Installation and Setup Instructions for StorageGRID® Webscale SG5700 Series Appliances

SG5712 and SG5760 appliances

Before you begin

Before installing the hardware

- Confirm that the site meets the requirements for temperature, humidity, altitude range, airflow, heat dissipation, wiring, power, and grounding. See the NetApp Hardware Universe: http://hwu.netapp.com/
- For the SG5760, confirm that your location provides 240-volt AC power.
- Obtain a 19-inch (48.3-cm) cabinet or rack to fit shelves of this size (without cables):

<table>
<thead>
<tr>
<th>Appliance</th>
<th>Height</th>
<th>Width</th>
<th>Depth</th>
<th>Max. Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>SG5712 (12 drives)</td>
<td>3.41 in.</td>
<td>17.6 in.</td>
<td>21 in.</td>
<td>63.9 lb (29.0 kg)</td>
</tr>
<tr>
<td>SG5760 (60 drives)</td>
<td>6.87 in.</td>
<td>17.66 in.</td>
<td>38.25 in.</td>
<td>250 lb (113 kg)</td>
</tr>
</tbody>
</table>

- Install any required network switches. See the NetApp Interoperability Matrix: http://mysupport.netapp.com/matrix

For additional instructions

For in-depth instructions and explanations, download the following documents from the StorageGRID Webscale Resources page:
https://mysupport.netapp.com/info/web/ECMLP2472003.html

<table>
<thead>
<tr>
<th>Task</th>
<th>Document</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installing and maintaining appliance hardware</td>
<td>Hardware Installation and Maintenance Guide for SG5700 Series Appliances</td>
</tr>
<tr>
<td>Deploying an appliance Storage Node</td>
<td>StorageGRID Webscale Installation Guide for your platform</td>
</tr>
<tr>
<td></td>
<td>StorageGRID Webscale Expansion Guide</td>
</tr>
<tr>
<td></td>
<td>StorageGRID Webscale Recovery and Maintenance Guide</td>
</tr>
</tbody>
</table>

For additional help


For your safety

Review the Safety Notices document included in the box, and pay close attention to the precautions for moving and installing hardware.
Unpack the boxes

- SG5712 appliance with 12 drives installed
- SG5760 appliance without drives
- Front bezel for your appliance
- Rail kit with instructions
- Two power cords for your country
- SG5760: Sixty drives
- SG5760: Handles
- SG5760: Back brackets and cage nuts (for square-hole rack installations only)

Obtain tools and other equipment

- Phillips No. 2 screwdriver
- Medium flat-blade screwdriver
- ESD wrist strap
- Four optical cables for 10/25-GbE ports
- Optional: Four SFP28 transceivers for 25-GbE link speed
- Phillips No. 2 screwdriver
- Medium flat-blade screwdriver
- Service laptop
  - Supported web browser
  - SSH client such as PuTTY
  - 1-GbE (RJ-45) network port
- Optional tools
  - Power drill with Phillips head bit
  - Flashlight
  - Mechanized lift for SG5760
- Ethernet cables
- Two Fibre Channel cables
- Eight SFP+ transceivers
- Front bezel for your appliance
Review the hardware

SG5712 appliance (front)
- 2U shelf
- Twelve 3.5-inch NL-SAS drives

SG5712 appliance (back)
- E2800 and E5700SG controllers
- Two power-fan canisters

SG5760 appliance (front)
- 4U shelf
- Sixty 3.5-inch NL-SAS drives
- Five drawers, each with 12 drives

SG5760 appliance (back)
- E2800 and E5700SG controllers
- Two power canisters
- Two fan canisters

E2800 controller
- Storage controller
- Operates as E-Series controller in simplex mode
- Includes SANtricity System Manager for monitoring hardware
- Connects to E5700SG as a target

E5700SG controller
- Compute server
- Includes StorageGRID Webscale Appliance Installer
- Connects to StorageGRID Webscale Grid, Admin, and Client Networks
- Connects to E2800 as an initiator

Register the hardware

1. Locate the chassis serial number on the packing slip, in your confirmation email, or on the appliance after you unpack it.

2. Go to the NetApp Support Site: http://mysupport.netapp.com

3. Determine whether you need to register the hardware:

If you are... | Follow these steps...
---|---
Existing NetApp customer | 1. Sign in with your username and password.<br>2. Select **Products > My Products**.<br>3. Confirm that the new serial number is listed.<br>4. If it is not, follow the instructions for new customers.

New NetApp customer | 1. Click **Register Now**, and create an account.<br>2. Select **Products > Register Products**.<br>3. Enter the product serial number and requested details. After your registration is approved, you can download any required software. The approval process might take up to 24 hours.
**CAUTION:** To prevent tipping, install hardware in the cabinet or rack from the bottom up.

**CAUTION:** The SG5712 weighs approximately 64 lb (29 kg) when fully loaded with drives. Two people or a mechanized lift are required to safely move the appliance.

1. Follow the instructions for the rail kit to install the rails.
2. Place the back of the appliance (the end with the connectors) on the rails.
3. Carefully slide the appliance all the way back into the cabinet or rack.
4. Secure the appliance to the cabinet or rack as directed in the rail kit instructions.
5. Attach the bezel to the front.

**NOTE:** For square hole cabinets, you must first install the provided cage nuts in order to secure the front and rear of the shelf with screws.

**CAUTION:** To prevent tipping, install hardware in the cabinet or rack from the bottom up.

**CAUTION:** The SG5760 weighs approximately 132 lb (60 kg) with no drives installed. Four people or a mechanized lift are required to safely move an empty SG5760.

1. Follow the instructions for the rail kit to install the rails.
2. Remove the outer packing box, and fold down the flaps on the inner box.
3. If you are lifting the appliance by hand, attach the four handles.
4. Place the back of the appliance (the end with the connectors) on the rails.
5. Supporting the appliance from the bottom, slide it into the rack or cabinet. Use the thumb latches to detach the handles as you slide the appliance in.
6. Secure the appliance to the front of the rack by inserting two screws in the 1st and 3rd holes (counting down from the top) on each side.
7. Secure the appliance to the rear of the rack or cabinet with the brackets.
**SG5760: Install the drives**

**ATTENTION:** To avoid damaging the hardware, never move a 60-drive shelf if the drives are installed. You must remove all drives before moving the shelf.

1. Put on the ESD wristband, and remove the drives from their packaging.
2. Release the levers on the top drive drawer, and slide the drawer out using the levers.
3. Raise the drive handle to vertical, and align the buttons on the drive with the notches on the drawer.
4. Pressing gently on the top of the drive, rotate the drive handle down until the drive snaps into place.
5. After installing the first 12 drives, slide the drawer back in by pushing on the center and closing both levers gently.
6. Repeat these steps for the other four drawers. You must install all 60 drives to ensure correct operation.
7. Attach the bezel to the front.

---

**Cable the appliance**

**CAUTION:** Do not disassemble an SFP transceiver. You might be exposed to laser radiation.

The figure shows the SG5760. In the SG5712, the E2800 is on the left.

1. Connect the E2800 and E5700SG controllers to each other, using two optical cables and four of the eight SFP+ transceivers.
2. Connect management port 1 on the E2800 to the management network for SANtricity System Manager, using an Ethernet cable.
3. Connect management port 1 on the E5700SG to the Admin Network for StorageGRID Webscale (if used), using an Ethernet cable.
4. Connect the 10/25-GbE ports on the E5700SG to the Grid and Client Networks for StorageGRID Webscale, using optical cables and SFP+ (10-GbE) or SFP28 (25-GbE) transceivers.

- **Fixed port bond mode:**

<table>
<thead>
<tr>
<th>Port</th>
<th>Connects to...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port 1</td>
<td>Client Network (optional)</td>
</tr>
<tr>
<td>Port 2</td>
<td>Grid Network</td>
</tr>
<tr>
<td>Port 3</td>
<td>Client Network (optional)</td>
</tr>
<tr>
<td>Port 4</td>
<td>Grid Network</td>
</tr>
</tbody>
</table>

- **Aggregate port bond mode:** Connect the ports to one or more switches. You must connect at least two of the ports to avoid having a single point of failure. If you use more than one switch for a single LACP bond, the switches must support MLAG or equivalent.
Access SANtricity System Manager and set a static IP

SANtricity® System Manager is the management software for appliance hardware. You must set a static IP address for management port 1 on the E2800 controller to ensure that you can access this software.

1. If the E2800 is connected to a network that has a DHCP server:
   a. Use the MAC address on the label to look up the DHCP-assigned IP address for port 1 (P1).
   b. Open a web browser, and enter the IP as the URL for SANtricity:
      https://E2800_Controller_IP

2. If you do not have a DHCP-assigned IP address:
   a. Connect the laptop directly to P1, using an Ethernet cable.
   b. Configure the IP address for the laptop’s Ethernet port:
      • IP address: 192.168.128.100
      • Subnet mask: 255.255.255.0
   c. Open a web browser, and enter this URL:
      https://192.168.128.101

3. On the login page, set or enter the administrator password.
4. When the Set Up wizard appears, click Cancel.
5. From the Home page, click the Hardware tab.
6. Click Show back of shelf, and click Controller A.
7. Select Configure management ports, and complete the wizard.
8. Click Finish. When the new IP address becomes active, your web browser loses its connection to SANtricity System Manager.
9. If you connected the laptop directly to P1:
   a. Disconnect the Ethernet cable from P1.
   b. Connect the network Ethernet cable to P1.
10. Reconnect to SANtricity, but use the new static IP address as the URL.

CAUTION: Before connecting the power cords, make sure that the two power switches on the appliance are off.

1. Confirm that the two power switches on the appliance are off.
2. Connect the two power cords to the appliance.
3. Connect the two power cords to different power distribution units (PDUs) in the cabinet or rack.
4. Turn on the two power switches.
   • Do not turn off the power switches during the power-on process.
   • The fans are very loud when they first start up. The loud noise during start-up is normal.
5. After the controllers have booted up, check their seven-segment displays.

Note: If the IP addresses could not be assigned to the E5700SG using DHCP, 0.0.0.0 is displayed.
6. If the seven-segment displays show other values or if any of the amber LEDs is on, confirm that you completed the installation steps correctly. If you are unable to resolve the problem, contact technical support.
When you first access the StorageGRID Webscale Appliance Installer, you can use the DHCP-assigned IP address for the Admin Network (if available) or the Grid Network. Using the IP address for the Admin Network is preferred.

**Before you begin**
- The appliance is connected to all StorageGRID Webscale networks you plan to use. The Grid Network is required; the Admin and Client Networks are optional.
- You know the IP address, gateway, and subnet for the appliance on these networks.
- You have configured the network switches you plan to use.

**Steps**

1. If you have either of the DHCP-assigned IP addresses for the E5700SG controller, browse to:
   
   `http://E5700SG_Controller_IP:8080`

   The StorageGRID Webscale Appliance Installer Home page appears.

2. If you could not acquire a DHCP address for the SG5700:
   
   a. Connect the service laptop to management port 2 on the E5700SG, using an Ethernet cable.

   b. From the service laptop, browse to:
      
      `http://169.254.0.1:8080`

      The StorageGRID Webscale Appliance Installer Home page appears.

3. Review any messages displayed on the Home page and configure network links and the IP configuration, as required.

The four 10/25-GbE ports on the E5700SG controller connect the appliance to the StorageGRID Webscale Grid Network and Client Network (if enabled).

You must configure link settings if you do not want to use these defaults:

- **Link Speed**: 10GbE
- **Port bond mode**: Fixed
- **Network bond mode**: Active-Backup
- **Admin Network**: Enabled
- **Client Network**: Disabled
- **VLAN tags**: Not defined

1. From the menu bar of the StorageGRID Webscale Appliance Installer, click **Configure Networking > Link Configuration**.

2. Optionally, change the link speed to **25GbE**.
   - You must be using SPF28 transceivers. Auto-negotiation is not supported. If you change the link speed, you must configure the ports and the connected switches for 25GbE.

3. Enable or disable the Admin Network and the Client Network, as needed.

4. Configure the port bond mode and the network bond mode.

<table>
<thead>
<tr>
<th>Port bond mode</th>
<th>Network bond mode</th>
<th>Description</th>
</tr>
</thead>
</table>
| Fixed         | Active-backup    | - Ports 2 and 4 use an active-backup bond for the Grid Network.  
- Ports 1 and 3 use an active-backup bond for the Client Network, if enabled.  
- VLAN tags are optional. |
| LACP          | Active-backup    | - Ports 2 and 4 use an LACP bond for Grid Network.  
- Ports 1 and 3 use an LACP bond for Client Network.  
- VLAN tags are optional. |
| Aggregate     | LACP             | - Ports 1-4 use a single LACP bond.  
- A VLAN tag is required for each network. |
Set the IP configuration

You must either assign a static IP address for the appliance on each connected network or assign a permanent lease for the IP address on the DHCP server.

**Note:** If the virtual nodes in your grid are deployed on VMware, you must use a static IP address for the appliance on the Grid Network.

1. From the menu bar of the StorageGRID Webscale Appliance Installer, click **Configure Networking > IP Configuration**.
2. If you plan to use a static IP address for the appliance on the Grid Network, select **Static**.
3. Enter the static IPv4 address, using CIDR notation.
4. Enter the gateway.
   - If your network does not have a gateway, re-enter the same static IPv4 address.
5. Click **Save**.

When the new IP address becomes active, your web browser might lose its connection to the StorageGRID Webscale Appliance Installer. To reconnect, re-enter the URL but use the new IP address.

6. Confirm that the list of subnets is correct.

   - If you have multiple grid subnets, the Grid Network gateway is required. All grid subnets specified must be reachable through this gateway. The Grid Network subnets must also be defined in the Grid Network Subnet List on the primary Admin Node when you start StorageGRID Webscale installation.
7. Click **Save**.
8. Repeat these steps for the Admin and Client Networks, as needed.
9. Return to the Home page and confirm that no errors are displayed.

   - You will enter the IP address for the primary Admin Node and start installation when you are ready to deploy the appliance as a Storage Node.

Deploy the appliance as a Storage Node

**Configure hardware settings**

1. Access SANtricity System Manager, enter the administrator password, and click **Cancel** to close the Set Up wizard.
2. Select **Help** to access the System Manager online help system.
3. Follow the online instructions to learn about and configure these items:
   - Hardware alerts
   - AutoSupport settings
   - Drive Security keys (requires the Drive Security feature and FDE or FIPS drives)
   - Administrator password

**Deploy the appliance as a Storage Node**

1. Go to the NetApp StorageGRID Webscale Resources page:
   https://mysupport.netapp.com/info/web/ECMLP2472003.html
2. Download one of the following guides:
   - **StorageGRID Webscale Installation Guide** for your platform
   - **StorageGRID Webscale Expansion Guide**
   - **StorageGRID Webscale Recovery and Maintenance Guide**
3. Follow the instructions for deploying an appliance Storage Node.