

Qumulo Alerts Administrator Guide

Version 6.0.2



Copyright © 2023 Qumulo, Inc.

Table of Contents

Getting Started

- How Qumulo Alerts Works 2
- Supported Alarms and Alerts 4
- Supported Language Locales..... 6

Installing and Configuring

Upgrading

- Upgrading from a Previous Version 8
- Upgrading from a Beta Version 9

Configuring Notifications

- Alarm and Alert Notifications to Administrators..... 10
- Default Quota Notifications..... 13
- Quota Notifications to Administrators 15
- Quota Notifications to Users 18

Configuring Integrations

- Integration with an Email Server 21
- Integration with IFTTT..... 23
- Integration with SMS (ClickSend) 24

Configuring Alarm and Alert Collection

Connecting to Grafana

Getting Started

How Qumulo Alerts Works with Qumulo Core

This section explains how Qumulo Alerts monitors alarms and alerts for a Qumulo Cluster.

How Qumulo Alerts Works

Qumulo Alerts is a Docker-based system that comprises multiple containers. The main container uses a series of *plugins* to collect *hardware alarms* and *software alerts* from Qumulo clusters.

In Qumulo Alerts, *producers* are Docker containers that take data from various sources, pass it through *the Exchange*, a processing queue, and finally give the data to *consumers*, defined users or user groups. In addition to processing data, the Exchange facilitates the transfers between the producers and consumers.



Both producers and consumers use plugins that help process alarms and alerts from a Qumulo cluster. A *plugin* is a mechanism that processes a single function, such as fan failure, disk failure, or node failure. Plugins help with granular control over the information that Qumulo Alerts collects and processes.

Working with the alerts CLI

The `alerts` CLI lets you configure Qumulo Alerts. For more information, use the `--help` flag.

Qumulo Alerts includes a CLI for the following operating systems:

- Ubuntu 20 and 22
- Red Hat Enterprise (RHEL) 8
- macOS
- Windows Server 2019 and Windows 10 and 11

Known Limitations of Qumulo Alerts

This section lists the currently known limitations for Qumulo Alerts.

- **Floating IP Addresses or Network Load Balancing (NLB):** To prevent overloading any node in a Qumulo cluster, Qumulo Alerts plugins connect to all nodes in the cluster by using floating IP addresses or an NLB.

Important

Qumulo Alerts can't function if neither IP addresses nor NLBs are configured.

- **Error Logging:** Qumulo Alerts generates a large number of error messages that can help you debug issues. However, currently, all logging remains within the Docker container and is therefore not accessible easily. For help with troubleshooting issues, [contact the Qumulo Care team](#).

What Alarms and Alerts Qumulo Alerts Supports

This section lists the alarms and alerts that Qumulo Alerts collects and processes.

Alarms

The following alarms report hardware changes in a Qumulo cluster.

Plugin Name	Description
CPU	Temperature deviation
Disks	Failure, state change
Fans	Speed deviation, failure
Network	Link failure
Nodes	Addition, failure

Alerts

The following alerts report software changes and changes in environmental conditions for a Qumulo cluster.

Plugin Name	Description
AD	Joining or leaving an Active Directory domain
Audit	Auditing enabled or disabled
Capacity	Change in cluster capacity (configured percentage of the entire cluster)
Exports	NFS exports created, modified, or deleted
FTP	FTP enabled or disabled
Groups	Local groups added, modified, or deleted
Monitoring	Cloud-based monitoring enabled, disabled, or unreachable
Quotas	Quota notification (configured percentage for specified directories)
Restriper	Restriper started, stopped, or percentage complete

Plugin Name	Description
Shares	SMB shares added, modified, or deleted
Softquotas	Soft quota notification (configured percentage for specified directories)
Users	Local users added, modified, or deleted

Informational

The following informational notifications show performance and status information for a Qumulo cluster.

Plugin Name	Description
Metrics	Performance metrics (throughput, IOPS, and latency)
OSUpgrade	Qumulo Core upgrade

What Language Locales Qumulo Alerts Supports

This section lists the language locales that Qumulo Alerts supports for notifying users through email, IFTTT, and SMS (ClickSend).

Language Locales

The consumer processes for [email \(page 21\)](#), [IFTTT \(page 23\)](#), and [SMS \(ClickSend\) \(page 24\)](#) integrations translate messages into the recipient's native language.

Code	Description
de_AT	German (Austria)
de_CH	German (Switzerland)
de_DE	German (Germany)
en_GB	English (Great Britain)
en_US	English (USA)
es_ES	Spanish (Spain)
fr_BE	French (Belgium)
fr_CA	French (Canada)
fr_CH	French (Switzerland)
fr_FR	French (France)
hu_HU	Hungarian (Hungary)
it_CH	Italian (Switzerland)
it_IT	Italian (Italy)
ja_JP	Japanese (Japan)
ko_KR	Korean (Korea)
pl_PL	Polish (Poland)
sk_SK	Slovak (Slovakia)

Code	Description
tr_TR	Turkish (Turkey)
zh_TW	Traditional Chinese (Taiwan)

Converting Time Zones

Each message that the Exchange processes contains a timestamp encoded in UTC time by default. This timestamp must match the recipient's time zone. If you don't use the `--timezone` flag when you create a user by using the `alerts` CLI, Qumulo Alerts uses `UTC` time.

Each translated message that a user receives includes a time zone in the `Continent/City` format (for example, `America/Los_Angeles`). For more information, see [List of TZ Database Time Zones](#).

Note

UTC doesn't follow the `Continent/City` format.

Upgrading

Upgrading Qumulo Alerts from a Previous Public Version

This section explains how to upgrade Qumulo Alerts from a previous public version to the latest one.

To Upgrade Qumulo Alerts to the Latest Public Version

1. To shut down Qumulo Alerts, navigate to its directory and run the `./stop-docker-qumulo-alerts.sh` command.

i Note

This process might take up to 60 seconds. The Alerts Docker container must shut down and then verify that all Qumulo Alerts Docker containers are also shut down correctly.

2. In the Qumulo Alerts directory, run the `git pull` command.
3. To remove all existing Qumulo Alerts Docker images from your machine, use the `docker system prune -a -f` command.

i Note

This release of Qumulo Alerts adds new Docker containers, making it necessary to remove all existing images.

4. To restart the Docker containers for Qumulo Alerts, pull new Docker images from the Qumulo Docker repository, and restart all Docker containers, use the `./start-docker-qumulo-alerts.sh` command.

Upgrading Qumulo Alerts from the Beta Version

This section explains how to upgrade Qumulo Alerts from the beta version.

Note

- Whereas the beta version of Qumulo Alerts uses JSON files for configuration, the public version of Qumulo Alerts uses its API or the `alerts` CLI to store configuration information in a database.
- It isn't possible to upgrade from the beta version of Qumulo Alerts to the public version automatically. To enable upgrades from a beta version, you must perform the following manual steps.

To Prepare for Upgrading Qumulo Alerts from the Beta Version

1. To shut down Qumulo Alerts, navigate to its directory and run the `./stop-docker-qumulo-alerts.sh` command.
2. Copy the information from the `user_token` field located in the `QumuloAlerts/config/alerts/QumuloAlerts.json` file.
3. Rename the directory of the beta version of Qumulo Alerts, for example to `QumuloAlerts.beta`.
4. [Install the latest public version of Qumulo Alerts \(page 0\)](#).
5. When you [configure alarm and alert collection from your Qumulo cluster \(page 0\)](#), use the information from the `user_token` field.

Configuring Notifications

Configuring Alarm and Alert Notifications to an Administrative Account in Qumulo Alerts

This section explains how to configure Qumulo Alerts to send alarm and alert notifications from a Qumulo cluster to an administrative account.

You must first add the account as a Qumulo Alerts user, create a notification group and configure its notifications, and then add the user to the notification group.

Step 1: Add an Administrative Account as a Qumulo Alerts User

Use the `./alerts user_add` command and specify the administrator's full name, username, password, email address, language, and time zone. For example:

```
./alerts user_add \  
  --full_name "Jane Johnson" \  
  --username jjohnson \  
  --password MyPassword123 \  
  --email jjohnson@example.com \  
  --language en_US \  
  --timezone "America/Los_Angeles"
```

Note

- For the `--language` flag, see [What Language Locales Qumulo Alerts Supports](#) (page 6). The consumer processes for email (page 21), IFTTT (page 23), and SMS (ClickSend) (page 24) integrations translate messages into the recipient's native language.
- For the `--timezone` flag, see [Converting Time Zones](#) (page 7).

The following is example JSON output from the command.

```
[{
  "disabled": false,
  "email": "jjohnson@example.com",
  "full_name": "Jane Johnson",
  "id": 3,
  "ifttt_event": null,
  "language": "en_US",
  "phone": null,
  "timezone": "America/Los_Angeles",
  "username": "jjohnson"
}]
```

Step 2: Create and Configure a Notification Group

Use the `./alerts notification_group_add` command and specify the notification group's name, description, and the events for which the notification group receives notifications. In the following example, the `NotifyOnHardwareChange` group receives notifications for all hardware state change events.

```
./alerts notification_group_add \
  --name NotifyOnHardwareChange \
  --description "Send a notification when any hardware changes state" \
  --event NOTIFY_FANS \
  --event NOTIFY_CPU \
  --event NOTIFY_DISKS \
  --event NOTIFY_NETWORK \
  --event NOTIFY_NODES
```

The following is example JSON output from the command.

```
[{
  "description": "Send a notification when any hardware changes state",
  "id": 2,
  "name": "NotifyOnHardwareChange"
}]
```

Step 3: Add a Qumulo Alerts User to a Notification Group

Use the `./alerts notification_group_add_user` command and specify the notification group name and the Qumulo Alerts user name to add to the notification group. For example:

```
./alerts notification_group_add_user \  
--name NotifyOnHardwareChange \  
--username jjohnson
```

The following is example JSON output from the command.

```
[{  
  "description": "Notify when certain hardware changes state",  
  "id": 2,  
  "name": "NotifyOnHardwareChange",  
  "users": [{  
    "can_change_password": true,  
    "disabled": false,  
    "email": "jjohnson@example.com",  
    "full_name": "Jane Johnson",  
    "id": 3,  
    "ifttt_event": null,  
    "language": "en_US",  
    "phone": null,  
    "timezone": "America/Los_Angeles",  
    "username": "jjohnson"  
  }]  
}]
```

Configuring Default Quota Notifications in Qumulo Alerts

This section explains how to configure default quota notifications in Qumulo Alerts.

Qumulo Alerts lets an administrator configure notifications that inherit a template from one of the following default quotas.

- **No-Path Quota:** This quota type has no defined file system path. It is the most common quota type and it applies thresholds to every quota defined for a Qumulo cluster.
- **Inherited-Path Quotas:** This quota type lets an administrator specify a default path for every quota defined for a Qumulo cluster. Every quota created under the default path inherits its thresholds from this quota.

You can configure quota monitoring by using *thresholds*.

- For the `--warning` flag, the threshold must be lower than the thresholds of both the `--error` and `--critical` flags.
- For the `--error` flag, the threshold must be lower than the threshold of the `--critical` flag.
- For the `--critical` flag, the threshold must be greater than the thresholds of both the `--warning` and `--error` flags.

For more information about how quotas work, see [Configuring Quota Notifications to an Administrative Account \(page 0\)](#) and [Configuring Quota Notifications to a User Account \(page 0\)](#).

To List the Predefined No-Path Quota

Qumulo Alerts comes with a predefined no-path quota. To get information about this quota, use the `./alerts default_quota_list` command.

The following is example JSON output from the command.

```
[{
  "items": [{
    "admin_notification": true,
    "critical": 95,
    "error": 85,
    "id": 1,
    "quota_prefix": "",
    "user_mode": "owner",
    "user_notification": false,
    "warning": 75
  }],
  "page": 1,
  "pages": 1,
  "size": 50,
  "total": 1
}]
```

To Configure an Inherited-Path Quota

Use the `./alerts default_quota_add` command and specify the default path and thresholds. For example:

```
./alerts default_quota_add \
--quota-prefix /Home \
--warning 80 \
--error 90 \
--critical 98
```

The following is example JSON output from the command.

```
[{
  "admin_notification": true,
  "critical": 98,
  "error": 90,
  "id": 2,
  "quota_prefix": "/Home/",
  "user_mode": "owner",
  "user_notification": false,
  "warning": 80
}]
```

Configuring Quota Notifications to an Administrative Account in Qumulo Alerts

This section explains how to configure Qumulo Alerts to send quota notifications from a Qumulo cluster to an administrative account.

You can configure quota monitoring by using *thresholds*.

- For the `--warning` flag, the threshold must be lower than the thresholds of both the `--error` and `--critical` flags.
- For the `--error` flag, the threshold must be lower than the threshold of the `--critical` flag.
- For the `--critical` flag, the threshold must be greater than the thresholds of both the `--warning` and `--error` flags.

You can configure unattached quotas or attach them to a Qumulo cluster.

To Configure Quota Notifications with Two Thresholds

Use the `./alerts quota_add` command and specify the quota path to monitor. The following example specifies the warning threshold and the error threshold and doesn't attach the quota to a Qumulo cluster.

```
./alerts quota_add \  
--quotapath /Reports/Sales \  
--warning 80 \  
--error 85
```

The following is example JSON output from the command.

```
[{  
  "admin_notification": true,  
  "critical": 95,  
  "error": 85,  
  "id": 2,  
  "quota_path": "/Reports/Sales/",  
  "user_email": "",  
  "user_mode": "direct",  
  "user_notification": false,  
  "warning": 80  
}]
```


To Configure Quota Notifications with a Single Threshold

Use the `./alerts quota_add` command and specify the quota path. The following example specifies the error threshold and attaches the quota to the fully qualified domain name (FQDN) of a Qumulo cluster.

```
./alerts quota_add \  
  --quotapath /Reports/Marketing \  
  --error 90 \  
  --cluster-include cluster.example.com
```

Note

When you add a quota and attach it to a Qumulo cluster, the `alerts` CLI doesn't list the cluster.

The following is example JSON output from the command.

```
[{  
  "admin_notification": true,  
  "critical": 95,  
  "error": 90,  
  "id": 3,  
  "quota_path": "/Movies/Dutch/",  
  "user_email": "",  
  "user_mode": "direct",  
  "user_notification": false,  
  "warning": 75  
}]
```

To List All Defined Quotas and Attached Clusters

Use the `./alerts quota_list` command.

The following is example JSON output from the command. In this example, the second quota is attached to the fully qualified domain name (FQDN) of a Qumulo cluster.

```
[{
  "items": [{
    "admin_notification": true,
    "clusters": [],
    "critical": 95,
    "error": 85,
    "id": 2,
    "quota_path": "/Reports/Sales/",
    "user_email": "",
    "user_mode": "direct",
    "user_notification": false,
    "warning": 80
  }, {
    "admin_notification": true,
    "clusters": [{
      "frequency": 1,
      "name": "cluster.example.com",
      "nlb": false,
      "port": 8000
    }],
    "critical": 95,
    "error": 90,
    "id": 3,
    "quota_path": "/Reports/Marketing/",
    "user_email": "",
    "user_mode": "direct",
    "user_notification": false,
    "warning": 75
  }],
  "page": 1,
  "pages": 1,
  "size": 50,
  "total": 2
}]
```

Configuring Quota Notifications to a User Account in Qumulo Alerts

This section explains how to configure Qumulo Alerts to send quota notifications from a Qumulo cluster to a user account.

Qumulo Alerts can notify an individual user's email address manually or use [default quotas \(page 0\)](#) to notify email addresses associated in Active Directory (AD) with the security identifier (SID) of the quota directory's owner automatically.

To Notify an Individual Email Address

Use the `./alerts quota_add` command and specify the quota path, the email address to notify, the email address to notify, and the fully qualified domain name (FQDN) of your Qumulo cluster. For example:

```
./alerts quota_add \  
  --quotapath /Reports/Marketing \  
  --user-notification True \  
  --user-mode direct \  
  --user-email jjohnson@example.com \  
  --cluster-include cluster.example.com
```

Note

For the `--user-email` flag, you can specify a comma-delimited list of email addresses to notify, if you also specify `--user-notification True` `--user-mode direct`.

The following is example JSON output from the command.

```
[{  
  "admin_notification": true,  
  "critical": 95,  
  "error": 85,  
  "id": 1,  
  "quota_path": "/Reports/Marketing/",  
  "user_email": "jjohnson@example.com",  
  "user_mode": "direct",  
  "user_notification": true,  
  "warning": 75  
}]
```

Notifying Directory Owners Automatically

To use this method, you must first add an AD server to Qumulo Alerts and then configure the default quota to use AD lookup to retrieve users' email addresses.

Step 1: Connect Qumulo Alerts to an Active Directory Server

Use the `./alerts ad_server_add` command and specify the AD server, AD login name, AD password, the search base for looking up users, and the fully qualified domain name (FQDN) of your Qumulo cluster. For example:

```
./alerts ad_server_add \  
--server-name "ad.example.com" \  
--login-name "example.com\LookupUser" \  
--password MyPassword123 \  
--search-base "CN=Users,DC=example,DC=com" \  
--cluster-include cluster.example.com
```

Important

For maximum security, configure a specific AD user to issue lookup requests.

The following is example JSON output from the command.

```
[{  
  "clusters": [{  
    "frequency": 1,  
    "name": "cluster.example.com",  
    "nlb": false,  
    "port": 8000  
  }],  
  "id": 2,  
  "login_name": "example.com\\LookupUser",  
  "search_base": "CN=Users,DC=example,DC=com",  
  "server_name": "ad.example.com"  
}]
```

Step 2: Configure a Default Quota to use Active Directory Lookup

Use the `./alerts default_quota_update` command, specify the default quota ID, and configure the quota to notify users. For example:

```
./alerts default_quota_update \  
--id 1 \  
--user-notification True \  
--admin-notification False
```

The following is example JSON output from the command.

```
[{  
  "admin_notification": false,  
  "critical": 95,  
  "error": 85,  
  "quota_prefix": "",  
  "user_mode": "owner",  
  "user_notification": true,  
  "warning": 75  
}]
```

Configuring Integrations

Configuring Qumulo Alerts Integration with an Email Server

This section explains how to configure Qumulo Alerts to work with an email server.

Note

After May 2022, only organizations with access to the Google Admin Console can use SMTP relay. If your organization has this access, see [Route outgoing SMTP relay messages through Google](#).

To Add a New Email Server to Qumulo Alerts

Use the `./alerts email_server_add` and specify the sender's email address, recipient's email address, email server hostname and port, language, and time zone. For example:

```
./alerts email_server_add \  
  --from-addr alerts@example.com \  
  --to-addr name@example.com \  
  --server mail.example.com \  
  --port 25  
  --language en_US  
  --timezone "America/Los_Angeles"
```

Note

- The `--login`, `--password`, and `--security` flags might be optional, depending on the type of SMTP email server that you use.
- For the `--language` flag, see [What Language Locales Qumulo Alerts Supports](#) (page 6). The consumer processes for email (page 21), IFTTT (page 23), and SMS (ClickSend) (page 24) integrations translate messages into the recipient's native language.
- For the `--timezone` flag, see [Converting Time Zones](#) (page 7).

The following is example JSON output from the command.

```
[{
  "from_address": "alerts@example.com",
  "language": "en_US",
  "login": null,
  "password": null,
  "port": 25,
  "security": null,
  "server": "mail.example.com",
  "timezone": "America/Los_Angeles",
  "to_address": "name@example.com"
}]
```

To Test Integration with Your Email Server

Use the `./alerts_email_server_test` command.

A successful response returns the `[{ "ok": true }]` JSON output.

Configuring Qumulo Alerts Integration with IFTTT

This section explains how to configure Qumulo Alerts to work with IFTTT.

[IFTTT \(If This Then That\)](#) is a paid, third-party service that provides delivery of messages by using [Webhooks integrations](#) and events. For more information, see the [IFTTT documentation](#).

To Integrate IFTTT with Qumulo Alerts

Use the `./alerts ifttt_server_add` command and specify the IFTTT server token, language, and time zone. For example:

```
./alerts ifttt_server_add \  
  --token abcABde12f3g4567CDE89 \  
  --language en_US \  
  --timezone "America/Phoenix"
```

Note

- For the `--language` flag, see [What Language Locales Qumulo Alerts Supports](#) (page 6). The consumer processes for email (page 21), IFTTT (page 23), and SMS (ClickSend) (page 24) integrations translate messages into the recipient's native language.
- For the `--timezone` flag, see [Converting Time Zones](#) (page 7).

The following is example JSON output from the command.

```
[{  
  "language": "en_US",  
  "timezone": "America/Los_Angeles",  
  "token": "abcABde12f3g4567CDE89"  
}]
```

To Test Integration with IFTTT

Use the `./alerts ifttt_server_test` command.

A successful response returns the `[{"ok": true}]` JSON output.

Configuring Qumulo Alerts Integration with SMS (ClickSend)

This section explains how to configure Qumulo Alerts to work with SMS by using ClickSend.

[ClickSend](#) is a paid, third-party service that provides delivery of messages as SMS (and other formats). For more information, see [How to get started with ClickSend](#) in the ClickSend documentation.

⚠ Important

To be able to send SMS in the U.S. and Canada, you must sign up for a dedicated toll-free number (TFN).

To Integrate ClickSend with Qumulo Alerts

Use the `./alerts clicksend_server_add` command and specify the username, token, sender ID, and recipient's phone number.

```
./alerts clicksend_server_add \  
--username name@example.com \  
--token 12345678-ABCDEFGH-12345678-ABCDEFGH \  
--senderid "+15551234567" \  
--to-address "+15550987654"
```

📘 Note

- For the `--username` and `--token` flags, see [API Credentials](#) in the ClickSend documentation.
- The `--senderid` flag is mandatory for the U.S. and Canada. For more information, see [Toll-Free Number \(TFN\) Verification](#) in the ClickSend documentation.
- For the `--language` flag, see [What Language Locales Qumulo Alerts Supports](#) (page 6). The consumer processes for email (page 21), IFTTT (page 23), and SMS (ClickSend) (page 24) integrations translate messages into the recipient's native language.
- For the `--timezone` flag, see [Converting Time Zones](#) (page 7).

The following is example JSON output from the command.

```
[{  
  "language": "en_GB",  
  "senderid": "+15551234567",  
  "timezone": "UTC",  
  "to_address": "+15550987654",  
  "username": "name@example.com"  
}]
```

To Test Integration with ClickSend

Use the `./alerts clicksend_server_test` command.

Note

For integration testing to complete successfully, the `--to-address` flag must be configured already.

A successful response returns the `[{ "ok": true }]` JSON output. In addition, the recipient's phone number receives a test message.