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

<https://campus.barracuda.com/doc/79462910/>

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.

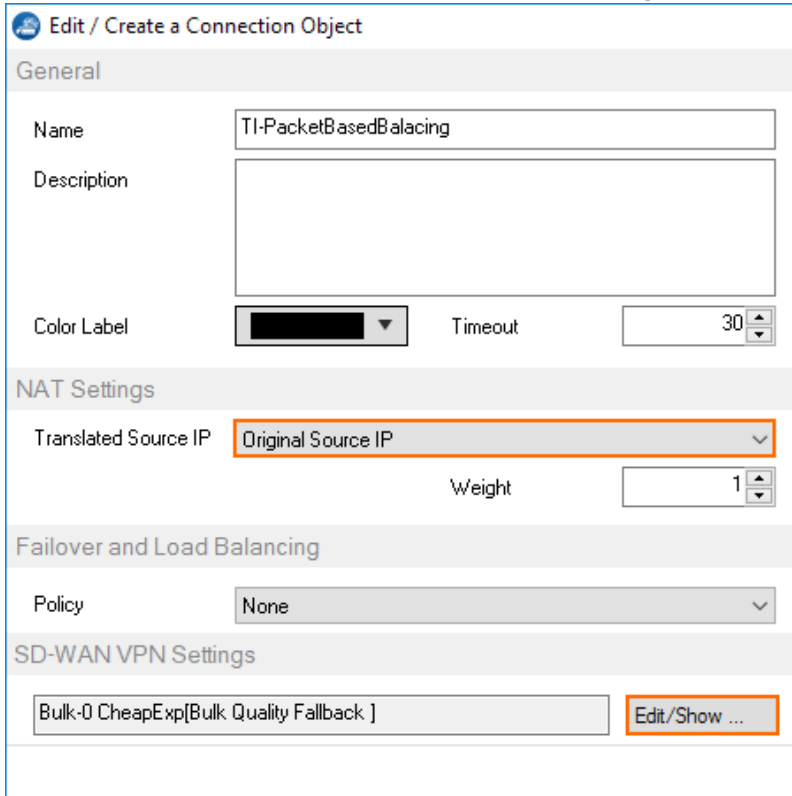
1. Go to **CONFIGURATION > Configuration Tree > Box > Assigned Services > VPN-Service > Site to Site VPN**.
2. Click **Lock**.
3. Double-click the TINA VPN tunnel. The **TINA Tunnel** window opens.
4. Click the **Advanced** tab.
5. From the **Packet Balancing** list, select **Cycle within a Transport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

Basics	SD-WAN - Bandwidth Protection	SD-WAN - VPN Envelope Policy	Advanced	Scripts			
HW Acceleration	Use Acceleration Card (if present) <input type="checkbox"/>	Key Time Limit	10 mins	Tunnel Probing	30 secs	High Performance Settings	<input type="checkbox"/>
Packet Balancing	Cycle within a Transport Class	Key Traffic Limit	No Limit	Tunnel Timeout	20 secs	Routing Next-Hop	0.0.0.0
WANOpt Policy	NO-WANOpt	WANOpt is disabled					

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

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

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-PacketBasedBalacing

Description:

Color Label: Timeout: 30

NAT Settings

Translated Source IP: Original Source IP

Weight: 1

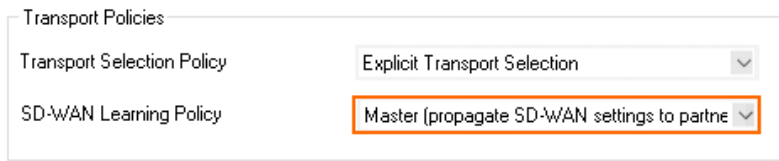
Failover and Load Balancing

Policy: None

SD-WAN VPN Settings

Bulk-0 CheapExp[Bulk Quality Fallback]

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 **Master**.

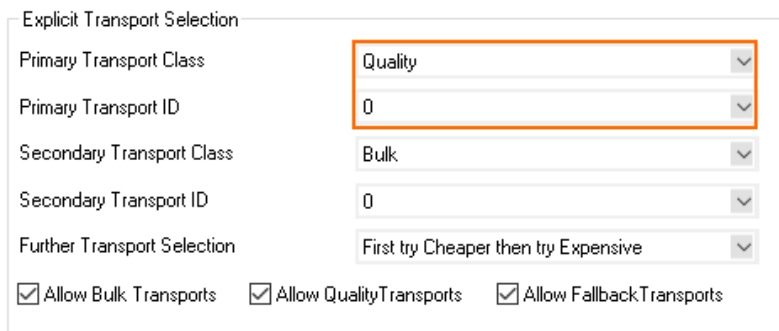


Transport Policies

Transport Selection Policy: Explicit Transport Selection

SD-WAN Learning Policy: Master (propagate SD-WAN settings to partner)

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



Explicit Transport Selection

Primary Transport Class: Quality

Primary Transport ID: 0

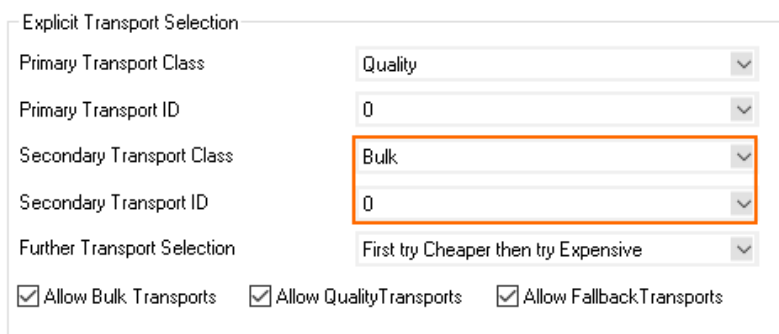
Secondary Transport Class: Bulk

Secondary Transport ID: 0

Further Transport Selection: First try Cheaper then try Expensive

Allow Bulk Transports Allow Quality Transports Allow Fallback Transports

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



Explicit Transport Selection

Primary Transport Class: Quality

Primary Transport ID: 0

Secondary Transport Class: Bulk

Secondary Transport ID: 0

Further Transport Selection: First try Cheaper then try Expensive

Allow Bulk Transports Allow Quality Transports Allow Fallback Transports

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

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

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

Edit / Create a Connection Object

General

Name: TI-PacketBasedBalacing

Description:

Color Label: [Dropdown] 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 **Slave**.

Transport Policies

Transport Selection Policy: Explicit Transport Selection

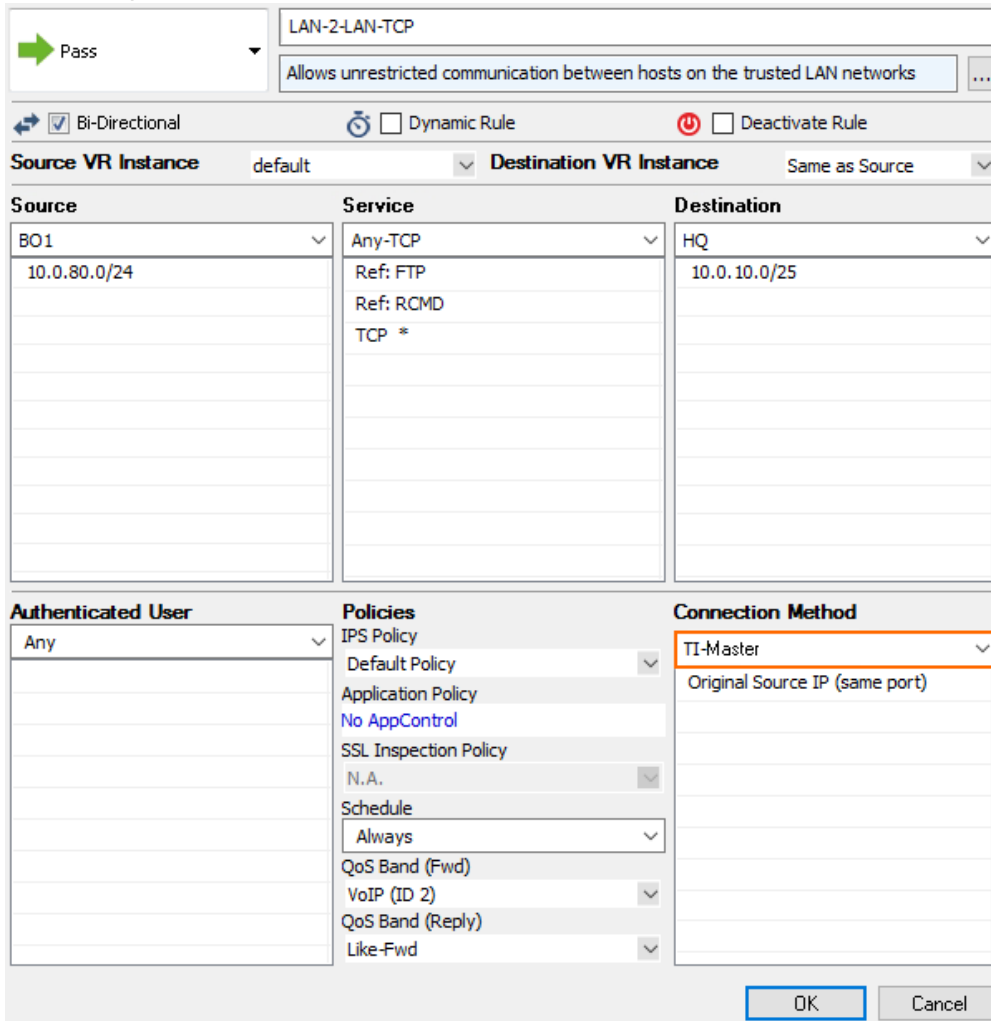
SD-WAN Learning Policy: **Slave (learn SD-WAN settings from partner)**

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

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

- 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 master 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-Master Original Source IP (same port)

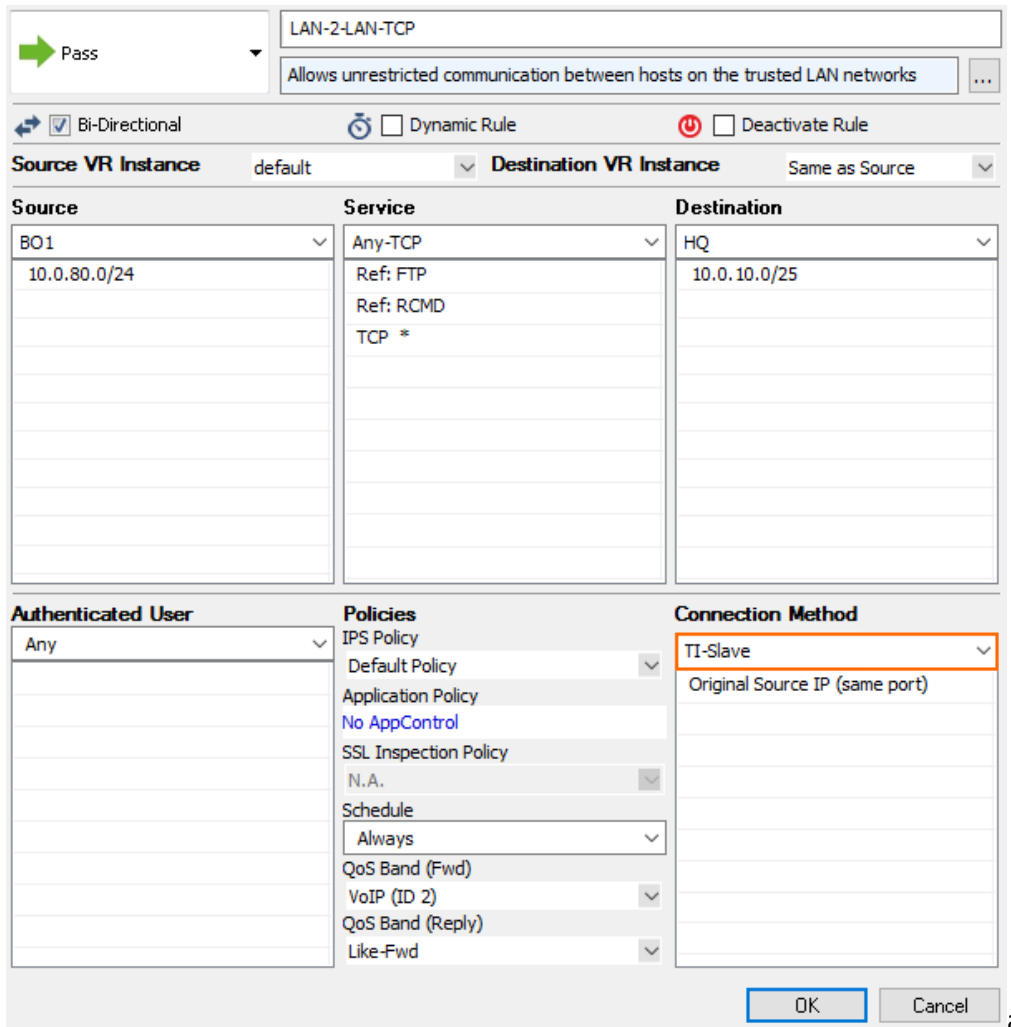
OK Cancel

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

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

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 slave created in Step

3.



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-Slave 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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