

# Automate appliance installation and configuration (SG100 and SG1000)

StorageGRID

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# Automate appliance installation and configuration (SG100 and SG1000)

You can automate the installation and configuration of your appliances and configuration of the whole StorageGRID system.

#### About this task

Automating installation and configuration can be useful for deploying multiple StorageGRID instances or one large, complex StorageGRID instance.

To automate installation and configuration, use one or more of the following options:

 Create a JSON file that specifies the configuration settings for your appliances. Upload the JSON file using the StorageGRID Appliance Installer.



You can use the same file to configure more than one appliance.

- Use the StorageGRIDconfigure-sga.py Python script to automate the configuration of your appliances.
- · Use additional Python scripts to configure other components of the whole StorageGRID system (the "grid").



You can use StorageGRID automation Python scripts directly, or you can use them as examples of how to use the StorageGRID Installation REST API in grid deployment and configuration tools you develop yourself. See the instructions for downloading and extracting the StorageGRID installation files.

## Automate appliance configuration using StorageGRID Appliance Installer

You can automate the configuration of an appliance by using a JSON file that contains the configuration information. You upload the file using the StorageGRID Appliance Installer.

#### What you'll need

- Your appliance must be on the latest firmware compatible with StorageGRID 11.5 or higher.
- You must be connected to the StorageGRID Appliance Installer on the appliance you are configuring using a supported web browser.

#### About this task

You can automate appliance configuration tasks such as configuring the following:

- Grid Network, Admin Network, and Client Network IP addresses
- · BMC interface
- Network links
  - Port bond mode
  - Network bond mode

Link speed

Configuring your appliance using an uploaded JSON file is often more efficient than performing the configuration manually using multiple pages in the StorageGRID Appliance Installer, especially if you have to configure many nodes. You must apply the configuration file for each node one at a time.



Experienced users who want to automate both the installation and configuration of their appliances can use the configure-sga.py script.

#### Steps

- 1. Generate the JSON file using one of the following:
  - The ConfigBuilder application.
  - The configure-sga.py appliance configuration script. You can download the script from the StorageGRID Appliance Installer (Help > Appliance Configuration Script).

The node names in the JSON file must follow these requirements:

- Must be a valid hostname containing at least 1 and no more than 32 characters
- Can use letters, numbers, and hyphens
- Cannot start or end with a hyphen
- Cannot contain only numbers



Ensure that the node names (the top-level names) in the JSON file are unique, or you will not be able to configure more than one node using the JSON file.

2. Select Advanced > Update Appliance Configuration.

The Update Appliance Configuration page appears.

Update Appliance Configuration

Use a JSON file to update this appliance's configuration. You can generate the JSON file from the ConfigBuilder **C** application or from the appliance configuration script.

⚠ You might lose your connection if the applied configuration from the JSON file includes "link\_config" and/or "networks" sections. If you are not reconnected within 1 minute, re-enter the URL using one of the other IP addresses assigned to the appliance.

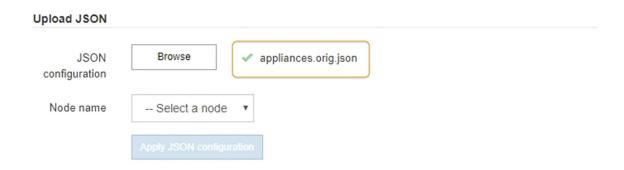


- 3. Select the JSON file with the configuration you want to upload.
  - a. Select Browse.
  - b. Locate and select the file.
  - c. Select **Open**.

The file is uploaded and validated. When the validation process is complete, the file name is shown next to a green check mark.



You might lose connection to the appliance if the configuration from the JSON file includes sections for "link\_config", "networks", or both. If you are not reconnected within 1 minute, re-enter the appliance URL using one of the other IP addresses assigned to the appliance.



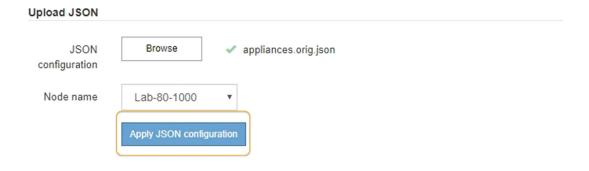
The **Node name** drop down is populated with the top-level node names defined in the JSON file.



If the file is not valid, the file name is shown in red and an error message is displayed in a yellow banner. The invalid file is not applied to the appliance. You can use ConfigBuilder to ensure you have a valid JSON file.

4. Select a node from the list in the **Node name** drop down.

The Apply JSON configuration button is enabled.



5. Select Apply JSON configuration.

The configuration is applied to the selected node.

## Automate installation and configuration of appliance nodes using configure-sga.py script

You can use the <code>configure-sga.py</code> script to automate many of the installation and configuration tasks for StorageGRID appliance nodes, including installing and configuring a primary Admin Node. This script can be useful if you have a large number of appliances to configure. You can also use the script to generate a JSON file that contains appliance configuration information.

#### What you'll need

- The appliance has been installed in a rack, connected to your networks, and powered on.
- Network links and IP addresses have been configured for the primary Admin Node using the StorageGRID Appliance Installer.
- If you are installing the primary Admin Node, you know its IP address.
- If you are installing and configuring other nodes, the primary Admin Node has been deployed, and you know its IP address.
- For all nodes other than the primary Admin Node, all Grid Network subnets listed on the IP Configuration page of the StorageGRID Appliance Installer have been defined in the Grid Network Subnet List on the primary Admin Node.
- You have downloaded the configure-sga.py file. The file is included in the installation archive, or you can access it by clicking **Help** > **Appliance Installation Script** in the StorageGRID Appliance Installer.



This procedure is for advanced users with some experience using command-line interfaces.

Alternatively, you can use the StorageGRID Appliance Installer to automate the configuration.

#### Steps

- 1. Log in to the Linux machine you are using to run the Python script.
- 2. For general help with the script syntax and to see a list of the available parameters, enter the following:

```
configure-sga.py --help
```

The configure-sga.py script uses five subcommands:

- advanced for advanced StorageGRID appliance interactions, including BMC configuration and creating a JSON file containing the current configuration of the appliance
- ° configure for configuring the RAID mode, node name, and networking parameters
- $^{\circ}$  install for starting a StorageGRID installation
- ° monitor for monitoring a StorageGRID installation
- ° reboot for rebooting the appliance

If you enter a subcommand (advanced, configure, install, monitor, or reboot) argument followed by the --help option you will get a different help text providing more detail on the options available within that subcommand:

```
configure-sga.py subcommand --help
```

3. To confirm the current configuration of the appliance node, enter the following where SGA-install-ip is any one of the IP addresses for the appliance node:

```
configure-sga.py configure SGA-INSTALL-IP
```

The results show current IP information for the appliance, including the IP address of the primary Admin Node and information about the Admin, Grid, and Client Networks.

```
Connecting to +https://10.224.2.30:8443+ (Checking version and
connectivity.)
2021/02/25 16:25:11: Performing GET on /api/versions... Received 200
2021/02/25 16:25:11: Performing GET on /api/v2/system-info... Received
2021/02/25 16:25:11: Performing GET on /api/v2/admin-connection...
Received 200
2021/02/25 16:25:11: Performing GET on /api/v2/link-config... Received
2021/02/25 16:25:11: Performing GET on /api/v2/networks... Received 200
2021/02/25 16:25:11: Performing GET on /api/v2/system-config... Received
200
  StorageGRID Appliance
                LAB-SGA-2-30
    Name:
   Node type:
                 storage
  StorageGRID primary Admin Node
               172.16.1.170
    IP:
   State:
              unknown
    Message: Initializing...
   Version: Unknown
  Network Link Configuration
    Link Status
          Link
                    State
                               Speed (Gbps)
          1
                    Uр
                               10
          2
                    Uр
                               10
          3
                    Uр
                               10
          4
                    Uр
                               10
          5
                    Uр
                               1
                              N/A
                    Down
```

Link Settings

Port bond mode: FIXED Link speed: 10GBE

Grid Network: ENABLED

Bonding mode: active-backup

VLAN: novlan

MAC Addresses: 00:a0:98:59:8e:8a 00:a0:98:59:8e:82

Admin Network: ENABLED

Bonding mode: no-bond

MAC Addresses: 00:80:e5:29:70:f4

Client Network: ENABLED

Bonding mode: active-backup

VLAN: novlan

MAC Addresses: 00:a0:98:59:8e:89 00:a0:98:59:8e:81

Grid Network

CIDR: 172.16.2.30/21 (Static)

MAC: 00:A0:98:59:8E:8A

Gateway: 172.16.0.1 Subnets: 172.17.0.0/21

> 172.18.0.0/21 192.168.0.0/21

MTU: 1500

Admin Network

CIDR: 10.224.2.30/21 (Static)

MAC: 00:80:E5:29:70:F4

Gateway: 10.224.0.1 Subnets: 10.0.0.0/8

> 172.19.0.0/16 172.21.0.0/16

MTU: 1500

Client Network

CIDR: 47.47.2.30/21 (Static)

MAC: 00:A0:98:59:8E:89

Gateway: 47.47.0.1

MTU: 2000

4. If you need to change any of the values in the current configuration, use the configure subcommand to update them. For example, if you want to change the IP address that the appliance uses for connection to the primary Admin Node to 172.16.2.99, enter the following:

```
configure-sga.py configure --admin-ip 172.16.2.99 SGA-INSTALL-IP
```

5. If you want to back up the appliance configuration to a JSON file, use the advanced and backup-file

subcommands. For example, if you want to back up the configuration of an appliance with IP address SGA-INSTALL-IP to a file named appliance-SG1000.json, enter the following: configure-sga.py advanced --backup-file appliance-SG1000.json SGA-INSTALL-IP

The JSON file containing the configuration information is written to the same directory you executed the script from.



Check that the top-level node name in the generated JSON file matches the appliance name. Do not make any changes to this file unless you are an experienced user and have a thorough understanding of StorageGRID APIs.

6. When you are satisfied with the appliance configuration, use the install and monitor subcommands to install the appliance:

```
configure-sga.py install --monitor SGA-INSTALL-IP
```

7. If you want to reboot the appliance, enter the following: configure-sga.py reboot SGA-INSTALL-IP

### **Automate configuration of StorageGRID**

After deploying the grid nodes, you can automate the configuration of the StorageGRID system.

#### What you'll need

• You know the location of the following files from the installation archive.

Filename	Description
configure-storagegrid.py	Python script used to automate the configuration
configure-storagegrid.sample.json	Sample configuration file for use with the script
configure-storagegrid.blank.json	Blank configuration file for use with the script

• You have created a configure-storagegrid.json configuration file. To create this file, you can modify the sample configuration file (configure-storagegrid.sample.json) or the blank configuration file (configure-storagegrid.blank.json).

#### About this task

You can use the configure-storagegrid.py Python script and the configure-storagegrid.json configuration file to automate the configuration of your StorageGRID system.



You can also configure the system using the Grid Manager or the Installation API.

#### Steps

- 1. Log in to the Linux machine you are using to run the Python script.
- 2. Change to the directory where you extracted the installation archive.

For example:

```
cd StorageGRID-Webscale-version/platform
```

where platform is debs, rpms, or vsphere.

3. Run the Python script and use the configuration file you created.

For example:

```
./configure-storagegrid.py ./configure-storagegrid.json --start-install
```

#### After you finish

A Recovery Package .zip file is generated during the configuration process, and it is downloaded to the directory where you are running the installation and configuration process. You must back up the Recovery Package file so that you can recover the StorageGRID system if one or more grid nodes fails. For example, copy it to a secure, backed up network location and to a secure cloud storage location.



The Recovery Package file must be secured because it contains encryption keys and passwords that can be used to obtain data from the StorageGRID system.

If you specified that random passwords should be generated, you need to extract the Passwords.txt file and look for the passwords required to access your StorageGRID system.

Your StorageGRID system is installed and configured when a confirmation message is displayed.

StorageGRID has been configured and installed.

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