

AMS Express

Advanced Media Storage



Topic Library

Software Version 1.4.0

FCC Compliance

In order to comply with FCC/CFR47: Part 15 regulations, it is necessary to use high-quality, triple-screened Media or Monitor cable assemblies with integrated ferrite suppression at both ends.

Patent Information

This product may be protected by one or more patents.

For further information, please visit: www.grassvalley.com/patents/

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AMS Express

Advanced Media Storage

Topic Library

Software Version 1.4.0

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About the AMS Express

The AMS Express shared storage solution is designed for small to medium-size Media & Entertainment (M&E) companies utilizing Grass Valley workflows in standalone or remote production environments. The system is designed to be simple, scalable, and tuned for use with Grass Valley solutions, along with associated Service and Support.

The systems consist of a Primary Chassis and Expansion Chassis and associated software. It is a hyperconverged storage solution, meaning it combines storage, networking, and computing into a single system. In addition, the system utilizes a hyperconvergence layer with software-based virtual machines running on top of it to enable services.



NOTE: *The image shown is for illustrative purpose only and may differ from the actual product.*

Hardware Overview

The AMS Express storage arrays provide a high performance, large-capacity hybrid storage tier and deployed in StorNext shared storage environments.

Primary Chassis

The front and rear views of the Primary Chassis are as below:

Front View

AMS Express with front bezel. The front bezel should be installed after rack mounting the server and remain installed for proper cooling of the unit.



A fully loaded system is shown below with the front bezel removed. The unit contains 12 drive bays that are numbered as shown.

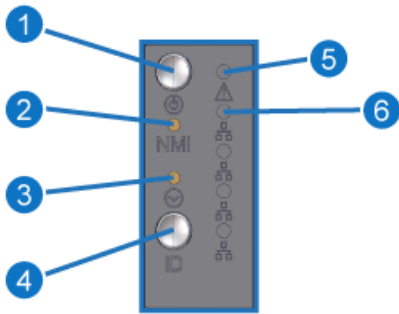


The Control Panels on either side of the system contain LEDs and Buttons correspond to their respective controllers and each drive bay has LEDs described below.



| Item | Component |
|------|--|
| 1 | Left Front Control Panel (Controller A) |
| 2 | Right Front Control Panel (Controller B) |

Control Panel LEDs and Buttons (both control panels)



| Item | LED/Button* | Indication/Function |
|------|--------------------------------------|---|
| 1 | Controller Power Status (LED/button) | <ul style="list-style-type: none">Blue: Power onOff: Power off |
| 2 | NMI (button) | N/A |
| 3 | Reset (button) | N/A |
| 4 | Controller ID (LED/button) | <ul style="list-style-type: none">Blue: ID for the controllerOff: ID not lit |
| 5 | Controller Status (LED) | <ul style="list-style-type: none">Red: Controller degradedOff: Controller healthy |
| 6 | LAN1 Status (LED) | <ul style="list-style-type: none">Yellow: LAN1 (10 GbE management network, port 1) link activity for the controllerOff: LAN1 link down |

*LED/button displayed is specific to each controller's panel: Controller A - left control panel; Controller B - right control panel

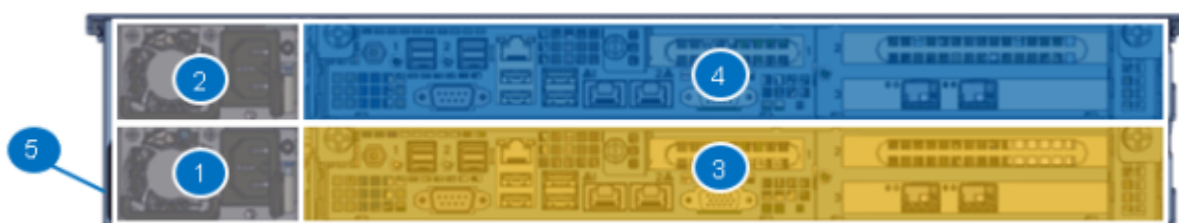
LEDs for each drive



| Item | LED location | LED State |
|------|------------------|--|
| 1 | Top Drive LED | <ul style="list-style-type: none"> Off: System off or drive not fully-seated Solid Blue: Online/Healthy status Blinking Blue: Drive access detected |
| 2 | Bottom Drive LED | <ul style="list-style-type: none"> Off: Healthy; no drive failure detected Solid Red: Drive error |

Rear View

The rear of the system is composed of two redundant controllers.



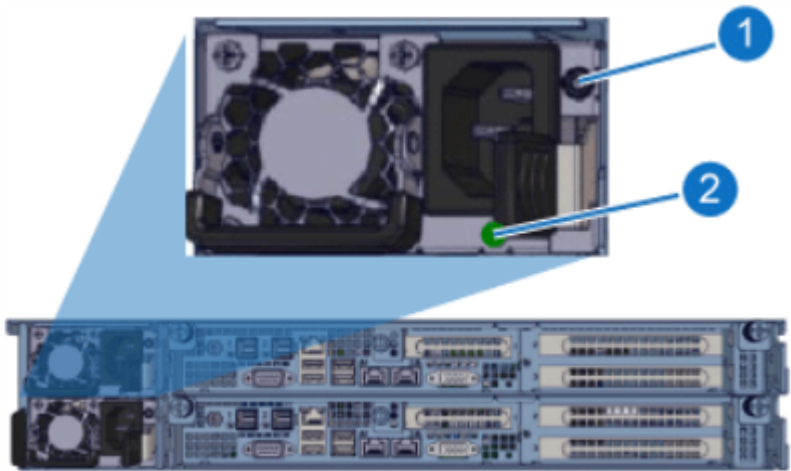
| Item | Component |
|------|--|
| 1 | Power Supply Unit (PSU 1) |
| 2 | Power Supply Unit (PSU 2) |
| 3 | Controller A (bottom); redundant/failover operations supported with Controller B |
| 4 | Controller B (top); redundant/failover operations supported with Controller A |
| 5 | Serial Number/Asset Tag |

The connections and ports for the back panel are outlined below. For simplicity sake, the drawing only calls out connections on Controller A.



| Item | Component |
|------|---|
| 1 | Power Supply Connector (male C14) |
| 2 | 12G SAS ports |
| 3 | 10GbE inter-controller communication ports |
| 4 | 10/25GbE adapter port for connecting to network |

Power Supply Unit (PSU) LEDs



| Item | LED/Button | Action |
|------|--------------------------|--|
| 1 | PSU Alarm Silence Button | Push to silence when alarm is sounding |
| 2 | PSU Status | <ul style="list-style-type: none">• Green solid: PSU is powered on• Orange solid: PSU is not powered on |

Expansion Chassis

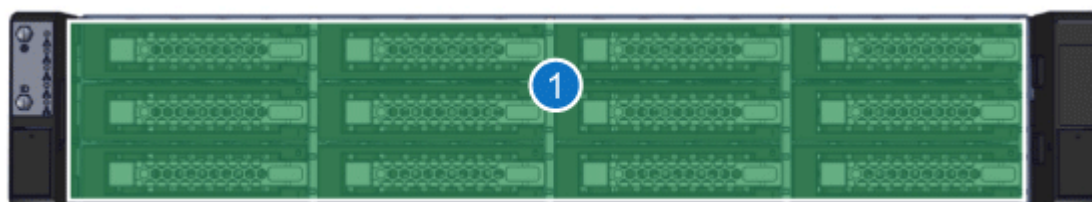
The front and rear views of the Expansion Chassis are as below:

Front View

AMS Express with front bezel. The front bezel should be installed after rack mounting the server and remain installed for proper cooling of the unit.

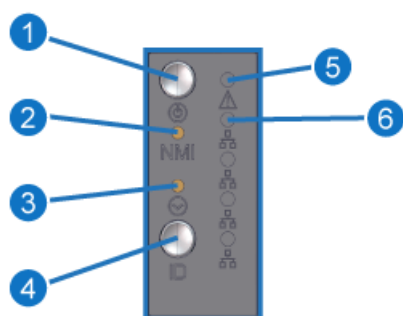


A fully loaded system is shown below with the front bezel removed. The unit contains 12 drive bays that are numbered as shown. The drives and the LED control panel are identified the same as the Primary Chassis.



The Control Panel on the left side of the system contains LEDs and Buttons correspond to the respective controller and each drive bay has LEDs described below.

Control Panel LEDs and Buttons



| Item | LED/Button* | Indication/Function |
|------|--------------------------------------|--|
| 1 | Controller Power Status (LED/button) | <ul style="list-style-type: none"> Blue: Power on Off: Power off |
| 2 | NMI (button) | N/A |
| 3 | Reset (button) | N/A |

| Item | LED/Button* | Indication/Function |
|------|----------------------------|--|
| 4 | Controller ID (LED/button) | <ul style="list-style-type: none"> Blue: ID for the controller Off: ID not lit |
| 5 | Controller Status (LED) | <ul style="list-style-type: none"> Red: Controller degraded Off: Controller healthy |
| 6 | LAN1 Status (LED) | <ul style="list-style-type: none"> Yellow: LAN1 (10 GbE management network, port 1) link activity for the controller Off: LAN1 link down |

*LED/button displayed is specific to each controller's panel: Controller A - left control panel; Controller B - right control panel

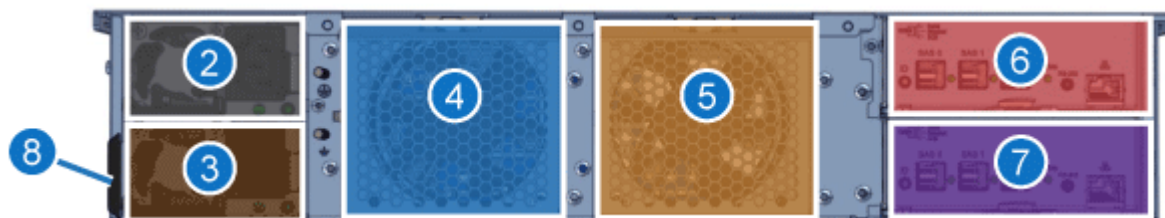
LEDs for each drive



| Item | LED location | LED State |
|------|------------------|--|
| 1 | Top Drive LED | <ul style="list-style-type: none"> Off: System off or drive not fully-seated Solid Blue: Online/Healthy status Blinking Blue: Drive access detected |
| 2 | Bottom Drive LED | <ul style="list-style-type: none"> Off: Healthy; no drive failure detected Solid Red: Drive error |

Rear View

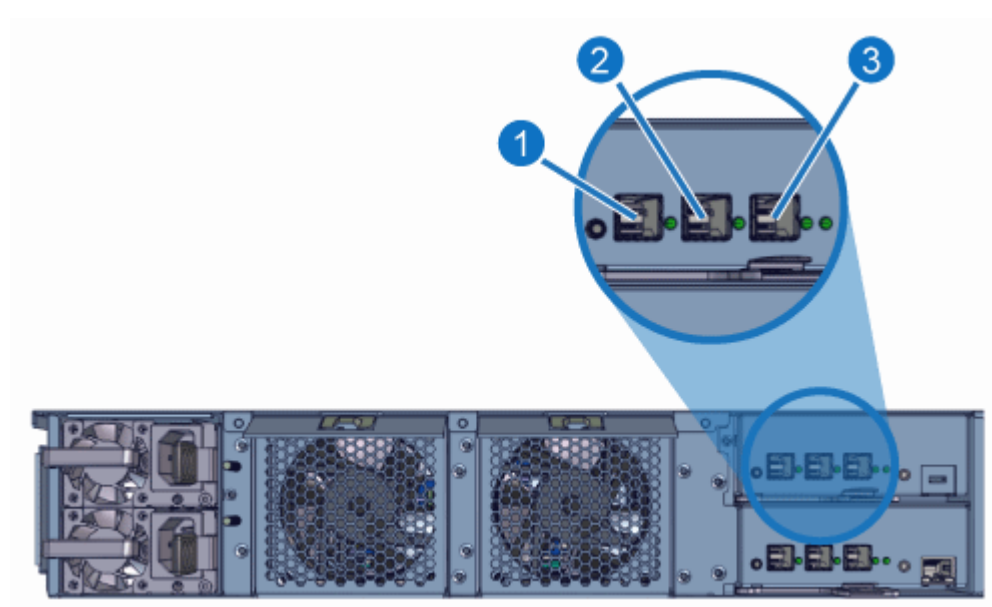
The rear view of the Expansion Chassis is as below:



| Item | Component |
|------|--|
| 2 | Power Supply Unit (PSU 2) |
| 3 | Power Supply Unit (PSU 1) |
| 4 | Left fan assembly; Fan 1 is located at the back; Fan 3 is located in front |
| 5 | Right fan assembly; Fan 2 is located at the back; Fan 4 is located in front |
| 6 | Secondary Expansion Chassis I/O module (top); redundant/failover operations supported with the primary Expansion Chassis I/O module (bottom) |
| 7 | Primary Expansion Chassis I/O module (bottom); redundant/failover operations supported with the secondary Expansion Chassis I/O module (top) |
| 8 | Serial Number/Asset Tag |

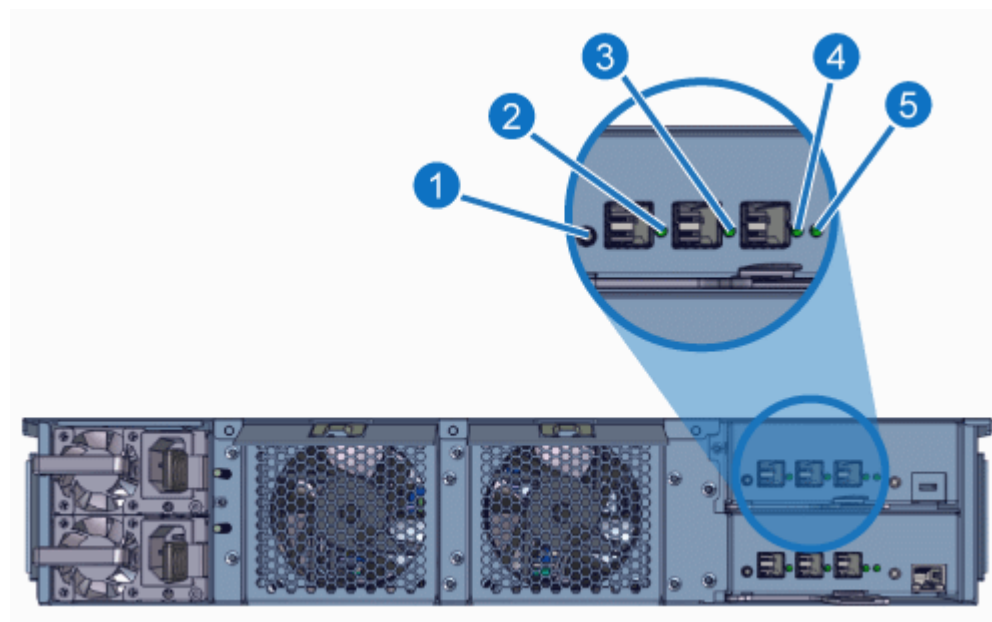
The rear view of the Expansion Chassis with I/O module port connections are as below:

NOTE: *These apply to both I/O modules.*



| Item | Component |
|------|--------------------|
| 1 | SAS 0 Port |
| 2 | SAS 1 Port |
| 3 | SAS Expansion Port |

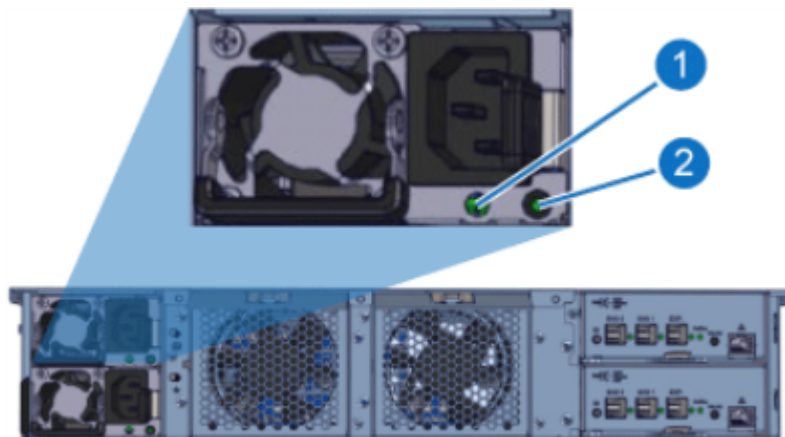
I/O module LEDs



| Item | LED | Action |
|------|----------------|---|
| 1 | ID LED/Button | <ul style="list-style-type: none"> Off: Normal state; I/O Module identification not illuminated Blue solid: I/O module identification illuminated |
| 2 | SAS 0 | <ul style="list-style-type: none"> Off: No SAS activity Green blinking: SAS activity |
| 3 | SAS 1 | |
| 4 | SAS Connection | <ul style="list-style-type: none"> Green solid: SAS connection on Green blinking: SAS activity |
| 5 | I/O module | <ul style="list-style-type: none"> Off: I/O module not functioning Green blinking: I/O module active |

Power Supply Unit (PSU) LEDs

The PSU LEDs are located in the same position on PSU 1 and PSU 2. Location and description of the LEDs are as below:



| Item | LED | Action |
|------|------------|---|
| 1 | PSU Power | <ul style="list-style-type: none"> Off: PSU is not plugged in Green solid: PSU is plugged in; has power |
| 2 | PSU Status | <ul style="list-style-type: none"> Green solid: PSU is powered on Orange solid: PSU is not powered on |

Installing the Hardware

Prerequisites

Before starting the hardware installation process, make sure that you understand the safety information about the product and the documentation. Then, ensure the following general environment prerequisites have been met.

1. Understand how to configure the ethernet switch. See switch product documentation.
2. By default, clients accessing AMS Express will do so using the SMB protocol. Version 3 is highly preferred due to performance and stability.
3. For those clients requiring QoS (Quality of Service), the StorNext client software must be installed (sold separately) and be within one (1) version of the host StorNext software running on AMS Express (for example, StorNext 6.x will support back to 5.x).

To identify the StorNext version, log in to the StorNext GUI and select **Help | About | Software**. The version will be listed under Xcellis.

Specifications

The following chart outlines the key physical and operational specifications:

| | Primary Chassis | Expansion Chassis |
|-------------------------|---|--------------------------------|
| Form Factor | | 2U |
| Drives per Chassis | | 12 |
| Drive Capacity (Raw TB) | | 96 |
| Chassis Connectivity | | 12G SAS |
| Network Connectivity | Dual 10/25 GbE | n/a |
| Physical Dimensions | | |
| Height | 87mm | 87mm |
| Width | 450mm | 450mm |
| Depth | 614mm | 518mm |
| Weight | 29kg | 22kg |
| Power Supplies | 1300W AC redundant 1300W DC 48V redundant | 550W AC Redundant |
| Power Supply Input | 100 - 140 Vac / 12.5 A / 1000 W Max / 50-60 Hz 200 - 240 Vac / 8.5 A / 50-60 Hz | 100 - 240 Vac / 7 A / 50-60 Hz |

| | Primary Chassis | Expansion Chassis |
|-----------------------------|-----------------|----------------------|
| Operating Temperature | | 0 ° to 35 ° C |
| Non-Operating Temperature | | -20 ° to 70 ° C |
| Operating Relative Humidity | | 5-95% non-condensing |

Unpacking the system

- A set of box cutters is required to complete this procedure.
- Verify that all components were included in the box.

NOTE: Make sure to retain all packing materials, as well as the documentation and other items included in the shipping box. The packaging materials must be used if the system is relocated.

⚠ CAUTION: Two people are needed to lift and move the system. Use care to avoid injury.

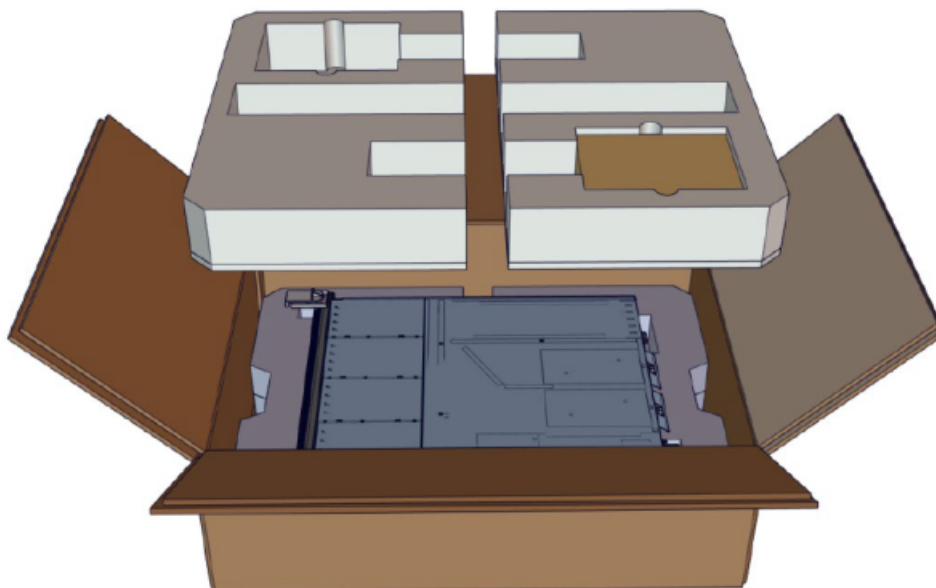
1. Cut the tape and open the box top cover to remove the system enclosure from the box.



2. Remove rail kit and bezel from the top foam layers.

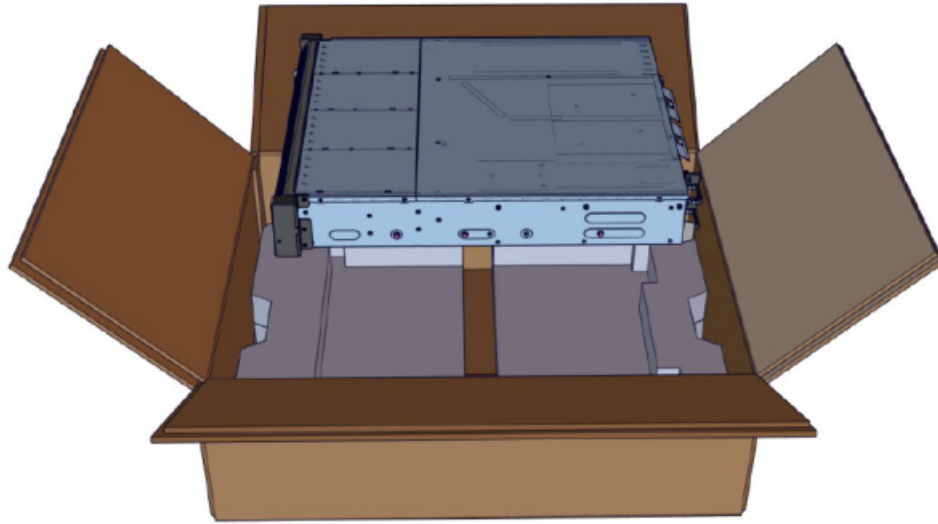


3. Remove the top foam layers.



4. Set aside the drives in a secure location.

5. Remove the system from the box and set aside on an electro-static mat for later installation.



Rack mounting

Prerequisites

- Make sure the installation meets the detailed physical and environmental requirements for the installation site.
- A #2 Phillips screwdriver is required to install Phillips head screws for the rack rails.
- A standard flat-head screwdriver is required to install flat head screws for the rack rails.
- Ensure adequate air flow around the chassis to provide sufficient cooling. Operating ambient temperature will affect the amount of air circulation required to keep the system within its temperature limitations.
- Ensure that safety labels located on the top of the unit are visible after installation. This requires sufficient open space over the unit without cables or other devices impeding the view.
- If the system is installed with its ventilation intakes near another system's exhaust or in a closed or multi-unit rack assembly, the operating ambient temperature inside the chassis may be greater than the room's ambient temperature. Install the system in an environment compatible with this recommended maximum ambient temperature.
- Ensure that the power socket-outlet is installed near the equipment and is easily accessible.
- Ensure the rack is anchored to the floor so that it cannot tip over when the system is extended out of the rack.
- Be sure to mount the system in a way that ensures even weight distribution in the rack. Uneven mechanical loading can result in a hazardous condition. Secure all mounting bolts when installing the chassis to the rack.

Installing the rack rails

Rail kit contents:

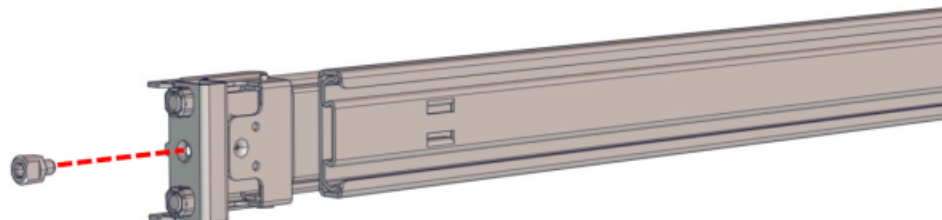
| Item | Quantity | Description |
|------|----------|----------------------------|
| 1 | 1 set | Rails (left and right) |
| 2 | 1 | Accessories bag |
| | 2 | Inner rail screws |
| | 2 | Spacers |
| | 5 | Front and rear rack screws |

The AMS Express rack rails should be installed into the rack at the lowest possible U height available to help keep the rack's center of gravity low.

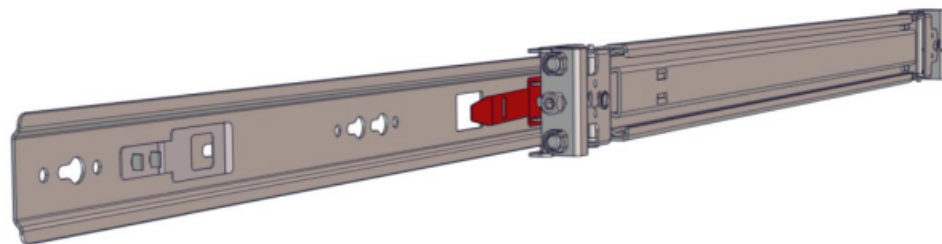
1. Remove the rails from the box.



2. Install spacers in the front of the left and right rails.

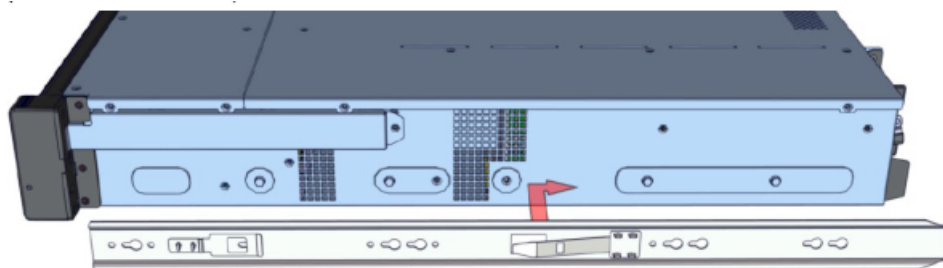


3. Separate the inner rails from the main rail assembly. Press the latch when the inner rail is halfway out for complete removal.

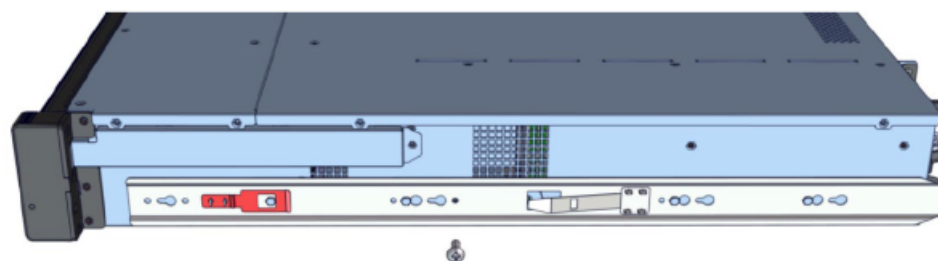


4. Repeat for other rail.

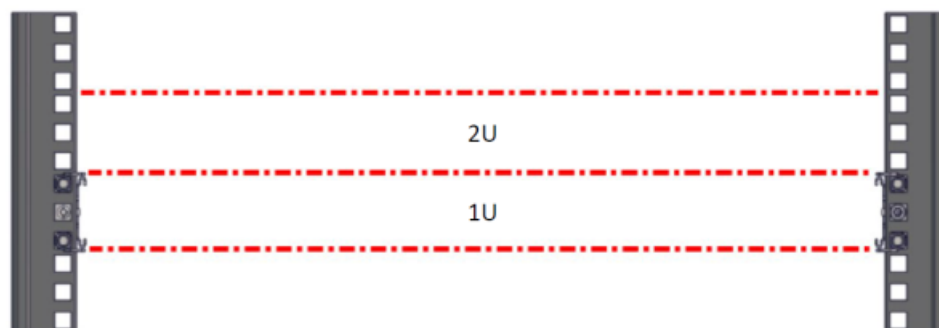
5. Install the inner rail to the sides of the enclosure. Align the holes of the inner rail to the pins of the enclosure, and slide it towards the back.



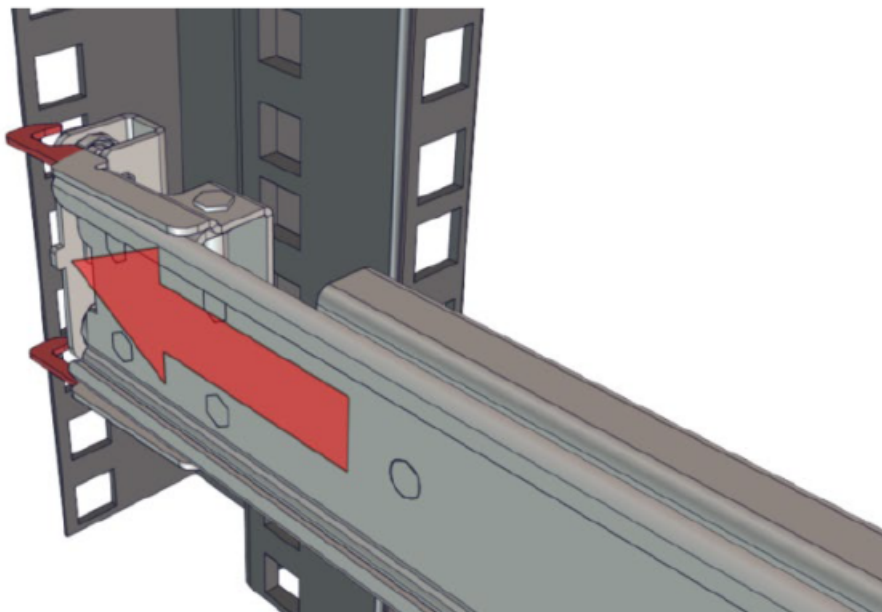
6. Ensure the retaining clip (red) is latched onto the enclosure's pin. Optionally, secure the inner rail with the provided screw.



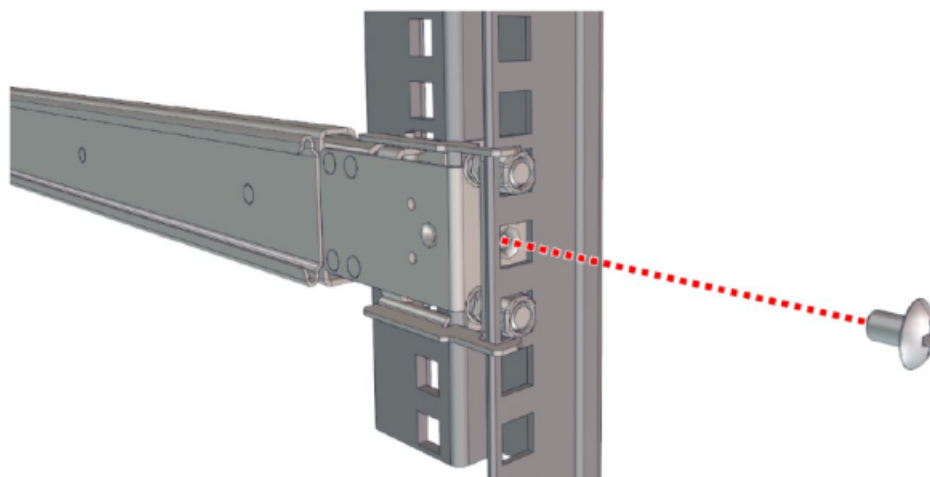
7. Repeat for other rail.
8. Note the location where the rail will be installed in the rack (each enclosure requires 2U rack height).



9. Mount the rails into the rack. Locate the desired “U” space and align the guide pins through the rack flange. The clamp hooks will ramp around the flange and hook on automatically.



10. Move to the back of the rack to complete the installation. Adjust the rails to the appropriate rack depth and align the guide pins through the rack flange in the same U location in the back as was used in the previous step for the front of the rails. The clamp hooks will wrap around the flange and hook on automatically.
11. Secure the rail to the rear posts with provided screws.



12. Repeat for the other rail.

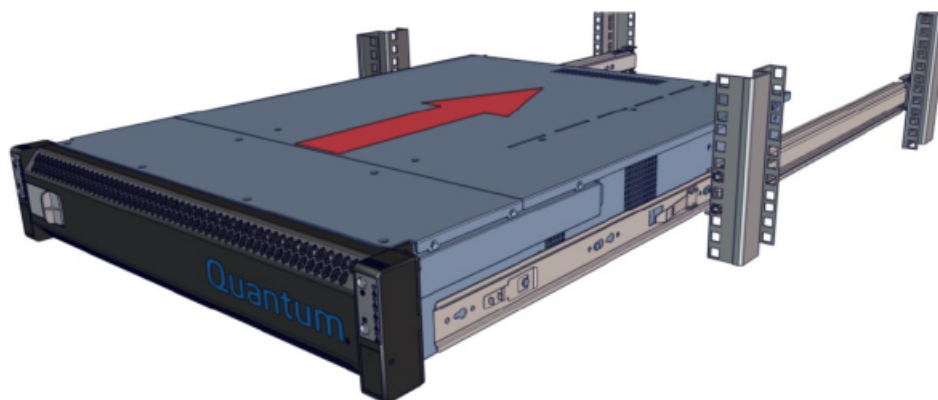
Securing the system

1. Install the bezel on the front of the server.

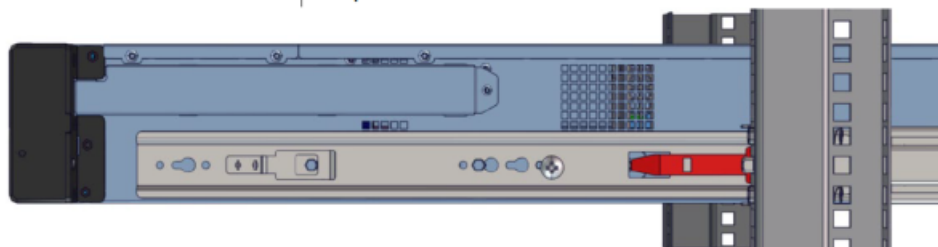
2. Lift the enclosure and align it toward the front of the installed outer rail.

⚠ CAUTION: *Two people are needed to lift and move the system. Use care to avoid injury.*

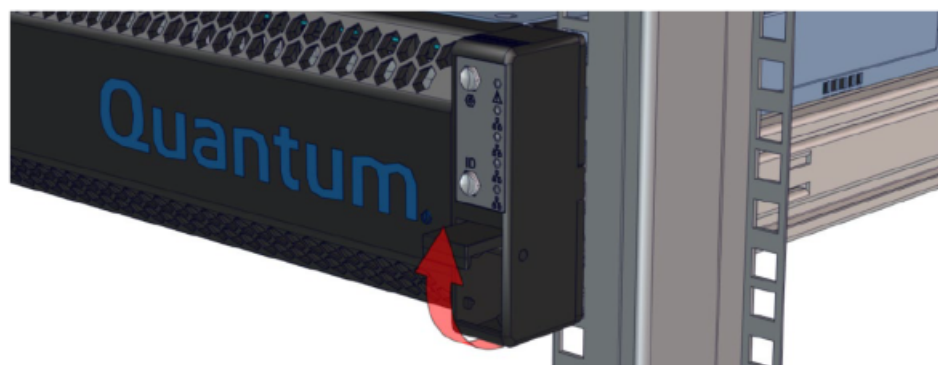
3. Slide the enclosure toward the back of the rack.



4. Press the inner rail latch while pushing the server to complete the installation.



5. Open the covers of the enclosure's ears.



- Secure the enclosure to the rack by using provided M5 screws.



Cabling the system

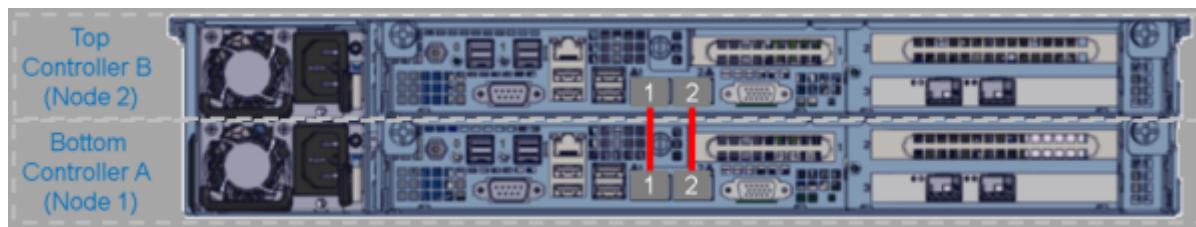
Cabling: Primary Chassis

The primary chassis is delivered with the following cables need for installation:

| Quantity | Description |
|----------|--|
| 2 | .3M Cat6e ethernet cables |
| 4 | 2M SFP28 DAC cables |
| 2 | 1M Mini-SAS cables (only used if have expansion chassis, see next section) |
| 0 | AC power cords (customer supplied) see below for details |

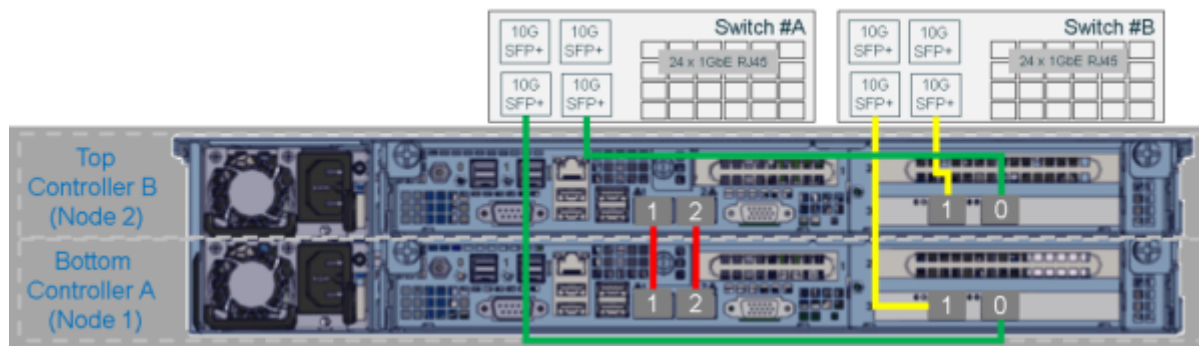
From the rear of the system, attach the cables as follows:

- Inter-controller communication - Connect the two .3M Cat6e ethernet cables from the bottom Node 1 **port 1** to the top Node 2 **port 1**. Do the same for port 2.
 - Must be connected as shown, don't cross 1 & 2
 - Crossover cables will not work

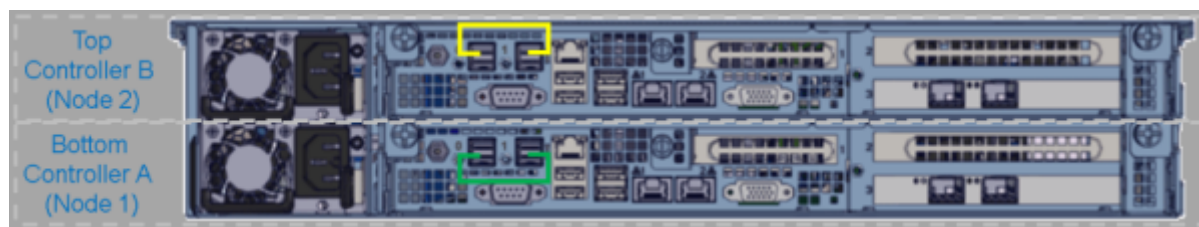


2. Network Switches - Connect the four (4) 2M SFP28 DAC cables to the 10GbE ethernet ports on switches.

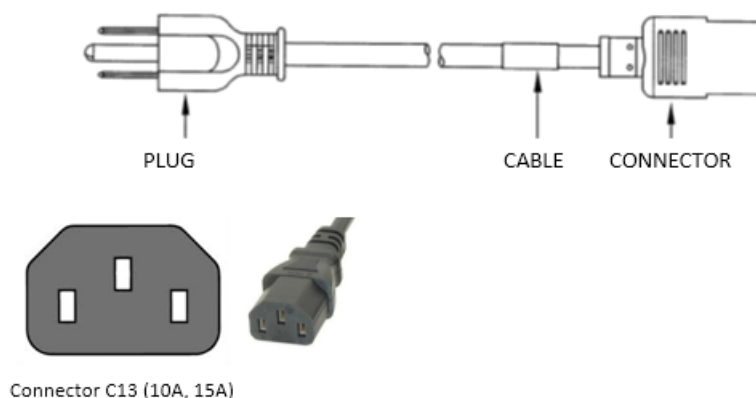
It is important to cable as shown to maximize system performance and enable redundancy.



3. Optional SAS cables - If not connecting to Expansion Chassis in your configuration, connect the SAS cables on bottom Node 1 from port 0 to port 1. Repeat for top Node 2.
- This is the location to 'store' the cables so they will not be misplaced or lost.
 - No functionality provided in this configuration.
 - These cables will be utilized when you add Expansion Chassis in future.



4. **AC Power Cords** - Two (2) AC line cords are required per chassis for redundancy purposes. These are not supplied with the units. Customer must supply a certified power cord with its country of destination approval marking on the cable, plug or connector. The AC line cords must support 250V-10A, and be a minimum of 18AWG. The length of the power cord is determined by the customer's rack space and cable routing requirements. The unit accepts C13 connector. Use the attached straps to secure the power cords to the enclosure.



Plug: Represents the male end of the AC line cord which is dependent on the destination country as outlined below.

China, Australia and Argentina plug

These three countries have similar but not equal power cord plugs:

- The power cord for China is certified CCC under GB2099 Standard.
- For Australia / New Zealand the power cord complies with AS / NZS 3112 Standard.
- Argentina power cord conforms to regulations of IRAM 2073 Standard.

Europe and Korea plug

The European continental plug (CEE 7/7 type) is also similar to that for Korea but not equal. The European plug complies with the European Standards that are not recognized in Korea. For the Korean power cord it is mandatory to comply with national rules for that country. Ensure the appropriate power cord for Korea by verifying the KC approval logo is present on the power cord (plug and connector).

Japan 12A 125VAC plug

The Japanese plug and socket, at first glance, look identical to the North American NEMA 5-15 standard. However, the Japanese type, which is specified in JIS 8303 Standard, incorporates tighter dimensional requirements, different marking requirements (PSE) and mandatory testing and approval by the Japanese testing agency.

North America 10-15A plug

The US/Canada/Mexico plug is the same for the three countries (Canada, United States and Mexico) and complies with NEMA 5-15 standard. Approval UL/CSA is mandatory.

Cabling: Expansion Chassis

The AMS Express supports up to 3 expansion chassis per primary chassis. Each expansion chassis is delivered with the following cables needed for installation.

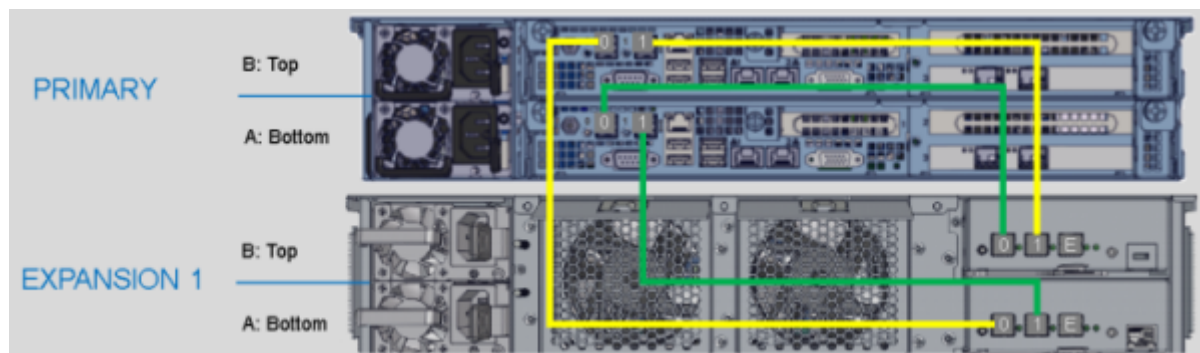
| Quantity | Description |
|----------|--|
| 2 | 1M Mini-SAS cables |
| 0 | AC power cords (customer supplied) see below for details |

1. From the rear of the system, attach the cables as shown in the following step.

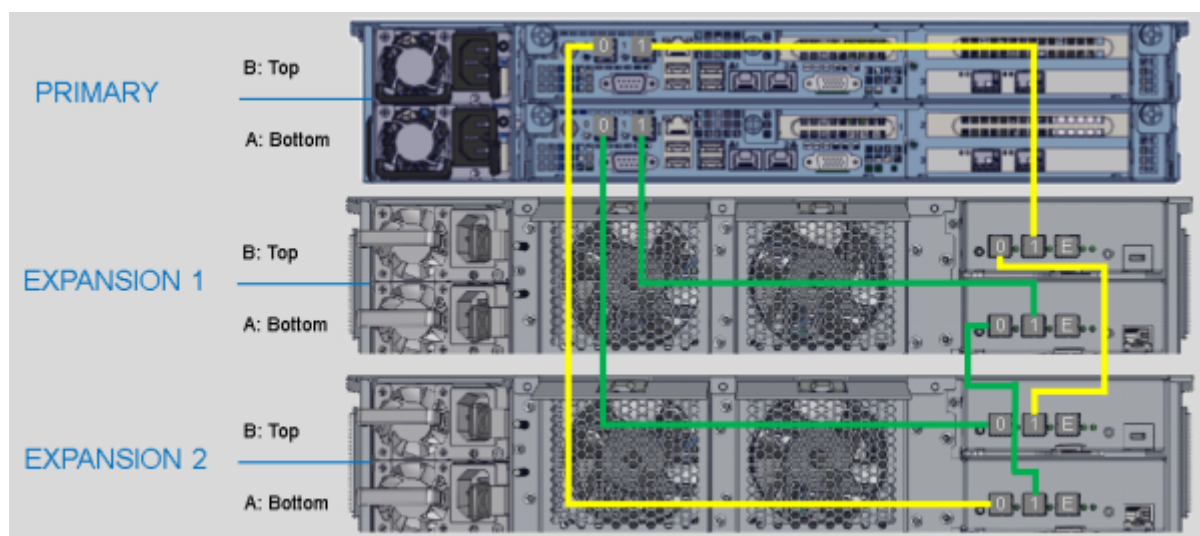
2. SAS Expansion - Connect the Expansion chassis to the Primary chassis using the following diagrams depending on the number of chassis.

Each connection scheme maximizes redundancy.

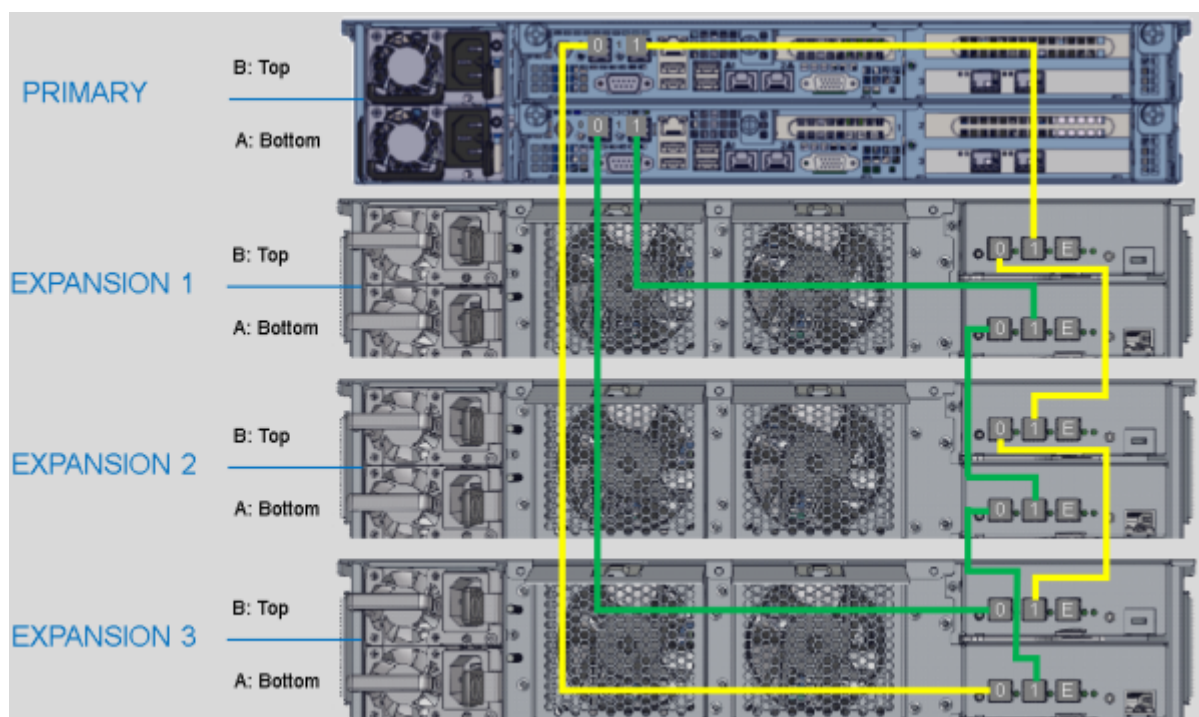
- **SAS Cabling: 2 chassis stack**



- **SAS Cabling: 3 chassis stack**



- **SAS Cabling: Full stack**



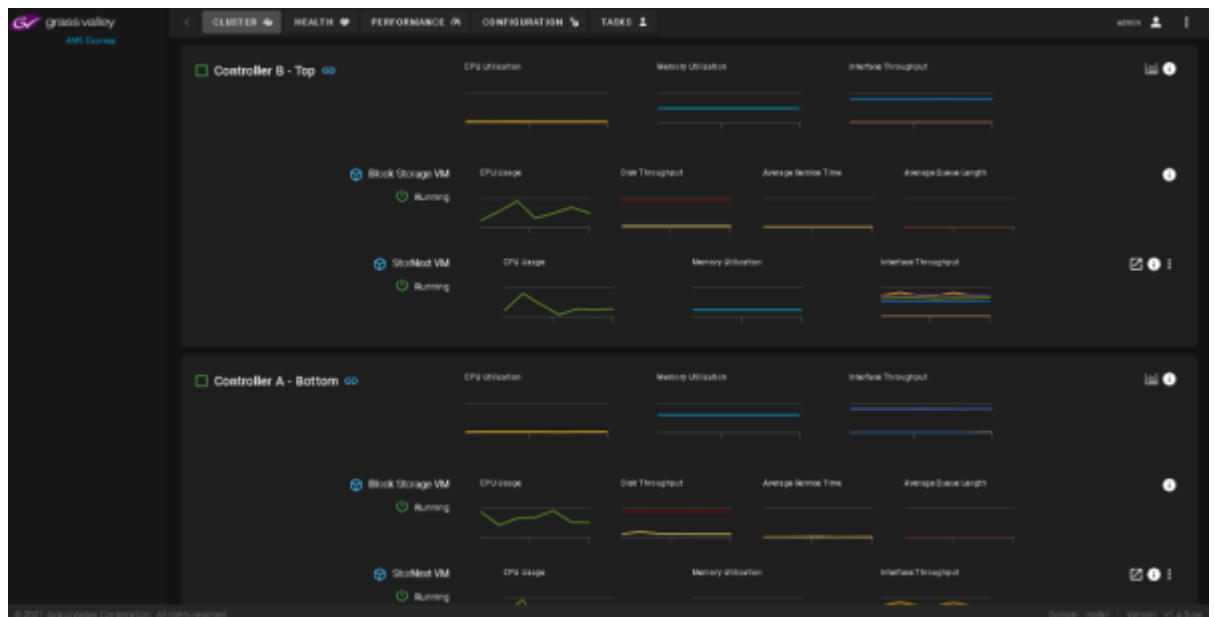
3. AC Power Cords - Two (2) AC line cords are required per chassis for redundancy purposes. These are not supplied with the units. Customer must supply a certified power cord with its country of destination approval marking on the cable, plug or connector. Please see plug specifications in [Cabling: Primary Chassis](#) on page 27.

Software Overview

Multiple software interfaces are utilized to maximize the system's potential. The majority of steps will utilize graphical user interfaces (GUI). For specific configuration or troubleshooting purposes, a command line interface (CLI) may be utilized. These interfaces are outlined below and referred to throughout the remainder of the documentation.

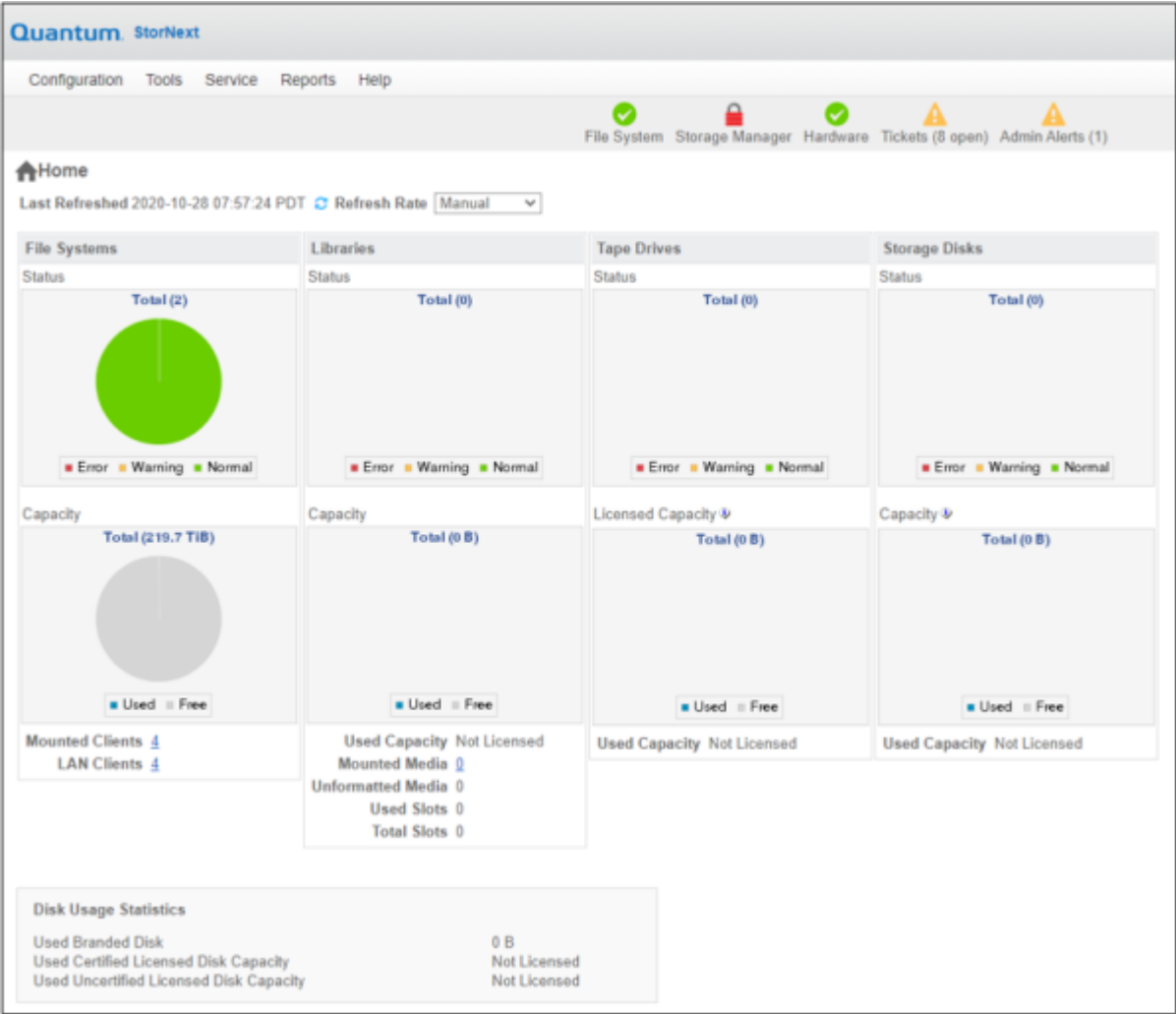
AMS Express GUI (AMS-GUI)

This is the primary interface for setup and monitoring the system.



StorNext GUI (SN-GUI)

AMS Express utilizes the StorNext operating system running in a VM as shown below.



Baseboard Management Controller GUI (BMC-GUI)

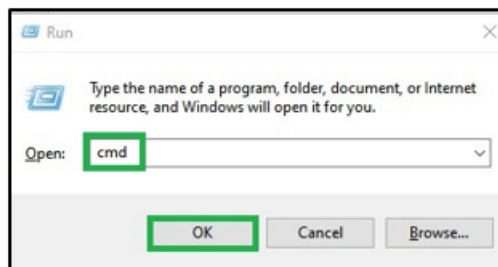
The BMC-GUI is typically used for low-level troubleshooting or accessing the system via the IPMI interfaces.



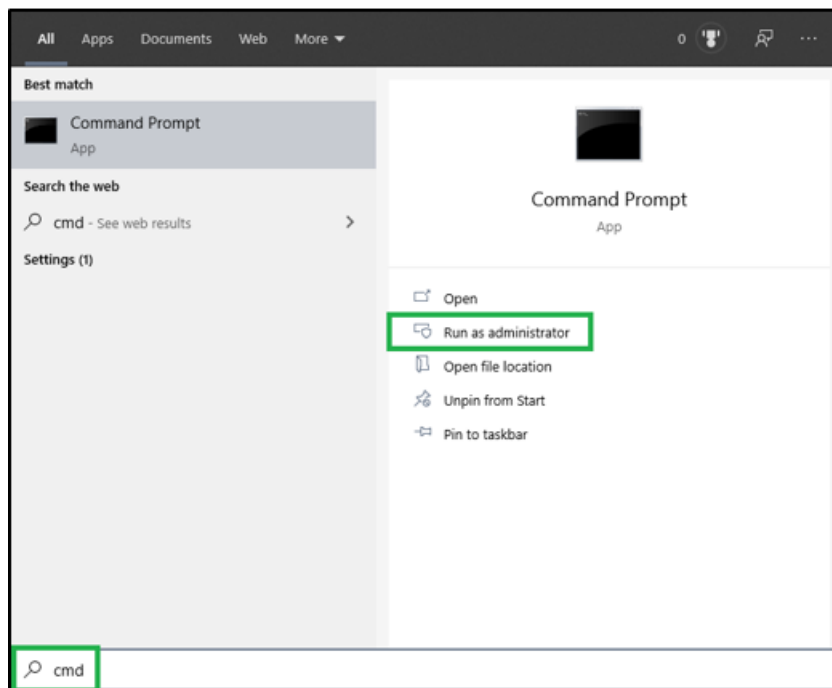
Command Line Interface (CLI)

The CLI will be utilized for configuration, testing, or verification.

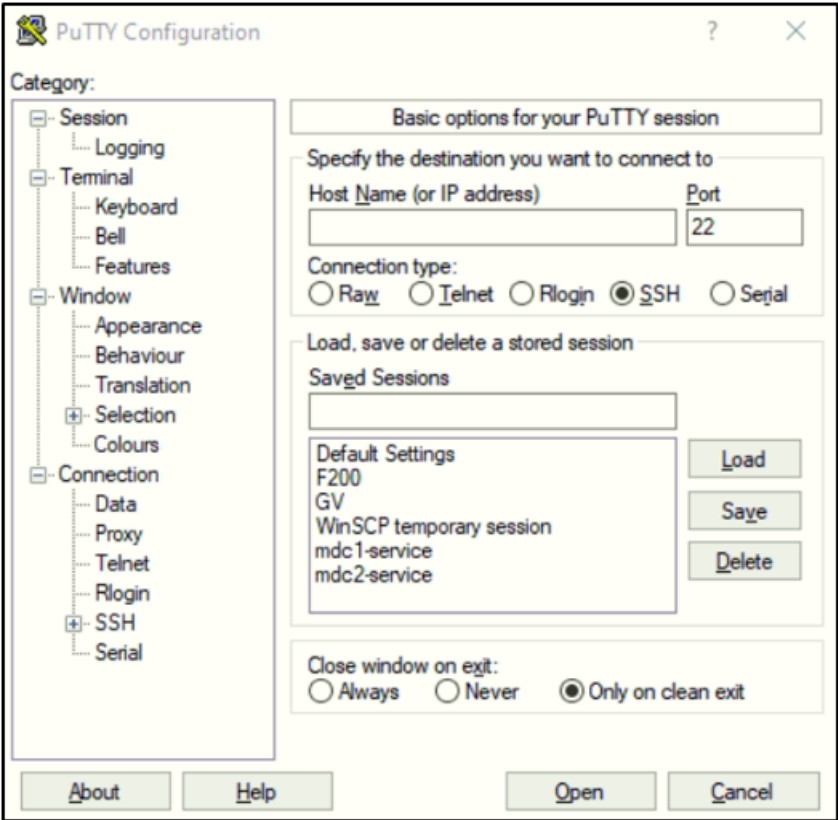
- To reach the command line in Windows, do one of the following:
 - Press **Windows+R** keys to open the **Run** box.
 - Type **cmd** and then click **OK** to open a regular Command Prompt.
 - Type **cmd** and then press **Ctrl+Shift+Enter** to open an administrator Command Prompt.



- Alternately, click the Cortana search box and type in **cmd** then click **Run as administrator**.



- Or users may prefer the PuTTY interface.



Commissioning the System

The following steps follow a typical installation scenario where the AMS Express and network switches are cabled as in the [Installing the Hardware](#) on page 19 section.

The documentation assumes the user is familiar with Windows operating system, networking fundamentals, and comfortable with the command line interface.

Preparation

Before starting, ensure the following is accessible and prepared:

- Laptop computer with Windows 10 or higher. (For older Windows versions, you will have to search for comparable solutions)
- Two Ethernet cables. These are temporary and will be removed when finished configuring the system.
 1. For attaching the PC to network switch
 2. For attaching network switch to AMS Express
- Read and understood the [Software Overview](#) on page 33 section.
- Ensure power cord is plugged in and power on for the PC, network switch, and AMS Express.

IP addresses & passwords

Multiple IP addresses are required to ensure the AMS Express system functions correctly. Complete the chart below prior to installing the system. It can then be saved for future reference.

Where appropriate, a Primary (Bottom) or Secondary (Top) Controller is specified. The credentials (user / password) are case-sensitive and recommended for long-term support needs.

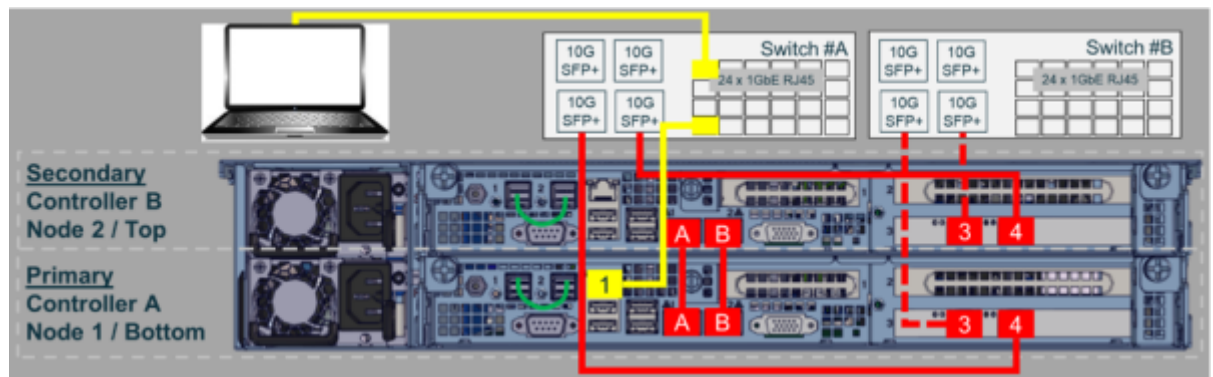
| Target | Credentials | Controller | Factory 192.168.21 | Documentation 10.16.232 | Customer yyy.yyy.yyy |
|-------------------------|---------------------|----------------------------|-----------------------|----------------------------|-------------------------|
| AMS-GUI (Hypervisor) | admin / adminGV! | Top-Secondary — | .2 | .171 | |
| | | Node 2 | .1 | .170 | |
| | | Bottom-Primary — Node 1 | | | |
| SN-GUI (StorNext) | admin / password | Top-Secondary — | .22 | .174 | |
| | | Node 2 | .21 | .173 | |
| | | Bottom-Primary — Node 1 | | | |
| BMC/IPMI GUI | ADMIN /ADMIN | Top-Secondary — | .42 | .179 | |
| | | Node 2 | .41 | .178 | |
| | | Bottom-Primary — Node 1 | | | |

| Target | Credentials | Controller | Factory 192.168.21 | Documentation 10.16.232 | Customer yyy.yyy.yyy |
|-----------------|-------------|--------------|-----------------------|----------------------------|-------------------------|
| GV VM | n/a | Bottom | .31 | .176 | |
| NAS VIP | n/a | Top & Bottom | .23 | .177 | |
| Netmask | n/a | Top & Bottom | n/a | .255.0 | |
| Gateway | | | | 10.16.232.1 | |
| Default Gateway | | | | 10.16.232.1 | |
| DNS Primary | | | | 10.16.212.23 | |
| DNS Alternate | | | | 10.16.212.24 | |
| Domain | | | | gvservice.com | |

Connect the PC to the AMS Express

Network switch method (preferred)

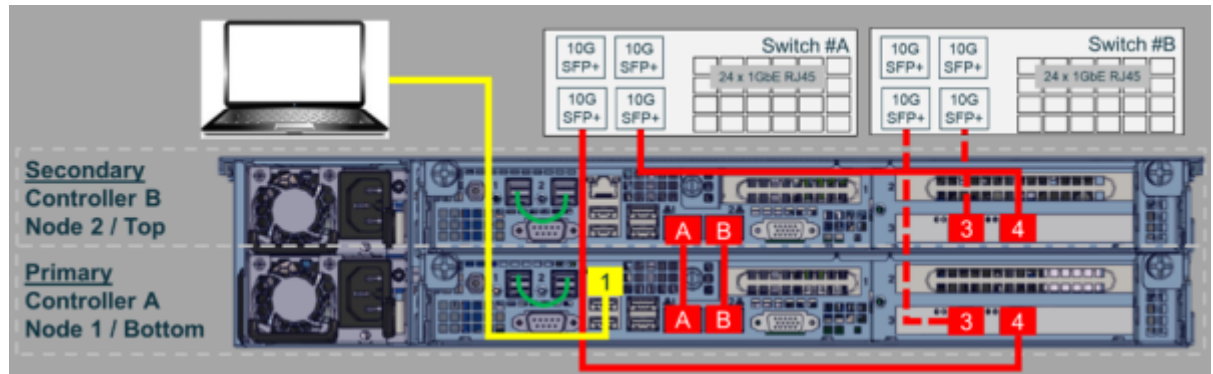
1. Plug the 1st Ethernet cable into the Primary Controller IPMI port (#1) and the other end into **Switch #A** (the same switch that ports #4 were plugged into) as shown in the yellow line below.



2. Plug the 2nd Ethernet cable into **Switch #A** and the other end into Ethernet port of the PC as shown in the top yellow line.

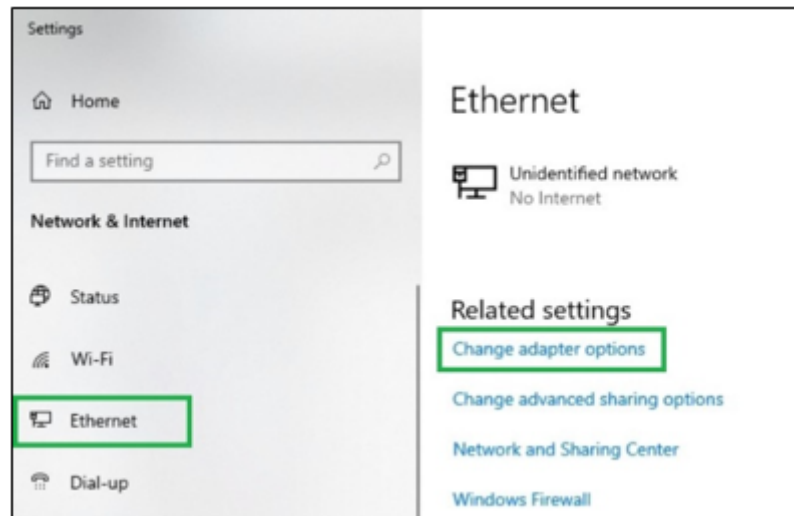
Direct Connection

Plug an Ethernet cable into the Primary Controller IPMI port and the other end into the PC as shown in the yellow line below.



Configure the PC Network Settings

1. Access the Network Connections setting on your PC using one of the following:



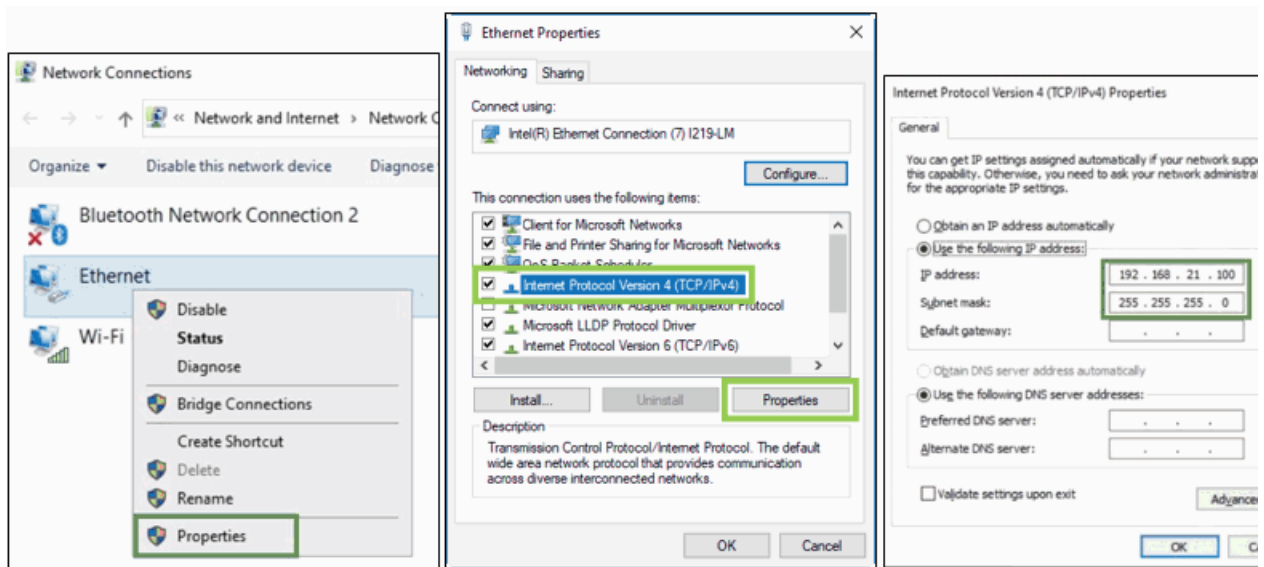
- For Windows 10 (method 1), right-click the **Start menu** icon, click **Network Connections**, choose **Ethernet** in left-hand pane, click **Change Adapter Options** in the right dialog pane.
 - For Windows 10 (method 2), open the Cortana search, and enter **View network status and tasks**, choose **Ethernet** in left-hand pane, click **Change Adapter Options** in the right dialog pane.
 - For older Windows versions, click the Start menu, search for and open the **View Network Connections** dialog.
2. Right-click the connection corresponding to Ethernet port that is connected to the switch, something like **Ethernet** or **Local Area Connection**, and select **Properties**.

- From the list of connections, select **Internet Protocol Version 4 (TCP/IPv4)**, and then click **Properties** to display the **Internet Protocol Version 4 (TCP/IPv4) Properties** dialog box.

NOTE: *It is highly recommended to write down the settings before changing. You can refer to this information later when you set the settings back to their original values — after you are finished using this network connection.*

- Select **Use the following IP address:** and enter the following information exactly as shown below, ensuring **Validate settings upon exit** box is not checked.

These are the default settings.



- If already using a static IP, click **Advanced** and add a second IP address as noted above.
- Click **OK**.
- Close the remaining Network dialog boxes.

NOTE: *It may take several minutes to enable the connections.*


Primary Chassis Setup

The following steps utilize the AMS–GUI for setup. Carefully enter the information exactly as shown.

Configure Networks

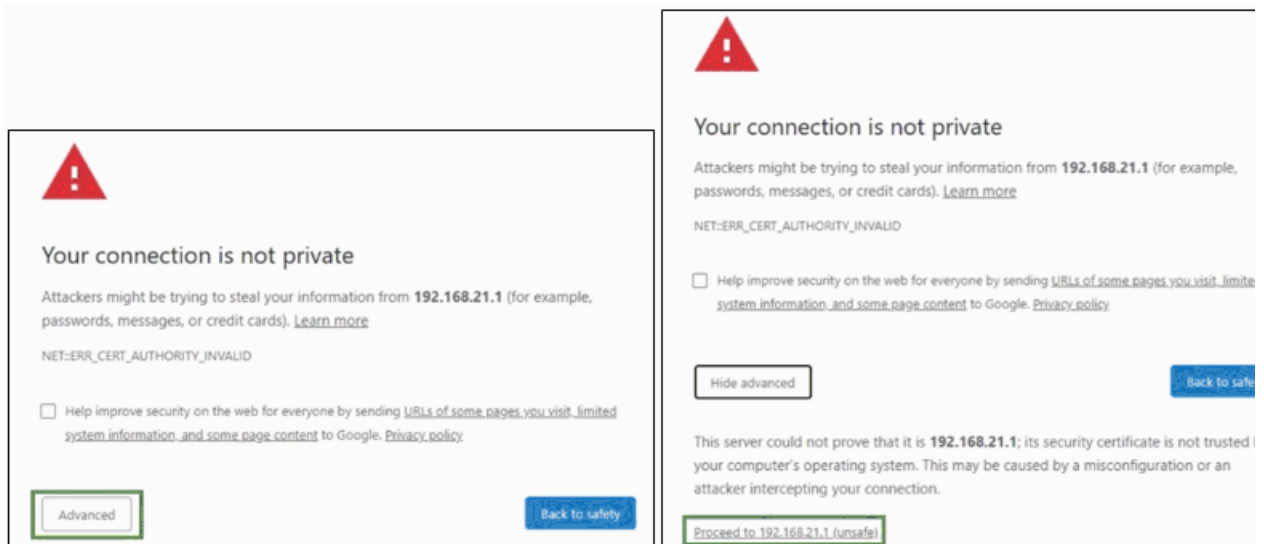
Utilizing the AMS-GUI

The following steps utilize the AMS–GUI for setup.

 **Important:** Carefully enter the information exactly as shown, replacing this documentation's IP address / names with your company's information.

1. Open a browser and navigate to the initial interface URL: **192.168.21.1** (it may take a minute to find the system)

If the following warning appears, click **Advanced**, then click **Proceed to 192.168.21.1 (unsafe)**.



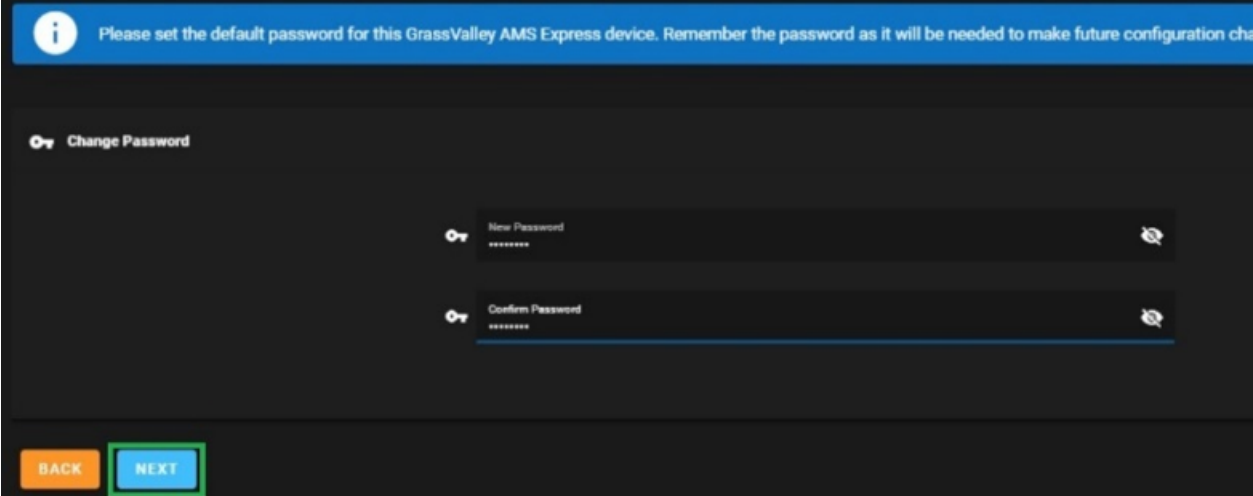
The EULA (End-User License Agreement) displays.



2. Click **AGREE** to accept the EULA.

3. Enter **adminGV!** as new password when prompted for both **New Password** and **Confirm Password**.

NOTE: The password entered will be used for the root user account to access the AMS-GUI and the CLI.



The screenshot shows a web-based configuration interface for a GrassValley AMS Express device. At the top, a blue banner with a white information icon contains the text: "Please set the default password for this GrassValley AMS Express device. Remember the password as it will be needed to make future configuration changes." Below this, the main area has a dark background with the title "Change Password" and a key icon. There are two password input fields: "New Password" and "Confirm Password", both showing masked characters (dots). Each field has a key icon to its left and an eye icon to its right for toggling visibility. At the bottom, there are two buttons: an orange "BACK" button and a blue "NEXT" button, which is highlighted with a green rectangular border.

4. Click **NEXT** to accept the password changes.
5. Proceed to the next task: [Configure the Management Network \(Hypervisor\)](#) on page 42

Configure the Management Network (Hypervisor)

Leave the following items unchanged as any changes will impact workflow performance.

- Boot Protocol = Static
- Interface Name = br0
- MTU = 1500

The screenshot displays a configuration screen for two controllers. The left panel is for 'Controller A - Bottom' and the right panel is for 'Controller B - Top'. Both panels show the same configuration fields with the following values:

- Root Protocol: Static
- Hostname: node1 (for A) / node2 (for B)
- Domain: gvservice.com
- Interface Name: br0
- IPv4 Address: 10.16.232.170 (for A) / 10.16.232.171 (for B)
- Netmask: 255.255.255.0
- Default Gateway: 10.16.232.1
- MTU: 1500

At the bottom of the screen, there are two buttons: 'BACK' (red) and 'NEXT' (blue).

1. Enter the remaining items with company-specific substitutions.
2. Click **NEXT**.

The following displays.

 Your system will be configured with the settings shown below. Click Back to make changes or click Apply to use current settings. It will

3. Click **APPLY**.

When successful, a green pop-up message appears at the top of the screen.

Configuration Successful. In a moment you will be forwarded to login.

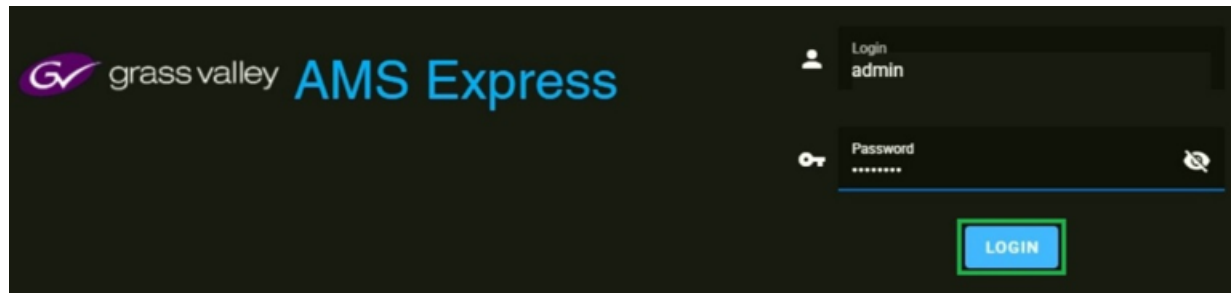
Several tasks will be scheduled, including a network restart **PENDING** message below.

The screenshot shows a task notification with the following details:

- Task ID:** 86A1DA02-0DFD-4733-996F-E00C8C1F5BB1
- Task Name:** Network - restart network is **PENDING**
- Status:** Task submitted
- Started:** 2020-11-04 17:59:04
- Buttons:** BACK and APPLY

Since the IP address has been changed, the system may appear stopped or hung.

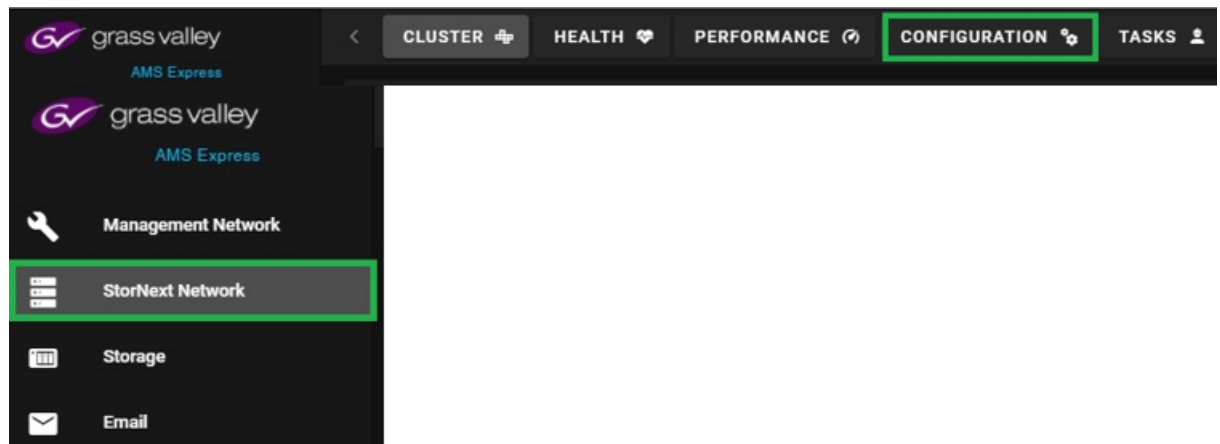
4. After 5 minutes, do the following:
 - a) Close the browser.
 - b) Open the browser and navigate to **10.16.232.170** (the IP address entered for Controller A -Bottom).
5. Login to the AMS-GUI: **admin \ adminGV!**



6. Click **LOGIN**.
7. Select the **CONFIGURATION** tab from the top, then click **Management Network** on the left side of the screen and ensure all settings are accurate.
8. Proceed to the next task: [Configure StorNext Network](#) on page 44

Configure StorNext Network

1. Click **StorNext Network** on the left-side bar.



2. Leave the following items unchanged as any changes will impact workflow performance.

- Interface Name = em2
- MTU = 1500

The screenshot displays the StorNext Network configuration interface. It is divided into three main sections: 'StorNext Network - Controller A - Bottom', 'StorNext Network - Controller B - Top', and 'DNS'. Each section contains a list of configuration items with their respective values. The 'APPLY' button is highlighted in green at the bottom left of the Controller A section.

| Section | Item | Value |
|--|-----------------|---------------|
| StorNext Network - Controller A - Bottom | Hostname | qnode1 |
| | Domain | gvservice.com |
| | Default Gateway | 10.16.232.1 |
| | Interface Name | em2 |
| | IPv4 Address | 10.16.232.173 |
| | Netmask | 255.255.255.0 |
| | Gateway | 10.16.232.1 |
| | MTU | 1500 |
| StorNext Network - Controller B - Top | Hostname | qnode2 |
| | Domain | gvservice.com |
| | Default Gateway | 10.16.232.1 |
| | Interface Name | em2 |
| | IPv4 Address | 10.16.232.174 |
| | Netmask | 255.255.255.0 |
| | Gateway | 10.16.232.1 |
| | MTU | 1500 |
| DNS | Primary DNS | 10.16.212.23 |
| | Alternate DNS | 10.16.212.24 |
| | Alternate DNS | |

3. Enter the remaining items with company-specific substitutions.

4. Click **APPLY** to complete the configuration.

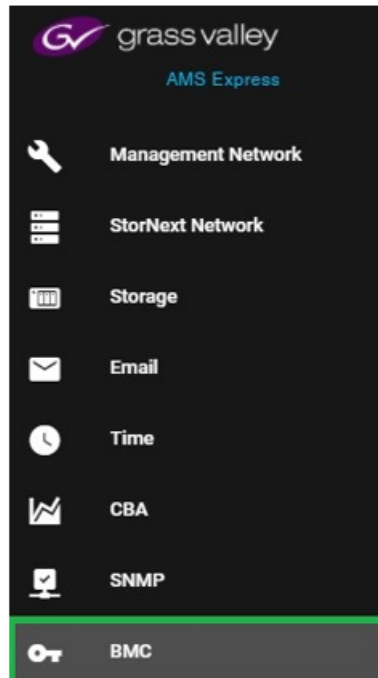
When successfully finished, a green pop-up message appears as below.

StorNext settings saved successfully.

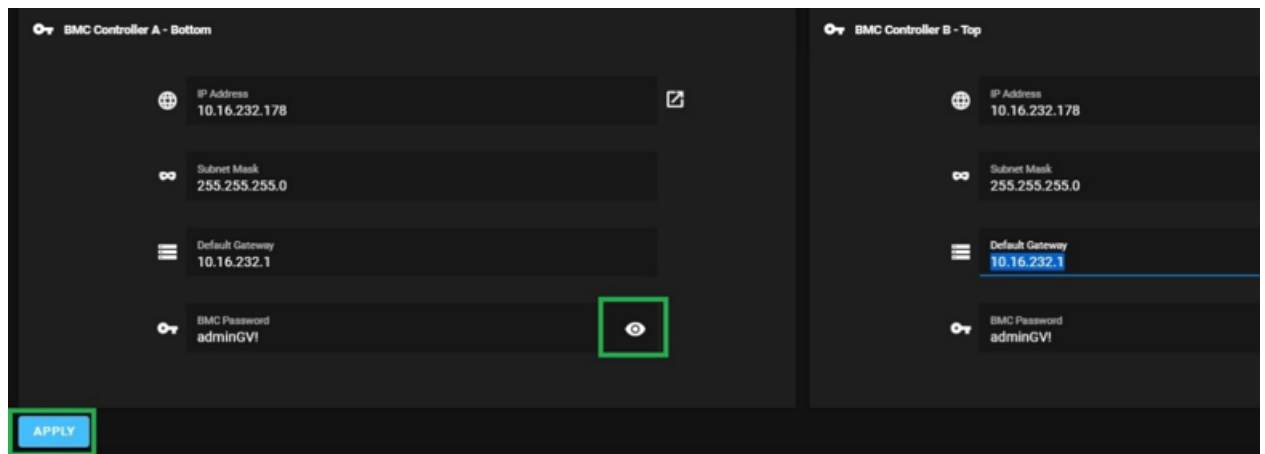
5. Proceed to the next task: [Configure BMC Settings](#) on page 46

Configure BMC Settings

1. Select **BMC** on the left-side bar.



2. Enter the items with company-specific substitutions.




For the BMC password, use the 'eye' icon and set it **adminGV!**.

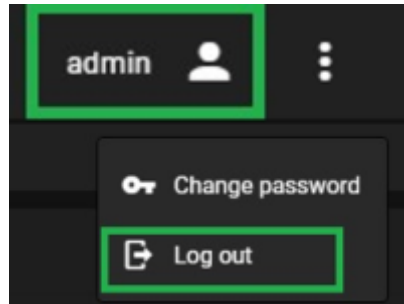
There is no verification step so you need to get it right the first time. If you have issues, the default BMC passwords are on the back of the serial number tab, located in the lower left back-panel of Primary Chassis.

3. Click **APPLY** to complete the configuration.

When successfully finished, a green pop-up message appears as below.



4. Log out from the AMS-GUI by clicking the user profile icon  on top-right of the application and select **Log out**.



Forced Password Change

This process utilizes the Command Line Interface (or PuTTY). This next step is cumbersome due to the California data privacy act.

Bottom Controller change

1. Open a shell on **StorNext VM Controller A - Bottom**.
2. Alter StorNext user by following automatic prompts.

```
$ ssh stornext@10.16.232.173 / password
Current: password
New: adminGV!
Verify: adminGV!
```

3. Change the root password:

```
$ ssh stornext@10.16.232.173 / adminGV!
$ sudo rootsh
# passwd
Changing password for user root.
New password: adminGV!
Retype new password: adminGV!
Passwd: all authentication tokens updated successfully
# exit
$ Exit
```

Top Controller change

1. Open a shell on **StorNext VM Controller B - Top**.

2. Alter StorNext user by following automatic prompts.

```
$ ssh stornext@10.16.232.174 / password
Current: password
New: adminGV!
Verify: adminGV!
```

3. Change the root password:

```
$ ssh stornext@10.16.232.174 / adminGV!
$ sudo rootsh
# passwd
Changing password for user root.
New password: adminGV!
Retype new password: adminGV!
Passwd: all authenticatino tokens updated successfully
# exit
$ Exit
```

File System Naming

This step only applies if your company has standardized computer and server naming conventions or adding multiple AMS Express Primary Chassis’ and need a new database name to ensure no conflicts.

It is highly recommended to perform this step now. Renaming a file system after system configuration and attached clients is significantly more complex. If default values are fine, skip this step and proceed to the next one.


The default Grass Valley file system name is **gvfs_sysman1**. The default Grass Valley VM is **sysman1**.

The file system must start with **gvfs_** while the suffix-name and the VM names must match (i.e. **sysman1**).

For example, Big Data Television uses **bd** as a prefix so the file system name could be **gvfs_bdnew** and the VM name **bdnew**. If a naming convention is required, proceed replacing **gvfs_bdnew** and **bdnew** in the examples that follow with company specified names (use the chart below and keep it for reference).

| Name | Default GV | Example | Company Specified |
|-------------|--------------|------------|-------------------|
| File System | gvfs_sysman1 | gvfs_bdnew | |
| VM / Server | sysman1 | bdnew | |

Determine StorNext node

 **Important:** Enter commands below exactly as shown including upper/lower case; example output shown below the steps.

1. Using the CLI, open a shell on **StorNext VM Controller A - Bottom**.

```
C:\> ssh root@10.16.232.173
```

```
root@10.16.232.173's password: adminGV!
Last login: Wed Nov  4 10:53:57 2020 from lanclient01.gvservice.com
```

2. Check the status of the StorNext node. You must ensure the status is **primary**.

```
[root@qnode1 ~]# snhamgr status
```

```
LocalMode=default
LocalStatus=primary
RemoteMode=default
RemoteStatus=running
```

3. If **LocalStatus=primary** then you are on the primary StorNext node. Proceed to the next topic: [Rename the file system](#) on page 49
4. If **LocalStatus=running** then you are not on the primary StorNext node. Perform the following and make necessary adjustments throughout remainder of documentation.

```
[root@qnode1 ~]# exit
```

```
Logout
Connection to 10.16.232.173 closed
```

```
C:\> ssh root@10.16.232.174
```

```
root@10.16.232.174's password: password
Last login: Wed Nov  4 10:53:57 2020 from lanclient01.gvservice.com
```

```
[root@qnode2 ~]# snhamgr status
```

```
LocalMode=default
LocalStatus=primary
RemoteMode=default
RemoteStatus=running
```

Rename the file system

1. Shutdown StorNext services on the non-primary node: (it could take several minutes to complete)

```
[root@qnode1 ~]# snhamgr config
```

```
LocalMode=default
LocalStatus=primary
RemoteMode=locked
RemoteStatus=stopped
```

2. Unmount the gvfs_sysman1 file system: (note the spelling is umount not unmount)

```
[root@qnode1 ~]# umount gvfs_sysman1 -v
umount: /Volumes/gvfs_sysman1 (gvfs_sysman1) unmounted
```

3. Stop the gvfs_sysman1 file system.

```
[root@qnode1 ~]# cvadmin -e "stop gvfs_sysman1"
Select FSM "none"
Stop FSS "gvfs_sysman1"
FSS 'gvfs_sysman1' on Qnode1-MDC-ClusterNetA stop initiated.
FSS 'gvfs_sysman1' stopped.
```

4. Rename directory and file system on the secondary (non-primary) node from initial step.

```
[root@qnode1 ~]# ssh 10.16.232.174 "mv /usr/cvfs/data/gvfs_sysman1 /usr/cvfs/data/gv
```

5. If prompted to continue, enter **yes**.
6. Rename the file system to **bdnew**.

```
[root@qnode1 ~]# cvupdatefs -R gvfs_bdnew gvfs_sysman1
Checked Build disabled - default.
Buf_init: L1 size 512 MB, L2 size 7680 MB
Attempting to acquire arbitration block... successful.
Updating ICB information...
Updating SuperBlock information...
Rename succeeded.
Filesystem gvfs_sysman1 renamed to gvfs_bdnew.
Writing Configuration Information Block of 65536 bytes.
Config Info Block contains 2650 bytes (compressed) of 7326 bytes of con
```

7. Delete the old mount point directory and create a new directory reflecting the new file system name:

```
[root@qnode1 ~]# rmdir /Volumes/gvfs_sysman1
[root@qnode1 ~]# mkdir -m 777 /Volumes/gvfs_bdnew
```

8. Using the nano editor, modify the fstab file to reflect the new file sytem name and new mount point as shown in bold below. Utilize arrow keys to move locations.

```
[root@qnode1 ~]# nano /etc/fstab
```

```
GNU nano 2.3.1 File: ./snfs configure.conf
#
# /etc/fstab
# Created by anaconda on Sat Aug 22 04:25:23 2020
#
# Accessible filesystems, by reference, are maintained under '/dev/disk'
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info
#
UUID=a0cb0e38-2000-413c-97b8-d952bf311059 / ext3 defaults,noatime,nodiratime
UUID=8e4e4044-1673-47d4-b296-3804b75e460f /boot ext3 defaults,noatime,nodiratime
UUID=46c7aa03-6edb-4358-a493-e93a90eadf0c /scratch ext3 defaults,noatime,nodiratime
UUID=efffd85c-fff4-4835-93b5-16186e4e839d /var ext3 defaults,noatime,nodiratime
#UUID=f46e8f32-a647-459e-8a2d-43248983b4ca swap swap defaults,noatime,nodiratime
shared-QTM202000002 /usr/adic/HAM/shared cvfs defaults,rw 0 0
gvfs_bdnew /Volumes/gvfs_bdnew cvfs rw,diskproxy=server 0 0
```

9. To exit nano and save changes, type: <CTRL-X> Y <Enter>
 10. Confirm the edited configuration is correct. If not, repeat previous step.

```
[root@qnode1 ~]# cat /etc/fstab
```

```
#
# /etc/fstab
# Created by anaconda on Sat Aug 22 04:25:23 2020
#
# Accessible filesystems, by reference, are maintained under '/dev/d
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for mc

#
UUID=a0cb0e38-2000-413c-97b8-d952bf311059 / ext3 defaults,noatime,nodiratime
UUID=8e4e4044-1673-47d4-b296-3804b75e460f /boot ext3 defaults,noatime,nodiratime
UUID=46c7aa03-6edb-4358-a493-e93a90eadf0c /scratch ext3 defaults,noatime,nodiratime
UUID=efffd85c-fff4-4835-93b5-16186e4e839d /var ext3 defaults,noatime,nodiratime
#UUID=f46e8f32-a647-459e-8a2d-43248983b4ca swap swap defaults,noatime,nodiratime
shared-QTM202000002 /usr/adic/HAM/shared cvfs defaults,rw 0 0
gvfs_bdnew /Volumes/gvfs_bdnew cvfs rw,diskproxy=server 0 0
```

11. Next step could take several minutes. Start the new file system:

```
[root@qnode1 ~]# cvadmin -e "start gvfs_bdnew"
```

```
Select FSM "none"
Starting FSS locally.
Start FSS "gvfs_bdnew"
FSS 'gvfs_bdnew' start initiated.
FSS 'gvfs_bdnew' started.
Attempt start of FSS on HA peer 10.17.22.22.
Start FSS "gvfs_bdnew"
Could not start FSS on ha peer node.
```

12. Activate the new file system.

```
[root@qnode1 ~]# cvadmin -e "activate gvfs_bdnew"
Select FSM "none"
Activate FSM "gvfs_bdnew"
Created          :    Mon Nov 16 11:43:23 2020
Active Connections:    1
Fs Block Size      :    4K
Msg Buffer Size    :    8K
Disk Devices       :    4
Stripe Groups     :    2
Fs Blocks          :    14707186944 (54.79 TB)
Fs Blocks Free     :    14706104064 (54.78 TB) (99%)
```

13. Ensure the file system is mounted.

```
[root@qnode1 ~]# mount gvfs_bdnew
mount.cvfs: according to mtab, gvfs_bdnew is already mounted on /Volumes/gv
```

Rejoin the cluster

The last step will restart the node to rejoin the cluster.

NOTE: *This command can take up to 10 minutes to finish and the shell may be disconnected.*

When finished, the secondary node will be running StorNext services again. Its configuration files will automatically synchronize with the primary node and create the new mount point.

1. To start, enter as below in the shell.

```
[root@qnode1 ~]# snhamgr start
```

If shell remains connected, the following output indicates all services are running on both nodes.

2. If shell disconnects, press <Enter> then the following to indicate all services are running on both nodes:

```
# snhamgr status
LocalMode=default
LocalStatus=primary
RemoteMode=default
RemoteStatus=running
```

3. Exit the Shell and the command line interface.

```
# exit
C:\> exit
```


Create NAS Share

This will allow AMS Express to appear as a NAS device as well as creating the Grass Valley file system name (default: gvfs_sysman1). These steps must be performed from the Top Controller B / Secondary.

Preparation

- Access the command line interface.
- Ensure the StorNext Top Controller B/Secondary controller is accessible by entering the following:

C:\>ping 10.16.232.174

```
Pinging 10.16.232.174 with 32 bytes of data:
Reply from 10.16.232.174: bytes=32 time=1ms TTL=64
Reply from 10.16.232.174: bytes=32 time=2ms TTL=64
Reply from 10.16.232.174: bytes=32 time=1ms TTL=64
Reply from 10.16.232.174: bytes=32 time=4ms TTL=64
Ping statistics for 10.16.232.174:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 4ms, Average = 2ms
```

- Open an SSH Session.

C:\>ssh root@10.16.232.174

```
root@10.16.232.174's password: adminGV!
Last login: Wed Nov  4 10:53:57 2020 from lanclient01.gvservice.com
```

- Change Directories.

[root@qnode2 ~]# cd /opt/quantum/ovfconfig

Edit NAS configuration file

Before editing, take note of the following:

- Ensure no spaces between any characters entered
- Pay attention to upper & lower case
- MGMT-NODE1=IP address of StorNext Bottom A / Primary
- MGMT-NODE2=IP address of StorNext Top B / Secondary
- MGMT_NAS_VIP=virtual IP address for the NAS

- If renamed file system in previous step, use **gvfs_bdnew** instead
1. Use nano editor to modify configuration file by adding the IP addresses and last two lines as shown in bold below.

[root@qnode2 ovfconfig]# nano ./snfs_configure.conf

```
GNU nano 2.3.1 File: ./snfs_configure.conf
NODENUM=2
MGMT_NODE1=10.16.232.173
MGMT_NODE2=10.16.232.174
MGMT_NAS_VIP=10.16.232.177
HA_PEER=10.17.22.21
RESERVED_SPACE=true
GVFS_FSNAME=gvfs_sysman1
GVFS_MNTPNT=/Volumes/${GVFS_FSNAME}
```

2. To exit the nano editor and save changes, type: <CTRL-X> Y <Enter>
3. Confirm the edited configuration file is correct. If not, repeat step 1.

[root@qnode2 ovfconfig]# cat ./snfs_configure.conf

```
NODENUM=2
MGMT_NODE1=10.16.232.173
MGMT_NODE2=10.16.232.174
MGMT_NAS_VIP=10.16.232.177
HA_PEER=10.17.22.21
RESERVED_SPACE=true
GVFS_FSNAME=gvfs_sysman1
GVFS_MNTPNT=/Volumes/${GVFS_FSNAME}
```

NAS configuration

NOTE: This step will take up to 10 minutes to complete. Be patient as it will appear as nothing is happening or 'UNHEALTHY' text will show. This is normal.

1. Run the NAS configuration script which utilizes the information from the configuration file.

```
[root@qnode2 ovfconfig]# ./nas_configure.sh
Wed Nov  4 11:07:55 PST 2020 [24778]: Running ./nas_configure.sh

Wed Nov  4 11:07:55 PST 2020 [24778]: Configuring NAS
Updating NAS cluster configuration ...
Verifying NAS cluster configuration for 10.16.232.174 ...
NAS cluster enable node 10.16.232.174 starting ...
Updating system NAS cluster configuration ...
NFS: services (v4=no, v3=yes, HA=no)Setting master local auth
config ...
Applying local configuration settings ...
Master node successfully enabled for NAS cluster using
10.16.232.174
Updating NAS cluster configuration ...
Verifying NAS cluster configuration for 10.16.232.173 ...
Node 10.16.232.173 successfully enabled for NAS cluster
NAS Cluster preparing to set virtual IPs: 10.16.232.177 ...
Verifying virtual IPs: 10.16.232.177 ...
NAS Cluster setting paused state ...
NAS Cluster updating virtual IP addr list to: ['10.16.232.177']
...
NAS Cluster applying virtual ipaddr settings ...
Updating system NAS cluster configuration ...
NFS: services (v4=no, v3=yes, HA=no)
NAS Cluster clearing paused state ...
Virtual IP addresses ['10.16.232.177'] successfully stored
NAS Cluster join starting ...
NAS Cluster ID 0c3a5438-1ed1-11eb-9576-00308c0c2480 found ...
Preparing for NAS cluster join as ID 10.16.232.174
Applying NAS cluster join settings ...
Updating system NAS cluster configuration ...
NFS: services (v4=no, v3=yes, HA=no)
Check for master takeover ...
Publish master configuration ...
Cluster verification for 10.16.232.174 in-progress ...
Node state: pnn:0 10.16.232.174    UNHEALTHY (THIS NODE), waiting
...
Node state: pnn:0 10.16.232.174    OK (THIS NODE)
Cluster verification of 10.16.232.174 successful ...
Waiting for NAS Master VIP 10.16.232.177 to be reachable ...
Successfully joined NAS cluster

Waiting for config already in-progress ...
wait complete
NAS Cluster join starting ...
NAS Cluster ID 0c3a5438-1ed1-11eb-9576-00308c0c2480 found ...
Proxy join to 10.16.232.173 ...
[10.16.232.173]: NAS Cluster join to cluster ID
0c3a5438-1ed1-11eb-9576-00308c0c2480 starting ...
[10.16.232.173]: Preparing for NAS cluster join as ID
10.16.232.173
[10.16.232.173]: Verifying local configuration with master
10.16.232.174 ...
[10.16.232.173]: Synchronization of local configuration with
master 10.16.232.174 starting...
[10.16.232.173]: Applying local auth config sync settings ...
[10.16.232.173]: Applying local configuration settings ...
[10.16.232.173]: Applying NAS cluster join settings ...
[10.16.232.173]: Updating system NAS cluster configuration ...
```

```

[10.16.232.173]: NFS: services (v4=no, v3=yes, HA=no)
[10.16.232.173]: Verifying local configuration with master
10.16.232.174 ...
[10.16.232.173]: Cluster verification for 10.16.232.173
in-progress ...
[10.16.232.173]: Node state: pnn:1 10.16.232.173      UNHEALTHY
(THIS NODE), waiting ...
[10.16.232.173]: Node state: pnn:1 10.16.232.173      OK (THIS
NODE)
[10.16.232.173]: Cluster verification of 10.16.232.173 successful
...
Successfully joined NAS cluster

Broadcasting share config-sync to NAS cluster ...
Waiting for nascluster_share_config_sync to complete on node
10.16.232.173
Share global successfully changed
Broadcasting share config-sync to NAS cluster ...
Waiting for nascluster_share_config_sync to complete on node
10.16.232.173
Share gvfs_sysman1 successfully added
Registry key 'cifs.allow_trusted_domains' set to '1'.
NAS Cluster IP: 10.16.232.174/em2, Master: Yes, SNFS Root:
/Volumes/gvfs_sysman1, Joined: Yes
ID: 0c3a5438-1ed1-11eb-9576-00308c0c2480
Cluster Hostname:
DNS Enabled: No
Load balancing: Proxy-Disabled
NFS-HA: Disabled
Master IP: 10.16.232.174 qnode2.gvservice.com
VIP: 10.16.232.177 (active, node:master) gvnas2.gvservice.com
Nodes: 2
1: 10.16.232.174 (Joined, MDC) qnode2.gvservice.com
2: 10.16.232.173 (Joined, MDC)

```

2. Exit the shell.

```
[root@qnode2 ovfconfig]# exit
```

```
logout
```

```
Connection to 10.16.232.174 closed.
```

3. Ping the NAS VIP to ensure it is accessible.

```
C:\>ping 10.16.232.177
```

```

Pinging 10.16.232.177 with 32 bytes of data:
Reply from 10.16.232.177: bytes=32 time=7ms TTL=64
Reply from 10.16.232.177: bytes=32 time=1ms TTL=64
Reply from 10.16.232.177: bytes=32 time=19ms TTL=64
Reply from 10.16.232.177: bytes=32 time=2ms TTL=64
Ping statistics for 10.16.232.177:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 19ms, Average = 7ms

```

4. Exit the CLI.

```
C:\> exit
```

Map a network drive

To verify the NAS share created successfully, utilize Windows File Explorer and do the following:

1. Enter the NAS Mount VIP UNC: \\10.16.232.177 in the address bar.
2. Right click on the file system that you just created: **gvfs_sysman1**
3. Choose **Map network drive...**
4. Map to an unused drive (typically V: for Grass Valley).

NOTE: If you have issues or need to sign in with **WORKGROUP/gvadmin**, use additional step below and see the NAS section in troubleshooting or SFDC Knowledge Base articles.

Additional NAS Step

The following step might be needed depending on customer workflow and complexity. Please read through the items and make the applicable choices. These steps use the CLI StorNext Appliance Controller Shell.

1. Login as root on StorNext Node1.

```
> ssh root@10.16.232.173  
[stornext@qnode1 ~]$ sudo rootsh
```

2. Run following to see if Node1 is the master node.

```
[root@qnode1 ~]# su sysadmin -c "nascluster show"  
NAS Cluster IP: 10.16.232.173/em2, Master: No, SNFS Root: /Volumes/gvfs_sysman2, Joined:  
Yes  
ID: e1d5e3a2-9daf-11eb-9a16-00308c0374d5  
Cluster Hostname:  
DNS Enabled: No  
Load balancing: Proxy-Disabled  
NFS-HA: Disabled  
Master IP: 10.16.232.174  
VIP: 10.16.232.177 (active, node:master) nas2.gvservice.com  
Nodes: 2  
1: 10.16.232.174 (Joined, MDC)  
2: 10.16.232.173 (Joined, MDC) qnode1.gvservice.com
```

The above output shows Master: No and the Master IP: 10.16.232.174. If that is the case, ssh to .174 to be on the master node.

Workgroup / gvadmin

The SAMBA NAS system may not enable the GVADMIN user, so to login would require using WORKGROUP/gvadmin.

To avoid that situation, do as follows:

1. From the Master Node, perform the following:

```
[root@qnode1 ~]# pdbedit -L
sysadmin:993:SN-NAS Sysadmin Account

[root@qnode1 ~]# su sysadmin
Last login: Fri Apr 16 06:09:56 PDT 2021 on pts/0
Welcome to Quantum BHM Appliance Controller Console
-----
*** Type 'help' for a list of commands.
```

```
BHM:qnode1> auth show local users
2 local users:
1: uid=993(sysadmin) gid=0(root)
2: uid=1001(gvadmin) gid=1000(aiware)
```

If output following the command is missing **gvadmin**, then you have an issue.

NOTE: *If gvadmin: appears in the output, then the SAMBA database is correct and you can skip this section.*

2. If you received this error message “*This operation can only be run when local authentication is enabled. (E-5035)*”, then run the following and wait up to 10 minutes for NAS cluster to reconfigure.

```
BHM:qnode1> auth config local
```

3. After configuration completes, continue with following:

```
BHM:qnode1> auth show local users
BHM:qnode1> auth change local password gvadmin
gvadmin adminGV!
Enter password again: adminGV!
Modified password for user gvadmin
BHM:qnode1> exit
[root@qnode1 ~]# pdbedit -L
gvadmin:1001:gvadmin
sysadmin:993:SN-NAS Sysadmin Account
[root@qnode1 ~]# exit
```

If you are still having NAS issues, see the NAS section in Troubleshooting or SFDC Knowledge Base articles.

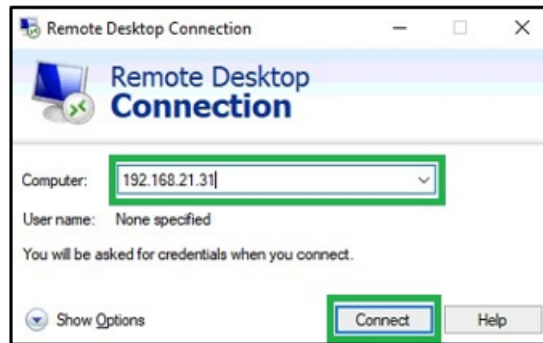
GV VM IP Addressing

The final configuration step is creating an IP address for the Grass Valley VM by using Remote Desktop Connection (RDP).

Start Remote Desktop

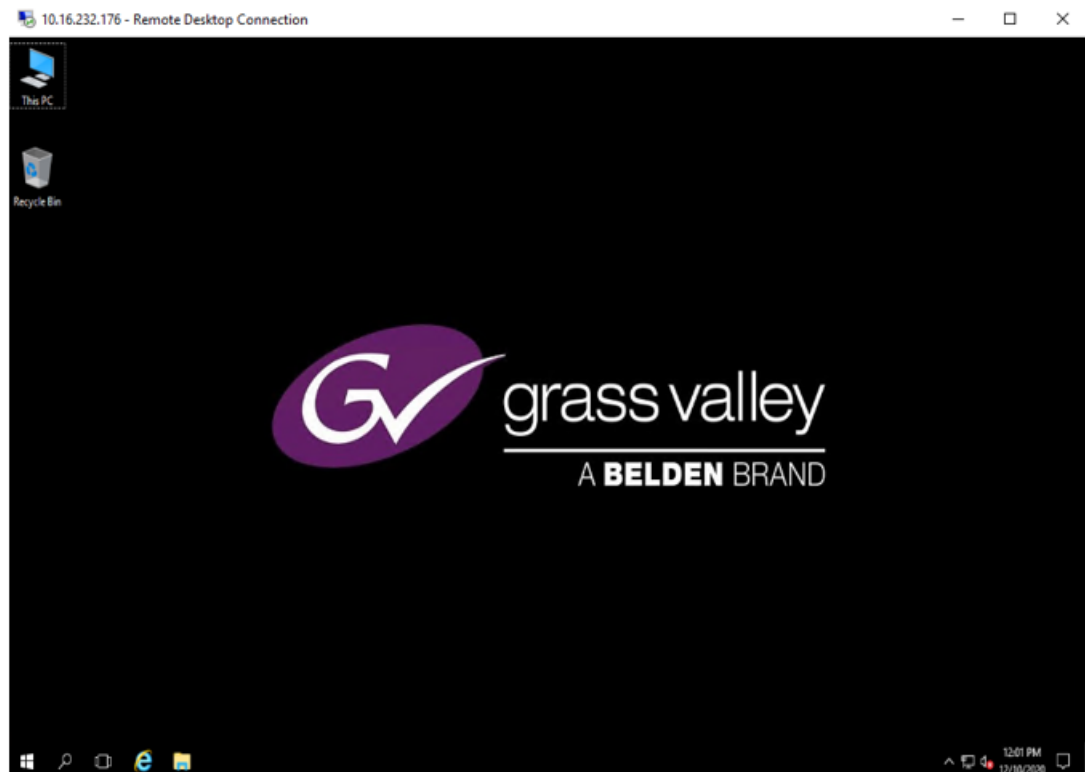
1. Open Remote Desktop app by clicking Start and entering **RDP**.

The following dialog appears.



2. Enter **192.168.21.31** and click **Connect**.
3. If it doesn't connect first time, try again. If prompted, answer **Yes** to the security question.
4. When prompted, login as **administrator** using **adminGV!** as password.

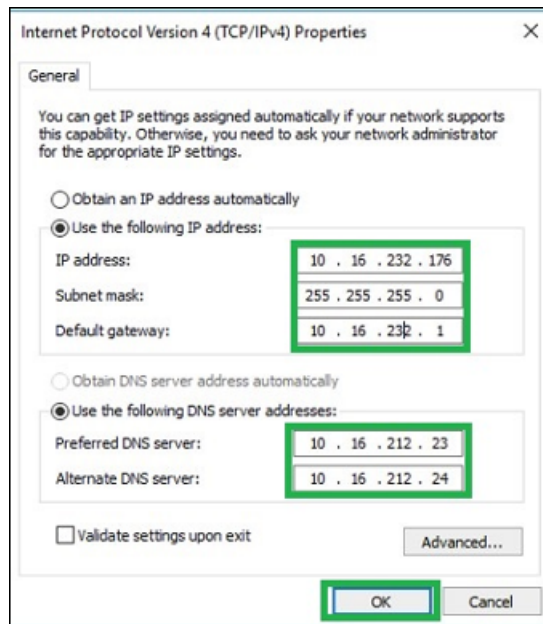
A Grass Valley log screen appears.



Provide IP Address for the VM

1. As shown previously, access the TCP/IPv4 network setting properties.

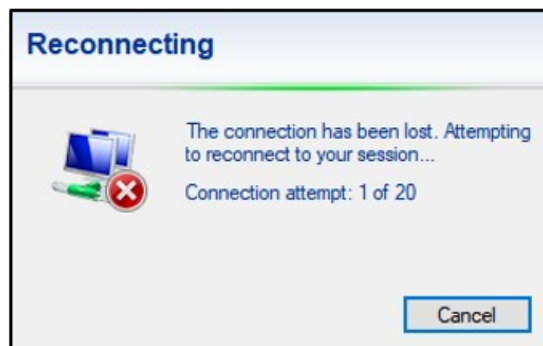
2. Assign the VM an IP address (utilize the same Default Gateway and DNS server IP for the Bottom-Primary controller).



3. Click **OK**, then **Close**.

The RDP connection will be lost since the IP address was changed.

Then the following error message appears.



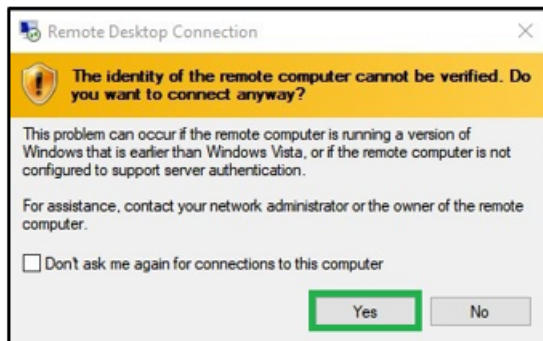
4. Click **Cancel**.

Verify IP is Operational

1. Restart an RDP connection with the newly supplied VM IP address.



2. When prompted, answer **Yes** to the security question.



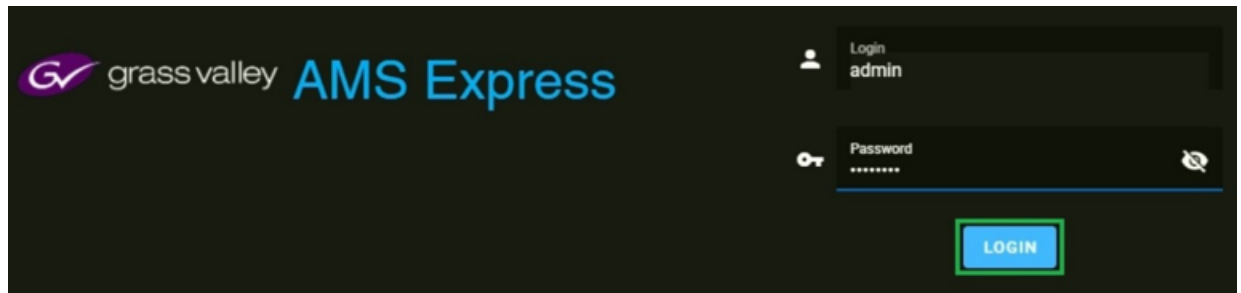
3. Finish login process to ensure IP addressing was completed.
4. Exit the VM.
5. Exit RDP.

Optional Settings

The following optional steps are not required for the system to function but may simplify system management.

To begin, do the following:

- Open a browser and log into the AMS-GUI.

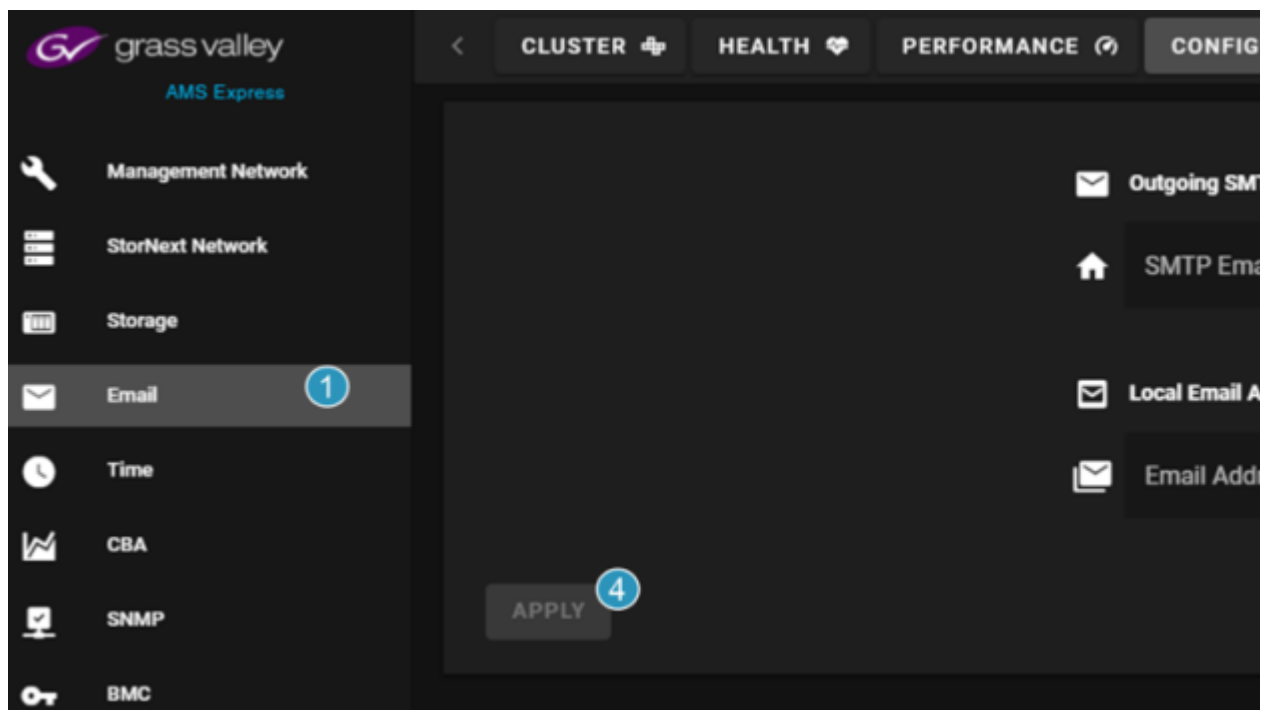


- Select **Configuration** tab in the top navigation menu then use the left-panel navigation to make changes.



Enable email health alerts

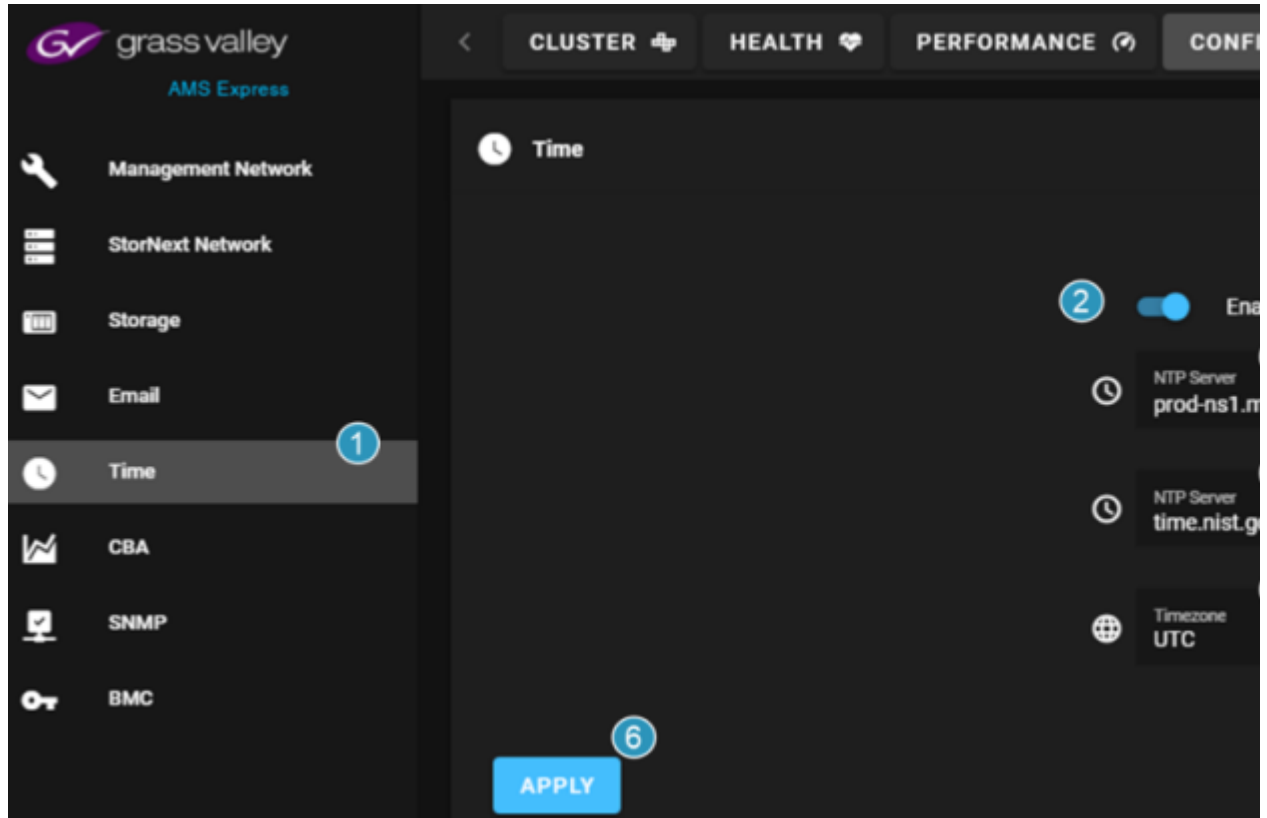
1. Select **Email** in the left navigation menu.



2. Enter the **Outgoing SMTP Email Server** name for the server to use for outgoing email.
3. Enter one or more email addresses in the **Local Email Addresses for Alerts (RAS Tickets)** field. Separate multiple email addresses with a comma “,”.
4. Click **Apply** to confirm the changes.

Enable Network Time Protocol

1. Select **Time** in the left navigation menu.



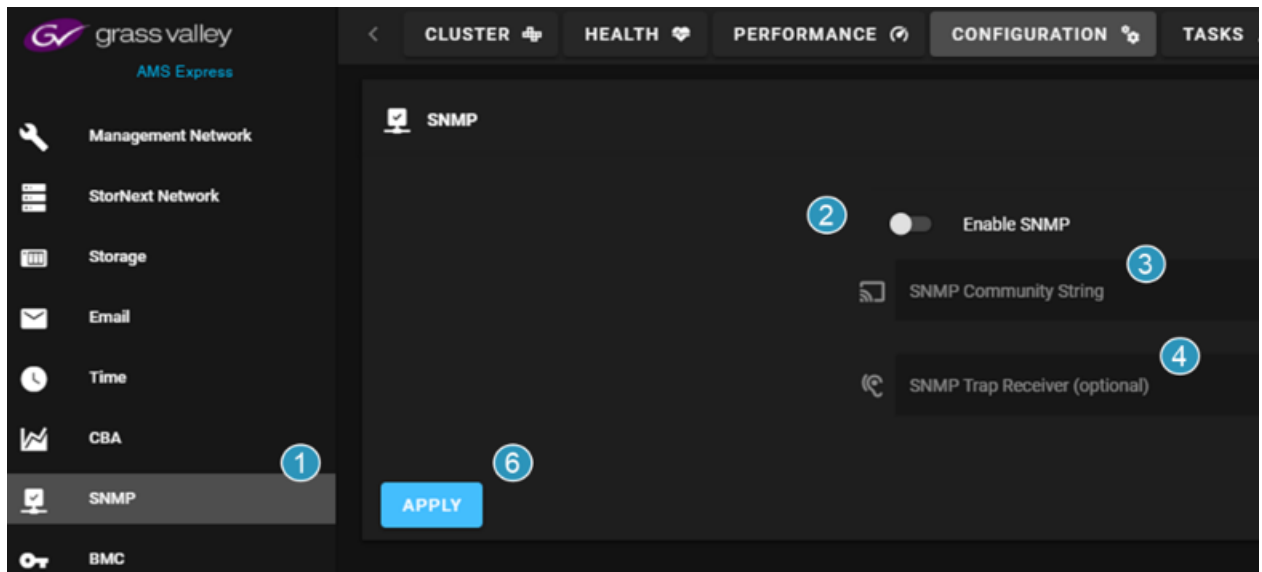
2. Click the gray (disabled) **Enable Network Time Protocol (NTP)** toggle. It will turn blue (enabled).
3. Enter the NTP server to use in the **NTP Server** field.
4. Enter an additional **NTP server** such as: **time.nist.gov**
5. Enter your local **Timezone**.
6. Click **Apply** to confirm the changes.

Enable Cloud-Based Analytics

At this time, cloud-based analytics is a simple tool that partially replicates what can be seen via the AMS-GUI. Grass Valley recommends not using this feature at this time.

Enable the Simple Network Management Protocol (SNMP)

1. In the left navigation menu, select **SNMP**.



2. Click the gray (disabled) **Enable SNMP** toggle. It will turn blue (enabled).
3. Enter the **SNMP Community String**.
4. Enter the **SNMP Trap Receiver (optional)** if needed.
5. Enter the **Port** for the SNMP Trap Receiver.
6. Click **Apply** to confirm the changes.

Expansion Chassis Setup

Expansion Chassis Overview

The following steps provide for a typical installation where the AMS Express Primary Chassis is operational and the user is increasing capacity and/or performance with additional Expansion Chassis(s).

Before starting users should be familiar with and/or document the following:

- Read and understood the [Software Overview](#) on page 33 section.
- The system is in a 'quiet' state meaning no ingest or playout or use of the system is happening besides adding the expansion chassis. No performance testing or system loading should take place until 24 hours after successfully adding the Expansion Chassis.
- Ensure the Expansion Chassis is correctly connected and cabled as shown in the [Cabling: Expansion Chassis](#) on page 30 section.

- Ensure Expansion Chassis power cord(s) are plugged in and power is turned on.
- Example IP addresses used in this setup are shown in **grey**. Customers should replace these IP addresses with the ones used during configuration.

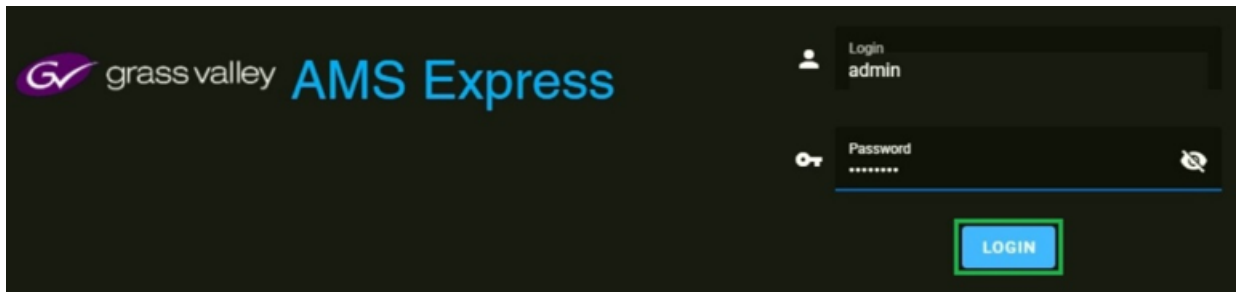
Expansion Chassis Setup

The following steps utilize the AMS –GUI for setup. Carefully enter the information exactly as shown.

Open a browser and navigate to the AMS-GUI.

Log in

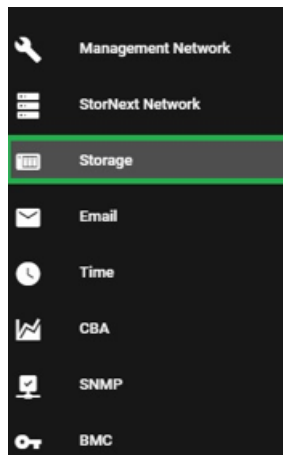
1. Log in to the AMS-GUI with these credentials: **admin \ adminGV!**



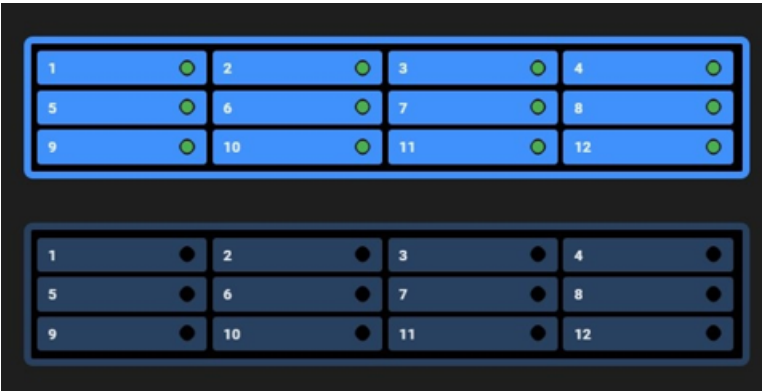
2. Click the **LOGIN** button.

Add RAID Sets

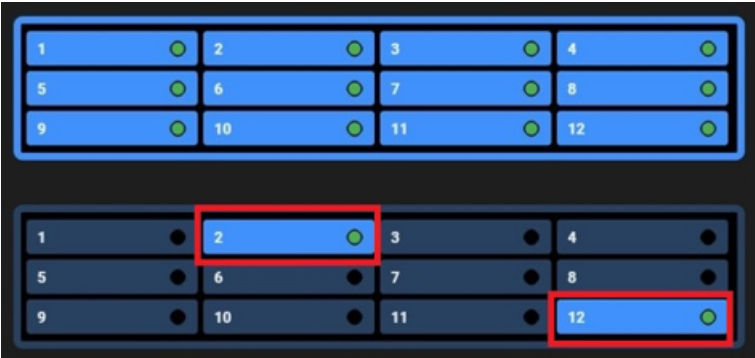
1. Click **CONFIGURATION** on the top bar, then select **Storage** on the left-side bar.



The graphic will show the Primary Chassis and any attached Expansion Chassis.



NOTE: If Expansion Chassis has drives that look configured already (shaded same blue as Primary Chassis shown in red below), the expansion will not work. See the Troubleshooting section or SFDC knowledge base articles for potential fix.

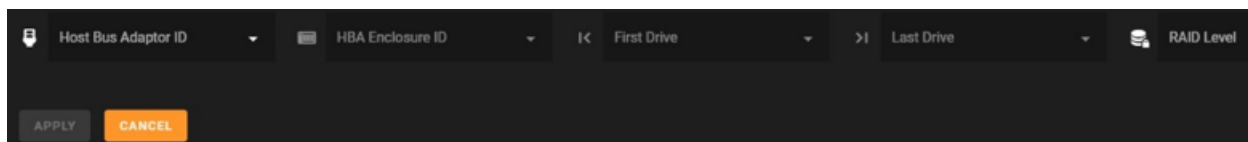


Under Expansion Chassis, the status should be ‘**Unconfigured**’ as shown in the yellow box below.



- Click the **ADD RAID SET** button.

A series of dropdowns appears.

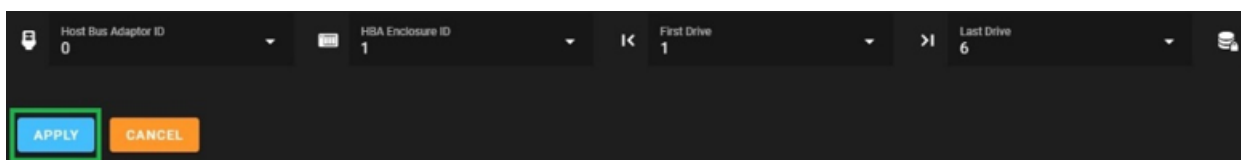


- Enter the following values to add the first six drives (#1-6) to the LUN:

- Host Bus Adaptor ID: 0
- HBA Enclosure ID: 1

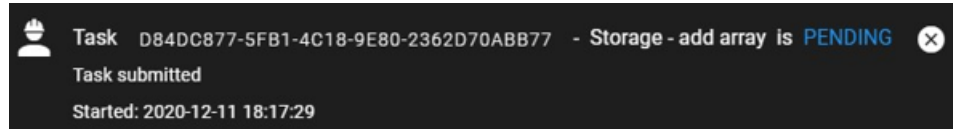
NOTE: This is the first Expansion Chassis attached, not the same as Enclosure Number.

- First Drive: 1
- Last Drive: 6
- RAID Level: 6

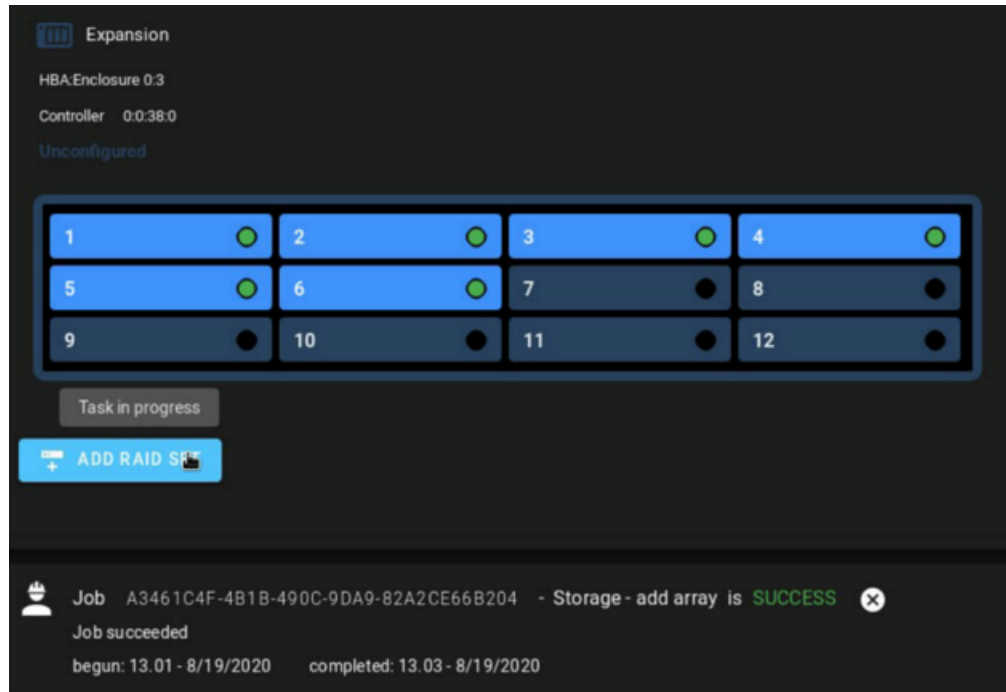


4. Click **APPLY**.

A provisioning task will be generated and shown with a **PENDING** status. (it could take up to 5 minutes)



Once executed successfully, the status will change to **SUCCESS** and the graphic will show the added drives.

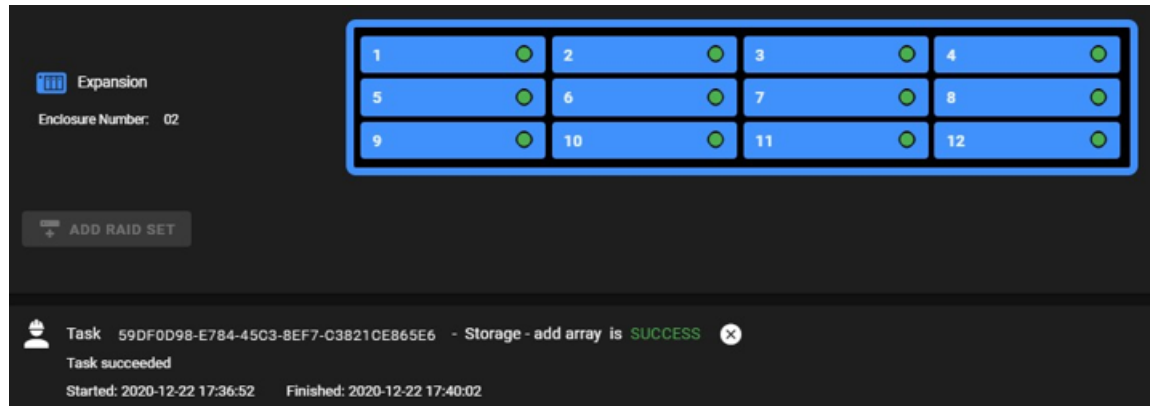


5. Next, add the second six drives (#7-12) to the same array by clicking the **ADD RAID SET** button again.
6. Enter the following values to add the second six drives (#7-12) to the LUN:
 - Host Bus Adaptor ID: 0
 - HBA Enclosure ID: 1
 - NOTE: This is the first Expansion Chassis attached, not the same as Enclosure Number.***
 - First Drive: 7
 - Last Drive: 12
 - RAID Level: 6

7. Click **APPLY**.

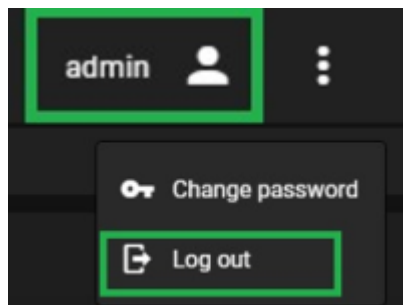
A provisioning task will be generated and shown with a **PENDING** status.

Once executed successfully, the status will change to **SUCCESS** and the graphic will show all drives added.



This concludes the provisioning of the first Expansion Chassis. If more than one Expansion Chassis is attached to the Primary Chassis, repeat the steps above to add additional RAID sets, being careful to change the HBA Enclosure ID each time to be in the order attached to the Primary Chassis.

When finished adding Expansion Chassis, log out of the AMS-GUI from the upper right-hand corner (click the user profile icon).



Label LUNs

Using the Command Line interface, perform the following steps:

1. Open a shell as root, using the primary StorNext Node1 on **Controller A – Bottom**.

```
> ssh root@10.16.232.173
root@10.16.232.173's password: adminGV!
Last login: Tue Nov 3 21:50:50 2020 from 192.168.21.100
```

2. Run the following command to label the LUNs.

When prompted to continue labeling, press **Y** <Enter>.

NOTE: Depending on the # of LUNs created in the previous steps, more or less LUNs will appear than what the example output is showing below which is adding a single Expansion Chassis. If adding three Expansion Chassis, then we will have 18 source lines & labels.

```
[root@qnode1 ~]# cd /opt/quantum/ovfconfig
[root@qnode1 ~]# ./label_H4012.sh
The following labels will be created:
snfs_meta_H4012_10cccd_LM03210 /dev/mapper/mpathg
snfs_combo_H4012_10cccd_LH03210 /dev/mapper/mpathh
snfs_data_H4012_10cccd_LD03210 /dev/mapper/mpathi
snfs_meta_H4012_10cccd_LM04210 /dev/mapper/mpathj
snfs_combo_H4012_10cccd_LH04210 /dev/mapper/mpathk
snfs_data_H4012_10cccd_LD04210 /dev/mapper/mpathl

Continue with labeling the LUNs? <N/y> y

Done. 6 source lines. 6 labels.
Requesting disk rescan .
```

Labeling of the new LUNs is now complete.

Stop File Systems

To ensure the expansion happens correctly, you need to stop the file systems. The following directions assume Node1 is primary and Node2 is secondary.

This can be verified by the following:

```
[root@qnode1 ~]# snhamgr status
LocalMode=default
LocalStatus=primary ← qnode1 is primary
RemoteMode=default
RemoteStatus=running ← qnode2 is secondary
```

1. Run the following commands on Node2 to stop StorNext & NAS services (assuming still logged in as root on StorNext Node1).

Use appropriate IP address if Node2 is not the secondary node.

```
[root@qnode1 ~]# ssh 10.16.232.174
[root@qnode2 ~]# /usr/cvfs/lib/snnas_control stop
Shutting down NAS services
[root@qnode2 ~]# service cvfs stop
Stopping cvfs (via systemctl): [ OK ]
[root@qnode2 ~]# exit
```

2. Run following commands on Node1 to stop NAS Services.

```
[root@qnode1 ~]# /usr/cvfs/lib/snnas_control stop
Shutting down NAS services
```

3. Exit the Shell and the command line interface.


```
[root@qnode1 ~]# exit
```

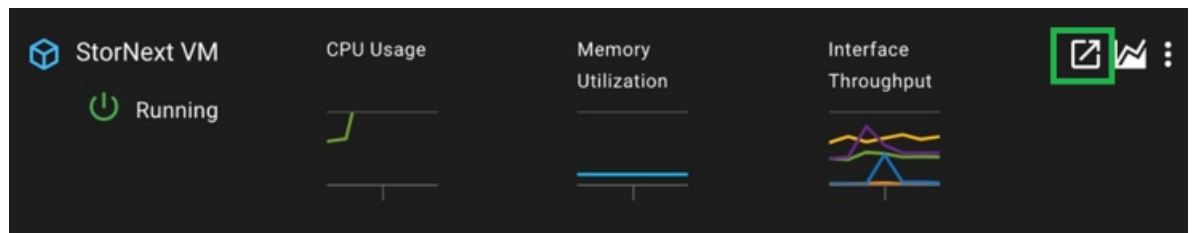
Configure StorNext File System

The following steps will create the file system and add it to the existing stripe group.

Open & Login to StorNext GUI (SN-GUI)

1. Launch the SN-GUI by doing one of the following:

- Option 1: Via **AMS-GUI**. Click on the external link icon  on **Controller A – Bottom**



- Option 2: Open a web browser and type **<https://10.16.232.173>**

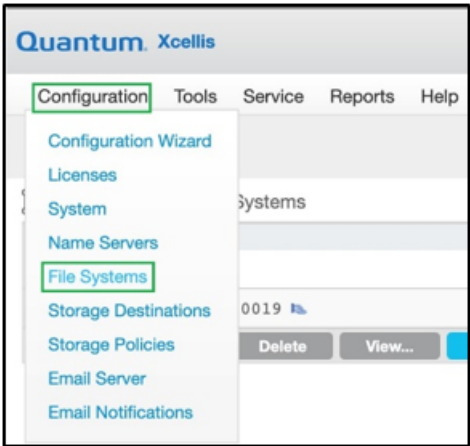
The Quantum login dialog appears.

2. Login to the SN-GUI. (Accept the license agreement if prompted)

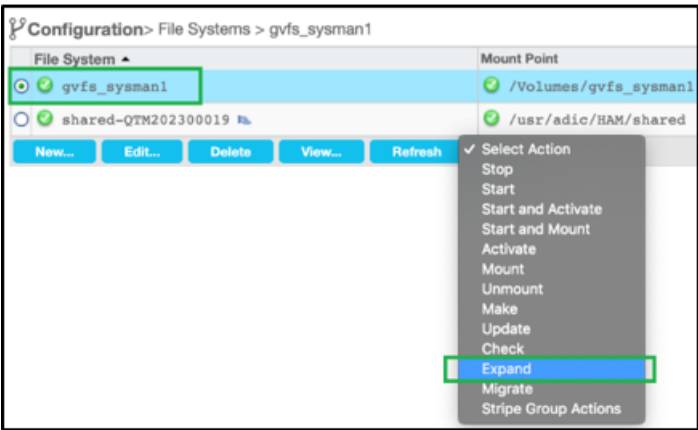


Configure the File System(s)

- 1. Click **Configuration**, then **File Systems**.

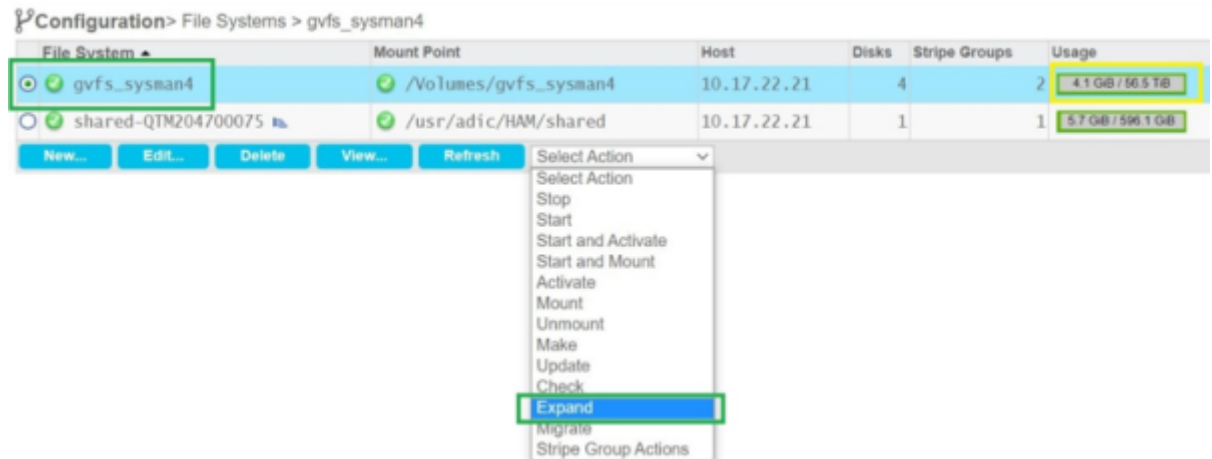


- 2. Select the **gvfs_sysman1** file system radio button.

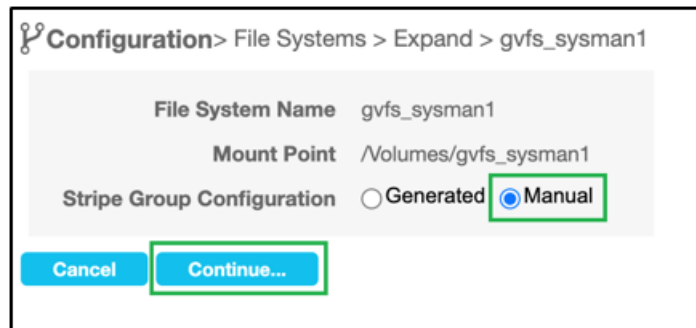


3. Then in **Select Action** drop-down menu, choose **Expand**.

NOTE: The Usage at this point should show the Primary Chassis of approximately 56.5 TiB since you have not added the Expansion Chassis. After adding, the amount will increase based on number of expansions.



4. At the window below, select the **Manual** radio button and click **Continue**.




Add Drives to Stripe Group

The next step adds the Expansion Chassis drives to the stripe group. Grass Valley has chosen to simplify this process by enabling a single stripe group to spread across all chassis.

sg1 = stripe group 1

1. Under **Stripe Group / Disk Management** section, highlight by clicking sg1 (User).
The remainder of the columns will appear.

2. Ensure the *Name is set to **sg1** and Content = **User Data** is checked.

 **Important:** Do not click the Add button as that will create an additional stripe group.

Disk Assignment

This part is potentially confusing so read the process first before continuing. The examples show adding a single expansion chassis. If adding multiple then more rows will appear.

The disk assignment section will look similar to the following. Use scroll bar on the right to see all information.

| Disk Assignment | | | | | | |
|--------------------------|-------|---------------------------------|----------------|-----------------|--------------------|------------------|
| Order | Label | Size | Stripe Breadth | RAID Controller | Device Path | Assigned To |
| <input type="checkbox"/> | 0 | snfs_combo_H4012_152633_1H02210 | 596.09 GiB | default | /dev/napper/npatdh | |
| <input type="checkbox"/> | 0 | snfs_combo_H4012_152633_1H03210 | 596.09 GiB | default | /dev/napper/npatdh | |
| <input type="checkbox"/> | 0 | snfs_combo_H4012_152633_1H04210 | 596.09 GiB | default | /dev/napper/npatkh | |
| <input type="checkbox"/> | 0 | snfs_data_H4012_152633_1D01210 | 28.24 TiB | default | /dev/napper/npathe | gvfs_sysman4:sg1 |
| <input type="checkbox"/> | 1 | snfs_data_H4012_152633_1D02210 | 28.24 TiB | default | /dev/napper/npatfh | gvfs_sysman4:sg1 |
| <input type="checkbox"/> | 0 | snfs_data_H4012_152633_1D03210 | 28.24 TiB | default | /dev/napper/npatfi | |
| <input type="checkbox"/> | 0 | snfs_data_H4012_152633_1D04210 | 28.24 TiB | default | /dev/napper/npatli | |
| <input type="checkbox"/> | 0 | snfs_meta_H4012_152633_1M01210 | 298.01 GiB | default | /dev/napper/npatha | gvfs_sysman4:sg0 |
| <input type="checkbox"/> | 1 | snfs_meta_H4012_152633_1M02210 | 298.01 GiB | default | /dev/napper/npatbh | gvfs_sysman4:sg0 |

There are three types of labels:

- **snfs_combo_** : used for High Availability StorNext cluster information. DO NOT MODIFY.
- **snfs_data_** : data LUNs we will be modifying.
- **snfs_meta_** : used for Metadata. DO NOT MODIFY

For the snfs_data LUNs, note the following:


- LUNs start ordering at 0 and then increase sequentially. The first two LUNs are for the Primary Chassis and ordered "0" & "1". Expansion Chassis will start ordering with the number "2".
- Label format is **Prefix** = "snfs_data_" **Identifier** = "H4012_10zzzz_" **Suffix** = "LDyyyyy"
- Each LUN size is approximately 28.24TiB which is equivalent of six 8TB RAID6 drives.

- On far right in the **Assigned To** column, the **gvfs_sysman4:sg1** is the stripe group which will be expanded.

Each chassis has 12 drives. Each LUN uses 6 drives so 2 LUNs per chassis.

| Chassis | Order # |
|--------------|---------|
| Primary | 0, 1 |
| Expansion #1 | 2, 3 |
| Expansion #2 | 4, 5 |
| Expansion #3 | 6, 7 |

- In the **Disk Assignment** section, navigate to the first snfs_data LUN for adding to **sg1**.

 **Important:** Only modify the unassigned snfs_data entries as outlined with green rectangle below.

- Double-click on the number 0 to the left of the first unassigned snfs_data LUN.
- Enter **2**.
- Continue with the next LUN, sequentially increasing the numbers until you reach the last snfs_data LUN.

For this example, we are adding 1 Expansion Chassis so screen will look as follows:

| Disk Assignment | | |
|--------------------------|-------|---------------------------------|
| <input type="checkbox"/> | Order | Label ▲ |
| <input type="checkbox"/> | 0 | snfs_combo_H4012_152633_LH02210 |
| <input type="checkbox"/> | 0 | snfs_combo_H4012_152633_LH03210 |
| <input type="checkbox"/> | 0 | snfs_combo_H4012_152633_LH04210 |
| <input type="checkbox"/> | 0 | snfs_data_H4012_152633_LD01210 |
| <input type="checkbox"/> | 1 | snfs_data_H4012_152633_LD02210 |
| <input type="checkbox"/> | 2 | snfs_data_H4012_152633_LD03210 |
| <input type="checkbox"/> | 3 | snfs_data_H4012_152633_LD04210 |
| <input type="checkbox"/> | 0 | snfs_meta_H4012_152633_LM01210 |
| <input type="checkbox"/> | 1 | snfs_meta_H4012_152633_LM02210 |

Assign

- 5. Once complete, click the left checkbox of all the LUNs you just added. (Hold down CTRL while clicking for multiple checkboxes)
 - *Example A: One Expansion --> 2 LUNS*

Disk Assignment

| <input type="checkbox"/> | Order | Label ▲ |
|-------------------------------------|-------|---------------------------------|
| <input type="checkbox"/> | 0 | snfs_combo_H4012_152633_LH02210 |
| <input type="checkbox"/> | 0 | snfs_combo_H4012_152633_LH03210 |
| <input type="checkbox"/> | 0 | snfs_combo_H4012_152633_LH04210 |
| <input type="checkbox"/> | 0 | snfs_data_H4012_152633_LD01210 |
| <input type="checkbox"/> | 1 | snfs_data_H4012_152633_LD02210 |
| <input checked="" type="checkbox"/> | 2 | snfs_data_H4012_152633_LD03210 |
| <input checked="" type="checkbox"/> | 3 | snfs_data_H4012_152633_LD04210 |
| <input type="checkbox"/> | 0 | snfs_meta_H4012_152633_LM01210 |
| <input type="checkbox"/> | 1 | snfs_meta_H4012_152633_LM02210 |

Assign

- *Example B: Three Expansions --> 6 LUNs*

Disk Assignment

| | | |
|-------------------------------------|---|--------------------------------|
| <input type="checkbox"/> | 0 | snfs_data_H4012_105f01_LD01210 |
| <input type="checkbox"/> | 1 | snfs_data_H4012_105f01_LD02210 |
| <input checked="" type="checkbox"/> | 2 | snfs_data_H4012_105f01_LD03210 |
| <input checked="" type="checkbox"/> | 3 | snfs_data_H4012_105f01_LD04210 |
| <input checked="" type="checkbox"/> | 4 | snfs_data_H4012_105f01_LD05210 |
| <input checked="" type="checkbox"/> | 5 | snfs_data_H4012_105f01_LD06210 |
| <input checked="" type="checkbox"/> | 6 | snfs_data_H4012_105f01_LD07210 |
| <input checked="" type="checkbox"/> | 7 | snfs_data_H4012_105f01_LD08210 |
| <input type="checkbox"/> | 0 | snfs_meta_H4012_105f01_LM01210 |
| <input type="checkbox"/> | 1 | snfs meta H4012 105f01 LM02210 |

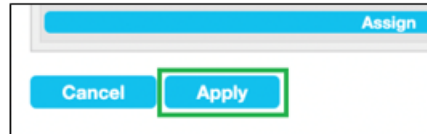
- 6. Click the **Assign** box.

The snfs_data LUNs will now be associated with sg1 as shown on the right side of the viewing pane.

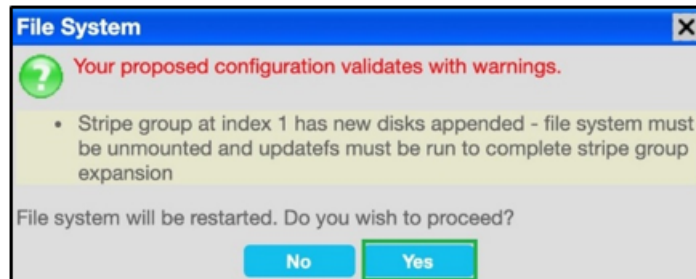
| | | | | |
|--------------------------------|-----------|---------|--------------------|------------------|
| snfs_data_H4012_10cccd_LD01210 | 28.24 TiB | default | /dev/napper/npathc | gvfs_sysman1:sg1 |
| snfs_data_H4012_10cccd_LD02210 | 28.24 TiB | default | /dev/napper/npathf | gvfs_sysman1:sg1 |
| snfs_data_H4012_10cccd_LD03210 | 28.24 TiB | default | /dev/napper/npathi | gvfs_sysman1:sg1 |
| snfs_data_H4012_10cccd_LD04210 | 28.24 TiB | default | /dev/napper/npathl | gvfs_sysman1:sg1 |

Apply Changes

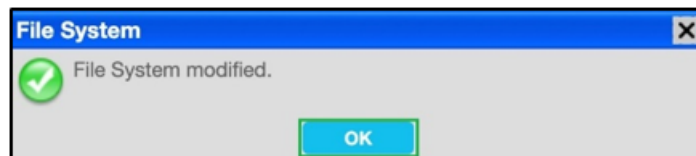
1. Click **Apply** at the bottom of the page.



A confirmation dialog appears to verify the expansion of the file system and stripe group.



2. Click **Yes** to proceed.
The file system will now be expanded.
3. Once the expansion is complete, click **OK**.



Confirmation

1. Select the **gvfs_sysman1** file system radio button.
2. Then, click the **Refresh** button in the File System list to display the new file system addition.

 **Important:** After initial system configuration, the RAID arrays will be building and synchronizing. Performance may be impacted for up to 24 hours.

NOTE: The Usage at this point will show the increase of the Expansion Chassis to approximately 112.9 TiB if adding a single Expansion Chassis.

| File System | Mount Point | Host | Disks | Stripe Groups | Usage |
|---|-----------------------|-------------|-------|---------------|--------------------|
| <input checked="" type="radio"/> gvfs_sysman1 | /Volumes/gvfs_sysman1 | 10.17.22.21 | 6 | 2 | 4.1 GB / 112.9 TiB |
| <input type="radio"/> shared-QTM202800086 | /usr/adic/HAM/shared | 10.17.22.21 | 1 | 1 | 6.7 GB / 596.1 GB |

3. Log off the SN-GUI by clicking in the upper right corner.



Start File Systems

You need to restart both the SNFS and NAS file systems previously stopped.

Perform the following:

1. Using the command line interface, open a shell as root, using the primary StorNext Node1 on Controller A – Bottom.

```
> ssh root@10.16.232.173
root@10.16.232.173's password: adminGV!
Last login: Tue Nov  3 21:50:50 2020 from 192.168.21.100
```

2. Run following commands on Node1 to start NAS Services.

```
[root@qnode1 ~]# /usr/cvfs/lib/snnas_control start
Starting NAS services
```

3. Run the following commands on Node2 to start StorNext & NAS services.

```
[root@qnode1 ~]# ssh 10.16.232.174
[root@qnode2 ~]# service cvfs start
Starting cvfs (via systemctl): [ OK ]
[root@qnode2 ~]# /usr/cvfs/lib/snnas_control start
Starting NAS services
[root@qnode2 ~]# exit
```

4. Exit the Shell and the command line interface.

```
[root@qnode1 ~]# exit
```

Configure System Manager

K2 System Addition

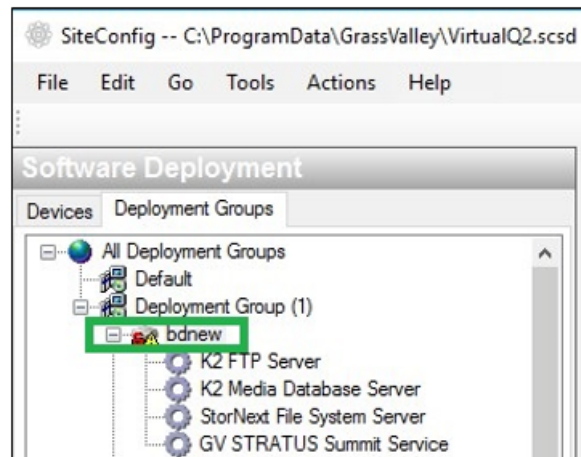
The following directions are a typical installation scenario for adding the AMS Express into a K2 system.

The documentation assumes the user is familiar with the K2 system and software. The example media server name is **bdnew**. If name has been changed in previous installation steps, utilize the preferred name.

SiteConfig Preparation

This section ensures SiteConfig is prepared for installation.

1. Add a host file entry on the Control Point PC for the new K2 Media Server (**bdnew**).
2. In SiteConfig, create a new Site and add a K2 Server with the name **bdnew** with the following Roles:

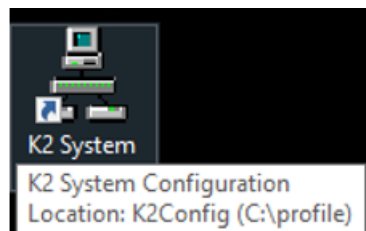


3. Right click and check software for AMS Express.
4. Except for StorNext SNFS, add the latest cabs and deploy all software.
5. Restart K2 Server. (SiteConfig should prompt to restart)

Adding AMS Express

This section adds the AMS Express to a Grass Valley system.

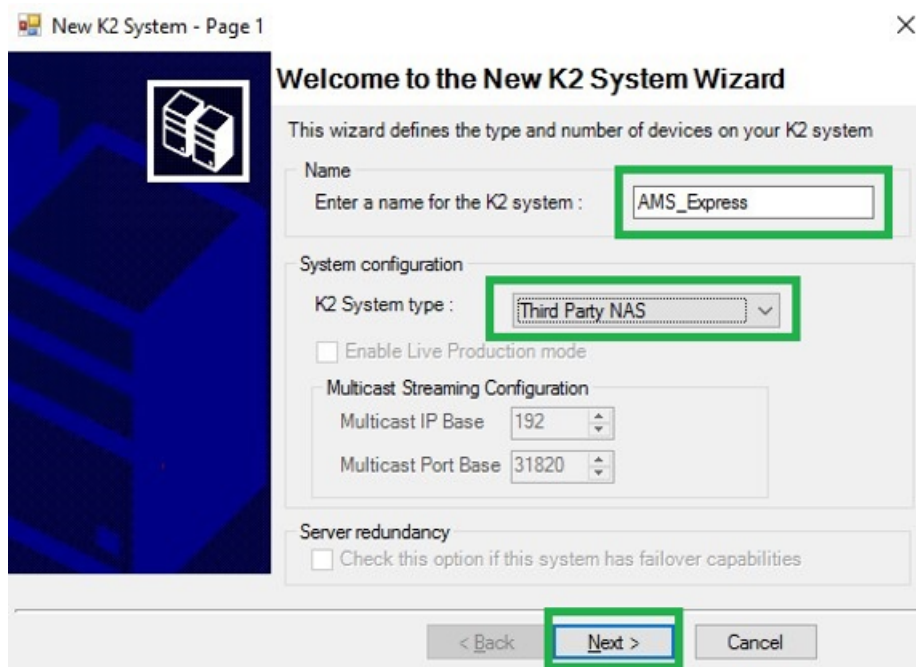
1. On the Control Point PC, run the **K2 System Configuration**.



2. Select **New K2 System**.

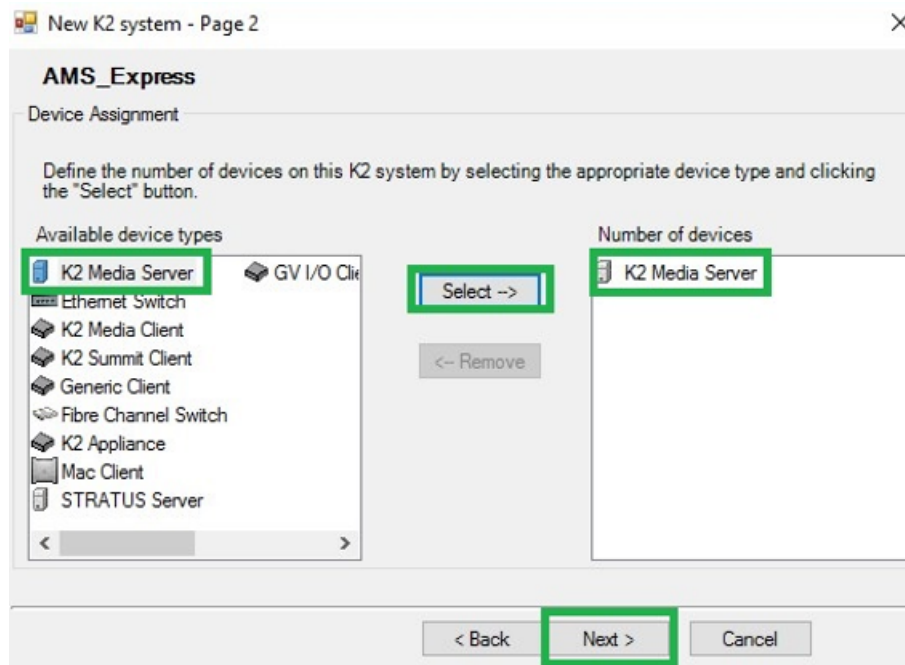


3. Add the new AMS Express by entering the following information in the K2 System wizard.



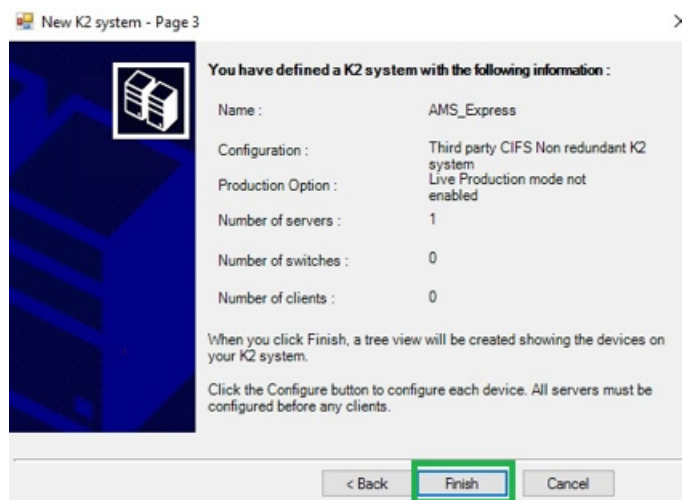
4. Click **Next**.

5. Add a K2 Media server by entering the following information.



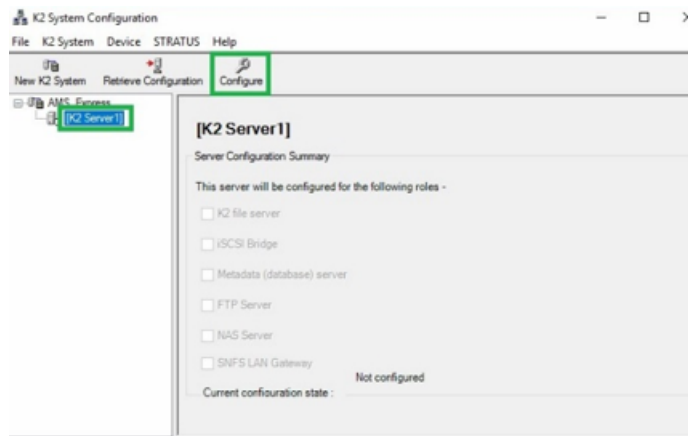
6. Click **Next**.

The following confirmation page appears.

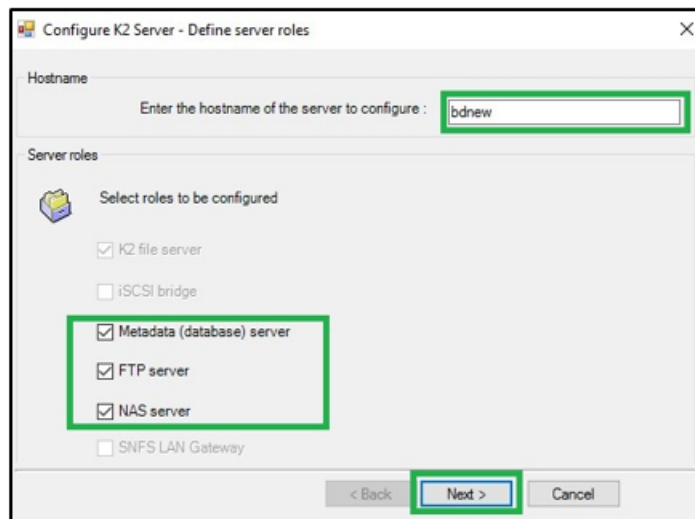


7. Click **Finish**.

The K2 system configuration tree diagram appears.

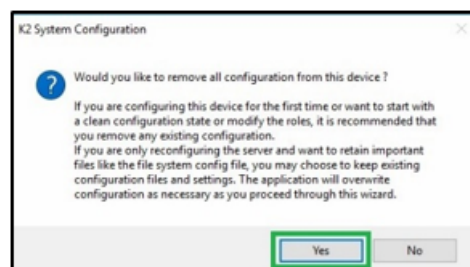


8. Select **[K2 Server1]** and click **Configure**.
9. Enter following information to define server roles.



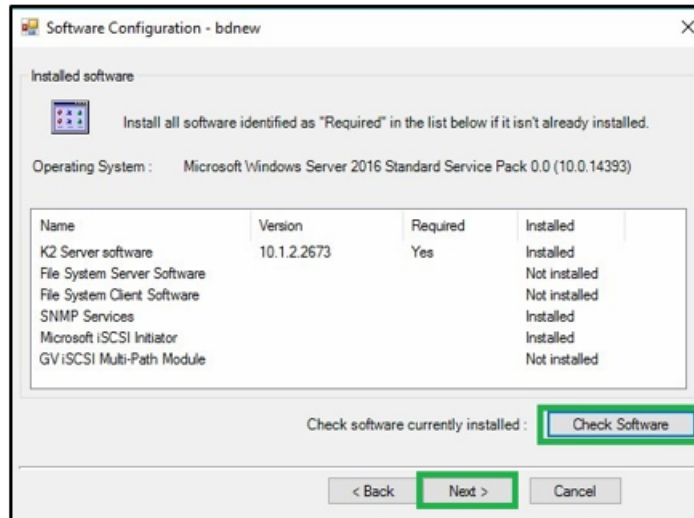
10. Click **Next**.

The confirmation dialog appears.



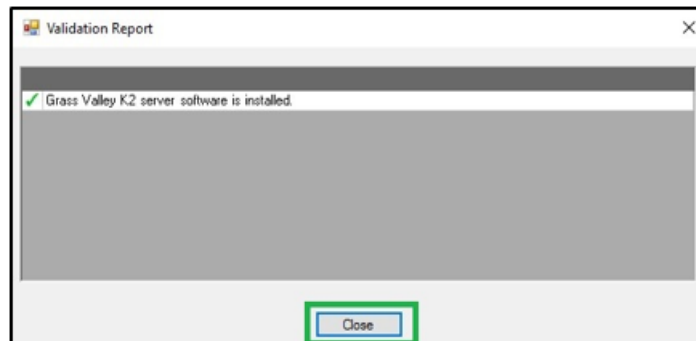
11. Click **Yes**.

The Software Configuration window appears.



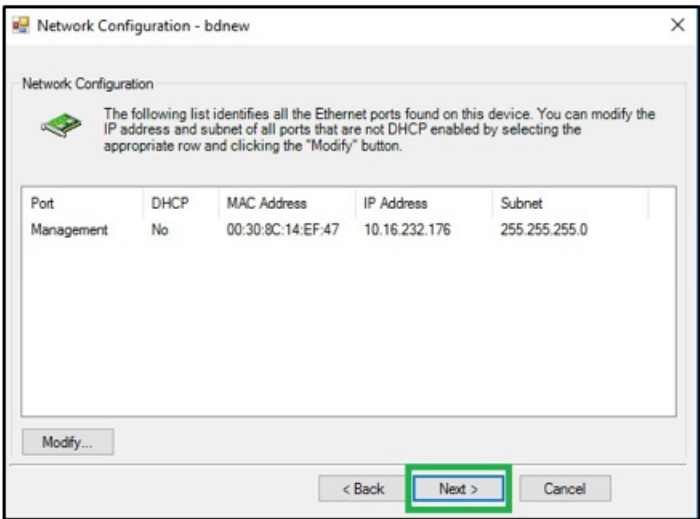
12. Click **Check Software**.

The Validation Report appears after the Check Software process is completed.

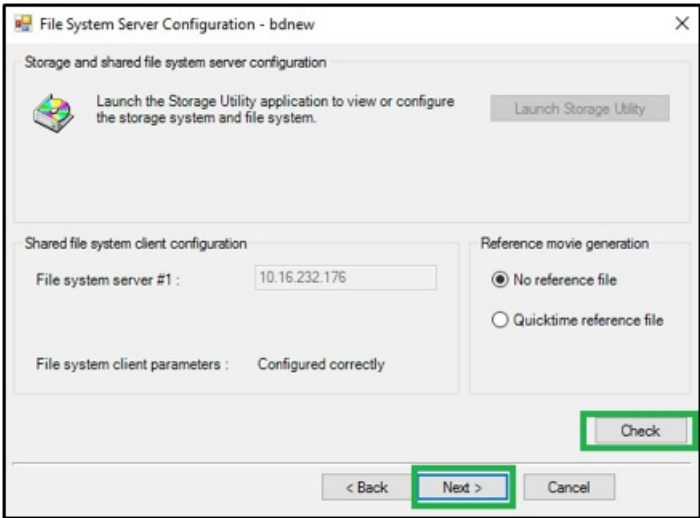


13. Click **Close** and click **Next** on the Software Configuration window.

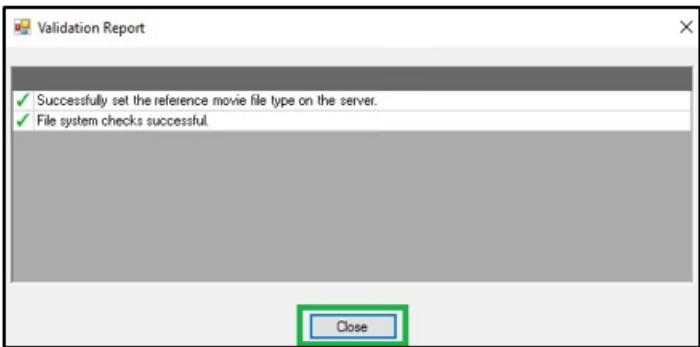
14. Click **Next** for network configuration.



15. Click **Check** on file system configuration.



The Validation Report appears after the process is completed.



16. Click **Close** and click **Next** on the File System Server Configuration window.

The Third Party CIFS Configuration window appears.

17. For the SMB Configuration, enter the following information:

- For the high resolution share UNC path, use the NAS Mount VIP address and the file system name
- For credentials, use **gvadmin/adminGV!**

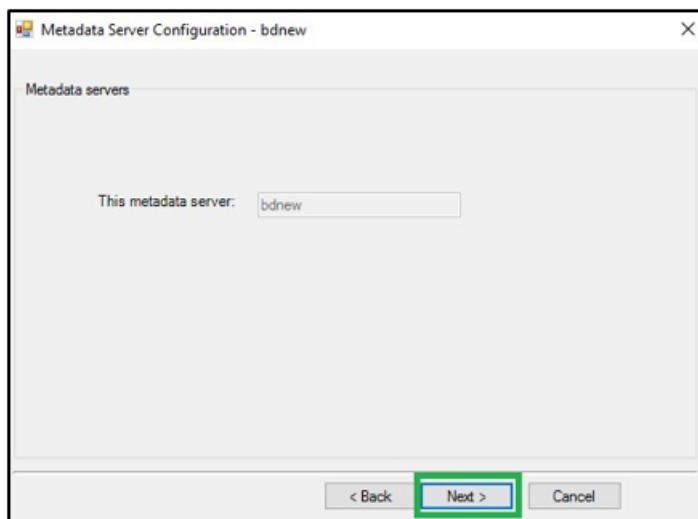
⚠ CAUTION: *The tab sequence is out of order after password.*

18. Click **Apply**.

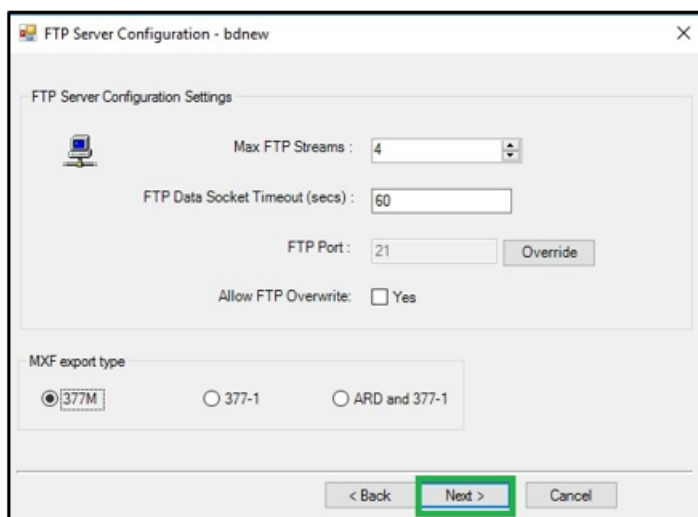
The Validation Report appears.

19. Click **Close** and click **Next** on the Third Party CIFS Configuration window.

20. For Metadata server, click **Next**.

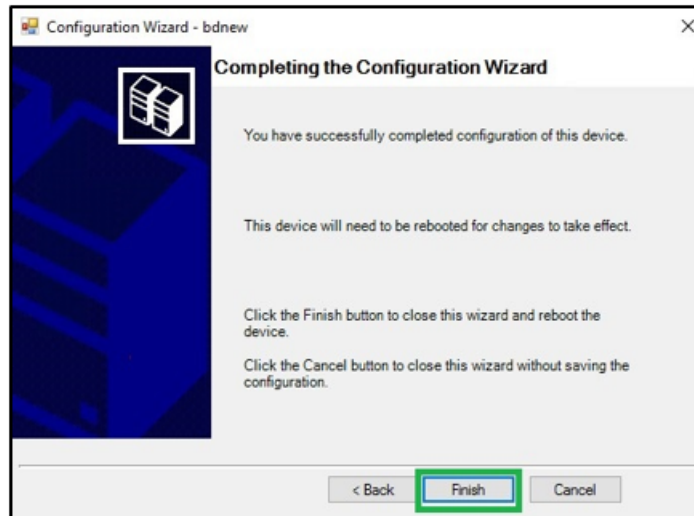


21. For FTP Server configuration, enter the following information.



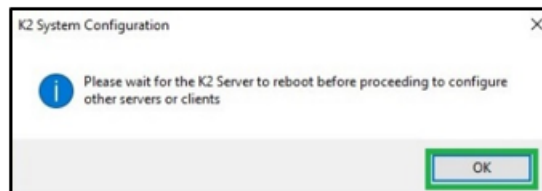
22. Click **Next**.

The Configuration Wizard appears.



23. Click **Finish**.

The reboot notification dialog appears.



24. Click **OK**.

The reboot confirmation dialog appears.

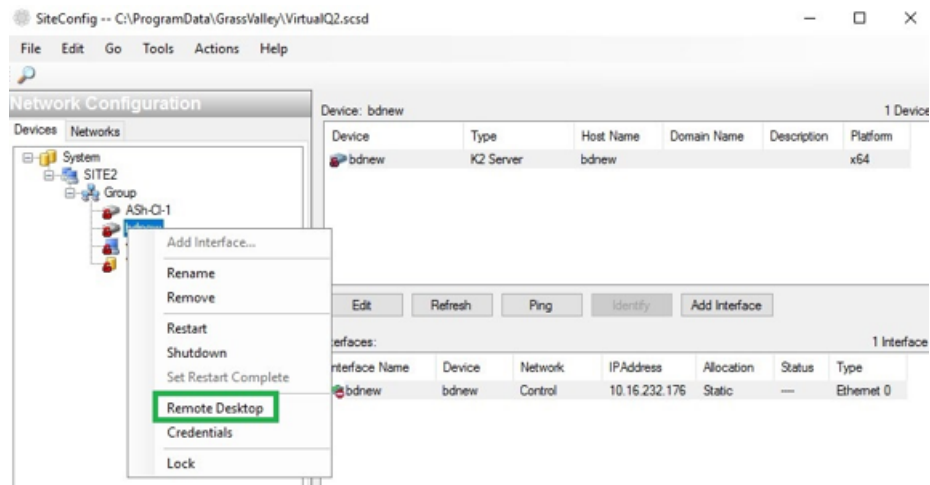


25. Click **OK** to reboot.

Verification

This final step verifies the V:drive is working correctly.

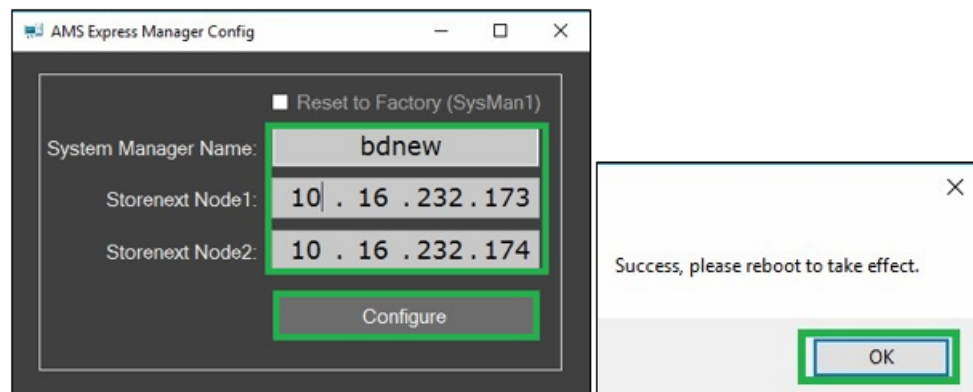
1. Using SiteConfig, Remote Desktop into the recently created System Manager: **bdnew**



2. Using Windows File Explorer, run the following program on the System Manager itself.

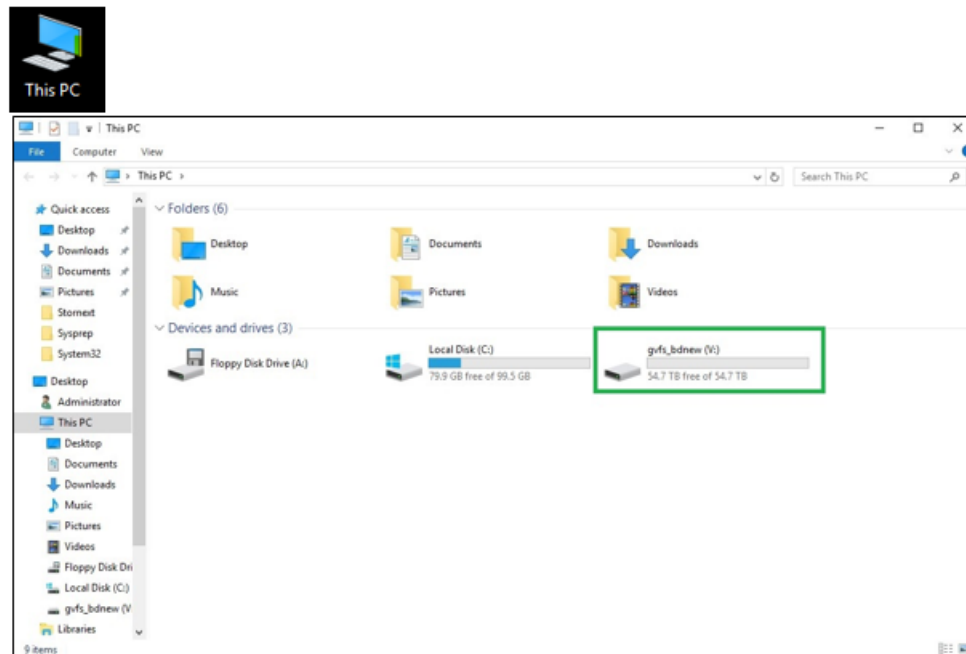
C:\Grass Valley\AMS Express\ AMS_sysman1.exe.

3. Enter the information as shown below and click **Configure**.



4. Click **OK** on the confirmation dialog.
5. Restart the server then wait 2-3 minutes for it to come back up.
6. After the restart via SiteConfig, Remote Desktop again into the System Manager VM: **bdnew**

- Click on **This PC** and ensure **V: drive** is mapped and operational.



Adding K2 Summits, GV I/O's, GVRE's or Core servers

As DLC clients

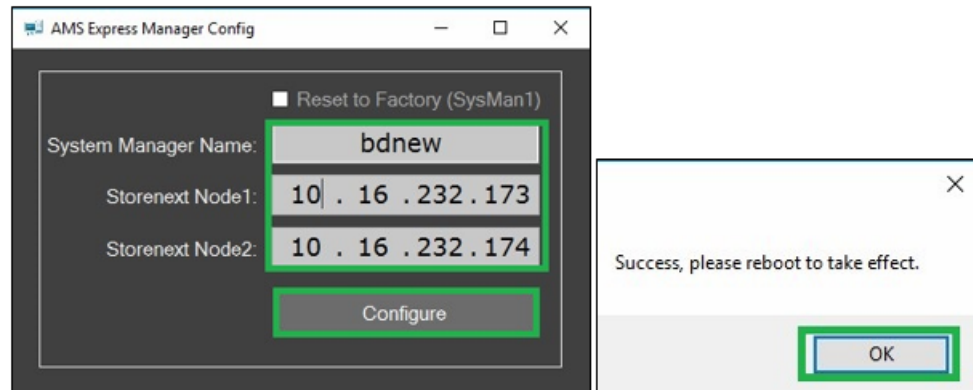
- Proceed with K2 Config and add any third party clients (K2 Summits, GV IO's or GVRE's) just like the K2 server. Go through the process and use K2 Config to fully configure those clients.
- Once the device has been K2 configured, remote into the client to install Stornext.

You can get a copy from the Storage Manager by going to **C:/Stornext**.

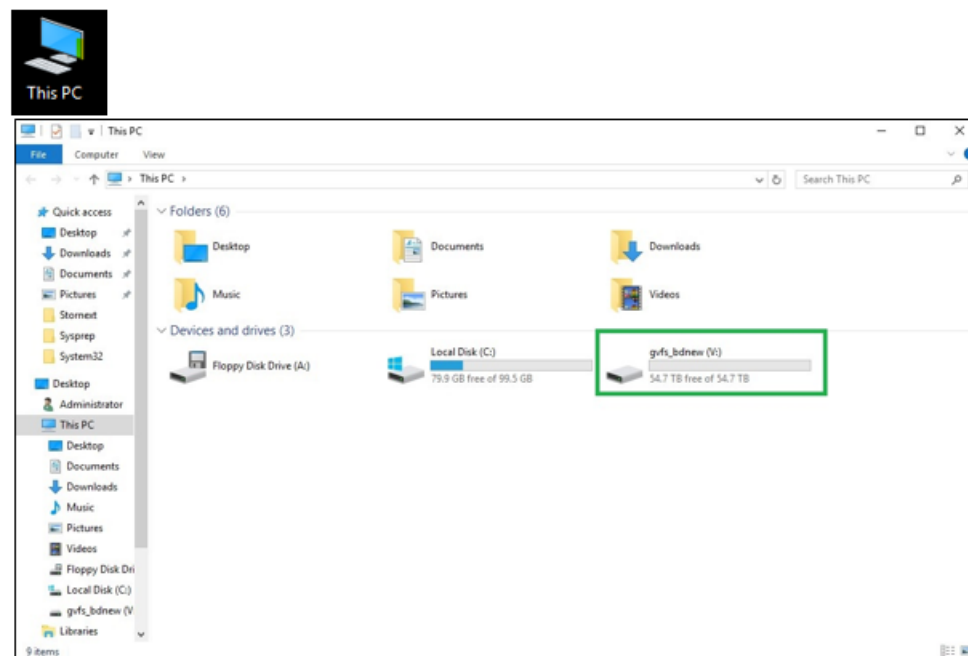
- Copy it to the Client to the same location.
- Do the same for **C:\Grass Valley\AMS Express** folder.

- Once these files and folders are copied, run the **C:\Grass Valley\AMS Express\ AMS_sysman1.exe** on the client.

The AMS Express Manager Config window appears.



- Enter the System Manager's name.
- Enter the IP addresses of the StorNext nodes and click **Configure**.
- Wait for a success message, click **OK** and then reboot.
- After the restart, Remote Desktop via SiteConfig into the client.
- Click on **This PC** and ensure **V: drive** is mapped and operational.



As SMB clients

- If you want to add the devices as SMB clients, you will need to map the V drive to SMB path of the system (VIP).
- If you are setting up a GVRE, make sure you map the Drive first, then go into the XRE adminConsole and then plugin to make sure the V drive is listed. If not, add it manually.

Monitoring the System

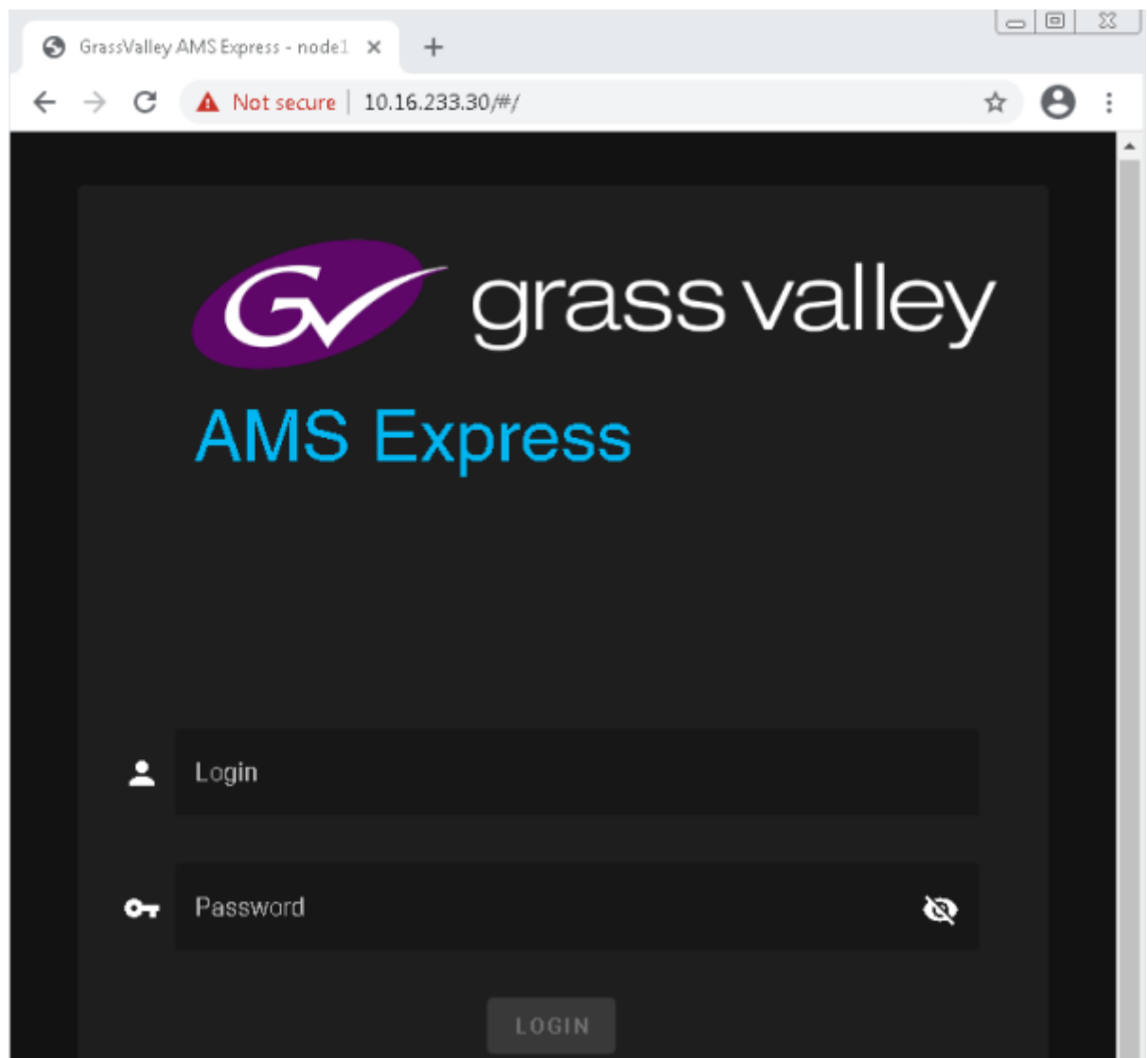
Utilize this section after the AMS Express is operational to manage and monitor the system.

Logging on to the AMS Express system

To set up and monitor the AMS Express system, you can launch the application on a supported web browser, such as Google Chrome or Mozilla Firefox, using the following web address template:
http://<AMSexpress_IP_address>

1. On the AMS Express system, launch your web browser and enter the web address as above.

A Login dialog displays.

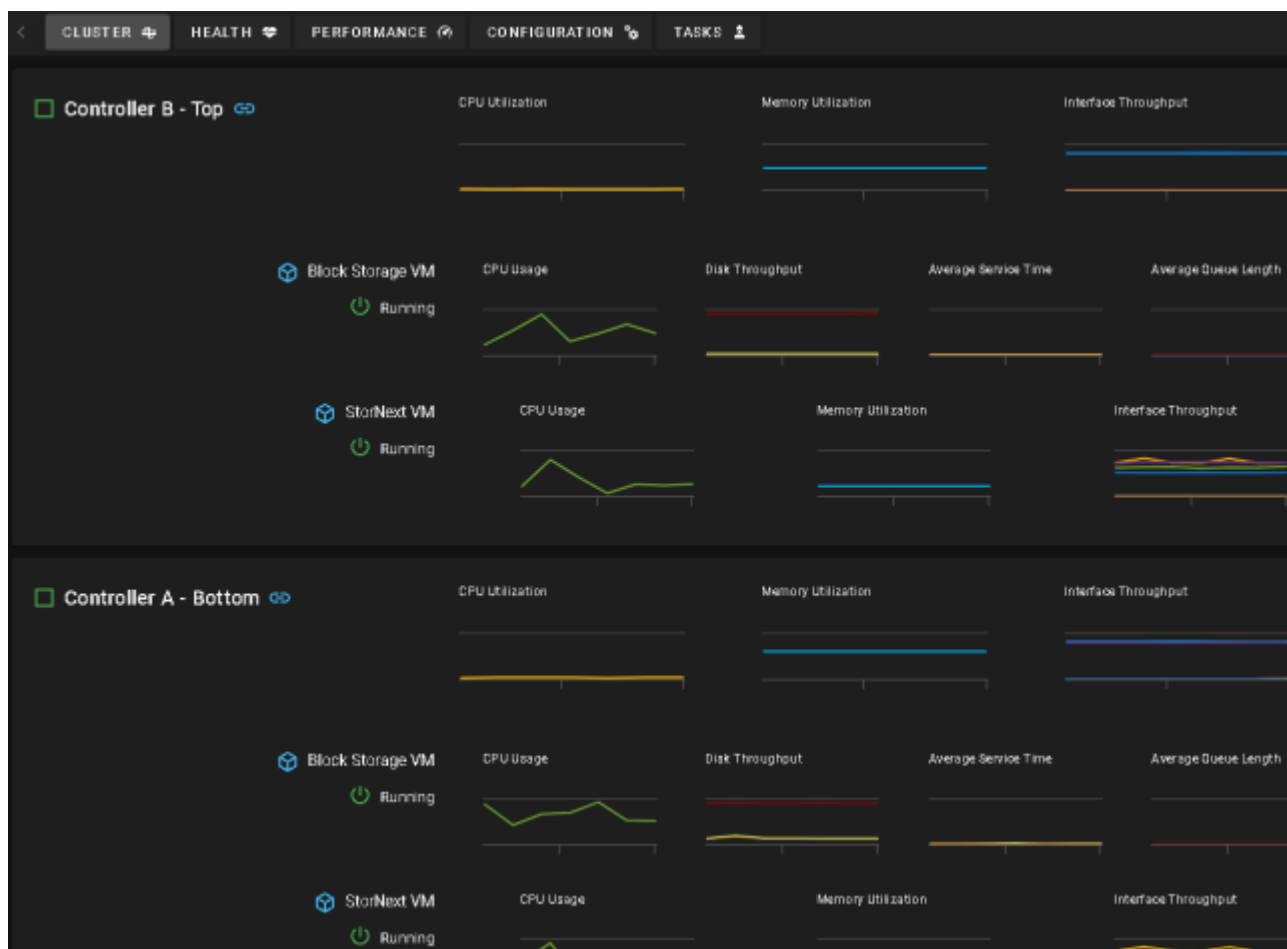


2. Enter your login name.
3. Enter your password.
4. Click the **LOGIN** button.

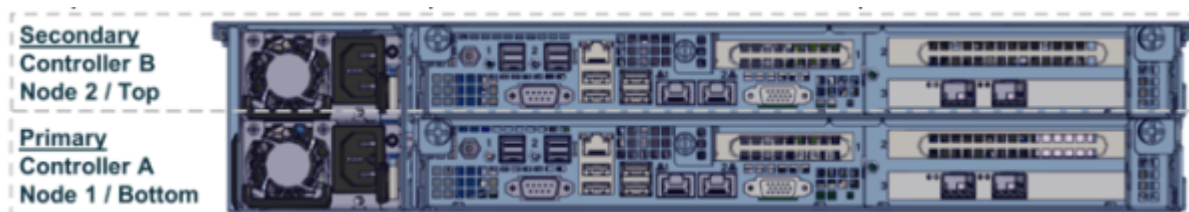
The AMS Express application opens and displays the **Cluster** tab.

Managing Cluster

The Cluster page provides a snapshot of the system's current operating parameters.




The layout is consistent with the Primary Chassis where Controller B is on the Top and Controller A is on the Bottom of the system as can be seen below.



Key component definition

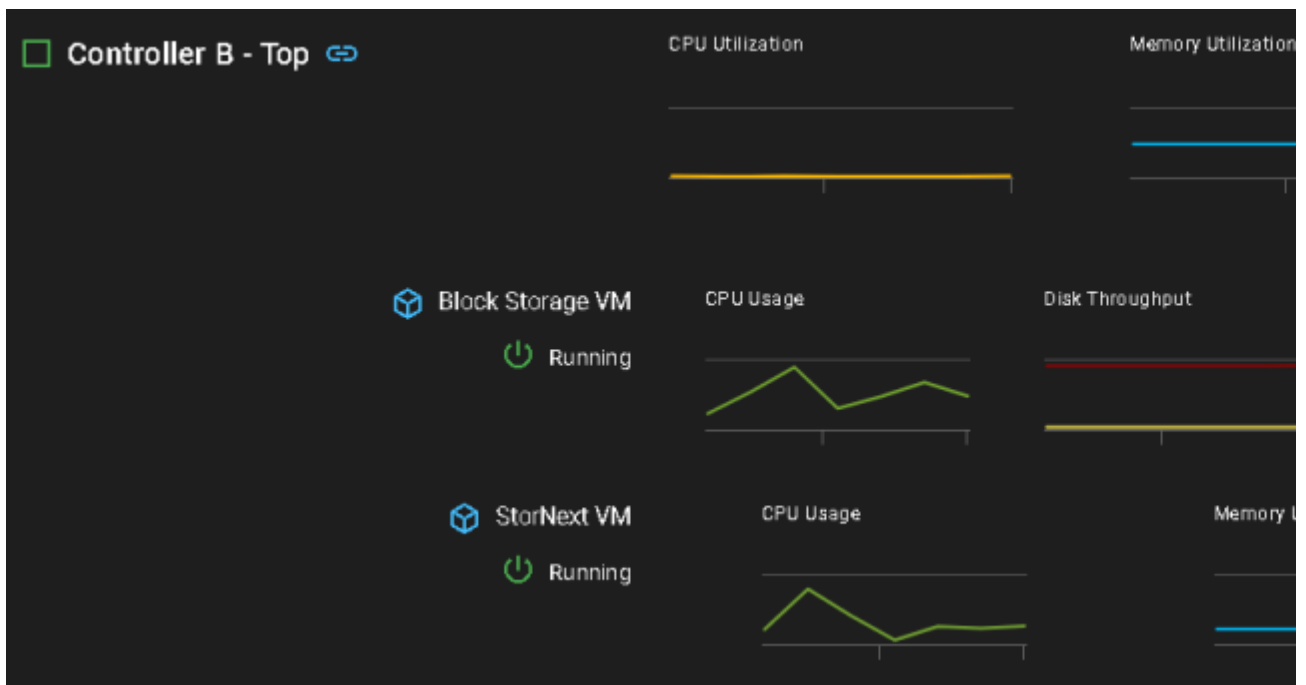
The definition of each key component is as follows:

- **Controller:** This is the hypervisor which coordinates the VMs.
- **Block Storage VM:** Virtual Machine that manages the ‘blocks’ of data that are stored/stripped across the disks. Also referred to by acronym QCSP (Quantum Cloud Storage Platform).
- **StorNext VM:** StorNext operating system virtual machine.
- **Grass Valley VM:** Grass Valley virtual machine running STORMGR database software that controls interactions with other GV products and controls media assets.

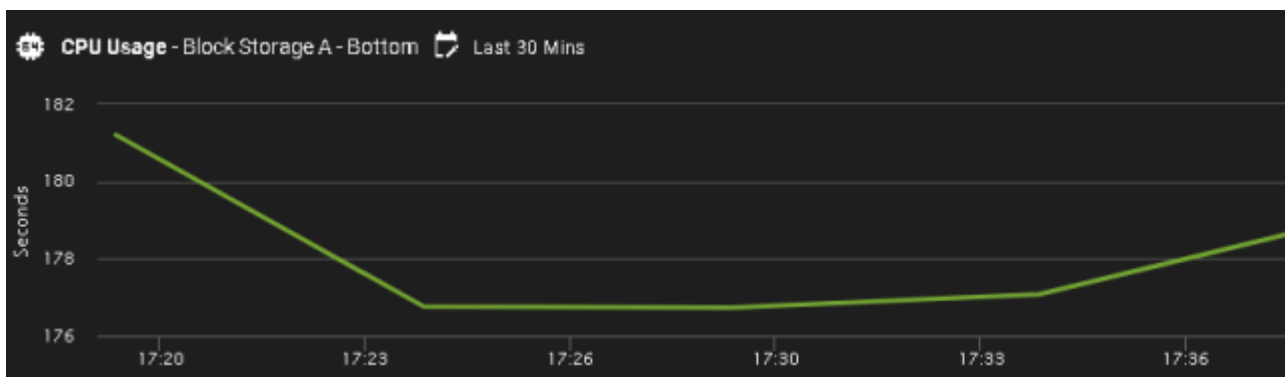
 **Remember:** *The GV VM only operates on the Bottom Controller.*


Viewing Graphs


The graphs can be clicked on, enlarged, data downloaded to various formats for further analysis, then closed by clicking on the original graph again.



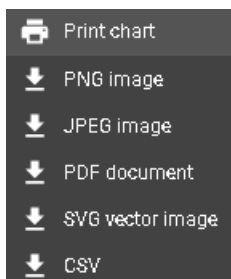
You can click on each graph to view the enlarged version as below.



To view the graph in full screen, click  the **View in full screen** icon.

To exit the full screen view, click  to close.

To print the graph in various formats, click the  **Print chart** icon and select one format from these options below:



Icons

The right side of the page has several icons that can be clicked to access version information, stop/start VMs, or launch the StorNext GUI in a separate window.

These icons let you perform various functions as described below.



Information: Displays information of the Controller or the Virtual Machines.



Launch StorNext UI: Opens the StorNext GUI in a separate window. You must know the user name and password to launch the StorNext GUI.










Stop/Start VM: Stops the Virtual Machine, or start the Virtual Machine if it had been stopped.

Monitoring Health

The Health section provides a visual representation of current operating state.

Monitoring System Components

The System page provides an overview. The following example has a Primary Chassis with three Expansion Chassis

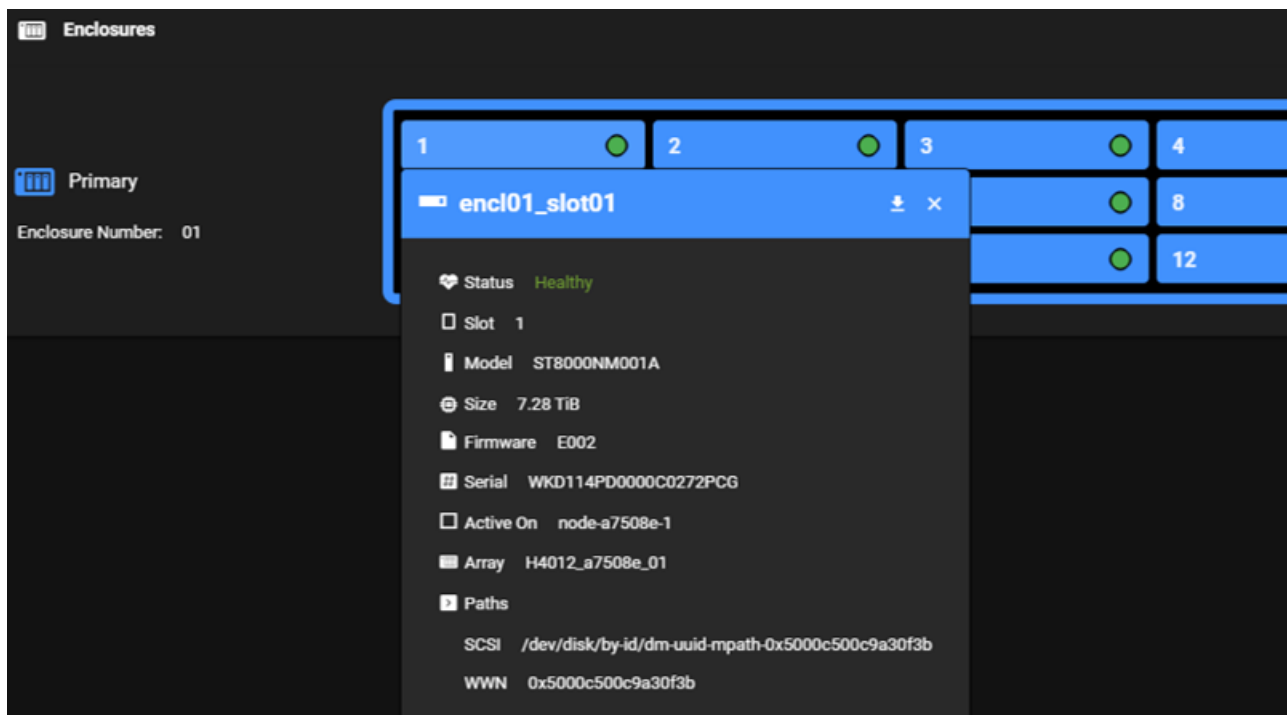
|  Components | | | | | |
|--|-----------------|-------|----------------|--------------------|--------|
| | Component ↑ | Count | Degraded Count | Non-Degraded Count | Status |
|  | Boot Drives | 4 | 0 | 4 | OK |
|  | Fans | 28 | 0 | 28 | OK |
|  | NVD Drives | 2 | 0 | 2 | OK |
|  | Power Supplies | 8 | 0 | 8 | OK |
|  | Storage Drives | 48 | 0 | 48 | OK |
|  | SW RAID Devices | 14 | 0 | 14 | OK |

| Component | Count | Description |
|----------------|-------|--|
| Boot Drives | 4 | Primary Chassis = 4 (quantity = 2 M.2 SSD per controller) Expansion Chassis = n/a |
| Fans | 28 | Primary Chassis = 16 (8 per controller) Expansion Chassis = 12 (4 per chassis) |
| NVD Drives | 2 | Primary Chassis = 2 (quantity = 1 M.2 SSD per controller) Expansion Chassis = n/a |
| Power Supplies | 8 | Primary Chassis = 2 (1 per controller) Expansion Chassis = 6 (2 per chassis) |
| Storage Drives | 48 | Primary Chassis = 12 (12 per chassis) Expansion Chassis = 36 (12 per chassis) |

| Component | Count | Description |
|-----------------|-------|--|
| SW RAID Devices | 14 | <p>User storage utilizes RAID-6 so one RAID set = 6 drives</p> <p>Primary Chassis = 2</p> <p>Expansion Chassis = 6 (2 per chassis)</p> <p>Boot Drive RAID = 4 (RAID-1)</p> <p>NVD Drive RAID = 2 (RAID-1)</p> <p>NOTE:</p> <ul style="list-style-type: none"> • <i>If one drive is bad in a RAID, the whole SW RAID is viewed as “degraded”</i> • <i>When a RAID is rebuilding / sync’ing, the RAID is viewed as “degraded”</i> |

Monitoring Storage

The Storage page provides an image of the system and the health of the individual drives. Clicking on a numbered drive provides further information for that particular drive.



Monitoring Performance

The Performance section provides graphical data for the various system components. As on the Cluster section, graphs can be chosen, enlarged, and data downloaded for further analysis.

Viewing System

This page provides a snapshot of the entire solution. You can choose which controller to view (either Top / Bottom / Combined) and the refresh rate.


Combined Average

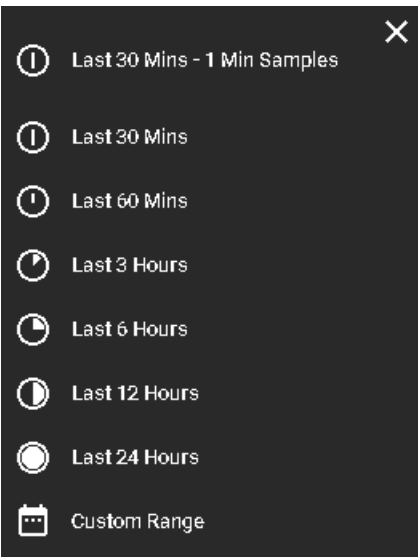
Controller B - Top

Controller A - Bottom

To select which controller to view, click  and pick one from these 3 options:

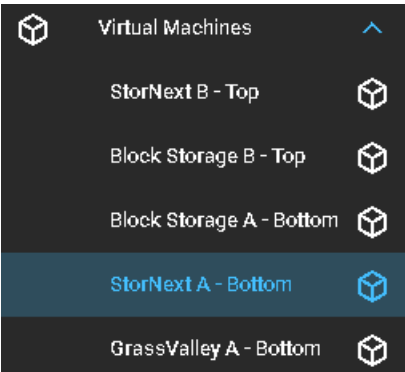


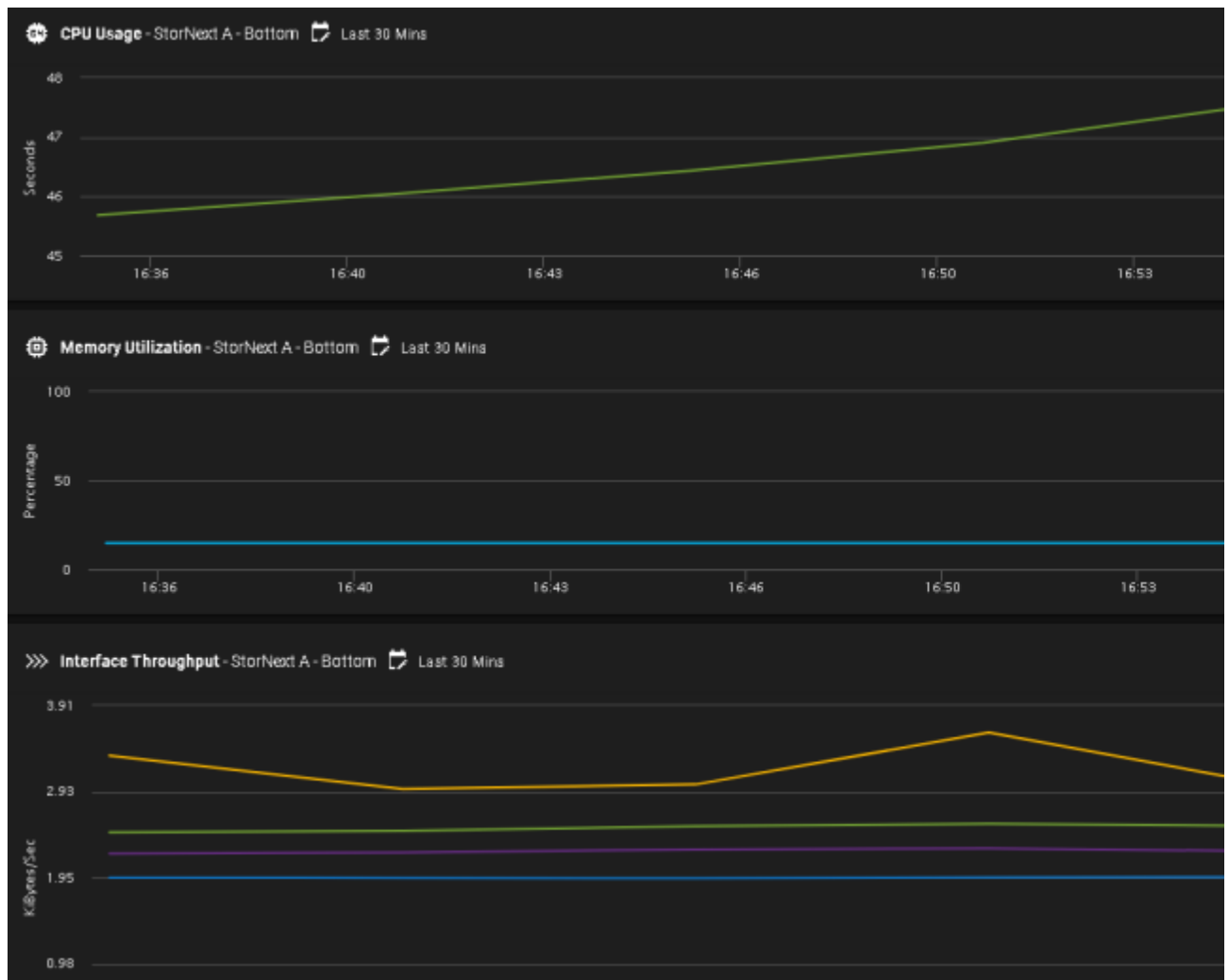
To select the refresh rate, click  and choose the time range that you need.



Viewing Virtual Machines

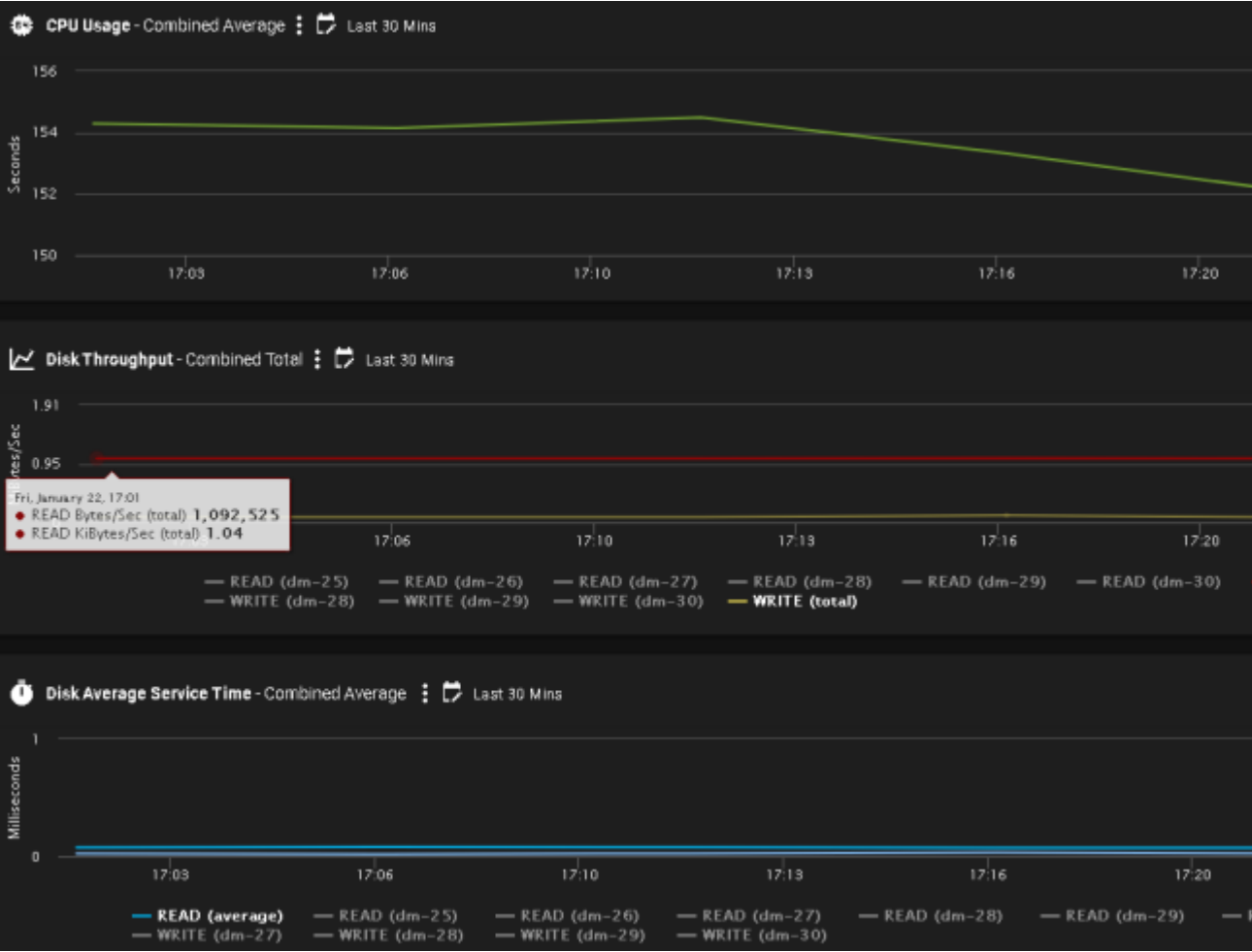
This page provides ability to examine the performance of each individual component.
On the left column, click **Virtual Machines** and select one of these options:





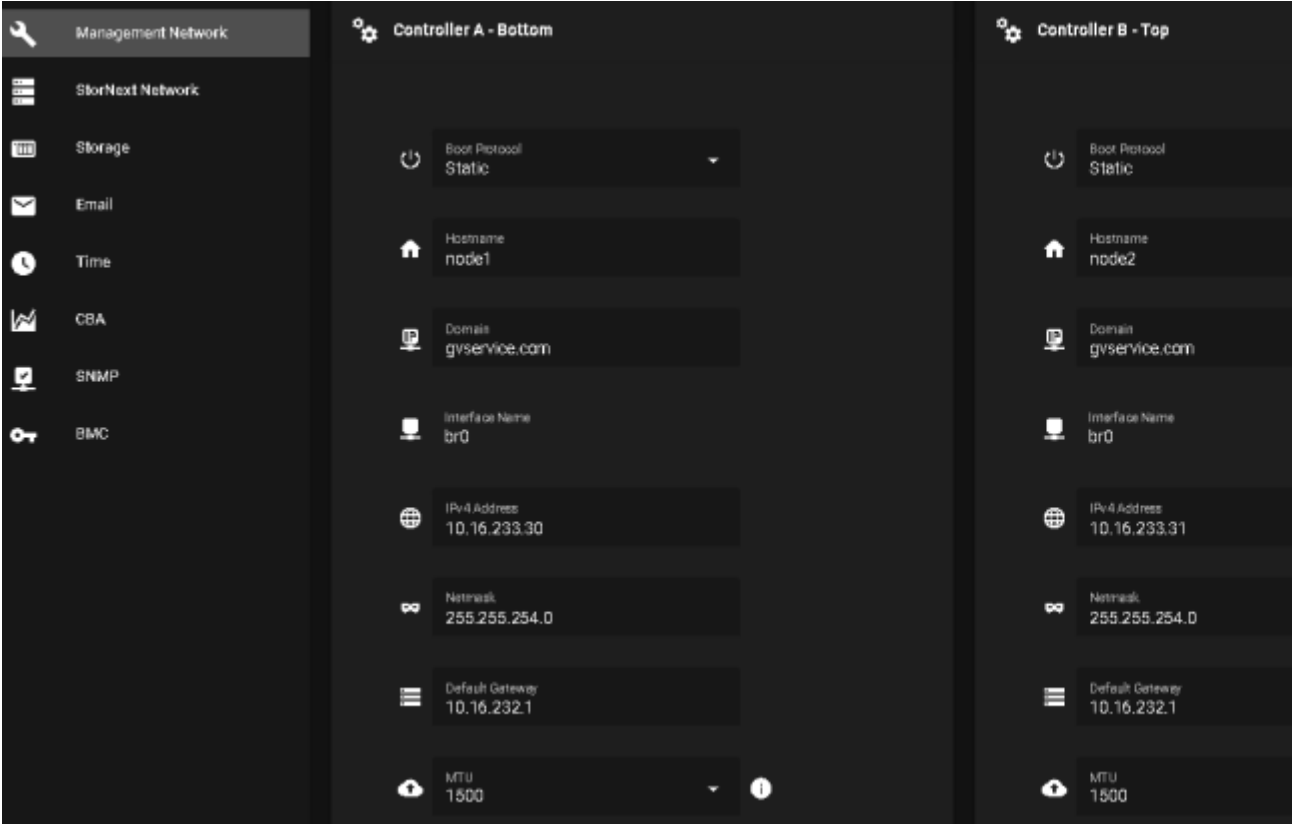
Viewing Storage

This page provides ability to examine statistics regarding overall storage performance.



Configuration

The Configuration section allows changes to various settings as utilized when initially setting up the system. The details of this section were covered in the initial configuration description.




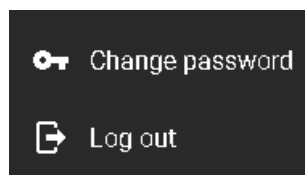
Tasks

The Tasks section provides a listing of the activities the system has been performing. The tasks can be filtered by Status, Type, Time, and Controller.

| Tasks | | | |
|--------------------------------------|--|---------------------------|---|
| Status | | Type | Controller |
| All | | All | Both |
| Id | | Type | Attributes |
| 59DF0D98-E784-4503-8EF7-C38210E865E6 | | Storage - add array | Host bus adapter 0, enclosure 1, first slot |
| 9CE490D1-7B42-4309-A293-2E21034E72A1 | | Storage - add array | Host bus adapter 0, enclosure 1, first slot |
| E99A2DE8-0E68-4B9A-A186-ECF868E710E2 | | Network - restart network | Controller a, alias Management |
| 0BD5D4DA-C200-4457-8E74-12B3AF37676B | | API call | URL https://10.17.22.1/api/network/res |
| 9C0D1CB2-E55A-4F1C-A566-0E28197EBFDF | | Network - restart network | Controller b, alias Management |
| 4BB08234-715B-47CA-B3F1-C5E286A6A94C | | API call | URL https://10.17.22.2/api/network/res |
| D2563DEE-A202-430D-B7E3-DEE9B5942413 | | Cluster - backupnode | |
| AA2C0C54-E423-45FC-B4C2-2B93EA5F3582 | | Cluster - update hostname | |
| A5939222-E279-4D29-B986-8163FECF390B | | API call | URL https://10.17.22.2/api/network/bac |
| 361DFCC8-8722-41A1-A194-51DE59228B55 | | Cluster - backupnode | |

Logging out from AMS Express system

1. On the AMS Express system, click the user profile icon  on top-right of the application.
A dialog box opens with these options below.

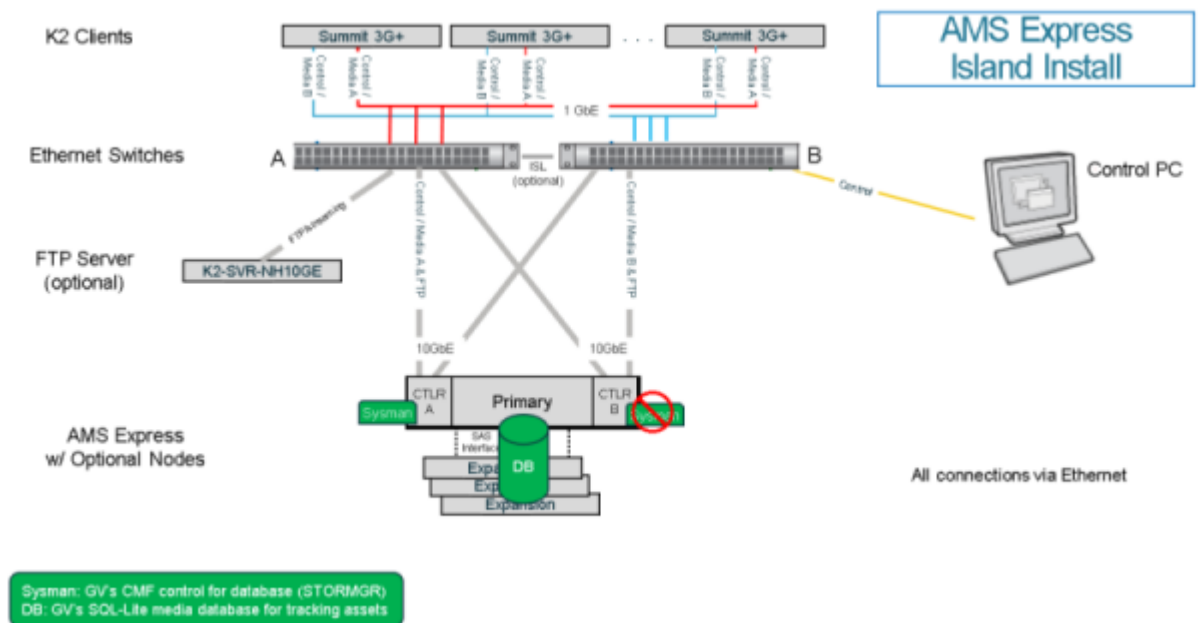


2. Click **Log out** to log off from the system.
The window closes and the Login page automatically appears.
3. Enter the user credential if you want to log on as another user.

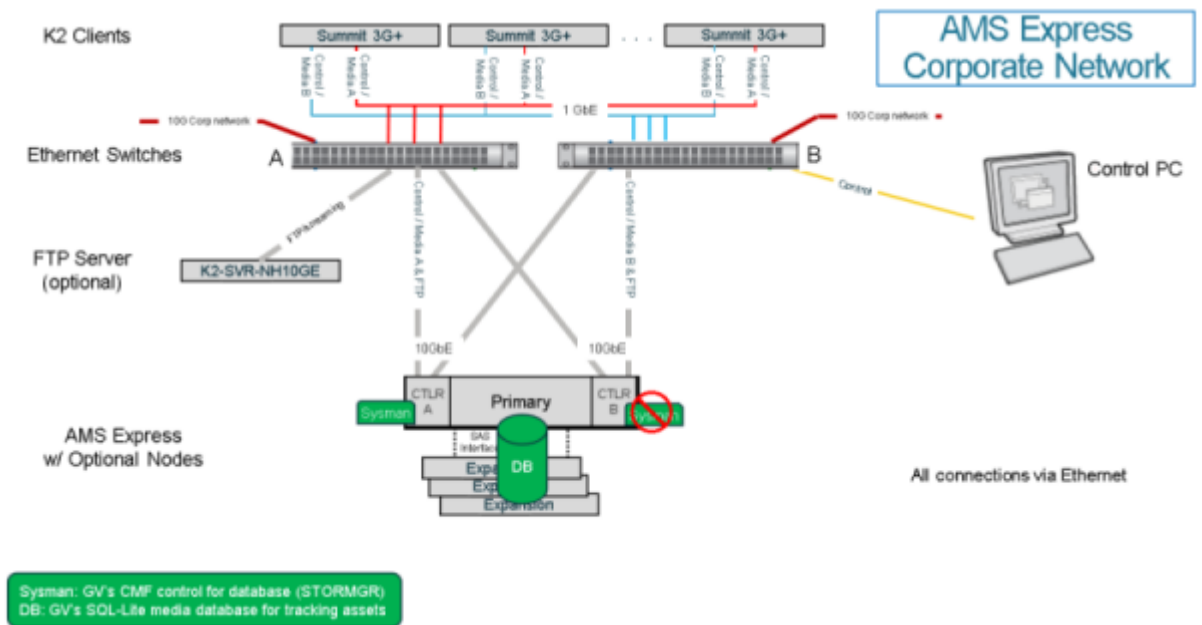
Network Diagrams

If you have received your AMS Express from the factory, it has been installed with all the necessary software and server functionality. Refer to these topics for further installation information in your network.

Island Install



Corporate Network



Troubleshooting

Redeploy System Manager

Overview

The following describes a scenario where the Grass Valley VM has an issue, a virus, or needs to be re-imaged. For the purpose of documentation, same example IP addresses will be utilized as previous. Please replace with appropriate customers' IP addresses.

Remove and Reinstall VM

1. Using the CLI, SSH into the Bottom/Node1 hypervisor (AMS UI).

```
# ssh admin@10.16.232.170
Password: adminGV!
```

2. Become root.

```
[admin@node1 ~]$ sudo bash
```

3. Change directory.

```
bash-4.2# cd /opt/quantum/scripts
```

4. Delete GV VM.

```
bash-4.2# ./VM_manager.py --remove --vmname GrassValley
```

5. Reinstall GV VM.

```
bash-4.2# ./VM_manager.py --create --vmtype GrassValley
```

6. Exit the root shell.

```
bash-4.2# exit
```

7. Exit the hypervisor Node1 shell & CLI.

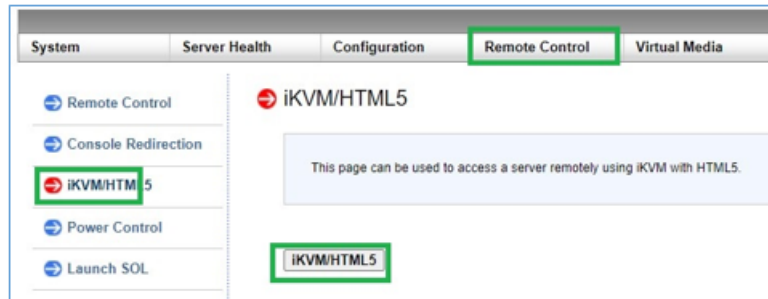
```
[admin@node1 ~]$ exit
```

Configure

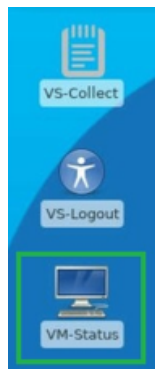
The final step of the process is to reconfigure the new VM.

1. Login into the BMC GUI on the Bottom/Node1 from browser: **10.16.232.178**

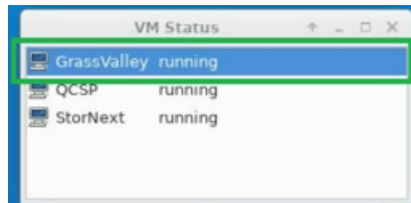
2. Open iKVM/HTML5 console, select **Remote Control** and click **iKVM/HTML5**.



3. Typically on the bottom-right corner of the screen is a VM Status box. If not visible, then click the **VM-Status** icon below.



4. Double click on the Grass Valley line then login and configure as usual.



5. Once the IP **10.16.232.176** is assigned it can be connected to via Remote Desktop.

Manual GV VM Failover

Overview

The following process describes how to deploy System Manager on Top Controller-Node2 if the Bottom Controller-Node1 has a catastrophic failure. This should only be used to keep the customer running while doing further troubleshooting and waiting for replacement parts.

- Time to implement < 2 hours.
- The customer will have data loss during the down-time.

This documentation will use the following IP addresses / naming in examples.

| Target | Credentials | Controller | Docs | Customer |
|-------------------------|------------------|---|------------------|----------|
| | | | 10.16.232 | |
| AMS-GUI (Hypervisor) | admin / adminGV! | Top- <i>Secondary</i> — Node2 Bottom- <i>Primary</i> — Node1 | .171 .170 | |
| SN-GUI (StorNext) | admin / password | Top- <i>Secondary</i> — Node2 Bottom- <i>Primary</i> — Node1 | .174 .173 | |
| BMC GUI | ADMIN /ADMIN | Top- <i>Secondary</i> — Node2 Bottom- <i>Primary</i> — Node1 | .179 .178 | |
| GV VM | n/a | Bottom | .176 | |
| NAS VIP | n/a | Top & Bottom | .177 | |
| Netmask | n/a | Top & Bottom | ~ .255.0 | |
| STORMGR | | | sysman1 | |

Failover Process

The following will create then start a GV VM on Node2 assuming Node1 is down.

Copy Script

1. Start WinSCP.
2. Login to the Node2 AMS/Hypervisor (.171) using admin credentials.
3. Login as prodev on ftp.grassvalley.com and enter as below.

```
cd /"GV AMS Express"
get VG_GM_Node2.sh
```

4. Copy the **GV_VM_Node2.sh** file to the AMS Express Node2 /tmp directory.
5. Exit WinSCP.

Start GV VM

- Using CLI on Node2 AMS-Hypervisor to create GV VM and deploy script just copied.

```
> ssh admin@10.16.232.171
[admin@node2 ~]$ cd /tmp
[admin@node2 /tmp]$ chmod +x ./GV_VM_Node2.sh
[admin@node2 /tmp]$ sudo bash
bash-4.2# ./GV_VM_Node2.sh
Uncompressing GrassValley VM image
Creating GrassValley VM on node 2
Starting GrassValley VM on node 2
bash-4.2# exit
```

- Confirm GV VM is running on Node2. For example, type:

```
[admin@node2 /tmp]$ sudo su -c "virsh list --all"
Id      Name                               State
-----
1       ESOS                               running
2       Xcellis                           running
3       GrassValley                       running
[admin@node2 /tmp]$ exit
```

- Alternately, the AMS UI will show Controller B - Top running with Controller A - Bottom empty.



GV VM IP

- Provide the Node2 GV VM the same IP address as it had previously using the standard commissioning instructions.

 **Remember:** The GV VM will default back to factory settings of: 192.168.21.31

- It may take a couple of tries to load.

K2 Config

K2Config the system manager now running on Node2 using the standard commissioning instructions.

Failback Process

NOTE: *Step not required.*

Use the following process once the system has gone through troubleshooting and/or a replacement controller has been provided.

Node2 GV VM Shutdown

Before Node1 is installed and powered on:

Use CLI on Node2 AMS/Hypervisor to shutdown the GV VM.

```
> ssh admin@10.16.232.171
[admin@node2 ~]$ sudo bash
bash-4.2# cd /opt/quantum/ansible/scripts
bash-4.2# ./cluster_manager.py unmanagevm GrassValley
bash-4.2# virsh shutdown GrassValley
```

Node1 GV VM Start

1. After installing replacement controller in Node1, bring up as normal. Expect about 20 minutes to complete.
2. After Block Storage & StorNext VMs are running, use the CLI on Node1 AMS/Hypervisor.

```
> ssh admin@10.16.232.170
[admin@node1 ~]$ sudo bash
# cd /opt/quantum/ansible/scripts
# ./cluster_manager.py managevm GrassValley
# ./cluster_manager.py startvm GrassValley
# exit
[admin@node1 ~]$ exit
```

3. Lastly, remove the GV VM from Node2 AMS/Hypervisor.

```
> ssh admin@10.16.232.171
[admin@node2 ~]$ sudo bash
# cd /opt/quantum/scripts/
# ./VM_manager.py --remove --vmname GrassValley
```

Factory Reset

Overview

The following process resets a system back to factory defaults. This should only be considered after all other troubleshooting steps have been tried. Depending on interaction with Quantum, this process could take several days and need licenses from them to complete the process.

- Reset to factory default: 4-6 hours
- Licensing: hours to days depending on responsiveness
- Load latest released software build and recommission system: 3-4 hours

The following chart explains the implications for Factory Resetting.

: Factory reset will cause 100% DATA LOSS.

| Chassis Configuration | Implication |
|---|--|
| Primary only | None. Reset chassis per instructions. |
| Primary with <u>attached</u> Expansion | After resetting Primary using instructions, Expansion will appear as unconfigured. Process with normal commissioning. |
| Primary with <u>de-attached</u> Expansion | AVOID THIS SITUATION. If remove the SAS cables before resetting Primary, the Expansion will think it is still attached to the pre-reset Primary and won't be able to re-connect. It's a very long and risky process to recover from. |

This documentation uses the following IP addresses in examples. Substitute with customer's where needed.

| Target | Credentials | Controller | Factory | Unit #2 | Customer |
|-------------------------|---------------------|----------------------------|-----------------------|------------------|----------|
| | | | 192.168.21 | 10.16.232 | |
| AMS-GUI (Hypervisor) | admin / adminGV! | Top-Secondary — Node 2 | .2 | .171 | |
| | | Bottom-Primary — Node 1 | .1 | .170 | |
| SN-GUI (StorNext) | admin / password | Top-Secondary — Node 2 | .22 | .174 | |
| | | Bottom-Primary — Node 1 | .21 | .173 | |
| BMC GUI | ADMIN/ADMIN | Top-Secondary — Node 2 | .42 | .179 | |
| | | Bottom-Primary — Node 1 | .41 | .178 | |

| Target | Credentials | Controller | Factory | Unit #2 | Customer |
|---------|-------------|--------------|-------------------|------------------|----------|
| | | | 192.168.21 | 10.16.232 | |
| GV VM | n/a | Bottom | .31 | .176 | |
| NAS VIP | n/a | Top & Bottom | .23 | .177 | |
| Netmask | n/a | Top & Bottom | .255.0 | .255.0 | |

Preparation

- Ensure to download the factory reset images and latest software build. Check with Engineering for current versions. Store in a location on the PC where you have access.

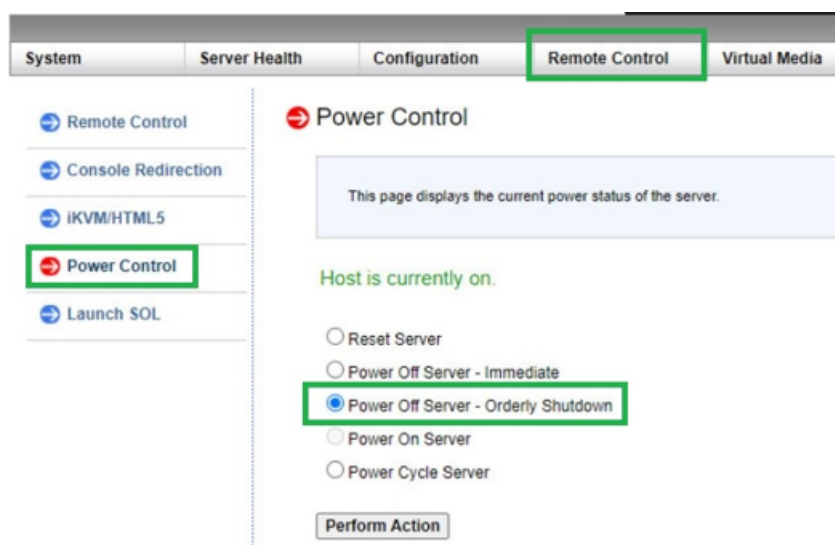
Typically at **C:\apache\Apache24\htdocs**

- If Expansion Chassis are attached, KEEP THEM ATTACHED AND POWERED ON.

System Shutdown

Using the BMC, shut down both Nodes within 15 seconds of each other by:

- Login to the BMC on both Nodes simultaneously.
- Ensure both Nodes are in the same situation as shown below.



- Click: **Remote Control | Power Control | Power Off Server – Orderly Shutdown**
- Click **Perform Action** on both Nodes (again within 15 seconds of each other).

It should take < 5 minutes (sometimes a taking too long message appears, then try again).

- If it still doesn't work, choose **Power Off Server – Immediate** on both Nodes.

The power icon will turn red in upper right corner.



Copy latest build images

Method 1

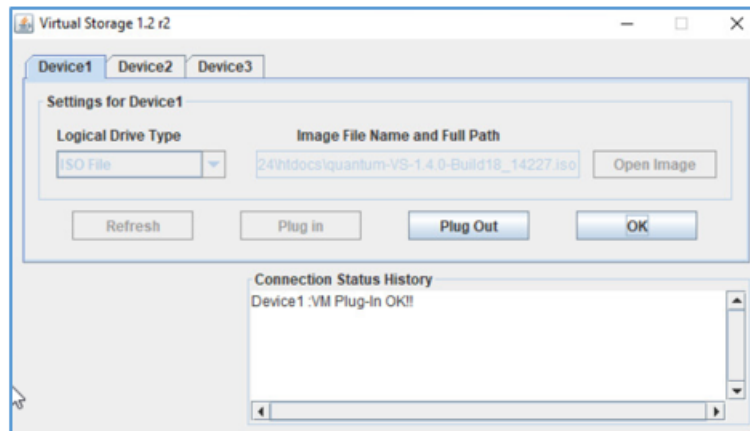
For BMC Node 1:

1. Select: **Remote Control | Console Redirection | Launch Console**
2. In the lower left corner: **Keep** then click **launch.jnlp** once to run the Java applet (lower left corner).

Then select: **Continue | Run | Yes**

Depending on the system state, you may have to cycle through steps a second time.

3. Inside the Java iKVM Viewer, select: **Virtual Media | Virtual Storage**
 - In the **Logical Drive Type** drop-down list, select: **ISO File**
 - Click **Open image** and navigate to: C:\apache\Apache24\htdocs\ or where you stored your files
 - Click on the .iso file with the desired release: **quantum-VS-1.4.0-Build18_14227.iso**
 - Click **Plug in** and **OK**.



4. On Java iKVM Viewer, select: **Power Control | Set Power Reset**
5. Repeat all steps above for BMC Node 2.

If it doesn't work try [Method 2](#) on page 115.

Method 2

For BMC Node 1:

1. Select: **Virtual Media | CD-ROM Image**

The window below appears.

CD-ROM Image

This page is used to share a CD-ROM image over a Windows share with a maximum size will be emulated to the host as a USB device.

| | |
|----------|------------------------|
| Device 1 | No disk emulation set. |
| Device 2 | No disk emulation set. |
| Device 3 | No disk emulation set. |

Share Host:

Path to Image:

User (optional):

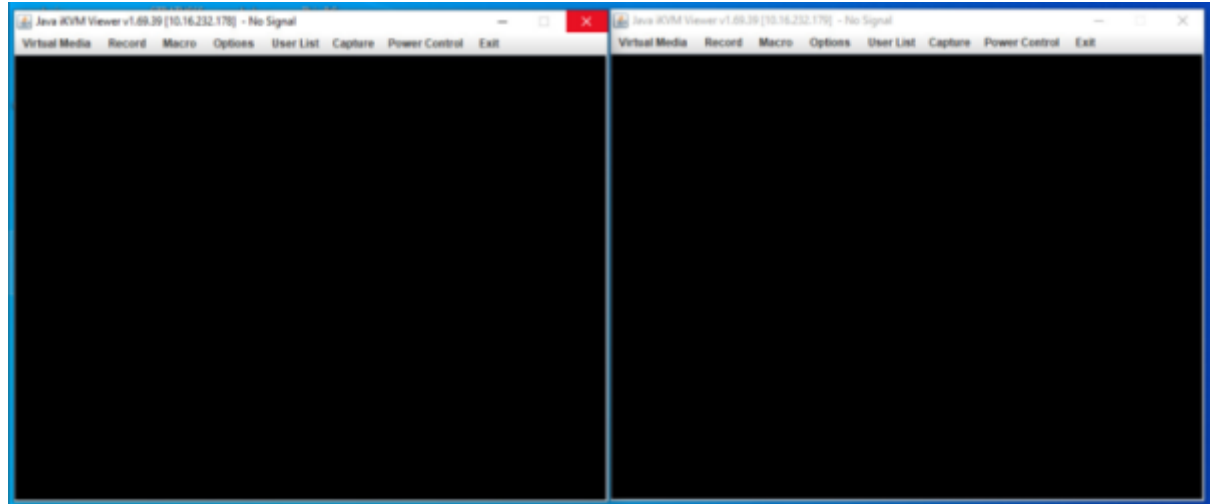
Password (optional):

2. Ensure **Share Host** has the IP address of the PC with downloaded files.
3. Change **Path to Image** to correct path with latest build:
C:\apache\Apache24\htdocs\quantum-VS-1.4.0-Build18_14227.iso
4. Click **Save** and **Mount**.

Power Cycle

1. If not already in Java iKVM mode:
 - On both Nodes, select: **Remote Control / Console Redirection / Launch Console**
 - In lower left corner: **Keep** then click once to run the Java applet then select **Continue | Run | Yes**

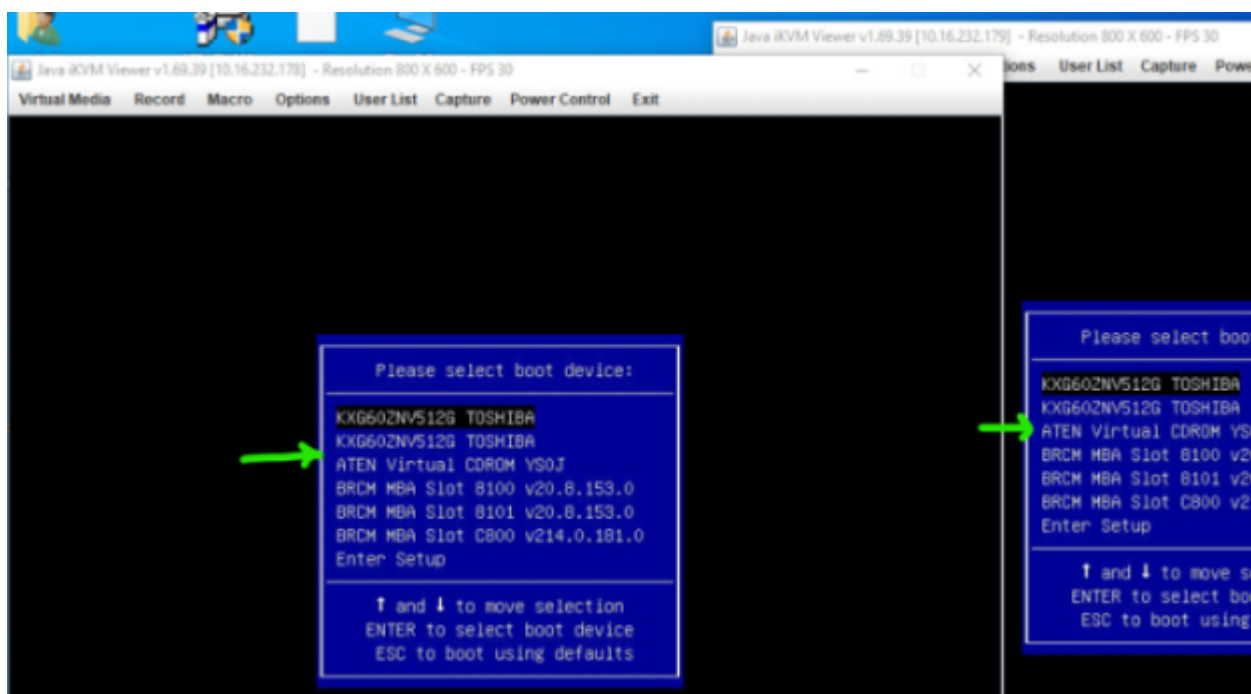
2. Set up screen so you can see both Java iKVM screens.



⚠ CAUTION: Next steps may take several iterations to achieve success as depends on timing.

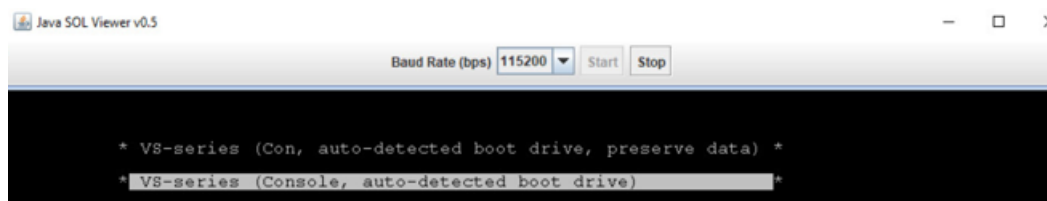
3. On Node1, select: **Power Control | Set Power On**
Watch carefully for the next 1-2 minutes.
4. When white splash screen appears, mouse click on it and press **F11** key multiple times until you get the boot device screen as shown below. Screen may appear several times so be ready.
5. Once Node 1 is done, do the same process on Node 2.
6. If the **F11** key doesn't work and system boots, select **Power Control | Set Power Reset** on both screens and retry.

- Success looks like the following with the **ATEN Virtual CDROM YSOJ** option. Failure won't have that option.

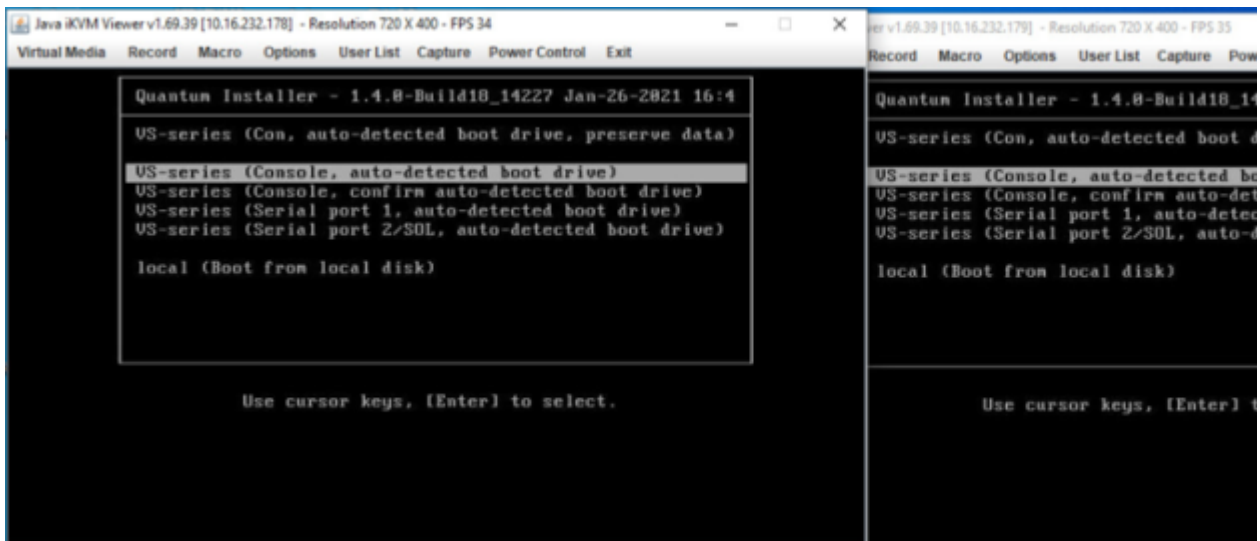


Verify and load Build

- On both Nodes, use down arrow keys to select **ATEN Virtual CDROM** then press **[Enter]**.
- Verify Node 2 down arrow keys work. If not, then it's a timing issue. Perform the following:
 - Click on the Chrome window for Node 2.
 - Select **Remote Control / Launch SOL** which launches Java applet.
 - In lower left corner: **Keep** then click once to run the Java applet and select **Continue | Run | Yes**
 - DON'T PRESS ENTER.
 - Press down arrow key to highlight **VS-series (Console, auto-detected boot drive)**.



3. Within 3 seconds of each other, use arrow keys to select **VS-series (Console, auto-detected boot drive)** then press **[Enter]**.



Node 1 will run off bunch of commands, Node 2 will show ‘Loading initrd.img.....ready’.

The process will take up to 60-90 minutes and looks like stalled several times. Be patient and do other things while waiting for the process to complete.

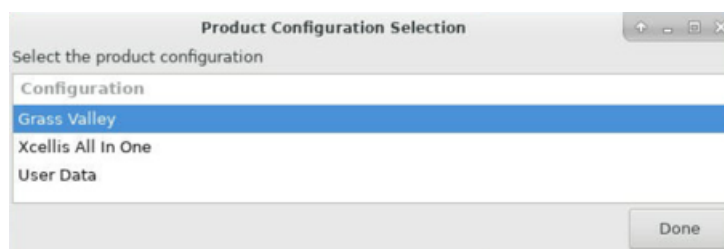
StorNext Download

The Java iKVM will shut down and both Nodes will reboot and come up to the following image.

1. For Product Selection, choose **H-Series H4012 HCI storage server** and click **OK**.

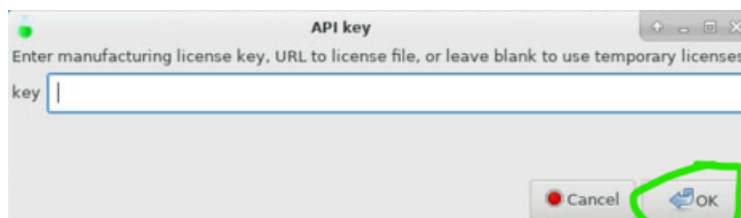


2. On Product Configuration Selection, choose **Grass Valley** and click **Done**.

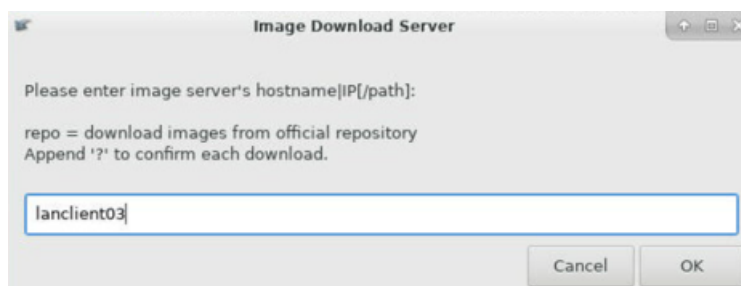


Wait up to 60 seconds as sometimes you have to reset network speeds at this time to autoneg off (See [Ethernet Speed Override](#) on page 122). If not, continue with the next step.

- For API Key dialog, leave blank and click **OK**.

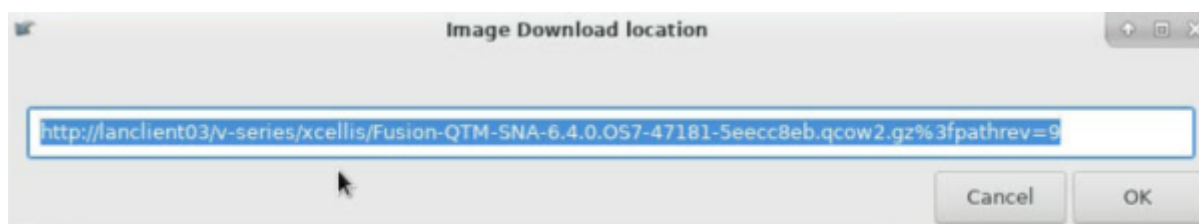


- Backspace over repo and enter IP address of client (you may have to use virtual keyboard to enter "." in IP address) or use hostname of client PC to resolve as in the example below.



- Click **OK**.

The Image Download location window appears.



Important: You will need to edit this location so do not delete the entire address. Do for both Nodes.

If you lose the location, you can see it in the terminal window above the dialog box. It will say something like: H4012 requires Fusion-QTM-SNA-yyyyyy

- Double click and remove the red items below. (Use arrow keys and [Backspace] key)

- `http://lanclient03/v-series/xcellis/Fusion-QTM-SNA-6.4.0.OS7-47181-5eccc8eb.qcow2.gz%3fpathrev=9`
- `http://lanclient03/v-series/xcellis/Fusion-QTM-SNA-6.4.0.OS7-47181-5eccc8eb.qcow2.gz`

You should end up with this line:

`http://lanclient03/Fusion-QTM-SNA-6.4.0.OS7-47181-5eccc8eb.qcow2.gz`

- Click **OK**.
- Repeat steps 1-7 for Node 2.

These are multi-GB files so the process could take up to 30 minutes to complete.

It is completed when similar messages appear on both Nodes.

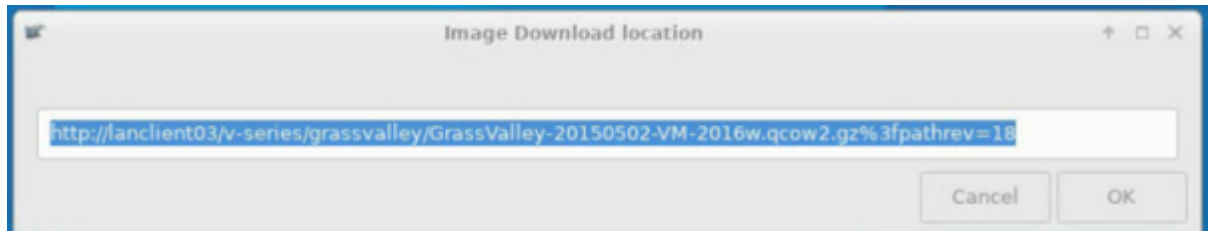
```


baseos.log
2021-03-03 00:44:42 gennettemplate.sh: Generated new MAC 00:30:8c:7b:49:04
2021-03-03 00:44:42 using slot='0x13 for brl mapping
2021-03-03 00:44:42 serialnum:QTM202000002 cvfsid:00308c3ea46b nodenum:1
2021-03-03 00:47:10 using temporary licenses
2021-03-03 00:47:10 Found 0 preinstalled OS images.
2021-03-03 00:47:10 ==== Downloading missing VM images if necessary.
2021-03-03 00:47:11 H4012 doesn't need this centos image: http://10.20.184.21/viewvc/projects
/win-bin/centos.7.6.1810.raw.gz?pathrev=10250.
2021-03-03 00:47:11 H4012 requires Fusion-QTM-SNA-6.4.0.OS7-47181-5eccc8eb.qcow2.gz?pathrev=9
.
2021-03-03 00:47:11 H4012 requires GrassValley-20150502-VM-2016w.qcow2.gz?pathrev=18.
2021-03-03 00:47:11 H4012 doesn't need this windows image: http://10.20.184.21/viewvc/project
s/win-bin/win2k19datacenter.qcow2.gz?pathrev=12131.
2021-03-03 00:47:11 H4012 doesn't need this windows image: http://10.20.184.21/viewvc/project
s/win-bin/win2k19standard.qcow2.gz?pathrev=12443.
2021-03-03 00:47:11 H4012 doesn't need this win-extra image: http://10.20.184.21/viewvc/proje
cts/win-bin/MilestoneInstaller.iso.gz?pathrev=11311.
2021-03-03 00:47:46 Downloading http://lanclient03/Fusion-QTM-SNA-6.4.0.OS7-47181-5eccc8eb.qc
ow2.gz -> /xcellis/factory/Fusion-QTM-SNA-6.4.0.OS7-47181-5eccc8eb.qcow2.gz
  
```

GV VM Download

1. Continue with the next download.

The Image Download location window appears.



 **Important:** You will need to edit this location so do not delete the entire address. Do for both Nodes.

2. Double click and remove the red items below. (Use arrow keys and [Backspace] key)

- <http://lanclient03/v-series/grassvalley/GrassValley-20150502-VM-2016w.qcow2.gz%3fpathrev=18>
- <http://lanclient03/v-series/grassvalley/GrassValley-20150502-VM-2016w.qcow2.gz>

You should end up with this line: <http://lanclient03/GrassValley-20150502-VM-2016w.qcow2.gz>

3. Click **OK**.
4. Repeat steps 1-3 for Node 2.

This process could take up to 1 hour. Node 1 will take longer than Node 2 as it is the primary node and with more to do. You will know it is done when this appears on both nodes.

Close the logs by clicking X in the upper right corner.

Clear to ship script

- These commands must be done within 10 seconds of each other
 - If lose ability to type “.” use Virtual Media / Virtual Keyboard
 - Prepare both Nodes before pressing [Enter]
1. Still inside the Java iKVM viewer, open terminal windows (right-click open space, choose **Open Terminal Here**)
 2. On Node 1 open a new terminal window and prepare the following:

```
[admin@node1 ~/Desktop]$ sudo su -
[root@node1 ~]#cd /opt/quantum/scripts/
IMPORTANT: DON'T PRESS [ENTER] after typing next command
[root@node1 ~]#./ClearToShip.sh --poweroff
```

3. On Node 2 open a new terminal window and prepare the following:


```
[admin@node2 ~/Desktop]$ sudo su -
[root@node2 ~]#cd /opt/quantum/scripts/
IMPORTANT: DON'T PRESS [ENTER] after typing next command
[root@node2 ~]#./ClearToShip.sh --poweroff
```

4. Verify both Nodes are ready and the commands are typed in properly (ensure “.” are in command as well as upper/lower case).
5. Go back to Node 1 and press [Enter] then immediately go to Node 2 and press [Enter].

This clears the IP addresses and other items. However, it maintains the BMC IP addresses (.178/.179) instead of reverting to factory defaults which makes it easier to access the Nodes and start the systems.

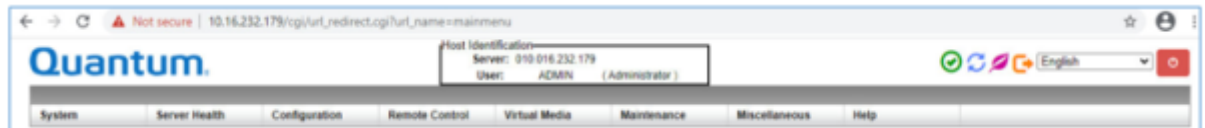
The process takes about 10 minutes. When finished, it will have blank/black Java iKVM Viewer screens. Close both Node screens.

System Power-On

 **Important:** Both Nodes must be powered on within 15 seconds of each other. Prepare both Nodes before turning power on. Not doing so results in fenced nodes and an unstable system.

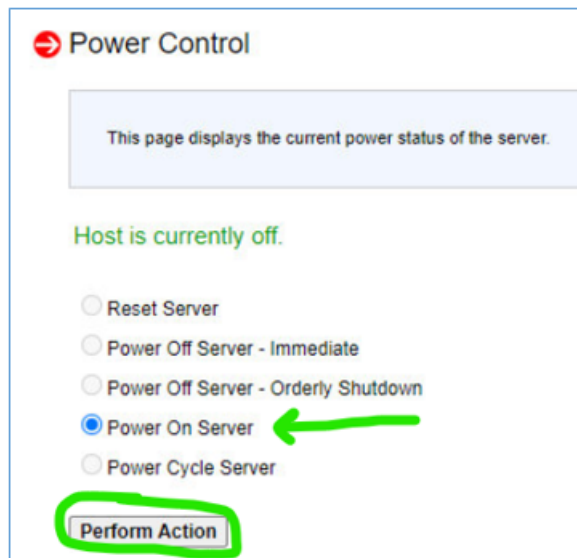
1. Login to both BMC Nodes.

You will see power logo red/off in upper-right corner.



2. On both Nodes, select **Remote Control | Power Control**.

The Power Control window appears.



3. Ensure radio-button is set to **Power On Server** on both Nodes.
4. On Node1, click **Perform Action**. Then immediately on Node 2, click **Perform Action**.

Systems will now power on in the next 15 minutes.

When both VM Status windows show all VMs running, proceed to [Ethernet Speed Override](#) on page 122.

Ethernet Speed Override

In some instances you won't be able to ping or access the system. This is due to a bug in StorNext. You have to manually override the Ethernet port settings to communicate with the switch.

Perform the following:

1. For the BMC Node 1, select **Remote Control | iKVM/HTML5**.
2. Access terminal emulator at the bottom mini-bar or hidden above blue background upper-left and select **Applications | Terminal emulator**.

3. Then, enter as below in the terminal emulator.

```
[admin@node1 ~]$ sudo bash
bash-4.2# ethtool -s p258p1 speed 10000 autoneg off
bash-4.2# ethtool -s p258p2 speed 10000 autoneg off
```

4. Verify that the link is up for that interface:

```
bash-4.2# ethtool p258p1 | grep Link
Link detected: yes
bash-4.2# ethtool p258p2 | grep Link
Link detected: yes
bash-4.2# exit
[admin@node1 ~]$ exit
```

5. Repeat all steps above for BMC Node 2.

NAS Licensing

Now at a factory state, you will need to retrieve a NAS license for both Nodes. Reminder: This will use the default IP addresses.

Obtain File System IDs

Each Node has a unique file system ID that a NAS license is associated with. Since there was a system reset, you need to obtain a new license for each Node.

1. On Node 1 BMC, use iKVM/HTML to open a terminal.

```
$ ssh stornext@10.17.22.21
```

2. Go through password change process from **password** to **adminGV!**
3. Relogin with:

```
$ ssh stornext@10.17.22.21 /usr/cvfs/bin/cvfsid
password:
00308C29CE56 linux 0 qnode1
$ exit
```

4. On Node 2 BMC, use iKVM/HTML to open a terminal.
5. Go through password change process from **password** to **adminGV!**
6. Relogin with:

```
# ssh stornext@10.17.22.22 /usr/cvfs/bin/cvfsid
password:
00308C540B3C linux 0 qnode2
$ exit
```

7. Send the output to Quantum to generate a license.

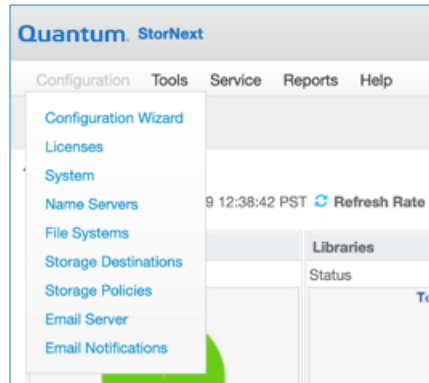
You can also do a screen capture to send if it's easier and you won't make typing mistakes.

Make sure to identify Node 1 & Node 2.

Install Licenses

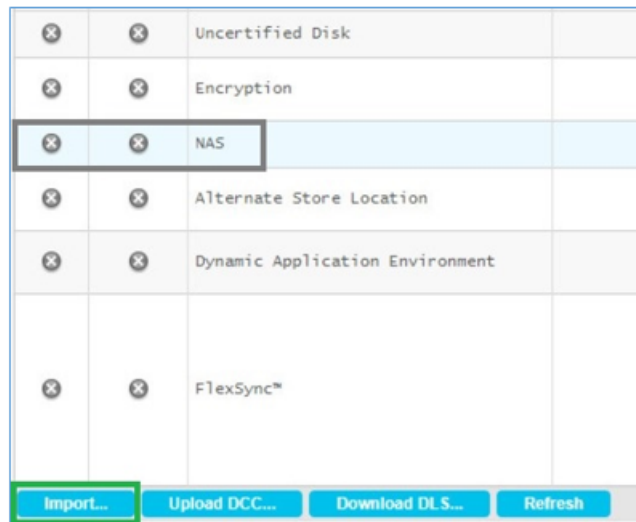
Ensure you have the NAS license files from QTM downloaded to the PC attached to AMS Express.

1. Using the StorNext GUI, use a browser to login on Node1.
2. Login as **https://192.168.21.21** or **http://192.168.21.21:81**
3. Accept the license agreement.
4. Navigate to **Configuration | Licenses**.

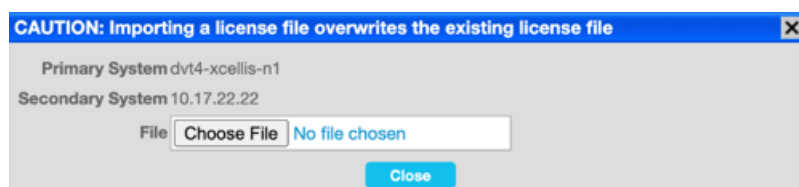


5. Scroll down toward the bottom and you will see NAS is grayed out.

Ensure these license are green/checked: SAN Client, LAN Client, Failover (HA), Maintenance



6. Click the **Import** button.
7. Proceed to choose the license file in the dialog where you stored the downloaded file.



8. Click **Close**.

You will see a banner like below when the import is successful.



All done. The system will apply license to both Nodes.

System, Safety, and Regulatory Information

Read the following for important safety information.

General Information

This section contains general information on important system, safety, and regulatory information for all products. System, safety, or regulatory information that applies only to a specific product is provided in that product's user documentation.

Notational Conventions

This section uses the following conventions:

- **Notes:** emphasize important information related to the main topic.
- **Cautions:** indicate potential hazards to equipment and are included to prevent damage to equipment.
- **Warnings:** indicate potential hazards to personal safety and are included to prevent injury.

Explanation of Symbols

This product has several safety related symbols. Please familiarize yourself with their meaning:



This is the general warning sign. It is used to alert the user to potential hazards. All safety messages that follow this sign shall be obeyed to avoid possible harm.



This symbol is used to alert the user to an electric shock hazard. All safety messages that follow this sign shall be obeyed to avoid possible harm.



The protective conductor (PE) must be connected first to main protective earthing terminal before connecting the line and neutral to avoid shock hazard, and that a PE connection to the main PE terminal is essential before connecting the mains to avoid electric shock.



This symbol identifies a terminal which is intended for connection to an external conductor for protection against electric shock in case of a fault, or the terminal of a protective earth (ground) electrode.



This symbol indicates that the product has multiple power cords, and all power sources shall be disconnected before servicing to avoid shock hazard.

or



This symbol instructs the user to refer to instruction manual/booklet for guidance.

or



This symbol indicates to the user that the object is heavy, and is usually accompanied by the item's weight.



This symbol indicates that there is an unguarded fan blade present. Take caution and keep body parts away from fan blades.

or



This symbol indicates that there is a hazard from a moving part present. Take caution and keep body parts away from moving parts.

Safety Information

Safety issues are clearly distinguished from all other product issues. Safety issues affect the health or life of the operator. They are not data integrity issues. If the unit operates incorrectly, even though you are following the operating instructions exactly, disconnect it from all power sources and contact Technical Support.

- In addition to the safety instructions in this section and the product documentation, local, national, and professional safety rules apply.

- Do not introduce any objects or liquids into the product enclosure. If interior components short out, fire or electric shock can result.
- Do not drop or damage the unit or damage any of its components; for example, its power cables, extension cables, or plugs.

Safety Precautions

Follow these guidelines to avoid damage to the product or injury to yourself:

- Pay attention to all cautions and warnings on the equipment or in the manuals.
- This equipment is intended for installation in a Restricted Access Location. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security. Allow only trained and qualified personnel should be allowed to install, replace, service, or operate this equipment.
- There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.
- Installation of the equipment must comply with local and national electrical codes.
- Always use properly grounded, unmodified electrical outlets and cables, capable of supplying the proper voltage and current.
- If an AC power cord was not provided with your system components, purchase one that is approved for use in your country or region.
- Be aware of the ampere limit on any power supply or extension cables being used. The combined total ampere rating of all devices on a circuit may not exceed 80% of the maximum limit for the circuit.
- Maintain reliable grounding of rack-mounted equipment. Pay attention to supply connections other than direct connections to the branch circuit (e.g., use of power distribution units). Failure to properly ground the rack may result in electric shock and injury.
- The power supply cord(s) is / are the main disconnect device to AC power. The socket outlet(s) must be near the equipment and readily accessible for disconnection.
- Whenever you are servicing the unit, completely power down the unit by turning off all power and unplugging all power cables. The power switch is not the main power disconnection device.
- When installing a hot-swappable power supply into your system, make sure that the power supply is fully installed before you connect power cables to it. When uninstalling a hot-swappable power supply from your system, unplug the power cable before removing the power supply.
- Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

: All service actions appropriate to end-users are described in the product documentation. Refer all other servicing to an authorized service technician.

Safety and Rack-Mountable Systems

Read and follow all cautions, warnings, labels, and instructions on the rack and the systems to be stored in the rack. In addition to what is written there, follow the provided rack-mount instructions and these guidelines:

- Never pull more than one component out of the rack at a time. Doing so can cause the rack to tip over, which could cause bodily injury.
- The full weight of the rack must rest evenly on the floor, and the rack must be anchored mechanically, to ensure stability in the event of an earthquake.
- When installing the equipment in a rack, ensure that the amount of air flow required for safe operation of the equipment is not compromised.
- When mounting the equipment in the rack, be careful that a hazardous condition is not achieved due to uneven mechanical loading.
- If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Install the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
- Reliable earthing of rack-mounted equipment should be maintained.

Electrostatic Discharge (ESD)

⚠ CAUTION: *Electrostatic discharge can harm components inside the product.*

Electrostatic discharge (ESD) is a sudden flow of electric current through a material that is normally an insulator. Some components of the product are ESD sensitive. If you are not sure whether a particular component is ESD sensitive or not, consult the applicable product documentation.

- Keep ESD-sensitive parts in a static-protective bag until you are ready to install the part into the machine.
- If possible, keep all ESD-sensitive parts in a grounded metal case.
- When handling ESD-sensitive parts, make the fewest possible movements with your body to prevent increasing the potential for ESD.
- If instructed to do so, switch off the machine power before you remove ESD-sensitive parts.
- Wear an ESD wrist strap. Or if that is not practical, just before touching the ESD-sensitive part, discharge to the machine any static electricity in your body by touching the metal frame or cover of the machine. If possible, keep one hand on the frame when you install or remove an ESD-sensitive part.
- Do not place any ESD-sensitive parts on the machine cover or on a metal table, because large metal objects can become discharge paths if they are not grounded. If you must set aside an ESD-sensitive part, first place it into the ESD static-protective bag.
- Prevent ESD-sensitive parts from being accidentally touched by other personnel.
- Be very careful when you work with ESD-sensitive parts in cold weather. Interior heating leads to low humidity and an increase in static electricity.

Battery Disposal

Your system may use a nickel-metal hydride (NiMH) and/or lithium-ion battery. The NiMH and lithium-ion batteries are long-life batteries, and it is very possible that you will never need to replace them. However, if you do need to replace them, refer to your product documentation for instructions.

Do not dispose of the battery along with household waste. Contact your local waste disposal agency for the address of the nearest battery deposit site.

NOTE: *Your system may also include circuit cards or other components that contain batteries. These batteries must also be disposed of in a battery deposit site. For information about such batteries, refer to the documentation for the specific card or component.*

Product Regulatory Information

Electromagnetic Compatibility (EMC) is the ability of items of electronic equipment to function properly together in the electronic environment. This product is designed, tested, and classified for the intended electromagnetic environment.

FCC Compliance Statement



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

CE Notices (European Union)



Marking by this symbol indicates compliance of this system to the applicable Council Directives of the European Union at the time of manufacture, including the EMC Directive and the Low Voltage Directive. A “Declaration of Conformity” in accordance with the applicable directives has been made and is on file at Quantum Europe.

VCCI Notice (Japan Only)

この装置は、クラスA機器です。この装置を住宅環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

VCCI — A

English translation of the VCCI Notice:

This is a Class A product based on the standard of the Voluntary Control Council for Interference (VCCI) from Information Technology Equipment. If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

BSMI Notice (Taiwan Only)

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

English translation of BSMI Notice:

: This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

Trademarks and Agreements

Patent Information

This product may be protected by one or more patents.

For further information, please visit: <https://www.grassvalley.com/patents/>

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