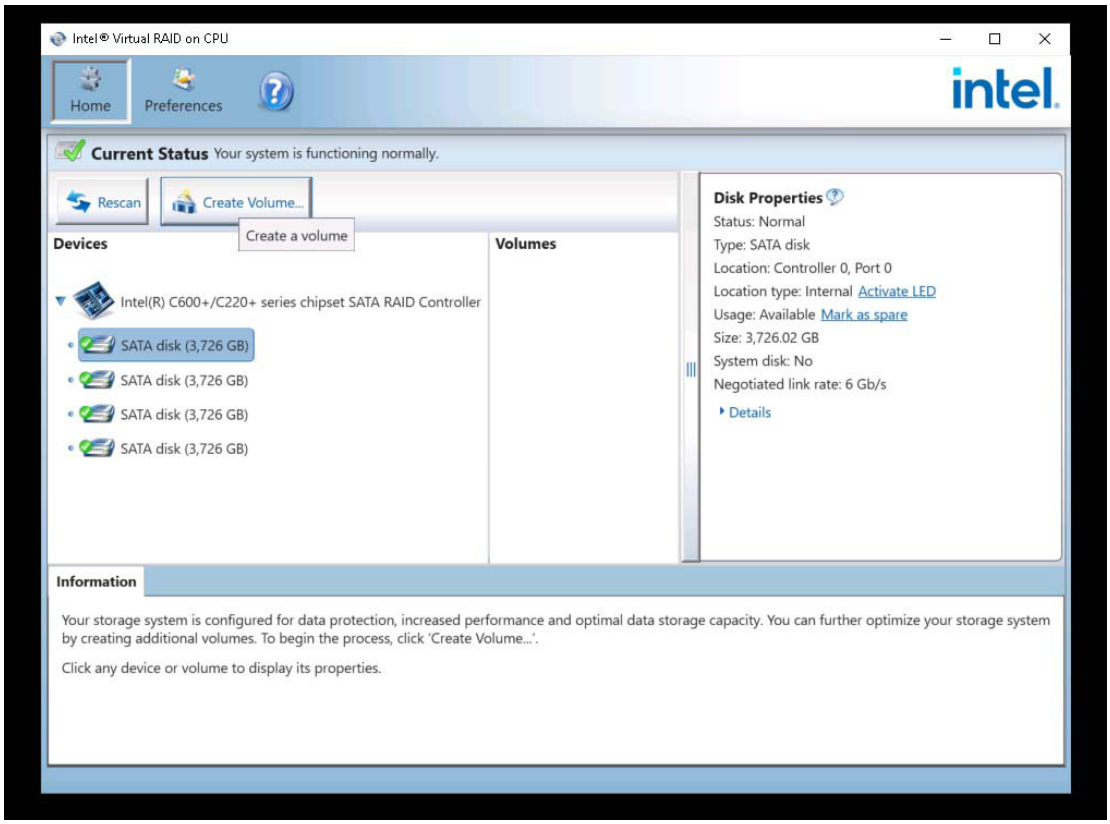
CREATE RAID VOLUME

Determine what RAID type you will use, then launch the VROC utility to begin the procedure.

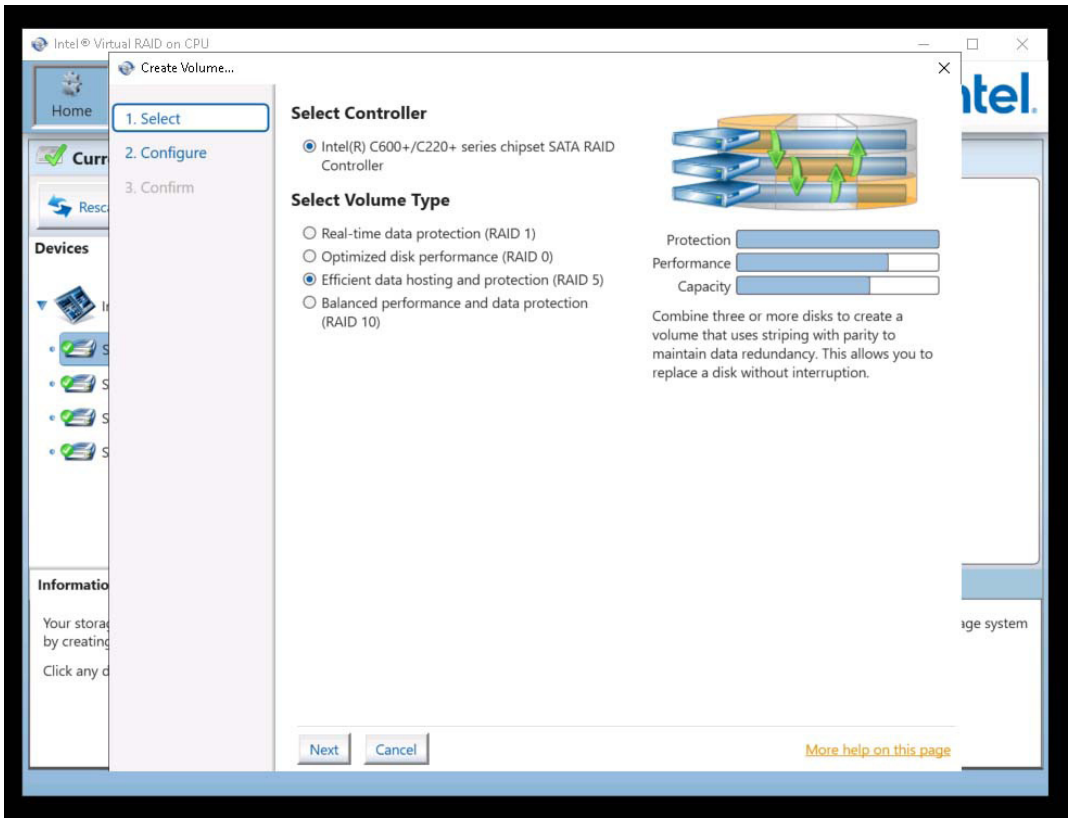
1. The four HDD appear listed in the main panel of the user interface. You can choose 2, 3, or all 4 HDD for the RAID volume. In this example we use all the HDD to create a RAID5 volume.

   Click on **Create Volume** to begin. A new menu appears.

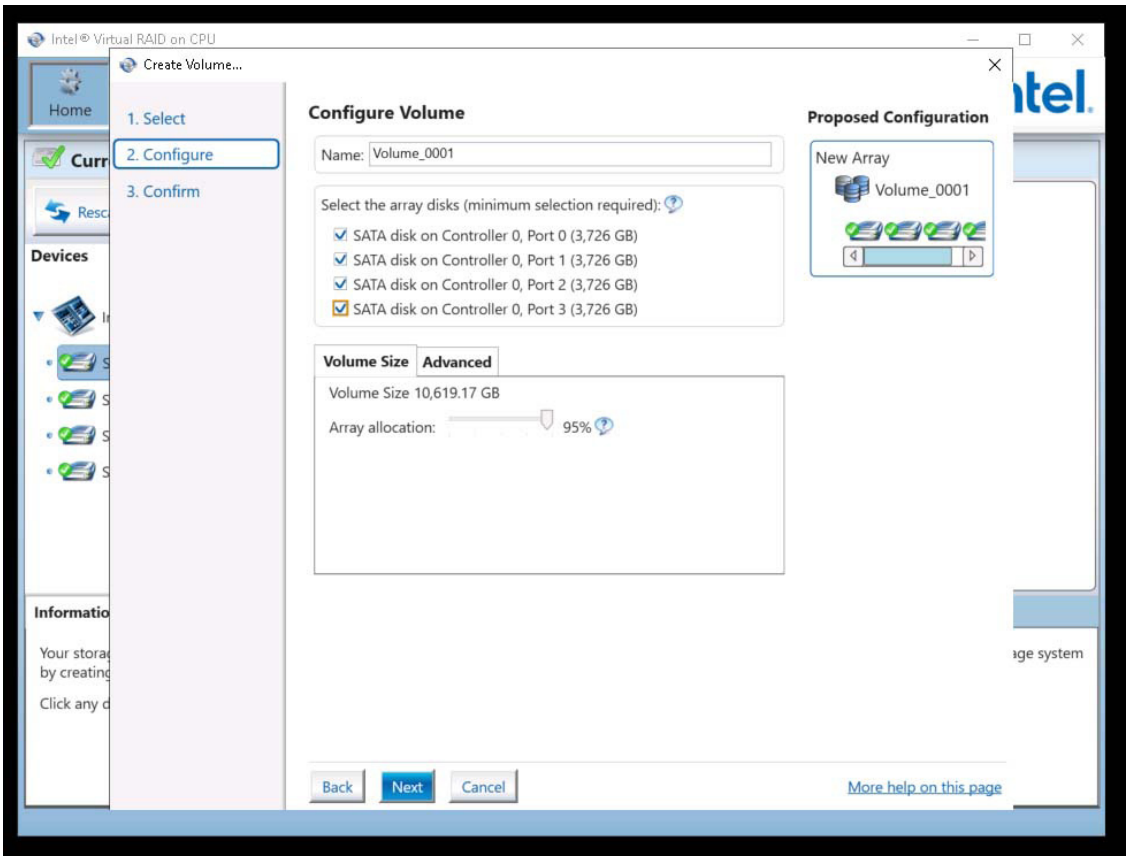
2. The controller for the virtual RAID is the Intel RAID controller, this is selected by default. *NOTE: If you have a separate HBA RAID card, another controller option might appear listed here. Consult the user documents for the installed RAID card for procedure recommendations. The procedure described here is only for the 4 HDD installed in the Vess A8120 when shipped.*



3. Select the Volume Type (RAID type) to be used for this new volume. In our example we are using RAID5. Click **Next** to proceed.
4. To configure the volume, type a Name and choose the HDD to be used. In this example all four HDD are selected.
5. Adjust the size of the array using the sliding selector. This determines the maximum capacity available for use on the storage array. For this example we use the default allocation of 95%.

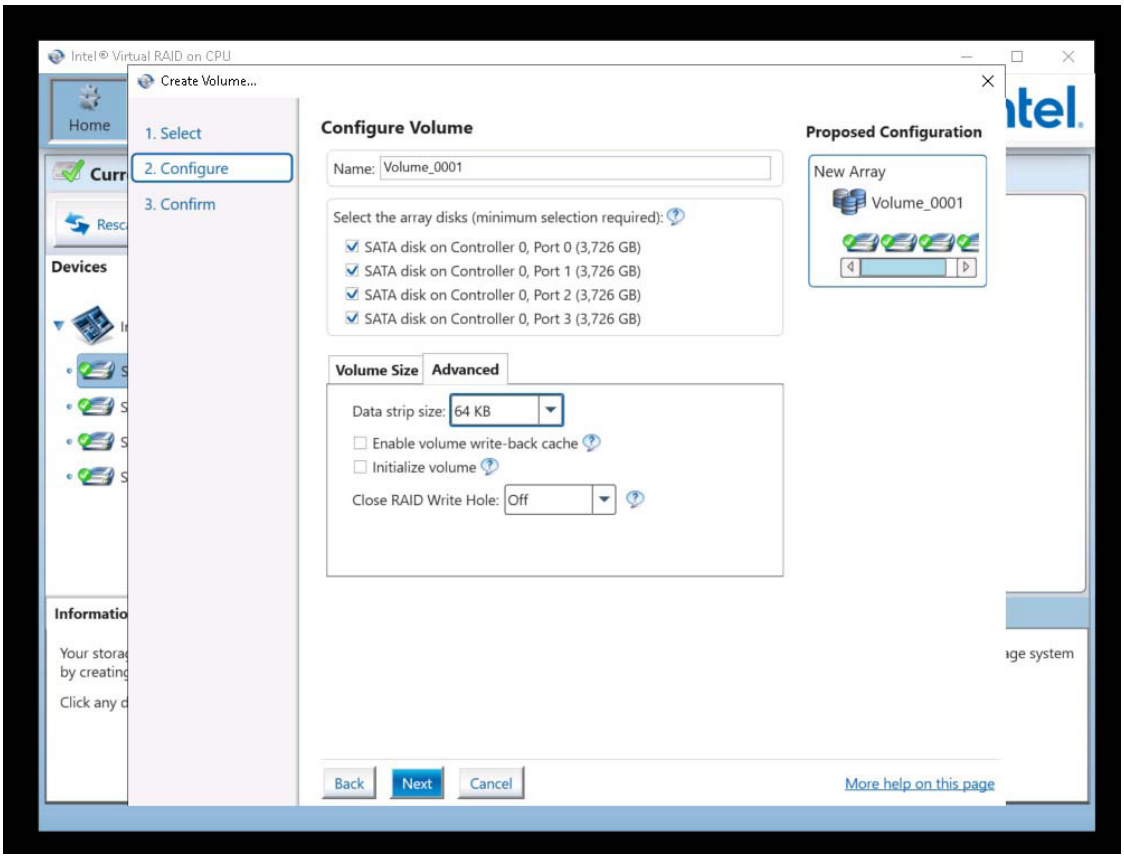


6. To change data stripe size used, click the **Advanced** tab. You can also use this menu to enable a write-back cache for the volume; to initialize the volume, or to toggle on/off **Close Write Hole** (off by default). Click **Next** to proceed.
7. To create the new volume, click on **Create Volume** to initiate the configuration process.

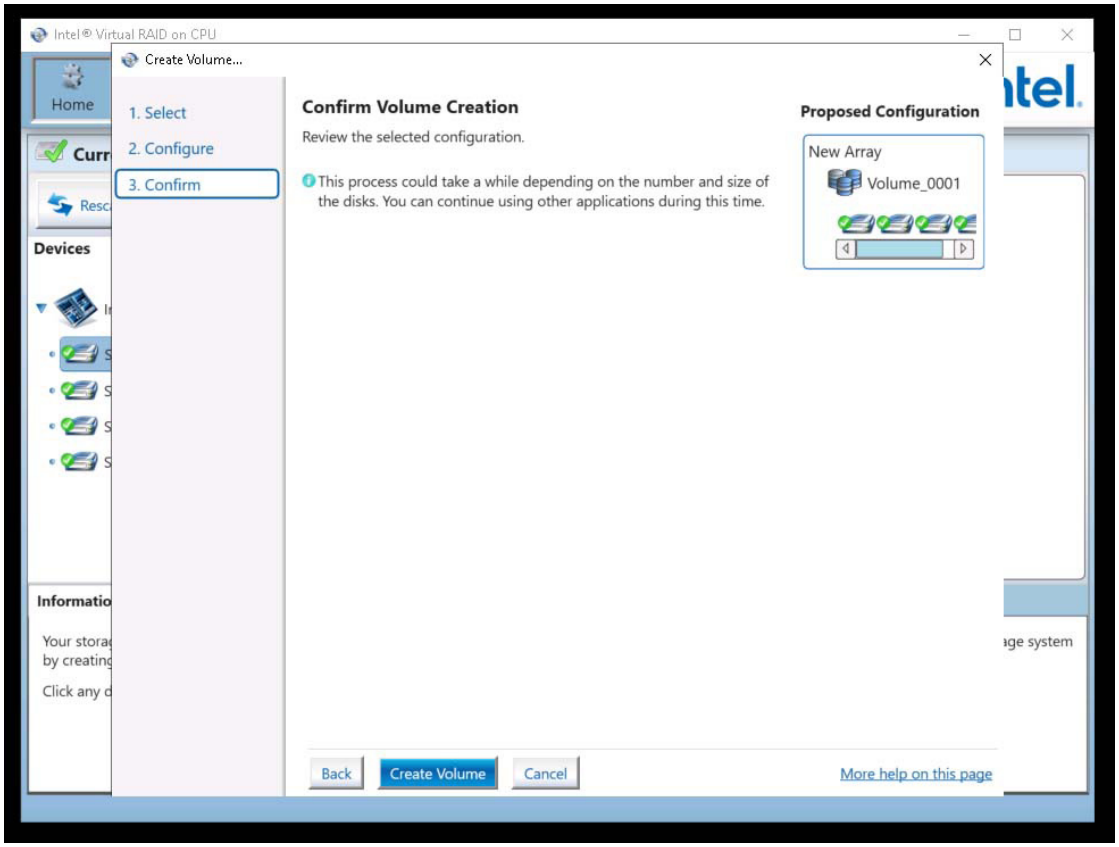


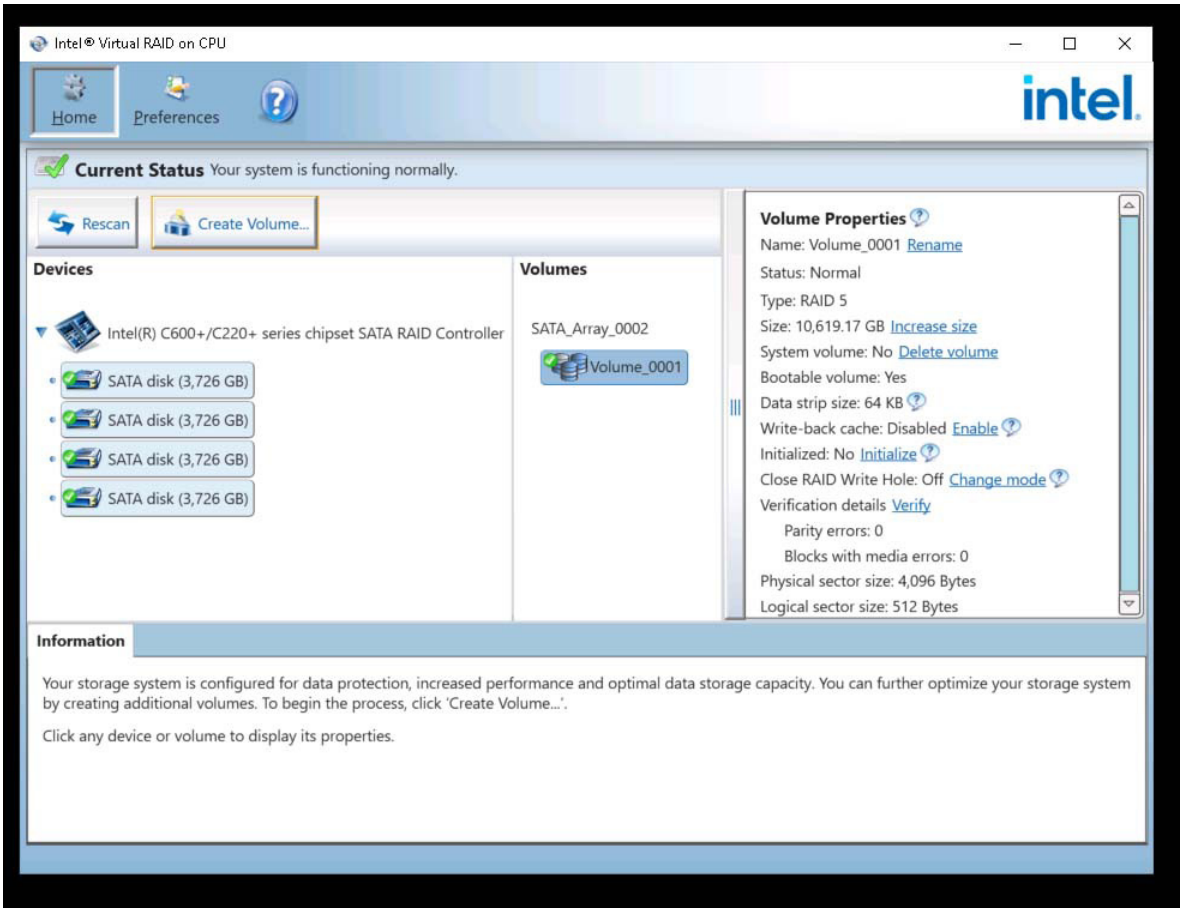
After a few seconds, a pop-up menu appears explaining the volume is now created, click **OK** if to close the menu.

8. The new volume appears listed as a SATA Array in the menu. The volume creation procedure is



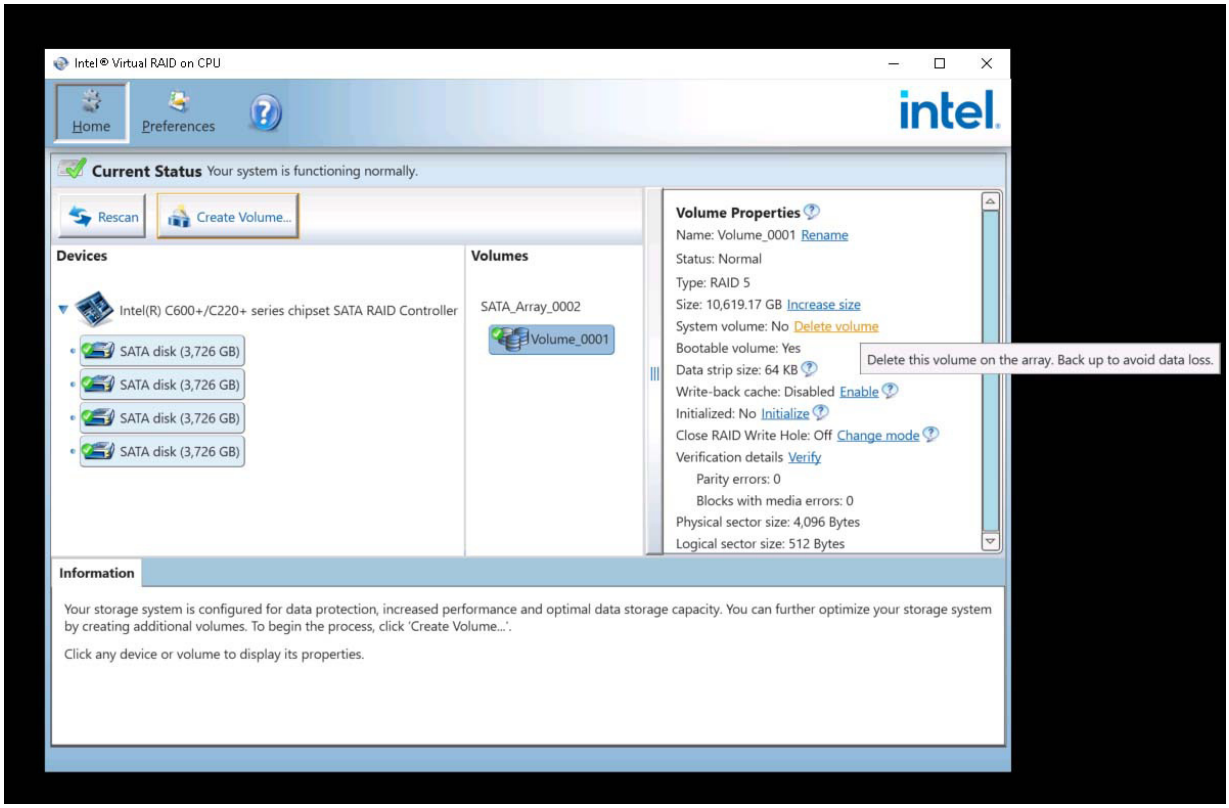
completed.


Intel® Virtual RAID on CPU
Create Volume...
Home
1. Select
2. Configure
3. Confirm
Confirm Volume Creation
Review the selected configuration.
This process could take a while depending on the number and size of the disks. You can continue using other applications during this time.
Proposed Configuration
New Array
Volume_0001
Devices
Back
Create Volume
Cancel
More help on this page


Intel® Virtual RAID on CPU
Home
Preferences
intel
Current Status Your system is functioning normally.
Rescan
Create Volume...
Devices
Intel(R) C600+/C220+ series chipset SATA RAID Controller
SATA disk (3,726 GB)
SATA disk (3,726 GB)
SATA disk (3,726 GB)
SATA disk (3,726 GB)
Volumes
SATA_Array_0002
Volume_0001
Volume Properties
Name: Volume_0001 Rename
Status: Normal
Type: RAID 5
Size: 10,619.17 GB Increase size
System volume: No Delete volume
Bootable volume: Yes
Data strip size: 64 KB
Write-back cache: Disabled Enable
Initialized: No Initialize
Close RAID Write Hole: Off Change mode
Verification details Verify
Parity errors: 0
Blocks with media errors: 0
Physical sector size: 4,096 Bytes
Logical sector size: 512 Bytes
Information
Your storage system is configured for data protection, increased performance and optimal data storage capacity. You can further optimize your storage system by creating additional volumes. To begin the process, click 'Create Volume...'.
Click any device or volume to display its properties.

Delete Volume

Use VROC utility to remove an existing volume. To do this, click on the **Delete volume** option listed under Volume Properties in the user interface.



Important

Deleting the volume will permanently delete all data on the volume.

This will bring up a warning explaining that deletion of the volume will permanently delete all data on the volume. If you do not want to remove the volume, click **No**. If you want to remove it, click **Yes**. Clicking **Yes** removes the volume, it will no longer appear listed under Volumes.