



Configure IP addresses

StorageGRID 11.8

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Configure IP addresses

Configure IP addresses: Overview

You can perform network configuration by configuring IP addresses for grid nodes using the Change IP tool.

You must use the Change IP tool to make most changes to the networking configuration that was initially set during grid deployment. Manual changes using standard Linux networking commands and files might not propagate to all StorageGRID services, and might not persist across upgrades, reboots, or node recovery procedures.



The IP change procedure can be a disruptive procedure. Parts of the grid might be unavailable until the new configuration is applied.



If you are making changes to the Grid Network Subnet List only, use the Grid Manager to add or change the network configuration. Otherwise, use the Change IP tool if the Grid Manager is inaccessible due to a network configuration issue, or you are performing both a Grid Network routing change and other network changes at the same time.



If you want to change the Grid Network IP address for all nodes in the grid, use the [special procedure for grid-wide changes](#).

Ethernet interfaces

The IP address assigned to eth0 is always the grid node's Grid Network IP address. The IP address assigned to eth1 is always the grid node's Admin Network IP address. The IP address assigned to eth2 is always the grid node's Client Network IP address.

Note that on some platforms, such as StorageGRID appliances, eth0, eth1, and eth2 might be aggregate interfaces composed of subordinate bridges or bonds of physical or VLAN interfaces. On these platforms, the **SSM > Resources** tab might show the Grid, Admin, and Client Network IP address assigned to other interfaces in addition to eth0, eth1, or eth2.

DHCP

You can only set up DHCP during the deployment phase. You can't set up DHCP during configuration. You must use the IP address change procedures if you want to change IP addresses, subnet masks, and default gateways for a grid node. Using the Change IP tool will cause DHCP addresses to become static.

High availability (HA) groups

- If a Client Network interface is contained in an HA group, you can't change the Client Network IP address for that interface to an address that is outside of the subnet configured for the HA group.
- You can't change the Client Network IP address to the value of an existing virtual IP address assigned to an HA group configured on the Client Network interface.
- If a Grid network interface is contained in an HA group, you can't change the Grid network IP address for that interface to an address that is outside of the subnet configured for the HA group.
- You can't change the Grid Network IP address to the value of an existing virtual IP address assigned to an

HA group configured on the Grid Network interface.

Change node network configuration

You can change the network configuration of one or more nodes using the Change IP tool. You can change the configuration of the Grid Network, or add, change, or remove the Admin or Client Networks.

Before you begin

You have the `Passwords.txt` file.

About this task

Linux: If you are adding a grid node to the Admin Network or Client Network for the first time, and you did not previously configure `ADMIN_NETWORK_TARGET` or `CLIENT_NETWORK_TARGET` in the node configuration file, you must do so now.

See the StorageGRID installation instructions for your Linux operating system:

- [Install StorageGRID on Red Hat Enterprise Linux](#)
- [Install StorageGRID on Ubuntu or Debian](#)

Appliances: On StorageGRID appliances, if the Client or Admin Network was not configured in the StorageGRID Appliance Installer during the initial installation, the network can't be added by using only the Change IP tool. First, you must [place the appliance in maintenance mode](#), configure the links, return the appliance to normal operating mode, and then use the Change IP tool to modify the network configuration. See the [procedure for configuring network links](#).

You can change the IP address, subnet mask, gateway, or MTU value for one or more nodes on any network.

You can also add or remove a node from a Client Network or from an Admin Network:

- You can add a node to a Client Network or to an Admin Network by adding an IP address/subnet mask on that network to the node.
- You can remove a node from a Client Network or from an Admin Network by deleting the IP address/subnet mask for the node on that network.

Nodes can't be removed from the Grid Network.



IP address swaps aren't allowed. If you must exchange IP addresses between grid nodes, you must use a temporary intermediate IP address.



If single sign-on (SSO) is enabled for your StorageGRID system and you are changing the IP address of an Admin Node, be aware that any relying party trust that was configured using the Admin Node's IP address (instead of its fully qualified domain name, as recommended) will become invalid. You will no longer be able to sign in to the node. Immediately after changing the IP address, you must update or reconfigure the node's relying party trust in Active Directory Federation Services (AD FS) with the new IP address. See the instructions for [configuring SSO](#).



Any changes you make to the network using the Change IP tool are propagated to the installer firmware for the StorageGRID appliances. That way, if StorageGRID software is reinstalled on an appliance, or if an appliance is placed into maintenance mode, the networking configuration will be correct.

Steps

1. Log in to the primary Admin Node:

- a. Enter the following command: `ssh admin@primary_Admin_Node_IP`
- b. Enter the password listed in the `Passwords.txt` file.
- c. Enter the following command to switch to root: `su -`
- d. Enter the password listed in the `Passwords.txt` file.

When you are logged in as root, the prompt changes from `$` to `#`.

2. Start the Change IP tool by entering the following command: `change-ip`
3. Enter the provisioning passphrase at the prompt.

The main menu appears.

```
Welcome to the StorageGRID IP Change Tool.

Selected nodes: all

1:  SELECT NODES to edit
2:  EDIT IP/mask, gateway and MTU
3:  EDIT admin network subnet lists
4:  EDIT grid network subnet list
5:  SHOW changes
6:  SHOW full configuration, with changes highlighted
7:  VALIDATE changes
8:  SAVE changes, so you can resume later
9:  CLEAR all changes, to start fresh
10: APPLY changes to the grid
0:  Exit

Selection: █
```

4. Optionally select **1** to choose which nodes to update. Then select one of the following options:

- **1:** Single node — select by name
- **2:** Single node — select by site, then by name
- **3:** Single node — select by current IP
- **4:** All nodes at a site
- **5:** All nodes in the grid

Note: If you want to update all nodes, allow "all" to remain selected.

After you make your selection, the main menu appears, with the **Selected nodes** field updated to reflect your choice. All subsequent actions are performed only on the nodes displayed.

5. On the main menu, select option **2** to edit IP/mask, gateway, and MTU information for the selected nodes.
 - a. Select the network where you want to make changes:

- 1: Grid network
- 2: Admin network
- 3: Client network
- 4: All networks

After you make your selection, the prompt shows the node name, network name (Grid, Admin, or Client), data type (IP/mask, Gateway, or MTU), and current value.

Editing the IP address, prefix length, gateway, or MTU of a DHCP-configured interface will change the interface to static. When you select to change an interface configured by DHCP, a warning is displayed to inform you that the interface will change to static.

Interfaces configured as `fixed` can't be edited.

- b. To set a new value, enter it in the format shown for the current value.
- c. To leave the current value unchanged, press **Enter**.
- d. If the data type is `IP/mask`, you can delete the Admin or Client Network from the node by entering **d** or `0.0.0.0/0`.
- e. After editing all nodes you want to change, enter **q** to return to the main menu.

Your changes are held until cleared or applied.

6. Review your changes by selecting one of the following options:

- **5**: Shows edits in output that is isolated to show only the changed item. Changes are highlighted in green (additions) or red (deletions), as shown in the example output:

```

=====
Site: RTP
=====
username-x Grid IP [ 172.16.0.239/21 ]: 172.16.0.240/21
username-x Grid MTU [ 1400 ]: 9000
username-x Grid MTU [ 1400 ]: 9000
username-x Grid MTU [ 1400 ]: 9000
username-x Grid MTU [ 1400 ]: 9000
username-x Grid MTU [ 1400 ]: 9000
username-x Grid MTU [ 1400 ]: 9000
username-x Admin IP [ 10.224.0.244/21 ]: 0.0.0.0/0
username-x Admin IP [ 10.224.0.245/21 ]: 0.0.0.0/0
username-x Admin IP [ 10.224.0.240/21 ]: 0.0.0.0/0
username-x Admin IP [ 10.224.0.241/21 ]: 0.0.0.0/0
username-x Admin IP [ 10.224.0.242/21 ]: 0.0.0.0/0
username-x Admin IP [ 10.224.0.243/21 ]: 0.0.0.0/0
username-x Admin Gateway [ 10.224.0.1 ]: 0.0.0.0
username-x Admin Gateway [ 10.224.0.1 ]: 0.0.0.0
username-x Admin Gateway [ 10.224.0.1 ]: 0.0.0.0
username-x Admin Gateway [ 10.224.0.1 ]: 0.0.0.0
username-x Admin Gateway [ 10.224.0.1 ]: 0.0.0.0
username-x Admin Gateway [ 10.224.0.1 ]: 0.0.0.0
username-x Admin MTU [ 1400 ]: 0
username-x Admin MTU [ 1400 ]: 0
username-x Admin MTU [ 1400 ]: 0
username-x Admin MTU [ 1400 ]: 0
username-x Admin MTU [ 1400 ]: 0
Press Enter to continue

```

- **6**: Shows edits in output that displays the full configuration. Changes are highlighted in green (additions) or red (deletions).



Certain command line interfaces might show additions and deletions using strikethrough formatting. Proper display depends on your terminal client supporting the necessary VT100 escape sequences.

7. Select option **7** to validate all changes.

This validation ensures that the rules for the Grid, Admin, and Client Networks, such as not using overlapping subnets, aren't violated.

In this example, validation returned errors.

```
Validating new networking configuration... FAILED.

DK-10-224-5-20-G1: The admin subnet 172.18.0.0/16 overlaps the 172.18.0.0/21 grid network.
DK-10-224-5-22-S1: Duplicate Grid IP 172.16.5.18 (also in use by DK-10-224-5-21-ADM1)

You must correct these errors before you can apply any changes.
Checking for Grid Network IP address swaps... PASSED.

Press Enter to continue
```

In this example, validation passed.

```
Validating new networking configuration... PASSED.
Checking for Grid Network IP address swaps... PASSED.

Press Enter to continue
```

8. After validation passes, choose one of the following options:

- **8**: Save unapplied changes.

This option allows you to quit the Change IP tool and start it again later, without losing any unapplied changes.

- **10**: Apply the new network configuration.

9. If you selected option **10**, choose one of the following options:

- **apply**: Apply the changes immediately and automatically restart each node if necessary.

If the new network configuration does not require any physical networking changes, you can select **apply** to apply the changes immediately. Nodes will be restarted automatically, if necessary. Nodes that need to be restarted will be displayed.

- **stage**: Apply the changes the next time the nodes are restarted manually.

If you need to make physical or virtual networking configuration changes for the new network configuration to function, you must use the **stage** option, shut down the affected nodes, make the necessary physical networking changes, and restart the affected nodes. If you select **apply** without first making these networking changes, the changes will usually fail.



If you use the **stage** option, you must restart the node as soon as possible after staging to minimize disruptions.

- **cancel**: Don't make any network changes at this time.

If you were unaware that the proposed changes require nodes to be restarted, you can defer the changes to minimize user impact. Selecting **cancel** returns you to the main menu and preserves your changes so you can apply them later.

When you select **apply** or **stage**, a new network configuration file is generated, provisioning is performed, and nodes are updated with new working information.

During provisioning, the output displays the status as updates are applied.

```
Generating new grid networking description file...
```

```
Running provisioning...
```

```
Updating grid network configuration on Name
```

After you apply or stage changes, a new Recovery Package is generated as a result of the grid configuration change.

10. If you selected **stage**, follow these steps after provisioning is complete:

- a. Make the physical or virtual networking changes that are required.

Physical networking changes: Make the necessary physical networking changes, safely shutting down the node if necessary.

Linux: If you are adding the node to an Admin Network or Client Network for the first time, ensure that you have added the interface as described in [Linux: Add interfaces to existing node](#).

- b. Restart the affected nodes.

11. Select **0** to exit the Change IP tool after your changes are complete.

12. Download a new Recovery Package from the Grid Manager.

- a. Select **MAINTENANCE > System > Recovery package**.
- b. Enter the provisioning passphrase.

Add to or change subnet lists on Admin Network

You can add, delete, or change the subnets in the Admin Network Subnet List of one or more nodes.

Before you begin

- You have the `Passwords.txt` file.

You can add, delete, or change subnets to all nodes on the Admin Network Subnet List.

Steps

1. Log in to the primary Admin Node:

- a. Enter the following command: `ssh admin@primary_Admin_Node_IP`
- b. Enter the password listed in the `Passwords.txt` file.
- c. Enter the following command to switch to root: `su -`
- d. Enter the password listed in the `Passwords.txt` file.

When you are logged in as root, the prompt changes from `$` to `#`.

2. Start the Change IP tool by entering the following command: `change-ip`
3. Enter the provisioning passphrase at the prompt.

The main menu appears.

```

Welcome to the StorageGRID IP Change Tool.

Selected nodes: all

1:  SELECT NODES to edit
2:  EDIT IP/mask, gateway and MTU
3:  EDIT admin network subnet lists
4:  EDIT grid network subnet list
5:  SHOW changes
6:  SHOW full configuration, with changes highlighted
7:  VALIDATE changes
8:  SAVE changes, so you can resume later
9:  CLEAR all changes, to start fresh
10: APPLY changes to the grid
0:  Exit

Selection: █

```

4. Optionally, limit the networks/nodes on which operations are performed. Choose one of the following:
 - Select the nodes to edit by choosing **1**, if you want to filter on specific nodes on which to perform the operation. Select one of the following options:
 - **1**: Single node (select by name)
 - **2**: Single node (select by site, then by name)
 - **3**: Single node (select by current IP)
 - **4**: All nodes at a site
 - **5**: All nodes in the grid
 - **0**: Go back
 - Allow "all" to remain selected. After the selection is made, the main menu screen appears. The Selected nodes field reflects your new selection, and now all operations selected will only be performed on this item.
5. On the main menu, select the option to edit subnets for the Admin Network (option **3**).
6. Choose one of the following:
 - Add a subnet by entering this command: `add CIDR`
 - Delete a subnet by entering this command: `del CIDR`
 - Set the list of subnets by entering this command: `set CIDR`



For all commands, you can enter multiple addresses using this format: `add CIDR, CIDR`

Example: add 172.14.0.0/16, 172.15.0.0/16, 172.16.0.0/16



You can reduce the amount of typing required by using "up arrow" to recall previously typed values to the current input prompt, and then edit them if necessary.

The example input below shows adding subnets to the Admin Network Subnet List:

```
Editing: Admin Network Subnet List for node DK-10-224-5-20-G1

Press <enter> to use the list as shown
Use up arrow to recall a previously typed value, which you can then edit
Use 'add <CIDR> [, <CIDR>]' to add subnets <CIDR> [, <CIDR>] to the list
Use 'del <CIDR> [, <CIDR>]' to delete subnets <CIDR> [, <CIDR>] from the list
Use 'set <CIDR> [, <CIDR>]' to set the list to the given list
Use q to complete the editing session early and return to the previous menu

DK-10-224-5-20-G1
 10.0.0.0/8
 172.19.0.0/16
 172.21.0.0/16
 172.20.0.0/16

[add/del/set/quit <CIDR>, ...]: add 172.14.0.0/16, 172.15.0.0/16
```

7. When ready, enter **q** to go back to the main menu screen. Your changes are held until cleared or applied.



If you selected any of the "all" node selection modes in step 2, press **Enter** (without **q**) to get to the next node in the list.

8. Choose one of the following:

- Select option **5** to show edits in output that is isolated to show only the changed item. Changes are highlighted in green (additions) or red (deletions), as shown in the example output below:

```
=====
Site: Data Center 1
=====
DC1-ADM1-105-154 Admin Subnets
                                     add 172.17.0.0/16
                                     del 172.16.0.0/16
                                     [ 172.14.0.0/16 ]
                                     [ 172.15.0.0/16 ]
                                     [ 172.17.0.0/16 ]
                                     [ 172.19.0.0/16 ]
                                     [ 172.20.0.0/16 ]
                                     [ 172.21.0.0/16 ]
Press Enter to continue
```

- Select option **6** to show edits in output that displays the full configuration. Changes are highlighted in green (additions) or red (deletions). **Note:** Certain terminal emulators might show additions and deletions using strikethrough formatting.

When you attempt to change the subnet list, the following message is displayed:

CAUTION: The Admin Network subnet list on the node might contain /32 subnets derived from automatically applied routes that aren't persistent. Host routes (/32 subnets) are applied automatically if the IP addresses provided for external services such as NTP or DNS aren't reachable using default StorageGRID routing, but are reachable using a different interface and gateway. Making and applying changes to the subnet list will make all automatically applied subnets persistent. If you don't want that to happen, delete the unwanted subnets before applying changes. If you know that all /32 subnets in the list were added intentionally, you can ignore this caution.

If you did not specifically assign the NTP and DNS server subnets to a network, StorageGRID creates a host route (/32) for the connection automatically. If, for example, you would rather have a /16 or /24 route for outbound connection to a DNS or NTP server, you should delete the automatically created /32 route and add the routes you want. If you don't delete the automatically created host route, it will be persisted after you apply any changes to the subnet list.



Although you can use these automatically discovered host routes, in general you should manually configure the DNS and NTP routes to ensure connectivity.

9. Select option **7** to validate all staged changes.

This validation ensures that the rules for the Grid, Admin, and Client Networks are followed, such as using overlapping subnets.

10. Optionally, select option **8** to save all staged changes and return later to continue making changes.

This option allows you to quit the Change IP tool and start it again later, without losing any unapplied changes.

11. Do one of the following:

- Select option **9** if you want to clear all changes without saving or applying the new network configuration.
- Select option **10** if you are ready to apply changes and provision the new network configuration. During provisioning, the output displays the status as updates are applied as shown in the following example output:

```
Generating new grid networking description file...
```

```
Running provisioning...
```

```
Updating grid network configuration on Name
```

12. Download a new Recovery Package from the Grid Manager.
 - a. Select **MAINTENANCE > System > Recovery package**.
 - b. Enter the provisioning passphrase.

Add to or change subnet lists on Grid Network

You can use the Change IP tool to add or change subnets on the Grid Network.

Before you begin

- You have the `Passwords.txt` file.

You can add, delete, or change subnets in the Grid Network Subnet List. Changes will affect routing on all nodes in the grid.



If you are making changes to the Grid Network Subnet List only, use the Grid Manager to add or change the network configuration. Otherwise, use the Change IP tool if the Grid Manager is inaccessible due to a network configuration issue, or you are performing both a Grid Network routing change and other network changes at the same time.

Steps

1. Log in to the primary Admin Node:
 - a. Enter the following command: `ssh admin@primary_Admin_Node_IP`
 - b. Enter the password listed in the `Passwords.txt` file.
 - c. Enter the following command to switch to root: `su -`
 - d. Enter the password listed in the `Passwords.txt` file.

When you are logged in as root, the prompt changes from `$` to `#`.

2. Start the Change IP tool by entering the following command: `change-ip`
3. Enter the provisioning passphrase at the prompt.

The main menu appears.

```
Welcome to the StorageGRID IP Change Tool.

Selected nodes: all

1:  SELECT NODES to edit
2:  EDIT IP/mask, gateway and MTU
3:  EDIT admin network subnet lists
4:  EDIT grid network subnet list
5:  SHOW changes
6:  SHOW full configuration, with changes highlighted
7:  VALIDATE changes
8:  SAVE changes, so you can resume later
9:  CLEAR all changes, to start fresh
10: APPLY changes to the grid
0:  Exit

Selection: █
```

4. On the main menu, select the option to edit subnets for the Grid Network (option 4).



Changes to the Grid Network Subnet List are grid-wide.

5. Choose one of the following:

- Add a subnet by entering this command: `add CIDR`
- Delete a subnet by entering this command: `del CIDR`
- Set the list of subnets by entering this command: `set CIDR`



For all commands, you can enter multiple addresses using this format: `add CIDR, CIDR`

Example: `add 172.14.0.0/16, 172.15.0.0/16, 172.16.0.0/16`



You can reduce the amount of typing required by using "up arrow" to recall previously typed values to the current input prompt, and then edit them if necessary.

The example input below shows setting subnets for the Grid Network Subnet List:

```
Editing: Grid Network Subnet List

Press <enter> to use the list as shown
Use up arrow to recall a previously typed value, which you can then edit
Use 'add <CIDR> [, <CIDR>]' to add subnets <CIDR> [, <CIDR>] to the list
Use 'del <CIDR> [, <CIDR>]' to delete subnets <CIDR> [, <CIDR>] from the list
Use 'set <CIDR> [, <CIDR>]' to set the list to the given list
Use q to complete the editing session early and return to the previous menu

Grid Network Subnet List
172.16.0.0/21
172.17.0.0/21
172.18.0.0/21
192.168.0.0/21

[add/del/set/quit <CIDR>, ...]: set 172.30.0.0/21, 172.31.0.0/21, 192.168.0.0/21
```

- When ready, enter **q** to go back to the main menu screen. Your changes are held until cleared or applied.
- Choose one of the following:
 - Select option **5** to show edits in output that is isolated to show only the changed item. Changes are highlighted in green (additions) or red (deletions), as shown in the example output below:

```
=====
Grid Network Subnet List (GNSL)
=====

                                     add 172.30.0.0/21
                                     add 172.31.0.0/21
                                     del 172.16.0.0/21
                                     del 172.17.0.0/21
                                     del 172.18.0.0/21

[      172.30.0.0/21 ]
[      172.31.0.0/21 ]
[      192.168.0.0/21 ]

Press Enter to continue
```

- Select option **6** to show edits in output that displays the full configuration. Changes are highlighted in green (additions) or red (deletions).



Certain command line interfaces might show additions and deletions using strikethrough formatting.

8. Select option **7** to validate all staged changes.

This validation ensures that the rules for the Grid, Admin, and Client Networks are followed, such as using overlapping subnets.

9. Optionally, select option **8** to save all staged changes and return later to continue making changes.

This option allows you to quit the Change IP tool and start it again later, without losing any unapplied changes.

10. Do one of the following:

- Select option **9** if you want to clear all changes without saving or applying the new network configuration.
- Select option **10** if you are ready to apply changes and provision the new network configuration. During provisioning, the output displays the status as updates are applied as shown in the following example output:

```
Generating new grid networking description file...

Running provisioning...

Updating grid network configuration on Name
```

11. If you selected option **10** when making Grid Network changes, select one of the following options:

- **apply**: Apply the changes immediately and automatically restart each node if necessary.

If the new network configuration will function simultaneously with the old network configuration without any external changes, you can use the **apply** option for a fully automated configuration change.

- **stage**: Apply the changes the next time the nodes are restarted.

If you need to make physical or virtual networking configuration changes for the new network configuration to function, you must use the **stage** option, shut down the affected nodes, make the necessary physical networking changes, and restart the affected nodes.



If you use the **stage** option, restart the node as soon as possible after staging to minimize disruptions.

- **cancel**: Don't make any network changes at this time.

If you were unaware that the proposed changes require nodes to be restarted, you can defer the changes to minimize user impact. Selecting **cancel** returns you to the main menu and preserves your changes so you can apply them later.

After you apply or stage changes, a new Recovery Package is generated as a result of the grid configuration change.

12. If configuration is stopped due to errors, the following options are available:

- To terminate the IP change procedure and return to the main menu, enter **a**.

- To retry the operation that failed, enter **r**.
- To continue to the next operation, enter **c**.

The failed operation can be retried later by selecting option **10** (Apply Changes) from the main menu. The IP change procedure will not be complete until all operations have completed successfully.

- If you had to manually intervene (to reboot a node, for example) and are confident that the action the tool thinks has failed was actually completed successfully, enter **f** to mark it as successful and move to the next operation.

13. Download a new Recovery Package from the Grid Manager.

- Select **MAINTENANCE > System > Recovery package**.
- Enter the provisioning passphrase.



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.

Change IP addresses for all nodes in grid

If you need to change the Grid Network IP address for all nodes in the grid, you must follow this special procedure. You can't do a grid-wide Grid Network IP change using the procedure to change individual nodes.

Before you begin

- You have the `Passwords.txt` file.

To ensure that the grid starts up successfully, you must make all the changes at the same time.



This procedure applies to the Grid Network only. You can't use this procedure to change IP addresses on the Admin or Client Networks.

If you want to change the IP addresses and MTU for the nodes at one site only, follow the [Change node network configuration](#) instructions.

Steps

1. Plan ahead for changes that you need to make outside of the Change IP tool, such as changes to DNS or NTP, and changes to the single sign-on (SSO) configuration, if used.



If the existing NTP servers will not be accessible to the grid on the new IP addresses, add the new NTP servers before you perform the change-ip procedure.



If the existing DNS servers will not be accessible to the grid on the new IP addresses, add the new DNS servers before you perform the change-ip procedure.



If SSO is enabled for your StorageGRID system and any relying party trusts were configured using Admin Node IP addresses (instead of fully qualified domain names, as recommended), be prepared to update or reconfigure these relying party trusts in Active Directory Federation Services (AD FS) immediately after you change IP addresses. See [Configure single sign-on](#).



If necessary, add the new subnet for the new IP addresses.

2. Log in to the primary Admin Node:

- a. Enter the following command: `ssh admin@primary_Admin_Node_IP`
- b. Enter the password listed in the `Passwords.txt` file.
- c. Enter the following command to switch to root: `su -`
- d. Enter the password listed in the `Passwords.txt` file.

When you are logged in as root, the prompt changes from `$` to `#`.

3. Start the Change IP tool by entering the following command: `change-ip`

4. Enter the provisioning passphrase at the prompt.

The main menu appears. By default, the `Selected nodes` field is set to `all`.

```
Welcome to the StorageGRID IP Change Tool.

Selected nodes: all

1:  SELECT NODES to edit
2:  EDIT IP/mask, gateway and MTU
3:  EDIT admin network subnet lists
4:  EDIT grid network subnet list
5:  SHOW changes
6:  SHOW full configuration, with changes highlighted
7:  VALIDATE changes
8:  SAVE changes, so you can resume later
9:  CLEAR all changes, to start fresh
10: APPLY changes to the grid
0:  Exit

Selection: █
```

5. On the main menu, select **2** to edit IP/subnet mask, gateway, and MTU information for all the nodes.

- a. Select **1** to make changes to the Grid Network.

After you make your selection, the prompt shows the node names, Grid Network name, data type (IP/mask, Gateway, or MTU), and current values.

Editing the IP address, prefix length, gateway, or MTU of a DHCP-configured interface will change the interface to static. A warning is displayed before each interface configured by DHCP.

Interfaces configured as `fixed` can't be edited.

- b. To set a new value, enter it in the format shown for the current value.
- c. After editing all nodes you want to change, enter **q** to return to the main menu.

Your changes are held until cleared or applied.

6. Review your changes by selecting one of the following options:

- **5**: Shows edits in output that is isolated to show only the changed item. Changes are highlighted in green (additions) or red (deletions), as shown in the example output:


```

=====
Site: RTP
=====
username-x Grid IP [ 172.16.0.239/21 ]: 172.16.0.240/21
username-x Grid MTU [ 1400 ]: 9000
username-x Grid MTU [ 1400 ]: 9000
username-x Grid MTU [ 1400 ]: 9000
username-x Grid MTU [ 1400 ]: 9000
username-x Grid MTU [ 1400 ]: 9000
username-x Grid MTU [ 1400 ]: 9000
username-x Grid MTU [ 1400 ]: 9000
username-x Admin IP [ 10.224.0.244/21 ]: 0.0.0.0/0
username-x Admin IP [ 10.224.0.245/21 ]: 0.0.0.0/0
username-x Admin IP [ 10.224.0.240/21 ]: 0.0.0.0/0
username-x Admin IP [ 10.224.0.241/21 ]: 0.0.0.0/0
username-x Admin IP [ 10.224.0.242/21 ]: 0.0.0.0/0
username-x Admin IP [ 10.224.0.243/21 ]: 0.0.0.0/0
username-x Admin Gateway [ 10.224.0.1 ]: 0.0.0.0
username-x Admin Gateway [ 10.224.0.1 ]: 0.0.0.0
username-x Admin Gateway [ 10.224.0.1 ]: 0.0.0.0
username-x Admin Gateway [ 10.224.0.1 ]: 0.0.0.0
username-x Admin Gateway [ 10.224.0.1 ]: 0.0.0.0
username-x Admin MTU [ 1400 ]: 0
username-x Admin MTU [ 1400 ]: 0
username-x Admin MTU [ 1400 ]: 0
username-x Admin MTU [ 1400 ]: 0
username-x Admin MTU [ 1400 ]: 0
username-x Admin MTU [ 1400 ]: 0
Press Enter to continue

```

- 6: Shows edits in output that displays the full configuration. Changes are highlighted in green (additions) or red (deletions).



Certain command line interfaces might show additions and deletions using strikethrough formatting. Proper display depends on your terminal client supporting the necessary VT100 escape sequences.

7. Select option 7 to validate all changes.

This validation ensures that the rules for the Grid Network, such as not using overlapping subnets, aren't violated.

In this example, validation returned errors.

```

Validating new networking configuration... FAILED.

DK-10-224-S-20-G1: The admin subnet 172.18.0.0/16 overlaps the 172.18.0.0/21 grid network.
DK-10-224-S-22-S1: Duplicate Grid IP 172.16.5.18 (also in use by DK-10-224-S-21-ADM1)

You must correct these errors before you can apply any changes.
Checking for Grid Network IP address swaps... PASSED.

Press Enter to continue

```

In this example, validation passed.

```

Validating new networking configuration... PASSED.
Checking for Grid Network IP address swaps... PASSED.

Press Enter to continue

```

8. After validation passes, select **10** to apply the new network configuration.
9. Select **stage** to apply the changes the next time the nodes are restarted.



You must select **stage**. Don't perform a rolling restart, either manually or by selecting **apply** instead of **stage**; the grid will not start up successfully.

10. After your changes are complete, select **0** to exit the Change IP tool.
11. Shut down all nodes simultaneously.



The entire grid must be shut down, so that all nodes are down at the same time.

12. Make the physical or virtual networking changes that are required.
13. Verify that all grid nodes are down.
14. Power on all nodes.
15. After the grid starts up successfully:
 - a. If you added new NTP servers, delete the old NTP server values.
 - b. If you added new DNS servers, delete the old DNS server values.
16. Download the new Recovery Package from the Grid Manager.
 - a. Select **MAINTENANCE > System > Recovery package**.
 - b. Enter the provisioning passphrase.

Related information

- [Add to or change subnet lists on Grid Network](#)
- [Shut down grid node](#)

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