# Managing Alert Policies using Streams Messaging Manager

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# Legal Notice

# Contents

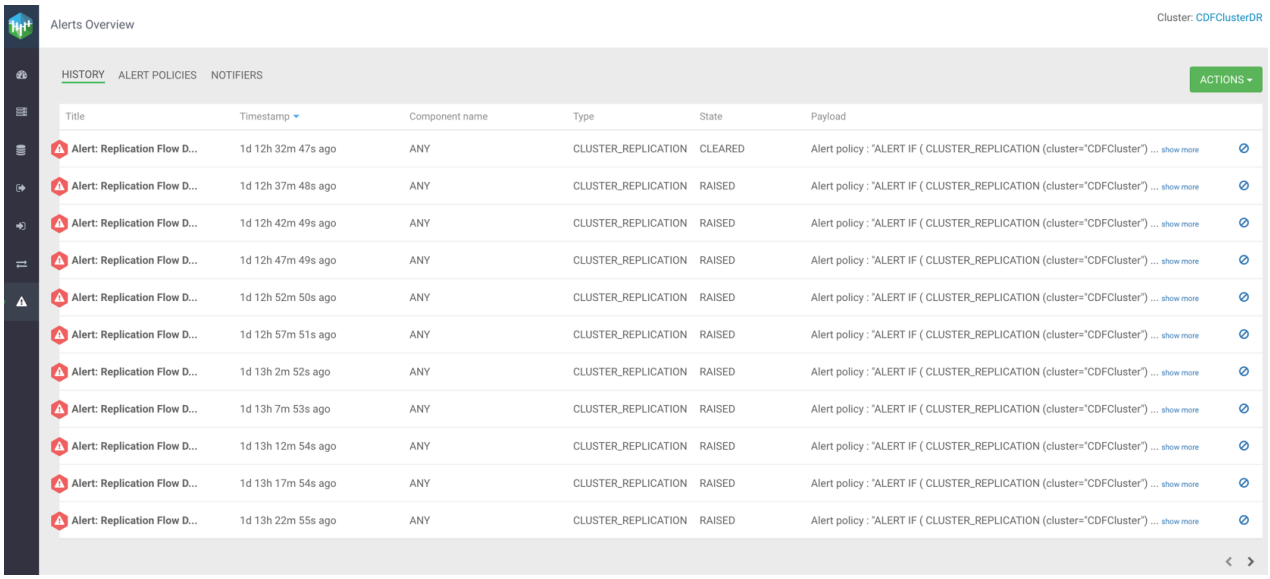
# Alert Policies Overview

An alert policy sends notifications through a notifier based on the conditions that you configure in the alert policy.

You can configure an alert policy in Streams Messaging Manager (SMM). When an alert policy triggeres, SMM creates an alert. An alert consists of details of the policy including the alert message and the conditions that fire the alert. You can use these alerts to monitor the health of different Kafka entity types, latency, and Kafka cluster replications in your system, and to identify and troubleshoot problems.

You can modify alert policy names, descriptions, and can enable or disable alert policies. You can also delete alert policies.

When you navigate to the Alerts window, the Alerts Overview page appears as shown in the following image:




You can check the list of alerts that occurred in the system till date on the HISTORY page. You can check the title, timestamp details, component name, type, state, and payload information of an alert. You can click show more to check complete payload details for an alert. Click ACTIONS Mark All As Read to mark all the alerts as read. You can also click the Dismiss icon for each alert to mark the alert as read.

# Component Types and Metrics for Alert Policies

You create an alert policy for a component type. The component type drives the list of metrics to select for creating a threshold.

The following table lists the component types and metrics for an alert policy:

### Table 1: Component Types and Metrics

| Component Type | Metric | Description | Suggested Alert |
|---|---|---|---|
| Topic | UNDER REPLICATED PARTITIONS COUNT | Total number of partitions that are under replicated for a topic. | Value > 0. |

| Component Type | Metric | Description | Suggested Alert |
|---|---|---|---|
| | BYTES IN PER SEC | Bytes per second coming in to a topic. | Two kinds of alert can be configured.<br>• Alert-1: Value = 0, raises an alert when the topic becomes idle.<br>• Alert-2: Value > max_bytes_in_expected, raises an alert when the topic input load is higher than usual. |
| | BYTES OUT PER SEC | Bytes per second going out from a topic. It does not count the internal replication traffic. | Two kinds of alert can be configured.<br>• Alert-1: Value = 0, raises an alert when the topic becomes idle.<br>• Alert-2: Value > max_bytes_out_expected, raises an alert when the topic output load is higher than usual. |
| | OUT OF SYNC REPLICA COUNT | Total number of replicas that are not in sync with the leader for a topic. | Value > 0, raises an alert if there are out of sync replicas for the topic. |
| | TOPIC PARTITION CONSUMPTION PERCENTAGE | Percentage of bytes consumed per topic partition compared according to the configured parameter retention.bytes. If rete ntion.bytes is not configured, any condition involving this metric would be false. | Value > max_expected_value, raises an alert if the topic partition reaches a certain consumption percentage. |
| | TOPIC PARTITION BYTES IN PER SEC | Bytes per second coming in to a topic partition. | Two kinds of alert can be configured.<br>• Alert-1: Value = 0, raises an alert when the topic partition becomes idle.<br>• Alert-2: Value > max_bytes_in_expected, raises an alert when the topic partition input load is higher than usual. |
| | TOPIC PARTITION BYTES OUT PER SEC | Bytes per second coming out of a topic partition. | Two kinds of alert can be configured.<br>• Alert-1: Value = 0, raises an alert when the topic partition becomes idle.<br>• Alert-2: Value > max_bytes_out_expected, raises an alert when the topic partition output load is higher than usual. |
| Producer | IS PRODUCER ACTIVE | Checks whether a producer is active. | Value is False. |
| | MILLISECONDS LAPSED SINCE PRODUCER WAS ACTIVE | Milliseconds passed since the producer was last active. | Value > max_producer_idle_time, raises an alert if the producer did not produce for max_producer_idle_time ms. |

| Component Type | Metric | Description | Suggested Alert |
|---|---|---|---|
| Cluster | ACTIVE CONTROLLER COUNT | Number of brokers in the cluster reporting as the active controller in the last interval. | Value != 1. |
| | ONLINE BROKER COUNT | Number of brokers that are currently online. | Depends on the application.<br>For example, you can raise an alert if the number of brokers falls below the min.insync.replicas configured for the producer.<br>• Alert-1: Value < min.insync.replicas, raises an alert when producer could not send any messages.<br>• Alert-2: Value = min.insync.replicas, raises an alert that denotes if any one of the remaining brokers goes down, then producer would not be able to send messages. |
| | UNCLEAN LEADER ELECTION COUNT | Number of unclean partition leader elections in the cluster reported in the last interval. | Value > 0. |
| | UNDER REPLICATED PARTITIONS COUNT | Total number of topic partitions in the cluster that are under replicated. | Value > 0. |
| | LEADER ELECTION PER SEC | Rate of partition leader elections. | Depends on the number of partitions in the application. |
| | OFFLINE PARTITIONS COUNT | Total number of topic partitions, in the cluster, that are offline. | Value > 0. |
| | NETWORK PROCESSOR AVG IDLE PERCENT | Average fraction of time the network processor threads are idle across the cluster. | Two kinds of alert can be configured.<br>• Alert-1: Value = 0, raises an alert when the network processor threads are busy.<br>• Alert-2: Value > network_processor_idle_percentage, raises an alert when the network_processor_idle_percentage is higher than usual.<br>Note: Value range is 0 to 1. |
| | REQUEST HANDLER POOL AVG IDLE PERCENT | Average fraction of time the request handler threads are idle across the cluster. | Two kinds of alert can be configured.<br>• Alert-1: Value = 0, raises an alert when the request handler threads are busy.<br>• Alert-2: Value > request_handler_idle_percentage, raises an alert when the request_handler_idle_percentage is higher than usual.<br>Note: Value range is 0 to 1. |
| | BROKER BYTES IN DEVIATION PERCENTAGE | Percentage by which a broker bytes in per second has deviated from the average bytes in per second of all the alive brokers. | Value > max_byte_in_deviation_percentage, raises an alert if a broker is seeing more than max_byte_in_deviation_percentage incoming traffic compared to average incoming traffic seen by all the brokers. |

| Component Type | Metric | Description | Suggested Alert |
|---|---|---|---|
| | BROKER BYTES OUT DEVIATION PERCENTAGE | Percentage by which a broker bytes out per second has deviated from the average bytes out per second of all the alive brokers. | Value > max_byte_out_deviation_percentage, raises an alert if a broker is seeing more than max_byte_out_deviation_percentage outgoing traffic compared to average outgoing traffic seen by all the brokers. |
| | ZOOKEEPER SESSION EXPIRATION PER SEC | Average rate at which brokers are experiencing zookeeper session expiration per second. | If this value is high, it can lead to controller fail over and leader changes. Raises an alert if value > 0. |
| Consumer | CONSUMER GROUP LAG | How far consumer groups are behind the producers. | Depends on the application. |
| | IS CONSUMER ACTIVE | Checks whether a consumer is active. | Value is False. |
| | MILLISECONDS LAPSED SINCE CONSUMER WAS ACTIVE | Milliseconds passed since the consumer was last active. | Value > max_consumer_idle_time, raises an alert if the consumer did not consume for max_consumer_idle_time ms. |
| Broker | BYTES IN PER SEC | Number of bytes per second produced to a broker. | Two kinds of alert can be configured.<br>• Alert-1: Value = 0, raises an alert when the broker becomes idle.<br>• Alert-2: Value > max_bytes_in_expected_per_broker, raises an alert when the broker input load is higher than usual. |
| | ZOOKEEPER SESSION EXPIRATION PER SEC | Rate at which brokers are experiencing Zookeeper session expirations per second. | If this value is high, it can lead to controller fail over and leader changes. Raises an alert if value > 0. |
| | TOTAL PRODUCE REQUESTS PER SEC | Total number of produce requests to a broker per second. | Depends on the application. Two kinds of alert can be configured.<br>• Alert-1: Value =0, raises an alert when there are no produce requests for the last 15 minutes.<br>• Alert-2: Value > usual_num_producer_requests_expected to detect the spike in the number of requests. |
| | PARTITION IMBALANCE PERCENTAGE | The partition imbalance for a broker. It is calculated as: (abs (average_no_of_partitions_per_broker - actual_no_of_partitions_per_broker) / average_no_of_partitions_per_broker) * 100 | Value > 10 % |

| Component Type | Metric | Description | Suggested Alert |
|---|---|---|---|
| | BYTES OUT PER SEC | Number of bytes per second fetched from a broker. It does not count the internal replication traffic. | Two kinds of alert can be configured.<br>• Alert-1: Value = 0, raises an alert when the broker becomes idle.<br>• Alert-2: Value > max_bytes_out_expected_per_broker, raises an alert when the broker output load is higher than usual. |
| | IS BROKER DOWN | Checks whether a broker is down. | Value is True. |
| | TOTAL PRODUCE REQUEST LATENCY | Latency of produce requests to this broker at the 99th percentile (in ms). | Value > max_expected_latency_ms. |
| | ISR SHRINKS PER SEC | Rate at which brokers are experiencing InSync Replica Shrinks (number of shrinks per second). | Value > 0. |
| | TOTAL FETCH CONSUMER REQUEST LATENCY | Latency of fetch consumer requests to this broker at 99th percentile (in ms). | Value > max_expected_latency_ms. |
| | REQUEST HANDLER POOL AVG IDLE PERCENT | Average fraction of time the request handler threads are idle. | Two kinds of alert can be configured.<br>• Alert-1: Value = 0, raises an alert when the request handler threads are busy.<br>• Alert-2: Value > request_handler_idle_percentage, raises an alert when the request_handler_idle_percentage is higher than usual.<br>Note: Value range is 0 to 1. |
| | NETWORK PROCESSOR AVG IDLE PERCENT | Average fraction of time the network processor threads are idle. | Two kinds of alert can be configured.<br>• Alert-1: Value = 0, raises an alert when the network processor threads are busy.<br>• Alert-2: Value > network_processor_idle_percentage, raises an alert when the network_processor_idle_percentage is higher than usual.<br>Note: Value range is 0 to 1. |
| Cluster Replication | REPLICATION LATENCY | 15 minutes average replication latency in milliseconds. | Value > max_expected_replication_latency, raises an alert if the replication latency is greater than max_expected_replication_latency. |
| | REPLICATION THROUGHPUT | 15 minutes average replication throughput in bytes per second. | Value < min_expected_throughput, raises an alert if throughput during replication is low. This could happen because of network issues. |
| | CHECKPOINT LATENCY | 15 minutes average checkpoint latency in milliseconds. | Value > max_expected_checkpoint_latency, raises an alert if the checkpoint latency is greater than max_expected_replication_latency. |

| Component Type | Metric | Description | Suggested Alert |
|---|---|---|---|
| | REPLICATION STATUS | Replication status of a replication pipeline. | Value != ACTIVE, raises an alert if the replication is not active. |
| Latency | END TO END LATENCY | 15 minutes average of end to end latency in ms. | Value > max_expected_latency, raises an alert if the end to end latency is greater than max_expected_latency. |

# Notifiers

You can use notifiers to communicate important Kafka alerts to appropriate recipients.

You can configure a notifier in Streams Messaging Manager (SMM). You can modify notifier names, descriptions, and can enable or disable notifiers.

SMM uses the following predefined set of notifiers:

- Email
- HTTP

# Managing Alert Policies and Notifiers

You can use SMM to manage and monitor all the alert policies and notifiers in your environment.

## Creating a Notifier

You can use SMM to create a notifier in your environment.

### About this task

Perform the following steps to create a notifier:

### Procedure

1. From the left navigation pane, select Alerts.
   The Alerts Overview page appears.
2. Click NOTIFIERS.
3. Click ADD NEW to create a new notifier.
   The Notifier window appears.
4. Configure the following properties:

| Configuration | Property | Description |
|---|---|---|
| Common Notifier Configuration | NAME | Enter a unique name for the notifier. |
| | DESCRIPTION | Enter an optional description for the notifier. |
| | PROVIDER | Choose one of the following providers:<br>• Email<br>• HTTP |
| | NOTIFIER RATE LIMIT COUNT | Select the number of allowed notifications. |

| Configuration | Property | Description |
|---|---|---|
| | NOTIFIER RATE LIMIT DURATION | Select the number of allowed notifications with respect to given duration in SECONDS, MINUTES, or HOURS. |
| Email Notifier Configuration | FROM ADDRESS | Enter the email address to use for SMTP mail command. Default is admin@localhost. |
| | TO ADDRESS | Enter one or multiple email addresses that you want to send the notification to. |
| | USERNAME | Enter the username for SMTP. |
| | PASSWORD | Enter the password for SMTP. |
| | SMTP HOSTNAME | Enter the SMTP server that you want to connect to. Default is localhost. |
| | SMTP PORT | Enter the SMTP server port that you want to connect to. Default is 25. |
| | ENABLE AUTH | Select to enable authentication. |
| | ENABLE SSL/STARTTLS | Select to enable SSL. This is applicable when you enable authentication. You can either select SSL or STARTTLS. |
| | PROTOCOL | Enter the protocol to use to send emails. Default is SMTP. |
| | ENABLE DEBUG | Select to enable debug mode to trace any issue in the email notifier. Disabled by default. |
| HTTP Notifier Configuration | URL | Enter the target service URL. |
| | CONNECTION TIMEOUT (MSECS) | Select the connection timeout in milliseconds for creating the initial connection. Default is 30 seconds. |
| | READ TIMEOUT (MSECS) | Select the read timeout in milliseconds for waiting to read data. Default is 30 seconds. |

5. Click Save.

## Updating a Notifier

You can use SMM to update a notifier that you create in your environment.

### About this task

Perform the following steps to update a notifier:

### Procedure

1. From the left navigation pane, select Alerts.

   The Alerts Overview page appears.
2. Click NOTIFIERS.
3. Find the notifier you want to update from the list of available notifiers, and click the pencil icon beside the notifier.

   The Notifier window appears.
4. Edit the properties.
5. Click Save.

# Deleting a Notifier

You can use SMM to delete a notifier that you create in your environment. You can delete a notifier only if the notifier is not mapped to an alert policy.

### About this task

Perform the following steps to delete a notifier:

### Procedure

1. From the left navigation pane, select Alerts.
   The Alerts Overview page appears.
2. Click NOTIFIERS.
3. Find the notifier you want to delete from the list of available notifiers, and click the delete icon beside the notifier.
4. Click Yes.

# Creating an Alert Policy

You can use SMM to create an alert policy in your environment.

### About this task

Perform the following steps to create an alert policy:

### Procedure

1. From the left navigation pane, select Alerts.
   The Alerts Overview page appears.
2. Click ALERT POLICIES.
3. Click ADD NEW to create a new alert policy.
   The Alert Policy window appears.
4. Configure the following properties:

| Property | Description |
|---|---|
| **NAME** | Enter a unique name for the alert policy. |
| **DESCRIPTION** | Enter a description for the alert policy. |
| **EXECUTION INTERVAL IN SECONDS** | Enter the execution interval in seconds to execute the alert policy periodically after the given time interval. |
| **EXECUTION DELAY IN SECONDS** | Enter the execution delay in seconds to delay the execution of the alert policy. This is applicable only when the last execution of the alert policy triggered an alert. Ideally, this value should not be less than the value you enter for the EXECUTION INTERVAL IN SECONDS option. |
| **ENABLE** | Choose to enable or disable the alert policy. |
| **COMPONENT TYPE** | Select one of the following component types for the IF policy:<br>• Broker<br>• Consumer |

| Property | Description |
| --- | --- |
| | • Producer<br>• Topic<br>• Latency<br>• Cluster<br>• Cluster replication |
| **TARGET NAME** | Select the target name for the IF policy.<br>You can add multiple WITH conditions by clicking the plus icon beside TARGET NAME. |
| **TOPIC NAME** | Select the topic name for the IF policy.<br>The property is visible when you select Latency or Cluster replication component type. |
| **CONSUMER NAME** | Select the consumer name for the IF policy.<br>The property is visible when you select Latency component type. |
| **CLUSTER NAME** | Select the cluster name for the IF policy.<br>The property is visible when you select Cluster replication component type. |
| **ATTRIBUTE** | Select the attribute for the policy. |
| **CONDITION** | Select the condition for the policy. |
| **VALUE** | Select the value for the policy.<br>You can add multiple attributes, conditions, and values by clicking the plus icon beside VALUE. |
| **NOTIFICATION** | Select a notifier. |
| **PREVIEW** | Displays the alert that you configure. For example, IF [COMPONENT_TYPE]: [TARGET_NAME] has [METRIC] [CONDITION] [VALUE] THEN not ify by [NOTIFICATION] |

5. Click Save.

## Updating an Alert Policy

You can use SMM to update an alert policy in your environment.

### About this task

Perform the following steps to update an alert policy:

### Procedure

1. From the left navigation pane, select Alerts.
   The Alerts Overview page appears.
2. Click ALERT POLICIES.
3. Find the alert policy that you want to update, and click the pencil icon beside the alert policy.
   The Alert Policy window appears.

4. Edit the properties.
5. Click Save.

## Enabling an Alert Policy

You can use SMM to enable an alert policy in your environment.

### About this task

Perform the following steps to enable an alert policy:

### Procedure

1. From the left navigation pane, select Alerts.
   The Alerts Overview page appears.
2. Click ALERT POLICIES.
3. Find the alert policy that you want to enable, and click the enable icon beside the alert policy.
   The alert policy is enabled.

## Disabling an Alert Policy

You can use SMM to disable an alert policy in your environment.

### About this task

Perform the following steps to disable an alert policy:

### Procedure

1. From the left navigation pane, select Alerts.
   The Alerts Overview page appears.
2. Click ALERT POLICIES.
3. Find the alert policy that you want to disable, and click the enable icon beside the alert policy.
   The alert policy is disabled.

## Deleting an Alert Policy

You can use SMM to delete an alert policy in your environment.

### About this task

Perform the following steps to delete an alert policy:

### Procedure

1. From the left navigation pane, select Alerts.
   The Alerts Overview page appears.
2. Click ALERT POLICIES.
3. Find the alert policy that you want to delete, and click the delete icon beside the alert policy.
4. Click Yes.