

Manual: Bonding Examples

ARP Link Monitoring HowTo

About

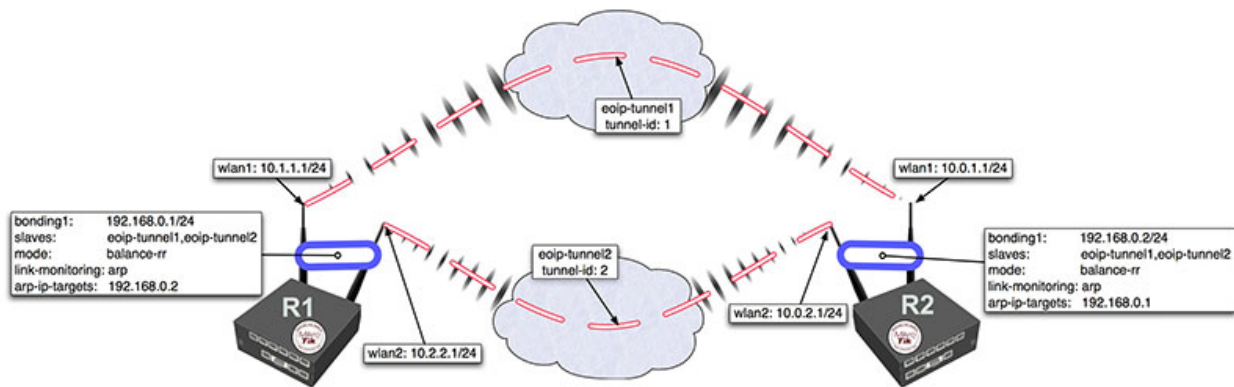
This is an example of aggregating multiple network interfaces into a single pipe. In particular, it is shown how to aggregate multiple virtual (EoIP) interfaces to get maximum throughput (MT) with emphasis on availability.

Objective

You will learn how to connect remote locations via multiple physical links. The combined pipe will deliver higher throughput and availability than the individual links.

Network Diagram

Two routers R1 and R2 are interconnected via multihop wireless links. Wireless interfaces on both sides have assigned IP addresses.



Getting started

Bonding could be used only on OSI layer 2 (Ethernet level) connections. Thus we need to create EoIP interfaces on each of the wireless links. This is done as follows:

- on router R1:

```
[admin@MikroTik] > /interface eoiptunnel add remote-address=10.0.1.1/24 tunnel-id=1
[admin@MikroTik] > /interface eoiptunnel add remote-address=10.0.2.1/24 tunnel-id=2
```

- and on router R2

```
[admin@MikroTik] > /interface eoiptunnel add remote-address=10.1.1.1/24 tunnel-id=1
[admin@MikroTik] > /interface eoiptunnel add remote-address=10.2.2.1/24 tunnel-id=2
```

The second step is to add bonding interface and specify EoIP interfaces as slaves:

- on router R1:

```
[admin@MikroTik] > /interface bonding add slaves=eoiptunnel1,eoiptunnel2 mode=balance-rr
```

Refer to the following page regarding bonding mode selection.

- and on router R2

```
[admin@MikroTik] > /interface bonding add slaves=eoiptunnel1,eoiptunnel2 mode=balance-rr
```

The last step is to add IP addresses to the bonding interfaces:

- on router R1:

```
[admin@MikroTik] > / ip address add address 192.168.0.1/24 interface=bonding1
```

Tip: Refer to the following page regarding bonding mode selection.

- and on router R2

```
[admin@MikroTik] > / ip address add address 192.168.0.2/24 interface=bonding1
```

Test the configuration

Now two routers are able to reach each other using addresses from the 192.168.0.0/24 network. To verify bonding interface functionality, do the following:

- on router R1:

```
[admin@MikroTik] > /interface monitor-traffic eoip-tunnel1, eoip-tunnel2
```

- and on router R2

```
[admin@MikroTik] > /tool bandwidth-test 192.168.0.1 direction=transmit
```

You should see that traffic is distributed equally across both EoIP interfaces:

```
[admin@MikroTik] > /int monitor-traffic eoip-tunnel1, eoip-tunnel2
received-packets-per-second: 685      685
  received-bits-per-second: 8.0Mbps  8.0Mbps
  sent-packets-per-second: 21        20
    sent-bits-per-second: 11.9kbps 11.0kbps
received-packets-per-second: 898      899
  received-bits-per-second: 10.6Mbps 10.6Mbps
  sent-packets-per-second: 20        21
    sent-bits-per-second: 11.0kbps 11.9kbps
received-packets-per-second: 975      975
  received-bits-per-second: 11.5Mbps 11.5Mbps
  sent-packets-per-second: 22        22
    sent-bits-per-second: 12.4kbps 12.3kbps
received-packets-per-second: 980      980
  received-bits-per-second: 11.6Mbps 11.6Mbps
  sent-packets-per-second: 21        21
    sent-bits-per-second: 11.9kbps 11.8kbps
received-packets-per-second: 977      977
  received-bits-per-second: 11.6Mbps 11.5Mbps
  sent-packets-per-second: 21        21
    sent-bits-per-second: 11.9kbps 11.8kbps
-- [Q quit|D dump|C-z pause]
[admin@MikroTik] >
```

Link Monitoring

It is easy to notice that with the configuration above as soon as any of individual link fails, the bonding interface throughput collapses. That's because no link monitoring is performed, consequently, the bonding driver is unaware of problems with the underlying links. Enabling link monitoring is a must in most bonding configurations. To enable ARP link monitoring (recommended), do the following:

- on router R1:

```
[admin@MikroTik] > / interface bonding set bonding1 link-monitoring=arp arp-ip-targets=192.168.0.2
```

Refer to the following page regarding bonding mode selection.

- and on router R2

```
[admin@MikroTik] > / interface bonding set bonding1 link-monitoring=arp arp-ip-targets=192.168.0.1
```

Tip: Refer to the following page for information about different link monitoring types.

Article Sources and Contributors

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