12. Firewall

Overview

PUQVPNCP manages the Linux firewall (`iptables` / `ip6tables`) with two layers:

1. **Global firewall** — server-wide policies, Pre-Network and Post-Network custom rules, ipset
2. **Per-network firewall** — auto-generated filter, NAT, DNAT, and mangle rules per network

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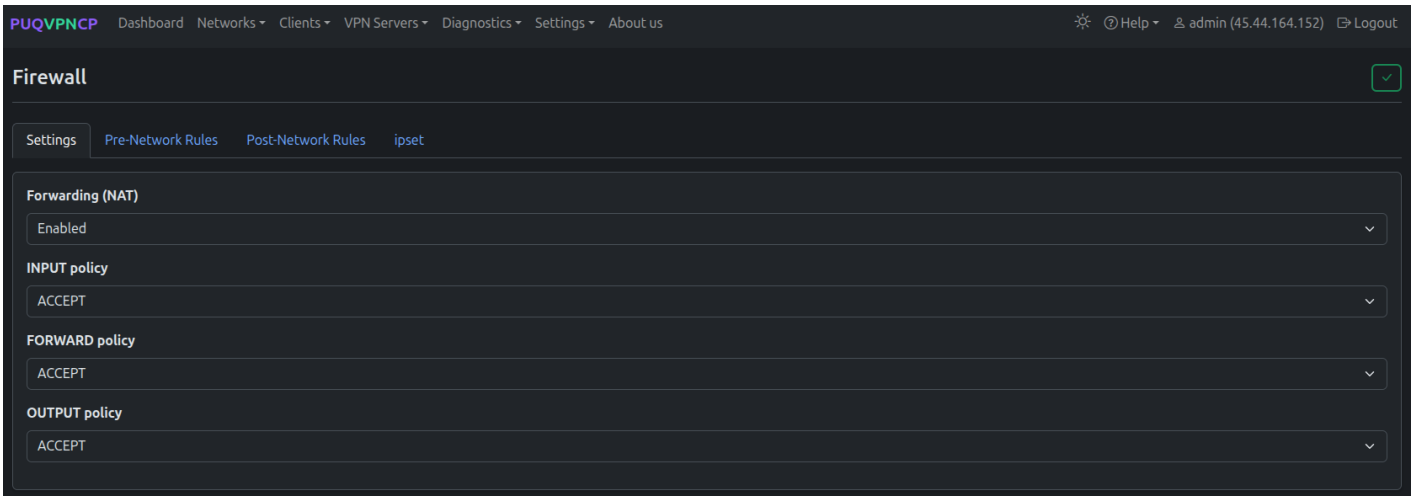
Global Firewall

Navigate to **Settings > Firewall**.

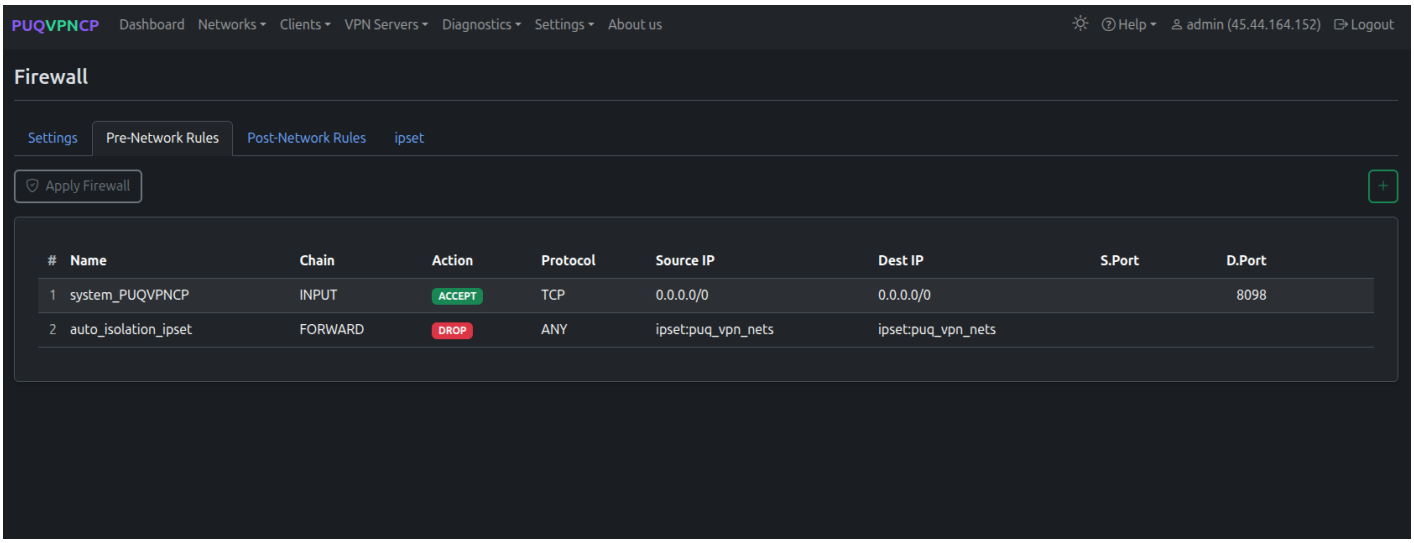
Settings Tab



Firewall settings — global policies

Setting	Description	Recommended
Forwarding (NAT)	Enable SNAT for VPN clients	Enabled
INPUT policy	Default for incoming traffic	ACCEPT
FORWARD policy	Default for forwarded traffic	ACCEPT
OUTPUT policy	Default for outgoing traffic	ACCEPT

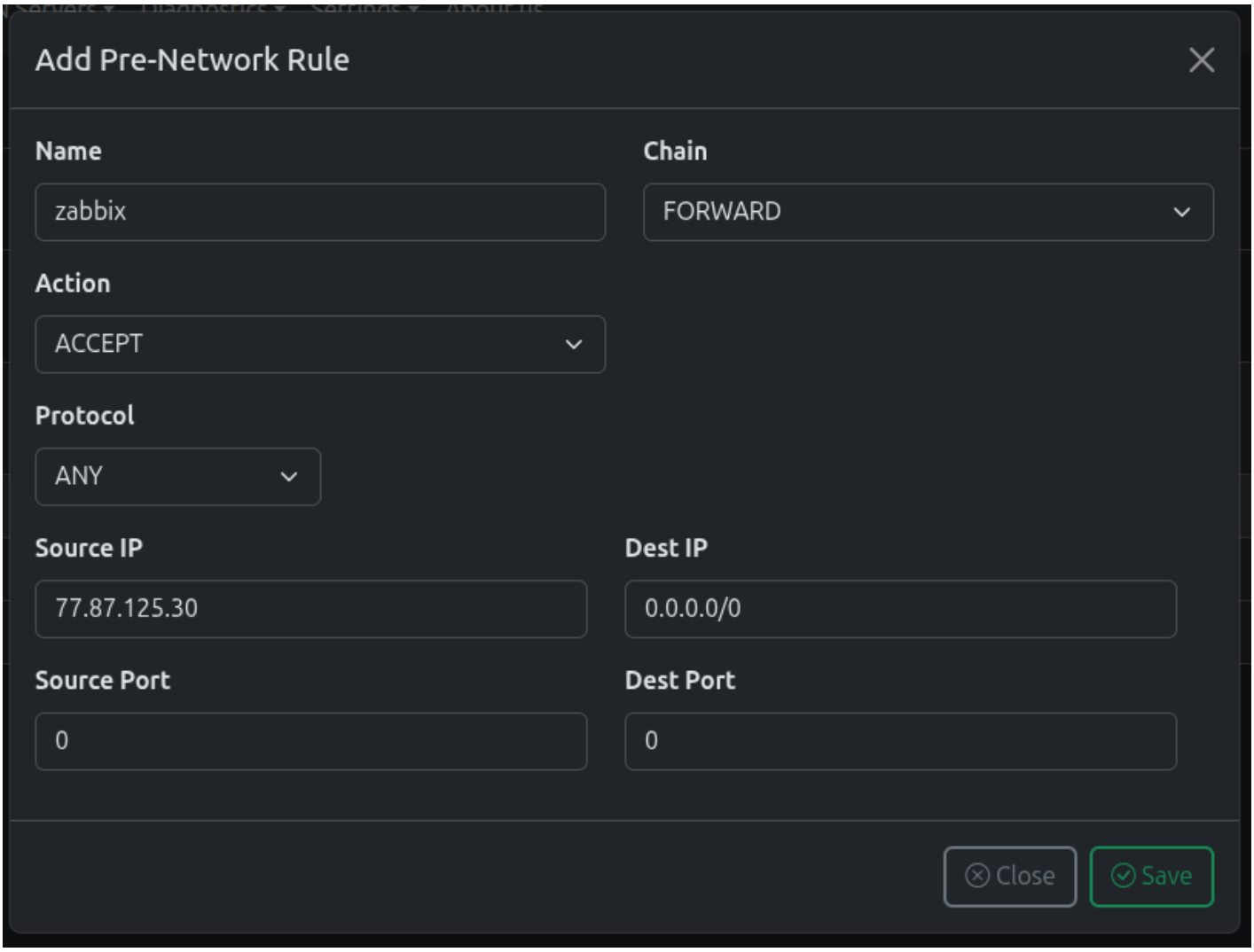
Pre-Network Rules



Pre-Network rules — executed before per-network rules

Pre-Network rules are applied **before** any per-network rules. Use them for:

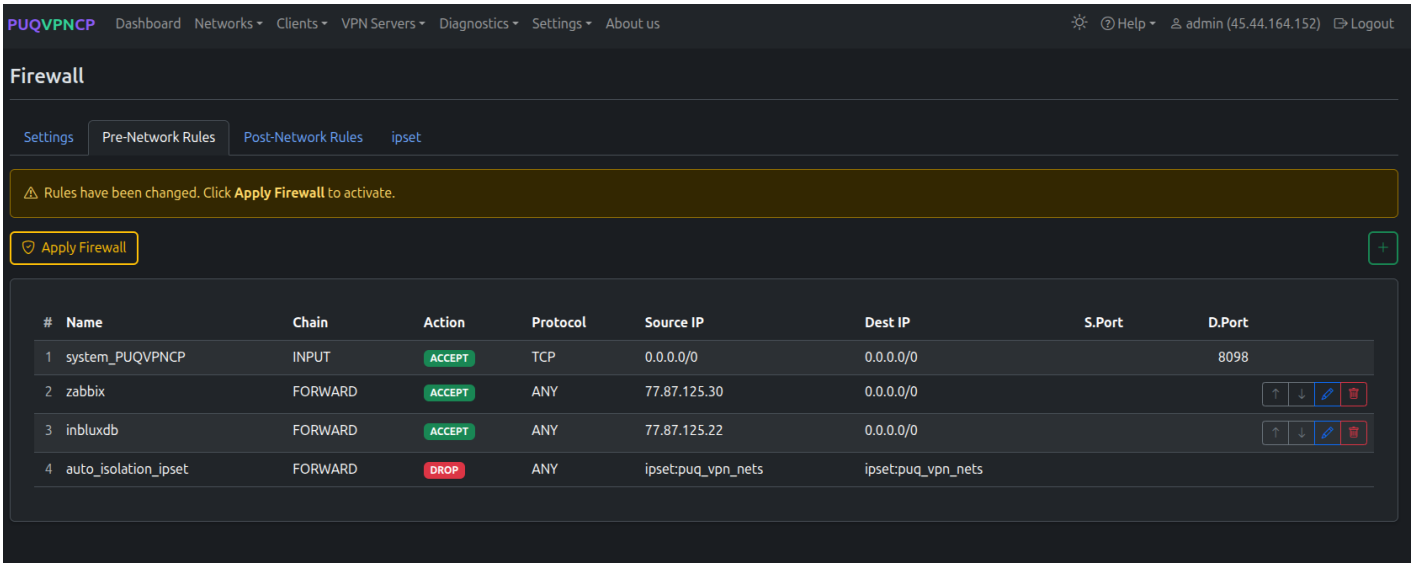
- Allowing access to external services (monitoring, backups)
- Blocking specific IPs globally
- Custom INPUT rules for the server itself



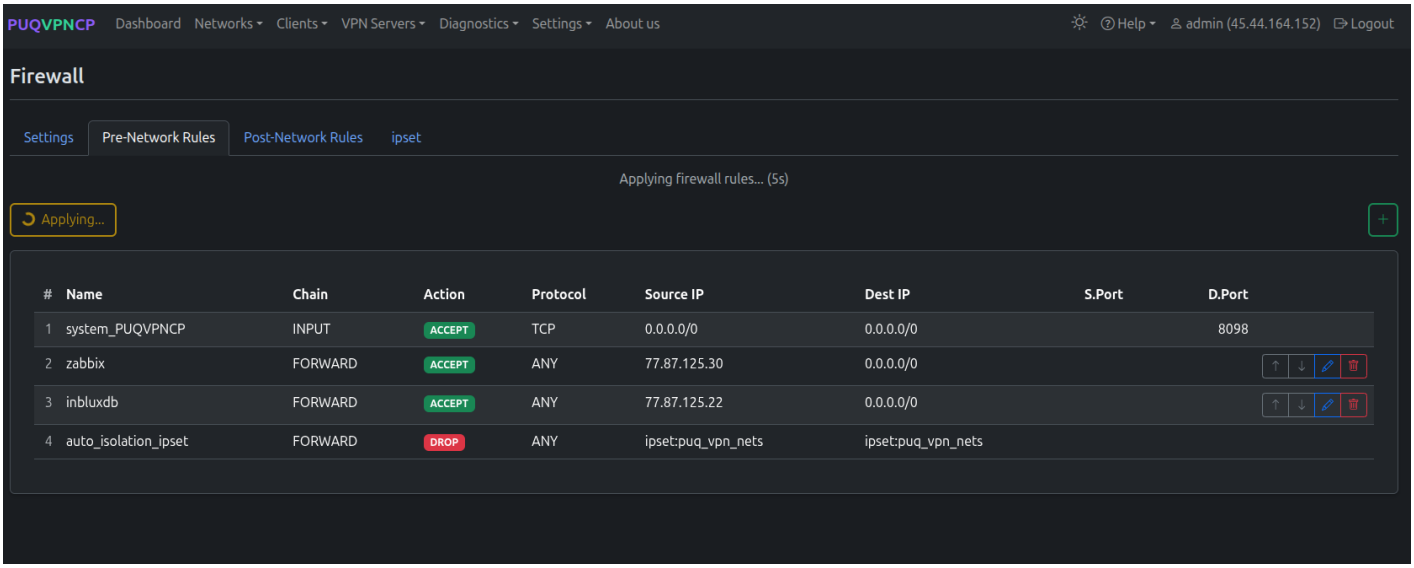
Adding a custom pre-network rule

Field	Description
Name	Rule identifier
Chain	INPUT, FORWARD, or OUTPUT
Action	ACCEPT, DROP, REJECT, LOG
Protocol	TCP, UDP, ICMP, or ANY
Source IP / **Dest IP**	IP addresses or CIDR ranges
Source Port / **Dest Port**	Port numbers (0 = any)

After adding rules, click **Apply Firewall** to activate.

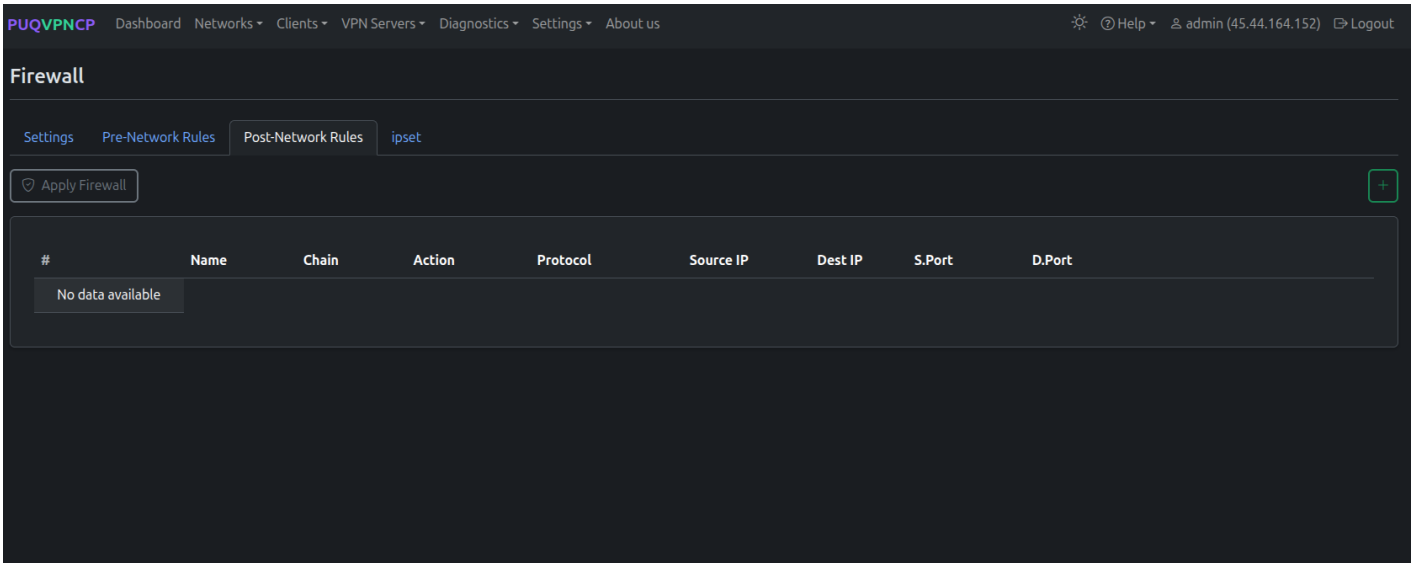


Rules modified — warning to apply



Applying firewall rules

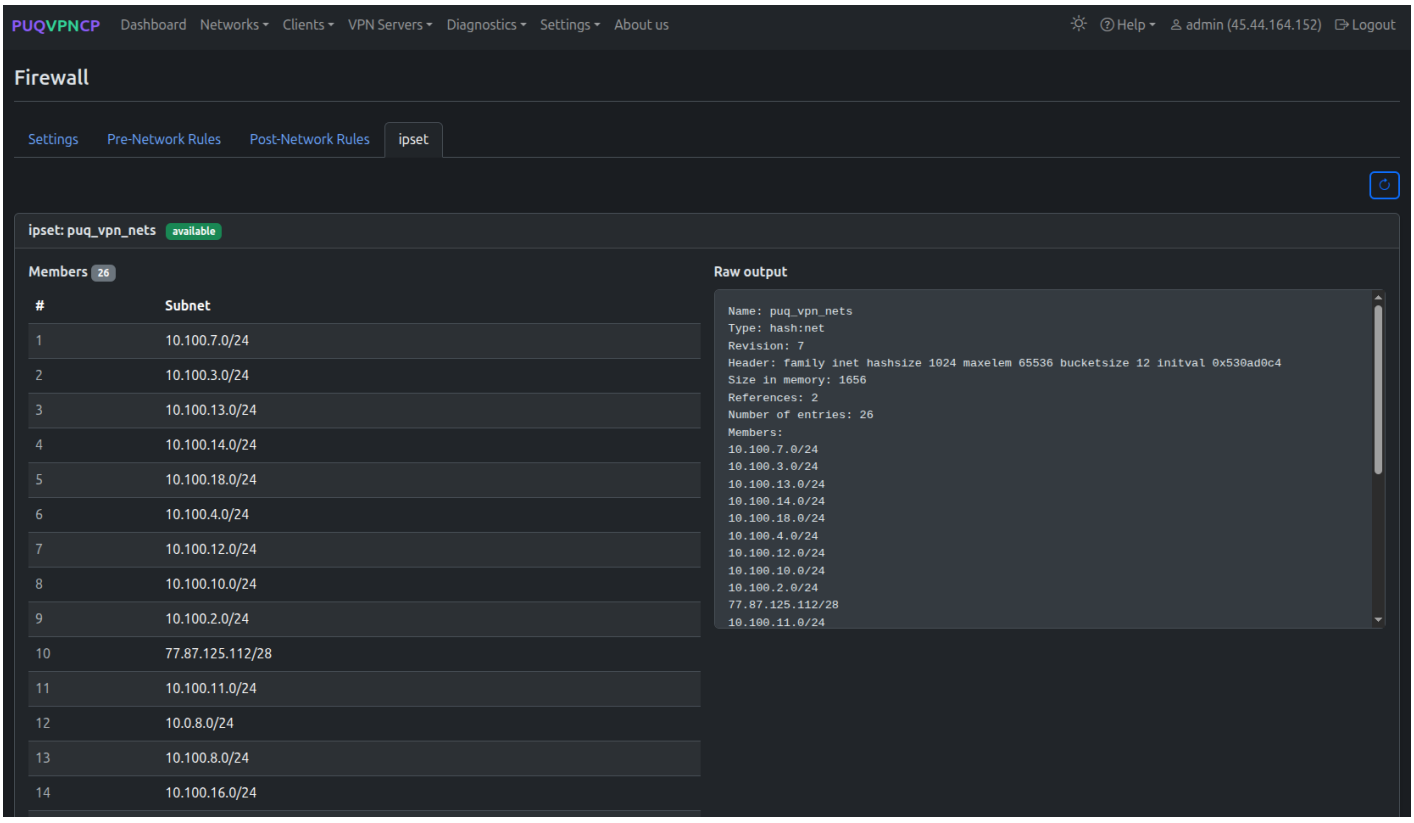
Post-Network Rules



Post-Network rules — executed after per-network rules

Same format as Pre-Network rules, but applied **after** per-network rules.

ipset Tab

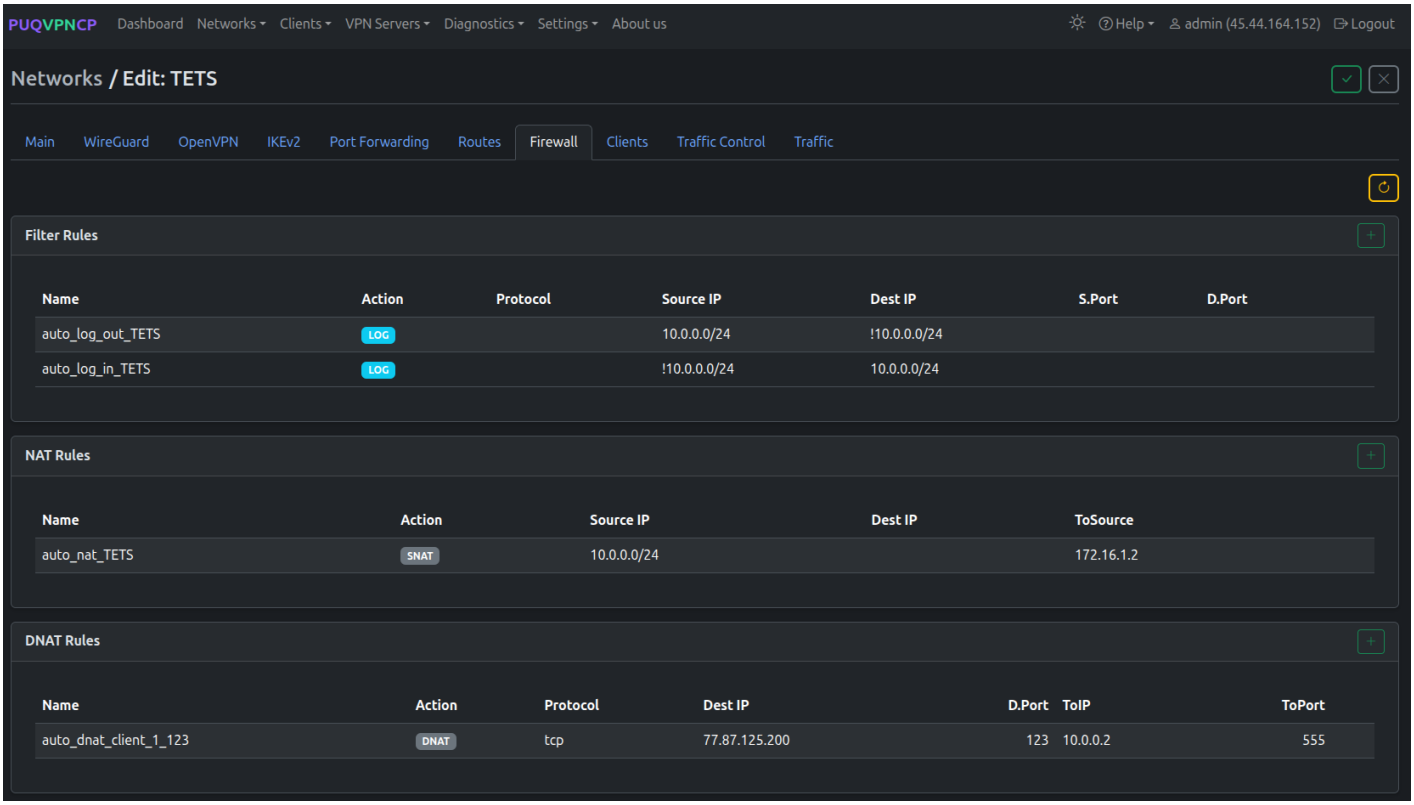


ipset — VPN network subnets for global isolation

The `puq_vpn_nets` ipset contains all VPN network subnets and is used by the `auto_isolation_ipset` rule to prevent inter-network traffic (unless Peering rules allow it).

Per-Network Firewall

Each network has its own firewall tab with auto-generated rules.



Per-network firewall — Filter, NAT, DNAT rules

Rule Types

Type	Description
Filter Rules	Traffic logging (auto_log_out/in) and custom filter rules
NAT Rules	SNAT for internet access (auto_nat_NETWORK → upstream IP)
DNAT Rules	Port forwarding rules (from Port Forwarding tab)
Mangle Rules	Traffic marking for TC bandwidth control and policy routing

Mangle rules — per-client traffic marks and CONNMARK for policy routing

Mangle rules are fully auto-generated:

- `auto_mangle_dst_CLIENT` / `auto_mangle_src_CLIENT` — mark packets for traffic control
- `auto_wg_connmark` / `auto_ovpn_connmark` — CONNMARK on VPN interfaces for policy routing
- `auto_wg_restore_fwd` / `auto_wg_restore_local` — CONNMARK restore for return traffic

Rule Execution Order

```
1. Pre-Network Rules    (global, custom)
2. Per-Network Rules    (auto-generated per network)
   +-- Filter Rules     (logging, custom filters)
   +-- NAT Rules        (SNAT for upstream)
   +-- DNAT Rules       (port forwarding)
   +-- Mangle Rules     (TC marks, CONNMARK)
3. Post-Network Rules   (global, custom)
4. Global Policies      (INPUT/FORWARD/OUTPUT defaults)
```

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