

Installing your VSP E990 storage system

Hitachi Virtual Storage Platform E990 storage systems are designed for self-installation, so you can install and set up your storage system for the first time without assistance from a Hitachi Vantara representative.

Make sure your data center meets all site preparation requirements before you install the storage system. If you are not using a Hitachi Universal Rack make sure the electrical specifications of your rack meet the power requirements of the storage system.

Step 1: Unpack the storage system

Procedure

1. Inspect all materials for signs of damage. If you see damage, discontinue the installation and contact your Hitachi Vantara representative.
 2. Loosen the band around the cartons and open all boxes. Remove all packing materials, envelopes, and boxes from the cartons.
 3. Retain all packing materials and cartons in case you need to transport or ship the storage system in the future.
 4. Check the items you received against the packing list. If any items are missing or damaged, discontinue the installation and contact your Hitachi Vantara representative.
 5. Check the labels of each controller and drive box and verify the location of each component on the rack layout diagram.
 6. Place the keys for the front bezel in a safe place. You will need them to attach the bezel to the front of the controllers.
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Step 2: Verify component location in the rack

The controller and drive boxes for the VSP E990 are shipped fully configured and must be installed in the rack at the specific location designated by the rack layout.

Each pre-configured component is shipped with two identification labels: one attached to the shipping box, the other attached to the component itself. The labels include a unit number that corresponds to a location on the rack layout.

An example rack layout is shown in the following figure:

RACK# 00 - UNIT# 1 - CBL# 1
CBL (VSP E990) - U location U01
SYSTEM Serial #: 123456
SYSTEM COO: US

RACK# 00 - UNIT# 2 - DBN# 1
DBN (VSP E990) - U location U05
SYSTEM Serial #: 123456
SYSTEM COO: US

RACK# 00 - UNIT# 3 - DBN# 1
DBN (VSP E990) - U location U07
SYSTEM Serial #: 123456
SYSTEM COO: US

RACK# 00 - UNIT# 4 - DBN# 1
DBN (VSP E990) - U location U09
SYSTEM Serial #: 123456
SYSTEM COO: US

RACK# 00 - UNIT# 5 - DBN# 1
DBN (VSP E990) - U location U11
SYSTEM Serial #: 123456
SYSTEM COO: US

Item	Description
RACK#	Which rack the component belongs to.
UNIT#	The rack unit that corresponds to the rack layout.
CBL#	Controller number
DBN#	Drive box number
CBL (E990)	Storage system model for the controller
DBN (E990)	Storage system model for the drive box
U Location	The rack unit where the component must be installed.
SYSTEM Serial #	The serial number assigned to the storage system.
SYSTEM COO	The region or location where the storage system is installed.

Procedure

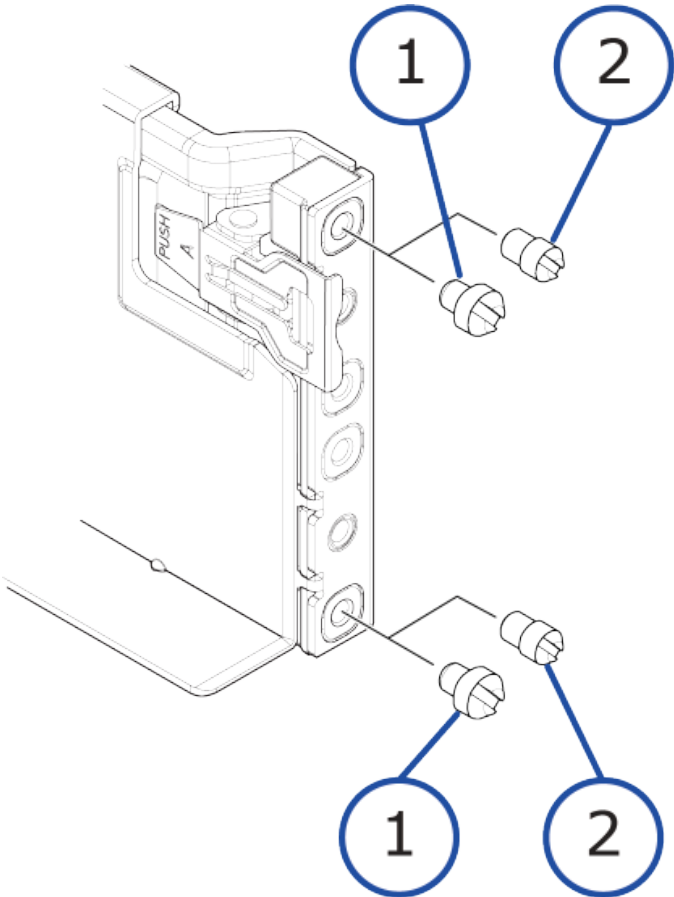
1. Find the component label on the shipping box and verify it matches the label on the component included in the box.
Repeat step for each component.
2. Place each component in descending order by Unit# and match the Unit# to the corresponding place on the rack layout.
3. Match the U Location on the label with the Unit Number on the physical rack.

Step 3: Install the controller into the rack

Mount the controller into the Hitachi Universal Rack or into a 4-post EIA 310-D compliant 19-inch rack with square mounting holes and rear-facing power distribution units (PDUs).

For information about installing the controller in a third-party rack, see the documentation for that rack.

NoteThe rail kit comes with pins that will fit racks with square or circular shaped holes. Use the correct pin type for your rack.



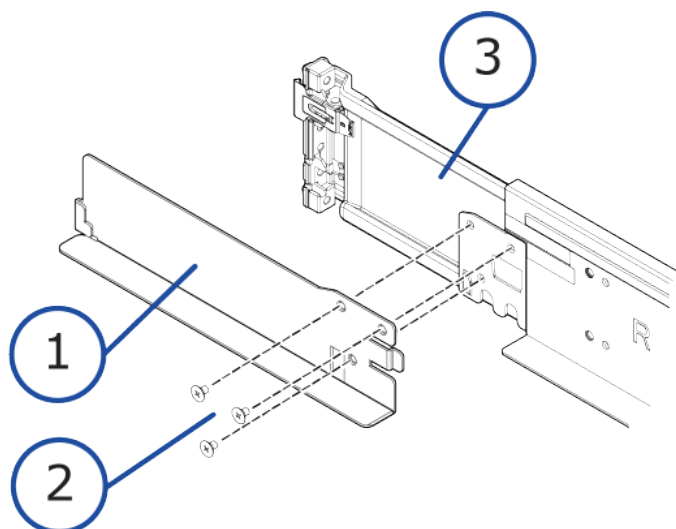
Number	Item
1	Pin for square holes
2	Pin for round holes

Before you begin

- Make sure the rack is secure and cannot fall over.
- Make sure the rack has at least two PDUs installed.
- Verify that all power cables are removed from the AC power receptacles on the rear of the controller.
- Install the rack stabilizers before mounting the storage system in the rack.

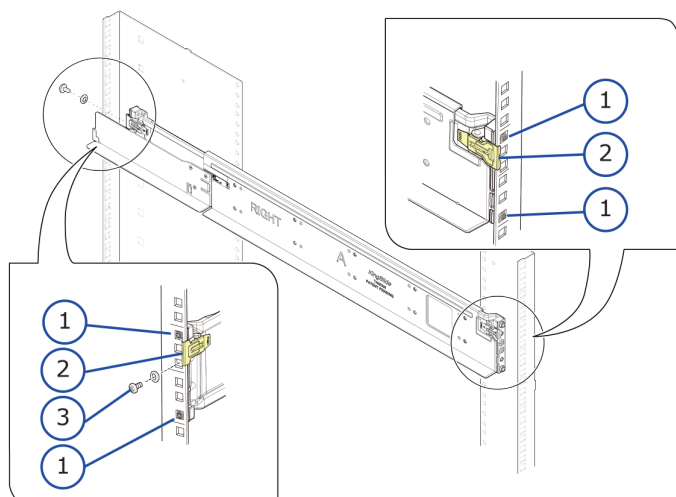
Procedure

1. Attach stopper with three screws on the rear side of the rail. Repeat step for both rails.



Number	Item
1	Stopper
2	Screws
3	Rail

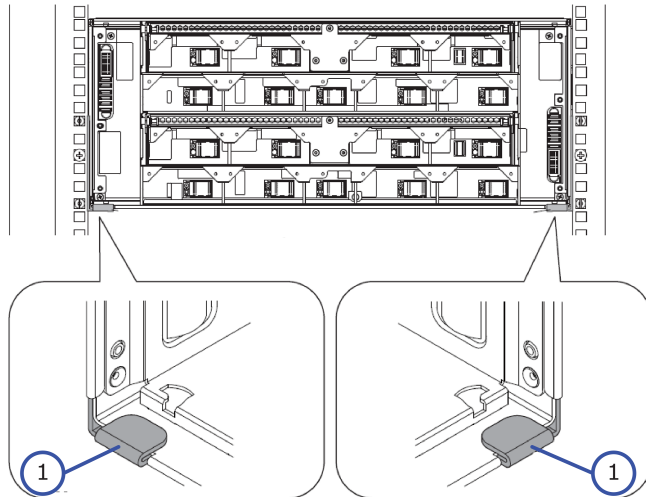
2. Insert pins on the front and back of the rail into the holes on the front and back of the rack and hold in place using the rail clips. Repeat step for both sides.
3. Install the rear side of the rail with a washer and binding screw. Repeat step for both sides.



Number	Item
1	Pin

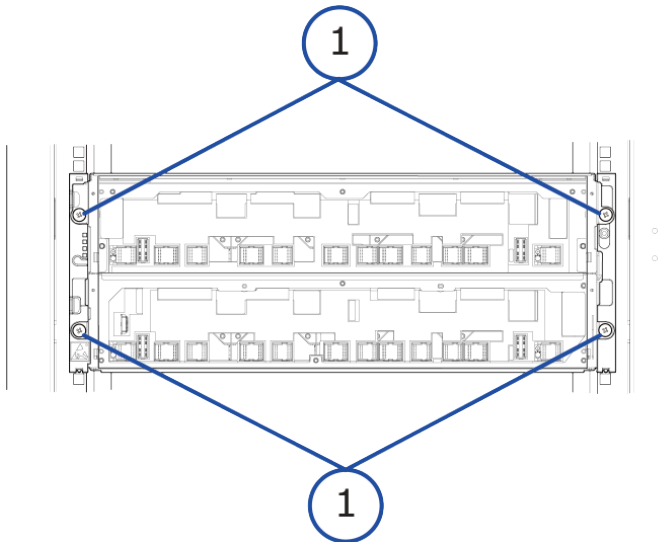
Number	Item
2	Clip
3	Washer and bind screw

4. Position the controller so the front faces the front of the rack, and then slide the controller gently onto the rails. Stop sliding when the mounting flanges on the front of the controller touch the vertical face of the rack.
Note Check the rear of the controller chassis to be sure the chassis is fit securely into the stoppers.



Number	Item
1	Stopper

5. On the front of the controller chassis, attach the two bind screws and washers to each side of the rack.



Number	Item
1	Bind screws

Step 4: Installing the drive boxes into the rack

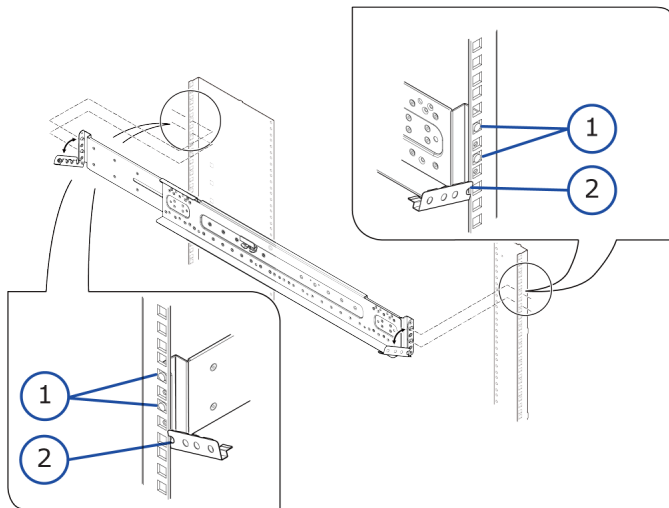
Drive boxes must be installed using a rack rail at specific locations on the rack depending on the rack layout.

Before you begin

Match or replace the positioning pins on the rail with either circular or square positioning pins depending on the shape of the position holes on the rack.

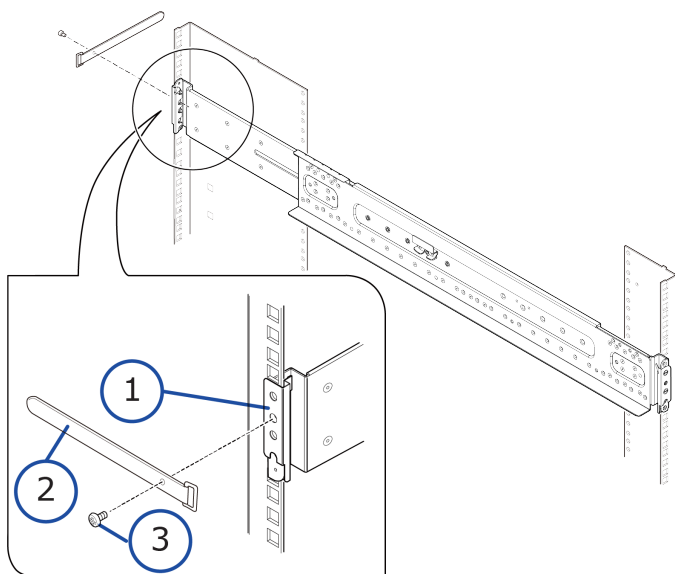
Procedure

1. Pull down the clips on the front and rear of the rail.
2. Fit the positioning pins into the position holes on the right side of the rack.
3. Replace the clips to the upright position to hold the rail in place.



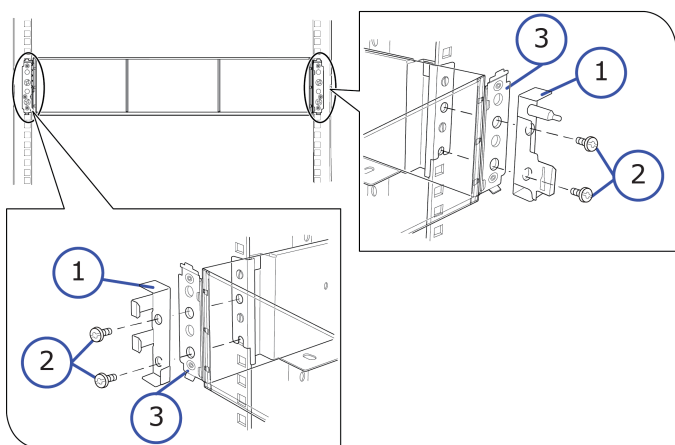
Number	Item
1	Pin
2	Clip

4. Fix the loop cable tie with the rail screw and fix into position on the rear of the rack.



Number	Item
1	Clip
2	Cable tie
3	Screw

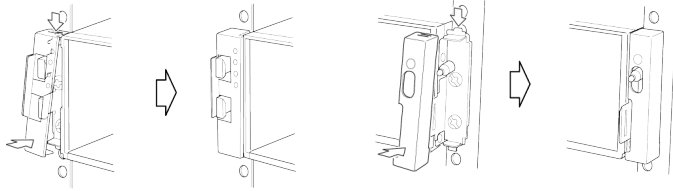
5. Repeat Steps 1-4 on the left side of the rack.
6. Install the drive box to the rail using the drive box bracket.
7. Fasten the bracket and drive box to the rail using two screws on each side of the rack.



Number	Item
1	Bracket
2	Screws

Number	Item
3	Clip

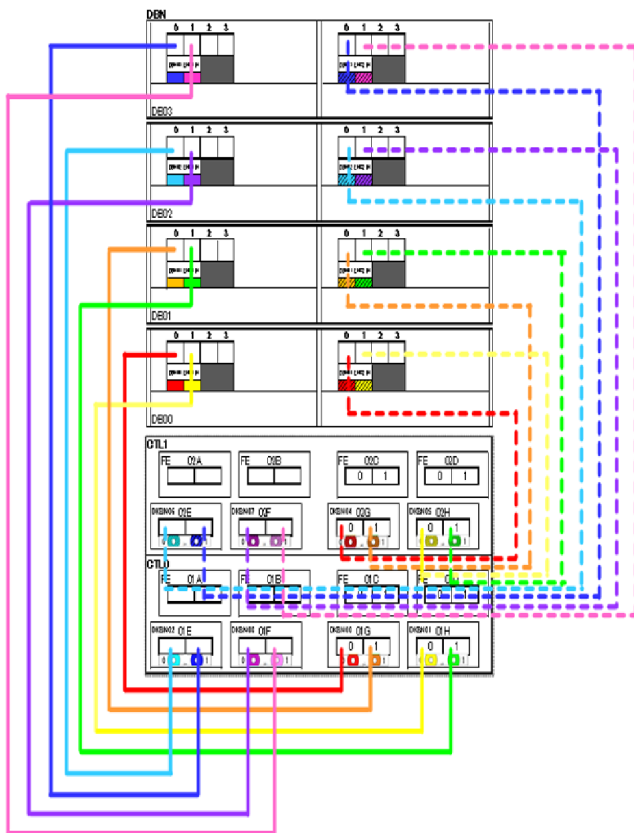
8. Attach the side bezel to the left and right sides of the rack by sliding the bezels in place.



Step 5: Cable the drive boxes

The drive boxes must be cabled to the controller exactly how they were configured before shipping.

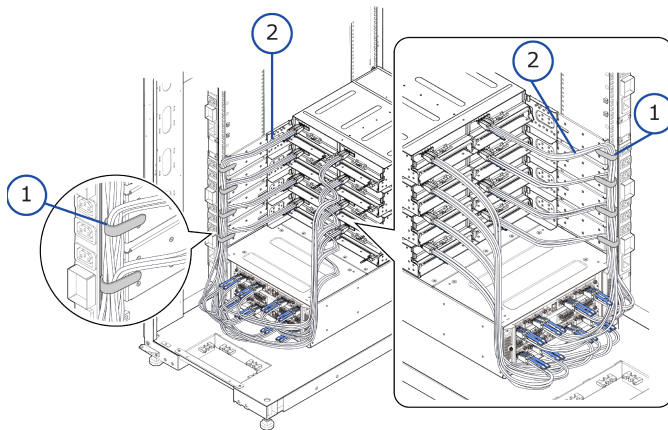
The drive boxes and controllers are shipped pre-configured and must be cabled according to the following cable diagram.



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Procedure

1. Using the cabling diagram, connect each drive box to the controller using either iSCSI or fibre channel cables depending on the connectors on the controller.
2. Route cables for each drive box through the loop cable tie.



Number	Item
1	Cable tie
2	Cable

Step 6: Connect the storage system to power

Power for the storage system is provided through two power supplies, one per controller. The input voltage is auto-adjusting for 200-240 (-11%) VAC, 50-60 Hz power connections.

For best practice, establish power redundancy by routing each power supply to independent PDUs and then routing the PDUs to separate external power sources on different branch circuits. This arrangement enables the storage system to continue operating if AC power is lost to one power supply.

Note Multiple outlets in a PDU or power strip do not constitute an independent electrical source.

Procedure

1. Confirm that all power sources are off.
2. Connect an AC power cable to the power receptacle on the rear of each controller.
3. Route the power cables from each controller to separate PDUs, and then use the pre-installed tie wraps at each controller power receptacle to secure the power cables.
4. Connect the PDUs to separate external power sources on different branch circuits.
Note To prevent the storage system from being turned off by accident, make sure the external power sources are not controlled by a wall switch.

Step 7: Cable the management console

A customer-supplied computer is used to set up and manage your storage system.

Before you begin

- Obtain a Category 5 or better Ethernet cable.
- Obtain a customer-supplied Windows-based PC that will serve as the management console for setting up the storage system for the first time and, thereafter, to manage the storage system. The management console must have a supported web browser: Internet Explore version 11 or later, Chrome, or Firefox.

Procedure

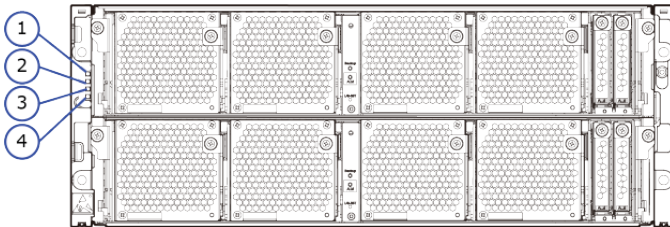
1. Connect one end of the Ethernet cable to the management port on the rear of either controller.
2. Connect the other end of the cable to a management console.

Step 8: Power on the storage system

After connecting the management console to the storage system, you can power on the storage system.

Procedure

1. Power on the PDUs.
2. Confirm that the top (POWER) LED on the lower left front side of the controller is lit amber, as shown in the following figure. If the storage system has a drive tray, confirm that the POWER LED on the lower left front side of the drive tray is lit green.



Number	Item	Description
1	POWER LED	Green: Storage system is powered on. Amber: Storage system is receiving power.
2	READY LED	Green: Normal operation.
3	WARNING LED	Off: Normal operation. Amber: Component requires maintenance.

Number	Item	Description
		Blink: Failure requires maintenance. Note: When system option mode (SOM) 1097 is set to ON, the WARNING LED does not blink, even if the following failure service information messages (SIMs) are issued: 452xxx, 462xxx, 3077xx, 4100xx, and 410100. LED might turn off during user maintenance.
4	ALARM LED	Off: Normal operation. Red: Processor failure (system might be down). For assistance, contact customer support: https://support.hitachivantara.com/en_us/contact-us.html.

3. If the front bezel is not attached to the front of the controller, attach it as follows:
 1. Line up the two tabs on the left side of the controller with the two slots on the left side of the bezel.
 2. Connect the bezel by sliding it on and swinging the bezel closed.
 3. Use the key to secure the bezel to the front of the unit.
4. On the lower left front side of the controller, press and hold the POWER ON/OFF button until the POWER LED changes to green (about 3 seconds), and then release the button.
5. Wait for the green READY LED on the front of the controller to go on (approximately 13 minutes).
 Note If the READY LED does not go on after 30 minutes, contact customer support.

Step 9: Perform the initial setup

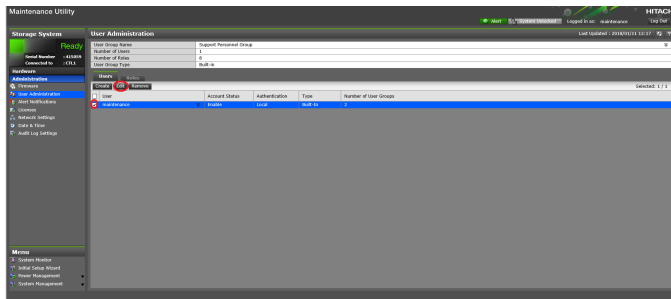
Initial setup of the storage system is performed using the Windows-based management console.

Preparing the storage system

Before you begin

Confirm that the Windows-based management console has an Internet connection and an installed version of one of the following web browsers: Internet Explorer version 11 or later, Chrome, or Firefox.

Procedure



6. Type the new case-sensitive password for the maintenance user in New Password and Re-enter Password. For security, each typed password character is masked with a dot. Important This password is required for storage system maintenance and for running the Initial Setup wizard. Record the new password for the maintenance user and keep it in a safe location.

User Group Name	Type	Number of Roles
☒ Administrator User Group	Built-in	8
☐ Audit Log Administrator (View & Modify) Use	Built-in	2
☐ Audit Log Administrator (View Only) User Gr	Built-in	2
☐ Maintenance User Group	Built-in	2
☐ Security Administrator (View & Modify) User	Built-in	3

7. Click Finish, and then click OK, Apply, and Close.

Next steps

Run the Initial Setup wizard.

Running the Initial Setup wizard

The Initial Setup wizard allows you to configure system information, date and time settings, and network settings.

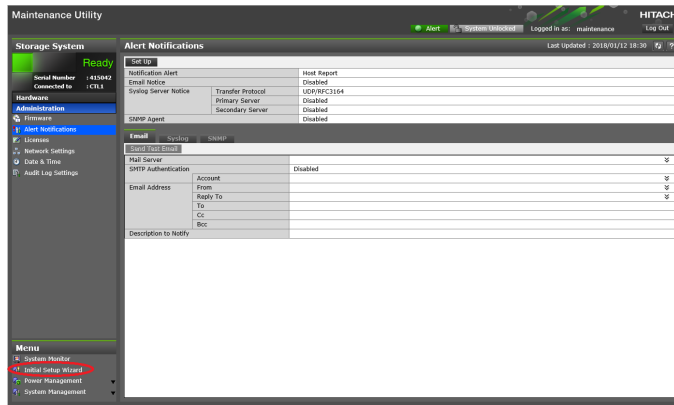
The Initial Setup wizard settings are presented on three windows. Buttons at the bottom of each window allow you to apply or skip the settings on that window. If you skip settings, you can complete them later by running the Initial Setup wizard again. To display details about the settings in the windows, click the question mark icon in the bottom right.

Before you begin

Log in to Storage Advisor Embedded, and then open the maintenance utility by clicking the gear icon at the top-right corner and selecting User Administration.

Procedure

1. In the maintenance utility navigation tree, under Menu, click Initial Setup Wizard.
Tip: Initial Setup Wizard is near the bottom of the navigation tree. If you do not see this selection, scroll down the tree.



2. At the bottom, click Skip this step two times to bypass the Set Up System Information and Set Up Date & Time screens.
3. In the Set Up Network Settings screen, enter the IPv4 or IPv6 configuration settings for the production network to which the storage system will be connected. For example:

Setting	Description
Protocol	IP addressing method to be used for configuring the storage system.
MAC Address	Read-only field that shows the MAC address for controllers 1 and 2.
IPv4 Configuration/ IPv6 Configuration	IPv4 Address: IPv4 address of the production

	network to which the storage system will be connected (IPv4 only). ◦ IPv6 Address: IPv6 address of the production network to which the storage system will be connected (IPv6 only). ◦ Subnet Mask: IP address mask that identifies the range of IP addresses in the subnet to which the storage system will be connected. ◦ Subnet Prefix Length: Subnet prefix length of the network to which the storage system will be connected (IPv6 only). ◦ Default Gateway: IP address of the default gateway to which the storage system will be connected. The gateway is the IP address of the router used to communicate outside the local subnet. ◦ DNS Server 1-3: If your configuration uses DNS to resolve IP addresses (for example, the IP address for the NTP server used with the storage system), enter up to three DNS IP addresses.
Network Connection Mode	Determines whether the storage system negotiates the speed and duplex mode automatically with the attached device. The default setting (Auto-Negotiation) connects the storage system at the highest speed and appropriate duplex setting supported by itself and the connected device.
Option	◦ DNS Domain Name: IP address of the DNS server that will perform address resolution. ◦ DNS Search Order: Search domain names. Use the Up and Down buttons to order the domain names. ◦ Maintenance Port: Do not change these values. ◦ Internal Network: Do not change this value.

4. Click Apply, and then click Close.
The system logs you out.
5. Remove the Ethernet cable from the management console and attach the cable to your production network. Leave the other end of the cable connected to the management port on the rear of the controller.
6. Connect one end of another Ethernet cable to the management port on the rear of the other controller. Connect the other end of the cable to your production network.
7. Wait 5 minutes for the maintenance utility to fetch the new IP addresses.

8. Open a web browser, and log in to Storage Advisor Embedded again. Use the new IP address you specified in the Initial Setup wizard and the new password you specified for the maintenance user.
9. In the top-right corner, click the gear icon, and then select User Administration.
10. In the maintenance utility navigation tree, under Menu, click Initial Setup Wizard.
11. Enter the system information, and then click Apply and Next.

Initial Setup Wizard

1. Set Up System Information > 2. Set Up Date & Time > 3. Set Up Network Settings > 4. Finish

To set the system information, enter the storage system name, the contact (optional), and the location (optional). When the settings are complete, verify the entries, and then click [Apply & Next].

Storage System Name: (Max. 180 characters)

Contact: (Max. 180 characters or blank)

Location: (Max. 180 characters or blank)

Skip this step > | Apply and Next > | Cancel | ?

Setting	Description
Storage System Name	Name used to identify the storage system. This name will appear in the maintenance utility, so use a name that is meaningful.
Contact	Name of the contact person associated with the storage system.
Location	Location of the storage system.

12. Enter the date and time settings, and then click Apply and Next.

Initial Setup Wizard

1. Set Up System Information > **2. Set Up Date & Time** > 3. Set Up Network Settings > 4. Finish

To set the date and time of the system, specify the UTC Timezone, the NTP Server information, and Synchronizing Time. When the settings are complete, verify the settings, and then click [Apply & Next].

UTC Timezone: (UTC-08:00)Pacific Time (US & Canada)

☒ Automatically adjust clock for Daylight Saving Time

Use NTP Server: ☐ Yes: NTP Server:

☐ Synchronize immediately

☒ No: Date & Time: 2018/01/11 11 : 28

Synchronizing Time: :

< Back Skip this step > Apply and Next > Cancel ?

Setting	Description
UTC Timezone	Time zone in which the storage system is located.
Automatically adjust clock for Daylight Saving Time	If the time zone in which the storage system is located follows Daylight Saving Time, check this box to have the storage system automatically adjust its time twice a year.
Use NTP Server	Determines whether the storage system time is synchronized with an NTP server. ◦ Yes: Synchronize system time with an NTP server. Enter the IP address or domain name of the NTP server. To add more than three servers, click the + Add NTP Server button. To synchronize the system time to the NTP server time now, check Synchronize immediately. ◦ No: Do not synchronize system time with an NTP server. In Date & Time, enter the date and time that the storage system will use.
Synchronizing Time	To synchronize the storage system time with the NTP server at a specific time, enter the time when the two will be synchronized.

- Confirm or change the network settings that you entered earlier in this procedure, and then click Apply.

3. To configure the storage system to send notifications as SNMP traps, complete the settings in the SNMP tab.
4. Click Apply, and then click OK.

Step 10: Make host connections

Host attachment tasks include configuring ports and preparing the host hardware and software for connection to the storage system. For information and instructions, see the host attachment preparation procedures in the *Open-Systems Host Attachment Guide*. You will also find the following resources helpful:

- For the latest interoperability and compatibility information about supported hosts and host attachment hardware, see the Hitachi Vantara [Interoperability Reports](#).
- For information about preparing your hosts for use with the storage system, see the documentation for the product.

Connecting Fibre Channel ports to hosts

Important Before connecting the storage system to a host, review the requirements and detailed instructions in the *Open-Systems Host Attachment Guide*.

Before you begin

Make sure the storage system is connected to your production network.

Procedure

1. Connect the Fibre Channel data ports on each storage system controller to your Fibre Channel switch.
2. Connect your Fibre Channel switch to the Fibre Channel HBA card in each host computer or server.

Connecting iSCSI ports to hosts

Each controller supports 10-gigabit Ethernet copper (RJ-45) or optical (fiber) iSCSI connectivity to your data network.

Important Before connecting the storage system to a host, review the requirements and detailed instructions in the *Open-Systems Host Attachment Guide*.

Before you begin

Make sure the storage system is connected to your production network.

Procedure

1. Using the appropriate cable, connect the iSCSI data ports on each storage system controller to your Gigabit Ethernet network switch.

2. Connect your Gigabit Ethernet network switch to the NIC or HBA card in each host computer or server.

Step 11: Register your storage system with Hitachi Vantara Support

If you do not already have an account on the [Support Website](#), you will need to [register](#). Otherwise, you will not be able to download and install the Hitachi Remote Ops monitoring system.

Before you begin

- [Register](#) an account on the Support Website.

Procedure

1. Locate the product serial number (labeled MFG. NO.) on the rear of the controller. You will need this number to register your storage system.
2. Open a web browser on your PC or mobile device.
3. [Log in to the Support Website](#), and follow the instructions to [register](#) your storage system. If you have previously registered Hitachi Vantara products, you can add [an additional site](#).

Step 12: Install Hitachi Remote Ops monitoring system

Hitachi Remote Ops monitoring system monitors your storage system and notifies Hitachi Vantara when service is required. Hitachi Remote Ops runs on Windows, Linux, and Solaris operating systems.

Before you begin

- [Log in to the Support Website](#). If you do not already have an account, you need to [register](#). When registering, you will be asked for information about the product. For Product Name, enter VSP E Series. The product serial number is labeled **MFG. NO.** on the rear of the controller.
- Obtain the Site ID for the location at which the storage system is installed. If you do not see your site listed, you will first need to [add the site](#).

Procedure

1. Download the [Hitachi Remote Ops](#) system software and documentation.
2. Follow the instructions in *Hitachi Remote Ops Installation Guide* to install and configure Hitachi Remote Ops.
3. After you have configured Hitachi Remote Ops with the appropriate Site ID, open a [case on the Support Website](#) to let us know that your system is installed and that the Hitachi Remote Ops monitoring system is enabled. Installing Hitachi Remote Ops completes the self-installation of your storage system.

[Where to go from here](#)

When installation and configuration are complete, the storage system is ready for use.

[Configure the storage system for the first time](#)

If you are planning to use software such as Hitachi Storage Advisor Embedded (HSAE) or Command Control Interface (CCI) to manage the storage system, you can now recognize and onboard the storage system.

For more information, see the [user documentation](#).

[Read the release notes](#)

Your storage system undergoes constant development and improvement.

Each time your storage system's firmware is updated, read the [release notes](#). The release notes provide important information about new features and functions as well as bug fixes.

[Read the latest technical bulletins](#)

Technical bulletins are provided to communicate technical information about your storage system and to assist you with additional information about the proper use, handling, and solving of technical issues.

You can [subscribe to receive technical bulletins](#), and then you can [access technical bulletins](#) on Hitachi Vantara Support Website.

[Support](#)

The following resources provide additional information about the storage system:

- [Support Website home page](#)
- [Product interoperability](#)
- [Hitachi Vantara Community](#)