

Setup WireGuard Site to Site VPN Tunnel on pfsense 2.7.2

This guide was inspired by [Marcus Rath](#)

Introduction

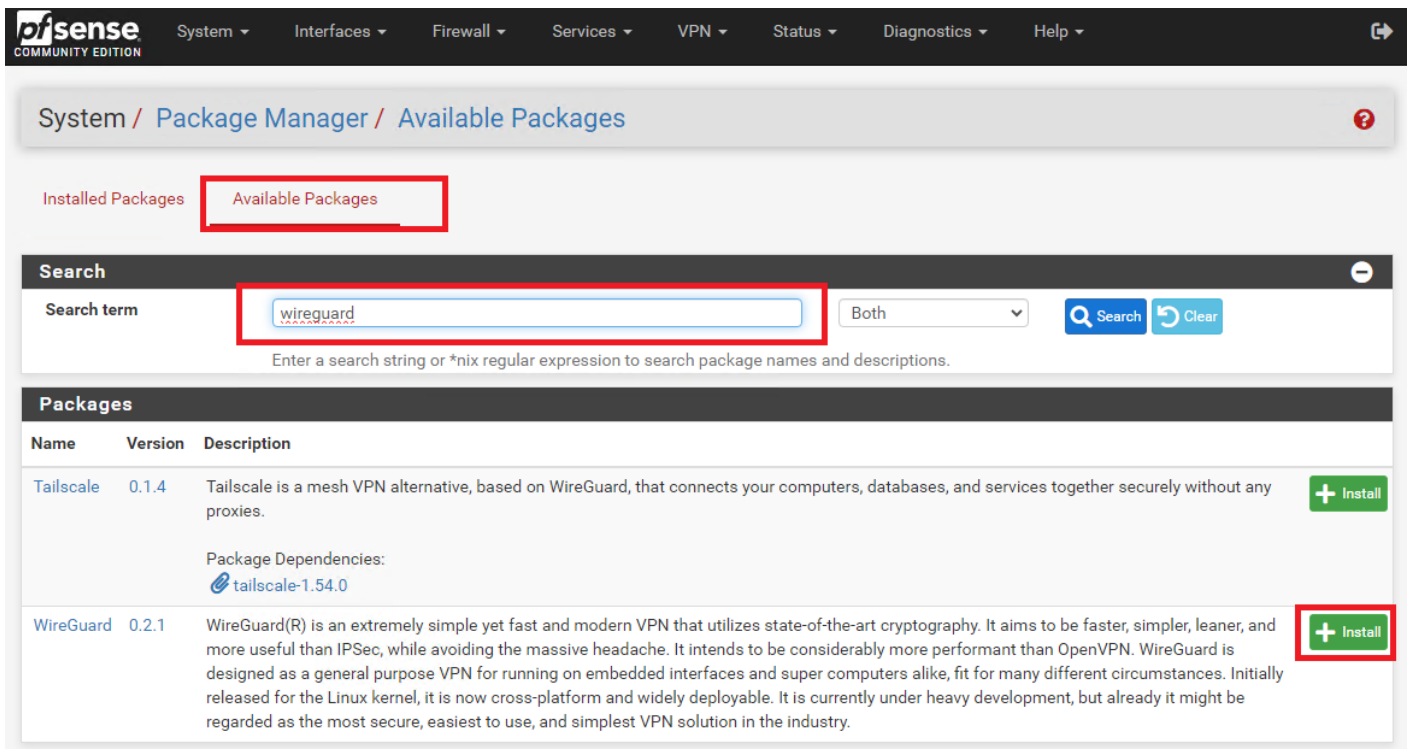
This guide will walk you through setting up a WireGuard site to site VPN tunnel on pfsense 2.7.2. For this guide we assume **Site A** with a **network subnet of 192.168.1.0/24**, **Site B with a network subnet of 192.168.24.0/24** and a **Tunnel Subnet of 10.10.12.0/30**. Obviously adjust these settings to your specific needs.

Ensure that the **Tunnel Subnet** you choose does NOT overlap with any other network subnets currently in use in your network environment.

Install WireGuard Package on Both Sites

On **BOTH** site pfsense installations, install the **WireGuard package from System ---> Package Manager ---> Available Packages**. Enter **Wireguard** in the **Search term** field, click search and then click on the **Install** button next to WireGuard package (**Figure 1**).

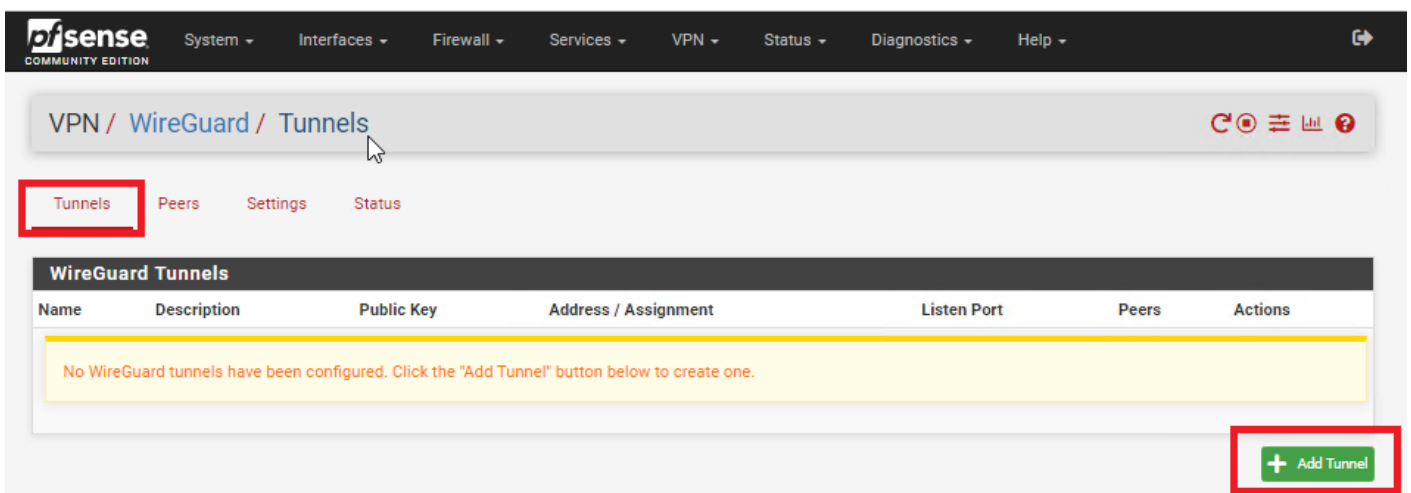
Figure 1



Create Tunnel on Site A

On **Site A**, refresh the pfSense web GUI and navigate to **VPN ---> Wireguard**, click on the **Tunnels** tab and then click on **Add Tunnel** button (**Figure 2**).

Figure 2



In the **Tunnel Configuration** fill/set in the following fields (**Figure 3**):

- **Enable:** Checked
- **Description:** Optionally, describe the purpose of this tunnel (Ex: Tunnel to Site B)
- **Listen Port:** Leave blank to use port UDP/51820 or enter a specific port number you wish to use

- **Interface Keys:** click the **Generate** button to create a new Private/Public key pair and copy the **Public Key** that's generated in order to enter it in the Public Key field on Site B.
- Click the **Save Tunnel** button

Figure 3

VPN / WireGuard / Tunnels / Edit

Tunnels Peers Settings Status

Tunnel Configuration (tun_wg0)

Enable ☒ Enable Tunnel
Note: Tunnel must be enabled in order to be assigned to a pfSense interface.

Description Tunnel to Site B
Description for administrative reference (not parsed).

Listen Port 51820
Port used by this tunnel to communicate with peers.

Interface Keys
Private key for this tunnel. (Required) jux... Public key for this tunnel: (Copy) **Generate** New Keys

Interface Configuration (tun_wg0)

Assignment Interface Assignments

Firewall Rules WireGuard Interface Group

Hint These interface addresses are only applicable for unassigned WireGuard tunnel interfaces.

Interface Addresses
Interface Address / 128 Description
IPv4 or IPv6 address assigned to the tunnel interface. Description for administrative reference (not parsed).

Add Address + Add Address

Peer Configuration

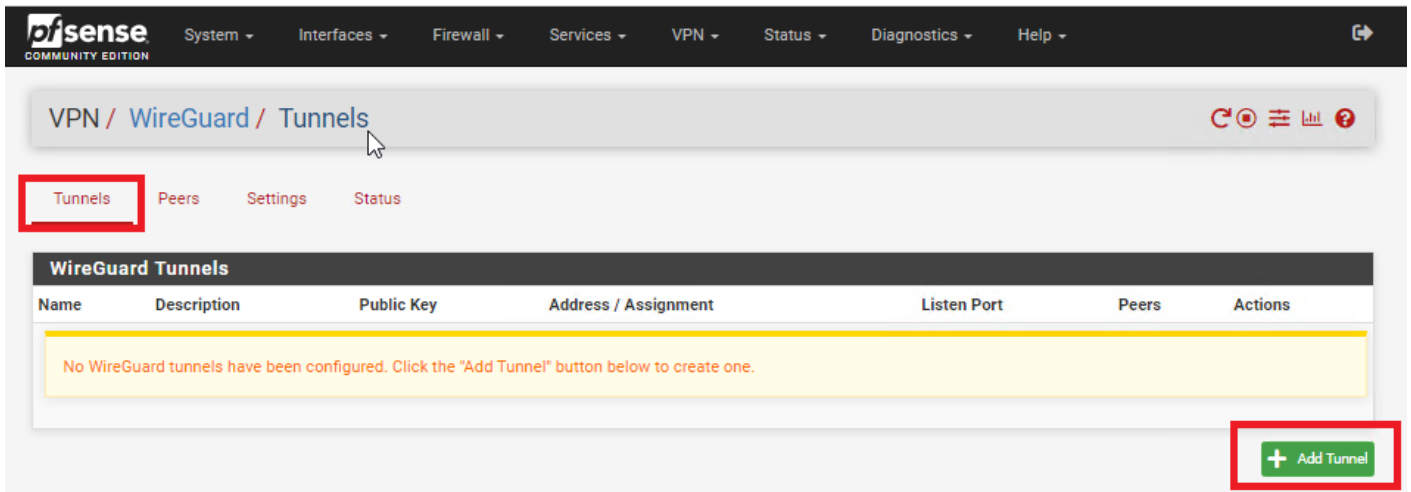
Description	Public key	Tunnel	Allowed IPs	Endpoint : Port	Actions
New tunnels must be saved before adding or assigning peers.					

+ Add Peer **Save Tunnel**

Create Tunnel on Site B

On **Site B**, refresh the pfSense web GUI and navigate to **VPN ---> Wireguard**, click on the **Tunnels** tab and then click on **Add Tunnel** button (**Figure 4**).

Figure 4



In the **Tunnel Configuration** fill/set in the following fields (**Figure 5**):

- **Enable:** Checked
- **Description:** Optionally, describe the purpose of this tunnel(Ex: Tunnel to Site A)
- **Listen Port:** Leave blank to use port UDP/51820 or enter a specific port number you wish to use
- **Interface Keys:** click the **Generate** button to create a new Private/Public key pair and copy the **Public Key** that's generated in order to enter it in the Public Key field on Site B.
- Click the **Save Tunnel** button

Figure 5

VPN / WireGuard / Tunnels / Edit

Tunnels Peers Settings Status

Tunnel Configuration (tun_wg2)

Enable ☒ Enable Tunnel
 Note: Tunnel must be enabled in order to be assigned to a pfSense interface.

Description Tunnel to Site A
 Description for administrative reference (not parsed).

Listen Port 51822
 Port used by this tunnel to communicate with peers.

Interface Keys
 Private key for this tunnel. (Required) uA
 Public key for this tunnel (Copy) **Generate** New Keys

Interface Configuration (tun_wg2)

Assignment Interface Assignments

Firewall Rules WireGuard Interface Group

Hint These interface addresses are only applicable for unassigned WireGuard tunnel interfaces.

Interface Addresses
 Interface Address / 128 Description
 IPv4 or IPv6 address assigned to the tunnel interface. Description for administrative reference (not parsed).

Add Address Add Address

Peer Configuration

Description	Public key	Tunnel	Allowed IPs	Endpoint : Port	Actions
New tunnels must be saved before adding or assigning peers.					

Add Peer Save Tunnel

Enable WireGuard on Both Sites

On **BOTH** sites, navigate to **VPN ---> WireGuard**, click on the **Settings** tab and click on the **Enable WireGuard** checkbox, select **Only Unassigned Tunnels** on the **Interface Group Membership** drop-down and then click on the **Save** button (**Figure 6**).

Figure 6

pfSense
COMMUNITY EDITION

System ▾ Interfaces ▾ Firewall ▾ Services ▾ VPN ▾ Status ▾ Diagnostics ▾ Help ▾

VPN / WireGuard / Settings

The WireGuard service is not running.

Tunnels Peers Settings Status

General Settings

Enable ☒ **Enable WireGuard**
Note: WireGuard cannot be disabled when one or more tunnels is assigned to a pfSense interface.

Keep Configuration ☒ **Enable**
Note: With 'Keep Configurations' enabled (default), all tunnel configurations and package settings will persist on install/de-install.

Endpoint Hostname ☐ **Track System Resolve Interval**
Interval (in seconds) for re-resolving endpoint host/domain names. Note: The default is 300 seconds (0 to disable).
Tracks the system 'Aliases Hostnames Resolve Interval' setting. Note: See System > Advanced > Firewall & NAT

Interface Group Membership
Configures which WireGuard tunnels are members of the WireGuard interface group. Note: Group firewall rules are evaluated before interface firewall rules. Default is 'All Tunnels.'

User Interface Settings

Hide Secrets ☒ **Enable**
Note: With 'Hide Secrets' enabled, all secrets (private and pre-shared keys) are hidden in the user interface.

Hide Peers ☒ **Enable**
Note: With 'Hide Peers' enabled (default), all peers for all tunnels will initially be hidden on the status page.

Save

Add Peer on Site A

On **Site A**, navigate to **VPN ---> WireGuard**, click on the **Peers** tab and then click on the **Add Peer** button (**Figure 7**).

Figure 7

pfSense
COMMUNITY EDITION

System ▾ Interfaces ▾ Firewall ▾ Services ▾ VPN ▾ Status ▾ Diagnostics ▾ Help ▾

VPN / WireGuard / Peers

Tunnels **Peers** Settings Status

WireGuard Peers

Description	Public key	Tunnel	Allowed IPs	Endpoint : Port	Actions
No WireGuard peers have been configured. Click the "Add Peer" button below to create one.					

+ Add Peer

In the **Peer Configuration** fill/set in the following fields (**Figure 8**):

- **Enable:** Checked
- **Tunnel:** Select the Tunnel previously configured from the drop-down list
- **Description:** Optionally, describe the purpose of this Peer (Ex: Peer to Site B)
- **Dynamic Endpoint:** Unchecked
- **Endpoint:** Fill in the Internet IP or Hostname as well as the port number for **Site B**
- **Public Key:** Paste the previously copied **Public Key** from the **Tunnel** on **Site B**
- **Pre-shared Key:** Click the Generate button to generate a new pre-shared key and copy it in order to paste in the Peer configuration of **Site B**
- **Allowed IPs:** Enter an **UNUSED** Network address (Example: 10.10.12.0) with a CIDR of **30** (For a total of two IPs) in the first field, click the **Add Allowed IP** and then enter the Network Address and corresponding CIDR of the subnet for **Site B**
- Click the **Save Peer** button

Figure 8

The screenshot shows the 'Peer Configuration' form in a web application. The form is divided into two main sections: 'Peer Configuration' and 'Address Configuration'. The 'Peer Configuration' section includes fields for 'Enable' (checked), 'Tunnel' (set to 'tun_wg0'), 'Description' (set to 'Peer to Site B'), 'Dynamic Endpoint' (unchecked), 'Endpoint' (set to 'siteB.domain.tld' and '51820'), 'Keep Alive' (set to 'Keep Alive'), 'Public Key' (set to 'uA...'), and 'Pre-shared Key' (with a 'Generate' button). The 'Address Configuration' section includes a table for 'Allowed IPs' with two entries: '10.10.12.0 / 30' and '192.168.24.0 / 24'. A 'Save Peer' button is at the bottom right.

Peer Configuration

Enable ☒ Enable Peer
Note: Uncheck this option to disable this peer without removing it from the list.

Tunnel tun_wg0 (Tunnel to Site B)
WireGuard tunnel for this peer. (Create a New Tunnel)

Description Peer to Site B
Peer description for administrative reference (not parsed).

Dynamic Endpoint ☐ Dynamic
Note: Uncheck this option to assign an endpoint address and port for this peer.

Endpoint siteB.domain.tld 51820
Hostname, IPv4, or IPv6 address of this peer. Port used by this peer.
Leave endpoint and port blank if unknown (dynamic endpoints). Leave blank for default (51820).

Keep Alive Keep Alive
Interval (in seconds) for Keep Alive packets sent to this peer.
Default is empty (disabled).

Public Key uA...
WireGuard public key for this peer.

Pre-shared Key
Optional pre-shared key for this tunnel. (Copy) Generate
New Pre-shared Key

Address Configuration

Hint Allowed IP entries here will be transformed into proper subnet start boundaries prior to validating and saving. These entries must be unique between multiple peers on the same tunnel. Otherwise, traffic to the conflicting networks will only be routed to the last peer in the list.

Allowed IPs	10.10.12.0 / 30	Tunnel Subnet	Delete
	192.168.24.0 / 24	Site B Subnet	Delete

IPv4 or IPv6 subnet or host reachable via this peer. Description for administrative reference (not parsed).

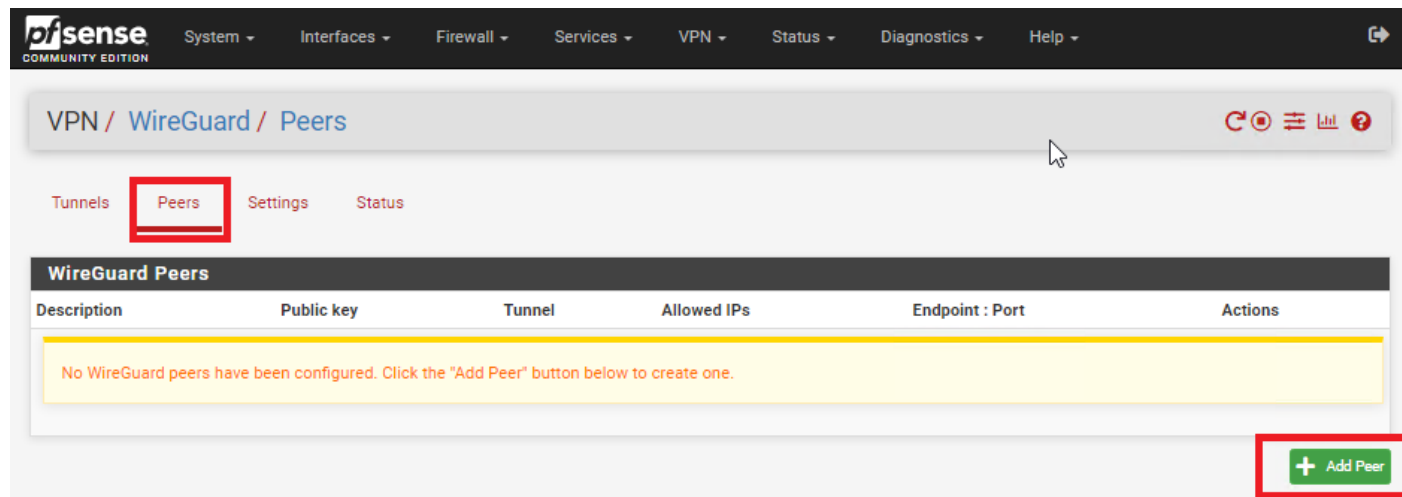
Add Allowed IP + Add Allowed IP

Save Peer

Add Peer on Site B

On **Site B**, navigate to **VPN ---> WireGuard**, click on the **Peers** tab and then click on the **Add Peer** button (**Figure 9**).

Figure 9



In the **Peer Configuration** fill/set in the following fields (**Figure 10**):

- **Enable:** Checked
- **Tunnel:** Select the Tunnel previously configured from the drop-down list
- **Description:** Optionally, describe the purpose of this Peer (Ex: Peer to Site A)
- **Dynamic Endpoint:** Unchecked
- **Endpoint:** Fill in the Internet IP or Hostname as well as the port number for **Site A**
- **Public Key:** Paste the previously copied **Public Key** from the **Tunnel** on **Site A**
- **Pre-shared Key:** Paste the previously copied **Pre-Shared key** from the **Peer** on **Site A**
- **Allowed IPs:** Enter the **SAME Tunnel Subnet Network address and CIDR** you set on the **Peer** on **Site A**, click the **Add Allowed IP** and then enter the Network Address and corresponding CIDR of the subnet for **Site A**
- Click the **Save Peer** button

Figure 10

Tunnels Peers Settings Status

Peer Configuration

Enable ☒ Enable Peer
Note: Uncheck this option to disable this peer without removing it from the list.

Tunnel tun_wg0 (Tunnel to Site B)
WireGuard tunnel for this peer. (Create a New Tunnel)

Description Peer to Site B
Peer description for administrative reference (not parsed).

Dynamic Endpoint ☐ Dynamic
Note: Uncheck this option to assign an endpoint address and port for this peer.

Endpoint siteB.domain.tld 51820
Hostname, IPv4, or IPv6 address of this peer. Port used by this peer.
Leave endpoint and port blank if unknown (dynamic endpoints). Leave blank for default (51820).

Keep Alive Keep Alive
Interval (in seconds) for Keep Alive packets sent to this peer.
Default is empty (disabled).

Public Key uA:
WireGuard public key for this peer.

Pre-shared Key
Optional pre-shared key for this tunnel. (Copy) **Generate**
New Pre-shared Key

Address Configuration

Hint Allowed IP entries here will be transformed into proper subnet start boundaries prior to validating and saving. These entries must be unique between multiple peers on the same tunnel. Otherwise, traffic to the conflicting networks will only be routed to the last peer in the list.

Allowed IPs	10.10.12.0 / 30	Tunnel Subnet	Delete
	192.168.24.0 / 24	Site B Subnet	Delete

IPv4 or IPv6 subnet or host reachable via this peer. Description for administrative reference (not parsed).

Add Allowed IP + Add Allowed IP

Save Peer

Configure Interface for Site A

On **Site A**, navigate to **Interfaces** ---> **Assignments** and under **Available network ports** drop-down select the WireGuard tunnel you previously created and click the **Add** button (**Figure 11**).

Figure 11

Interfaces / Interface Assignments 📄 ?

Interface Assignments Interface Groups Wireless VLANs QinQs PPPs GREs GIFs Bridges LAGGs

Interface	Network port	
WAN	vmx0 (00:00:00:00:00:00)	
LAN	vmx1 (00:00:00:00:00:04)	Delete
		Delete
		Delete
Available network ports:	tun_wg0 (tun_wg0)	Add

Save

Click on the new **OPT(X)** interface that was just created (**Figure 12**).

Figure 12

Interfaces / Interface Assignments 📄 ?

Interface has been added.

Interface Assignments Interface Groups Wireless VLANs QinQs PPPs GREs GIFs Bridges LAGGs

Interface	Network port	
WAN	vmx0 (00:00:00:00:00:00)	
LAN	vmx1 (00:00:00:00:00:04)	Delete
		Delete
		Delete
OPT3	tun_wg0 (tun_wg0)	Delete
Available network ports:		Add

Save

In the **General Configuration** page fill/set the following fields (**Figure 13**):

- **Enable:** Checked
- **Description:** Optionally, describe the purpose of this Interface (Ex: Tunnel to Site B)
- **IPv4 Configuration Type:** Static IPv4
- **IPv4 Address:** Enter an IP address for **Site A**. The IP address you enter here will be one of two possible IP addresses you can use from the /30 Tunnel Subnet you chose earlier. For this example, we used the Subnet Tunnel of **10.10.12.0/30** which gives us **10.10.12.1** and **10.10.12.2** as the only two usable IPs for this subnet. So, for this example we will use **10.10.12.1 for Site A**.
- Click the **Save** button and then click the **Apply Changes** button.

Figure 13

General Configuration

☐ Enable ☒ Enable interface

Description Tunnel to Site B
Enter a description (name) for the interface here.

IPv4 Configuration Type Static IPv4

IPv6 Configuration Type None

MAC Address xx:xx:xx:xx:xx:xx
This field can be used to modify ("spoof") the MAC address of this interface.
Enter a MAC address in the following format: xx:xx:xx:xx:xx:xx or leave blank.

MTU
If this field is blank, the adapter's default MTU will be used. This is typically 1500 bytes but can vary in some circumstances.

MSS
If a value is entered in this field, then MSS clamping for TCP connections to the value entered above minus 40 for IPv4 (TCP/IPv4 header size) and minus 60 for IPv6 (TCP/IPv6 header size) will be in effect.

Static IPv4 Configuration

IPv4 Address 10.10.12.1 / 30

IPv4 Upstream gateway None [+ Add a new gateway](#)
If this interface is an Internet connection, select an existing Gateway from the list or add a new one using the "Add" button.
On local area network interfaces the upstream gateway should be "none".
Selecting an upstream gateway causes the firewall to treat this interface as a [WAN type interface](#).
Gateways can be managed by [clicking here](#).

Reserved Networks

Block private networks and loopback addresses ☐
Blocks traffic from IP addresses that are reserved for private networks per RFC 1918 (10/8, 172.16/12, 192.168/16) and unique local addresses per RFC 4193 (fc00::/7) as well as loopback addresses (127/8). This option should generally be turned on, unless this network interface resides in such a private address space, too.

Block bogon networks ☐
Blocks traffic from reserved IP addresses (but not RFC 1918) or not yet assigned by IANA. Bogons are prefixes that should never appear in the Internet routing table, and so should not appear as the source address in any packets received.
This option should only be used on external interfaces (WANs), it is not necessary on local interfaces and it can potentially block required local traffic.
Note: The update frequency can be changed under System > Advanced, Firewall & NAT settings.

[Save](#)

Configure Interface for Site B

On **Site B**, navigate to **Interfaces** ---> **Assignments** and under **Available network ports** drop-down select the WireGuard tunnel you previously created and click the **Add** button (**Figure 14**).

Figure 14

Interfaces / Interface Assignments 🔍 ?

Interface Assignments Interface Groups Wireless VLANs QinQs PPPs GREs GIFs Bridges LAGGs

Interface	Network port	
WAN	vmx0 (10.10.12.1)	
LAN	vmx1 (10.10.12.2)	Delete
		Delete
		Delete
Available network ports:	tun_wg0 (tun_wg0)	Add

Save

Click on the new **OPT(X)** interface that was just created (**Figure 15**).

Figure 15

Interfaces / Interface Assignments 🔍 ?

Interface has been added.

Interface Assignments Interface Groups Wireless VLANs QinQs PPPs GREs GIFs Bridges LAGGs

Interface	Network port	
WAN	vmx0 (10.10.12.1)	
LAN	vmx1 (10.10.12.2)	Delete
		Delete
		Delete
OPT3	tun_wg0 (tun_wg0)	Delete
Available network ports:		Add

Save

In the **General Configuration** page fill/set the following fields (**Figure 16**):

- **Enable:** Checked
- **Description:** Optionally, describe the purpose of this Interface (Ex: Tunnel to Site A)
- **IPv4 Configuration Type:** Static IPv4
- **IPv4 Address:** Enter an IP address for **Site B**. The IP address you enter here will be one of two possible IP addresses you can use from the /30 Tunnel Subnet you chose earlier. For this example, we used the Subnet Tunnel of **10.10.12.0/30** which gives us **10.10.12.1** and **10.10.12.2** as the only two usable IPs for this subnet. So, for this example we will use **10.10.12.2 for Site B**.
- Click the **Save** button and then click the **Apply Changes** button.

Figure 16

General Configuration

Enable ☒ Enable interface

Description Tunnel to Site A
Specify a description (name) for this interface here.

IPv4 Configuration Type Static IPv4

IPv6 Configuration Type None

MAC Address xxxxxxxx:xxxx:xxxx
This field can be used to modify ("spoof") the MAC address of this interface.
Enter a MAC address in the following format: xxxxxxxx:xxxx:xxxx or leave blank.

MTU
If this field is blank, the adapter's default MTU will be used. This is typically 1500 bytes but can vary in some circumstances.

MSS
If a value is entered in this field, then MSS clamping for TCP connections to the value entered above minus 40 for IPv4 (TCP/IPv4 header size) and minus 60 for IPv6 (TCP/IPv6 header size) will be in effect.

Static IPv4 Configuration

IPv4 Address 10.10.12.2 / 30

IPv4 Upstream gateway None [+ Add a new gateway](#)
If this interface is an Internet connection, select an existing Gateway from the list or add a new one using the "Add" button.
On local area network interfaces the upstream gateway should be "none".
Selecting an upstream gateway causes the firewall to treat this interface as a WAN type interface.
Gateways can be managed by [clicking here](#).

Reserved Networks

Block private networks and loopback addresses ☐
Blocks traffic from IP addresses that are reserved for private networks per RFC 1918 (10/8, 172.16/12, 192.168/16) and unique local addresses per RFC 4193 (fc00::/7) as well as loopback addresses (127/8). This option should generally be turned on, unless this network interface resides in such a private address space, too.

Block bogon networks ☐
Blocks traffic from reserved IP addresses (but not RFC 1918) or not yet assigned by IANA. Bogons are prefixes that should never appear in the Internet routing table, and so should not appear as the source address in any packets received.
This option should only be used on external interfaces (WANs), it is not necessary on local interfaces and it can potentially block required local traffic.
Note: The update frequency can be changed under System > Advanced, Firewall & NAT settings.

[Save](#)

Create Gateway and Route on Site A

On **Site A** navigate to **System** ---> **Routing** and under the **Gateways** tab click the **Add** button (**Figure 17**).

Figure 17

System / Routing / Gateways

Gateways Static Routes Gateway Groups

Gateways

	Name	Default	Interface	Gateway	Monitor IP	Description	Actions
<input checked="" type="checkbox"/>	GW_WAN	Default (IPv4)	WAN			Interface wan Gateway	
<input type="checkbox"/>					10.10.10.1		
<input type="checkbox"/>					10.10.10.2		
<input type="checkbox"/>							

Save

Default gateway

Default gateway IPv4:
Select a gateway or failover gateway group to use as the default gateway.

Default gateway IPv6:
Select a gateway or failover gateway group to use as the default gateway.

Save

In the **Edit Gateway** page fill/set the following fields (**Figure 18**):

- **Disabled:** Unchecked
- **Interface:** Select the interface for **Site A** you created earlier
- **Name:** Enter a name for this gateway (Ex: WG_GW_Site_B)
- **Gateway:** Enter the **Tunnel Subnet IP** address for **Site B**. For this example we used **10.10.12.2** for **Site B**.
- **Description:** Optionally, enter a description (Ex: Wireguard Gateway to Site B)
- Click the **Save** button and then click the **Apply Changes** button.

Figure 18

Edit Gateway

Disabled

☐ Disable this gateway

Set this option to disable this gateway without removing it from the list.

Interface

TUNNELTOSITEB

Choose which interface this gateway applies to.

Address Family

IPv4

Choose the Internet Protocol this gateway uses.

Name

WG_GW_Site_B

Gateway Name

Gateway

10.10.12.2

Gateway IP Address

Gateway Monitoring

☐ Disable Gateway Monitoring

This will consider this gateway as always being up.

Gateway Action

☐ Disable Gateway Monitoring Action

No action will be taken on gateway events. The gateway is always considered up.

Monitor IP

Enter an alternative address here to be used to monitor the link. This is used for the quality RRD graphs as well as the load balancer entries. Use this if the gateway does not respond to ICMP echo requests (pings).

Static route

☐ Do not add static route for gateway monitor IP address via the chosen interface

By default the firewall adds static routes for gateway monitor IP addresses to ensure traffic to the monitor IP address leaves via the correct interface. Enabling this checkbox overrides that behavior.

Force state

☐ Mark Gateway as Down

This will force this gateway to be considered down.

State Killing on Gateway Failure

Use global behavior (default)

Controls the state killing behavior when this specific gateway goes down. Killing states for specific down gateways only affects states created by policy routing rules and reply-to. Has no effect if gateway monitoring or its action are disabled or if the gateway is forced down. May not have any effect on dynamic gateways during a link loss event.

Description

Wireguard Gateway to Site B

A description may be entered here for reference (not parsed).

Display Advanced

Save

Next, on **Site A** navigate to **System ---> Routing** and under the **Static Routes** tab click the **Add** button (**Figure 19**).

Figure 19

System / Routing / Static Routes

Gateways
Static Routes
Gateway Groups

Static Routes

Network	Gateway	Interface	Description	Actions
<div> + Add </div>				

In the **Edit Route Entry** page, fill/set the following fields (**Figure 20**):

- **Destination network:** Enter the network subnet for **Site B (NOT the tunnel subnet)**.
In this example, the network subnet we used for Site B was **192.168.24.0/24**.
- **Gateway:** Select the Gateway to **Site B** you created earlier
- **Description:** Optionally, enter a description (Ex: Route to Site B)
- Click the **Save** button and then click the **Apply Changes** button.

Figure 20

Edit Route Entry

Destination network 192.168.24.0 / 24

Destination network for this static route

Gateway WG_GW_Site_B - 10.10.12.2

Choose which gateway this route applies to or add a new one first.

Disabled ☐ Disable this static route
Set this option to disable this static route without removing it from the list.

Description Route to Site B

A description may be entered here for administrative reference (not parsed).

Save

Create Gateway and Route on Site B

On **Site B** navigate to **System ---> Routing** and under the **Gateways** tab click the **Add** button (**Figure 21**).

Figure 21

System / Routing / Gateways

Gateways Static Routes Gateway Groups

Gateways

Name	Default	Interface	Gateway	Monitor IP	Description	Actions
GW_WAN	Default (IPv4)	WAN			Interface wan Gateway	

Default gateway

Default gateway IPv4 GW_WAN
Select a gateway or failover gateway group to use as the default gateway.

Default gateway IPv6 Automatic
Select a gateway or failover gateway group to use as the default gateway.

Save **Add**

In the **Edit Gateway** page fill/set the following fields (**Figure 22**):

- **Disabled:** Unchecked
- **Interface:** Select the interface for **Site A** you created earlier
- **Name:** Enter a name for this gateway (Ex: WG_GW_Site_A)
- **Gateway:** Enter the **Tunnel Subnet IP** address for **Site A**. For this example we used **10.10.12.1** for **Site A**.
- **Description:** Optionally, enter a description (Ex: Wireguard Gateway to Site A)
- Click the **Save** button and then click the **Apply Changes** button.

Figure 22

The screenshot shows the 'Edit Gateway' form with the following fields and values highlighted by red boxes:

- Disabled:** A checkbox labeled 'Disable this gateway' is unchecked.
- Interface:** A dropdown menu is set to 'TUNNELTOSITEA'.
- Address Family:** A dropdown menu is set to 'IPv4'.
- Name:** A text input field contains 'WG_GW_Site_A'.
- Gateway:** A text input field contains '10.10.12.1'.
- Description:** A text input field contains 'Wireguard Gateway to Site A'.

Other visible fields and options include:

- Gateway Monitoring:** A checkbox labeled 'Disable Gateway Monitoring' is unchecked.
- Gateway Action:** A checkbox labeled 'Disable Gateway Monitoring Action' is unchecked.
- Monitor IP:** An empty text input field.
- Static route:** A checkbox labeled 'Do not add static route for gateway monitor IP address via the chosen interface' is unchecked.
- Force state:** A checkbox labeled 'Mark Gateway as Down' is unchecked.
- State Killing on Gateway Failure:** A dropdown menu is set to 'Use global behavior (default)'.
- Buttons:** A 'Display Advanced' button and a 'Save' button are visible at the bottom.

Next, on **Site B** navigate to **System ---> Routing** and under the **Static Routes** tab click the **Add** button (**Figure 23**).

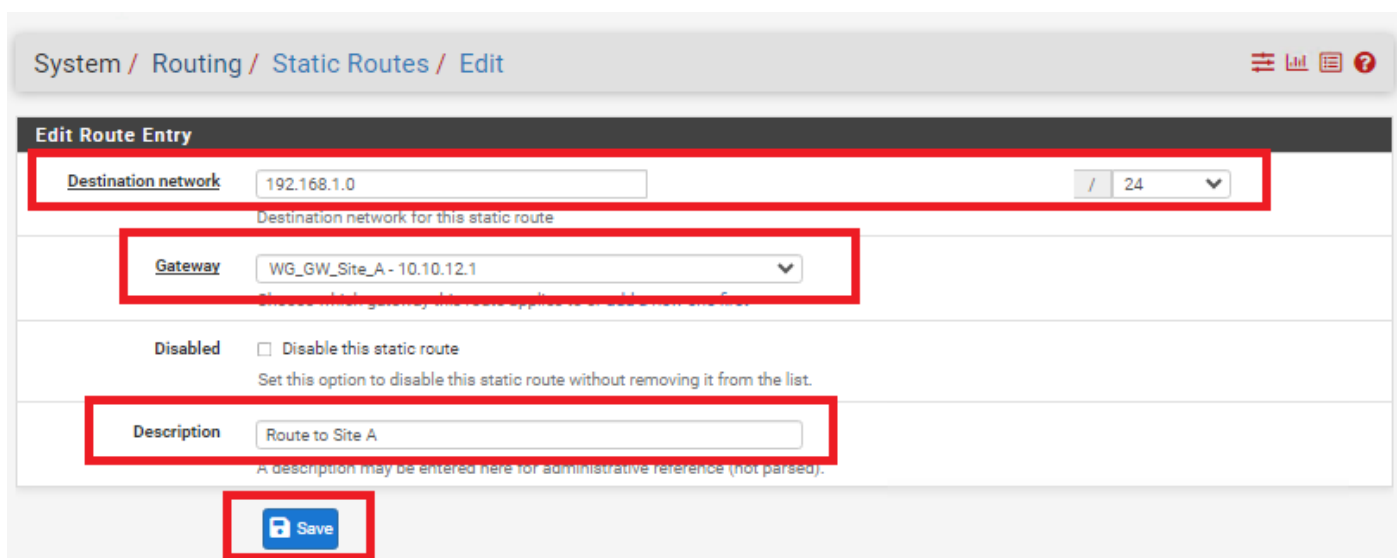
Figure 23



In the **Edit Route Entry** page, fill/set the following fields (**Figure 24**):

- **Destination network:** Enter the network subnet for **Site A (NOT the tunnel subnet)**.
In this example, the network subnet we used for **Site A** was **192.168.1.0/24**.
- **Gateway:** Select the Gateway to **Site A** you created earlier
- **Description:** Optionally, enter a description (Ex: Route to Site A)
- Click the **Save** button and then click the **Apply Changes** button.

Figure 24



Add Firewall Rules on BOTH Firewalls

On **BOTH** firewalls, navigate to **Firewall ---> Rules** and under the **WAN** tab, click the **Add** button. In the **Edit Firewall Rule** page, fill/set the following fields (**Figure 25**).

- **Action:** Pass
- **Interface:** WAN
- **Address Family:** IPv4
- **Protocol:** UDP
- **Source:** Any
- **Destination:** WAN address

- **Destination Port Range:** (other) 51820 to (other) 51820
- **Log:** Optionally, check to Log packets that are handled by this rule
- **Description:** Optionally, enter a description (Ex: Wireguard Site A and Site B)
- Click the **Save** button and then click the **Apply Changes** button.

Figure 25

The screenshot shows the 'Edit Firewall Rule' configuration page. Red boxes highlight the following fields:

- Action:** Set to 'Pass'.
- Interface:** Set to 'WAN'.
- Address Family:** Set to 'IPv4'.
- Protocol:** Set to 'UDP'.
- Source:** Set to 'Any'.
- Destination:** Set to 'WAN address'.
- Destination Port Range:** Set to '(other) 51820 to (other) 51820'.
- Log:** Checked 'Log packets that are handled by this rule'.
- Description:** Set to 'Wireguard Site A and Site B'.

Other visible fields include 'Disabled' (unchecked), 'Source Address', 'Destination Address', and 'Log' (unchecked).

On **BOTH** firewalls, navigate to **Firewall ---> Rules** and under the **TUNNELTOSITE(X)** tab, click the **Add** button. In the **Edit Firewall Rule** page, fill/set the following fields (**Figure 25**).

- **Action:** Pass
- **Interface:** Ensure the interface you created earlier for each site is already selected
- **Address Family:** IPv4
- **Protocol:** Any (Start with **Any** and then you can tighten the rules further after you ensure tunnel is working properly)

- **Source:** Any (Start with **Any** and then you can tighten the rules further after you ensure tunnel is working properly)
- **Destination:** Any (Start with **Any** and then you can tighten the rules further after you ensure tunnel is working properly)
- **Destination Port Range:** Any (Start with **Any** and then you can tighten the rules further after you ensure tunnel is working properly)
- **Log:** Optionally, check to Log packets that are handled by this rule
- **Description:** Optionally, enter a description (Ex: Wireguard Traffic Site A and Site B)
- Click the **Save** button and then click the **Apply Changes** button.

Figure 25

The screenshot shows the 'Edit Firewall Rule' configuration page. Red boxes highlight the following elements:

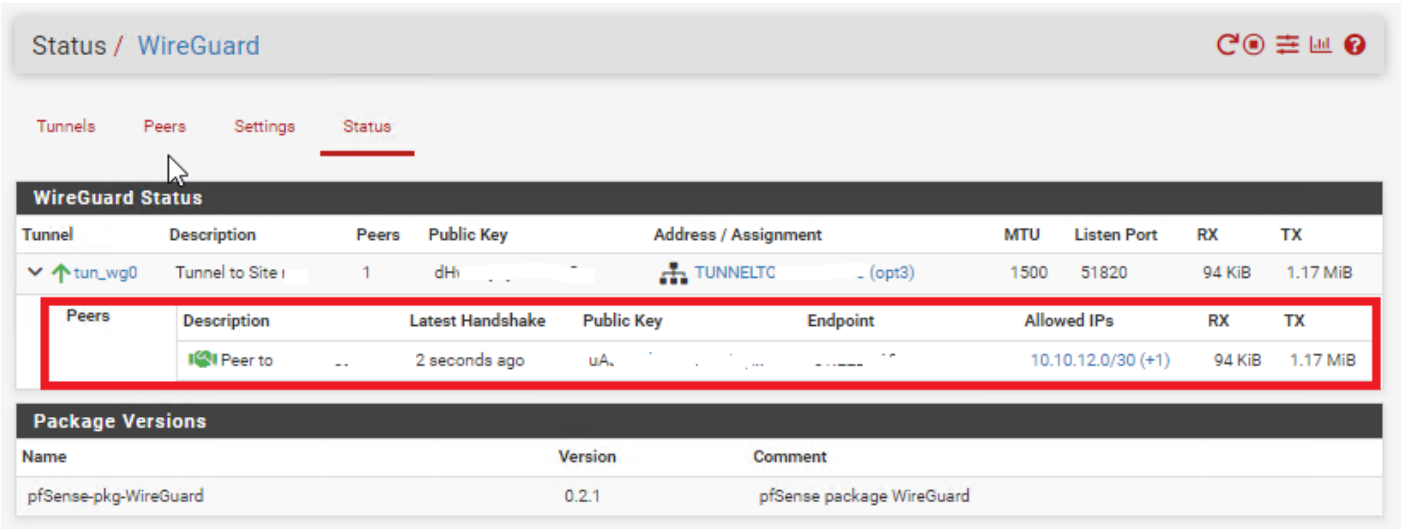
- Action:** Set to 'Pass'.
- Interface:** Set to 'WAN'.
- Address Family:** Set to 'IPv4'.
- Protocol:** Set to 'UDP'.
- Source:** Set to 'Any'.
- Destination:** Set to 'WAN address'.
- Destination Port Range:** Set to '51820'.
- Log:** Checked box for 'Log packets that are handled by this rule'.
- Description:** Set to 'Wireguard Site A and Site B'.

Other visible settings include 'Disabled' (unchecked), 'Invert match' (unchecked), and 'Display Advanced' buttons.

Check the Wireguard Status

On **BOTH** firewalls navigate to **Status ---> Wireguard**, locate the WireGuard tunnel you created, expand it and ensure the Peers are connected on BOTH firewalls (**Figure 26**).

Figure 26



Additionally, ensure you can ping and access resources on each remote network from the corresponding site.