Q-Balancer®

How To Guide:

Using OSPF in Overlay Network

Introduction

The Q-Balancer route tables can fully coexist with the existing routing infrastructure. It also ensures site-to-site access in case one of WAN links fails. This article outlines the OSPF routing configuration on the Q-Balancer appliance with a site-to-site network diagram below:

Diagram Example

Branch:

Port 1:
WAN 1:
IP: 203.67.222.45

Port 2:
WAN 2:
IP: 118.160.122.203

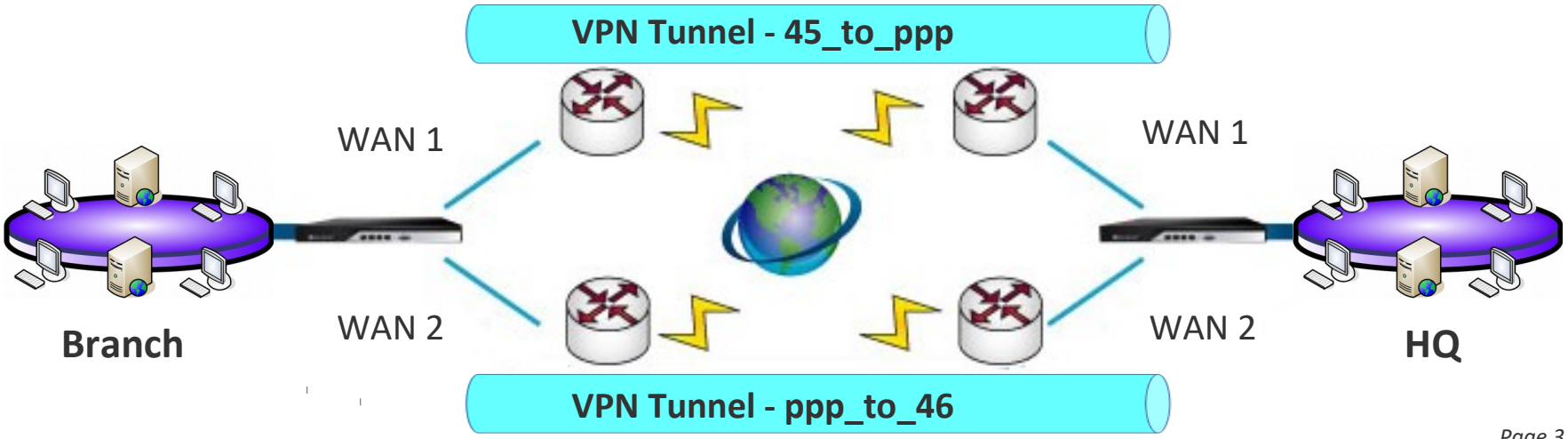
Branch LAN:
Port 4:
LAN_192.0
192.168.0.0/24, Interface: 192.168.0.254
LAN_192.1:
192.168.1.0/24,
Interface: 192.168.1.254

HQ:

Port 1:
WAN 1:
IP: 36.225.183.37

Port 2:
WAN 2:
IP: 203.67.222.46

HQ LAN:
Port 3:
LAN_192.4
192.168.4.0/24, Interface: 192.168.4.254
Port 4:
LAN_192.2
192.168.2.0/24, Interface: 192.168.2.254
LAN_192.3
192.168.3.0/24, Interface: 192.168.3.254



Follow the steps below to configure OSPF* at branch and HQ respectively*:

> Configure the network subnets and WAN links

> On Web UI, navigate to ***Dynamic Routing > OSPF*** for configuration

With the IP details given in the diagram, the LAN and tunnels on the Q-Balancer at branch is set as follows:

LAN

ADD DELETE

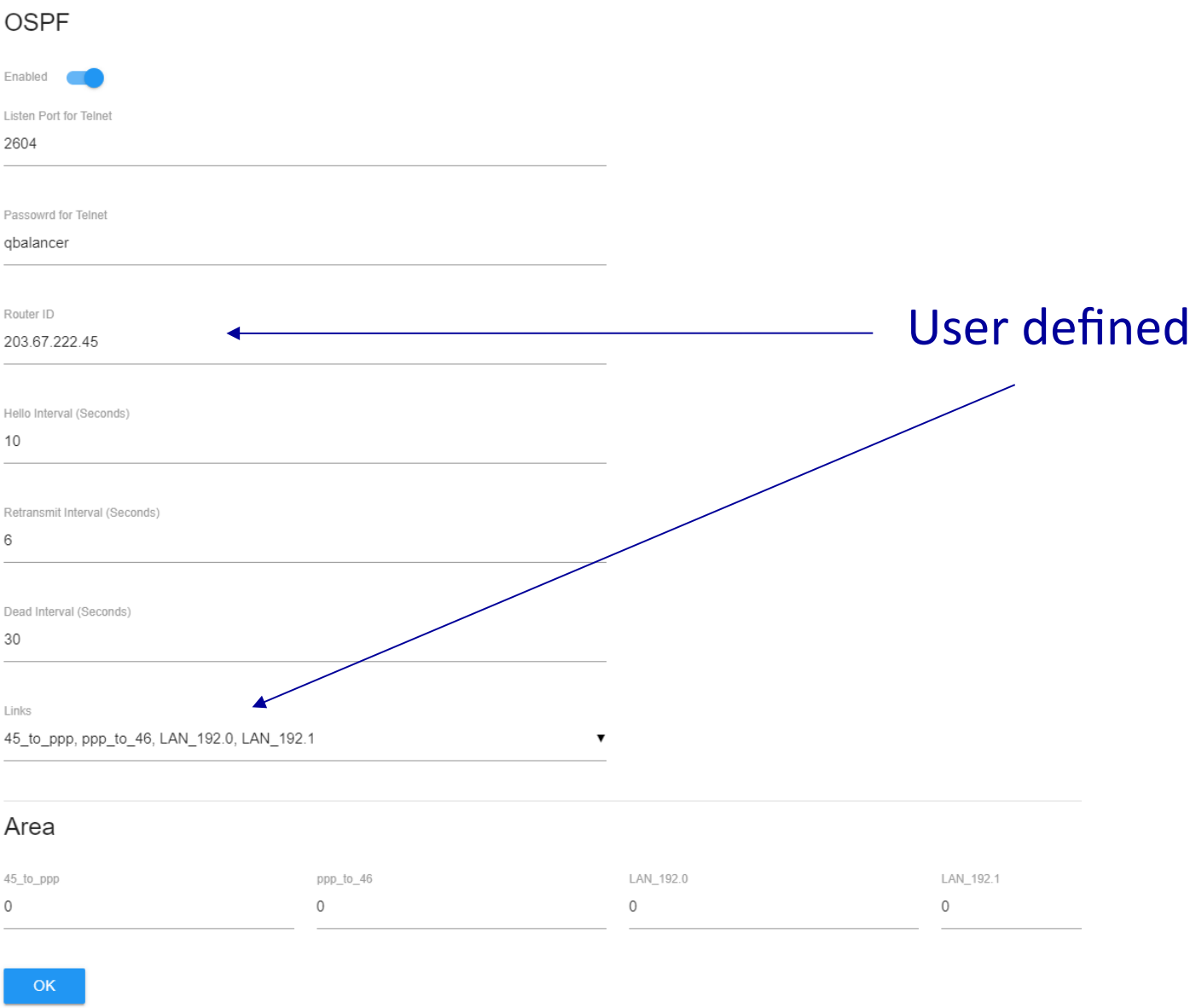
	Edit	Enabled	Name	Port	Interface	Subnet	Route	IP
☐	✎	●	LAN_192.0	Port 4	eth3_4	192.168.0.0/24	Interface	192.168.0.254
☐	✎	●	LAN_192.1	Port 4	eth3_2	192.168.1.0/24	Interface	192.168.1.254

Tunnels

ADD DELETE

	Edit	Enabled	Status	Name	Role	Local	Remote	Interface	Port
☐	✎	●	✓	45_to_ppp	Client	203.67.222.45	36.225.183.37	tmv6	4007
☐	✎	●	✓	ppp_to_46	Client	118.160.122.203	203.67.222.46	tmv7	4008

Dynamic Routing> OSPF at Branch



User defined

With the IP details given in the diagram, the LAN and tunnels on the Q-Balancer at HQ is set as follows:

LAN

ADD DELETE

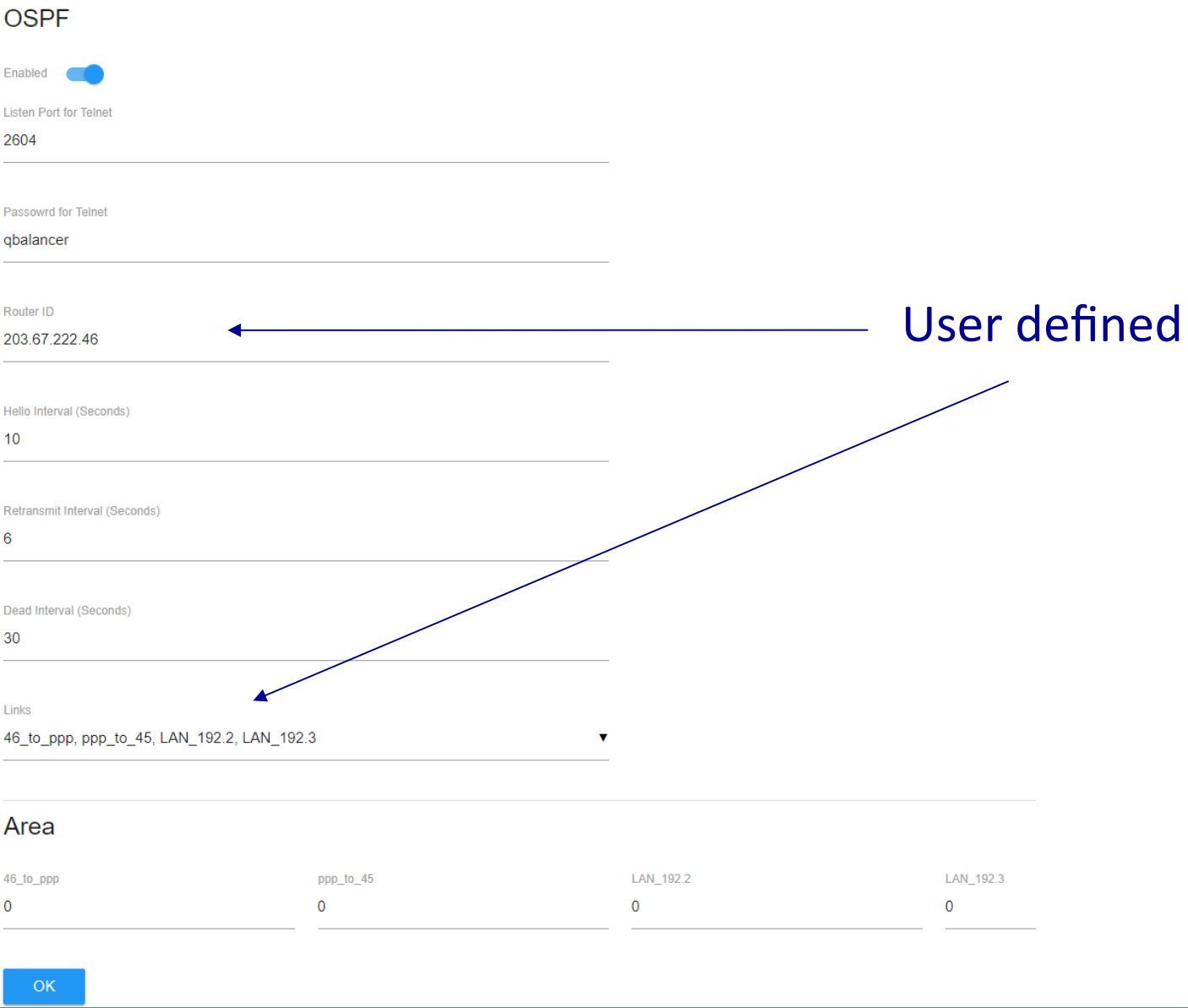
Edit	Enabled	Name	Port	Interface	Subnet	Route	IP
		LAN_192.2	Port 4	eth3_8	192.168.2.0/24	Interface	192.168.2.254
		LAN_192.3	Port 4	eth3_7	192.168.3.0/24	Interface	192.168.3.254
		LAN_4	Port 3	eth2_9	192.168.4.0/24	Interface	192.168.4.254

Tunnels

ADD DELETE

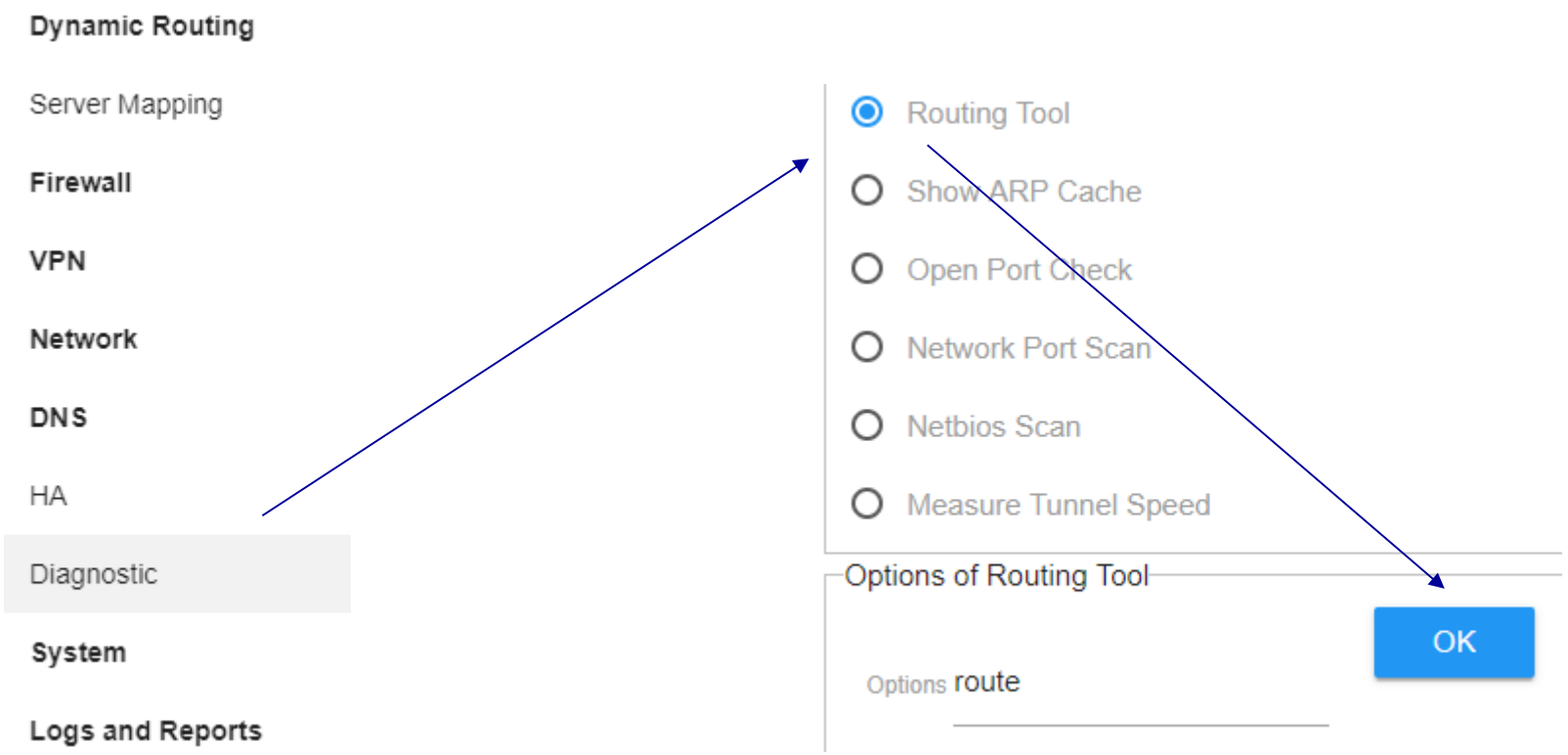
Edit	Enabled	Status	Name	Role	Local	Remote	Interface	Port
		✓	ppp_to_45	Server	36.225.183.37		tmv6	4007
		✓	46_to_ppp	Server	203.67.222.46		tmv7	4008

Dynamic Routing> OSPF at HQ



User defined

To view routing table on the Q-Balancers, navigate to Diagnostic > Routing Tool and click on OK.



For example, routing table on the Q-Balancer at branch:

Diagnostic

```
default
nexthop via 203.67.222.1 dev eth0_5 weight 1
nexthop via 168.95.98.254 dev ppp1 weight 1
1.1.0.4 dev bmv4 proto kernel scope link src 1.2.0.4
1.1.0.5 dev bmv5 proto kernel scope link src 1.2.0.5
1.1.0.18 via 2.0.0.25 dev tmv6 proto zebra metric 20
1.1.0.19 via 2.0.0.25 dev tmv6 proto zebra metric 20
1.1.0.20 via 2.0.0.25 dev tmv6 proto zebra metric 20
1.1.0.21 via 2.0.0.25 dev tmv6 proto zebra metric 20
1.1.0.22 via 2.0.0.25 dev tmv6 proto zebra metric 20
1.1.0.23 via 2.0.0.25 dev tmv6 proto zebra metric 20
2.0.0.24/30 dev tmv6 proto kernel scope link src 2.0.0.26
2.0.0.28/30 dev tmv7 proto kernel scope link src 2.0.0.30
3.0.0.0/30 via 2.0.0.25 dev tmv6 proto zebra metric 20
3.0.0.4/30 via 2.0.0.25 dev tmv6 proto zebra metric 20
10.143.238.24/30 via 2.0.0.25 dev tmv6 proto zebra metric 20
168.95.98.254 dev ppp1 proto kernel scope link src 118.160.122.203
172.31.0.4 via 2.0.0.25 dev tmv6 proto zebra metric 20
172.31.3.0/30 dev eth5 proto kernel scope link src 172.31.3.1
172.31.3.0/30 via 2.0.0.25 dev tmv6 proto zebra metric 20
192.168.0.0/24 dev eth3_4 proto kernel scope link src 192.168.0.254
192.168.1.0/24 dev eth3_2 proto kernel scope link src 192.168.1.254
192.168.2.0/24 via 2.0.0.25 dev tmv6 proto zebra metric 20
192.168.3.0/24 via 2.0.0.25 dev tmv6 proto zebra metric 20
203.67.222.1 dev eth0_5 scope link
203.67.222.45 dev eth3 scope link
203.67.222.46 via 2.0.0.25 dev tmv6 proto zebra metric 20
254.0.0.0/30 via 2.0.0.25 dev tmv6 proto zebra metric 20
254.0.0.3 via 2.0.0.25 dev tmv6 proto zebra metric 20
254.0.0.4/30 via 2.0.0.25 dev tmv6 proto zebra metric 20
254.0.0.7 via 2.0.0.25 dev tmv6 proto zebra metric 20
254.0.0.8/30 dev bond2 scope link
```

Current path is tmv6

Routing table on the Q-Balancer at branch dynamically adjusts when one of the link fails:

The route gets changed from tmv6 to tmv7 when one of WAN links fails.

Diagnostic

```
default
nexthop via 203.67.222.1 dev eth0_5 weight 1
nexthop via 168.95.98.254 dev ppp1 weight 1
1.1.0.4 dev bmv4 proto kernel scope link src 1.2.0.4
1.1.0.5 dev bmv5 proto kernel scope link src 1.2.0.5
1.1.0.18 via 2.0.0.25 dev tmv6 proto zebra metric 20
1.1.0.19 via 2.0.0.25 dev tmv6 proto zebra metric 20
1.1.0.20 via 2.0.0.25 dev tmv6 proto zebra metric 20
1.1.0.21 via 2.0.0.25 dev tmv6 proto zebra metric 20
1.1.0.22 via 2.0.0.25 dev tmv6 proto zebra metric 20
1.1.0.23 via 2.0.0.25 dev tmv6 proto zebra metric 20
2.0.0.24/30 dev tmv6 proto kernel scope link src 2.0.0.26
2.0.0.28/30 dev tmv7 proto kernel scope link src 2.0.0.30
3.0.0.0/30 via 2.0.0.25 dev tmv6 proto zebra metric 20
3.0.0.4/30 via 2.0.0.25 dev tmv6 proto zebra metric 20
10.143.238.24/30 via 2.0.0.25 dev tmv6 proto zebra metric 20
168.95.98.254 dev ppp1 proto kernel scope link src 118.160.122.203
172.31.0.4 via 2.0.0.25 dev tmv6 proto zebra metric 20
172.31.3.0/30 dev eth5 proto kernel scope link src 172.31.3.1
172.31.3.0/30 via 2.0.0.25 dev tmv6 proto zebra metric 20
```

Diagnostic

```
default
nexthop via 203.67.222.1 dev eth0_5 weight 1
nexthop via 168.95.98.254 dev ppp1 weight 1
1.1.0.4 dev bmv4 proto kernel scope link src 1.2.0.4
1.1.0.5 dev bmv5 proto kernel scope link src 1.2.0.5
1.1.0.18 via 2.0.0.29 dev tmv7 proto zebra metric 20
1.1.0.19 via 2.0.0.29 dev tmv7 proto zebra metric 20
1.1.0.20 via 2.0.0.29 dev tmv7 proto zebra metric 20
1.1.0.21 via 2.0.0.29 dev tmv7 proto zebra metric 20
1.1.0.22 via 2.0.0.29 dev tmv7 proto zebra metric 20
1.1.0.23 via 2.0.0.29 dev tmv7 proto zebra metric 20
2.0.0.28/30 dev tmv7 proto kernel scope link src 2.0.0.30
3.0.0.0/30 via 2.0.0.29 dev tmv7 proto zebra metric 20
3.0.0.4/30 via 2.0.0.29 dev tmv7 proto zebra metric 20
10.143.238.24/30 via 2.0.0.29 dev tmv7 proto zebra metric 20
168.95.98.254 dev ppp1 proto kernel scope link src 118.160.122.203
172.31.0.4 via 2.0.0.29 dev tmv7 proto zebra metric 20
172.31.3.0/30 dev eth5 proto kernel scope link src 172.31.3.1
172.31.3.0/30 via 2.0.0.29 dev tmv7 proto zebra metric 20
192.168.0.0/24 dev eth3_4 proto kernel scope link src 192.168.0.254
192.168.1.0/24 dev eth3_2 proto kernel scope link src 192.168.1.254
192.168.2.0/24 via 2.0.0.29 dev tmv7 proto zebra metric 20
192.168.3.0/24 via 2.0.0.29 dev tmv7 proto zebra metric 20
203.67.222.1 dev eth0_5 scope link
203.67.222.45 dev eth3 scope link
203.67.222.46 via 2.0.0.29 dev tmv7 proto zebra metric 20
254.0.0.0/30 via 2.0.0.29 dev tmv7 proto zebra metric 20
254.0.0.3 via 2.0.0.29 dev tmv7 proto zebra metric 20
254.0.0.4/30 via 2.0.0.29 dev tmv7 proto zebra metric 20
254.0.0.7 via 2.0.0.29 dev tmv7 proto zebra metric 20
254.0.0.8/30 dev bond2 scope link
```