
How to Configure Packet-Based Balancing for VPN Tunnels with SD-WAN

<https://campus.barracuda.com/doc/96026179/>

Packet-Based Balancing distributes traffic on a per-packet basis over multiple VPN transports in the same transport class. VPN transports using Packet-Based Balancing must have the same bandwidth and latency (Round Trip Time). In most cases, using Adaptive Session Balancing is preferable to Packet-Based Balancing because it allows for different link-quality requirements.

Limitations

- VPN transports must be in the same transport class.
- WAN links must have the same bandwidth and latency. For example: multiple identical WAN links from the same ISP.

Before You Begin

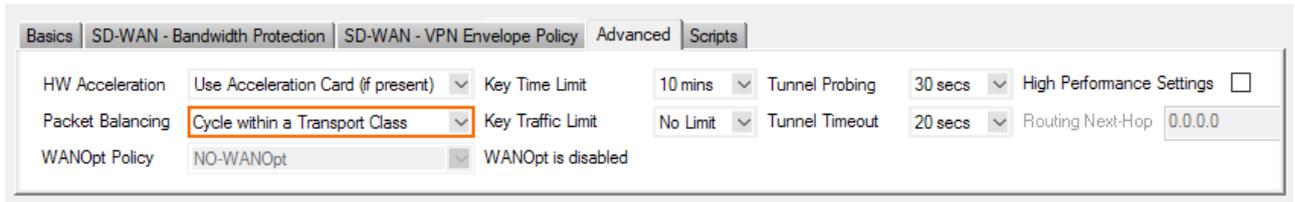
Create a multi-transport VPN tunnel between two CloudGen Firewalls:

- Create a TINA site-to-site VPN tunnel. For more information, see [How to Create a TINA VPN Tunnel between CloudGen Firewalls](#) or [How to Create a VPN Tunnel with the VPN GTI Editor](#).
- Add one or more additional transports in the same SD-WAN class to the VPN tunnel. For more information, see [How to Add a VPN Transport to a TINA VPN Tunnel with Explicit Transport Selection](#) or [How to Configure SD-WAN Using the VPN GTI Editor](#).

Step 1. Enable Packet-Based Balancing

Packet-Based Balancing must be enabled for all transports in the transport class.

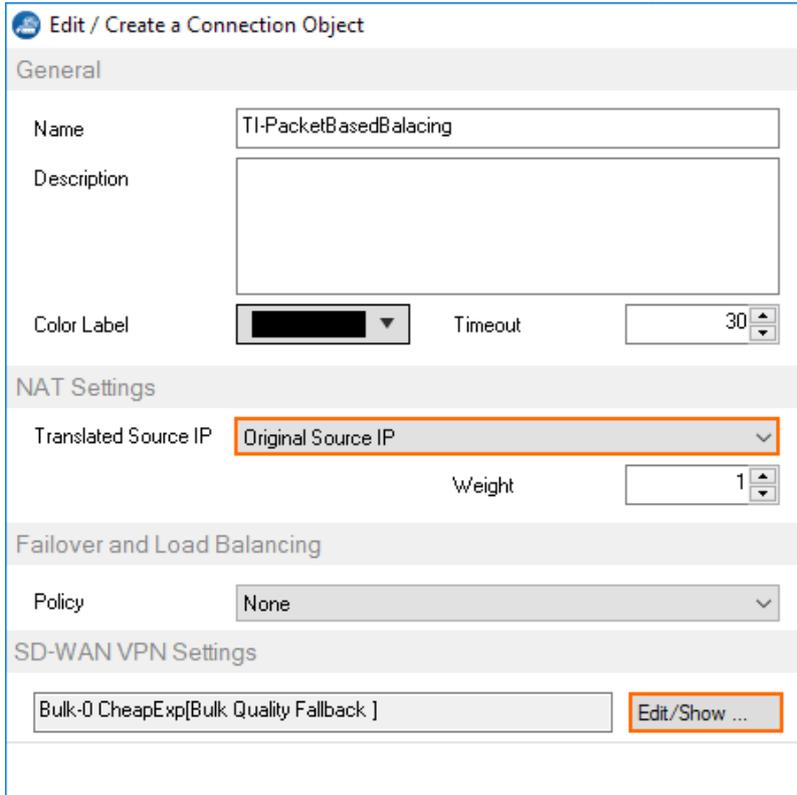
1. Go to **CONFIGURATION > Configuration Tree > Box > Assigned Services > VPN-Service > Site to Site VPN**.
2. Click **Lock**.
3. Double-click the TINA VPN tunnel. The **TINA Tunnel** window opens.
4. Click the **Advanced** tab.
5. From the **Packet Balancing** list, select **Cycle within a Transport Class**.



6. Click **OK**.
7. Click **Send Changes** and **Activate**.

Step 2. Create a Custom Connection Object for the SD-WAN Primary

1. Go to **CONFIGURATION > Configuration Tree > Box > Assigned Services > Firewall > Forwarding Rules**.
2. In the left menu, click **Connections**.
3. Right-click the table and select **New Connection**. The **Edit/Create a Connection Object** window opens.
4. Enter a **Name**
5. From the **Translated Source IP** list, select **Original Source IP**.



6. To edit the **VPN SD-WAN** settings, click **Edit/Show**. The **SD-WAN Settings** window opens.
7. From the **SD-WAN Learning Policy** list, select **Primary**.

Transport Policies

Transport Selection Policy

SD-WAN Learning Policy

8. From the **Primary Transport Class** list, select the primary transport class.
9. From the **Primary Transport ID** list, select the ID for the primary transport.

Explicit Transport Selection

Primary Transport Class

Primary Transport ID

Secondary Transport Class

Secondary Transport ID

Further Transport Selection

Allow Bulk Transports Allow QualityTransports Allow FallbackTransports

10. From the **Secondary Transport Class** list, select the same transport class used for the primary transport.
11. From the **Secondary Transport ID** list, select the ID for the secondary transport.

Explicit Transport Selection

Primary Transport Class

Primary Transport ID

Secondary Transport Class

Secondary Transport ID

Further Transport Selection

Allow Bulk Transports Allow QualityTransports Allow FallbackTransports

12. Click **OK**.
13. Click **Send Changes** and **Activate**.

Step 3. Create a Custom Connection Object for the SD-WAN Secondary

1. Go to **CONFIGURATION > Configuration Tree > Box > Assigned Services > Firewall > Forwarding Rules**.
2. In the left menu, click **Connections**.
3. Right-click the table and select **New Connection**. The **Edit/Create a Connection Object** window opens.
4. Enter a **Name**.
5. From the **Translated Source IP** list, select **Original Source IP**.

Edit / Create a Connection Object

General

Name: TI-PacketBasedBalancing

Description:

Color Label: [Black] Timeout: 30

NAT Settings

Translated Source IP: Original Source IP

Weight: 1

Failover and Load Balancing

Policy: None

SD-WAN VPN Settings

Bulk-0 CheapExp[Bulk Quality Fallback] **Edit/Show ...**

- To edit the **VPN SD-WAN** settings, click **Edit/Show**. The **SD-WAN Settings** window opens.
- From the **SD-WAN Learning Policy** drop-down list, select **Secondary**.

Transport Policies

Transport Selection Policy: Explicit Transport Selection

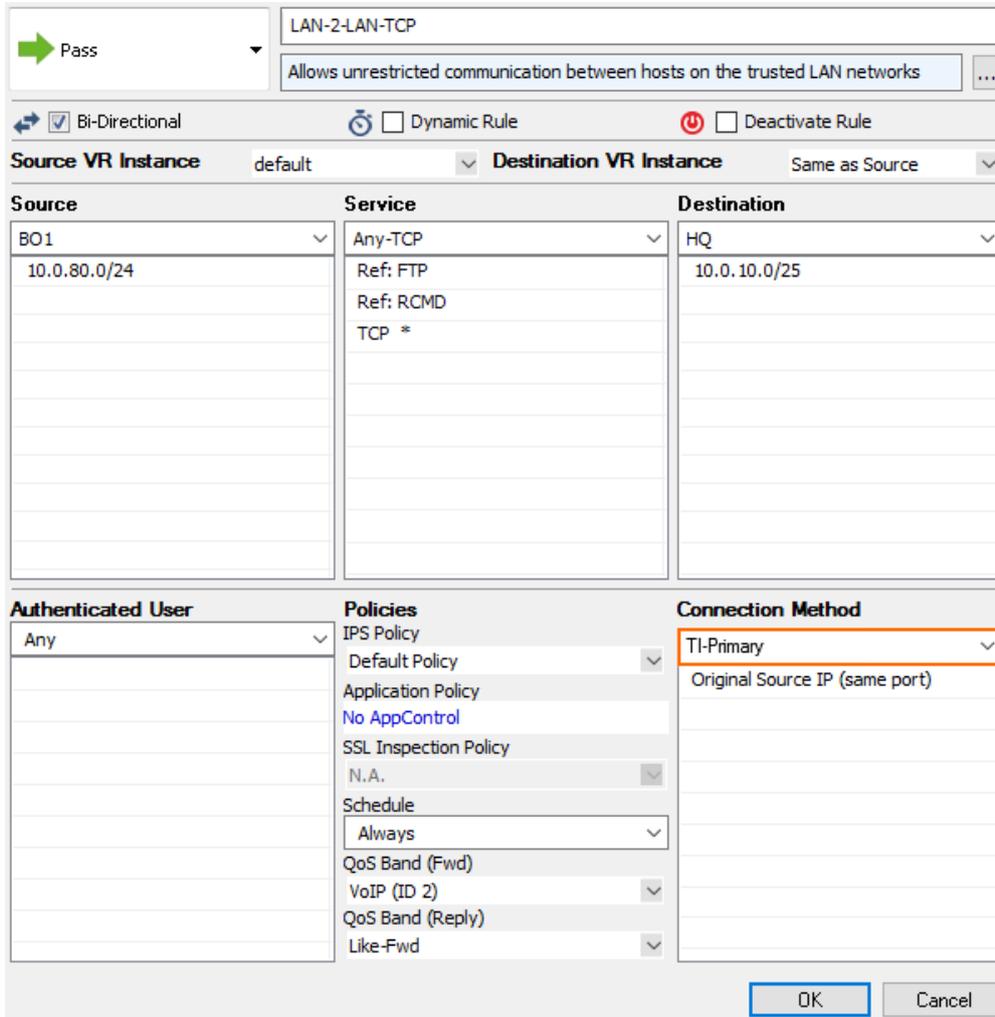
SD-WAN Learning Policy: **Secondary (learn SD-WAN settings from partner)**

- Click **OK**.
- Click **Send Changes** and **Activate**.

Step 4. Modify Access Rule on the Firewall Acting as SD-WAN Primary

- Go to **CONFIGURATION > Configuration Tree > Box > Assigned Services > Firewall > Forwarding Rules**.
- Click **Lock**.
- Right-click the ruleset and select **New > Rule** to create an access rule to match the VPN traffic you want to balance:
 - Action** - Select **Pass**.
 - Bi-Directional** - Select the check box to apply the rule in both directions.
 - Source** - Select a network object for all local networks.
 - Service** - Select a service object from the list.
 - Destination** - Select the network object containing the remote networks.
 - Connection Method** - Select the connection object for the SD-WAN primary created in

Step 2.



LAN-2-LAN-TCP

Allows unrestricted communication between hosts on the trusted LAN networks

Bi-Directional Dynamic Rule Deactivate Rule

Source VR Instance: default Destination VR Instance: Same as Source

Source	Service	Destination
BO1 10.0.80.0/24	Any-TCP Ref: FTP Ref: RCMD TCP *	HQ 10.0.10.0/25

Authenticated User	Policies	Connection Method
Any	IPS Policy Default Policy Application Policy No AppControl SSL Inspection Policy N.A. Schedule Always QoS Band (Fwd) VoIP (ID 2) QoS Band (Reply) Like-Fwd	TI-Primary Original Source IP (same port)

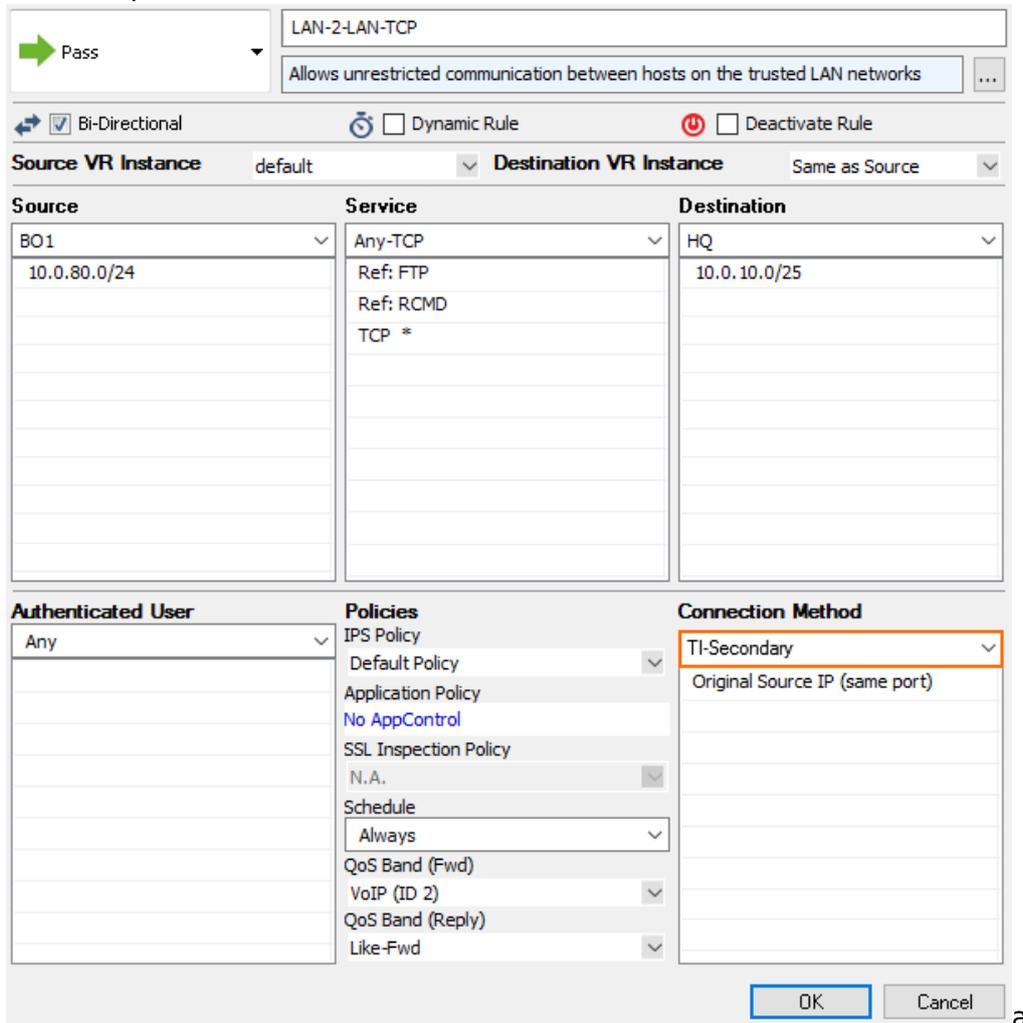
OK Cancel

4. Click **OK**.
5. Click **Send Changes** and **Activate**.

Step 5. Modify Access Rule on the Firewall Acting as SD-WAN Secondary.

1. Go to **CONFIGURATION > Configuration Tree > Box > Assigned Services > Firewall > Forwarding Rules**.
2. Click **Lock**.
3. Right-click the ruleset and select **New > Rule** to create an access rule to match the VPN traffic you want to balance:
 - **Action** - Select **Pass**.
 - **Bi-Directional** - Select the check box to apply the rule in both directions.
 - **Source** - Select a network object for all local networks.
 - **Service** - Select a service object from the list.
 - **Destination** - Select the network object containing the remote networks.
 - **Connection Method** - Select the connection object for the SD-WAN secondary created in

Step 3.



Pass

LAN-2-LAN-TCP

Allows unrestricted communication between hosts on the trusted LAN networks

Bi-Directional Dynamic Rule Deactivate Rule

Source VR Instance: default Destination VR Instance: Same as Source

Source	Service	Destination
BO1 10.0.80.0/24	Any-TCP Ref: FTP Ref: RCMD TCP *	HQ 10.0.10.0/25

Authenticated User	Policies	Connection Method
Any	IPS Policy: Default Policy Application Policy: No AppControl SSL Inspection Policy: N.A. Schedule: Always QoS Band (Fwd) VoIP (ID 2) QoS Band (Reply) Like-Fwd	TI-Secondary Original Source IP (same port)

OK Cancel

4. Click **OK**.
5. Click **Send Changes** and **Activate**.

Traffic matching these access rules and using the VPN transports are now balanced per packet within the transport class.

Figures

1. TI_packet_balacing_01.png
2. TI_packet_balacing_02 (1).png
3. TI_session_balacing_01a.png
4. TI_session_balacing_01b.png
5. TI_session_balacing_01c.png
6. TI_packet_balacing_02.png
7. TI_session_balacing_01e.png
8. TI_packet_balacing_051.png
9. TI_packet_balacing_05.png

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