

ALOHA LOAD BALANCER ACTIVE-PASSIVE BONDING

"APPNOTE" #0005 — CONFIGURING ACTIVE-PASSIVE BONDING

This application note is intended to help you configure bonding in order to ensure high availability of your links in active-passive mode within the ALOHA Load Balancer solution.

CONSTRAINTS

"Port trunking" mode must be supported and configured on the network switch ports the Aloha devices are connected to.

OBJECTIVE

Create redundant network interfaces on the Aloha device in order to automatically switch interfaces when a failure is detected on one of the devices.

COMPLEXITY



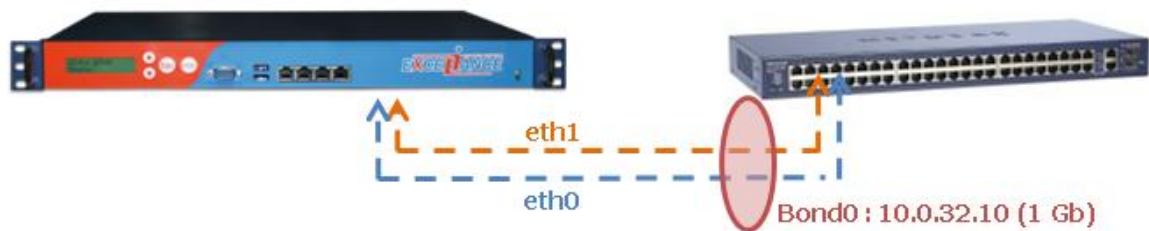
CHANGELOG

2012-12-13: bonding modes description

2011-10-19: update for Aloha 4.x and above

2009-03-28: initial version

TARGET NETWORK DIAGRAM



ALOHA VERSION 4.0 AND ABOVE

BONDING CONFIGURATION

When setting up a bonding interface, a few options are available:

- `slave <iface> <iface>...` : interfaces to add in the bonding
- `bonding primary <iface>` : primary slave for current bond
- `bonding mode <mode>` : bonding mode (1 for active-backup)
- `bonding updelay <ms>` : bonding delay check in ms (default: 1000)
- `bonding downdelay <ms>` : bonding delay check in ms (default: 1000)

Bonding mode can have different values:

- **0: balance-rr mode:** output interfaces are chosen in a round-robin method
- **1: active-backup mode:** failover mode, one interface is active at a time
- **2: balance-xor mode:** Transmit based on [(source MAC address XOR'd with destination MAC address) modulo slave count]. This selects the same slave for each destination MAC address. This mode provides load balancing and fault tolerance and does not requires any configuration on the switch.
- **4: 802.3ad:** IEEE 802.3ad (**LACP**) Dynamic link aggregation. The switch must be compatible and properly configured
- **5: balance-tlb:** "transmit load-balancing", outgoing interface choice is made based on interfaces load
- **6: balance-alb:** "adaptive load-balancing", balance-tlb mode with a reception load-balancing mode made using ARP protocol

EXAMPLE

You can directly configure the **network** service from the **Services** tab of the GUI.

Before modifications:

```
service network eth0
##### Interface Interface eth0: .
auto on
mtu 1500
ip address 10.0.32.10/16
ip route default 10.0.32.1

service network eth1
##### Interface eth1: .
auto on
mtu 1500
```

After modifications:

```
service network eth0
##### Interface Interface eth0: .
auto on
mtu 1500

service network eth1
##### Interface eth1: .
auto on
mtu 1500

service network bond0
##### Interface bond0: active/backup aggregate of eth0 and eth1
slave eth0 eth1
bonding primary eth0
bonding mode 1
bonding updelay 500
bonding downdelay 500
ip address 10.0.32.10/16
ip route default 10.0.32.1
mtu 1500
```



Warning: the network interfaces used in the bonding configuration must no longer have a specific individual configuration!

EXTRACT OF THE CONFIGURATION OF THE "NETWORK" SERVICE

Before modifications:

```

service network eth0
##### Interface Interface eth0: .
auto on
mtu 1500
ip address 10.0.32.10/16
ip route default 10.0.32.1

service network eth1
##### Interface eth1: .
auto on
mtu 1500

```

After modifications:

```

service network eth0
##### Interface Interface eth0: .
auto on
mtu 1500

service network eth1
##### Interface eth1: .
auto on
mtu 1500

service network bond0
##### Interface bond0: active/backup aggregate of eth0 and eth1
slave eth0 eth1
modprobe bond0 mode=active-backup primary=eth0 updelay=1000 downdelay=1000
ip address 10.0.32.10/16
ip route default 10.0.32.1
mtu 1500

```

You can directly configure the **network** service from the **Services** tab.

To meet this objective, simply specify the network interfaces where bonding must be enabled (slave eth0 eth1).

Then provide the name of the new interface (bond0 in this example) and specify the bonding operating mode; this example uses "active-backup" mode.

The "primary=eth0" parameter is added to specify that the eth0 interface will always be the main interface. If that interface fails and is subsequently restored, it will automatically be reset as the main interface. If you do not wish to switch back to eth0, then do not specify the "primary" parameter.

Delays for checking the status of the interfaces are specified using the "updelay" and "downdelay" parameters (values are specified in milliseconds).

Finally, configure the IP address and the route for the new interface.



Warning: the network interfaces used in the bonding configuration must no longer have a specific individual configuration!

VALIDATION OF THE CONFIGURATION

network		Auto.						need restart
eth0	Auto.							
eth1	Auto.							
eth2	Auto.							
bond0	Auto.							

If successful, a new interface called **bond0** is created.

Just click on the **network restart icon**  to tell the Aloha to apply the new configuration.

BASIC TROUBLESHOOTING

Diagnostic Tools

interfaces (ignored, ignored, ignored) Retries: 5 Timeout: 5s
* Optional

Diagnostic Tool (, ,) Run

In order to ensure that the bonding is implemented properly, use the built-in **interfaces** tool available in the **DiagTools** tab. If the configuration is correct, the "bond0" interface should appear with the "MASTER MULTI CAST" label and both of the network interfaces "eth0" and "eth1" should be labeled as "SLAVE MULTICAST" and have the same MAC address as the "bond0" interface. Furthermore, each interface should be "UP".