Qumulo Alerts Administrator Guide

Version 3.3.0

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Getting Started with Qumulo Alerts

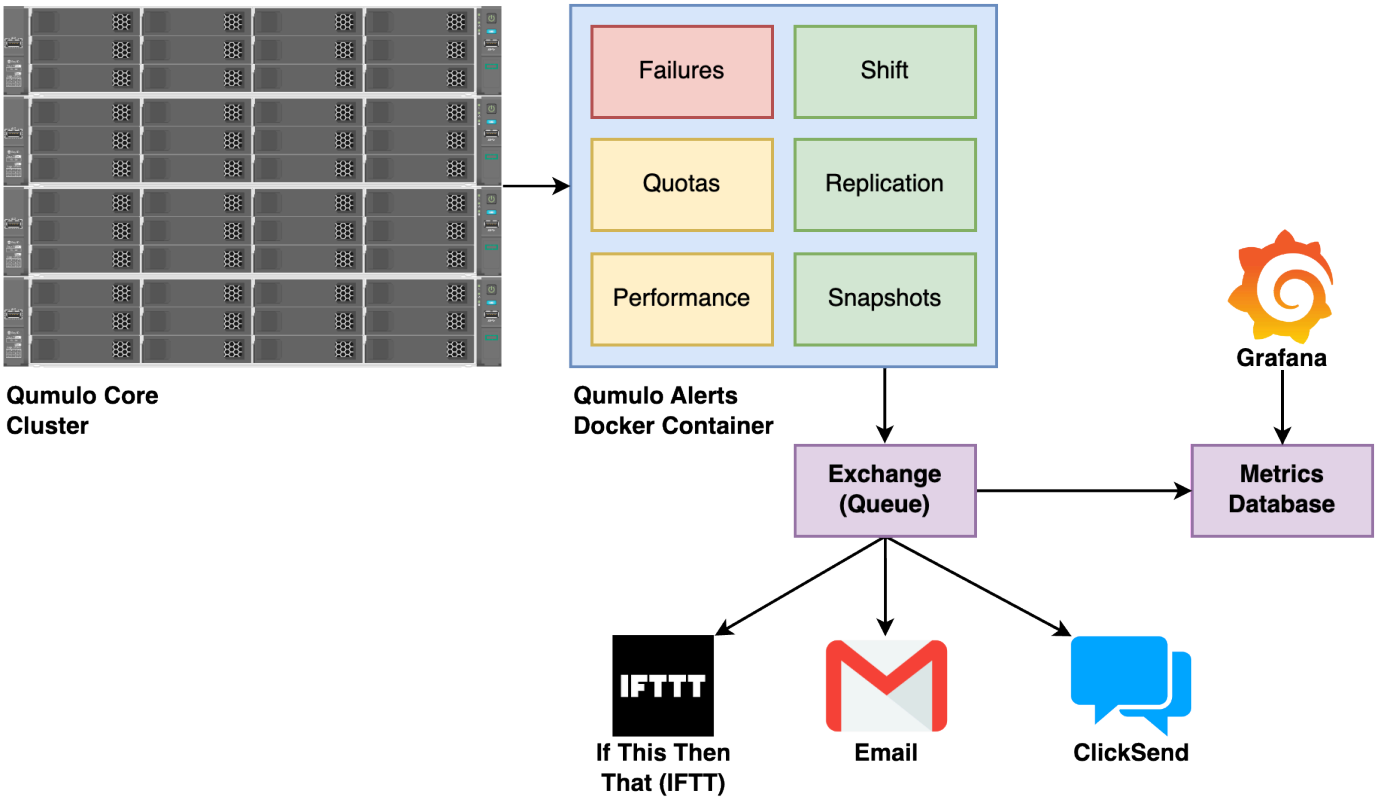
How Qumulo Alerts Works with Qumulo Core

This section explains how Qumulo Alerts monitors alarms and alerts for a Qumulo Core 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 Core 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 it to *consumers*, defined users or user groups. Aside from 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 Core 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 currenly 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 or 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, IFTTT, and SMS (ClickSend) 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/Phoenix`). For more information, see List of TZ Database Time Zones.

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

Installing and Configuring Qumulo Alerts

Installing Qumulo Alerts and Connecting it to a Qumulo Cluster

This section explains how to install Qumulo Alerts and connect it to a Qumulo cluster.

Prerequisites

We recommend the following system requirements for Qumulo Alerts.

- 4-core processor
- 16 GB memory
- 2 TB disk space

Before you install Qumulo Alerts, make sure you have the following tools:

- Git (You can also browse the QumuloAlerts GitHub repository.)
- Docker
- Docker Compose Plugin

> ⚠ Important
> Qumulo Alerts requires the Docker Compose Plugin to operate correctly.

Before you connect Qumulo Alerts to a Qumulo cluster, collect the information that can help you configure Qumulo Alerts to monitor your cluster.

- **Cluster Address:** What is your cluster's address? Use a fully qualified domain name (FQDN) rather than an IP address.
- **Traffic Distribution:** Will your Qumulo Alerts installation use a network load balancer or a floating IP address?
- **Default Plugin Frequency**: What should be the default frequency for plugin execution? (You can specify the frequency in seconds or minutes.)
- **Alarm and Alert Types:** Decide which alarms and alerts Qumulo Alerts will collect for your cluster.

Step 1: Clone the QumuloAlerts Repository

Navigate to the directory where you want Git to download files and run the following command.

```
git clone https://github.com/Qumulo/QumuloAlerts.git
```

Git creates a directory called `QumuloAlerts` and places the necessary files in it.

Step 2: Create a Local User for Qumulo Alerts

To be able to generate access tokens, you must create a local user for Qumulo Alerts.

1. Use SSH to log in to any node in your cluster.
2. To create a local user, use the `auth_add_user` command and specify a name and password.

   ```
   qq auth_add_user --name QumuloAlerts --password <password>
   ```

3. You will need the user ID that appears in the command output to create a role for Qumulo Alerts.

   In the following example, the user ID is `1234`.

   ```
   {
     "can_change_password": true,
     "home_directory": null,
     "id": "1234",
     "name": "QumuloAlerts",
     "primary_group": "999",
     "sid": "S-1-5-21-1234567890-098765432-1234567890-1234",
     "uid": ""
   }
   ```

Step 3: Create a Role for Qumulo Alerts

1. Log in to the Qumulo Web UI and then click **Cluster** > **Role Management**.
2. On the **Role Management** page, click **Create Role**.
3. On the **Create Role** page:
   a. Enter `QumuloAlerts`.

   > **Important**
   > Because Qumulo Alerts verifies that it has sufficient role permissions before starting, this name is required.

b. Enter a description, for example `This account lets an administrator restrict the privileges of the QumuloAlerts user.`

4. For **Privileges**, click all of the following:

   - AD_READ: Read Qumulo Active Directory Settings
   - ANALYTICS_READ: Read cluster analytics
   - AUDIT_READ: Read audit settings
   - CHECKSUMMING_READ: View the status of checksumming
   - CLUSTER_READ: View nodes, disks, protection status, and SSL certificate
   - DNS_READ: Read DNS setting
   - ENCRYPTION_READ: View the status of at rest encryption
   - FS_ATTRIBUTES_READ: Read file system statistics
   - FS_DELETE_TREE_READ: View the status of directory tree delete operations
   - FS_KEY_MANAGEMENT_READ: Read and list public keys for various FS security features
   - FS_LOCK_READ: View NLM and SMB locks and waiters
   - FS_SETTINGS_READ: View file system permissions settings
   - FTP_READ: View FTP status and settings
   - IDENTITY_MAPPING_READ: Get AD/LDAP User Defined Mappings
   - IDENTITY_READ: Use Qumulo's identity lookup and translation APIs
   - KERBEROS_KEYTAB_READ: View Kerberos keytab
   - KERBEROS_SETTINGS_READ: Read Kerberos settings
   - LDAP_READ: View LDAP settings
   - LOCAL_GROUP_READ: View local groups and members
   - LOCAL_USER_READ: Get information about local users
   - METRICS_READ: Get all metrics
   - NETWORK_READ: Read network status and settings
   - NFS_EXPORT_READ: Read network status and settings
   - NFS_SETTINGS_READ: Internal-Only: View NFS server settings
   - QUOTA_READ: View all file system quotas
   - REBOOT_READ: View Reboot Status

- RECONCILER_READ: View reconciler status and metrics
- REPLICATION_SOURCE_READ: View source relationship settings and status
- REPLICATION_TARGET_READ: View target relationship settings and status
- ROLE_READ: View roles and assignments
- S3_BUCKETS_READ: View all S3 buckets present in the system
- S3_CREDENTIALS_READ: View any S3 access key present in the system
- S3_SETTINGS_READ: View S3 server settings
- S3_UPLOADS_READ: View all S3 uploads present in the system.
- SAML_SETTINGS_READ: View SAML integration settings
- SMB_FILE_HANDLE_READ: List open SMB file handles
- SMB_SESSION_READ: List logged on SMB sessions
- SMB_SHARE_READ: View configuration of SMB shares and SMB server settings
- SNAPSHOT_CALCULATE_USED_CAPACITY_READ: Recalculate capacity usage of snapshots
- SNAPSHOT_DIFFERENCE_READ: View the changes between snapshots
- SNAPSHOT_POLICY_READ: View snapshot policies and status
- SNAPSHOT_READ: List snapshots and view their status and cached capacity.
- SUPPORT_READ: View support configuration and status
- TENANT_READ: View any tenant information
- TIME_READ: View time and time settings
- UNCONFIGURED_NODE_READ: List unconfigured Qumulo nodes
- UPGRADE_READ: View upgrade configuration and status

5. Click **Save**.

Step 4: Assign the Qumulo Alerts Role to Your Local User

1. In the Web UI, click **Cluster** > **Role Management**.
2. On the **Role Management** page, in the **QumuloAlerts** section, click **Add Member**.
3. In the **Add Member to Administrators** dialog box, for **Trustee**, enter the local username you have created earlier (for example, `QumuloAlerts`) and then click **Yes, Add Member**.

Step 5: Create a Long-Lived Access Token

Use the `auth_create_access_token` command and specify the ID of the local user. For example:

```
qq auth_create_access_token auth_id:1234
```

The `auth_create_access_token` command returns a JSON response that contains the bearer token body and the access token ID, which you can use to manage the access token.

```
{
  "bearer_token": "access-v1:abAcde...==",
  "id": "12345678901234567890123"
}
```

> ⚠ Important
> As soon as you receive your bearer token, record it in a safe place. If you misplace the bearer token, you can't retrieve it at a later time. You must create a new access token.

For more information, see Using Qumulo Core Access Tokens in the Qumulo Administrator Guide.

Step 6: Start Qumulo Alerts

To start Qumulo Alerts, run the following command from the directory to which you cloned the `QumuloAlerts` repository.

```
./start-docker-qumulo-alerts.sh
```

Step 7: Configure Qumulo Alerts

1. Configure alarms and alerts (page 14).
2. Configure user notifications (page 17).
3. Configure integration with an email server (page 28) or integration with the ClickSend service (page 31).

Step 8: Stop Qumulo Alerts

If you wish to stop Qumulo Alerts for any reason, run the following command from the directory to which you cloned the 'QumuloAlerts' repository.

```
./stop-docker-qumulo-alerts.sh
```

Configuring Alarms and Alerts

This section explains how to configure Qumulo Alerts to generate alarms and alerts.

To Configure Qumulo Alerts to Collect Specific Data from a Qumulo Cluster

Use the `./alerts cluster_add` command and specify the fully qualified domain name (FQDN) of your Qumulo cluster, your long-lived access token for the Qumulo REST API, and the plugins to include or exclude from monitoring. In the following example, we include `Disks` and exclude `Nodes`.

```
./alerts cluster_add \
  --name mycluster.example.com \
  --token 12345678901234567890 \
  -pi Disks \
  -pi Nodes
```

> **Note**
>
> - For the `--nlb` flag, the `false` setting requires floating IP address configuration.
> - To prevent spreading the load of a plugin's API requests across all nodes in a Qumulo cluster, each alarm or alert plugin that you configure communicates with your cluster by using either a network load balancer or floating IPs. You can configure *one*—but not both—of these communication methods.

The following is example JSON output from the command.

```
[{
  "frequency": 1,
  "id": 1,
  "name": "cluster.example.com",
  "nlb": false,
  "plugins": [{
    "category": "Alarms",
    "description": "Get Disk State Information",
    "frequency": null,
    "name": "Disks"
  },{
    "category": "Alarms",
    "description": "Get Cluster Node Failures",
    "frequency": null,
    "name": "Nodes"
  }],
  "port": 8000
}]
```

To Configure Qumulo Alerts to Collect Specific Data and All Alerts from a Qumulo Cluster

Use the `./alerts cluster_add` command and specify the fully qualified domain name (FQDN) of your Qumulo cluster, your long-lived access token for the Qumulo REST API, the plugins to include or exclude from monitoring, and the plugin category to include. In the following example, we include `Disks`, exclude `Nodes`, and include the `Alerts` category.

```
./alerts cluster_add \
  --name cluster.example.com \
  --token 12345678901234567890 \
  -pi Disks \
  -pi Nodes \
  -pc Alerts
```

The following is example JSON output from the command. This example output is truncated.

```
[{
  "frequency": 1,
  "id": 1,
  "name": "cluster.example.com",
  "nlb": false,
  "plugins": [{
    "category": "Alarms",
    "description": "Get Disk State Information",
    "frequency": null,
    "name": "Disks"
  },{
    "category": "Alarms",
    "description": "Get Cluster Node Failures",
    "frequency": null,
    "name": "Nodes"
  },{
    "category": "Alerts",
    "description": "Get Active Directory State",
    "frequency": null,
    "name": "AD"
  },{
    "category": "Alerts",
    "description": "Get Audit Status",
    "frequency": null,
    "name": "Audit"
  },{
    "category": "Alerts",
    "description": "Get Cluster Volume Capacity",
    "frequency": null,
    "name": "Capacity"
  },
  ...
  ],
  "port": 8000
}]
```

Configuring Qumulo Alerts 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 Core cluster to an administrative account.

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

To 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**
>
> - The consumer processes for email, IFTTT, and SMS (ClickSend) integrations translate messages into the recipient's native language. For the `--language` flag, see What Language Locales Qumulo Alerts Supports (page 6).
> - 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"
}]
```

To Create and Configure a NotifyGroup

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

```
./alerts notifygroup_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"
}]
```

To Add a Qumulo Alerts User to a NotifyGroup

Use the `./alerts notifygroup_add_user` command and specify the NotifyGroup name and the Qumulo Alerts user name to add to the NotifyGroup. For example:

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

The following is example JSON output from the command.

```
[{
  "description": "Notify when some hardware has changed state",
  "id": 2,
  "name": "NotifyOnHardwareChange",
  "users": [{
    "can_change_password": true,
    "disabled": false,
    "email": "jjohnson@xyzcorp.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 default quotas of two types.

- 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 Core cluster.
- Inherited-Path Quotas: This quota type lets an administrator specify a default path for every quota defined for a Qumulo Core 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 22) and Configuring Quota Notifications to a User Account (page 25).

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 Core 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 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 Core 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 a Qumulo Core 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 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 a Qumulo Core 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 Core cluster to a user account.

Qumulo Alerts can notify an individual user's email address manually or use default quotas (page 20) 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 your Qumulo Core cluster hostname. 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 ue 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 your Qumulo cluster hostname. 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.xyzcorp.com",
    "nlb": false,
    "port": 8000
  }],
  "id": 2,
  "login_name": "xyzcorp.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 Qumulo Alerts 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.
> - The consumer processes for email, IFTTT, and SMS (ClickSend) integrations translate messages into the recipient's native language. For the `--language` flag, see What Language Locales Qumulo Alerts Supports (page 6).
> - 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**
>
> - The consumer processes for email, IFTTT, and SMS (ClickSend) integrations translate messages into the recipient's native language. For the `--language` flag, see What Language Locales Qumulo Alerts Supports (page 6).
> - 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.
> - The consumer processes for email, IFTTT, and SMS (ClickSend) integrations translate messages into the recipient's native language. For the `--language` flag, see What Language Locales Qumulo Alerts Supports (page 6).
> - 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.