



# **Troubleshoot hardware installation (SG100 and SG1000)**

StorageGRID

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# Troubleshoot hardware installation (SG100 and SG1000)

If you encounter issues during the installation, you might find it helpful to review troubleshooting information related to hardware setup and connectivity issues.

## View boot-up codes for appliance

When you apply power to the appliance, the BMC logs a series of boot-up codes. You can view these codes on a graphical console that is connected to the BMC management port.

### What you'll need

- You know how to access the BMC dashboard.
- If you want to use serial-over-LAN (SOL), you have experience using IPMI SOL console applications.

### Steps

1. Select one of the following methods for viewing the boot-up codes for the appliance controller, and gather the required equipment.

| Method      | Required equipment  |
|-------------|---|
| VGA console | <ul style="list-style-type: none"><li>• VGA-capable monitor</li><li>• VGA cable</li></ul>             |
| KVM         | <ul style="list-style-type: none"><li>• RJ-45 cable</li></ul>   |
| Serial port | <ul style="list-style-type: none"><li>• DB-9 serial cable</li><li>• Virtual serial terminal</li></ul> |
| SOL         | <ul style="list-style-type: none"><li>• Virtual serial terminal</li></ul>                             |

2. If you are using a VGA console, perform these steps:
  - a. Connect a VGA-capable monitor to the VGA port on the back of the appliance.
  - b. View the codes displayed on the monitor.
3. If you are using BMC KVM, perform these steps:
  - a. Connect to the BMC management port and log into the BMC web interface.
  - b. Select **Remote Control**.
  - c. Launch the KVM.
  - d. View the codes on the virtual monitor.
4. If you are using a serial port and terminal, perform these steps:
  - a. Connect to the DB-9 serial port on the back of the appliance.

- b. Use settings 115200 8-N-1.
  - c. View the codes printed over the serial terminal.
5. If you are using SOL, perform these steps:
  - a. Connect to the IPMI SOL using the BMC IP address and login credentials.



If you haven't changed the BMC root account password, the factory-default value might be "calvin".

```
ipmitool -I lanplus -H BMC_Port_IP -U root -P Password sol activate
```

- b. View the codes on the virtual serial terminal.
6. Use the table to look up the codes for your appliance.

| Code | Indicates  |
|------|--|
| HI   | The master boot script has started.  |
| HP   | The system is checking to see if the network interface card (NIC) firmware needs to be updated.                          |
| RB   | The system is rebooting after applying firmware updates.   |
| FP   | The hardware subsystem firmware update checks have been completed. Inter-controller communication services are starting. |
| HC   | The system is checking for existing StorageGRID installation data.   |
| HO   | The StorageGRID appliance is running.  |
| HA   | StorageGRID is running.  |

#### Related information

[Access BMC interface](#)

## View error codes for appliance

If a hardware error occurs when the appliance is booting up, the BMC logs an error code. As required, you can view these error codes using the BMC interface, and then work with technical support to resolve the issue.

#### What you'll need

- You know how to access the BMC dashboard.

## Steps

1. From the BMC dashboard, select **BIOS POST Code**.
2. Review the information displayed for Current Code and the Previous Code.

If any of the following error codes are shown, work with technical support to resolve the issue.

| Code | Indicates  |
|------|--|
| 0x0E | Microcode not found  |
| 0x0F | Microcode not loaded   |
| 0x50 | Memory initialization error. Invalid memory type or incompatible memory speed.   |
| 0x51 | Memory initialization error. SPD reading has failed.                             |
| 0x52 | Memory initialization error. Invalid memory size or memory modules do not match. |
| 0x53 | Memory initialization error. No usable memory detected.                          |
| 0x54 | Unspecified memory initialization error  |
| 0x55 | Memory not installed   |
| 0x56 | Invalid CPU type or speed  |
| 0x57 | CPU mismatch   |
| 0x58 | CPU self-test failed, or possible CPU cache error                                |
| 0x59 | CPU micro-code is not found, or micro-code update failed                         |
| 0x5A | Internal CPU error   |
| 0x5B | Reset PPI is not available   |
| 0x5C | PEI phase BMC self-test failure  |
| 0xD0 | CPU initialization error   |
| 0xD1 | North bridge initialization error  |

| Code | Indicates  |
|------|--|
| 0xD2 | South bridge initialization error                    |
| 0xD3 | Some architectural protocols are not available       |
| 0xD4 | PCI resource allocation error. Out of resources.     |
| 0xD5 | No space for legacy option ROM                       |
| 0xD6 | No console output devices are found                  |
| 0xD7 | No console input devices are found                   |
| 0xD8 | Invalid password                                     |
| 0xD9 | Error loading boot option (LoadImage returned error) |
| 0xDA | Boot option failed (StartImage returned error)       |
| 0xDB | Flash update failed                                  |
| 0xDC | Reset protocol is not available                      |
| 0xDD | DXE phase BMC self-test failure                      |
| 0xE8 | MRC: ERR_NO_MEMORY                                   |
| 0xE9 | MRC: ERR_LT_LOCK                                     |
| 0xEA | MRC: ERR_DDR_INIT                                    |
| 0xEB | MRC: ERR_MEM_TEST                                    |
| 0xEC | MRC: ERR_VENDOR_SPECIFIC                             |
| 0xED | MRC: ERR_DIMM_COMPAT                                 |
| 0xEE | MRC: ERR_MRC_COMPATIBILITY                           |
| 0xEF | MRC: ERR_MRC_STRUCT                                  |
| 0xF0 | MRC: ERR_SET_VDD                                     |

| Code | Indicates                   |
|------|-----------------------------|
| 0xF1 | MRC: ERR_IOT_MEM_BUFFER     |
| 0xF2 | MRC: ERR_RC_INTERNAL        |
| 0xF3 | MRC: ERR_INVALID_REG_ACCESS |
| 0xF4 | MRC: ERR_SET_MC_FREQ        |
| 0xF5 | MRC: ERR_READ_MC_FREQ       |
| 0x70 | MRC: ERR_DIMM_CHANNEL       |
| 0x74 | MRC: ERR_BIST_CHECK         |
| 0xF6 | MRC: ERR_SMBUS              |
| 0xF7 | MRC: ERR_PCU                |
| 0xF8 | MRC: ERR_NGN                |
| 0xF9 | MRC: ERR_INTERLEAVE_FAILURE |

## Hardware setup appears to hang (SG100 and SG1000)

The StorageGRID Appliance Installer might not be available if hardware faults or cabling errors prevent the appliance from completing its boot-up processing.

### Steps

1. Review the LEDs on the appliance and the boot-up and error codes displayed in the BMC.
2. If you need help resolving an issue, contact technical support.

### Related information

[View boot-up codes for appliance](#)

[View error codes for appliance](#)

## Troubleshoot connection issues (SG100 and SG1000)

If you encounter connection issues during the StorageGRID appliance installation, you should perform the corrective action steps listed.

## Unable to connect to appliance

If you cannot connect to the services appliance, there might be a network issue, or the hardware installation might not have been completed successfully.

### Steps

1. Try to ping the appliance using the IP address for the appliance :  
**ping services\_appliance\_IP**
2. If you receive no response from the ping, confirm you are using the correct IP address.

You can use the IP address of the appliance on the Grid Network, the Admin Network, or the Client Network.

3. If the IP address is correct, check appliance cabling, QSFP or SFP transceivers, and the network setup.
4. If physical access to the appliance is available, you can use a direct connection to the permanent link-local IP 169.254.0.1 to check controller networking configuration and update if necessary. For detailed instructions, see step 2 in [Access StorageGRID Appliance Installer](#).

If that does not resolve the issue, contact technical support.

5. If the ping was successful, open a web browser.
6. Enter the URL for the StorageGRID Appliance Installer:  
**https://appliances\_controller\_IP:8443**

The Home page appears.

## Reboot services appliance while StorageGRID Appliance Installer is running

You might need to reboot the services appliance while the StorageGRID Appliance Installer is running. For example, you might need to reboot the services appliance if the installation fails.

### About this task

This procedure only applies when the services appliance is running the StorageGRID Appliance Installer. Once the installation is completed, this step no longer works because the StorageGRID Appliance Installer is no longer available.

### Steps

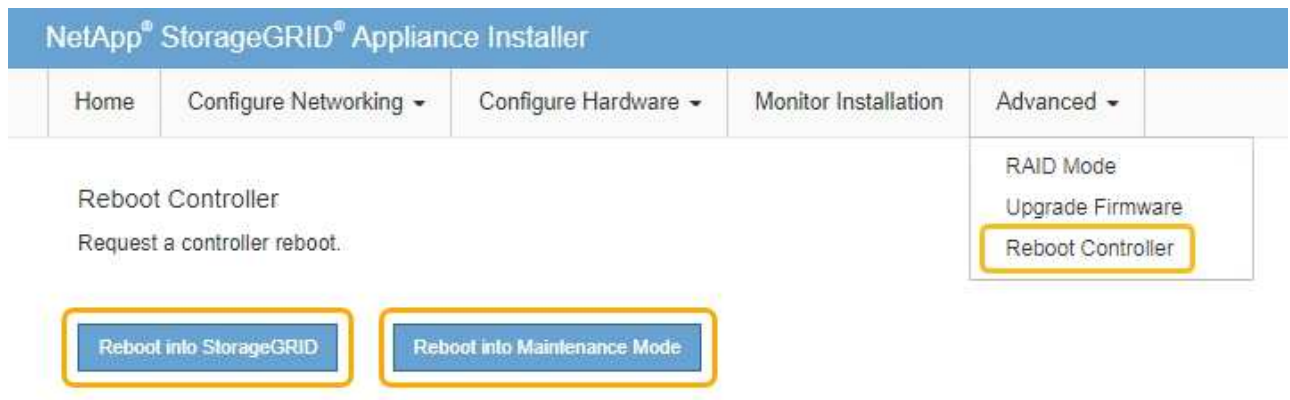
1. From the menu bar of the StorageGRID Appliance Installer, click **Advanced > Reboot Controller**.

The Reboot Controller page appears.

2. From the StorageGRID Appliance Installer, click **Advanced > Reboot Controller**, and then select one of these options:
  - Select **Reboot into StorageGRID** to reboot the controller with the node rejoining the grid. Select this option if you are done working in maintenance mode and are ready to return the node to normal operation.
  - Select **Reboot into Maintenance Mode** to reboot the controller with the node remaining in



maintenance mode. (This option is available only when the controller is in maintenance mode.) Select this option if there are additional maintenance operations you need to perform on the node before rejoining the grid.



The services appliance is rebooted.

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