v1.14_Setting 'Rate limit' (DHCP traffic) on AP and ESR
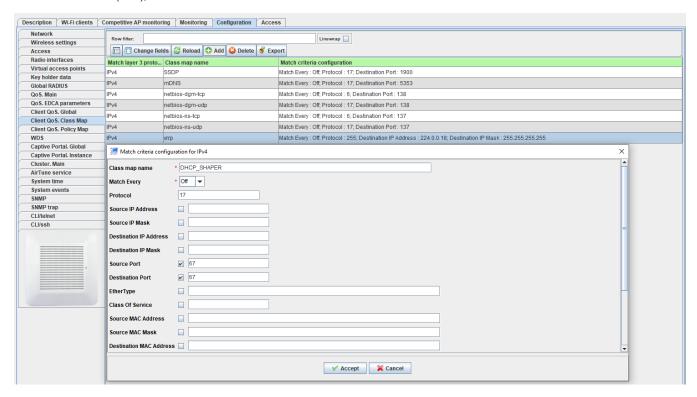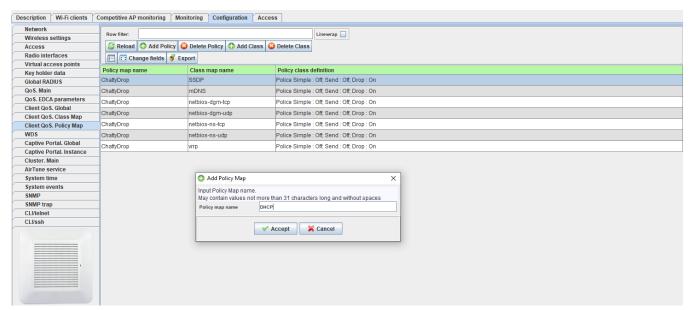
To configure DHCP shaper via EMS on an access point:

1. Select Configuration
2. Select Client.QoS Class Map tab
3. Add a required class
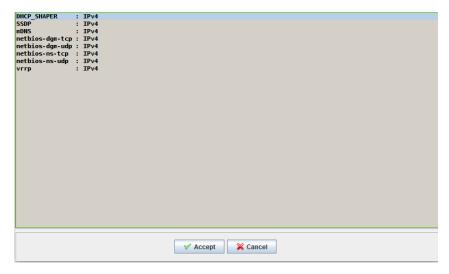4. Protocol = 17 (UDP), Source/Destination Port = 67

Match layer 3 proto...	Class map name	Match criteria configuration
IPv4	SSDP	Match Every : Off; Protocol : 17; Destination Port : 1900
IPv4	mDNS	Match Every : Off; Protocol : 17; Destination Port : 5353
IPv4	netbios-dgm-tcp	Match Every : Off; Protocol : 6; Destination Port : 138
IPv4	netbios-dgm-udp	Match Every : Off; Protocol : 17; Destination Port : 138
IPv4	netbios-ns-tcp	Match Every : Off; Protocol : 6; Destination Port : 137
IPv4	netbios-ns-udp	Match Every : Off; Protocol : 17; Destination Port : 137
IPv4	vrrp	Match Every : Off; Protocol : 255; Destination IP Address : 224.0.0.18; Destination IP Mask : 255.255.255.255

Match criteria configuration for IPv4

Field	Value
Class map name *	DHCP_SHAPER
Match Every *	Off
Protocol	17
Source IP Address	☐
Source IP Mask	☐
Destination IP Address	☐
Destination IP Mask	☐
Source Port	☑ 67
Destination Port	☑ 67
EtherType	☐
Class Of Service	☐
Source MAC Address	☐
Source MAC Mask	☐
Destination MAC Address	☐

✔ Accept   ✖ Cancel

When the class is created, select Client.QoS Policy.Map and add a policy ("Add Policy" button).

Policy map name	Class map name	Policy class definition
ChattyDrop	SSDP	Police Simple : Off; Send : Off; Drop : On
ChattyDrop	mDNS	Police Simple : Off; Send : Off; Drop : On
ChattyDrop	netbios-dgm-tcp	Police Simple : Off; Send : Off; Drop : On
ChattyDrop	netbios-dgm-udp	Police Simple : Off; Send : Off; Drop : On
ChattyDrop	netbios-ns-tcp	Police Simple : Off; Send : Off; Drop : On
ChattyDrop	netbios-ns-udp	Police Simple : Off; Send : Off; Drop : On
ChattyDrop	vrrp	Police Simple : Off; Send : Off; Drop : On

Add Policy Map

Input Policy Map name.
May contain values not more than 31 characters long and without spaces

Policy map name: DHCP

✔ Accept   ✖ Cancel

Then add the class to the policy.
To do that, select the class and click "Add Class" button.

```
63
Host is up (0.00056s latency).
PORT      STATE          SERVICE
```

```
DHCP_SHAPER      : IPv4
SSDP             : IPv4
mDNS             : IPv4
netbios-dgm-tcp  : IPv4
netbios-dgm-udp  : IPv4
netbios-ns-tcp   : IPv4
netbios-ns-udp   : IPv4
vrrp             : IPv4
```

<div align="center">✔ Accept   ✖ Cancel</div>

After that, specify limits and action in the opened window.

Policy Simple	Off ▼
Committed Rate	
Committed Burst	
--- Action types ---	
Send	Off ▼
Drop	Off ▼
Mark Class Of Service	☐
Mark IP DSCP	☐ NONE ▼
Mark IP Precedence	☐

<div align="center">✔ Accept   ✖ Cancel</div>

Policy Simple is a simplified setting where two parameters are defined:

- Committed Rate — the bandwidth guaranteed for matching traffic.
- Committed Burst — the maximum packet size in bytes that conforms the amount of traffic sent. It should ideally be 1.5 times higher than Committed Burst in bytes to work correctly.

The action performed on the traffic should be selected in Action types.
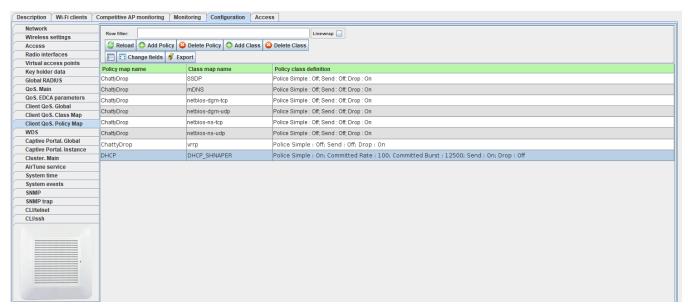Send — if set to On, all packets of corresponding traffic flow will be transmitted;
Drop — if set to On, all packets of corresponding traffic will be dropped.

Only the traffic with certain speed should be transmitted, the rest of the packets should go to Drop. Consequently, enter the values and set Send to On.

Policy Simple	On ▼
Committed Rate	100
Committed Burst	12500
--- Action types ---	
Send	On ▼
Drop	Off ▼
Mark Class Of Service	☐
Mark IP DSCP	☐ NONE ▼
Mark IP Precedence	☐

✓ Accept   ✗ Cancel

The result will be a rule limiting DHCP traffic to 100 kbps.

| Description | Wi-Fi clients | Competitive AP monitoring | Monitoring | **Configuration** | Access |

Row filter: [   ]   Linewrap ☐

🔄 Reload ➕ Add Policy ❌ Delete Policy ➕ Add Class ❌ Delete Class

📋 🔲 Change fields ⚡ Export

Network
Wireless settings
Access
Radio interfaces
Virtual access points
Key holder data
Global RADIUS
QoS. Main
QoS. EDCA parameters
Client QoS. Global
Client QoS. Class Map
Client QoS. Policy Map
WDS
Captive Portal. Global
Captive Portal. Instance
Cluster. Main
AirTune service
System time
System events
SNMP
SNMP trap
CLI/telnet
CLI/ssh

Policy map name	Class map name	Policy class definition
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ChattyDrop	netbios-dgm-udp	Police Simple : Off; Send : Off; Drop : On
ChattyDrop	netbios-ns-tcp	Police Simple : Off; Send : Off; Drop : On
ChattyDrop	netbios-ns-udp	Police Simple : Off; Send : Off; Drop : On
ChattyDrop	vrrp	Police Simple : Off; Send : Off; Drop : On
DHCP	DHCP_SHNAPER	Police Simple : On; Committed Rate : 100; Committed Burst : 12500; Send : On; Drop : Off

When configuring a shaper on ESR, either Discover (from client to server) or Offer (from server to client) transmitting may be limited.

1. Limiting DHCP Discover transmitting from client to server

```
security zone-pair any self
  rule 999
    action permit
    rate-limit pps 2
    match not fragment
    match protocol udp
    match destination-port DHCP
    enable
  exit
exit
```

2. Limiting DHCP Offer transmitting from server to client

```
security zone-pair apuser any
  rule 999
    action permit
    rate-limit pps 2
    match not fragment
    match protocol udp
    match destination-port DHCP
    enable
  exit
exitt
```