Configure StorageGRID connections

StorageGRID Appliances

NetApp
April 11, 2024

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Configure StorageGRID connections

Access StorageGRID Appliance Installer

You must access the StorageGRID Appliance Installer to verify the installer version and configure the connections between the appliance and the three StorageGRID networks: the Grid Network, the Admin Network (optional), and the Client Network (optional).

Before you begin

- You are using any management client that can connect to the StorageGRID Admin Network, or you have a service laptop.
- The client or service laptop has a supported web browser.
- The services appliance or storage appliance controller is connected to all of the StorageGRID networks you plan to use.
- You know the IP address, gateway, and subnet for the services appliance or storage appliance controller on these networks.
- You have configured the network switches you plan to use.

About this task

To initially access the StorageGRID Appliance Installer, you can use the DHCP-assigned IP address for the Admin Network port on the services appliance or storage appliance controller (assuming it is connected to the Admin Network), or you can connect a service laptop directly to the services appliance or storage appliance controller.

Steps

1. If possible, use the DHCP address for the Admin Network port on the services appliance or storage appliance controller. The Admin Network port is highlighted in the following figure. (Use the IP address on the Grid Network if the Admin Network is not connected.)

SG100

SG1000

E5700SG

For the E5700SG, you can do either of the following:

- Look at the seven-segment display on the E5700SG controller. If management port 1 and 10/25-GbE ports 2 and 4 on the E5700SG controller are connected to networks with DHCP servers, the controller attempts to obtain dynamically assigned IP addresses when you power on the enclosure. After the controller has completed the power-on process, its seven-segment display shows **HO**, followed by a repeating sequence of two numbers.

  ```
  HO -- IP address for Admin Network -- IP address for Grid Network
  HO
  ```

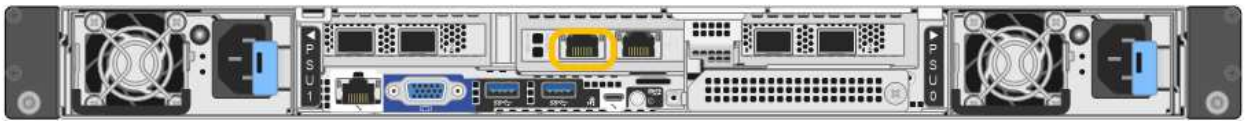
  In the sequence:

  - The first set of numbers is the DHCP address for the appliance Storage Node on the Admin Network, if it is connected. This IP address is assigned to management port 1 on the E5700SG controller.
  - The second set of numbers is the DHCP address for the appliance Storage Node on the Grid Network. This IP address is assigned to 10/25-GbE ports 2 and 4 when you first apply power to the appliance.

    If an IP address could not be assigned using DHCP, 0.0.0.0 is displayed.

SG6000-CN

SGF6112



a. Obtain the DHCP address for the appliance on the Admin Network from your network administrator.

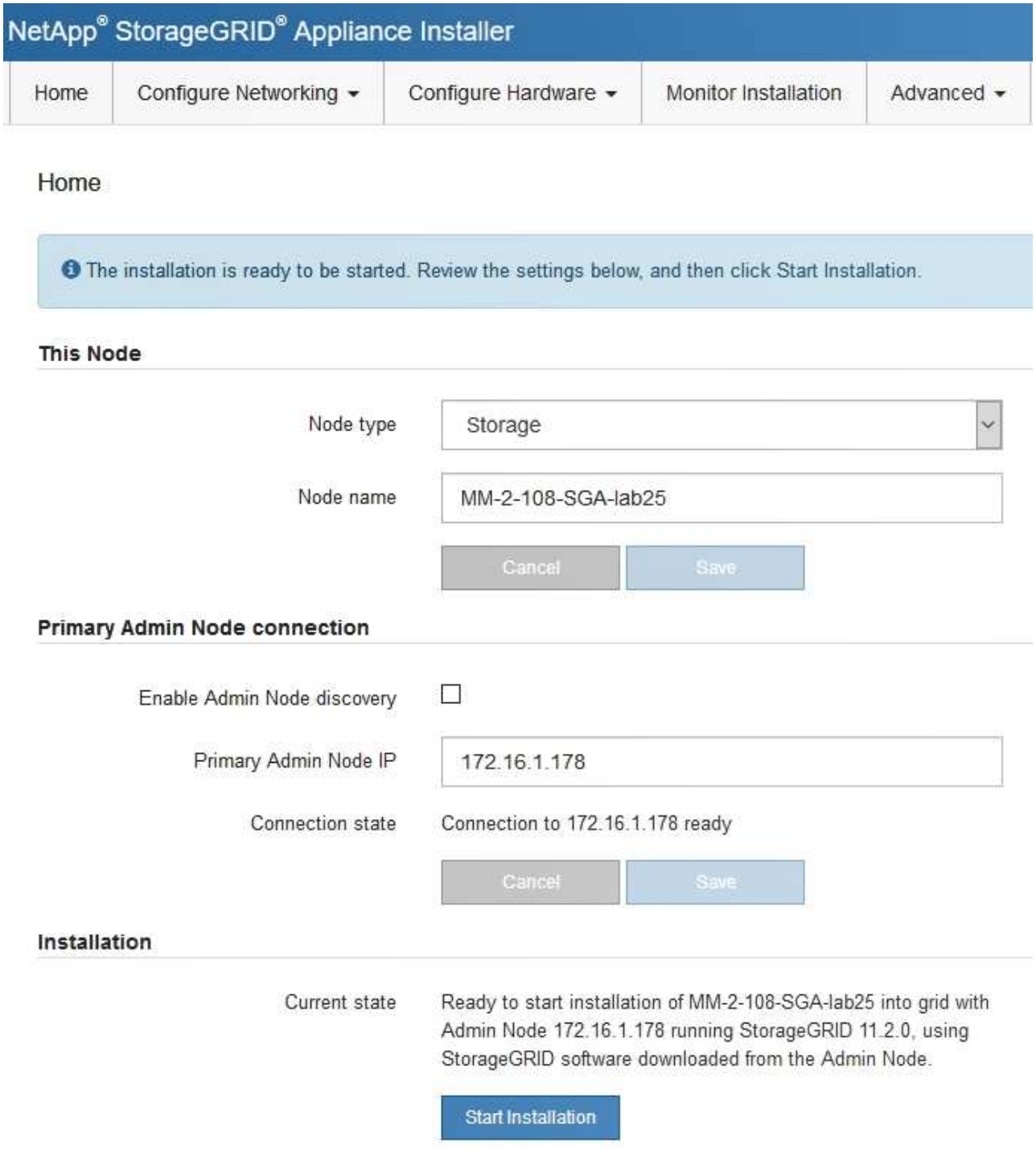
b. From the client, enter this URL for the StorageGRID Appliance Installer:
`https://Appliance_IP:8443`

For *Appliance_IP*, use the DHCP address (use the IP address for the Admin Network if you have it).

c. If you are prompted with a security alert, view and install the certificate using the browser's installation wizard.

The alert will not appear the next time you access this URL.

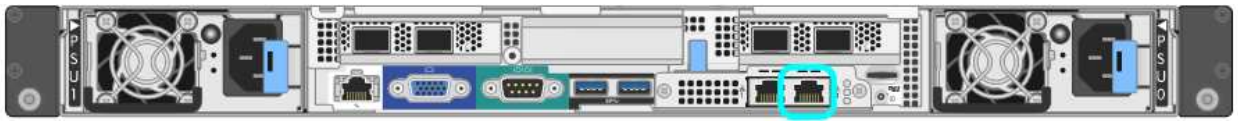
The StorageGRID Appliance Installer Home page appears. The information and messages shown when you first access this page depend on how your appliance is currently connected to StorageGRID networks. Error messages might appear that will be resolved in later steps.



2. If you can't obtain an IP address using DHCP, you can use a link-local connection.

SG100

Connect a service laptop directly to the rightmost RJ-45 port on the services appliance, using an Ethernet cable.



SG1000

Connect a service laptop directly to the rightmost RJ-45 port on the services appliance, using an Ethernet cable.

E5700SG

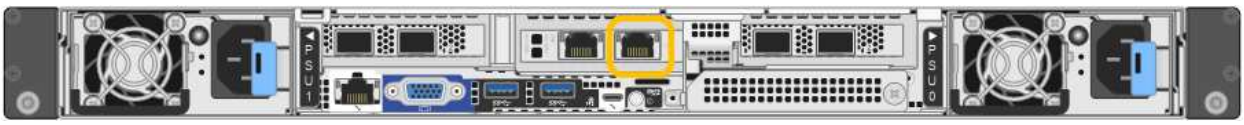
Connect the service laptop to management port 2 on the E5700SG controller, using an Ethernet cable.

SG6000-CN

Connect a service laptop directly to the rightmost RJ-45 port on the SG6000-CN controller, using an Ethernet cable.

SGF6112

Connect a service laptop directly to the rightmost RJ-45 port on the appliance, using an Ethernet cable.



a. Open a web browser on the service laptop.

b. Enter this URL for the StorageGRID Appliance Installer:
`https://169.254.0.1:8443`

The StorageGRID Appliance Installer Home page appears. The information and messages shown when you first access this page depend on how your appliance is currently connected to StorageGRID networks. Error messages might appear that will be resolved in later steps.

If you can't access the Home page over a link-local connection, configure the service laptop IP address as `169.254.0.2`, and try again.

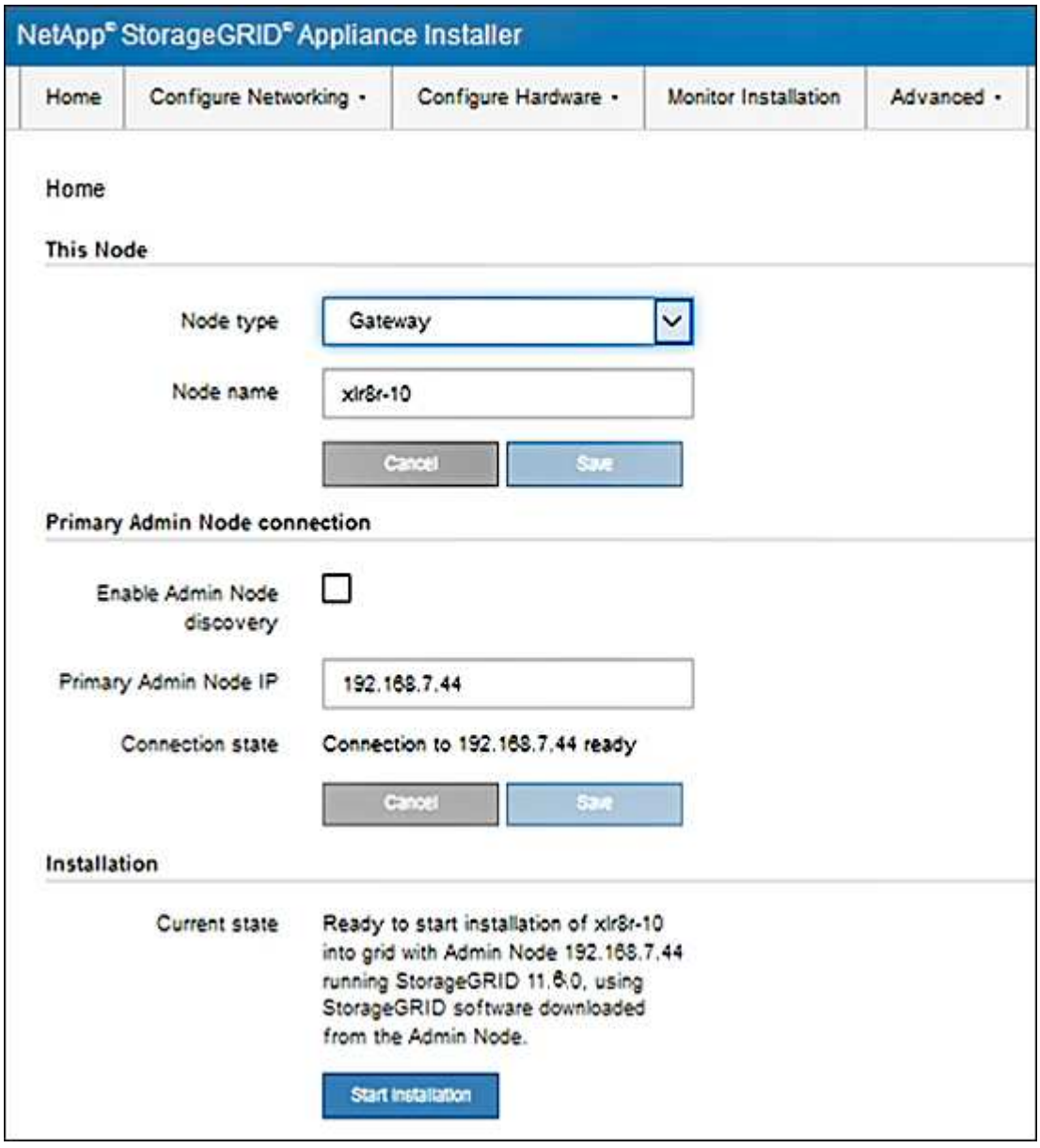
After you finish

After accessing the StorageGRID Appliance Installer:

- Verify that the StorageGRID Appliance Installer version on the appliance matches the software version installed on your StorageGRID system. Upgrade StorageGRID Appliance Installer, if necessary.

  Verify and upgrade StorageGRID Appliance Installer version

- Review any messages displayed on the StorageGRID Appliance Installer Home page and configure the link configuration and the IP configuration, as required.



Verify and upgrade StorageGRID Appliance Installer version

The StorageGRID Appliance Installer version on the appliance must match the software version installed on your StorageGRID system to ensure that all StorageGRID features are supported.

Before you begin

You have accessed the StorageGRID Appliance Installer.

About this task

StorageGRID appliances come from the factory preinstalled with the StorageGRID Appliance Installer. If you are adding an appliance to a recently upgraded StorageGRID system, you might need to manually upgrade the StorageGRID Appliance Installer before installing the appliance as a new node.

The StorageGRID Appliance Installer automatically upgrades when you upgrade to a new StorageGRID version. You don't need to upgrade the StorageGRID Appliance Installer on installed appliance nodes. This procedure is only required when you are installing an appliance that contains an earlier version of the StorageGRID Appliance Installer.

Steps

1. From the StorageGRID Appliance Installer, select **Advanced** > **Upgrade Firmware**.
2. Compare the Current Firmware version to the software version installed on your StorageGRID system. (From the top of the Grid Manager, select the help icon and select **About**.)

   The second digit in the two versions should match. For example, if your StorageGRID system is running version 11.**6**.*x*.*y*, the StorageGRID Appliance Installer version should be 3.**6**.*z*.

3. If the appliance has a down-level version of the StorageGRID Appliance Installer, go to NetApp Downloads: StorageGRID Appliance.

   Sign in with the username and password for your NetApp account.

4. Download the appropriate version of the **Support file for StorageGRID Appliances** and the corresponding checksum file.

   The Support file for StorageGRID appliances is a `.zip` archive that contains the current and previous firmware versions for all StorageGRID appliance models.

   After downloading the Support file for StorageGRID appliances, extract the `.zip` archive and see the README file for important information about installing the StorageGRID Appliance Installer.

5. Follow the instructions on the Upgrade Firmware page of your StorageGRID Appliance Installer to perform these steps:
   a. Upload the appropriate support file (firmware image) for your controller type. Some firmware versions also require uploading a checksum file. If you are prompted for a checksum file, it can also be found in the Support file for StorageGRID Appliances.
   b. Upgrade the inactive partition.
   c. Reboot and swap partitions.
   d. Upload the appropriate support file (firmware image) again for your controller type. Some firmware versions also require uploading a checksum file. If you are prompted for a checksum file, it can also be found in the Support file for StorageGRID Appliances.

e. Upgrade the second (inactive) partition.

Related information

Accessing StorageGRID Appliance Installer

Configure network links

You can configure network links for the ports used to connect the appliance to the Grid Network, the Client Network, and the Admin Network. You can set the link speed as well as the port and network bond modes.

If you are using ConfigBuilder to generate a JSON file, you can configure the network links automatically. See Automate appliance installation and configuration.

Before you begin

- You have obtained the additional equipment required for your cable type and link speed.
- You have installed the correct transceivers in the ports, based on the link speed you plan to use.
- You have connected the network ports to switches that support your chosen speed.

If you plan to use Aggregate port bond mode, LACP network bond mode, or VLAN tagging:

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

About this task

You only need to configure the settings on the Link Configuration page if you want to use a non-default setting.

The LACP transmit hash policy is layer2+3.

The figures and tables summarize the options for the port bond mode and network bond mode for each appliance. See the following for more information:

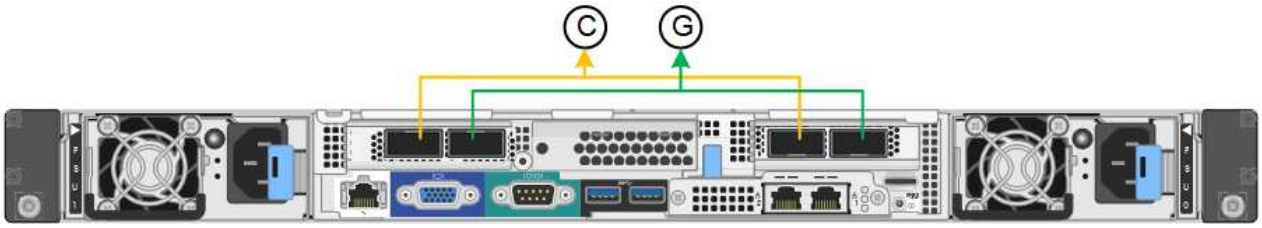
- Port bond modes (SG1000 and SG100)
- Port bond modes (E5700SG)
- Port bond modes (SG6000-CN)
- Port bond modes (SGF6112)

SG100 and SG1000

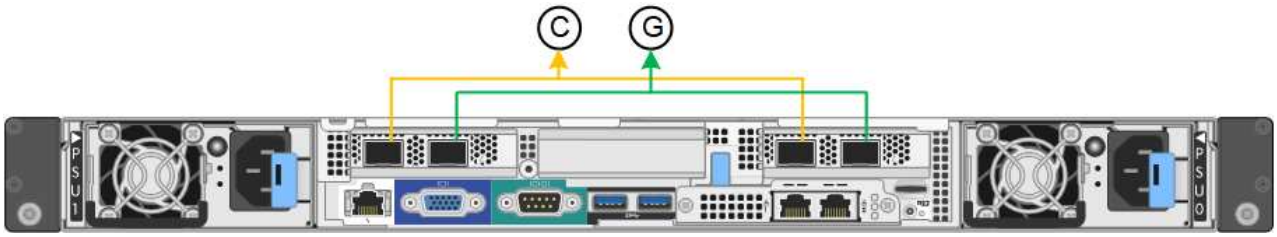
Fixed port bond mode (default)

The figures show how the four network ports on the SG1000 or SG100 are bonded in fixed port bond mode (default configuration).

SG1000:



SG100:



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.

The table summarizes the options for configuring the four network ports. You only need to configure the settings on the Link Configuration page if you want to use a non-default setting.

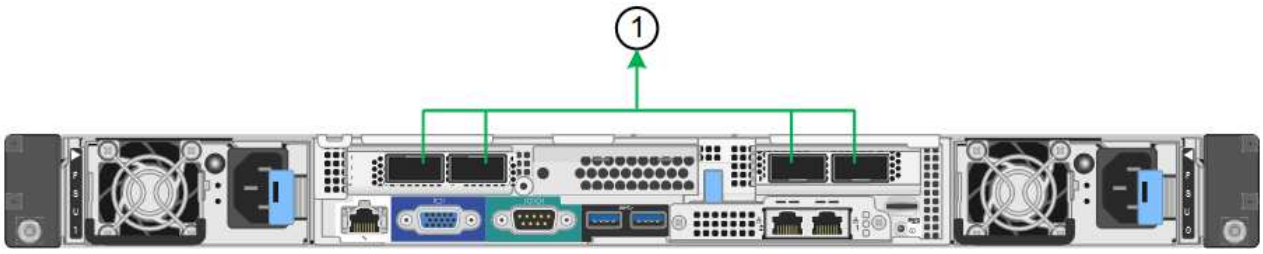
Network bond mode	Client Network disabled (default)	Client Network enabled
Active-Backup (default)	• Ports 2 and 4 use an active-backup bond for the Grid Network. • Ports 1 and 3 aren't used. • A VLAN tag is optional.	• Ports 2 and 4 use an active-backup bond for the Grid Network. • Ports 1 and 3 use an active-backup bond for the Client Network. • VLAN tags can be specified for both networks for the convenience of the network administrator.

Network bond mode	Client Network disabled (default)	Client Network enabled
LACP (802.3ad)	• Ports 2 and 4 use an LACP bond for the Grid Network. • Ports 1 and 3 aren't used. • A VLAN tag is optional.	• Ports 2 and 4 use an LACP bond for the Grid Network. • Ports 1 and 3 use an LACP bond for the Client Network. • VLAN tags can be specified for both networks for the convenience of the network administrator.

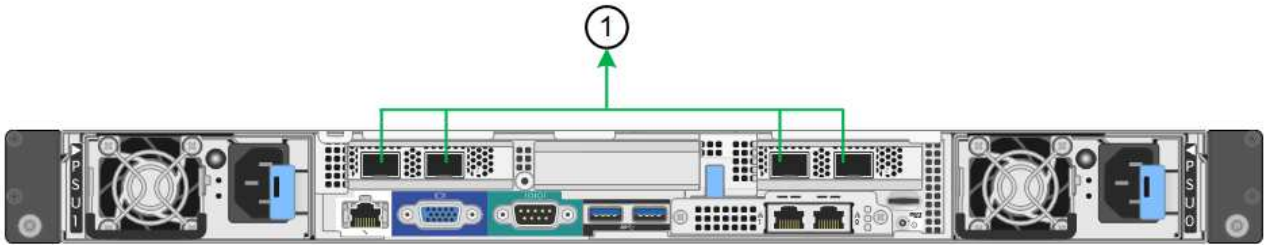
Aggregate port bond mode

These figures show how the four network ports are bonded in aggregate port bond mode.

SG1000:



SG100:



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

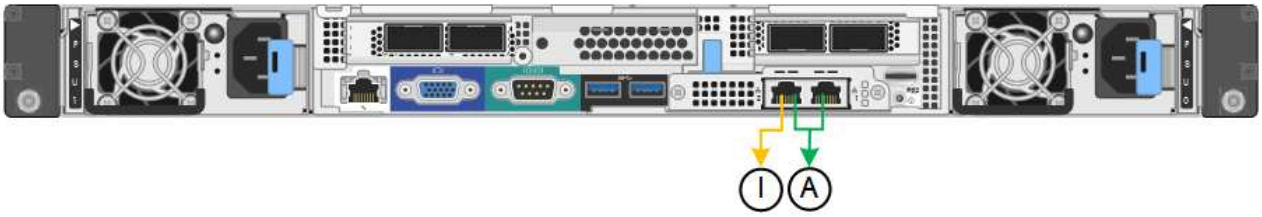
The table summarizes the options for configuring the four network ports. You only need to configure the settings on the Link Configuration page if you want to use a non-default setting.

Network bond mode	Client Network disabled (default)	Client Network enabled
LACP (802.3ad) only	• Ports 1-4 use a single LACP bond for the Grid Network. • A single VLAN tag identifies Grid Network packets.	• Ports 1-4 use a single LACP bond for the Grid Network and the Client Network. • Two VLAN tags allow Grid Network packets to be segregated from Client Network packets.

Active-Backup network bond mode for management ports

These figures show how the two 1-GbE management ports on the appliances are bonded in Active-Backup network bond mode for the Admin Network.

SG1000:

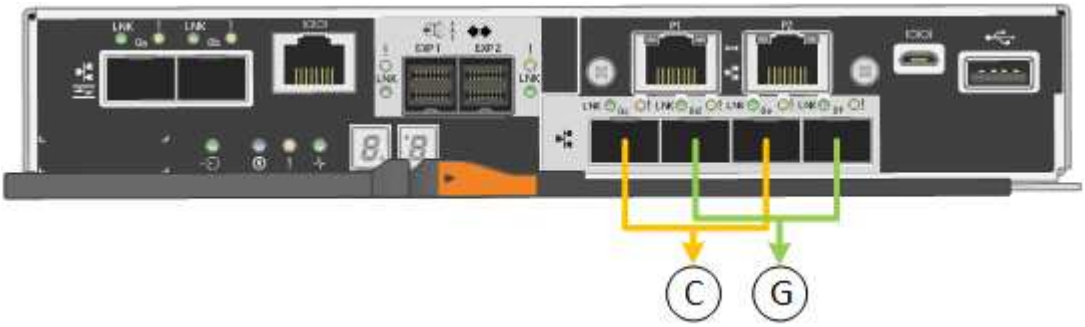


SG100:

SG5700

Fixed port bond mode (default)

This figure shows how the four 10/25-GbE ports are bonded in Fixed port bond mode (default configuration).



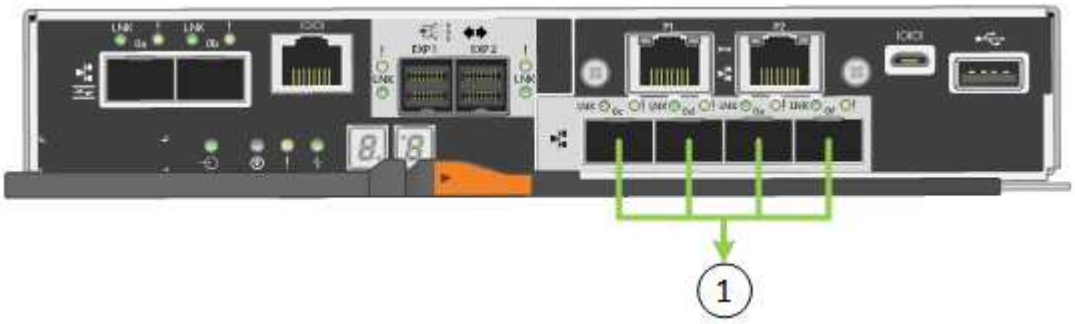
Callout	Which ports are bonded
C	Ports 1 and 3 are bonded together for the Client Network, if this network is used.
G	Ports 2 and 4 are bonded together for the Grid Network.

The table summarizes the options for configuring the four 10/25-GbE ports. You only need to configure the settings on the Link Configuration page if you want to use a non-default setting.

Network bond mode	Client Network disabled (default)	Client Network enabled
Active-Backup (default)	• Ports 2 and 4 use an active-backup bond for the Grid Network. • Ports 1 and 3 aren't used. • A VLAN tag is optional.	• 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. • VLAN tags can be specified for both networks for the convenience of the network administrator.
LACP (802.3ad)	• Ports 2 and 4 use an LACP bond for the Grid Network. • Ports 1 and 3 aren't used. • A VLAN tag is optional.	• Ports 2 and 4 use an LACP bond for the Grid Network. • Ports 1 and 3 use an LACP bond for the Client Network. • VLAN tags can be specified for both networks for the convenience of the network administrator.

Aggregate port bond mode

This figure shows how the four 10/25-GbE ports are bonded in Aggregate port bond mode.



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

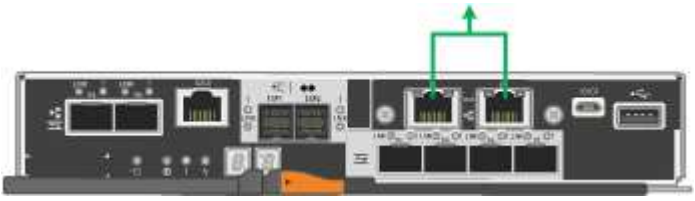
The table summarizes the options for configuring the four 10/25-GbE ports. You only need to configure

the settings on the Link Configuration page if you want to use a non-default setting.

Network bond mode	Client Network disabled (default)	Client Network enabled
LACP (802.3ad) only	• Ports 1-4 use a single LACP bond for the Grid Network. • A single VLAN tag identifies Grid Network packets.	• Ports 1-4 use a single LACP bond for the Grid Network and the Client Network. • Two VLAN tags allow Grid Network packets to be segregated from Client Network packets.

Active-Backup network bond mode for management ports

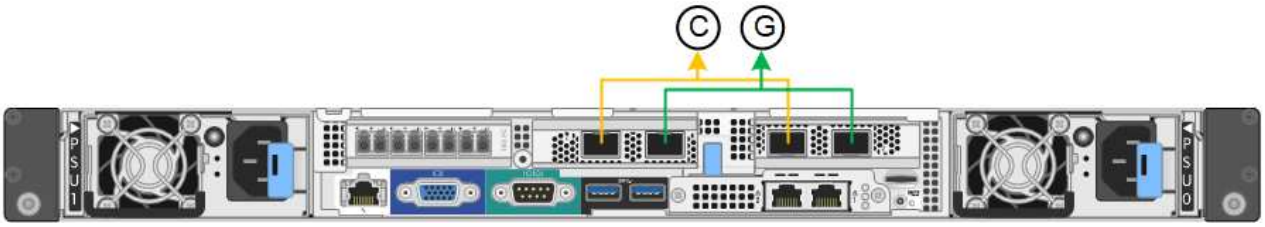
This figure shows how the two 1-GbE management ports on the E5700SG controller are bonded in Active-Backup network bond mode for the Admin Network.



SG6000

Fixed port bond mode (default)

This figure shows how the four network ports are bonded in fixed port bond mode (default configuration)



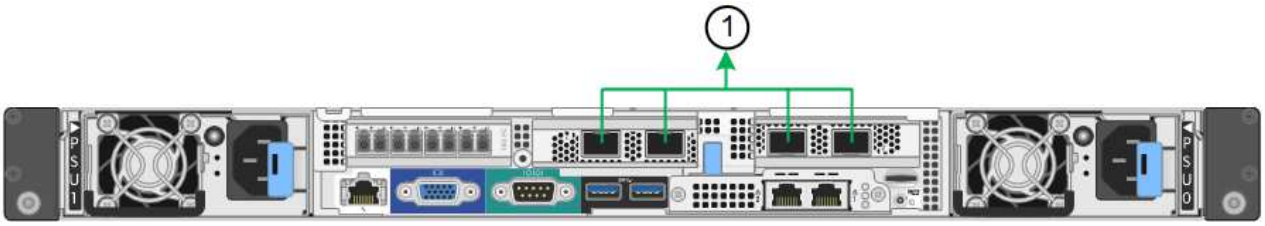
Callout	Which ports are bonded
C	Ports 1 and 3 are bonded together for the Client Network, if this network is used.
G	Ports 2 and 4 are bonded together for the Grid Network.

The table summarizes the options for configuring the network ports. You only need to configure the settings on the Link Configuration page if you want to use a non-default setting.

Network bond mode	Client Network disabled (default)	Client Network enabled
Active-Backup (default)	• Ports 2 and 4 use an active-backup bond for the Grid Network. • Ports 1 and 3 aren't used. • A VLAN tag is optional.	• 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. • VLAN tags can be specified for both networks for the convenience of the network administrator.
LACP (802.3ad)	• Ports 2 and 4 use an LACP bond for the Grid Network. • Ports 1 and 3 aren't used. • A VLAN tag is optional.	• Ports 2 and 4 use an LACP bond for the Grid Network. • Ports 1 and 3 use an LACP bond for the Client Network. • VLAN tags can be specified for both networks for the convenience of the network administrator.

Aggregate port bond mode

This figure shows how the four network ports are bonded in aggregate port bond mode.



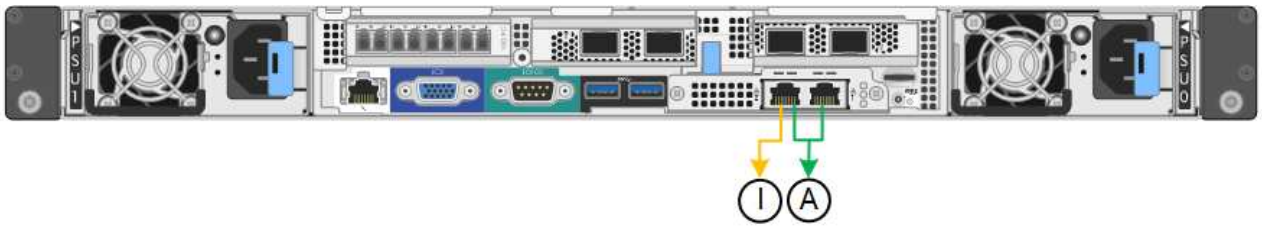
Callout	Which ports are bonded
1	All four ports are grouped in a single LACP bond, allowing all ports to be used for Grid Network and Client Network traffic.

The table summarizes the options for configuring the network ports. You only need to configure the settings on the Link Configuration page if you want to use a non-default setting.

Network bond mode	Client Network disabled (default)	Client Network enabled
LACP (802.3ad) only	• Ports 1-4 use a single LACP bond for the Grid Network. • A single VLAN tag identifies Grid Network packets.	• Ports 1-4 use a single LACP bond for the Grid Network and the Client Network. • Two VLAN tags allow Grid Network packets to be segregated from Client Network packets.

Active-Backup network bond mode for management ports

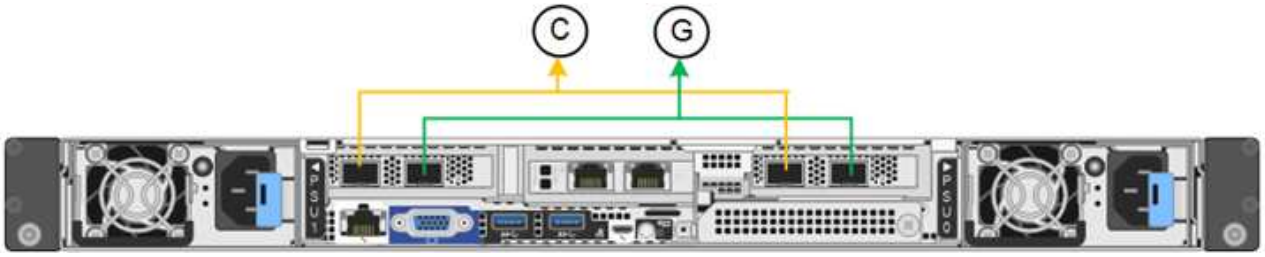
This figure shows how the two 1-GbE management ports on the SG6000-CN controller are bonded in Active-Backup network bond mode for the Admin Network.



SGF6112

Fixed port bond mode (default)

The figure shows how the four network ports are bonded in fixed port bond mode (default configuration).



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.

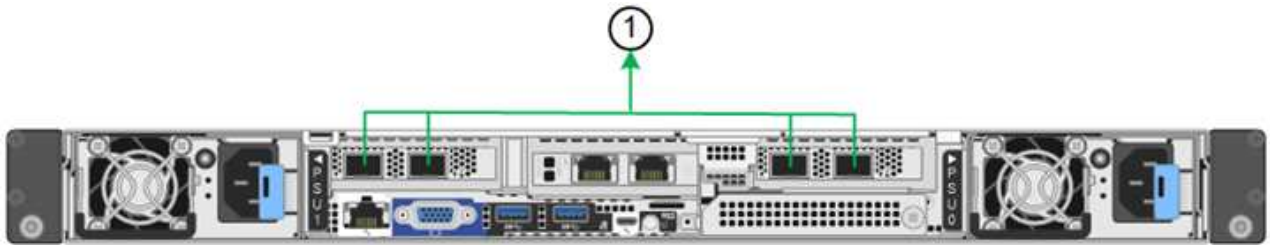
The table summarizes the options for configuring the network ports. You only need to configure the settings on the Link Configuration page if you want to use a non-default setting.

Network bond mode	Client Network disabled (default)	Client Network enabled
Active-Backup (default)	• Ports 2 and 4 use an active-backup bond for the Grid Network. • Ports 1 and 3 aren't used. • A VLAN tag is optional.	• 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. • VLAN tags can be specified for both networks for the convenience of the network administrator.

Network bond mode	Client Network disabled (default)	Client Network enabled
LACP (802.3ad)	• Ports 2 and 4 use an LACP bond for the Grid Network. • Ports 1 and 3 aren't used. • A VLAN tag is optional.	• Ports 2 and 4 use an LACP bond for the Grid Network. • Ports 1 and 3 use an LACP bond for the Client Network. • VLAN tags can be specified for both networks for the convenience of the network administrator.

Aggregate port bond mode

The figure shows how the four network ports are bonded in aggregate port bond mode.



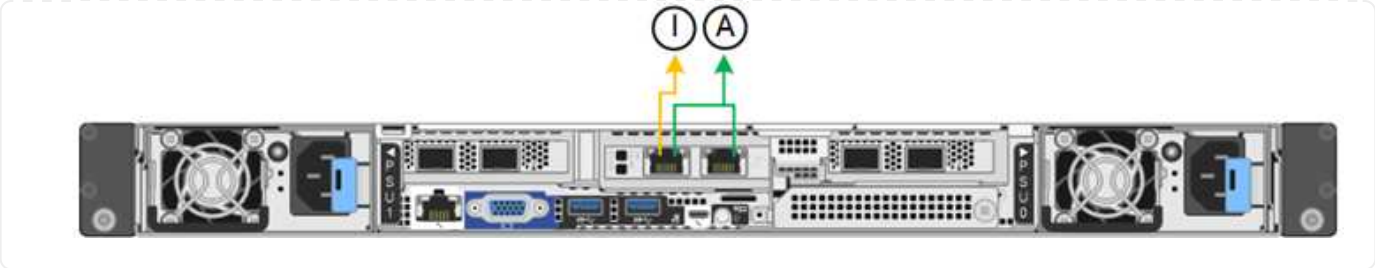
Callout	Which ports are bonded
1	All four ports are grouped in a single LACP bond, allowing all ports to be used for Grid Network and Client Network traffic.

The table summarizes the options for configuring the network ports. You only need to configure the settings on the Link Configuration page if you want to use a non-default setting.

Network bond mode	Client Network disabled (default)	Client Network enabled
LACP (802.3ad) only	• Ports 1-4 use a single LACP bond for the Grid Network. • A single VLAN tag identifies Grid Network packets.	• Ports 1-4 use a single LACP bond for the Grid Network and the Client Network. • Two VLAN tags allow Grid Network packets to be segregated from Client Network packets.

Active-Backup network bond mode for management ports

This figure shows how the two 1-GbE management ports on the SGF6112 are bonded in Active-Backup network bond mode for the Admin Network.



Steps

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

   The Network Link Configuration page displays a diagram of your appliance with the network and management ports numbered.

   The Link Status table lists the link state, link speed, and other statistics of the numbered ports.

   The first time you access this page:

   - **Link Speed** is set to **Auto**.
   - **Port bond mode** is set to **Fixed**.
   - **Network bond mode** is set to **Active-Backup** for the Grid Network.
   - The **Admin Network** is enabled, and the network bond mode is set to **Independent**.
   - The **Client Network** is disabled.

2. Select the link speed for the network ports from the **Link speed** drop-down list.

   The network switches you are using for the Grid Network and the Client Network must also support and be configured for this speed. You must use the appropriate adapters or transceivers for the configured link speed. Use Auto link speed when possible because this option negotiates both link speed and Forward Error Correction (FEC) mode with the link partner.

   If you plan to use the 25-GbE link speed for the SG6000 or SG5700 network ports:

   - Use SFP28 transceivers and SFP28 TwinAx cables or optical cables.
   - For the SG5700, select **25GbE** from the **Link speed** drop-down list.
   - For the SG6000, select **Auto** from the **Link speed** drop-down list.

3. Enable or disable the StorageGRID networks you plan to use.

   The Grid Network is required. You can't disable this network.

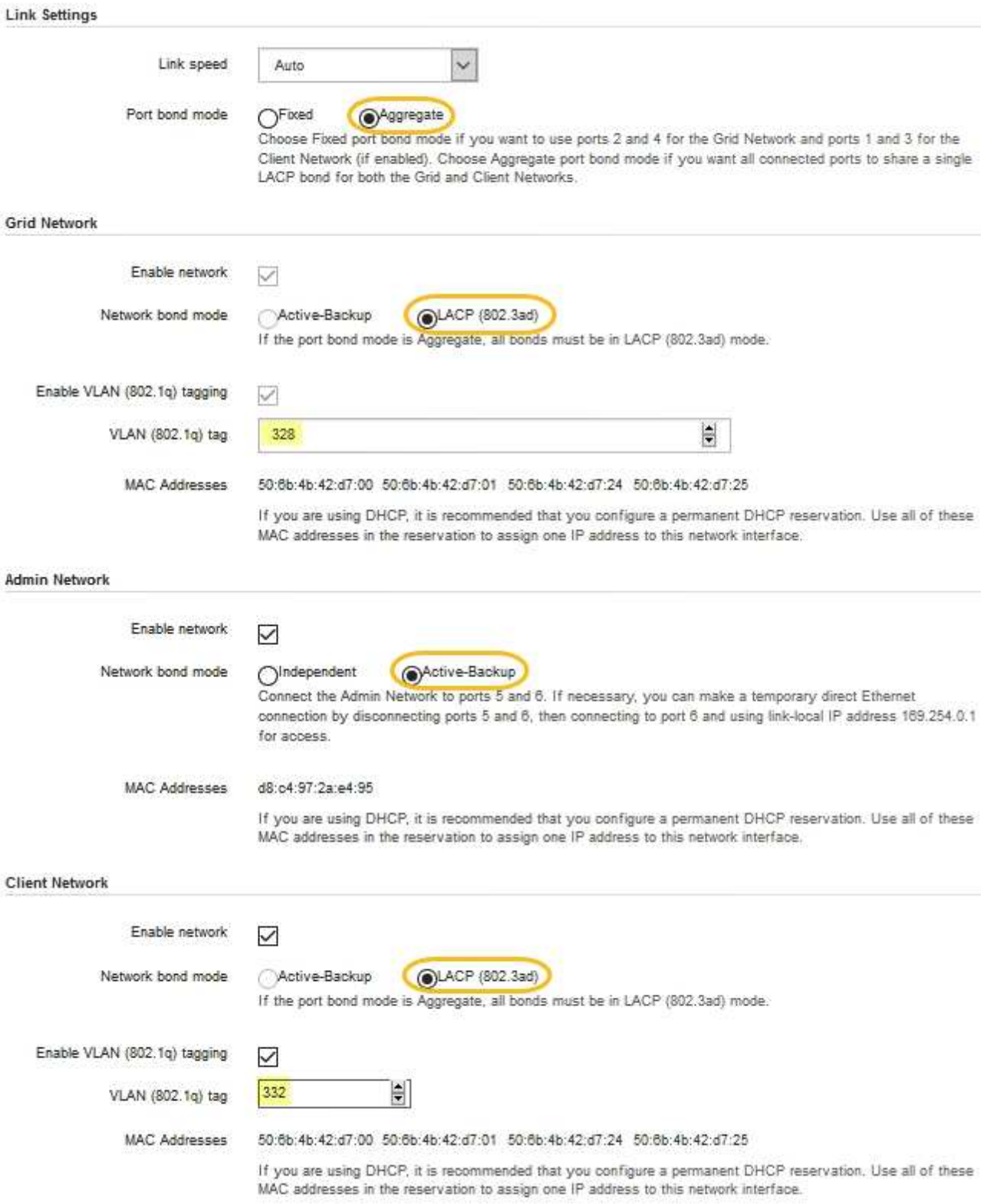
   a. If the appliance is not connected to the Admin Network, clear the **Enable network** checkbox for the Admin Network.
   b. If the appliance is connected to the Client Network, select the **Enable network** checkbox for the Client Network.

      The Client Network settings for the data NIC ports are now shown.

4. Refer to the table, and configure the port bond mode and the network bond mode.

   This example shows:

- **Aggregate** and **LACP** selected for the Grid and the Client Networks. You must specify a unique VLAN tag for each network. You can select values between 0 and 4095.
- **Active-Backup** selected for the Admin Network.



5. When you are satisfied with your selections, click **Save**.

You might lose your connection if you made changes to the network or link you are connected through. If you aren't reconnected within 1 minute, re-enter the URL for the StorageGRID Appliance Installer using one of the other IP addresses assigned to the appliance:
`https://appliance_IP:8443`

Configure StorageGRID IP addresses

You use the StorageGRID Appliance Installer to configure the IP addresses and routing information used for the services appliance or appliance Storage Node on the StorageGRID Grid, Admin, and Client Networks.

If you are using ConfigBuilder to generate a JSON file, you can configure IP addresses automatically. See Automate appliance installation and configuration.

About this task

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

To change the link configuration, see the following instructions:

- Change link configuration of the SG100 or SG1000 services appliance
- Change link configuration of the E5700SG controller
- Change link configuration of the SG6000-CN controller
- Change link configuration of the SG6100 appliance

Steps

1. In the StorageGRID Appliance Installer, select **Configure Networking** > **IP Configuration**.

   The IP Configuration page appears.

2. To configure the Grid Network, select either **Static** or **DHCP** in the **Grid Network** section of the page.
3. If you selected **Static**, follow these steps to configure the Grid Network:
   a. Enter the static IPv4 address, using CIDR notation.
   b. Enter the gateway.

      If your network does not have a gateway, re-enter the same static IPv4 address.

   c. If you want to use jumbo frames, change the MTU field to a value suitable for jumbo frames, such as 9000. Otherwise, keep the default value of 1500.

      The MTU value of the network must match the value configured on the switch port the node is connected to. Otherwise, network performance issues or packet loss might occur.

> For the best network performance, all nodes should be configured with similar MTU values on their Grid Network interfaces. The **Grid Network MTU mismatch** alert is triggered if there is a significant difference in MTU settings for the Grid Network on individual nodes. The MTU values don't have to be the same for all network types.

d. Click **Save**.

When you change the IP address, the gateway and list of subnets might also change.

If you lose your connection to the StorageGRID Appliance Installer, re-enter the URL using the new static IP address you just assigned. For example,
`https://appliance_IP:8443`

e. Confirm that the list of Grid Network subnets is correct.

If you have grid subnets, the Grid Network gateway is required. All grid subnets specified must be reachable through this gateway. These Grid Network subnets must also be defined in the Grid Network Subnet List on the primary Admin Node when you start StorageGRID installation.

> The default route is not listed. If the Client Network is not enabled, the default route will use the Grid Network gateway.

- To add a subnet, click the insert icon ➕ to the right of the last entry.
- To remove an unused subnet, click the delete icon ✖.

f. Click **Save**.

4. If you selected **DHCP**, follow these steps to configure the Grid Network:

a. After you select the **DHCP** radio button, click **Save**.

The **IPv4 Address**, **Gateway**, and **Subnets** fields are automatically populated. If the DHCP server is set up to assign an MTU value, the **MTU** field is populated with that value, and the field becomes read-only.

Your web browser is automatically redirected to the new IP address for the StorageGRID Appliance Installer.

b. Confirm that the list of Grid Network subnets is correct.

If you have grid subnets, the Grid Network gateway is required. All grid subnets specified must be reachable through this gateway. These Grid Network subnets must also be defined in the Grid Network Subnet List on the primary Admin Node when you start StorageGRID installation.

> The default route is not listed. If the Client Network is not enabled, the default route will use the Grid Network gateway.

- To add a subnet, click the insert icon ➕ to the right of the last entry.
- To remove an unused subnet, click the delete icon ✖.

c. If you want to use jumbo frames, change the MTU field to a value suitable for jumbo frames, such as 9000. Otherwise, keep the default value of 1500.

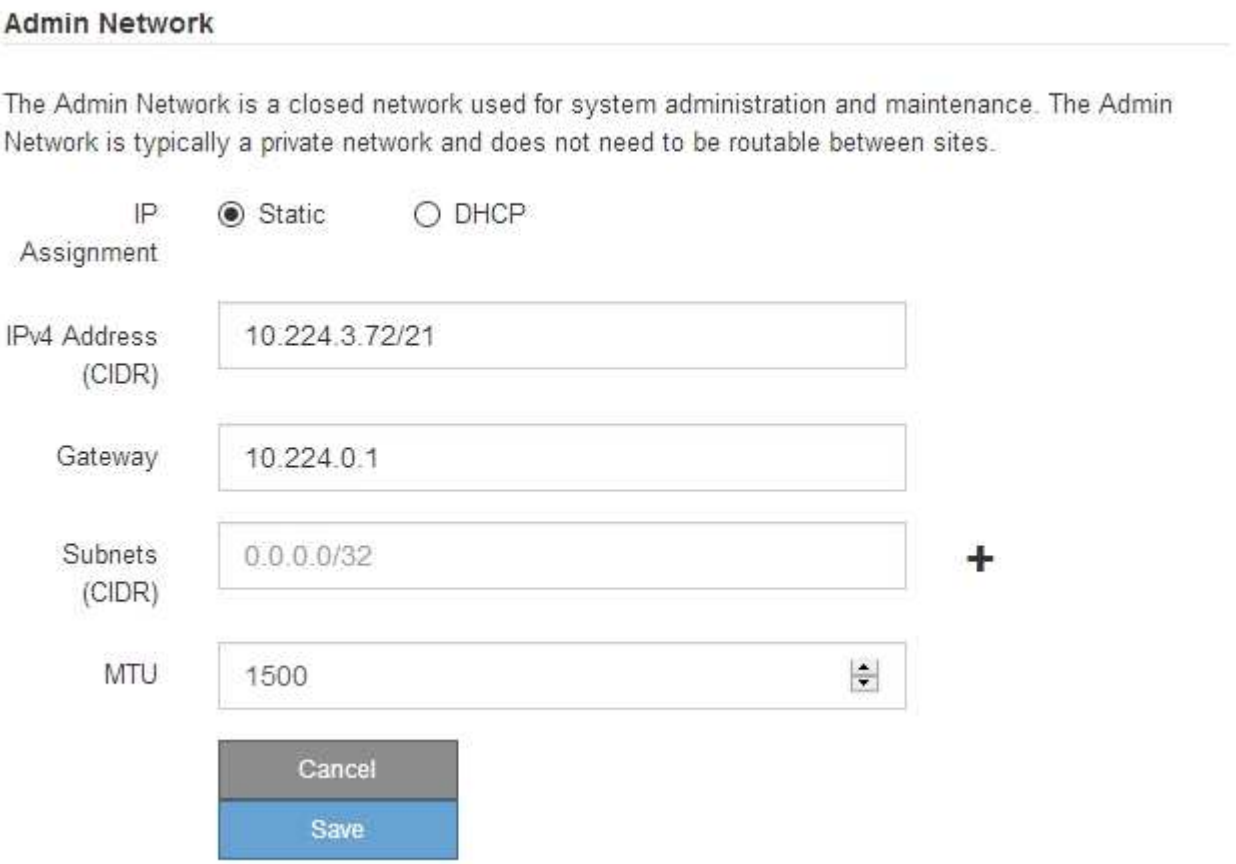
The MTU value of the network must match the value configured on the switch port the node is connected to. Otherwise, network performance issues or packet loss might occur.

For the best network performance, all nodes should be configured with similar MTU values on their Grid Network interfaces. The **Grid Network MTU mismatch** alert is triggered if there is a significant difference in MTU settings for the Grid Network on individual nodes. The MTU values don't have to be the same for all network types.

d. Click **Save**.

5. To configure the Admin Network, select either **Static** or **DHCP** in the **Admin Network** section of the page.

To configure the Admin Network, you enable the Admin Network on the Link Configuration page.



6. If you selected **Static**, follow these steps to configure the Admin Network:

a. Enter the static IPv4 address, using CIDR notation, for Management Port 1 on the appliance.

Management Port 1 is the left of the two 1-GbE RJ45 ports on the right end of the appliance.

b. Enter the gateway.

If your network does not have a gateway, re-enter the same static IPv4 address.

c. If you want to use jumbo frames, change the MTU field to a value suitable for jumbo frames, such as

9000. Otherwise, keep the default value of 1500.

> The MTU value of the network must match the value configured on the switch port the node is connected to. Otherwise, network performance issues or packet loss might occur.

d. Click **Save**.

When you change the IP address, the gateway and list of subnets might also change.

If you lose your connection to the StorageGRID Appliance Installer, re-enter the URL using the new static IP address you just assigned. For example,
`https://appliance:8443`

e. Confirm that the list of Admin Network subnets is correct.

You must verify that all subnets can be reached using the gateway you provided.

> The default route can't be made to use the Admin Network gateway.

- To add a subnet, click the insert icon ➕ to the right of the last entry.
- To remove an unused subnet, click the delete icon ✖.

f. Click **Save**.

7. If you selected **DHCP**, follow these steps to configure the Admin Network:

a. After you select the **DHCP** radio button, click **Save**.

The **IPv4 Address**, **Gateway**, and **Subnets** fields are automatically populated. If the DHCP server is set up to assign an MTU value, the **MTU** field is populated with that value, and the field becomes read-only.

Your web browser is automatically redirected to the new IP address for the StorageGRID Appliance Installer.

b. Confirm that the list of Admin Network subnets is correct.

You must verify that all subnets can be reached using the gateway you provided.

> The default route can't be made to use the Admin Network gateway.

- To add a subnet, click the insert icon ➕ to the right of the last entry.
- To remove an unused subnet, click the delete icon ✖.

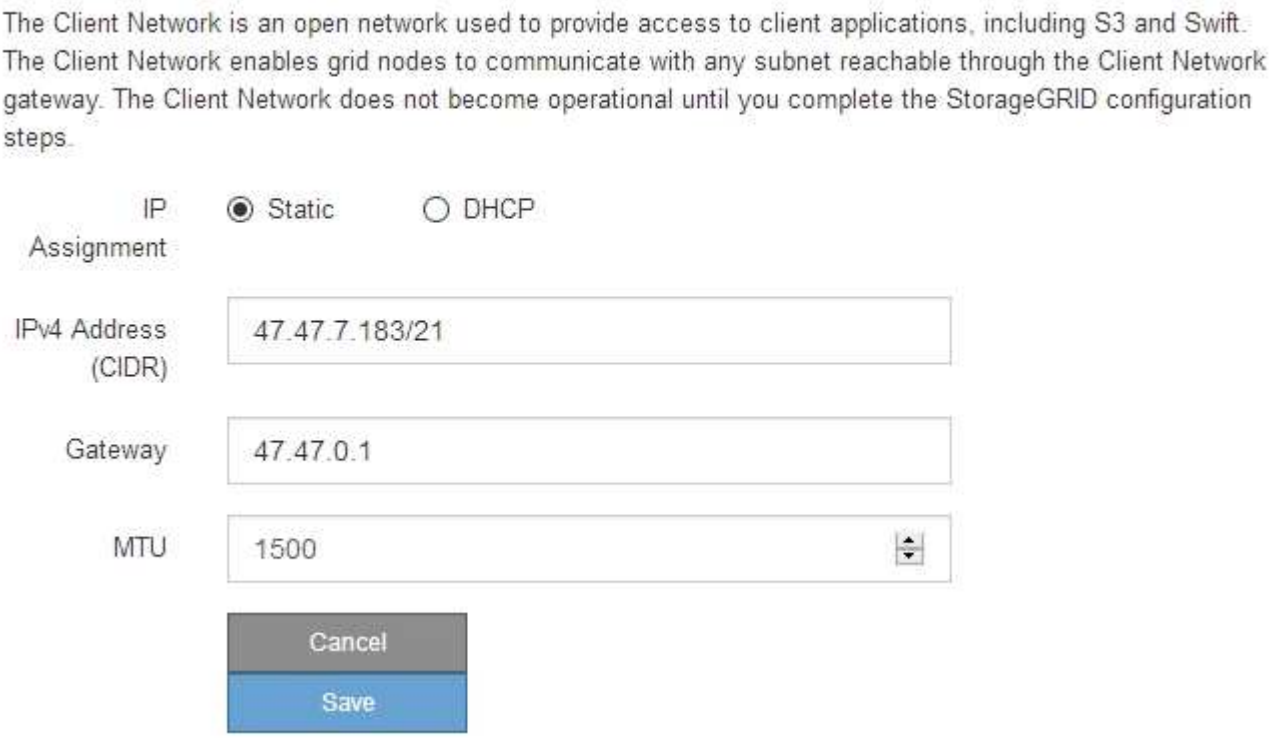
c. If you want to use jumbo frames, change the MTU field to a value suitable for jumbo frames, such as 9000. Otherwise, keep the default value of 1500.

> The MTU value of the network must match the value configured on the switch port the node is connected to. Otherwise, network performance issues or packet loss might occur.

d. Click **Save**.

8. To configure the Client Network, select either **Static** or **DHCP** in the **Client Network** section of the page.

To configure the Client Network, you enable the Client Network on the Link Configuration page.



9. If you selected **Static**, follow these steps to configure the Client Network:
   a. Enter the static IPv4 address, using CIDR notation.
   b. Click **Save**.
   c. Confirm that the IP address for the Client Network gateway is correct.

      If the Client Network is enabled, the default route is displayed. The default route uses the Client Network gateway and can't be moved to another interface while the Client Network is enabled.

   d. If you want to use jumbo frames, change the MTU field to a value suitable for jumbo frames, such as 9000. Otherwise, keep the default value of 1500.

      The MTU value of the network must match the value configured on the switch port the node is connected to. Otherwise, network performance issues or packet loss might occur.

   e. Click **Save**.
10. If you selected **DHCP**, follow these steps to configure the Client Network:
    a. After you select the **DHCP** radio button, click **Save**.

       The **IPv4 Address** and **Gateway** fields are automatically populated. If the DHCP server is set up to assign an MTU value, the **MTU** field is populated with that value, and the field becomes read-only.

Your web browser is automatically redirected to the new IP address for the StorageGRID Appliance Installer.

b. Confirm that the gateway is correct.

> If the Client Network is enabled, the default route is displayed. The default route uses the Client Network gateway and can't be moved to another interface while the Client Network is enabled.

c. If you want to use jumbo frames, change the MTU field to a value suitable for jumbo frames, such as 9000. Otherwise, keep the default value of 1500.

> The MTU value of the network must match the value configured on the switch port the node is connected to. Otherwise, network performance issues or packet loss might occur.

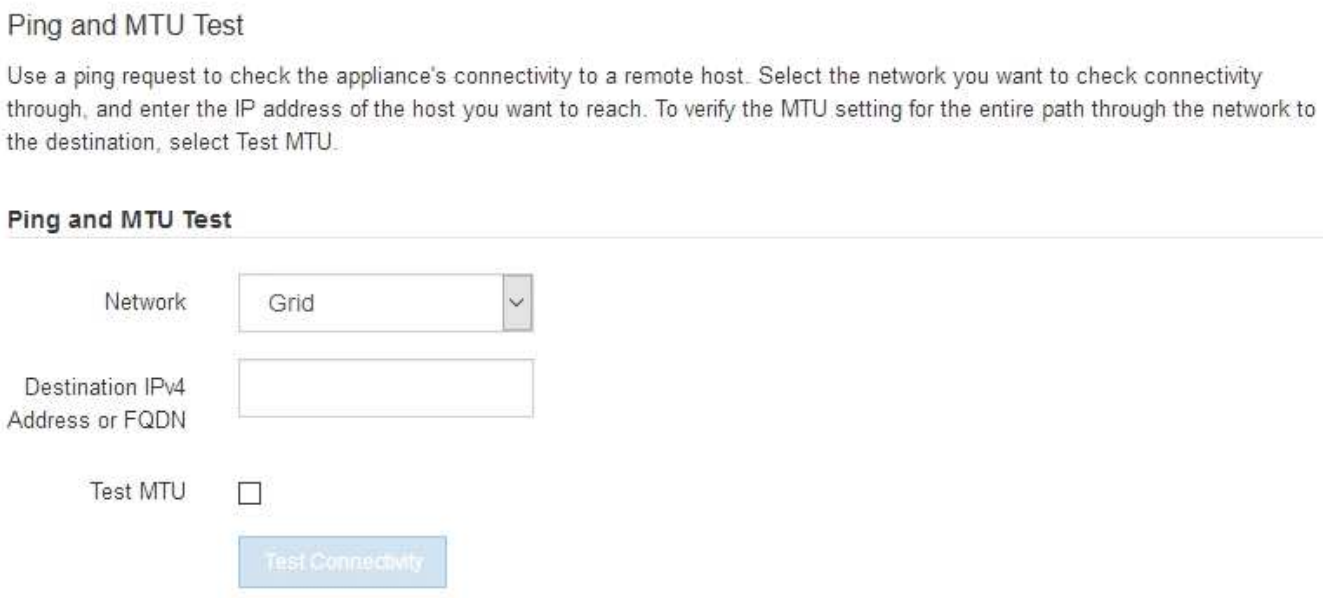
Verify network connections

You should confirm you can access the StorageGRID networks you are using from the appliance. To validate routing through network gateways, you should test connectivity between the StorageGRID Appliance Installer and IP addresses on different subnets. You can also verify the MTU setting.

Steps

1. From the menu bar of the StorageGRID Appliance Installer, click **Configure Networking** > **Ping and MTU Test**.

   The Ping and MTU Test page appears.



2. From the **Network** drop-down box, select the network you want to test: Grid, Admin, or Client.
3. Enter the IPv4 address or fully qualified domain name (FQDN) for a host on that network.

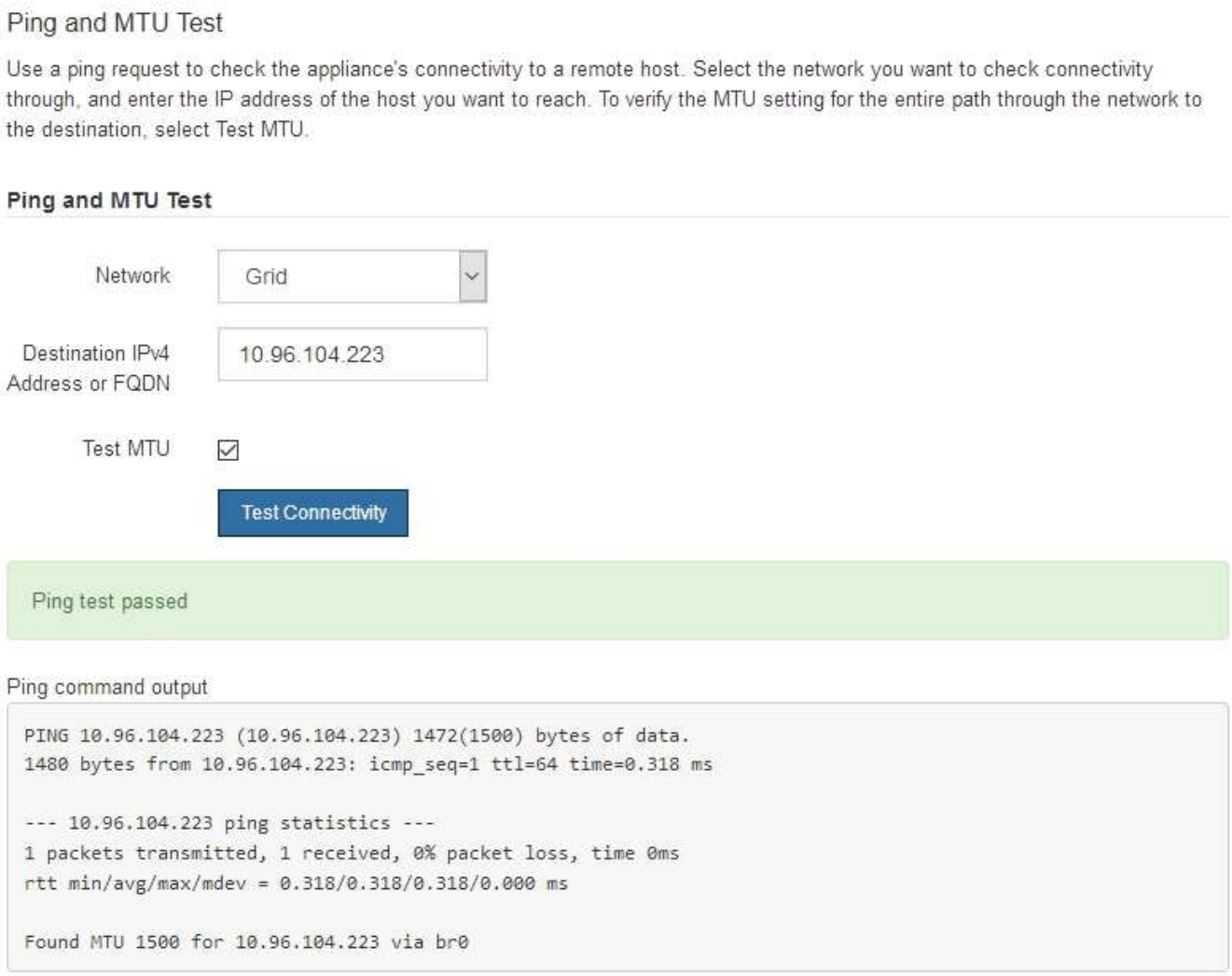
For example, you might want to ping the gateway on the network or the primary Admin Node.

4. Optionally, select the **Test MTU** checkbox to verify the MTU setting for the entire path through the network to the destination.

   For example, you can test the path between the appliance node and a node at a different site.

5. Click **Test Connectivity**.

   If the network connection is valid, the "Ping test passed" message appears, with the ping command output listed.



Related information

- Configure network links
- Change MTU setting

Verify port-level network connections

To ensure that access between the StorageGRID Appliance Installer and other nodes is not obstructed by firewalls, confirm that the StorageGRID Appliance Installer can connect

to a specific TCP port or set of ports at the specified IP address or range of addresses.

About this task

Using the list of ports provided in the StorageGRID Appliance Installer, you can test the connectivity between the appliance and the other nodes in your Grid Network.

Additionally, you can test connectivity on the Admin and Client Networks and on UDP ports, such as those used for external NFS or DNS servers. For a list of these ports, see the network port reference.

> The Grid Network ports listed in the port connectivity table are valid only for StorageGRID version 11.7 or later. To verify which ports are correct for each node type, you should always consult the networking guidelines for your version of StorageGRID.

Steps

1. From the StorageGRID Appliance Installer, click **Configure Networking** > **Port Connectivity Test (nmap)**.

   The Port Connectivity Test page appears.

   The port connectivity table lists node types that require TCP connectivity on the Grid Network. For each node type, the table lists the Grid Network ports that should be accessible to your appliance.

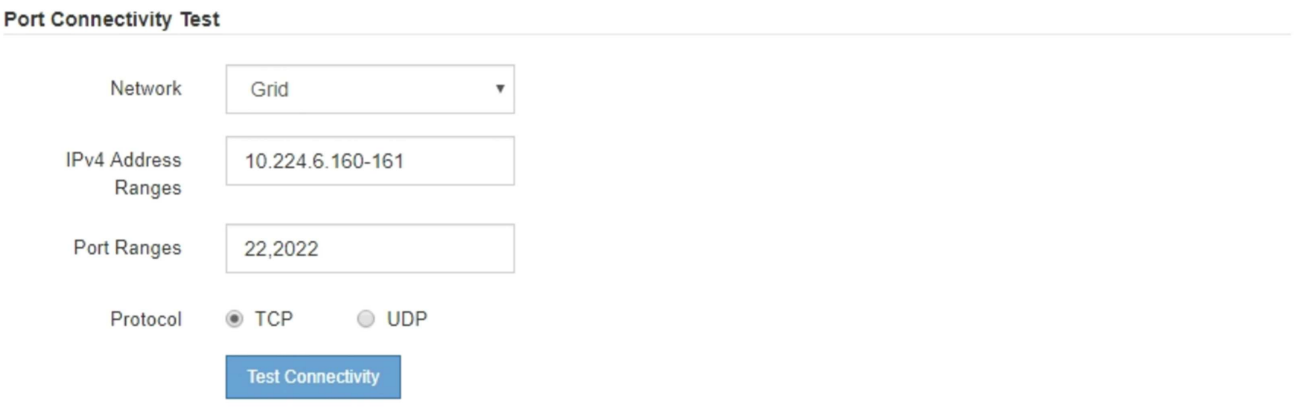
   You can test the connectivity between the appliance ports listed in the table and the other nodes in your Grid Network.

2. From the **Network** drop-down, select the network you want to test: **Grid**, **Admin**, or **Client**.
3. Specify a range of IPv4 addresses for the hosts on that network.

   For example, you might want to probe the gateway on the network or the primary Admin Node.

   Specify a range using a hyphen, as shown in the example.

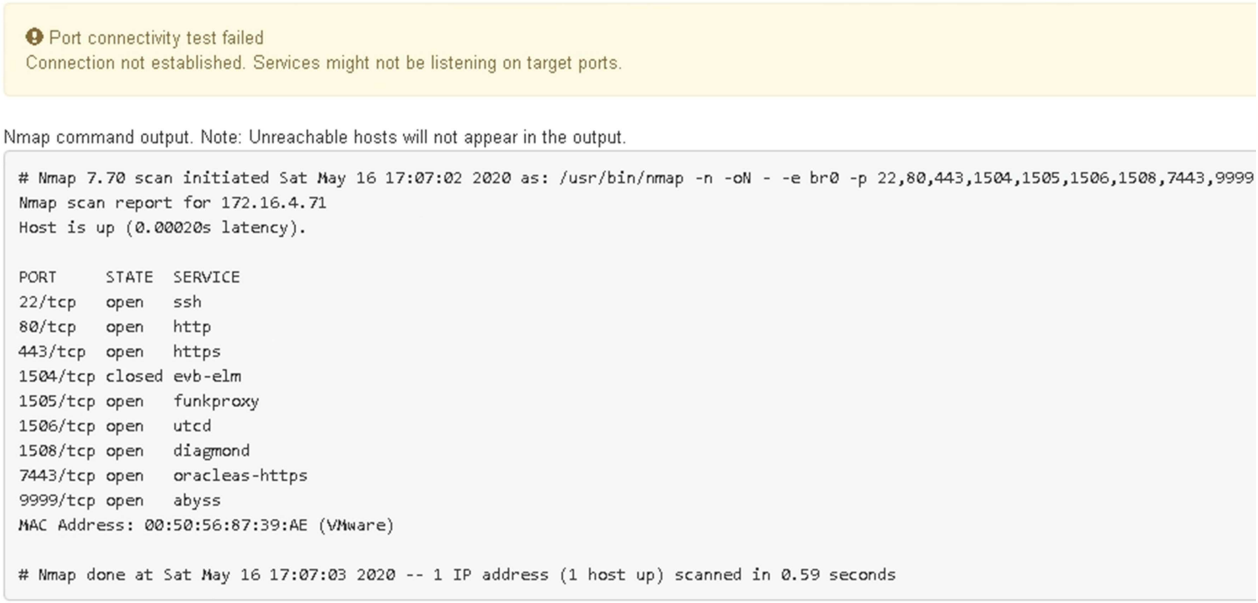
4. Enter a TCP port number, a list of ports separated by commas, or a range of ports.



5. Click **Test Connectivity**.
   - If the selected port-level network connections are valid, the “Port connectivity test passed” message appears in a green banner. The nmap command output is listed below the banner.

- If a port-level network connection is made to the remote host, but the host is not listening on one or more of the selected ports, the “Port connectivity test failed” message appears in a yellow banner. The nmap command output is listed below the banner.

  Any remote port the host is not listening to has a state of “closed.” For example, you might see this yellow banner when the node you are trying to connect to is in a pre-installed state and the StorageGRID NMS service is not yet running on that node.



- If a port-level network connection can’t be made for one or more selected ports, the “Port connectivity test failed” message appears in a red banner. The nmap command output is listed below the banner.

  The red banner indicates that a TCP connection attempt to a port on the remote host was made, but nothing was returned to the sender. When no response is returned, the port has a state of "filtered" and is likely blocked by a firewall.

  Ports with “closed” are also listed.

Port connectivity test failed
Connection failed to one or more ports.

Nmap command output. Note: Unreachable hosts will not appear in the output.

```
# Nmap 7.70 scan initiated Sat May 16 17:11:01 2020 as: /usr/bin/nmap -n -oN - -e br0 -p 22,79,80,443,1504,1505,1506,1508,7443,9999 172.16.4.71
Nmap scan report for 172.16.4.71
Host is up (0.00029s latency).

PORT     STATE    SERVICE
22/tcp   open     ssh
79/tcp   filtered finger
80/tcp   open     http
443/tcp  open     https
1504/tcp closed   evb-elm
1505/tcp open     funkproxy
1506/tcp open     utcd
1508/tcp open     diagmond
7443/tcp open     oracleas-https
9999/tcp open     abyss
MAC Address: 00:50:56:87:39:AE (VMware)

# Nmap done at Sat May 16 17:11:02 2020 -- 1 IP address (1 host up) scanned in 1.60 seconds
```

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