Prepare for installation (SG5700)

StorageGRID

NetApp
March 18, 2022

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Preparing to install a StorageGRID appliance entails preparing the site and obtaining all required hardware, cables, and tools. You should also gather IP addresses and network information.

Related information

Web browser requirements

Prepare site (SG5700)

Before installing the appliance, you must make sure that the site and the cabinet or rack you plan to use meet the specifications for a StorageGRID appliance.

Steps

1. Confirm that the site meets the requirements for temperature, humidity, altitude range, airflow, heat dissipation, wiring, power, and grounding. See the NetApp Hardware Universe for more information.
2. If you are installing the SG5760 model, confirm that your location provides 240-volt AC power.
3. Obtain a 19-inch (48.3-cm) cabinet or rack to fit shelves of this size (without cables):

Appliance model	Height	Width	Depth	Maximum weight
SG5712 (12 drives)	3.41 in. (8.68 cm)	17.6 in. (44.7 cm)	21.1 in. (53.6 cm)	63.9 lb (29.0 kg)
SG5760 (60 drives)	6.87 in. (17.46 cm)	17.66 in. (44.86 cm)	38.25 in. (97.16 cm)	250 lb. (113 kg)

4. Install any required network switches. See the NetApp Interoperability Matrix Tool for compatibility information.

Related information

NetApp Hardware Universe

NetApp Interoperability Matrix Tool

Unpack boxes (SG5700)

Before installing the StorageGRID appliance, unpack all boxes and compare the contents to the items on the packing slip.

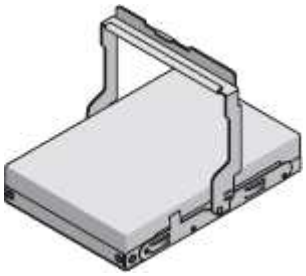
- **SG5712 appliance with 12 drives installed**

- **SG5760 appliance with no drives installed**

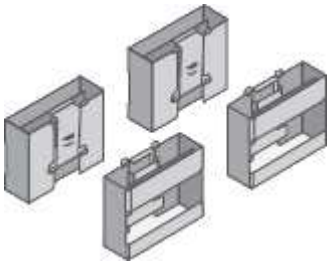
- **Front bezel for the appliance**

- **Rail kit with instructions**

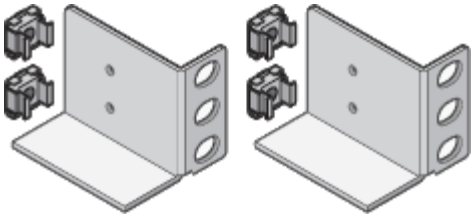
- **SG5760: Sixty drives**



- **SG5760: Handles**



- **SG5760: Back brackets and cage nuts for square-hole rack installation**



Cables and connectors

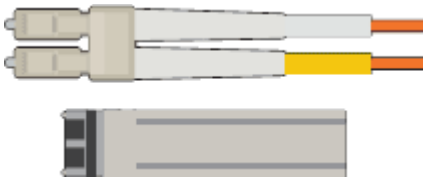
The shipment for the StorageGRID appliance includes the following cables and connectors:

- **Two power cords for your country**

  Your cabinet might have special power cords that you use instead of the power cords that ship with the appliance.

- **Optical cables and SFP transceivers**

  Two optical cables for the FC interconnect ports

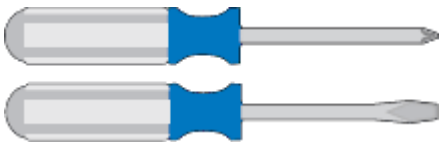
  Eight SFP+ transceivers, compatible with both the four 16Gb/s FC interconnect ports and the four 10-GbE network ports

Obtain additional equipment and tools (SG5700)

Before installing the StorageGRID appliance, confirm you have all of the additional equipment and tools that you need.

You need the following additional equipment to install and configure the hardware:

- **Screwdrivers**

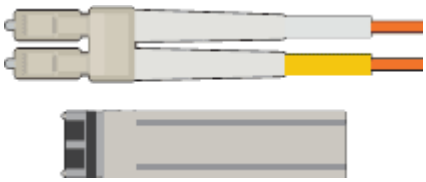
  

  Phillips No. 2 screwdriver

  Medium flat-blade screwdriver

- **ESD wrist strap**

- **Optical cables and SFP transceivers**



  Optical cables for the 10/25-GbE ports you plan to use

  Optional: SFP28 transceivers if you want to use 25-GbE link speed

- **Ethernet cables**

- **Service laptop**

  Supported web browser

  SSH client, such as PuTTY

  1-Gb (RJ-45) Ethernet port

- **Optional tools**

Power drill with Phillips head bit

Flashlight

Mechanized lift for SG5760

Review appliance network connections (SG5700)

Before installing the StorageGRID appliance, you should understand which networks can be connected to the appliance and how the ports on each controller are used.

StorageGRID appliance networks

When you deploy a StorageGRID appliance as a Storage Node in a StorageGRID grid, you can connect it to the following networks:

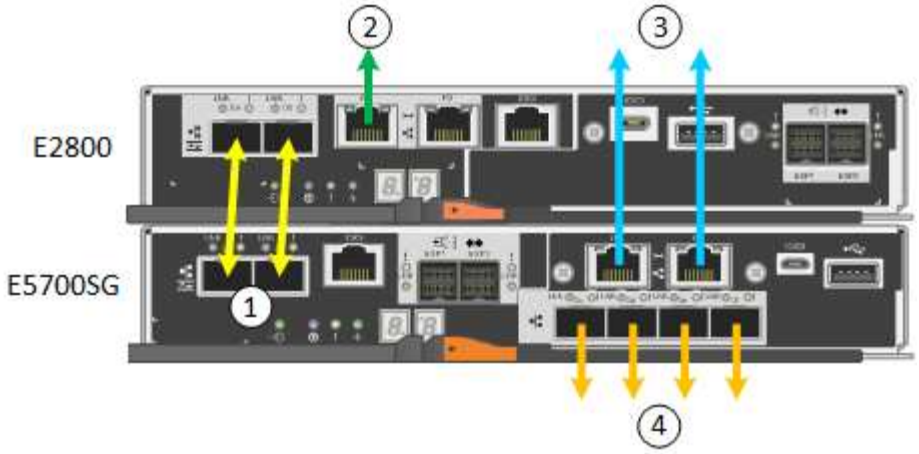
- **Grid Network for StorageGRID**: The Grid Network is used for all internal StorageGRID traffic. It provides connectivity between all nodes in the grid, across all sites and subnets. The Grid Network is required.
- **Admin Network for StorageGRID**: The Admin Network is a closed network used for system administration and maintenance. The Admin Network is typically a private network and does not need to be routable between sites. The Admin Network is optional.
- **Client Network for StorageGRID:** The Client Network is an open network used to provide access to client applications, including S3 and Swift. The Client Network provides client protocol access to the grid, so the Grid Network can be isolated and secured. The Client Network is optional.
- **Management network for SANtricity System Manager** (optional): This network provides access to SANtricity System Manager on the E2800 controller, allowing you to monitor and manage the hardware components in the appliance. This management network can be the same as the Admin Network for StorageGRID, or it can be an independent management network.

  If the optional SANtricity System Manager network is not connected, you might be unable to use some SANtricity features.

For detailed information about StorageGRID networks, see the *Grid Primer*.

StorageGRID appliance connections

When you install a StorageGRID appliance, you must connect the two controllers to each other and to the required networks. The figure shows the two controllers in the SG5760, with the E2800 controller on the top and the E5700SG controller on the bottom. In the SG5712, the E2800 controller is to the left of the E5700SG controller.



	Port	Type of port	Function
1	Two interconnect ports on each controller	16Gb/s FC optical SFP+	Connect the two controllers to each other.
2	Management port 1 on the E2800 controller	1-GbE (RJ-45)	Connects to the network where you access SANtricity System Manager. You can use the Admin Network for StorageGRID or an independent management network.
2	Management port 2 on the E2800 controller	1-GbE (RJ-45)	Reserved for technical support.
3	Management port 1 on the E5700SG controller	1-GbE (RJ-45)	Connects the E5700SG controller to the Admin Network for StorageGRID.

	Port	Type of port	Function
3	Management port 2 on the E5700SG controller	1-GbE (RJ-45)	• Can be bonded with management port 1 if you want a redundant connection to the Admin Network. • Can be left unwired and available for temporary local access (IP 169.254.0.1). • During installation, can be used to connect the E5700SG controller to a service laptop if DHCP-assigned IP addresses are not available.
4	10/25-GbE ports 1-4 on the E5700SG controller	10-GbE or 25-GbE **Note:** The SFP+ transceivers included with the appliance support 10-GbE link speeds. If you want to use 25-GbE link speeds for the four network ports, you must provide SFP28 transceivers.	Connect to the Grid Network and the Client Network for StorageGRID. See “10/25-GbE port connections for the E5700SG controller.”

Related information

Gather installation information (SG5700)

Cable appliance (SG5700)

Port bond modes for E5700SG controller ports

Networking guidelines

Install VMware

Install Red Hat Enterprise Linux or CentOS

Install Ubuntu or Debian

Port bond modes for E5700SG controller ports

When configuring network links for the E5700SG controller ports, you can use port bonding for the 10/25-GbE ports that connect to the Grid Network and optional Client

Network, and the 1-GbE management ports that connect to the optional Admin Network. Port bonding helps protect your data by providing redundant paths between StorageGRID networks and the appliance.

Related information

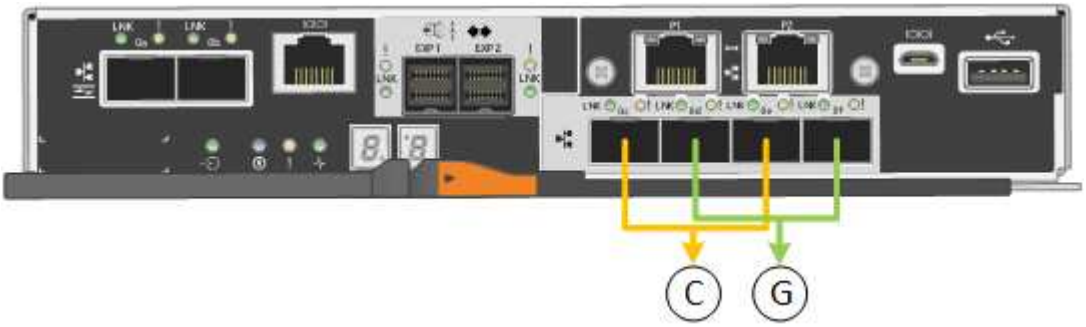
Configure network links (SG5700)

Network bond modes for 10/25-GbE ports

The 10/25-GbE networking ports on the E5700SG controller support Fixed port bond mode or Aggregate port bond mode for the Grid Network and Client Network connections.

Fixed port bond mode

Fixed mode is the default configuration for the 10/25-GbE networking ports.



Callout	Which ports are bonded
C	Ports 1 and 3 are bonded together for the Client Network, if this network is used.
G	Ports 2 and 4 are bonded together for the Grid Network.

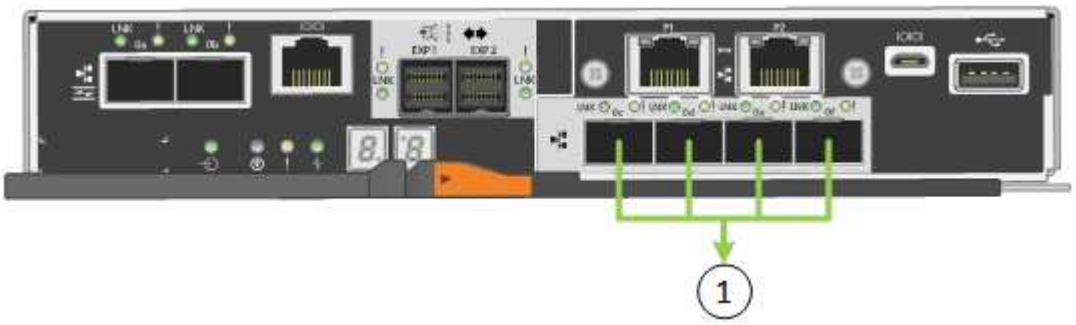
When using Fixed port bond mode, you can use one of two network bond modes: Active-Backup or Link Aggregation Control Protocol (LACP).

- In Active-Backup mode (default), only one port is active at a time. If the active port fails, its backup port automatically provides a failover connection. Port 4 provides a backup path for port 2 (Grid Network), and port 3 provides a backup path for port 1 (Client Network).
- In LACP mode, each pair of ports forms a logical channel between the controller and the network, allowing for higher throughput. If one port fails, the other port continues to provide the channel. Throughput is reduced, but connectivity is not impacted.

> If you do not need redundant connections, you can use only one port for each network. However, be aware that an alarm will be raised in the Grid Manager after StorageGRID is installed, indicating that a cable is unplugged. You can safely acknowledge this alarm to clear it.

Aggregate port bond mode

Aggregate port bond mode significantly increases the throughout for each StorageGRID network and provides additional failover paths.



Callout	Which ports are bonded
1	All connected ports are grouped in a single LACP bond, allowing all ports to be used for Grid Network and Client Network traffic.

If you plan to use Aggregate port bond mode:

- You must use LACP network bond mode.
- You must specify a unique VLAN tag for each network. This VLAN tag will be added to each network packet to ensure that network traffic is routed to the correct network.
- The ports must be connected to switches that can support VLAN and LACP. If multiple switches are participating in the LACP bond, the switches must support multi-chassis link aggregation groups (MLAG), or equivalent.
- You must understand how to configure the switches to use VLAN, LACP, and MLAG, or equivalent.

If you do not want to use all four 10/25-GbE ports, you can use one, two, or three ports. Using more than one port maximizes the chance that some network connectivity will remain available if one of the 10/25-GbE ports fails.

> If you choose to use fewer than four ports, be aware that one or more alarms will be raised in the Grid Manager after StorageGRID is installed, indicating that cables are unplugged. You can safely acknowledge the alarms to clear them.

Network bond modes for 1-GbE management ports

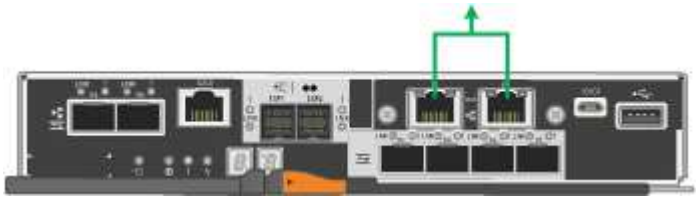
For the two 1-GbE management ports on the E5700SG controller, you can choose Independent network bond mode or Active-Backup network bond mode to connect to the optional Admin Network.

In Independent mode, only management port 1 is connected to the Admin Network. This mode does not provide a redundant path. Management port 2 is left unwired and available for temporary local connections (use IP address 169.254.0.1)

In Active-Backup mode, both management ports 1 and 2 are connected to the Admin Network. Only one port is active at a time. If the active port fails, its backup port automatically provides a failover connection. Bonding

these two physical ports into one logical management port provides a redundant path to the Admin Network.

> If you need to make a temporary local connection to the E5700SG controller when the 1-GbE management ports are configured for Active-Backup mode, remove the cables from both management ports, plug your temporary cable into management port 2, and access the appliance using IP address 169.254.0.1.



Gather installation information (SG5700)

As you install and configure the StorageGRID appliance, you must make decisions and gather information about Ethernet switch ports, IP addresses, and port and network bond modes.

About this task

You can use the following tables to record the required information for each network you connect to the appliance. These values are required to install and configure the hardware.

Information needed to connect to SANtricity System Manager on E2800 controller

You must connect the E2800 controller to the management network you will use for SANtricity System Manager.

Information needed	Your value
Ethernet switch port you will connect to management port 1	
MAC address for management port 1 (printed on a label near port P1)	
DHCP-assigned IP address for management port 1, if available after power on **Note:** If the network you will connect to the E2800 controller includes a DHCP server, the network administrator can use the MAC address to determine the IP address that was assigned by the DHCP server.	
Speed and duplex mode **Note:** You must make sure the Ethernet switch for the SANtricity System Manager management network is set to autonegotiate.	Must be: • Autonegotiate (default)

Information needed	Your value
IP address format	Choose one: • IPv4 • IPv6
Static IP address you plan to use for the appliance on the management network	For IPv4: • IPv4 address: • Subnet mask: • Gateway: For IPv6: • IPv6 address: • Routable IP address: • E2800 controller router IP address:

Information needed to connect E5700SG controller to Admin Network

The Admin Network for StorageGRID is an optional network, used for system administration and maintenance. The appliance connects to the Admin Network using the 1-GbE management ports on the E5700SG controller.

Information needed	Your value
Admin Network enabled	Choose one: • No • Yes (default)
Network bond mode	Choose one: • Independent • Active-Backup
Switch port for port 1	
Switch port for port 2 (Active-Backup network bond mode only)	

Information needed	Your value
DHCP-assigned IP address for management port 1, if available after power on **Note:** If the Admin Network includes a DHCP server, the E5700SG controller displays the DHCP-assigned IP address on its seven-segment display after it boots up. You can also determine the DHCP-assigned IP address by using the MAC address to look up the assigned IP.	• IPv4 address (CIDR): • Gateway:
Static IP address you plan to use for the appliance Storage Node on the Admin Network **Note:** If your network does not have a gateway, specify the same static IPv4 address for the gateway.	• IPv4 address (CIDR): • Gateway:
Admin Network subnets (CIDR)	

Information needed to connect and configure 10/25-GbE ports on E5700SG controller

The four 10/25-GbE ports on the E5700SG controller connect to the StorageGRID Grid Network and Client Network.

See "10/25-GbE port connections for the E5700SG controller" for more information about the options for these ports.

Information needed	Your value
Link speed **Note:** If you select 25 GbE, you must install SPF28 transceivers. Auto-negotiation is not supported, so you must also configure the ports and the connected switches for 25GbE.	Choose one: • 10 GbE (default) • 25 GbE
Port bond mode	Choose one: • Fixed (default) • Aggregate
Switch port for port 1 (Client Network)	
Switch port for port 2 (Grid Network)	
Switch port for port 3 (Client Network)	

Information needed	Your value
Switch port for port 4 (Grid Network)	

Information needed to connect E5700SG controller to Grid Network

The Grid Network for StorageGRID is a required network, used for all internal StorageGRID traffic. The appliance connects to the Grid Network using the 10/25-GbE ports on the E5700SG controller.

See "10/25-GbE port connections for the E5700SG controller" for more information about the options for these ports.

Information needed	Your value
Network bond mode	Choose one: • Active-Backup (default) • LACP (802.3ad)
VLAN tagging enabled	Choose one: • No (default) • Yes
VLAN tag(if VLAN tagging is enabled)	Enter a value between 0 and 4095:
DHCP-assigned IP address for the Grid Network, if available after power on **Note:** If the Grid Network includes a DHCP server, the E5700SG controller displays the DHCP-assigned IP address for the Grid Network on its seven-segment display after it boots up.	• IPv4 address (CIDR): • Gateway:
Static IP address you plan to use for the appliance Storage Node on the Grid Network **Note:** If your network does not have a gateway, specify the same static IPv4 address for the gateway.	• IPv4 address (CIDR): • Gateway:
Grid Network subnets (CIDR) **Note:** If the Client Network is not enabled, the default route on the controller will use the gateway specified here.	

Information needed to connect E5700SG controller to Client Network

The Client Network for StorageGRID is an optional network, typically used to provide client protocol access to the grid. The appliance connects to the Client Network using the 10/25-GbE ports on the E5700SG controller.

See "10/25-GbE port connections for the E5700SG controller" for more information about the options for these ports.

Information needed	Your value
Client Network enabled	Choose one: • No (default) • Yes
Network bond mode	Choose one: • Active-Backup (default) • LACP (802.3ad)
VLAN tagging enabled	Choose one: • No (default) • Yes
VLAN tag (if VLAN tagging is enabled)	Enter a value between 0 and 4095:
DHCP-assigned IP address for the Client Network, if available after power on	• IPv4 address (CIDR): • Gateway:
Static IP address you plan to use for the appliance Storage Node on the Client Network **Note:** If the Client Network is enabled, the default route on the controller will use the gateway specified here.	• IPv4 address (CIDR): • Gateway:

Related information

Review appliance network connections (SG5700)

Port bond modes for E5700SG controller ports

Configure hardware (SG5700)