NetApp

Managing quotas

OnCommand Unified Manager 9.5

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Managing quotas

You can use user and group quotas to limit the amount of disk space or the number of files that a user or a user group can use. You can view user and user group quota information, such as the disk and file usage and the various limits set on disks.

What quota limits are

User quota limits are values that the Unified Manager server uses to evaluate whether space consumption by a user is nearing the limit or has reached the limit that is set by the user's quota. If the soft limit is crossed or if the hard limit is reached, the Unified Manager server generates user quota events.

By default, the Unified Manager server sends a notification email to users who have crossed the quota soft limit or have reached the quota hard limit and for which user quota events are configured. The OnCommand Administrator can configure alerts that notify the specified recipients of the user or user group quota events.

You can specify quota limits by using either OnCommand System Manager or the ONTAP CLI.

Viewing user and user group quotas

The Health/Storage Virtual Machines inventory page displays information about the user and user group quotas that are configured on the SVM. You can view the name of the user or user group, limits set on the disks and files, used disk and file space, and email address for notification.

Before you begin

You must have one of the following roles to perform this task: Operator, OnCommand Administrator, or Storage Administrator.

Steps

1. In the left navigation pane, click **Health** > **SVMs**.
2. In the **Health/Storage Virtual Machines** inventory page, select a SVM and then click the **User and Group Quotas** tab.

Creating rules to generate email addresses

You can create rules to specify the email address based on the user quota associated with clusters, storage virtual machines (SVMs), volumes, qtrees, users, or user groups. A notification is sent to the specified email address when there is a quota breach.

Before you begin

- You must have the OnCommand Administrator or Storage Administrator role.
- You must have reviewed the guidelines on the Rules to Generate User and Group Quota Email Address

page.

About this task

You must define the rules for quota email addresses and enter them in the order in which you want to execute them. For example, if you want to use the email address qtree1@xyz.com to receive notifications about quota breaches for qtree1 and use the email address admin@xyz.com for all the other qtrees, the rules must be listed in the following order:

- if ($QTREE == 'qtree1') then qtree1@xyz.com
- if ($QTREE == *) then admin@xyz.com

If none of the criteria for the rules you specified are met, then the default rule is used:

if ($USER_OR_GROUP == *) then $USER_OR_GROUP@$DOMAIN

Steps

1. In the toolbar, click ⚙, and then click **Quota Email** in the left Setup menu.
2. In the **Setup** options page, click **Address Rules** and then enter the rule based on your criteria.
3. Click **Validate** to validate the syntax of the rule.

   An error message is displayed if the syntax of the rule is incorrect. You must correct the syntax and click **Validate** again.

4. Click **Save and Close**.
5. Verify that the email address you created is displayed in the **User and Group Quotas** tab of the **Health/Storage Virtual Machine** details page.

Creating an email notification format for user and user group quotas

You can create a notification format for the emails that are sent to a user or a user group when there is a quota-related issue (soft limit breached or hard limit reached).

Before you begin

You must have the OnCommand Administrator or Storage Administrator role.

Steps

1. In the toolbar, click ⚙, and then click **Quota Email** in the left Setup menu.
2. In the **Setup** options page, click **Notification Format** and then enter or modify the details in the **From**, **Subject**, and **Email Details** fields.
3. Click **Preview** to preview the email notification.
4. Click **Close** to close the preview window.
5. Modify the content of the email notification, if required.
6. Click **Save and Close**.

Editing user and group quota email addresses

You can modify the email addresses based on the user quota associated with clusters, storage virtual machines (SVMs), volumes, qtrees, users, or user groups. You can modify the email address when you want to override the email address generated by rules specified in the Rules to Generate User and Group Quota Email Address dialog box.

Before you begin

- You must have the Operator, OnCommand Administrator, or Storage Administrator role.
- You must have reviewed the guidelines for creating rules.

About this task

If you edit an email address, the rules to generate the user and group quota email addresses are no longer applicable to the quota. For notifications to be sent to the email address generated by the rules specified, you must delete the email address and save the change.

Steps

1. In the left navigation pane, click **Health** > **SVMs**.
2. In the **Health/Storage Virtual Machines** inventory page, select a SVM and then click the **User and Group Quotas** tab.
3. Click **Edit Email Address** below the row of tabs.
4. In the **Edit Email Address** dialog box, perform the appropriate action:

If…	Then…
You want notifications to be sent to the email address generated by the rules specified	a. Delete the email address in the **Email Address** field. b. Click **Save**. c. Refresh the browser by pressing F5 to reload the Edit Email Address dialog box. The email address generated by the specified rule is displayed in the **Email Address** field.
You want notifications to be sent to a specified email address	a. Modify the email address in the **Email Address** field. b. Click **Save**. The rules to generate the user and group quota email addresses are no longer applicable to the quota.

Understanding more about quotas

Understanding the concepts about quotas helps you to manage your user quotas and user group quotas efficiently.

Overview of the quota process

Quotas can be soft or hard. Soft quotas cause ONTAP to send a notification when specified limits are exceeded, and hard quotas prevent a write operation from succeeding when specified limits are exceeded.

When ONTAP receives a request from a user or user group to write to a FlexVol volume, it checks to see whether quotas are activated on that volume for the user or user group and determines the following:

* Whether the hard limit will be reached

  If yes, the write operation fails when the hard limit is reached and the hard quota notification is sent.

* Whether the soft limit will be breached

  If yes, the write operation succeeds when the soft limit is breached and the soft quota notification is sent.

* Whether a write operation will not exceed the soft limit

  If yes, the write operation succeeds and no notification is sent.

About quotas

Quotas provide a way to restrict or track the disk space and number of files used by a user, group, or qtree. You specify quotas using the `/etc/quotas` file. Quotas are applied to a specific volume or qtree.

Why you use quotas

You can use quotas to limit resource usage in FlexVol volumes, to provide notification when resource usage reaches specific levels, or to track resource usage.

You specify a quota for the following reasons:

* To limit the amount of disk space or the number of files that can be used by a user or group, or that can be contained by a qtree
* To track the amount of disk space or the number of files used by a user, group, or qtree, without imposing a limit
* To warn users when their disk usage or file usage is high

Description of quotas dialog boxes

You can use the appropriate option in the User and Group Quotas tab in the Health/Storage Virtual Machines inventory page to configure the format of the email notification that is sent when a quota-related issue occurs and to configure rules to specify email addresses based on the user quota.

Email Notification Format page

The Email Notification Format page displays the rules of the email that is sent to a user or a user group when there is a quota-related issue (soft limit breached or hard limit reached).

The email notification is sent only when the following user or user group quota events are generated: User or Group Quota Disk Space Soft Limit Breached, User or Group Quota File Count Soft Limit Breached, User or Group Quota Disk Space Hard Limit Reached, or User or Group Quota File Count Hard Limit Reached.

- **From**

  Displays the email address from which the email is sent, which you can modify. By default, this is the email address that is specified Setup/Notifications page.

- **Subject**

  Displays the subject of the notification email.

- **Email Details**

  Displays the text of the notification email. You can modify the text based on your requirements. For example, you can provide information related to the quota attributes and reduce the number of keywords. However, you should not modify the keywords.

  Valid keywords are as follows:

  - $EVENT_NAME

    Specifies the event name that caused the email notification.

  - $QUOTA_TARGET

    Specifies the qtree or volume on which the quota is applicable.

  - $QUOTA_USED_PERCENT

    Specifies the percentage of disk hard limit, disk soft limit, file hard limit, or file soft limit that is used by the user or user group.

  - $QUOTA_LIMIT

    Specifies the disk hard limit or file hard limit that is reached by the user or user group and one of the following events is generated:

    - User or Group Quota Disk Space Hard Limit Reached
    - User or Group Quota Disk Space Soft Limit Reached
    - User or Group Quota File Count Hard Limit Reached
    - User or Group Quota File Count Soft Limit Reached

  - $QUOTA_USED

    Specifies the disk space used or the number of files created by the user or user group.

- $QUOTA_USER

    Specifies the user or user group name.

Command buttons

The command buttons enable you to preview, save, or cancel the changes made to the email notification format:

- **Preview**

    Displays a preview of the notification email.

- **Restore to Factory Defaults**

    Enables you to restore the notification format to the factory default values.

- **Save**

    Saves the changes made to the notification format.

Rules to Generate User and Group Quota Email Address page

The Rules to Generate User and Group Quota Email Address page enables you to create rules to specify email addresses based on the user quota associated with clusters, SVMs, volumes, qtrees, users, or user groups. A notification is sent to the specified email address when a quota is breached.

Rules area

You must define the rules for a quota email address. You can also add comments to explain the rules.

How you define rules

You must enter the rules in the order in which you want to execute them. If the first rule's criterion is met, then the email address is generated based on this rule. If the criterion is not met, then the criterion for the next rule is considered, and so on. Each line lists a separate rule. The default rule is the last rule in the list. You can change the priority order of rules. However, you cannot change the order of the default rule.

For example, if you want to use the email address qtree1@xyz.com to receive notifications about quota breaches for qtree1 and use the email address admin@xyz.com for all the other qtrees, the rules must be listed in the following order:

- if ($QTREE == 'qtree1') then qtree1@xyz.com
- if ($QTREE == *) then admin@xyz.com

If none of the criteria for the rules you specified are met, then the default rule is used:

if ($USER_OR_GROUP == *) then $USER_OR_GROUP@$DOMAIN

If more than one user has the same quota, the names of the users are displayed as comma-separated values and the rules are not applicable for the quota.

How you add comments

You can add comments to explain the rules. You should use # at the start of each comment and each line lists a separate comment.

Rules syntax

The syntax of the rule must be one of the following:

- if (*valid variable**operator *) then *email ID@domain name*

  `if` is a keyword and is in lowercase. The operator is ==. The email ID can contain any character, the valid variables $USER_OR_GROUP, $USER, or $GROUP, or a combination of any character and the valid variables $USER_OR_GROUP, $USER, or $GROUP. The domain name can contain any character, the valid variable $DOMAIN, or a combination of any character and the valid variable $DOMAIN. Valid variables can be in uppercase or lowercase but must not be a combination of both. For example, $domain and $DOMAIN are valid, but $Domain is not a valid variable.

- if (*valid variable**operator* '*string* ') then *email ID@domain name*

  `if` is a keyword and is lowercase. The operator can be `contains` or ==. The email ID can contain any character, the valid variables $USER_OR_GROUP, $USER, or $GROUP, or a combination of any character and the valid variables $USER_OR_GROUP, $USER, or $GROUP. The domain name can contain any character, the valid variable $DOMAIN, or a combination of any character and the valid variable $DOMAIN. Valid variables can be in uppercase or lowercase but must not be a combination of both. For example, $domain and $DOMAIN are valid, but $Domain is not a valid variable.

Command buttons

The command buttons enable you to save, validate, or cancel the created rules:

- **Validate**

  Validates the syntax of the created rule. If there are errors during validation, the rule that generates the error is displayed along with an error message.

- **Restore to Factory Defaults**

  Enables you to restore the address rules to the factory default values.

- **Save**

  Validates the syntax of the rule and saves the rule if there are no errors. If there are errors during validation, the rule that generates the error is displayed along with an error message.