Monitoring system health

StorageGRID

NetApp
October 03, 2025

This PDF was generated from https://docs.netapp.com/us-en/storagegrid-115/monitor/monitoring-node-connection-states.html on October 03, 2025. Always check docs.netapp.com for the latest.

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Monitoring system health

You should monitor the overall health of your StorageGRID system on a daily basis.

The StorageGRID system is fault tolerant and can continue to operate even when parts of the grid are unavailable. The first sign of a potential issue with your StorageGRID system is likely to be an alert or an alarm (legacy system) and not necessarily an issue with system operations. Paying attention to system health can help you detect minor issues before they affect operations or grid efficiency.

The Health panel on the Grid Manager Dashboard provides a summary of issues that might be affecting your system. You should investigate any issues that are shown on the Dashboard.

> To be notified of alerts as soon as they are triggered, you can set up email notifications for alerts or configure SNMP traps.

1. Sign in to the Grid Manager to view the Dashboard.
2. Review the information in the Health panel.

When issues exist, links appear that allow you to view additional details:

Link	Indicates
Grid details	Appears if any nodes are disconnected (connection state Unknown or Administratively Down). Click the link, or click the blue or gray icon to determine which node or nodes are affected.
Current alerts	Appears if any alerts are currently active. Click the link, or click **Critical**, **Major**, or **Minor** to see the details on the **Alerts** > **Current** page.
Recently resolved alerts	Appears if any alerts triggered in the past week are now resolved. Click the link to see the details on the **Alerts** > **Resolved** page.

Link	Indicates
Legacy alarms	Appears if any alarms (legacy system) are currently active. Click the link to see the details on the **Support** > **Alarms (legacy)** > **Current Alarms** page. **Note:** While the legacy alarm system continues to be supported, the alert system offers significant benefits and is easier to use.
License	Appears if there is an issue with the software license for this StorageGRID system. Click the link to see the details on the **Maintenance** > **System** > **License** page.

Related information

Administer StorageGRID

Setting up email notifications for alerts

Using SNMP monitoring

Monitoring node connection states

If one or more nodes are disconnected from the grid, critical StorageGRID operations might be affected. You must monitor node connection states and address any issues promptly.

What you'll need

- You must be signed in to the Grid Manager using a supported browser.

About this task

Nodes can have one of three connection states:

- **Not connected - Unknown** : The node is not connected to the grid for an unknown reason. For example, the network connection between nodes has been lost or the power is down. The **Unable to communicate with node** alert might also be triggered. Other alerts might be active as well. This situation requires immediate attention.

  A node might appear as Unknown during managed shutdown operations. You can ignore the Unknown state in these cases.

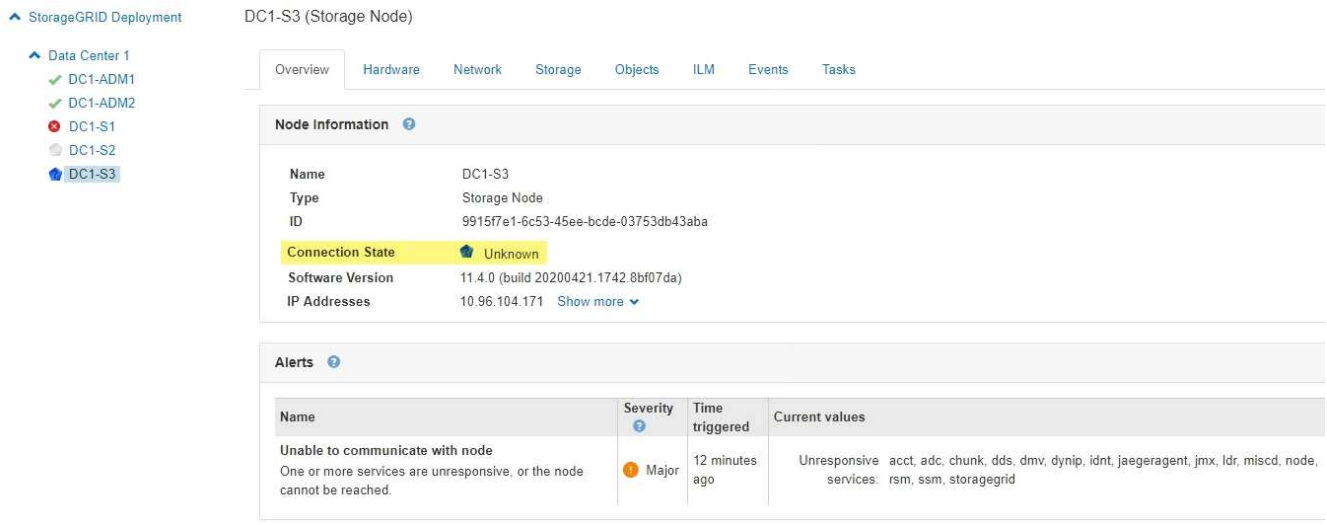
- **Not connected - Administratively down** : The node is not connected to the grid for an expected reason. For example, the node, or services on the node, has been gracefully shut down, the node is rebooting, or the software is being upgraded. One or more alerts might also be active.
- **Connected** : The node is connected to the grid.

Steps

1. If a blue or gray icon appears on the Health panel of the Dashboard, click the icon or click **Grid details**. (The blue or gray icons and the **Grid details** link appear only if at least one node is disconnected from the grid.)

   The Overview page for the first blue node in the node tree appears. If there are no blue nodes, the Overview page for the first gray node in the tree appears.

   In the example, the Storage Node named DC1-S3 has a blue icon. The **Connection State** on the Node Information panel is **Unknown**, and the **Unable to communicate with node** alert is active. The alert indicates that one or more services are unresponsive, or the node cannot be reached.



2. If a node has a blue icon, follow these steps:
   a. Select each alert in the table, and follow the recommended actions.

      For example, you might need to restart a service that has stopped or restart the host for the node.

   b. If you are unable to bring the node back online, contact technical support.
3. If a node has a gray icon, follow these steps:

   Gray nodes are expected during maintenance procedures and might be associated with one or more alerts. Based on the underlying issue, these “administratively down” nodes often go back online with no intervention.

   a. Review the Alerts section, and determine if any alerts are affecting this node.
   b. If one or more alerts are active, select each alert in the table, and follow the recommended actions.
   c. If you are unable to bring the node back online, contact technical support.

Related information

Alerts reference

Maintain & recover

Viewing current alerts

When an alert is triggered, an alert icon is displayed on the Dashboard. An alert icon is also displayed for the node on the Nodes page. An email notification might also be sent,

unless the alert has been silenced.

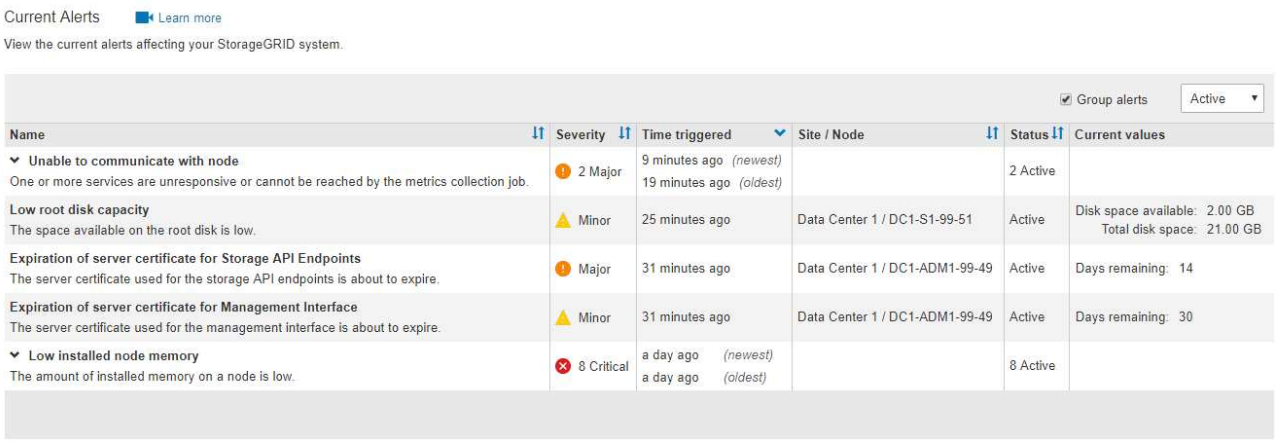
What you'll need

- You must be signed in to the Grid Manager using a supported browser.

Steps

1. If one or more alerts are active, do either of the following:
   - From the Health panel on the Dashboard, click the alert icon or click **Current alerts**. (An alert icon and the **Current alerts** link appear only if at least one alert is currently active.)
   - Select **Alerts** > **Current**.

     The Current Alerts page appears. It lists all alerts currently affecting your StorageGRID system.



     By default, alerts are shown as follows:

     - The most recently triggered alerts are shown first.
     - Multiple alerts of the same type are shown as a group.
     - Alerts that have been silenced are not shown.
     - For a specific alert on a specific node, if the thresholds are reached for more than one severity, only the most severe alert is shown. That is, if alert thresholds are reached for the minor, major, and critical severities, only the critical alert is shown.

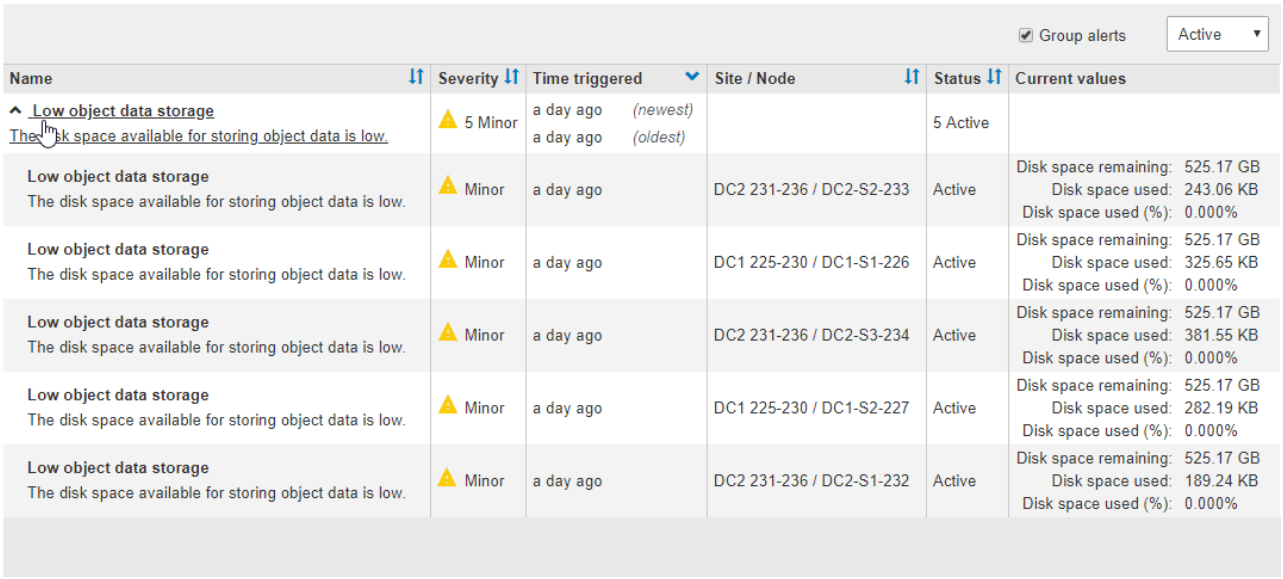
       The Current Alerts page is refreshed every two minutes.

2. Review the information in the table.

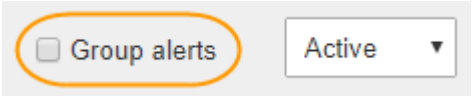
Column header	Description
Name	The name of the alert and its description.

Column header	Description
Severity	The severity of the alert. If multiple alerts are grouped, the title row shows how many instances of that alert are occurring at each severity. • **Critical** : An abnormal condition exists that has stopped the normal operations of a StorageGRID node or service. You must address the underlying issue immediately. Service disruption and loss of data might result if the issue is not resolved. • **Major** : An abnormal condition exists that is either affecting current operations or approaching the threshold for a critical alert. You should investigate major alerts and address any underlying issues to ensure that the abnormal condition does not stop the normal operation of a StorageGRID node or service. • **Minor** : The system is operating normally, but an abnormal condition exists that could affect the system's ability to operate if it continues. You should monitor and resolve minor alerts that do not clear on their own to ensure they do not result in a more serious problem.
Time triggered	How long ago the alert was triggered. If multiple alerts are grouped, the title row shows times for the most recent instance of the alert (*newest*) and the oldest instance of the alert (*oldest*).
Site/Node	The name of the site and node where the alert is occurring. If multiple alerts are grouped, the site and node names are not shown in the title row.
Status	Whether the alert is active or has been silenced. If multiple alerts are grouped and **All alerts** is selected in the drop-down, the title row shows how many instances of that alert are active and how many instances have been silenced.
Current values	The current value of the metric that caused the alert to be triggered. For some alerts, additional values are shown to help you understand and investigate the alert. For example, the values shown for a **Low object data storage** alert include the percentage of disk space used, the total amount of disk space, and the amount of disk space used. **Note:** If multiple alerts are grouped, current values are not shown in the title row.

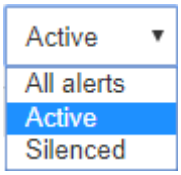
3. To expand and collapse groups of alerts:
   - To show the individual alerts in a group, click the down caret ⌄ in the heading, or click the group's name.
   - To hide the individual alerts in a group, click the up caret ⌃ in the heading, or click the group's name.



4. To display individual alerts instead of groups of alerts, unselect the **Group alerts** check box at the top of the table.



5. To sort alerts or alert groups, click the up/down arrows ⇅ in each column header.
   - When **Group alerts** is selected, both the alert groups and the individual alerts within each group are sorted. For example, you might want to sort the alerts in a group by **Time triggered** to find the most recent instance of a specific alert.
   - When **Group alerts** is unselected, the entire list of alerts is sorted. For example, you might want to sort all alerts by **Node/Site** to see all alerts affecting a specific node.
6. To filter the alerts by status, use the drop-down menu at the top of the table.



   - Select **All alerts** to view all current alerts (both active and silenced alerts).
   - Select **Active** to view only the current alerts that are active.
   - Select **Silenced** to view only the current alerts that have been silenced.
7. To view details for a specific alert, select the alert from the table.

   A dialog box for the alert appears. See the instructions for viewing a specific alert.

Related information

Viewing a specific alert

Silencing alert notifications

Viewing resolved alerts

You can search and view a history of alerts that have been resolved.

What you'll need

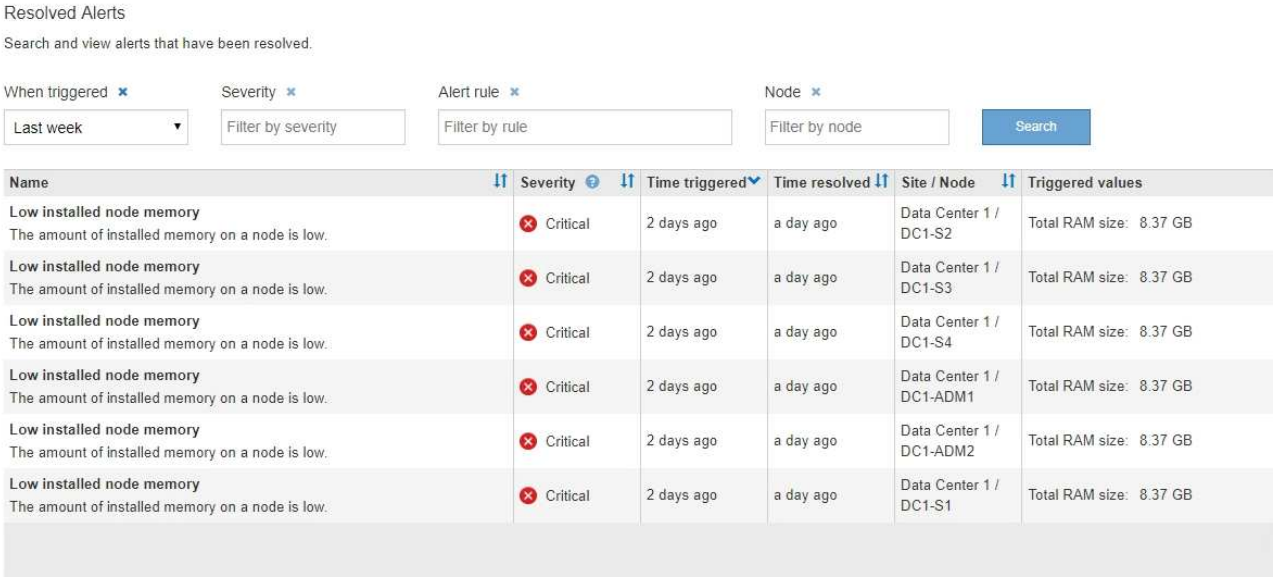
- You must be signed in to the Grid Manager using a supported browser.

Steps

1. To view resolved alerts, do either of the following:
   - From the Health panel on the Dashboard, click **Recently resolved alerts**.

     The **Recently resolved alerts** link appears only if one or more alerts were triggered in the past week and are now resolved.

   - Select **Alerts** > **Resolved**. The Resolved Alerts page appears. By default, resolved alerts that were triggered in the last week are shown, with the most recently triggered alerts shown first. The alerts on this page were previously shown on the Current Alerts page or in an email notification.



2. Review the information in the table.

Column header	Description
Name	The name of the alert and its description.

Column header	Description
Severity	The severity of the alert. • **Critical** : An abnormal condition exists that has stopped the normal operations of a StorageGRID node or service. You must address the underlying issue immediately. Service disruption and loss of data might result if the issue is not resolved. • **Major** : An abnormal condition exists that is either affecting current operations or approaching the threshold for a critical alert. You should investigate major alerts and address any underlying issues to ensure that the abnormal condition does not stop the normal operation of a StorageGRID node or service. • **Minor** : The system is operating normally, but an abnormal condition exists that could affect the system's ability to operate if it continues. You should monitor and resolve minor alerts that do not clear on their own to ensure they do not result in a more serious problem.
Time triggered	How long ago the alert was triggered.
Time resolved	How long ago the alert was resolved.
Site/Node	The name of the site and node where the alert occurred.
Triggered values	The value of the metric that caused the alert to be triggered. For some alerts, additional values are shown to help you understand and investigate the alert. For example, the values shown for a **Low object data storage** alert include the percentage of disk space used, the total amount of disk space, and the amount of disk space used.

3. To sort the entire list of resolved alerts, click the up/down arrows in each column header.

   For example, you might want to sort resolved alerts by **Site/Node** to see the alerts that affected a specific node.

4. Optionally, filter the list of resolved alerts by using the drop-down menus at the top of the table.
   a. Select a time period from the **When triggered** drop-down menu to show resolved alerts based on how long ago they were triggered.

      You can search for alerts that were triggered within the following time periods:

      ▪ Last hour

        - Last day
        - Last week (default view)
        - Last month
        - Any time period
        - Custom (allows you to specify the start date and the end date for the time period)
    b. Select one or more severities from the **Severity** drop-down menu to filter on resolved alerts of a specific severity.
    c. Select one or more default or custom alert rules from the **Alert rule** drop-down menu to filter on resolved alerts related to a specific alert rule.
    d. Select one or more nodes from the **Node** drop-down menu to filter on resolved alerts related to a specific node.
    e. Click **Search**.
5. To view details for a specific resolved alert, select the alert from the table.

   A dialog box for the alert appears. See the instructions for viewing a specific alert.

Related information

Viewing a specific alert

Viewing a specific alert

You can view detailed information about an alert that is currently affecting your StorageGRID system or an alert that has been resolved. The details include recommended corrective actions, the time the alert was triggered, and the current value of the metrics related to this alert. Optionally, you can silence a current alert or update the alert rule.

What you'll need

- You must be signed in to the Grid Manager using a supported browser.

Steps

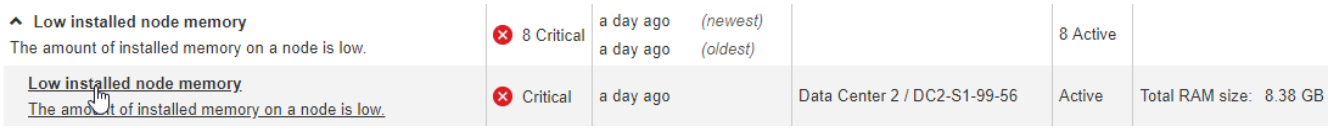
1. Do one of the following, based on whether you want to view a current or resolved alert:

Column header	Description
Current alert	• From the Health panel on the Dashboard, click the **Current alerts** link. This link appears only if at least one alert is currently active. This link is hidden if there are no current alerts or if all current alerts have been silenced. • Select **Alerts** > **Current**. • From the **Nodes** page, select the **Overview** tab for a node that has an alert icon. Then, in the Alerts section, click the alert name.

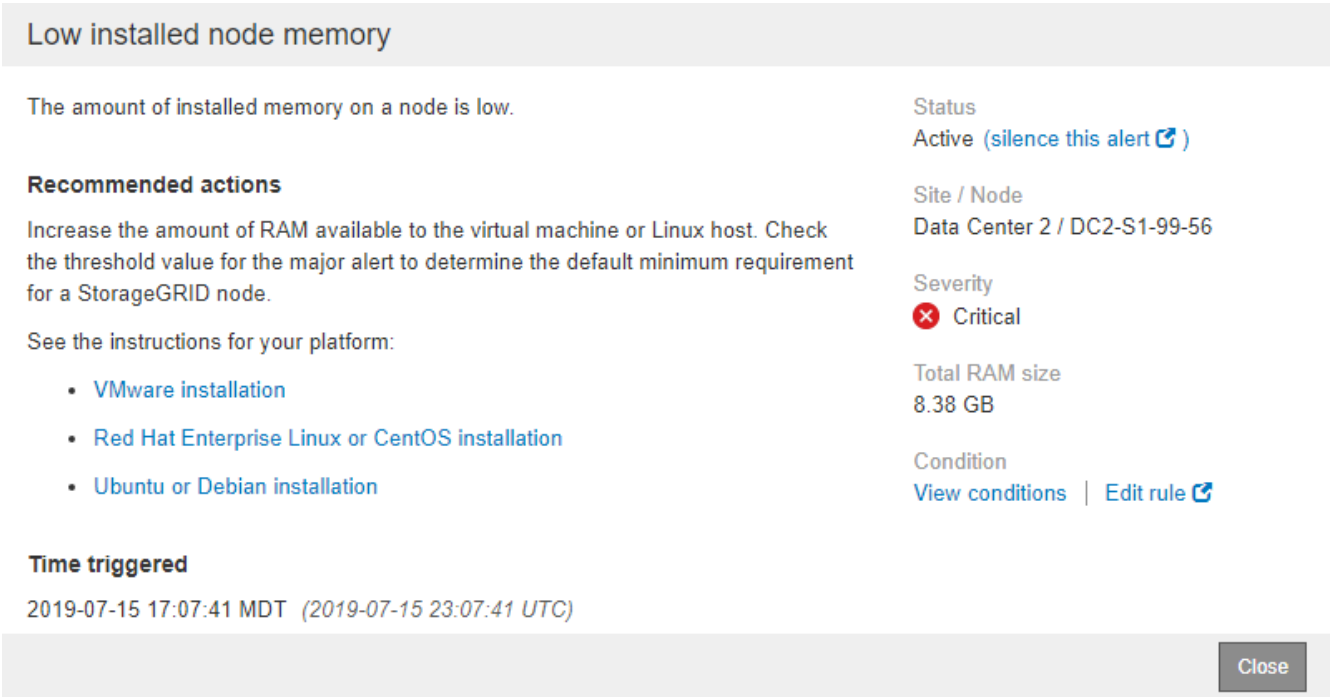
Column header	Description
Resolved alert	• From the Health panel on the Dashboard, click the **Recently resolved alerts** link. (This link appears only if one or more alerts were triggered in the past week and are now resolved. This link is hidden if no alerts were triggered and resolved in the last week.) • Select **Alerts** > **Resolved**.

2. As required, expand a group of alerts and then select the alert you want to view.

Select the alert, not the heading for a group of alerts.



A dialog box appears and provides details for the selected alert.



3. Review the alert details.

Information	Description
title	The name of the alert.
first paragraph	The description of the alert.
Recommended actions	The recommended actions for this alert.

Information	Description
Time triggered	The date and time the alert was triggered in your local time and in UTC.
Time resolved	For resolved alerts only, the date and time the alert was resolved in your local time and in UTC.
Status	The status of the alert: Active, Silenced, or Resolved.
Site/Node	The name of the site and node affected by the alert.
Severity	The severity of the alert. • **Critical** : An abnormal condition exists that has stopped the normal operations of a StorageGRID node or service. You must address the underlying issue immediately. Service disruption and loss of data might result if the issue is not resolved. • **Major** : An abnormal condition exists that is either affecting current operations or approaching the threshold for a critical alert. You should investigate major alerts and address any underlying issues to ensure that the abnormal condition does not stop the normal operation of a StorageGRID node or service. • **Minor** : The system is operating normally, but an abnormal condition exists that could affect the system's ability to operate if it continues. You should monitor and resolve minor alerts that do not clear on their own to ensure they do not result in a more serious problem.
data values	The current value of the metric for this alert. For some alerts, additional values are shown to help you understand and investigate the alert. For example, the values shown for a **Low metadata storage** alert include the percent of disk space used, the total amount of disk space, and the amount of disk space used.

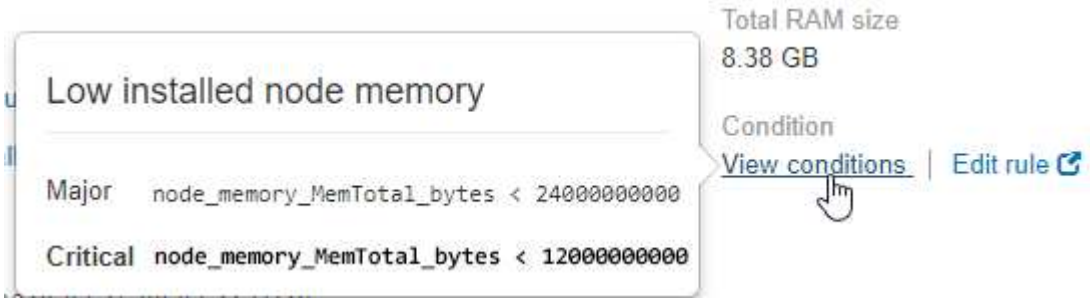
4. Optionally, click **silence this alert** to silence the alert rule that caused this alert to be triggered.

   You must have the Manage Alerts or Root access permission to silence an alert rule.

   Be careful when deciding to silence an alert rule. If an alert rule is silenced, you might not detect an underlying problem until it prevents a critical operation from completing.

5. To view the current conditions for the alert rule:
   a. From the alert details, click **View conditions**.

      A pop-up appears, listing the Prometheus expression for each defined severity.



   b. To close the pop-up, click anywhere outside of the pop-up.
6. Optionally, click **Edit rule** to edit the alert rule that caused this alert to be triggered:

   You must have the Manage Alerts or Root access permission to edit an alert rule.

   > Be careful when deciding to edit an alert rule. If you change trigger values, you might not detect an underlying problem until it prevents a critical operation from completing.

7. To close the alert details, click **Close**.

Related information

Silencing alert notifications

Editing an alert rule

Viewing legacy alarms

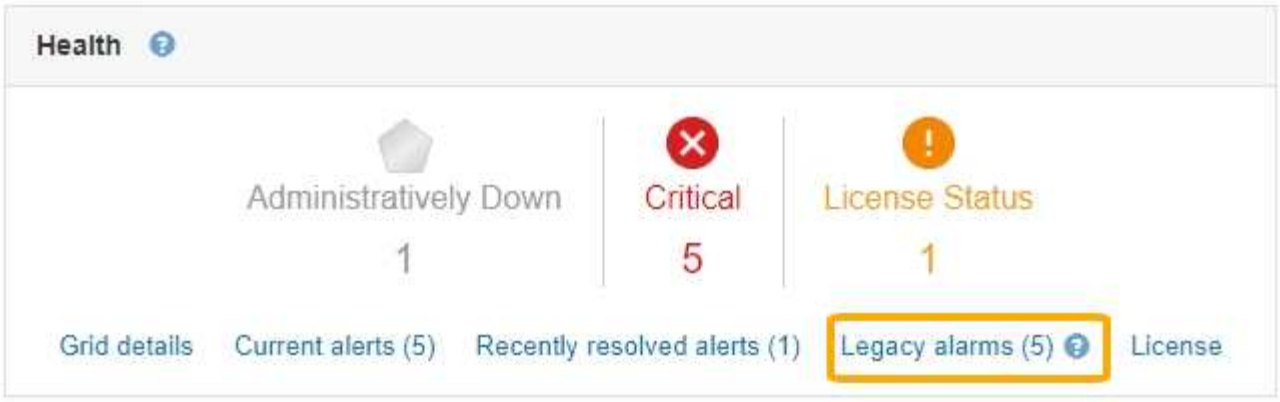
Alarms (legacy system) are triggered when system attributes reach alarm threshold values. You can view the currently active alarms from the Dashboard or the Current Alarms page.

What you'll need

- You must be signed in to the Grid Manager using a supported browser.

About this task

If one or more of the legacy alarms are currently active, the Health panel on the Dashboard includes a **Legacy alarms** link. The number in parentheses indicates how many alarms are currently active.



The **Legacy alarms** count on the Dashboard is incremented whenever a legacy alarm is triggered. This count is incremented even if you have disabled alarm email notifications. You can typically ignore this number (since alerts provide a better view of the system), or you can view the alarms that are currently active.

While the legacy alarm system continues to be supported, the alert system offers significant benefits and is easier to use.

Steps

1. To view the legacy alarms that are currently active, do one of the following:
   - From the Health panel on the Dashboard, click **Legacy alarms**. This link appears only if at least one alarm is currently active.
   - Select **Support** > **Alarms (legacy)** > **Current Alarms**. The Current Alarms page appears.

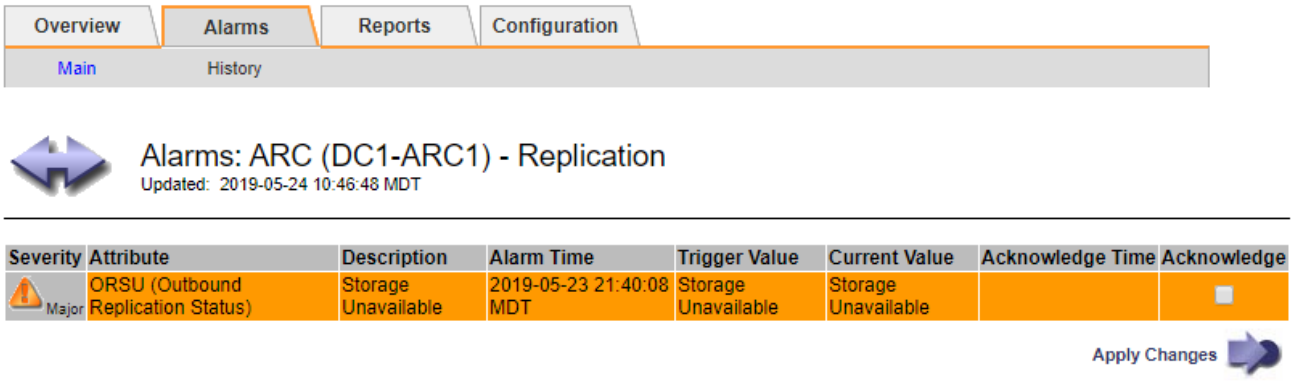
The alarm icon indicates the severity of each alarm, as follows:

Icon	Color	Alarm severity	Meaning
	Yellow	Notice	The node is connected to the grid, but an unusual condition exists that does not affect normal operations.

Icon	Color	Alarm severity	Meaning
	Light Orange	Minor	The node is connected to the grid, but an abnormal condition exists that could affect operation in the future. You should investigate to prevent escalation.
	Dark Orange	Major	The node is connected to the grid, but an abnormal condition exists that currently affects operation. This requires prompt attention to prevent escalation.
	Red	Critical	The node is connected to the grid, but an abnormal condition exists that has stopped normal operations. You should address the issue immediately.

2. To learn about the attribute that caused the alarm to be triggered, right click the attribute name in the table.
3. To view additional details about an alarm, click the service name in the table.

   The Alarms tab for the selected service appears (**Support** > **Tools** > **Grid Topology** > ***Grid Node*** > ***Service*** > **Alarms**).



4. If you want to clear the count of current alarms, you can optionally do the following:
   - Acknowledge the alarm. An acknowledged alarm is no longer included in the count of legacy alarms unless it is triggered at the next severity level or it is resolved and occurs again.
   - Disable a particular Default alarm or Global Custom alarm for the entire system to prevent it from being triggered again.

Related information

Alarms reference (legacy system)

Acknowledging current alarms (legacy system)

Disabling alarms (legacy system)

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