

Fair Usage Policy Implementation

Most of access providers implement Fair Usage Policy (FUP) to force users to utilize network bandwidth in a fair manner. Typically, user's connection rate is reduced after a specific amount of data is transferred. RADIUS servers can track data usage by receiving RADIUS Accounting packets. Specifically, RADIUS servers can monitor data usage RADIUS Accounting Interim Updates in near real time. Access devices must provide a method of reducing connection rate when a user is consumed all the credit. This can be done via an SNMP, RADIUS CoA request, executing a command via Telnet, RSH, SSH or a device API call depending on the capabilities of the access server.

This example covers Fair Usage Policy Implementation for Mikrotik utilizing RADIUS Change of Authorization (CoA) requests. We assume that the user has 4 GB quota for monthly and connection speed rate is reduced from 8 Mbps to 1 Mbps after consumption of all credits.

Please make sure that RADIUS accounting is enabled, and incoming RADIUS packets are accepted by the Mikrotik device through UDP port 3799. Please refer to vendor documentation at https://wiki.mikrotik.com/wiki/Manual:RADIUS_Client

Here is a typical user profile created for this scenario;

The screenshot shows the TekRADIUS Manager 5.4 [SP] interface. The 'Users' tab is active, and the 'User kaplan (Enabled)' profile is selected. The profile details are as follows:

Attribute	Type	Value
User-Password	Check	****
Credit-Period	Check	Monthly
Credit-Per-Period	Check	4096
Credit-Expiry-Action	Check	Send-CoA
User-Credit	Check	4096
Credit-Unit	Check	MBytes-sum
Mikrotik-Rate-Limit	Success-Reply	1024k/8192k
Mikrotik-Rate-Limit	Failure-Reply	256k/1024k
Mikrotik-Rate-Limit	CoA-Set	1024k/8192k
Mikrotik-Rate-Limit	CoA-Reset	256k/1024k

At the bottom of the window, a status bar indicates: 'Attribute 'Mikrotik-Rate-Limit' for the user 'kaplan' is updated.' and 'TekRADIUS Service is stopped'.


User profile sample

Please note that sending CoA request function is available in only SP edition of TekRADIUS. User profile has Credit-Period = Monthly and Credit-Per-Period = 4096 attributes. These

attributes grant user to have 4 GB data usage. User's data quota will be reset monthly.

TekRADIUS will send `Mikrotik-Rate-Limit = 1024k/8192k` in authorization replies if the user has enough credit. TekRADIUS will send a CoA request with `Mikrotik-Rate-Limit = 256k/1024k` to the access server to reduce connection speed rate if the user has an active session when the credit is consumed. User session will be allowed with `Mikrotik-Rate-Limit = 256k/1024k` if the user tries to reconnect when the credit is consumed.

TekRADIUS will send a CoA request to the access server with `Mikrotik-Rate-Limit = upload=1024k/8192M` when user credit is reset at credit period (*First day of a month at 00:00 AM in this example*) and user has an active session.

You can send a CoA request manually when you edit Success-Reply attributes by clicking  button. You can apply profile changes to the active sessions on the fly without disconnecting user sessions.