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NIC Bonding On Debian Lenny

Ethernet bonding refers to aggregating multipleethernet channels together to form a single channel. This is primarilyused for redundancy in ethernet paths or for load balancing. This pagerefers in particular to performing ethernet bonding under Linux, and sodoes not limit itself to discussion of 802.3ad Trunk Aggregation.

Ethernet Bonding Types

The Linux kernel bonding module supports a number of bonding types.

mode=0 (balance-rr)
Round-robin policy: Transmit packets insequential order from the first available slave through the last. Thismode provides load balancing and fault tolerance.

mode=1 (active-backup)

One slave interface is active at any time. If one interface fails,another interface takes over the MAC address and becomes the activeinterface. Provides fault tolerance only. Doesn(TM)t require specialswitch support

mode=2 (balance-xor)

Tranmissions are balanced across the slave interfaces based on ((sourceMAC) XOR (dest MAC)) modula slave count. The same slave is selected foreach destination MAC. Provides load balancing and fault tolerance.

mode=3 (broadcast)

Transmits everything on all slave interfaces. Provides fault tolerance.

mode=4 (802.3ad)

This is classic IEEE 802.3ad Dynamic link aggregation. This requires802.3ad support in the switch and driver support for retrieving thespeed and duplex of each slave.

mode=5 (balance-tlb)

Adaptive Transmit Load Balancing. Incoming traffic is received on theactive slave only, outgoing traffic is distributed according to thecurrent load on each slave. Doesn(TM)t require special switch support

mode=6 (balance-alb)

Adaptive Load Balancing - provides both transmit load balancing (TLB)and receive load balancing for IPv4 via ARP negotiation. Doesn(TM)trequire special switch support, but does require the ability to changethe MAC address of a device while it is open.

Set Up Bonding Ethernet on Debian

To use Bonding Ethernet for High-Availability (fail-over) on Debian Lenny you need to:

Install package ifenslave-2.6. To install this package follow this command:

```
#apt-get install ifenslave-2.6
```

Make sure the real NICs kernel modules are loaded automatically.

Edit */etc/network/interfaces* to look like this:

```
iface bond0 inet static
  address 10.0.1.5
  netmask 255.255.255.0
  network 10.0.1.0
  gateway 10.0.1.254
```

```
up /sbin/ifenslave bond0 eth0 eth1
  down /sbin/ifenslave -d bond0 eth0 eth1
```

Comment or borrow the lines referring to your real NICs in the same file.

Add the following lines to your */etc/modprobe.d/arch/i386*:

```
alias bond0 bonding
options bonding mode=5 miimon=100 downdelay=200 updelay=200
```

Make sure you change your mode!

Then restart your networking:

```
#/etc/init.d/networking restart
```