



Professional Quota API User Guide

Author's Note:

This document will walk you through the configuration process for our new Professional Quota API. The Professional Quota API is a GUI interface to help you to quickly and easily utilize our NetEqualizer User-Quota API toolset commands.

The Professional Quota API will be of interest to you if you run a business that charges customers based on bandwidth usage, or if you just want to track bandwidth usage. Now it is even easier for you to create a custom Quota solution that meets your business needs, using our flexible and powerful toolset.

If you have any questions that you need help with during configuration of the Professional Quota API, our Support Team is here to help you. Please call Support at 303.997.1300 x102 or email to support@apconnections.net.

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1. Overview

The Professional Quota API is a standard pre-written quota utility imbedded in each system. You can quickly plug in IP addresses from the GUI and have a monthly quota enforced right away.

The NetEqualizer User-Quota Application Programmer's Interface (NUQ-API) Toolkit was first released in April 2010. We are maintaining all of the features offered in the API, but now you can leverage the GUI to implement them. The Quota API still enables you to:

- Track user data by IP
- Specify Quotas and Bandwidth Limits Rules by IP or an entire IP subnet (quotas are then applied to each IP individually within the subnet).
- Monitor real-time bandwidth utilization at any time
- Set up notification alarms when users exceed their bandwidth limits

Note: The Professional Quota API GUI interface is covered under NSS. Creating your own code to use the Quota Toolkit (NUQ-API) is not supported under NSS.

2. Starting the Quota System

In order to work with the quota commands, you must first Start the Quota API. If not started, the other commands will return with errors stating "quota server busy or not running".

From the Main Menu,

Click on ->Quota System->Start Quota.

The following screen comes up.

You should see the message "Quota started".

When you Start the Quota System, you should see a dropdown box where you set your time zone.

Make sure to set time zone, so that the rules that you add to Quota System are aligned with the appropriate time zone.



3. Quota Rules

At the heart of the Professional Quota API are Quota Rules. In this section we will review how to manage Quota Rules, including adding, removing, resetting, and showing your Quota Rules.

3A. Adding Quota Rules

In order to apply quotas to users, you need to set up your rules. From the Main Menu, **Click on ->Quota System->Add Quota Rules.** The following screen comes up.

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Once you have filled in all the fields (see Quota Rules Parameters Table below for help), to save your changes, **Click on ->Add Rule.**

To clear out values, **Click on -> Reset.**

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Add Quota Rule

HOST IP: /

Format must be x.x.x.x for example:10.0.0.28
subnet masks are allowed and you would use the drop down to choose something different than the default 32 which means this IP only.

Quota Amount :	<input type="text"/>	Number of total bytes for this quota to allow
Duration (minutes) :	<input type="text"/>	Number of minutes between this quota being reset
Hard Limit Restriction :	<input type="text"/>	Number of bytes per second to allow when exceeded
Contact Email Address :	<input type="text"/>	
	Who to contact when alarm goes off	

Quota Rules Parameters Table

Parameter	Unit	Definition	What you can set to...	Tips
HOST IP	IP address	Host IP is an IP address or subnet range for which the rule applies.	<i>x.x.x.x (10.0.0.28)</i> <i>/32 = one IP address</i> <i>/24, /16 etcetera to apply to a subnet.</i>	If you define for an entire subnet, the Quota Amount is a BYTE LIMIT FOR EACH user (not shared across users).
Quota Amount	Bytes	The total amount of Download bytes allowed before the QUOTA restriction kicks in.	<i>Any value in bytes.</i> <i>For 1 GB, you would enter 1000000000. (1,000,000,000 bytes)</i>	Do not put commas in the rule. <i>Use a conversion calculator such as http://www.speedguide.net/conversion.php/.</i>
Duration	Minutes	Quota Amount applies for this amount of time (duration). If the QUOTA amount goes over during that time the restriction will be enforced for the rest of that time period. Once the time expires, the quota restriction is reset, and the time starts over.	<i>One (1) day would be 1440 (24*60).</i> <i>If Quota Amount was set to 2000000 (2meg), and Duration was 1440, the IP address would be restricted to 2meg over 1 Day.</i>	Industry best practice for ISPs is to set Duration =1 week. To span 1 Week=10080 7 days * 24 hours * 60 minutes To span Days: # days * 24 hours * 60 minutes To span Hours: # hours * 60 minutes
Hard Limit Restriction	Bytes per second	The amount the IP or subnet will be set to if it exceeds its limit (if it goes over Quota Amount in Duration).	<i>Any value in bytes per second.</i>	Enforced on downloads only.
Contact Email Address	Email address	Who to send an email to if an alarm is raised.	<i>Any valid email address that is also set up in the Quota System.</i> <i>Only 1 violation per hour is emailed out per IP address.</i> <i>IP addresses that share a Contact Email will go out in one notification.</i>	Email address must also be set-up in "Quota System->Setup Gmail notices" for this to work.

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Adding Quota Rules Example

For example, if you wanted to restrict an IP subnet to use 1 gigabyte of data over a 1 week period, and then cap them at 1Mbps if they exceed their quota, you would set as follows:

Parameter	Value
Host IP	192.148.1.1/16 (subnet)
Quota Amount	1000000000 (1,000,000,000 bytes = 1 gigabyte)
Duration	10080 (1 week=7 days * 24 hours * 60 minutes)
Hard Limit Restriction	128000 (128,000 bytes per second = 1Mbps)
Contact Email Address	support@gmail.com

Note: *Hard Limit Restrictions are only enforced on downloads. Uploads are not restricted. This is a simplification that we put in place as 99 percent of problems are download-related.*

To reduce the number of emails, use the same Contact Email Address for each Quota Rule. If a quota violation occurs, we will send one (1) email per hour to that address containing all violations. If you had 100 Quota Rules set up, and 25 violations occurred, you would see one (1) email containing all 25 violations. For the above example, support@gmail.com would only get one (1) email each hour, even if multiple IPs in the range had quota violations.

How Hard Limits Interact with Quota

Hard Limits are used to set a fixed RATE of individual bandwidth to a single IP address or a subnet. If you set a Hard Limit for a subnet, the bandwidth assigned is not shared. For example, if you set up a 2Mbps up/1Mbps down for a subnet with four different IP addresses, each of the IP addresses will get 2Mbps/1Mbps to use.

Quotas are used to limit the AMOUNT of data that a single IP address or a subnet can use over a period of time.

Here is how they work together: If you have both a Hard Limit and a Quota Rule set for a subnet, if the Quota Amount is reached, the Quota System Hard Limit Restriction will kick in, replacing the Hard Limit set for the subnet. This can be used to ramp down your Hard Limit when too much bandwidth is being consumed.

For example, if you had a Hard Limit for 192.148.1.1/16 of 5Mbps, each IP in the subnet would be limited to this rate of bandwidth consumption. If the subnet exceeded the 1 gigabyte Quota Amount during the week, the subnet would now be limited to 1Mbps, instead of the 5Mbps.

Note: *At this time you **cannot** set BOTH a Hard Limit and a Quota Rule for an individual IP. You can have either but not BOTH. You **can** have BOTH a Hard Limit and a Quota Rule for a subnet.*

3B. Removing Quota Rules

If you no longer wish to have a quota on a particular IP address or IP subnet, you can remove the Quota Rule.

If you would like to remove a Quota Rule, from the Main Menu, **Click on ->Quota System-> Remove Quota Rule.** The following screen comes up.

Select the rule that you would like to remove from the dropdown box and **Click on ->Remove Rule.**

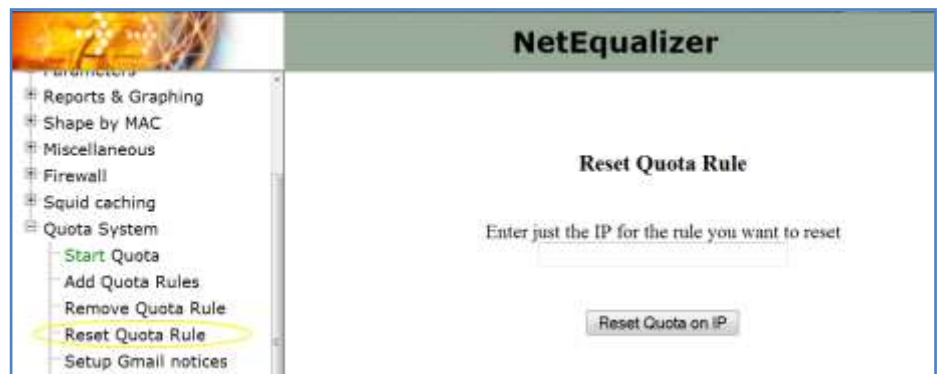


3C. Resetting Quota Rules

Resetting Quota on an IP has the effect of flushing out the data counted against the Quota Amount, setting it back to zero (0), and changing the Start Time for the Quota Rule to NOW(). In our example above, if we reset **192.148.1.1/16** subnet, it would be back at 0 bytes against its 1 gigabyte quota, and the quota would restart at the current date & time.

If you would like to reset a Quota Rule, from the Main Menu, **Click on ->Quota System-> Reset Quota Rule.** The following screen comes up.

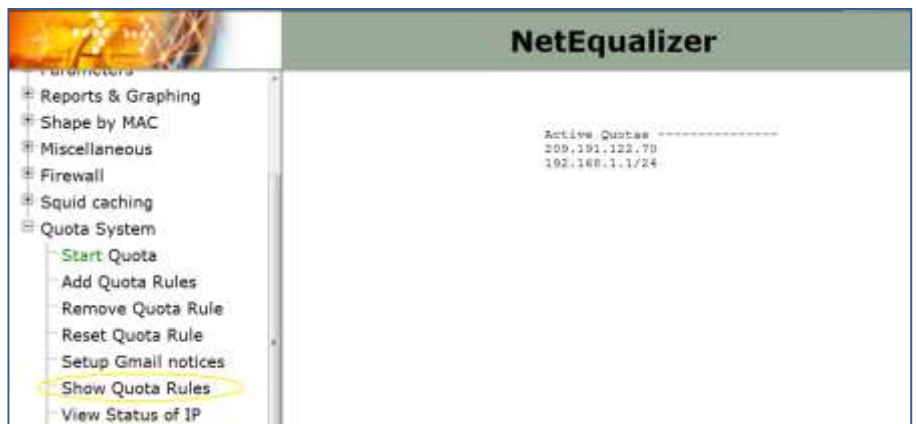
Type in the IP for the rule you would like flushed out and **Click on ->Reset Quota on IP.**



3D. Showing Quota Rules

If you would like to see which IP addresses or subnets you have Quota Rules defined for, from the Main Menu, **Click on ->Quota System-> Show Quota Rules.** The following screen comes up.

The screen will display all IP addresses or subnets that have Quota Rules defined.



4. Setting up Email Notifications

In order to get email notifications, you must set up a **valid email account** within the Quota System.

From the Main Menu, *Click on ->Quota System-> Setup Gmail notices*. The following screen comes up.

Once you have filled in all the fields (see Table below), to save your changes, *Click on ->Submit Changes*.

To clear out values, *Click on ->Reset*.

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Setup Gmail notices
You can setup the Gmail notices here.

Be aware that for this routine to work you will need to supply a valid Gmail login and it will be stored on disk. No special chars are allowed in this password. We suggest you use a non essential Gmail address.

GMail username	support@gmail.com	ex:mygmailname.com
GMail password	testing	ex:yoursecretpass

This routine will set up the mail portion of the quota system.

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5. Reporting

5A. View Status of All IPs

Use this menu option to see where every IP with a Quota Rule is against their current Quota Amount.

This report will display all active IPs involved in Quota accounting.

It shows the date & time when quota started being collected, the total bytes collected, if a restriction is currently in place, and when the restriction ends.

From the Main Menu, *Click on ->Quota System-> View Status of All IPs*. The following screen comes up.

Interpreting the Report

For the 1st IP address (192.168.1.1) in the above screen, here is what the report shows us:

Parameter	Definition	Value
Start Time	Date & time when data started to be collected.	Fri Jul 13 06:38:16 MDT 2012
Current Date Time	The date & time right now.	Fri Jul 13 07:08:46 MDT 2012
Total Bytes Down	Data (in bytes) collected against the IP address.	Total bytes down = 3769820
Allowed	Quota Amount.	Allowed = 100000 (0.1 MB)
Hard Limit Restriction	The amount the IP or subnet will be set to if it exceeds its limit.	192.168.1.1 is restricted to 8 Kbs
Reset Time	When Duration is met, the Quota resets.	Restriction scheduled to reset on Fri Jul 13 09:58:17 MDT 2012

5B. View Status of IP

Same as above report, only for one IP address. This is useful if you have a lot of Quota Rules set up and only want to view one.

If you would like to see the Status of one (1) IP, from the Main Menu, *Click on ->Quota System-> View Status of IP*. The following screen comes up.

6. Stopping the Quota System

***** PLEASE BE CAREFUL WHEN USING THIS COMMAND. *****

When you Stop Quota, you are clearing out the byte counters, as they are stored in RAM at this time. Therefore, ALL your "Total Bytes Down" counters will be zero (0) once you Stop Quota.

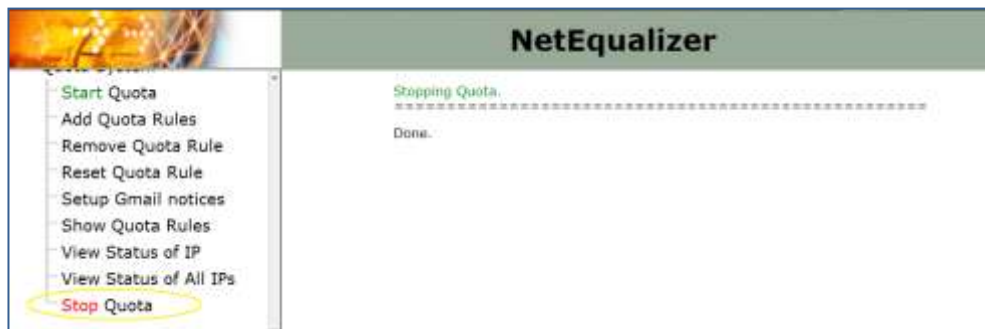
The Quota System is designed to stay up for months at a time. In the future, we may incorporate a disk drive backup capability so in the event of a power failure you could resume quota counts. However, the current class of NetEqualizer systems do not have disk drives (for a variety of good reasons), and so we have not incorporated this in our release.

Note: While the quota data does not persist, the **Quota Rules are persistent**. They will come up operational once defined, each time you start the Quota System.

If you still think you want to stop collecting quota data, use this menu item.

From the Main Menu, Click on -> **Quota System-> Stop Quota.**

The following screen comes up.



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