Alerting on Log Events in Nagios Log Server 2024R2

Purpose

This document describes how to create various alerts in Nagios Log Server, such as sending them to a Nagios XI or Nagios Core monitoring server using Nagios Remote Data Processor (NRDP), sending an email, sending SNMP traps and executing scripts.

Alert Types

There are three types of alerts in Nagios Log Server:

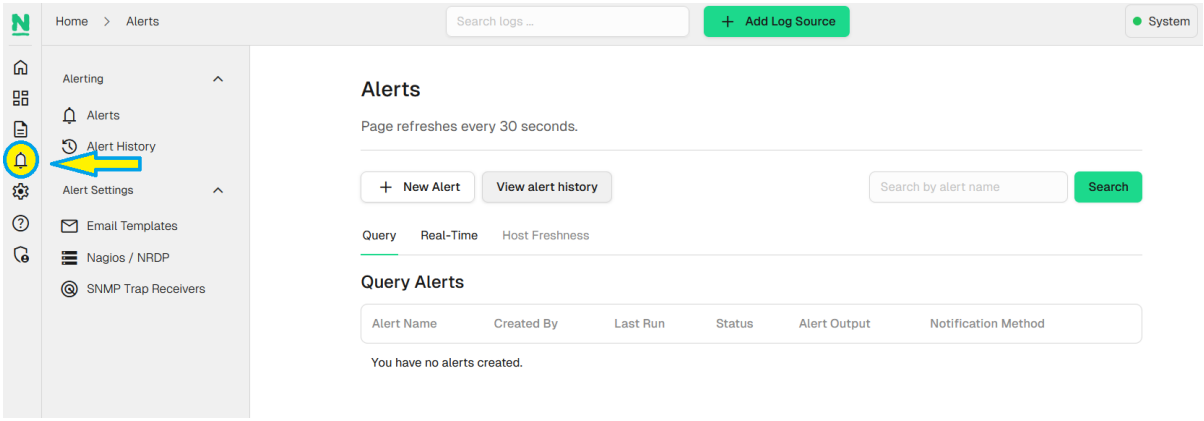
- **Query**
  - These are based on the results of queries you have defined in the Dashboard menu, hence you will need to have a query defined before creating an alert.
  - With these alerts, data is queried on an interval (usually five minutes) and is checked for any abnormalities. This means that, for a critical issue, alerts may be delayed by up to that check interval.
  - Information on queries can be found in the Analyzing Logs With Nagios Log Server documentation.

- **Real-Time**
  Real-time alerts are a way to circumvent the delay associated with interval-based queries. Instead, they exist in the Logstash configuration itself, checking each event as it comes in for that "abnormal" criteria. This feature should be used sparingly, as too many Logstash filters may degrade performance. However, for certain critical events this may be worth the cost.

- **Host Freshness**
  Alert based on previously configured hosts where log data is no longer being received by your Nagios Log Server instances from these hosts.

Alerting in Nagios Log Server

To manage your alerts, click the Alerting menu icon:



This is the central location to manage and create alerts. You can also create alerts from the Dashboards menu, they will appear here once created.
There are multiple alert methods available in Nagios Log Server:

- **Nagios / NRDP** - Send an alert to your Nagios XI or Nagios Core server using NRDP
- **Execute Script** - Run a custom script and pass variables to the script
- **SNMP Traps** - SNMP Traps can be sent to other applications using the Nagios MIB
- **Email Users** - Email Nagios Log Server users
- **Nagios XI Log Server Wizard** - You can use the Nagios XI Log Server Wizard to alert based on queries saved on your Nagios Log Server.

Certain alert methods require you to define the settings (such as the NRDP server) before you can create an alert. These settings are explained first.

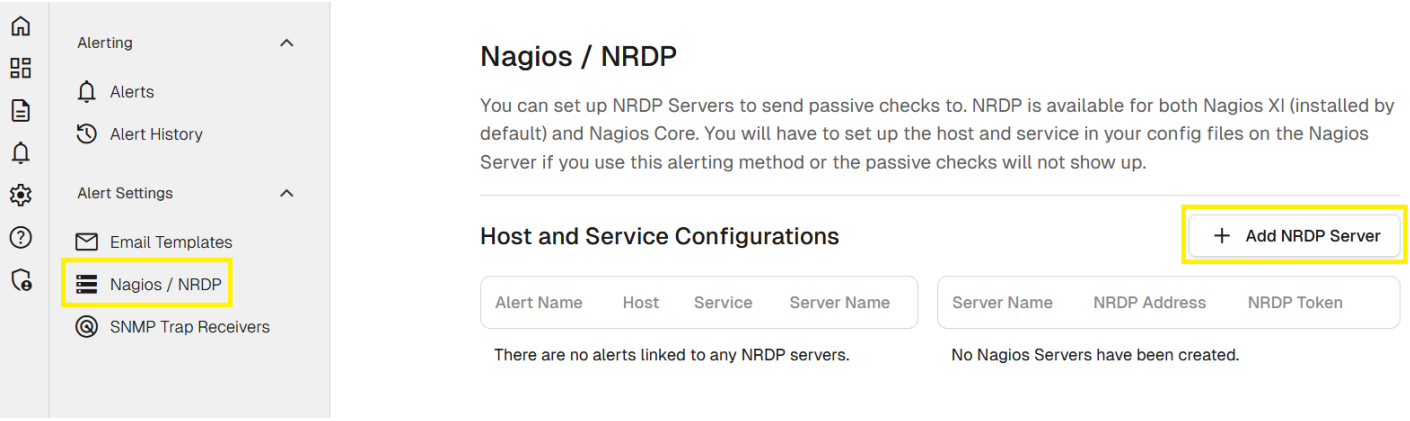
NRDP

Alerts can be sent to a Nagios XI or Nagios Core server running NRDP. Nagios XI comes pre-installed with NRDP, all that is required is to configure the token you wish to use. If you are using Nagios Core you will need to first install and then configure NRDP. Please refer to the following documentation, it covers configuring both Nagios XI and Nagios Core:

NRDP Overview

Please take note of the **NRDP Token** you define as you will need it in the following step.

In Nagios Log Server, in the left pane under **Alert Settings** click **Nagios / NRDP**, then click the **Add NRDP Server** button:

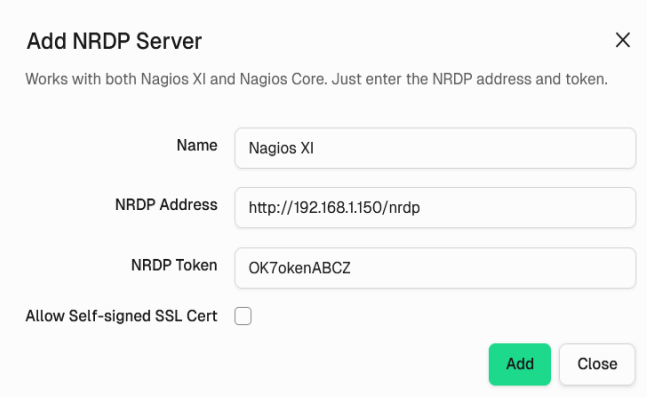


You will need to provide the following information:

Name: The name of the NRDP server you are adding.
NRDP Address: The address of the Nagios server NRDP is configured for (you must include the http:// part of the URL).

NRDP Token: Provide the Token you defined on your Nagios XI or Nagios Core server.

Click the **Add** button to save the NRDP server.



This completes adding an NRDP server as an alert method. Please proceed to the Creating An Alert section in this document to define an alert that uses NRDP.

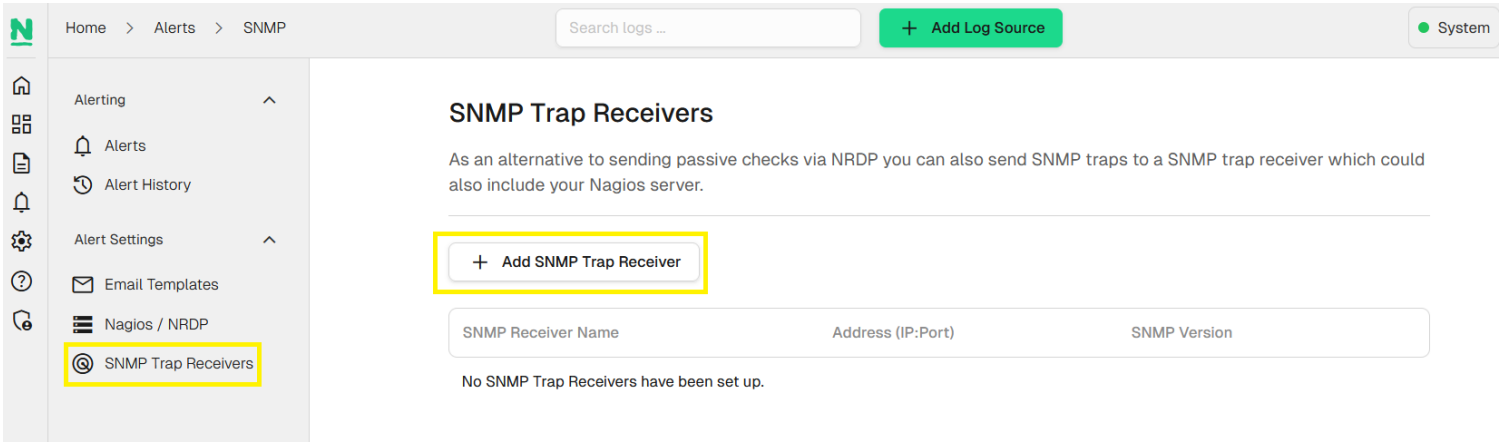
Execute a Script

Nagios Log server allows you to execute a script as an alerting method. You will need to make sure that the script exists on all instances in your cluster. The script is executed on the master node of your cluster, this can change at any time to any instance in the cluster, hence why the script needs to be located on all instances.

After placing the script on all of your instances, please proceed to the Creating An Alert section in this document to define an alert that executes a script.

SNMP Trap Receivers

To be able to send alerts to a SNMP Trap receiver you need to define the details of the trap receiver. In Nagios Log Server, in the left pane under **Alert Settings**, click **SNMP Trap Receivers**, then click the **Add SNMP Trap Receiver** button.

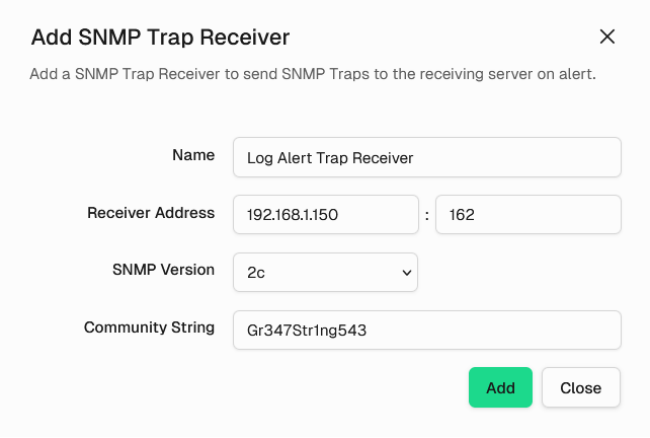


You will need to provide the following information:

Name: The name of the SNMP Trap receiver you are adding.

Receiver Address: The address that is receiving traps. Could be an NSTI server or a Nagios XI server that is listening for incoming traps. You also need to define the port the traps can be sent on (162 is the standard default).

SNMP Version: The version of SNMP you are using, changing the version will change the trap security options available.



Version 2c

Community String: The community string that the SNMP Trap receiver will accept traps for. This is commonly public but depends on how your SNMP Trap receiver is configured.

Version 3

Authorization Level: The authorization method used to send SNMP v3 traps. Your selection here defines the relevant Authorization and Privacy fields that are shown.

Click the **Add** button to define the SNMP Trap Receiver.

This completes adding a SNMP Trap Receiver as an alert method. Please proceed to the Creating An Alert section in this document to define an alert that uses SNMP Traps.

Email Users

To be able to send email alerts in Nagios Log Server you will need to create Nagios Log Server user accounts with their email addresses correctly defined. The following documentation explains in detail how to create users in Nagios Log Server:

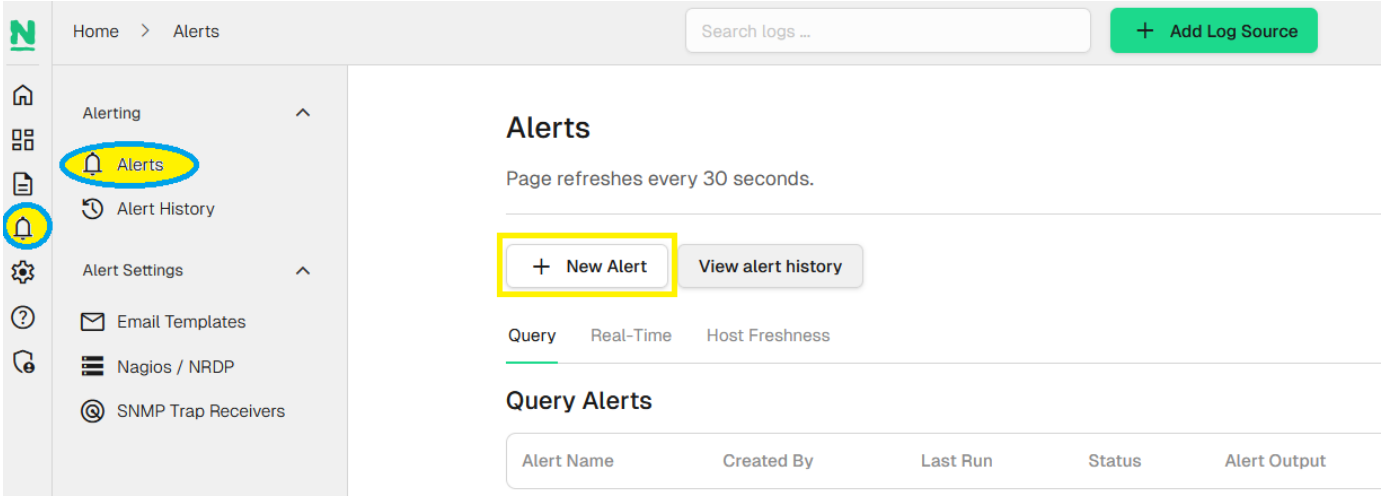
Managing Users In Nagios Log Server

After creating the required users please proceed to the Creating An Alert section in this document to define an alert that uses Email.

Now that we've covered the Alert Methods, we'll move on to creating query-based alerts.

Creating an Alert

Now that you have defined the alert method the next step is to add an alert. In Nagios Log Server, in the left pane under **Alerting** click **Alerts**, then click the **New Alert** button:



The Create an Alert popup is displayed. The last option **Alert Method** will show additional options based on the method chosen (explained later). All the other options are common to any alert method chosen, these will be explained first. There are separate sections below for each alert method type:

- Query
- Real-Time
- Host Freshness

Creating an Alert – Query

Alert Name - The descriptive name you want to give this alert.

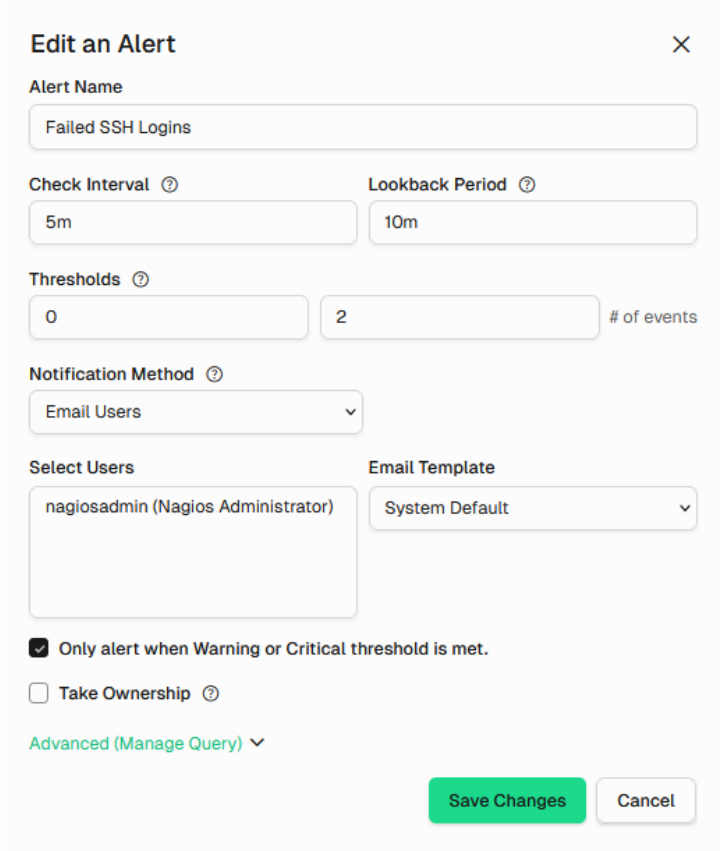
Type - select Query

Query - The predefined query you want this alert to be based on. This example is using the Failed SSH Logins query that is included with Nagios Log Server. Please refer to the section Alert Query for more detailed information.

Check Interval - This is how often you would like this alert to be checked.

Lookback Period - How far in the log data to look back when the query is checked.

Thresholds - This is what defines the severity of the alert. When the query is executed (for the defined lookback period), the number of events returned by the query is the value that the thresholds are tested against. The left field is the warning threshold, the right field is the critical threshold. In this example:



- Warning = 0
- When more than 0 matches are made the alert will be a WARNING severity
- Critical = 2
- When more than 2 matches are made the alert will be a CRITICAL severity
- If the thresholds are not triggered then the alert will be an OK or Normal severity.

More information on thresholds is explained in the section Nagios Threshold Values of this document.

There is an additional common option that is not shown until an **Alert Method** is chosen.

Only alert when Warning or Critical threshold is met is an important option and your selection depends on your requirements. Here are some examples of why you would enable/disable this feature.

- Enabled
  - Alerts are only applied to your Alert Method when the warning or critical threshold is met.
  - You would only receive an alert when there is a problem.
  - When the problem is no longer occurring you will not be notified.
- Disabled
  - Alerts are applied to your Alert Method regardless if the threshold levels are met
  - You will receive an alert every time the alert is run (check interval)
  - This can be noisy when using email alerts
  - If using NRDP, the status in Nagios [XI / Core] will be updated every time the alert is run

Take Ownership - This changes the Created By user to the current user. This prevents the original creator from editing the alert unless they are an administrator.

Advanced (Manage Query) – provides the ability to edit the chosen query within the context of the alert specifically. *Note that this option is not available upon initial alert creation, but will appear when existing alerts are edited.* See the Alert Query section for more information.

That covers all the common options for creating a query-based alert. You can now proceed to the Alert Methods section that explains the different alert methods.

Creating an Alert – Real-Time

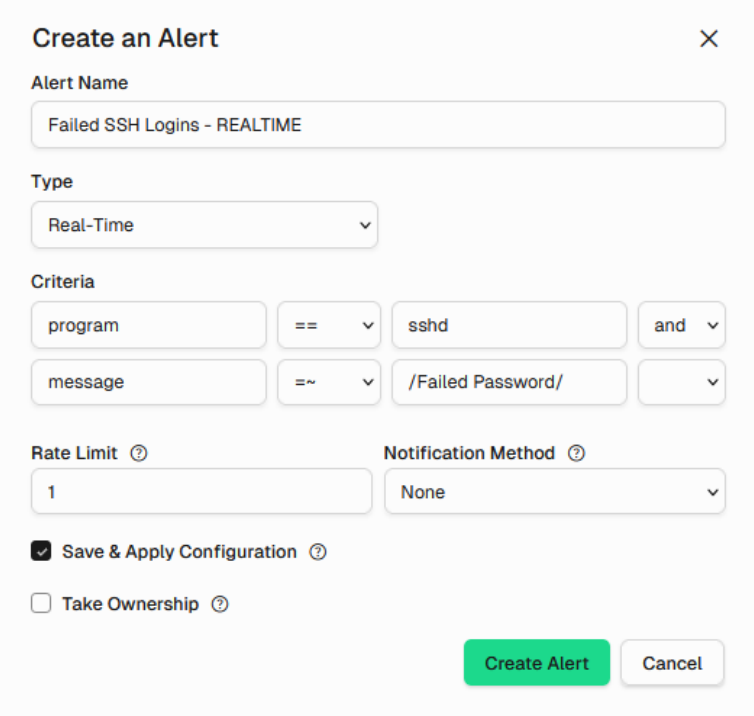
Alert Name - The descriptive name you want to give this alert.

Type - select Real-Time

Criteria - This is where you define what fields will trigger this alert. You should be as specific as possible to ensure you do not receive excessive alerts.

In the screenshot example to the right you can see that two fields have been defined that need to both match because the and operator has been selected.

When you select the operator another field is automatically added, more info about operators will be explained shortly.



Each field has a comparison operator that is used to determine if the field is triggered. In the example above the first field uses a string comparison == to match the program name. The second field uses a regular expression =~ to find the phrase Failed password, this has been enclosed in forward slashes.

The following is an explanation of the various operators:

- String comparison can be performed with the following operators:
  - == Equals
  - != Not Equals
  - =~ Regular Expression Match
  - !~ Not Regular Expression Match
  - in Text is in the specified field
  - not in Text is not in the specified field

- Numeric comparison can be performed with the following operators:
  - == Equals
  - != Not Equals
  - > Greater Than
  - >= Greater Than Or Equals To
  - < Less Than
  - <= Less Than Or Equals
- Enter the searched-for text in the left textbox and the specified field in the right textbox or specify the parameters by using quotes and brackets (ex. "syslog" in [type]).
- Make sure to enclose regular expression in forward slashes //
- The operators available between fields are as follows:
  - and
  - or

More information on fields can be found in the Analyzing Logs With Nagios Log Server documentation.

Rate Limit exists to combat e-mail spam. Alert at most once every n seconds per instance. E.G. for a 3-node cluster with a rate limit of 5, you would get a maximum of 3 alerts per 5 seconds.

To have the alert become active immediately you need to select **Save & Apply Configuration**. This will restart the Logstash service which can take several minutes to restart. If you're creating multiple alerts at a time it's recommended to un-check this and then when you've created all of your alerts navigate to the **Configure** menu to **Apply Configuration.**

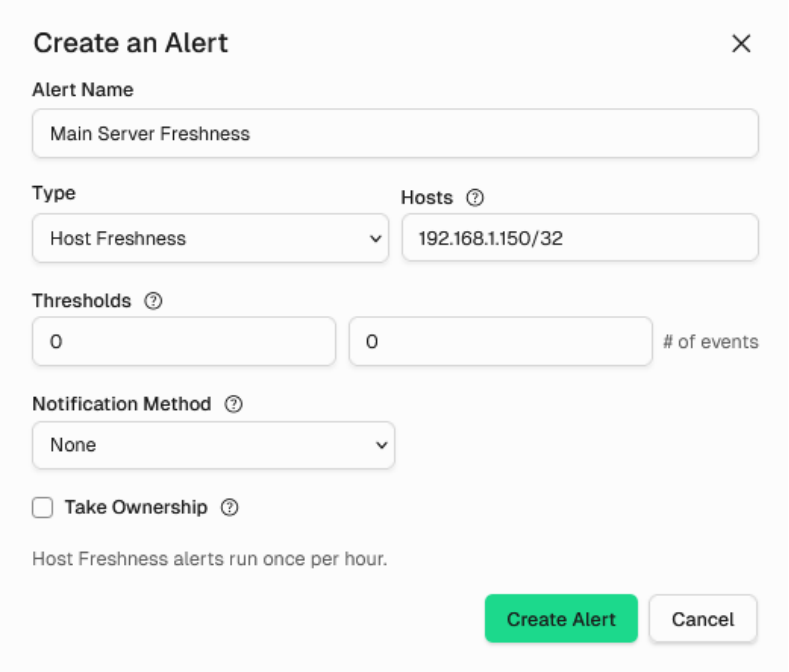
Creating an Alert – Host Freshness

Alert Name - The descriptive name you want to give this alert.

Type - select Host Freshness

Hosts - Define which hosts to check using CIDR notation. Multiple subnets can be specified using commas, only IPv4 is supported at this time. You can specify individual hosts by using the /32 subnet mask, for example 192.168.130.22/32.

Thresholds - This is what triggers the alert. A common use of the host freshness check is to detect when a host is no longer sending logs to Nagios Log Server. By using 0 for both warning and critical this will trigger a critical condition if no logs are received within an hour. Nagios Log Server polls for hosts that have not sent data once per hour.



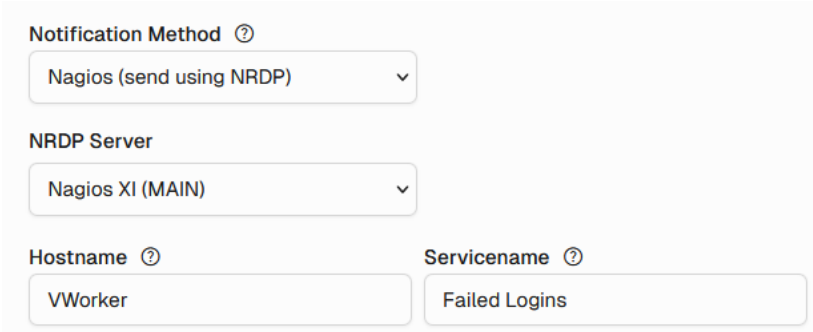
Alert Methods

The final part of creating an alert is to select the alert method and the relevant options.

Nagios (send using NRDP)

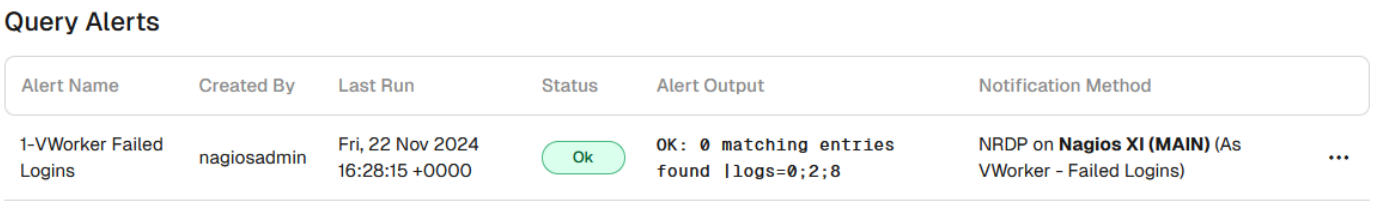
NRDP Server - This will be populated with the NRDP server(s) you have already added to Nagios Log Server, select the one you are going to send alerts to.

Hostname - The host in Nagios XI or Nagios Core that this alert is going to target.



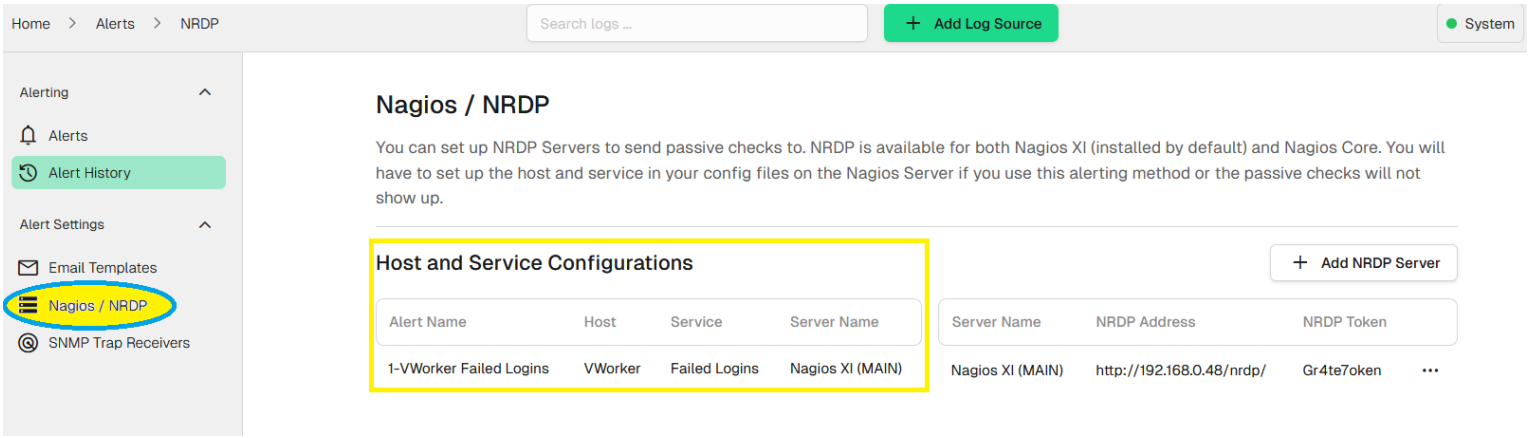
Servicename - The service in Nagios XI or Nagios Core that this alert is going to target.

Click the **Create Alert** button to create your new alert, it will now be displayed under **Alerting** > **Alerts**.



Please refer to the section Nagios Passive Services For NRDP in this document for more information about setting up the Nagios XI or Nagios Core services that will receive these alerts.

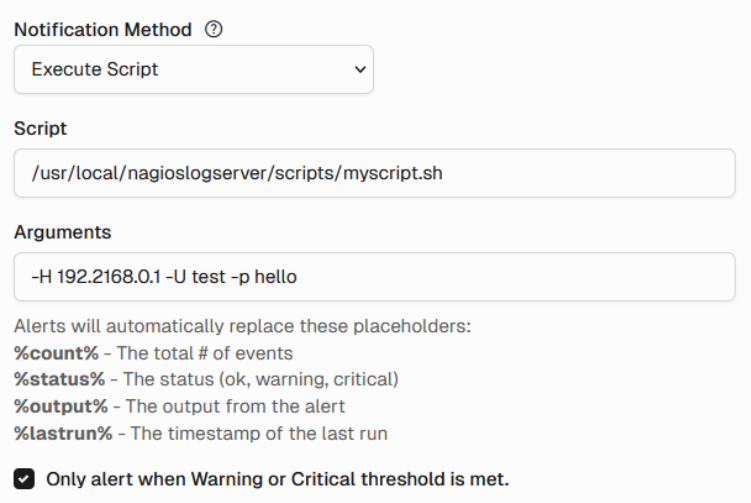
A list of all the Nagios [XI / Core] hosts and services objects that are being targeted by alerts can be seen under **Alert Settings** > **Nagios / NRDP:**



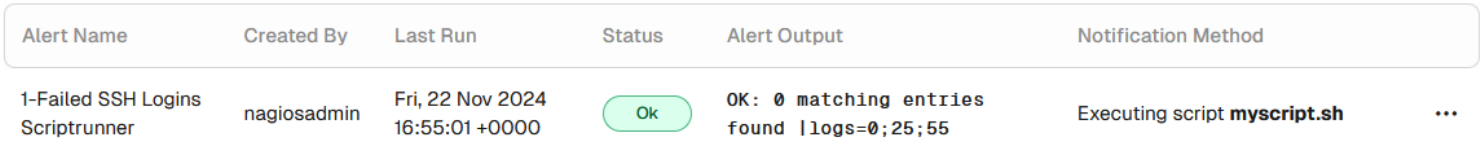
Execute Script

Script - Add the absolute file path of the script you want to access on your local Nagios Log Server.

Arguments - Here you will indicate what the script will accept as arguments. There is also a list of context variables that will be replaced by the status of the alert being acted upon, these variables can be used in the Arguments field.

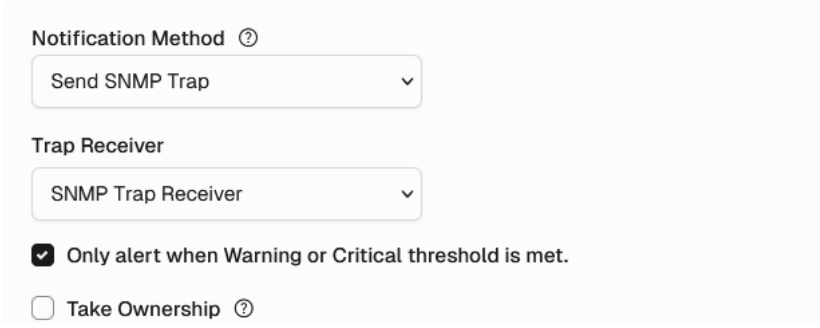


Click the Create Alert button to create your new alert, it will now be displayed under Alerting > Alerts:

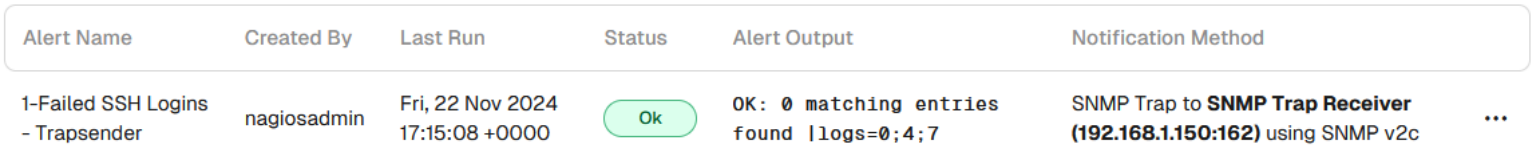


Send SNMP Trap

Trap Receiver - This will be populated with the SNMP Trap server(s) you have already added to Nagios Log Server, select the one you are going to send alerts to.



Click the **Create Alert** button to create your new alert, it will now be displayed under **Alerting** > **Alerts**:



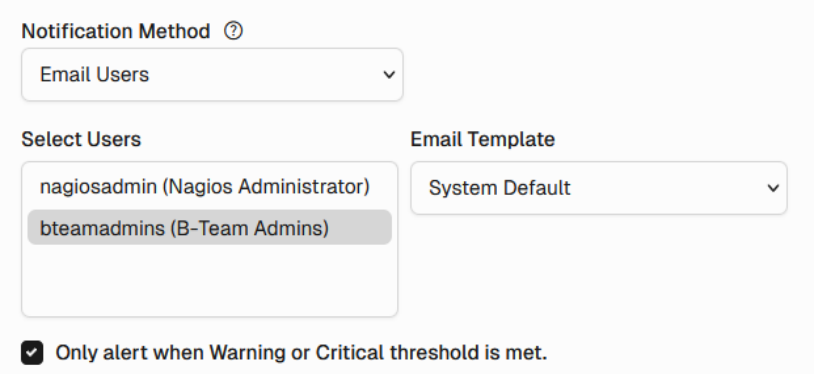
Here is an example of a received trap that was sent by Nagios Log Server:

```
1490057206
nls-c6x-x64.box293.local
UDP: [10.25.5.84]:45184->[10.25.5.17]:162
DISMAN-EVENT-MIB::sysUpTimeInstance 1:1:15:53.53
SNMPv2-MIB::snmpTrapOID.0 SNMPv2-SMI::enterprises.20006.1.7
SNMPv2-SMI::enterprises.20006.1.3.1.2 "NagiosLogServer"
SNMPv2-SMI::enterprises.20006.1.3.1.6 "Failed SSH Logins"
SNMPv2-SMI::enterprises.20006.1.3.1.7 1
SNMPv2-SMI::enterprises.20006.1.3.1.17 "WARNING: 1 matching entries found
|logs=1;0;2"
```

Email Users

Select Users - Select all the users that you want this alert to be emailed to. Use CTRL+Click to select multiple Users.

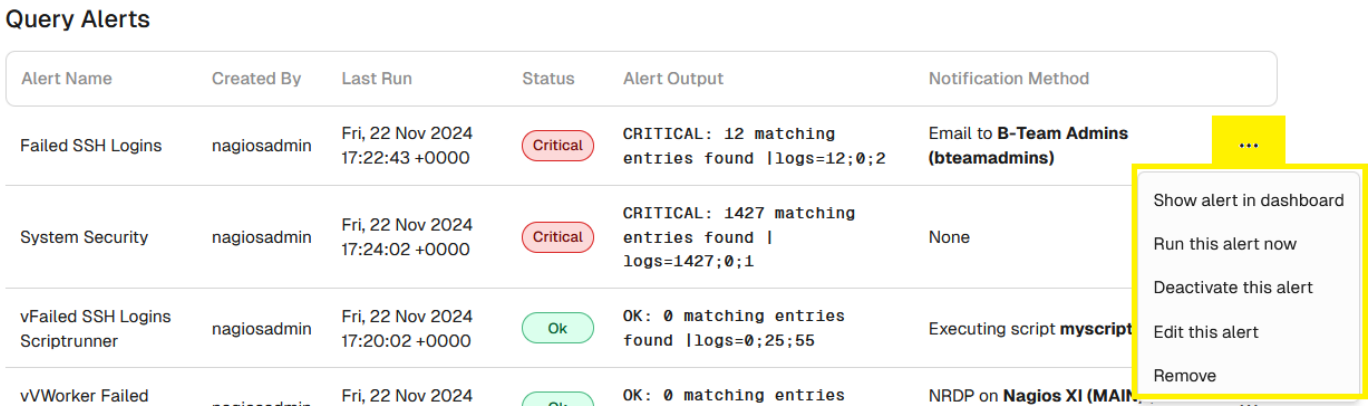
Email Template - Select the template that will be used when the email is sent. More information about defining custom email templates can be found in the Email Templates section of this document.



Click the **Create Alert** button to create your new alert, it will now be displayed under **Alerting** > **Alerts**:

Alert Actions

Navigate to **Alerting** > **Alerts** to see all the alerts that have been defined. After clicking the Actions icon to the right of an alert, you will see several options:



- **Show alert in Dashboard**
  This will open the query used by this alert in the dashboard including the lookback period defined for the alert.

- **Run the alert now**
  Causes the alert query to be run immediately.

- **Deactivate / Activate this alert**
  Allows you to activate or deactivate the alert.

- **Edit the alert**
  Make changes to the existing alert you have defined.

- **Remove**
  Allows you to remove alerts you no longer require.

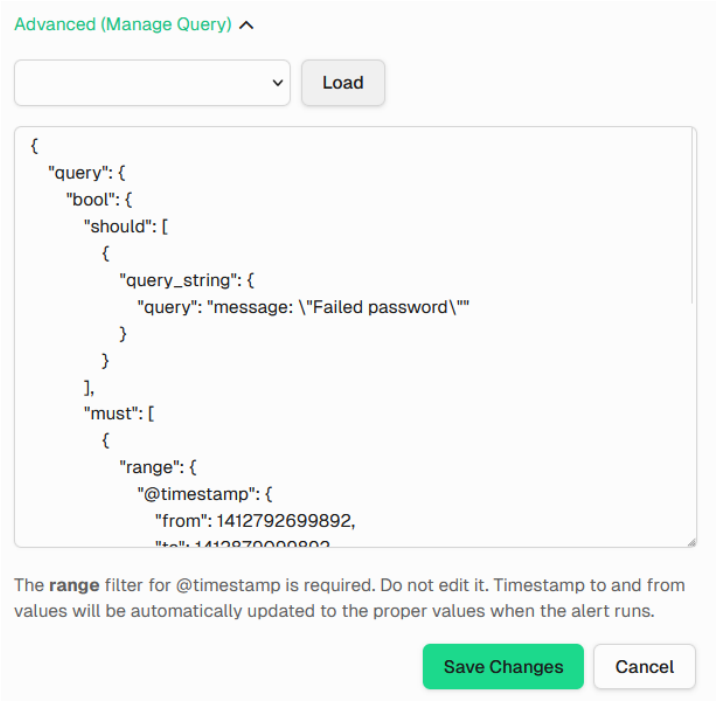
Alert Query

When adding a New Alert you will be presented with a drop down list of already defined queries. After selecting the desired query and creating the alert, this creates a copy of the query you selected.

If you were to later change the original query on the Dashboards page, this change will not be reflected in the alert definition.

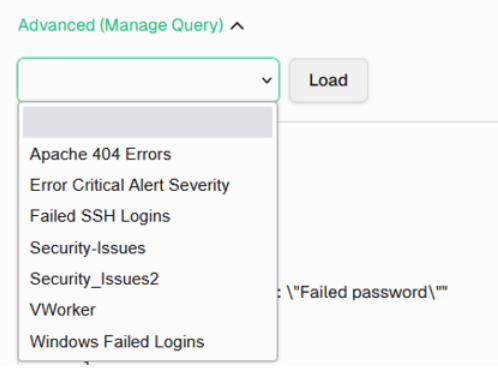
If you want to update your alert query, edit the existing alert and then click the **Advanced (Manage Query)** link.

In the screenshot to the right you can see the raw query, this is the query used by the alert.



To update the alert to use the new query, select it from the dropdown list and then click the Load button (this will replace the query text below).

Alternatively you can edit the query in the text area field.



Email Templates

Nagios Log Server allows you to create custom email templates, allowing you to have differently formatted alert emails. Navigate to **Alerting** > **Alert Settings** > **Email Templates**.

Email Template Macros

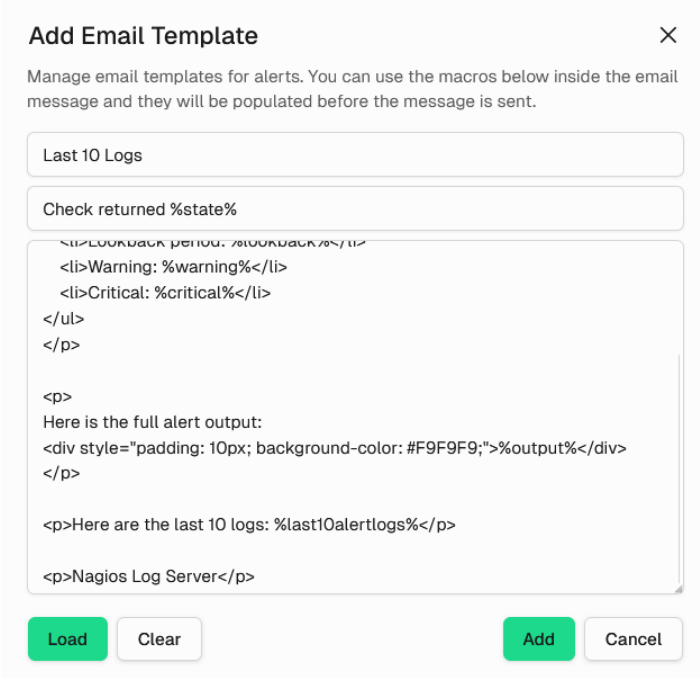
When you are creating email templates there are macros you can use to add dynamic data to your emails, for example %state% is the state of the alert (OK / WARNING / CRITICAL / UNKNOWN). The View Macros button provides a list of macros that can be used in the templates along with an explanation.

To create a new template click the **+ Add Template** button.

You will need to populate the **Template Name**, **Subject** and **Message Body** fields.

The Load button can be used to populate all the fields based off the **System Default** or **Current Default** template.

Click the **Add** button to create the template.



Nagios Threshold Values

Nagios Thresholds can be complicated to initially understand, however once grasped they can be very powerful. Documentation on Nagios thresholds is available here:

https://nagios-plugins.org/doc/guidelines.html#THRESHOLDFORMAT

The Nagios Threshold standards were designed with many different use cases, for example negative numbers are valid values. However in the case of Nagios Log Server, when an alert query is executed (for the defined loopback period), the number of events returned by the query is the value that the thresholds are tested against. With this in mind, the alert value will always be 0 or greater (no negative numbers are involved).

Nagios Passive Services for NRDP

NRDP alerts received by Nagios XI or Nagios Core are called passive checks. This means that Nagios XI or Core will need to be configured with services for these passive checks, otherwise the received alerts will be ignored. Nagios XI has built in functionality to create services for check results it has received, please refer to the following documentation for detailed steps:

Monitoring Unconfigured Objects With XI

In Nagios Core you will need to create the service definition in your configuration files for these check results. Details on how to do this are outside the scope of this documentation however the following KB article provides examples:

NRDP - Passive Host And Service Definitions

Finishing Up

This completes the documentation on Alerting on Log Events in Nagios Log Server 2024R2. If you have additional questions or other support-related questions, please visit us at our Nagios Support Forum, Nagios Knowledge Base, or Nagios Library:

Visit Nagios Support Forum Visit Nagios Knowledge Base Visit Nagios Library