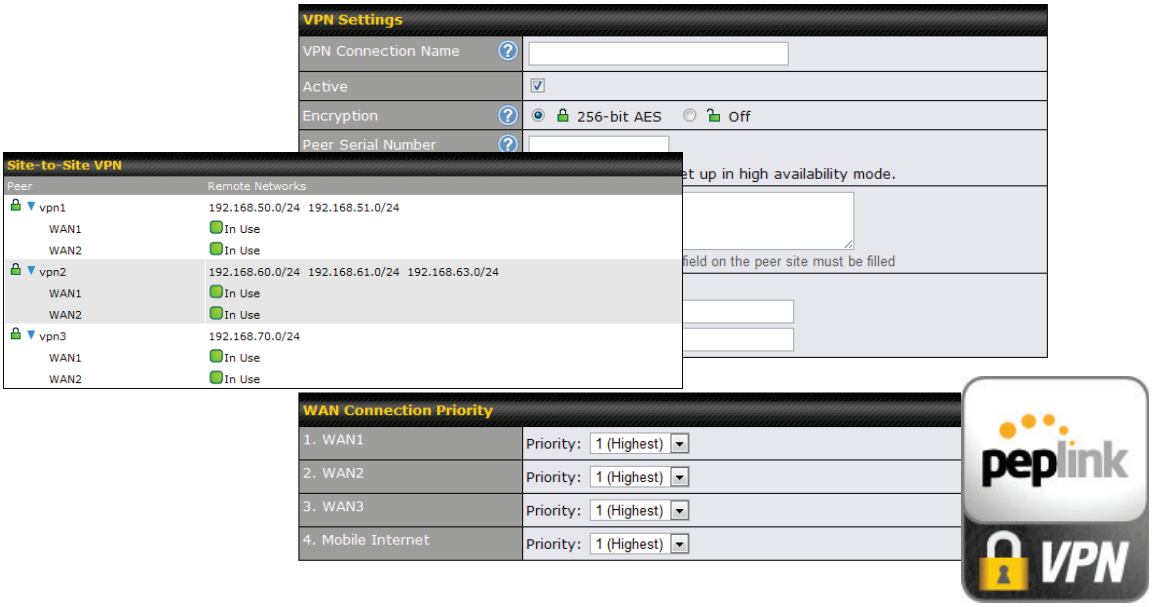
Peplink Balance
VPN Solution Guide





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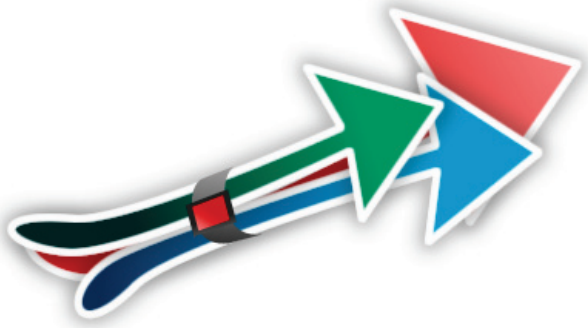
Introduction

Understanding Peplink VPN solutions

Peplink's VPN is a complete, seamless system that tightly integrates your offices and users together, secure and available at all times.

The Peplink router comes with features like VPN load balancing, a built-in PPTP VPN Server, and VPN Bandwidth Bonding. Having both VPN load balancing to connect multiple locations and PPTP to enable remote access frees you from buying extra devices. With VPN Bandwidth Bonding, all of your available bandwidth will become one big Internet pipe, allowing faster transfer of large files.

With a Peplink Balance Multi-WAN Router you can enjoy a complete VPN solution that provides you the best VPN experience ever.



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What Does Peplink Balance Offer to Make Your VPN Complete?



Bonded Site-to-Site VPN for Multiple Locations

Peplink's innovative technology establishes and bonds VPN traffic among multiple connections. The VPN Bonding feature allows businesses to connect to multiple locations with military-grade protection. When one Internet connection fails, the VPN failover feature will dynamically route traffic to active connections to maintain uninterrupted VPN service. Session failover takes place seamlessly within just a second.



PPTP VPN Server for Windows and Mac

Even when you are away from the office, you can now connect to the corporate network simply by using the PPTP client found in Windows and Mac OS X. Whether you have forgotten a file at the office or want to upload the latest document update, accessing the office network only takes a few clicks.



256-bit AES VPN Traffic Encryption

Using Peplink Site-to-Site VPN, all of your data going through the VPN tunnel is encrypted with 256-bit AES. Multiple branches can be easily connected with military-grade protection.

Bond Your Bandwidth to Enhance VPN Performance

With the new VPN bonding feature, sending a gigabyte file to your neighbor site is no longer a hassle. Peplink's technology aggregates bandwidth from all connections and transfers data at the packet-level. Communication between your remote sites has never been faster.



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How Can Peplink Balance Give You the Best VPN Experience Ever?



Save Money with a Single-Device Complete Solution

Separate devices are not needed for extra VPN capacity. Peplink Balance comes with everything you need - both Site-to-Site VPN to easily connect multiple sites and the PPTP-VPN Server to enable remote access. Save money and enjoy all the advantages of a complete VPN with Peplink.

Ease-Of-Use of Peplink's VPN Technology

Peplink Balance is designed for you and is extremely easy to set up. You don't need to be a professional to configure the Peplink VPN settings. Just enter a few parameters and a VPN tunnel will be established.

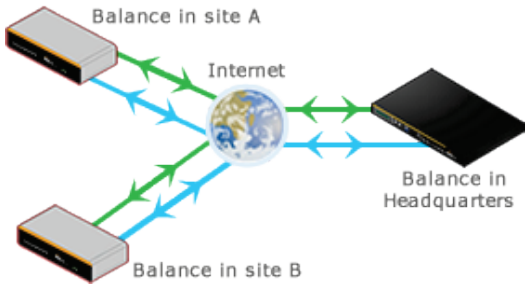
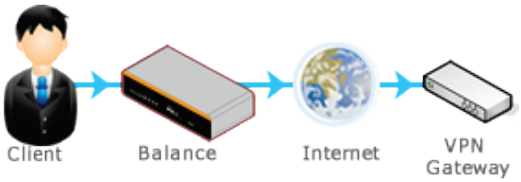


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Which VPNs does Peplink Balance support?

Peplink Balance support different VPN protocol in the following settings:

- **VPN Termination**: having the device to perform the actual encryption/decryption and operations that make the VPN secure
- **VPN Passthrough**: having the device installed as an intermediate part of a secure VPN, requires additional VPN gateway.

	Remote User VPN	Site-to-Site VPN
Termination	 PPTP Termination (refer to page 15)	 Peplink Site-to-Site VPN (refer to page 10)
Passthrough	 PPTP Passthrough (refer to page 16) IPSec Passthrough (refer to page 17)	 IPSec Passthrough (refer to page 17)

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Why use Peplink Site-to-Site VPN instead of IPSec VPN?

Designed for Multi-WAN.

Peplink Site-to-Site VPN establishes concurrent VPN tunnels on each WAN connection. By utilizing multiple Internet links, Peplink Site-to-Site VPN gives you a bonded bandwidth and instant failover. IPSec VPN technology can only establish a single tunnel to each terminal and limits its usage.



Bonded Bandwidth.

With multiple concurrent VPN tunnels established, VPN traffic is distributed and bonded at each VPN terminal. The bonded VPN uses all your Internet links, maximizing the bandwidth available to you.

Resilience to Internet Outage.

The concurrent VPN tunnels will also back each other up when a disconnection occurs. By routing traffic to healthy tunnels, VPN sessions are maintained with zero downtime. IPSec VPN requires significant time to detect a disconnection and re-establish the connection. Failover of IPSec can take as much as 5 minutes.

Build-in Dynamic Routing.

Peplink Site-to-Site VPN gives you the flexibility to route either all traffic or only private network traffic to the remote terminal. You can easily set up a star topology VPN network and pass all traffic through central site appliances, such as a firewall. You can also set up a mesh network with only private network traffic passing through the VPN.



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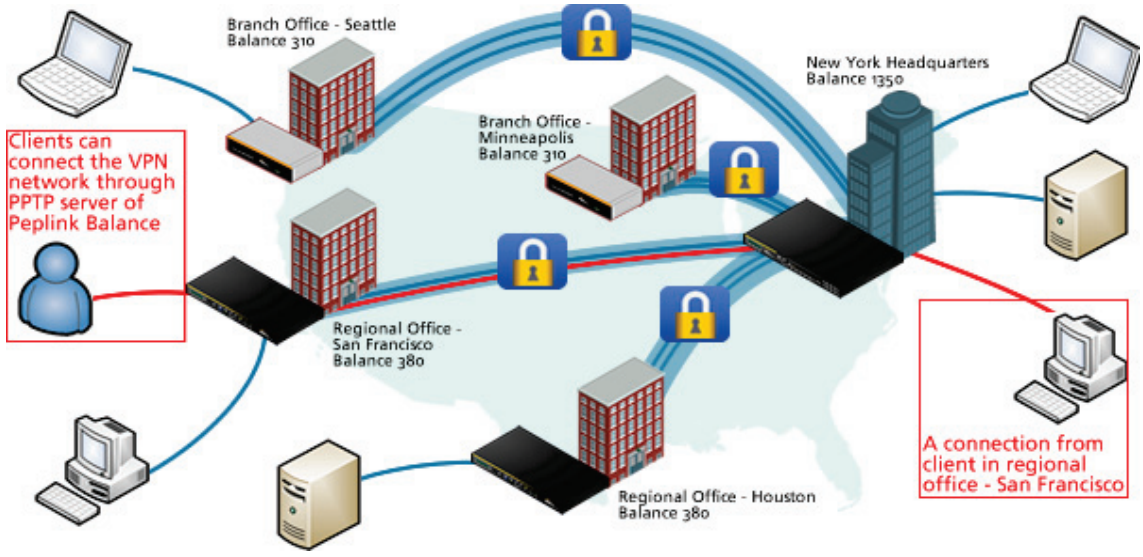
Application

Understanding Peplink Site-to-Site VPN

Proprietary Site-to-Site VPN of Peplink Balance, also known as VPN Bonding, is specifically designed for multi-WAN environment. Peplink Balance can aggregate the bandwidth of all WAN connections available for routing VPN traffic. Unless all the WAN connections of one site are down, the Peplink Balance can still maintain VPN up and running.

- Peplink Site-to-Site VPN encrypts traffic with the military-grade 256-bit AES algorithm.
- Site-to-Site VPN is available with Peplink Balance 210, 310, 380, 580, 710, and 1350.
- Peplink Balance 380/580/710/1350, supporting multiple Site-to-Site VPN connections among twenty or more locations, is designed for Headquarters/Regional Offices.
- Peplink Balance 210/310, supporting two Site-to-Site VPN connection, is the ideal choice for Branch Offices.
- Site-to-Site VPN connection can be established for all Dynamic IP/Static IP scenarios. Please refer to the Requirement section for more information.
- Peplink recommends firmware 5.1+ for the best Site-to-Site VPN experience.

Being able to establish multiple VPN connections provides variety and flexibility in deploying your network. You may choose to create a network in a **Mesh** or **Star** topology, or you may even combine the two setups to create a more complex network.

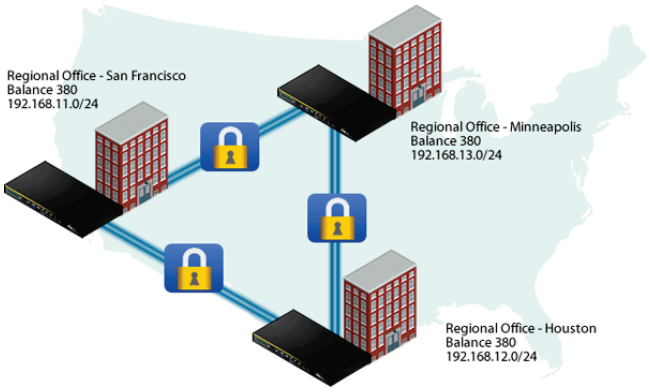


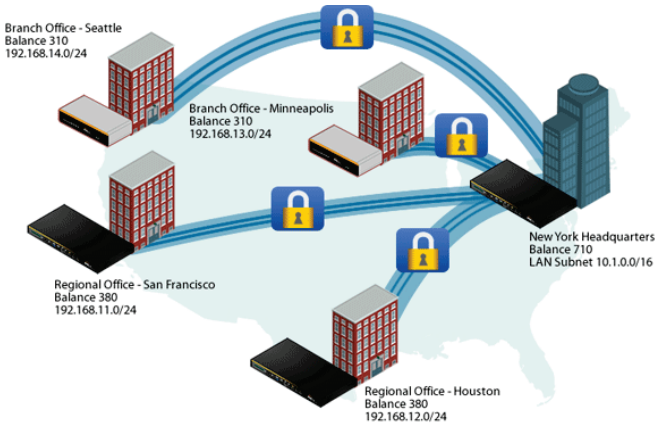
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1. Mesh Topology

In the illustration on the right, the network is composed of three Peplink Balance 580 units. Each unit has established VPN connections to connect to the other two units directly. In case of a VPN connection down between any two locations, this setup provides an alternative path to route VPN traffic. For instance, if there is a VPN connection down between offices in San Francisco and Minneapolis, these two offices can still route VPN traffic through the Houston office.

Each Peplink Balance being used in this network has to be a Peplink Balance 380/580/710/1350 (supports multiple VPN connections).





2. Star Topology

A Peplink Balance 380/580/710/1350 can act as a central hub to connect branch offices. As shown in the illustration on the left, the offices in San Francisco and Minneapolis make Site-to-Site VPN connections to their headquarters in New York independently. Both offices' LAN subnet and subnets behind it will be advertised to headquarters in New York and the offices in other locations. In this case, San Francisco office will be able to access Minneapolis office through the New York headquarters even though they are not directly connected to each other.

Note: All branch offices' LAN subnet and subnets behind it have to be unique. Otherwise, branch offices as well as the headquarters will not be able to access each other.

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Requirement

System Requirement for Site-to-Site VPN Configuration

When configuring a VPN connection, there are two aspects to consider:

- Whether WAN connection has a **Dynamic IP** or **Static IP**.
- Whether Peplink Balance unit has **Public IP** or is **behind NAT**.

Therefore, there are four possibilities for the types of WAN you use to establish the VPN connection. Peplink Balance supports all WAN types. However, to establish VPN connection using a Dynamic IP WAN connections, you have to configure at least one Dynamic DNS.

- WAN has Dynamic IP with Peplink Balance has Public IP.
- WAN has Static IP with Peplink Balance has Public IP.
- WAN has Dynamic IP with Peplink Balance is behind NAT.
- WAN has Static IP with Peplink Balance is behind NAT.

The table below illustrates the system requirement for configuring Peplink Site-to-Site VPN connection.

		WAN on Peplink Balance A			
		Dynamic IP / Peplink unit has Public IP	Static IP / Peplink unit has Public IP	Dynamic IP / Peplink unit is behind NAT	Static IP / Peplink unit is behind NAT
WAN on Peplink Balance B	Dynamic IP / Peplink unit has Public IP	✔ (using Dynamic DNS)	✔ (using Dynamic DNS)	✔ (using Dynamic DNS)	✔ (using Dynamic DNS)
	Static IP / Peplink unit has Public IP	✔ (using Dynamic DNS)	✔	✔ (using Dynamic DNS)	✔
	Dynamic IP / Peplink unit is behind NAT	✔ (using Dynamic DNS)	✔ (using Dynamic DNS)	✔ (using Dynamic DNS)	✔ (using Dynamic DNS)
	Static IP / Peplink unit is behind NAT	✔ (using Dynamic DNS)	✔	✔ (using Dynamic DNS)	✔

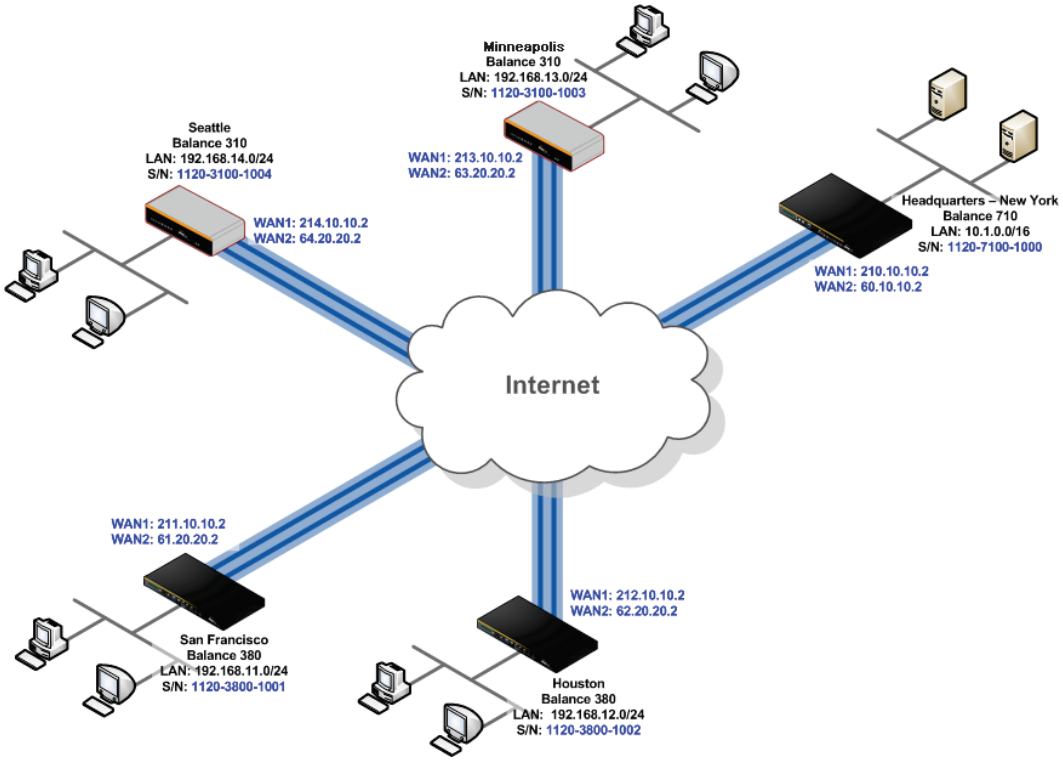
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Configuration (VPN Termination)

Configuring Site-to-Site VPN Tunnel for Star Scenario

Site-to-Site VPN of Peplink Balance is specifically designed for multiple WAN environments. It can aggregate the bandwidth of all available WAN connections for routing between multiple locations.

In the following illustration, a Peplink Balance 710 in New York will act as a central site to connect four branch offices together to form an internal network. All remote offices in San Francisco, Houston, Minneapolis and Seattle make Site-to-Site VPN connections to the headquarters in New York independently. In this case, all branch offices will be able to access each other through the New York headquarters even though they are not directly connected.



Add the VPN connections in the New York Headquarters' Peplink Balance unit

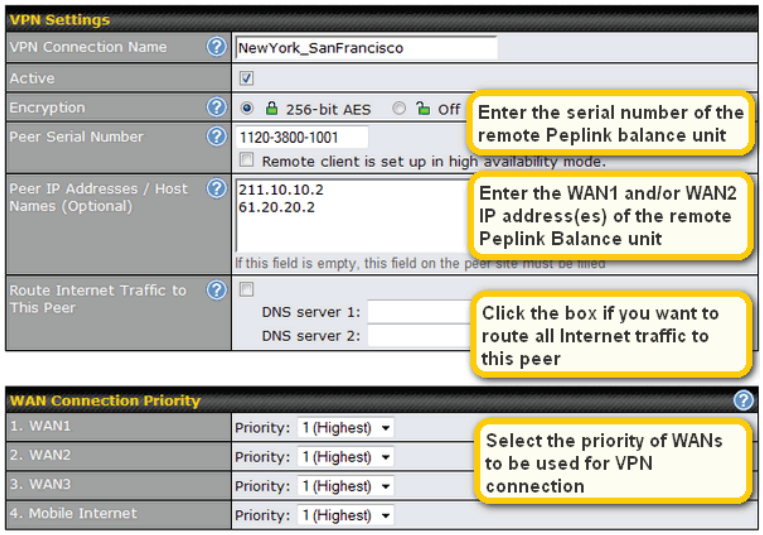
1. Click Add VPN Connection for adding San Francisco remote peer.



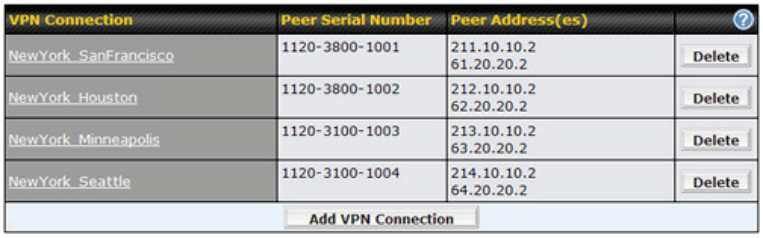
2. Enter a VPN connection name. We suggest using a readable wording for easier recognition.

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3. Enter the Serial Number of the remote Peplink Balance unit (Serial number of Peplink Balance 380 in San Francisco).
4. Enter the WAN1 and WAN2 IP of San Francisco's unit.
5. In WAN Connection Priority, if you select all WAN connections in the same priority, the Site-to-Site VPN traffic will be load-balanced across all available bandwidth.



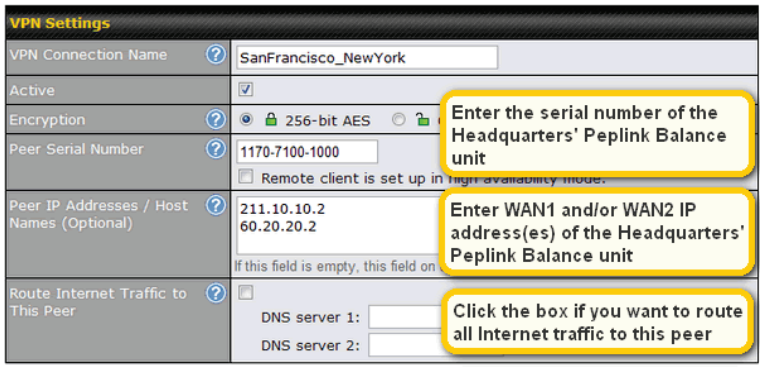
6. Similarly, repeat Step 1 through 5 to add the VPN connections for Houston, Minneapolis and Seattle in New York's Peplink Balance 710 as shown in the following illustration.



Add a VPN connection on remote peers

1. In the Peplink Balance 380 of San Francisco, click Add VPN Connection.
2. Enter a VPN connection name.
3. Enter the Serial Number of the Headquarters' Peplink Balance unit (Serial number of Peplink Balance 710 in New York)
4. Enter the WAN1 and WAN2 IP of New York's unit

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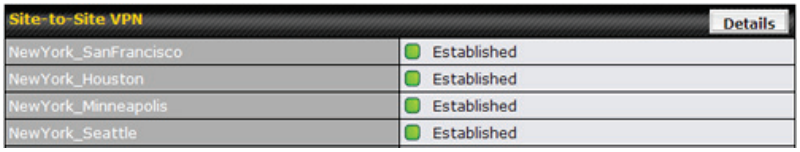




5. Similarly, repeat Step 1 through 4 to add the VPN connections in Houston, Minneapolis and Seattle.

Finally, you can view the VPN connections status in Main page of Web Admin Interface

The following is Main page of Headquarters' Peplink Balance 710. Click on the **Details** (or at ***Status > Site-to-Site VPN***) and a list of VPN connection details would be shown.

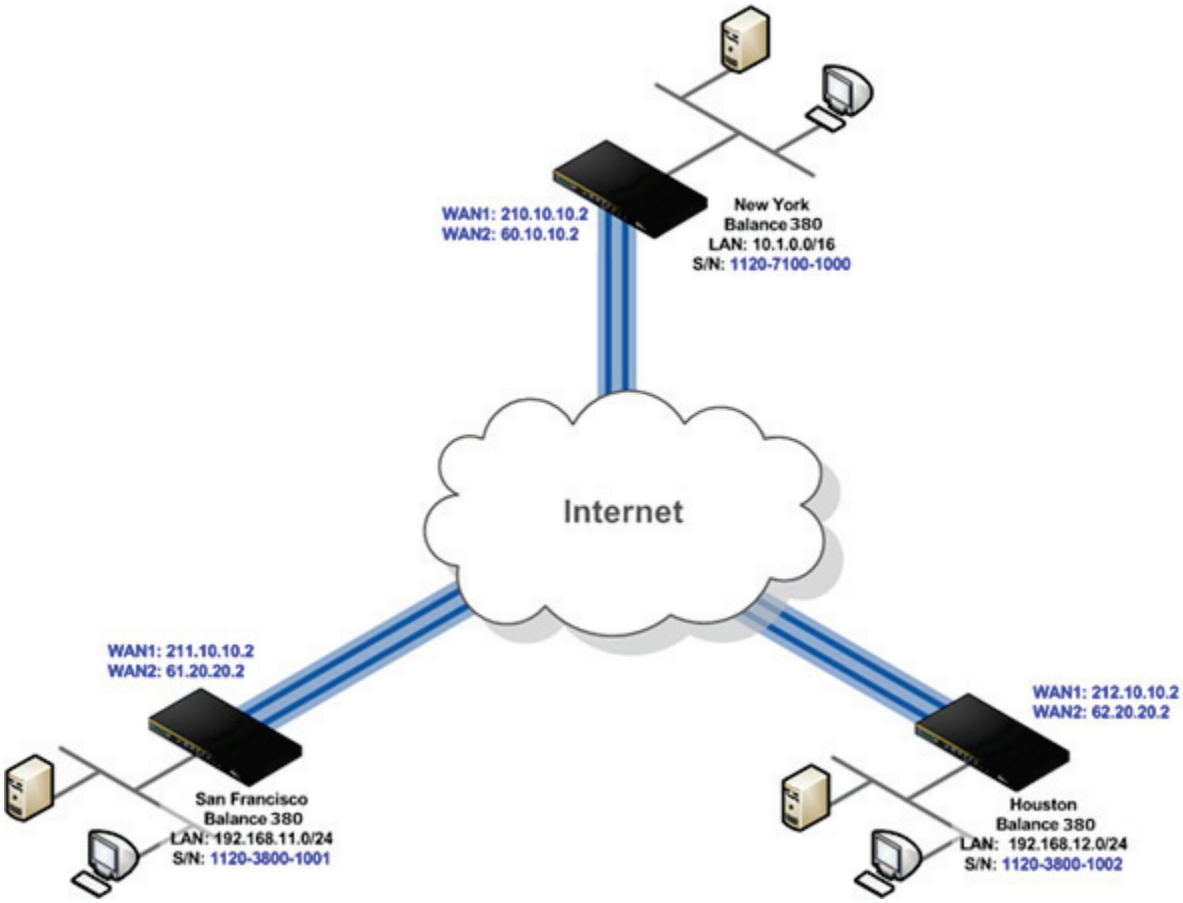


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Configuring Site-to-Site VPN Tunnel for Mesh Scenario

Site-to-Site VPN of Peplink Balance is specifically designed for multiple WAN environments. It can aggregate the bandwidth of all available WAN connections for routing between multiple locations.

In the following illustration, the network is composed of three Peplink Balance 380 units. In this case, the traffic of all offices can be able to access each other directly.



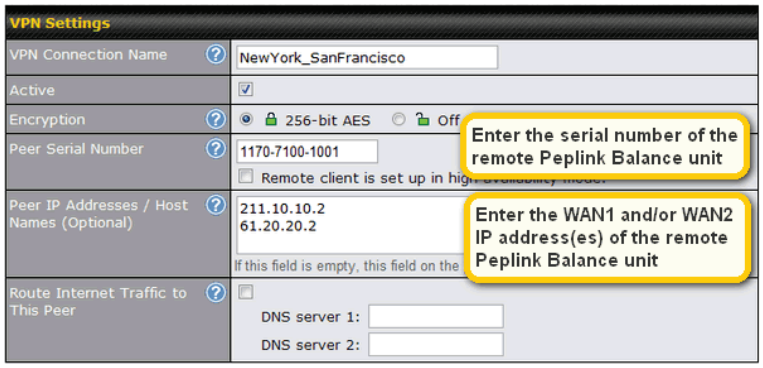
Add the VPN connections in the New York's Peplink Balance unit

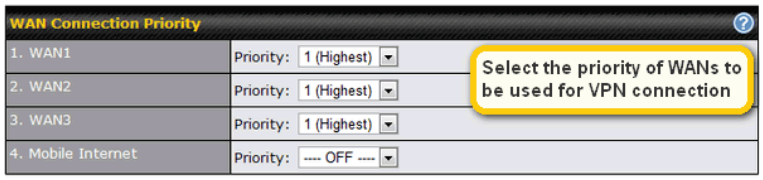
1. Click **Add VPN Connection** for adding San Francisco remote peer.



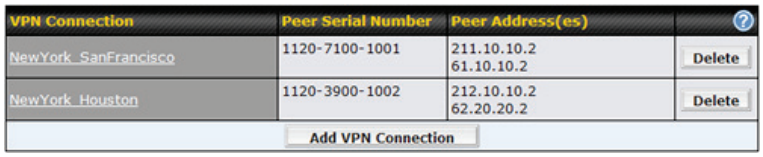
2. Enter a **VPN connection name**. We suggest using a readable wording for easier recognition.
3. Enter the Serial Number of the remote Peplink Balance unit (Serial number of Peplink Balance 380 in San Francisco).
4. Enter the WAN1 and/or WAN2 IP of San Francisco's unit.
5. In **WAN Connection Priority**, if you select all WAN connections in the same priority, the Site-to-Site VPN traffic will be load-balanced across all available bandwidth.

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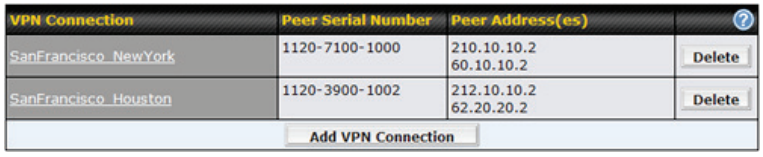


6. Similarly, repeat Step 1 through 5 to add the VPN connection for Houston in New York's Peplink Balance 380 as shown in the following illustration.



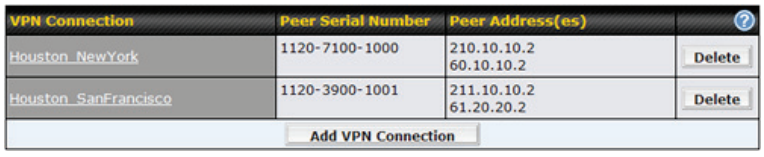
Add the VPN connections on San Francisco peer

Similarly, repeat Step 1 through 6 from above to add the VPN connections in San Francisco's Peplink Balance 380 as shown in the following illustration.



Add the VPN connections on Houston peer

Similarly, add the VPN connections in Houston's Peplink Balance 380

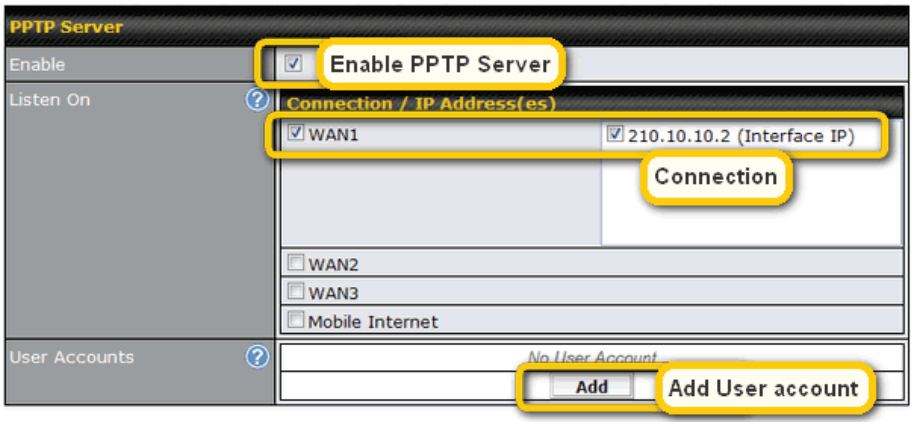


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Setup User Access VPN using Built-in PPTP Server

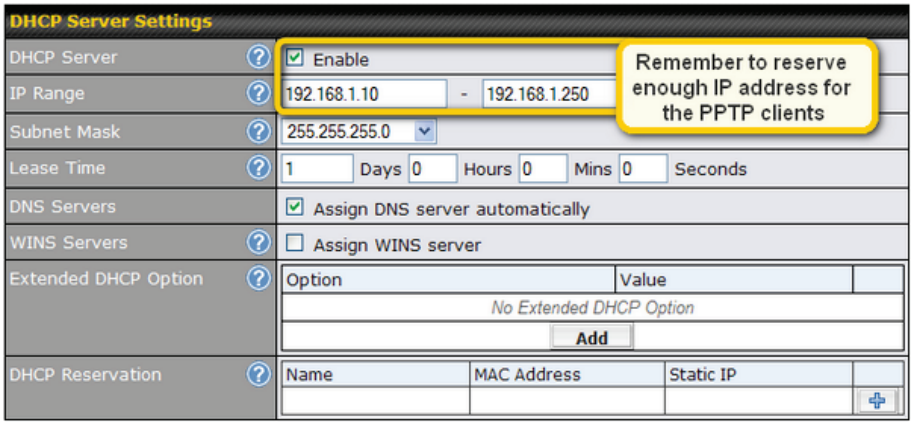
Peplink Balance has a built-in PPTP Server, which enables remote computers to conveniently and securely access the local network.

1. Open the Web Admin Interface and go to *Network > Misc. Settings > PPTP Server.*



2. **Enable:** Check the box to switch on the PPTP server.
3. **Listen On:** it is for specifying the WAN connection(s) and IP address(es) where the PPTP server should listen on.
4. **User Accounts:** It allows you to define the PPTP User Accounts. Click **Add** to type username and password to create an account. After adding the user accounts, you can click on a username to edit the account password. Click the button ✖ to delete the account in its corresponding row.

IMPORTANT NOTE: To enable the feature of PPTP server, it is required to enable the DHCP server on LAN side. Please make sure that you have checked the box to **Enable** DHCP server and reserve enough IP addresses for your PPTP clients. The DHCP Server Settings is located at: *Network > LAN > DHCP Server Settings*



The name of connected PPTP clients can be checked at: **Status > Client List**

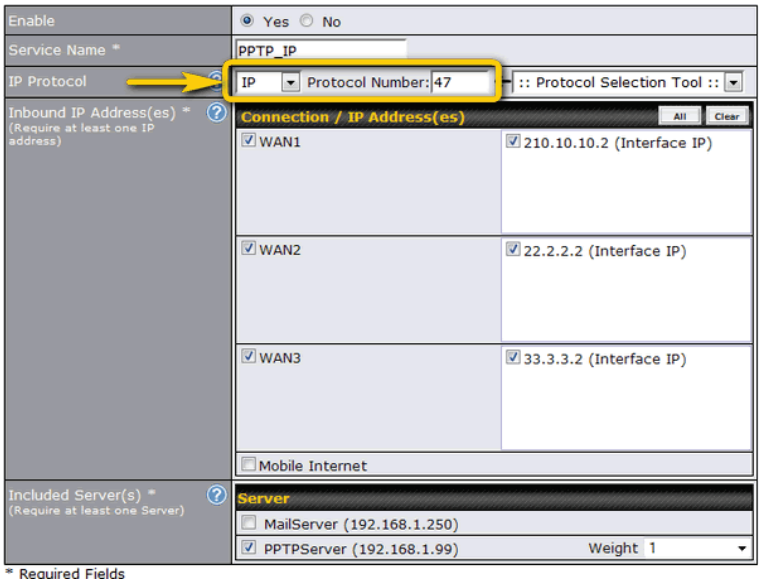
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Configuration (VPN Passthrough)

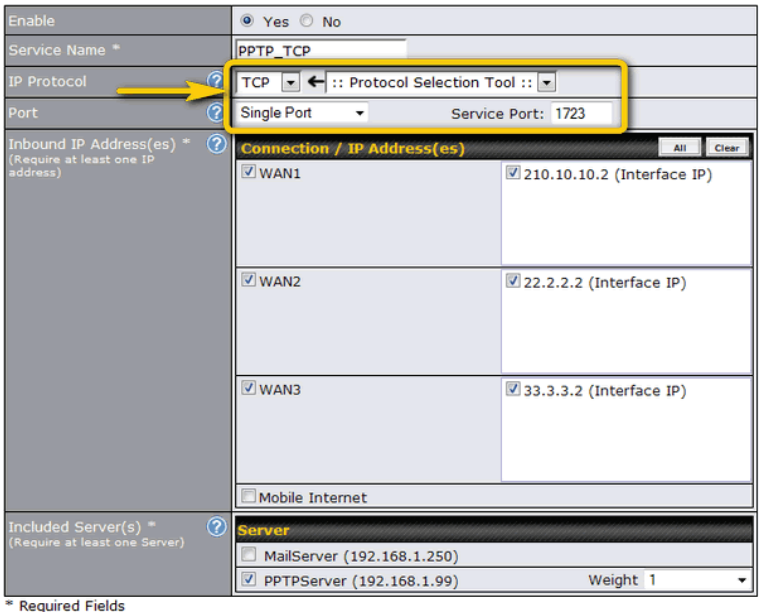
Setup PPTP Passthrough

PPTP passthrough of Peplink Balance is enabled by default. In order to allow remote PPTP clients connect the PPTP server behind the Peplink Balance unit, you would need to create two **Inbound Access rules** to accomplish the following:

- Forward traffic of **IP protocol 47** of public IP to the PPTP server



- Forward traffic **TCP 1723** of public IP to the PPTP server



Remember to **Save** all settings and **Apply Changes**.

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Setup IPSec Passthrough

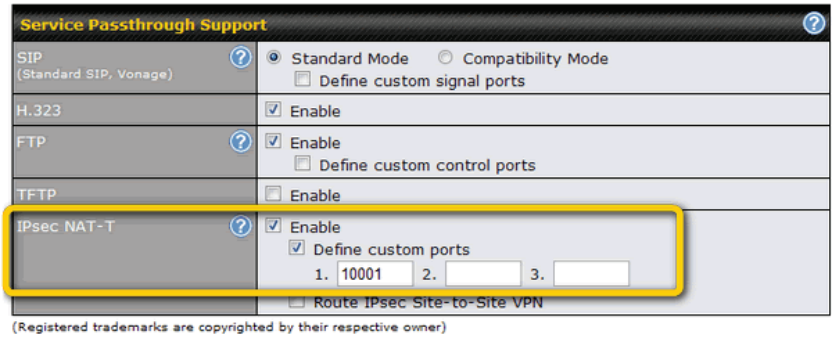
The first step is to determine which of the following scenarios apply:

- Dial-up IPSec VPN
- Site-to-Site IPSec VPN

Dial-up IPSec VPN

Dial-up IPSec VPN is a setup where IPSec VPN client software is installed on computers on the local area network, and the IPSec VPN client software would then connect to an IPSec VPN gateway outside of the local network environment.

In this instance, enable IPSec NAT-T Passthrough which can be found at ***Network > Misc. Settings > Service Passthrough*** of Web Admin Interface.



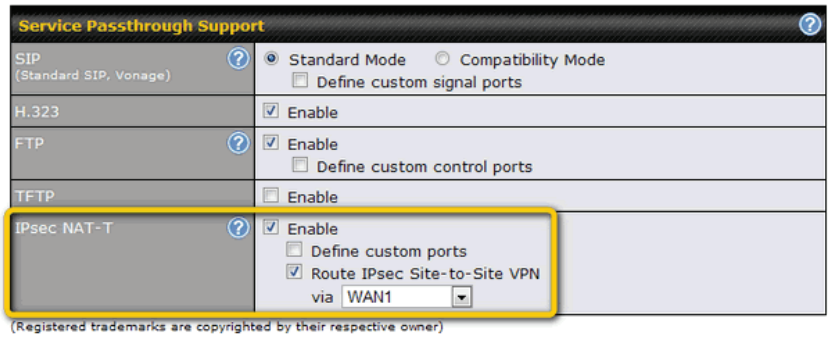
Site-to-Site IPSec VPN

Site-to-site IPSec VPN is the scenario where there are IPSec VPN gateways on the local area network that handle IPSec VPN connections between the local network environment and remote sites. Computers on the local network connect through the IPSec VPN gateways without the need for IPSec VPN client software.

For Site-to-site IPSec VPN, typically, **one** IP address must be specified for each of the IPSec VPN gateway at each end of the IPSec VPN tunnel. If IPSec VPN sessions initiated from IPSec VPN gateways behind Peplink Balance take place across multiple WAN links, then the IPSec VPN session typically cannot be maintained, because the source IP address changes depending on which WAN link carries the IPSec VPN traffic. As a result, with Site-to-site IPSec VPN, either the IPSec VPN traffic must travel across one specific WAN link, or the remote IPSec VPN gateway must accept multiple/any IP address for the VPN initiator.

To deploy Peplink Balance in the context of a Site-to-site IPSec VPN, configure Peplink Balance to route IPSec VPN traffic over one specific WAN link as follows:

1. Go to ***Network > Misc. Settings >Service Passthrough***.
2. Enable **IPSec NAT-T Passthrough**; check the option **Route IPSec Site-to-Site VPN** and select the WAN connection to route the IPSec VPN traffic to.

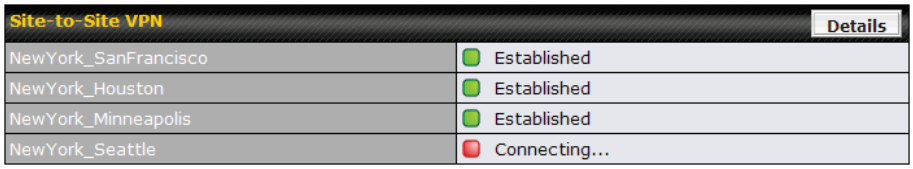


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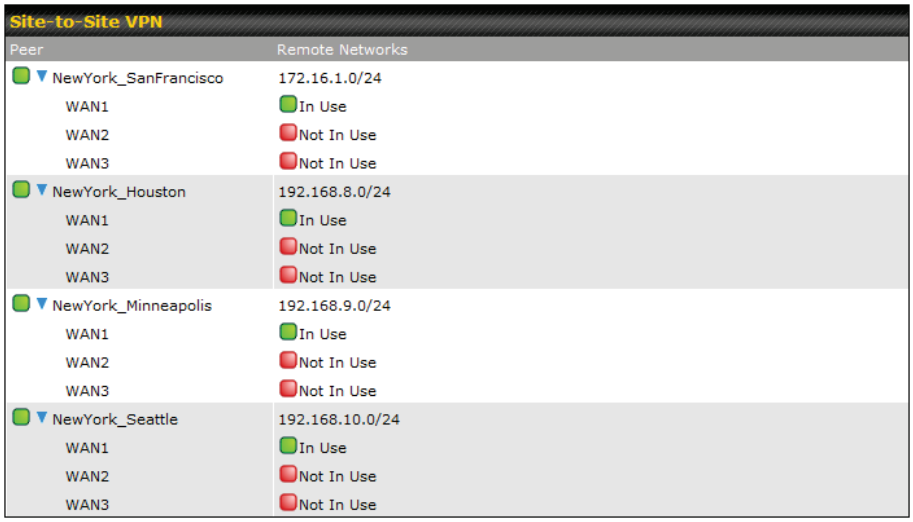
VPN Status

Site-to-Site VPN Status

On the Dashboard of Web Admin Interface, you can see the status of VPN connection(s) as shown below.

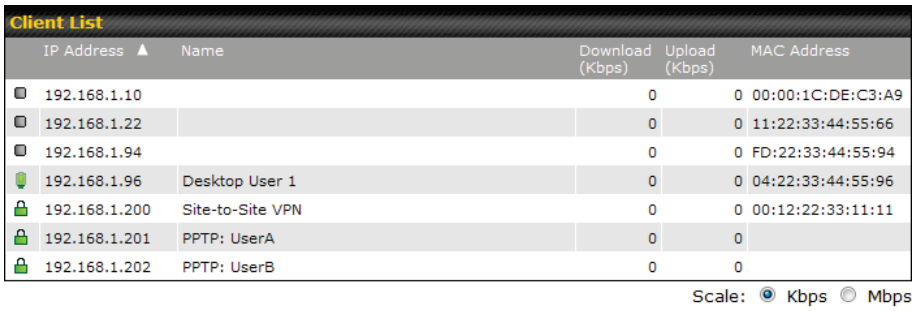


Click **Details** at the top-right hand corner for VPN connections details. You may click on a corresponding VPN connection and the WAN connection it used will be shown as follow.



PPTP VPN Status

Site-to-Site VPN connections and connected PPTP clients can be checked at: ***Status > Client List***



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About Peplink

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Peplink is the proven market leader in delivering Internet link load balancing solutions. Peplink's products have been deployed by service providers, public safety agencies, city governments and enterprise customers around the world. As an innovative creator of technology solutions, Peplink operates globally with offices in North America and Asia in cooperation with distributors, system integrators and strategic alliance partners.

Contact Us

http://www.peplink.com/contact/

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