

How to Configure Link Balancing and Failover for Multiple WAN Connections

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If you are using two DHCP connections from the same carrier that is using the same remote network and gateway, see [How to Configure Automatic Failover with Dual DHCP WAN Connections using the Same Remote Gateway](#).

If you are using two or more ISP connections, you can use outbound link and load balancing to balance the traffic between the different Internet connections. If one ISP goes down, the traffic will be routed over the remaining connection. Basic link failover functionality can be achieved by using different route metrics. A better solution is to use custom connection objects to distribute the load and/or configure failover for different links. Using custom connection objects allows you to decide on link balancing on a per-access rule basis. For this article, we assume we are using a mix of one static and one dynamic (DHCP) Internet connection.

In this article:

Step 1. Configure the WAN Connections

Configure your WAN connections:

- For information on setting up an ISP with static IP address assignment, see [How to Configure an ISP with Static IP Addresses](#).
- For information on setting up an ISP with dynamic DHCP IP address assignment, see [How to Configure an ISP with Dynamic IP Addresses \(DHCP\)](#).

This configuration uses the following example settings for both WAN connections:

ISP	IP Address	Gateway	Network Interface
ISP 1	62.99.0.69	62.99.0.254	port 3
ISP 2	dynamically assigned	dynamically assigned	dhcp

For WAN connections with dynamic address assignment (e.g., DHCP), verify that you enable the settings **Own Routing Table**, **Use Assigned IP**, **Create Default Route**, and **Clone Routes** in the configuration.

Step 2. Add a Source Based Route

Configure the source routes for both connections to avoid IP packets from being sent via the wrong ISP line. For DHCP connections, the routes are already introduced automatically by the DHCP client. For ISP connections with static IP addresses, configure a source-based route.

1. Go to **CONFIGURATION > Configuration Tree > Box > Network**.
2. In the left menu, select **Routing**.
3. Click **Lock**.
4. In the **Source Based Routing** section, click **+** to add a new route.
5. Enter a **Name** for the route and click **OK**.
6. In the **Source Networks** table, add the network for which the routing table is consulted., e.g.,
62.99.0.0/24
7. In the **Routing Table Contents** section, click **+** to configure the route.
8. In the **Target Network Address** field, enter 0.0.0.0/0.
9. Select **unicast** as the **Route Type**.
10. Enter the **Gateway** IP address, e.g., 62.99.0.254
11. Click **OK**.
12. Select **postmain** as the **Table Placement** option.
13. Click **OK**.
14. Click **Send Changes** and **Activate**.

Step 3. Configure Link Monitoring

For the dynamic Internet connection, configure link monitoring for both routes (**default** and **source based**) to monitor IP addresses beyond the ISP gateway.

1. Go to **CONFIGURATION > Configuration Tree > Box > Network**.
2. In the left menu, select **xDSL/DHCP/ISDN**.
3. In the **Configuration Mode** menu, select **Switch to Advanced View**.
4. Click **Lock**.
5. Edit the DHCP link.
6. In the **Connection Monitoring** section, add a target IP address to be used for monitoring into the **Reachable IPs** table. This address must be reachable only via the DHCP connection.
7. Click **OK**.
8. Click **Send Changes** and **Activate**.

After you configure your routes, you must activate your new network configurations.

1. Go to **CONTROL > Box**.
2. In the left menu, expand **Network** and click **Activate new network configuration**.

3. Select **Failsafe**. A *Network Configuration Reconfigured* message will appear.

Step 4. Create a Custom Connection Object for Link Balancing with Failover (Fallback)

The Barracuda NG Firewall can perform link failover and link cycling using multiple connections. The failover and load balancing policy used in the custom connection object defines how the traffic is routed:

- **Link Balancing with Fallback** – Traffic is always routed over the primary uplink as long as it is available. If the main uplink fails, the secondary uplink is used.
- **Random Link Balancing** – Sessions are distributed randomly according to the weight of the connections. If one of the connections fails, traffic is routed through the other available connections as defined in the connection policy.
- **Sequential Link Balancing** – The Source IPs are sequentially cycled through, factoring in the weight defined for each uplink. The Barracuda NG Firewall remembers the sources/destination of active sessions and will reuse the same connection if a similar connection is established.

Create a custom connection object for link balancing and failover:

1. Go to **CONFIGURATION > Configuration Tree > Box > Virtual Servers > your virtual server > Assigned Services > Firewall > Forwarding Rules**.
2. Click **Lock**.
3. In the left menu, click on **Connections**.
4. Right-click and select **New**. The **Edit/Create a Connection Object** window opens.
5. Enter a **Name** for the connection object. E.g., LBFailover
6. Select **From Interface** as the **NAT Address**.
7. In the **Interface Name** field, enter the port the ISP 1 is connected to. E.g., port3 or dhcp
8. In the **Failover and Load Balancing** section, select one load balancing/failover **Policy**:
 1. **FALLBACK (Fallback to alternative Source Addresses)**
 - Select either **Interface** or source **IP address** for each Internet connection.
 - Enter the interface or source IP address for the connection.
 2. **SEQ (Sequentially cycle Source Addresses)**
 - Select either **Interface** or source **IP address** for each **Alternative** connection.
 - Enter the interface or source IP address for each connection.
 - Enter the **Weight** factor. This value determines how the load is distributed between the different connections.
 3. **RAND (Random Source Addresses)**
 - Select either **Interface** or source **IP address** for each **Alternative** connection.
 - Enter the interface or source IP address for each connection.
 - Enter the **Weight** factor. This value determines how the load is distributed between the different connections.
9. Click **OK**.

10. Click **Send Changes** and **Activate**.

Step 5. Apply the Connection Object

Use the object for all access rules handling outgoing traffic.

1. Go to **CONFIGURATION > Configuration Tree > Box > Virtual Servers > your virtual server > Assigned Services > Firewall > Forwarding Rules**.
2. Click **Lock**.
3. **Edit** an access rule handling outgoing traffic. E.g., **LAN-2-INTERNET**
4. Select the custom connection object created in Step 4 from the **Connection Method** list.
5. Click **OK**.
6. Click **Send Changes** and **Activate**.

Step 6. (optional) Configure Notifications

You can configure the Barracuda NG Firewall to send SNMP traps or email notifications in case one of the ISP connections fails. Depending on what kind of notification you want to send, change the **notification ID** for:

- **62 (Route Changed)**
- **64 (Route Disabled)**

For more information, see [Events](#).

You are now load balancing and/or using failover for all outgoing connections, which are handled by access rules using the custom connection object. If needed, you can define multiple custom connection objects and use them to control which ISP connections are used by a specific network or IP address.

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