

Understanding Multiport Configuration

<https://campus.barracuda.com/doc/10322032/>

This article refers to firmware 4.2 and higher running on the Barracuda Load Balancer model 640 that includes PORT1 through PORT10.

Configure multiport link aggregation to combine physical network links into a single link to increase capacity and availability.

Note that when creating an interface bond, selecting the mode **802.3ad (or LACP)** does not increase the bandwidth for a single conversation and achieves high utilization only when carrying multiple simultaneous conversations as it attempts to use the same ports for the same conversation.

Multiport Link Aggregation

Your Barracuda Load Balancer deployment is determined by your organizational needs including network traffic. Use link aggregation to maximize network throughput and failover, and to achieve multi-gigabit capacity. Multiport link aggregation enables direct addressing which balances traffic distribution through bonded links.

Multiport link aggregation is an advanced feature; before completing this deployment, establish whether this configuration is necessary to meet the needs of your organization.

Use a multiport link aggregation deployment if your organization wishes to:

- Load balance multiple NICs;
- Combine multiple network connections;
- Incorporate redundancy in case one of the links fails;
- Use a Management (MGMT) or WAN network configuration;
- Increase bandwidth beyond the default 1GBps.

Link Aggregation Requirements

Before setting up multiport link aggregation, your Barracuda Load Balancer must meet the following

requirements:

- Barracuda Load Balancer model 640 that includes PORT1 through PORT10
 - Firmware release 4.2 or higher
 - Access to all Real Servers
 - IP Configuration is set to either WAN or Management
 - Operating Mode is set to Route-Path
 - Physical links must be Gigabit (GE) operating in full duplex mode
- Link aggregation is supported only on links operating in full duplex mode.

The model 640 includes 12-1GB Ethernet ports: WAN, MGMT, and PORT1 to PORT10. You configure the WAN IP (WAN) and Management IP (MGMT) on the **BASIC > IP Configuration** page. By default the network ports PORT1 to PORT10 are soft bridged to behave as a LAN port. This enables PORT1 to PORT10 to see the same data to achieve a maximum of 1Gbp/s throughput.

By default, the LAN IP Configuration displays on the **BASIC > IP Configuration** page. If this is the initial multiport deployment, you do not need to configure the LAN IP; configure the IP address to the network ports that are in use.

To use PORT 1 to PORT 10 as separate network ports, from the **ADVANCED > Advanced Networking** page, set **Enable Network Port Configuration** to Yes. When set to Yes, the LAN IP Configuration does not display on the **BASIC > IP Configuration** page.

If you configure PORT1 to PORT10 as separate network ports on the **BASIC > IP Configuration** page before setting **Enable Network Port Configuration** to Yes, go to the **ADVANCED > Advanced Networking** page, and in the **Network Port Configuration** section select the port (PORT1 to PORT 10) connected to the switch or server from the **Move LAN Configuration to** menu. The LAN IP, VLAN Configuration, System Virtual Interfaces, and Static Routes configured under the LAN port are then automatically moved to the selected port.

Link Bonding

You can create a bond interface with a unique bond name, and then create unique link bonds.

On the **ADVANCED > Advanced Networking** page, you click **Add Interface Bond** to open the **Link Bonding** page and create interface bonds.

To create a link bond, you enter a unique bond name, and select the bond mode. There are three bond modes available when creating link bonding.

Round Robin

The round-robin mode transmits packets in sequential order from the first available network port through the last. This mode provides load balancing and fault tolerance.

All outgoing traffic is spread evenly across all of the ports included in the bond. While round-robin distribution is the only mode that allows a single TCP/IP stream to utilize more than one network port worth of throughput, this mode also introduces the potential for out-of-order packets in peer systems and the potential of retransmitted segments.

Barracuda Networks recommends using the Dynamic Link Aggregation Control Protocol (LACP).

Active-Backup

Only one port in the bond is active; a different port becomes active if, and only if, the active port fails. This mode provides fault tolerance only.

Dynamic Link Aggregation Control Protocol (LACP) / IEEE 802.3ad Dynamic Link Aggregation

This mode creates aggregation groups that share the same speed and duplex settings, and utilizes all ports in the active aggregator according to the IEEE 802.3ad specification; therefore, when operating in 802.3ad mode, the packets are always distributed in the standard fashion, never in a round-robin fashion. This does not increase the bandwidth for a single conversation; it achieves high utilization only when carrying multiple simultaneous conversations.

Port selection for outgoing traffic is done according to the transmit hash policy; the Barracuda Load Balancer configures the `xmit_hash_policy` to Layer3+4. To enable this mode the switch must support configuration to enable 802.3ad mode.

When using the 802.3ad (LACP) mode, you must configure the mode on both sides of the link: on the switch side and where the bonded ports are connected.

There are a total of 11 ports listed from which you can add one to five ports:

- **WAN** - Used to configure the System IP address and default system gateway.
- **PORT1 to PORT10** - Configure Services on these individual ports.

Click **Add** at the top of the page to create the link bond and add it to the **Link Bonding** table on the **ADVANCED > Advanced Networking** page.

Multiple Ports

You do not need to remove the IP addresses configured on a port when moving the PORT to link bonding unless multiple ports are configured with the IP address. For example, if you create the 'A' bond with the WAN interface, you do not need to remove the IP address/Custom Virtual Interfaces/Static Routes/SNAT IP address on the WAN interface as these are automatically moved to the newly created bond. However, if you move multiple PORTs with IP addresses configured on the IP address, you cannot create the bond until you delete these IP addresses. Similarly, you can move the LAN IP address to any one of the PORTs and use that same port to create the bond for server-side configuration.

Port Failover

You must have at least two PORTs in a bond for failover to take place.

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