Manage Admin Nodes

StorageGRID 11.7

NetApp
January 09, 2024

This PDF was generated from https://docs.netapp.com/us-en/storagegrid-117/admin/what-admin-node-is.html on January 09, 2024. Always check docs.netapp.com for the latest.

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Manage Admin Nodes

What is an Admin Node?

Admin Nodes provide management services such as system configuration, monitoring, and logging. Each grid must have one primary Admin Node and might have any number of non-primary Admin Nodes for redundancy.

When you sign in to the Grid Manager or the Tenant Manager, you are connecting to an Admin Node. You can connect to any Admin Node, and each Admin Node displays a similar view of the StorageGRID system. However, maintenance procedures must be performed using the primary Admin Node.

Admin Nodes can also be used to load balance S3 and Swift client traffic.

What is the preferred sender

If your StorageGRID deployment includes multiple Admin Nodes, the primary Admin Node is the preferred sender for alert notifications, AutoSupport messages, SNMP traps and informs, and legacy alarm notifications.

Under normal system operations, only the preferred sender sends notifications. However, all other Admin Nodes monitor the preferred sender. If a problem is detected, other Admin Nodes act as *standby senders*.

Multiple notifications might sent in these cases:

- If Admin Nodes become "islanded" from each other, both the preferred sender and the standby senders will attempt to send notifications, and multiple copies of notifications might be received.
- If standby sender detects problems with the preferred sender and starts sending notifications, the preferred sender might regain its ability to send notifications. If this occurs, duplicate notifications might be sent. The standby sender will stop sending notifications when it no longer detects errors on the preferred sender.

> When you test AutoSupport messages, all Admin Nodes send the test email. When you test alert notifications, you must sign in to every Admin Node to verify connectivity.

Primary services for Admin Nodes

The following table shows the primary services for Admin Nodes; however, this table does not list all node services.

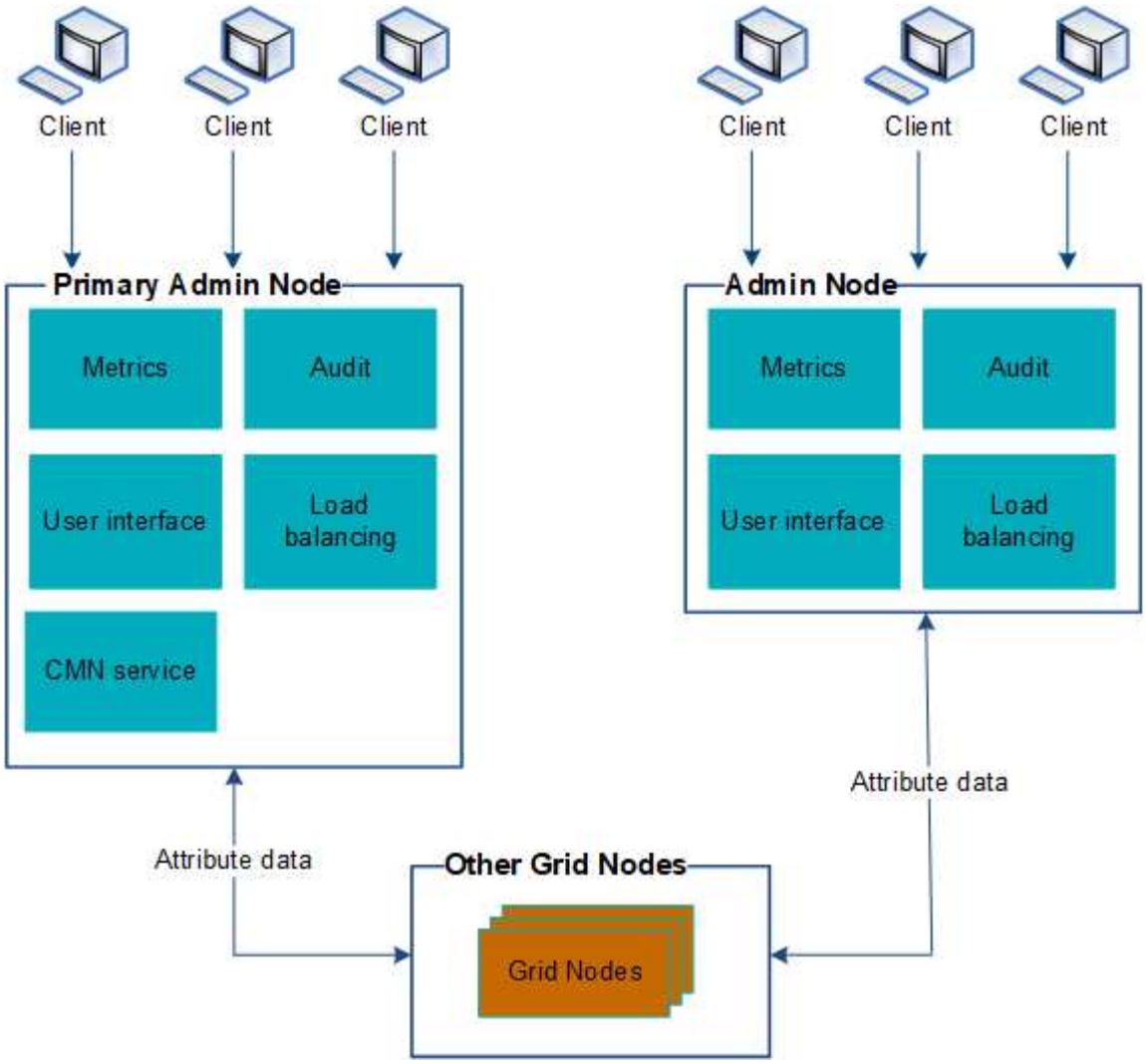
Service	Key function
Audit Management System (AMS)	Tracks system activity and events.
Configuration Management Node (CMN)	Manages system-wide configuration. Primary Admin Node only.
Management Application Program Interface (mgmt-api)	Processes requests from the Grid Management API and the Tenant Management API.

Service	Key function
High Availability	Manages high availability virtual IP addresses for groups of Admin Nodes and Gateway Nodes. **Note:** This service is also found on Gateway Nodes.
Load Balancer	Provides load balancing of S3 and Swift traffic from clients to Storage Nodes. **Note:** This service is also found on Gateway Nodes.
Network Management System (NMS)	Provides functionality for the Grid Manager.
Prometheus	Collects and stores time-series metrics from the services on all nodes.
Server Status Monitor (SSM)	Monitors the operating system and underlying hardware.

Use multiple Admin Nodes

A StorageGRID system can include multiple Admin Nodes to enable you to continuously monitor and configure your StorageGRID system even if one Admin Node fails.

If an Admin Node becomes unavailable, attribute processing continues, alerts and alarms (legacy system) are still triggered, and email notifications and AutoSupport messages are still sent. However, having multiple Admin Nodes does not provide failover protection except for notifications and AutoSupport messages. In particular, alarm acknowledgments made from one Admin Node aren’t copied to other Admin Nodes.



There are two options for continuing to view and configure the StorageGRID system if an Admin Node fails:

- Web clients can reconnect to any other available Admin Node.
- If a system administrator has configured a high availability group of Admin Nodes, web clients can continue to access the Grid Manager or the Tenant Manager using the virtual IP address of the HA group. See Manage high availability groups.

> When using an HA group, access is interrupted if the active Admin Node fails. Users must sign in again after the virtual IP address of the HA group fails over to another Admin Node in the group.

Some maintenance tasks can only be performed using the primary Admin Node. If the primary Admin Node fails, it must be recovered before the StorageGRID system is fully functional again.

Identify the primary Admin Node

The primary Admin Node hosts the CMN service. Some maintenance procedures can only be performed using the primary Admin Node.

Before you begin

- You are signed in to the Grid Manager using a supported web browser.
- You have specific access permissions.

Steps

1. Select **SUPPORT** > **Tools** > **Grid topology**.
2. Select ***site*** > **Admin Node**, and then select ➕ to expand the topology tree and show the services hosted on this Admin Node.

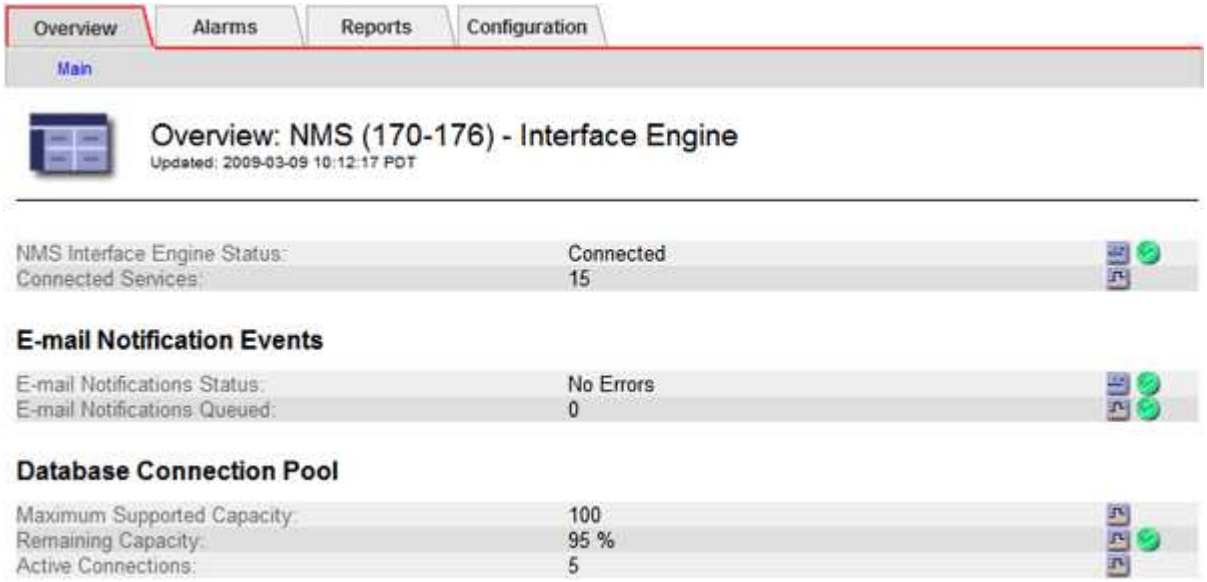
   The primary Admin Node hosts the CMN service.

3. If this Admin Node does not host the CMN service, check the other Admin Nodes.

View notification status and queues

The Network Management System (NMS) service on Admin Nodes sends notifications to the mail server. You can view the current status of the NMS service and the size of its notifications queue on the Interface Engine page.

To access the Interface Engine page, select **SUPPORT** > **Tools** > **Grid topology**. Finally, select ***site*** > ***Admin Node*** > **NMS** > **Interface Engine**.



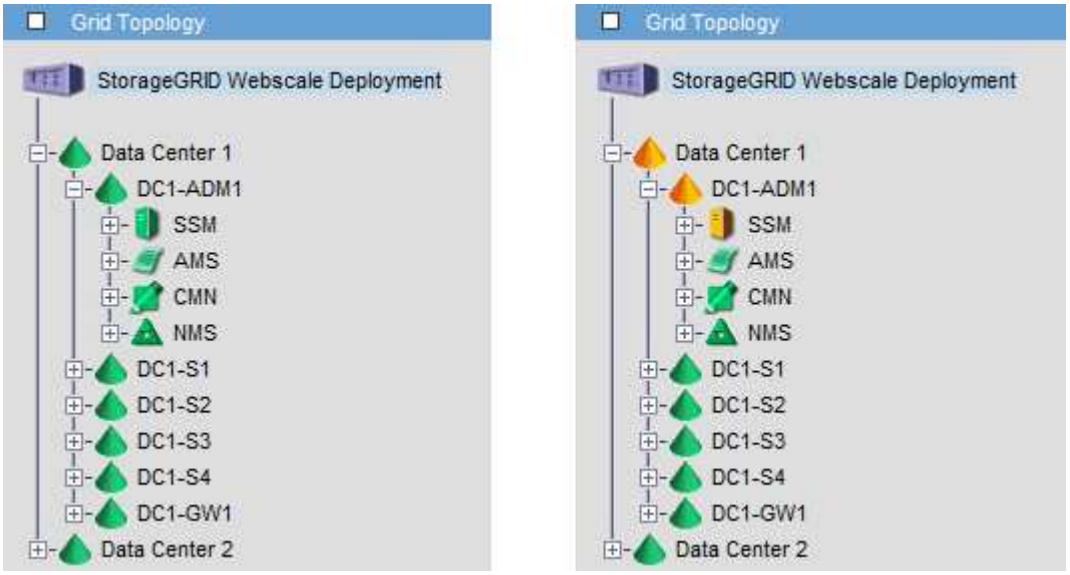
Notifications are processed through the email notifications queue and are sent to the mail server one after another in the order they are triggered. If there is a problem (for example, a network connection error) and the mail server is unavailable when the attempt is made to send the notification, a best effort attempt to resend the notification to the mail server continues for a period of 60 seconds. If the notification is not sent to the mail server after 60 seconds, the notification is dropped from the notifications queue and an attempt to send the next notification in the queue is made.

Because notifications can be dropped from the notifications queue without being sent, it is possible that an alarm can be triggered without a notification being sent. If a notification is dropped from the queue without being sent, the MINS (E-mail Notification Status) minor alarm is triggered.

How Admin Nodes show acknowledged alarms (legacy system)

When you acknowledge an alarm on one Admin Node, the acknowledged alarm is not copied to any other Admin Node. Because acknowledgments aren't copied to other Admin Nodes, the Grid Topology tree might not look the same for each Admin Node.

This difference can be useful when connecting web clients. Web clients can have different views of the StorageGRID system based on the administrator needs.



Note that notifications are sent from the Admin Node where the acknowledgment occurs.

Configure audit client access

Configure audit client access for NFS

The Admin Node, through the Audit Management System (AMS) service, logs all audited system events to a log file available through the audit share, which is added to each Admin Node at installation. The audit share is automatically enabled as a read-only share.

To access audit logs, you can configure client access to audit shares for NFS. Or, you can use an external syslog server.

The StorageGRID system uses positive acknowledgment to prevent loss of audit messages before they are written to the log file. A message remains queued at a service until the AMS service or an intermediate audit relay service has acknowledged control of it. For more information, see Review audit logs.

Before you begin

- You have the `Passwords.txt` file with the root/admin password.
- You have the `Configuration.txt` file (available in the Recovery Package).
- The audit client is using NFS Version 3 (NFSv3).

About this task

Perform this procedure for each Admin Node in a StorageGRID deployment from which you want to retrieve audit messages.

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. Confirm that all services have a state of Running or Verified. Enter: `storagegrid-status`

   If any services aren't listed as Running or Verified, resolve issues before continuing.

3. Return to the command line. Press **Ctrl**+**C**.
4. Start the NFS configuration utility. Enter: `config_nfs.rb`

```
------------------------------------------------------------------
| Shares                | Clients              | Config          |
------------------------------------------------------------------
| add-audit-share       | add-ip-to-share      | validate-config |
| enable-disable-share  | remove-ip-from-share | refresh-config  |
|                       |                      | help            |
|                       |                      | exit            |
------------------------------------------------------------------
```

5. Add the audit client: `add-audit-share`
   a. When prompted, enter the audit client's IP address or IP address range for the audit share: `client_IP_address`
   b. When prompted, press **Enter**.
6. If more than one audit client is permitted to access the audit share, add the IP address of the additional user: `add-ip-to-share`
   a. Enter the number of the audit share: *`audit_share_number`*
   b. When prompted, enter the audit client's IP address or IP address range for the audit share: *`client_IP_address`*
   c. When prompted, press **Enter**.

      The NFS configuration utility is displayed.

   d. Repeat these substeps for each additional audit client that has access to the audit share.
7. Optionally, verify your configuration.

a. Enter the following: `validate-config`

   The services are checked and displayed.

b. When prompted, press **Enter**.

   The NFS configuration utility is displayed.

c. Close the NFS configuration utility: `exit`

8. Determine if you must enable audit shares at other sites.
   - If the StorageGRID deployment is a single site, go to the next step.
   - If the StorageGRID deployment includes Admin Nodes at other sites, enable these audit shares as required:
     a. Remotely log in to the site's Admin Node:
        i. Enter the following command: `ssh admin@grid_node_IP`
        ii. Enter the password listed in the `Passwords.txt` file.
        iii. Enter the following command to switch to root: `su -`
        iv. Enter the password listed in the `Passwords.txt` file.
     b. Repeat these steps to configure the audit shares for each additional Admin Node.
     c. Close the remote secure shell login to the remote Admin Node. Enter: `exit`
9. Log out of the command shell: `exit`

   NFS audit clients are granted access to an audit share based on their IP address. Grant access to the audit share to a new NFS audit client by adding its IP address to the share, or remove an existing audit client by removing its IP address.

Add an NFS audit client to an audit share

NFS audit clients are granted access to an audit share based on their IP address. Grant access to the audit share to a new NFS audit client by adding its IP address to the audit share.

Before you begin

- You have the `Passwords.txt` file with the root/admin account password.
- You have the `Configuration.txt` file (available in the Recovery Package).
- The audit client is using NFS Version 3 (NFSv3).

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 NFS configuration utility: `config_nfs.rb`

```
------------------------------------------------------------------
| Shares                | Clients              | Config          |
------------------------------------------------------------------
| add-audit-share       | add-ip-to-share      | validate-config |
| enable-disable-share  | remove-ip-from-share | refresh-config  |
|                       |                      | help            |
|                       |                      | exit            |
------------------------------------------------------------------
```

3. Enter: `add-ip-to-share`

   A list of NFS audit shares enabled on the Admin Node is displayed. The audit share is listed as: `/var/local/audit/export`

4. Enter the number of the audit share: *`audit_share_number`*
5. When prompted, enter the audit client's IP address or IP address range for the audit share: *`client_IP_address`*

   The audit client is added to the audit share.

6. When prompted, press **Enter**.

   The NFS configuration utility is displayed.

7. Repeat the steps for each audit client that should be added to the audit share.
8. Optionally, verify your configuration: `validate-config`

   The services are checked and displayed.

   a. When prompted, press **Enter**.

      The NFS configuration utility is displayed.

9. Close the NFS configuration utility: `exit`
10. If the StorageGRID deployment is a single site, go to the next step.

    Otherwise, if the StorageGRID deployment includes Admin Nodes at other sites, optionally enable these audit shares as required:

    a. Remotely log in to a site's Admin Node:

       i. Enter the following command: `ssh admin@`*`grid_node_IP`*

       ii. Enter the password listed in the `Passwords.txt` file.

       iii. Enter the following command to switch to root: `su -`

iv. Enter the password listed in the `Passwords.txt` file.

b. Repeat these steps to configure the audit shares for each Admin Node.

c. Close the remote secure shell login to the remote Admin Node: `exit`

11. Log out of the command shell: `exit`

Verify NFS audit integration

After you configure an audit share and add an NFS audit client, you can mount the audit client share and verify that the files are available from the audit share.

Steps

1. Verify connectivity (or variant for the client system) using the client-side IP address of the Admin Node hosting the AMS service. Enter: `ping IP_address`

   Verify that the server responds, indicating connectivity.

2. Mount the audit read-only share using a command appropriate to the client operating system. A sample Linux command is (enter on one line):

   `mount -t nfs -o hard,intr Admin_Node_IP_address:/var/local/audit/export myAudit`

   Use the IP address of the Admin Node hosting the AMS service and the predefined share name for the audit system. The mount point can be any name selected by the client (for example, *`myAudit`* in the previous command).

3. Verify that the files are available from the audit share. Enter: `ls myAudit /*`

   where *`myAudit`* is the mount point of the audit share. There should be at least one log file listed.

Remove an NFS audit client from the audit share

NFS audit clients are granted access to an audit share based on their IP address. You can remove an existing audit client by removing its IP address.

Before you begin

- You have the `Passwords.txt` file with the root/admin account password.
- You have the `Configuration.txt` file (available in the Recovery Package).

About this task

You can’t remove the last IP address permitted to access the audit share.

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 NFS configuration utility: `config_nfs.rb`

```
------------------------------------------------------------------
| Shares               | Clients              | Config          |
------------------------------------------------------------------
| add-audit-share      | add-ip-to-share      | validate-config |
| enable-disable-share | remove-ip-from-share | refresh-config  |
|                      |                      | help            |
|                      |                      | exit            |
------------------------------------------------------------------
```

3. Remove the IP address from the audit share: `remove-ip-from-share`

   A numbered list of audit shares configured on the server is displayed. The audit share is listed as: `/var/local/audit/export`

4. Enter the number corresponding to the audit share: *`audit_share_number`*

   A numbered list of IP addresses permitted to access the audit share is displayed.

5. Enter the number corresponding to the IP address you want to remove.

   The audit share is updated, and access is no longer permitted from any audit client with this IP address.

6. When prompted, press **Enter**.

   The NFS configuration utility is displayed.

7. Close the NFS configuration utility: `exit`
8. If your StorageGRID deployment is a multiple data center site deployment with additional Admin Nodes at the other sites, disable these audit shares as required:
   a. Remotely log in to each site's Admin Node:
      i. Enter the following command: `ssh admin@`*`grid_node_IP`*
      ii. Enter the password listed in the `Passwords.txt` file.
      iii. Enter the following command to switch to root: `su -`
      iv. Enter the password listed in the `Passwords.txt` file.
   b. Repeat these steps to configure the audit shares for each additional Admin Node.
   c. Close the remote secure shell login to the remote Admin Node: `exit`
9. Log out of the command shell: `exit`

Change the IP address of an NFS audit client

Complete these steps if you need to change the IP address of an NFS audit client.

Steps

1. Add a new IP address to an existing NFS audit share.
2. Remove the original IP address.

Related information

- Add an NFS audit client to an audit share
- Remove an NFS audit client from the audit share

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