

# Configuring Tunneling on the RV130W

## Objective

IPv6-to-IPv4 tunneling (6-to-4 tunneling) allows IPv6 packets to be transmitted over an IPv4 network. IPv4 (Internet Protocol version 4) is an important networking protocol on the Internet. Its successor, IPv6 (Internet Protocol version 6), has not been universally adopted yet, as IPv4 is still widely prevalent. There are methods to make existing IPv4 networks compatible with newer IPv6 networks, one of which is tunneling. IPv4 to IPv6 tunneling (4-to-6 tunneling) allows IPv4 packets to be transmitted over an IPv6 network.

The objective of this document is to show you how to configure tunneling on the RV130W.

## Applicable Devices

- RV130W

## Software Version

- v1.0.1.3

## Configuring 6 to 4 Tunneling

6-to-4 tunneling is typically used when a site or end user wants to connect to the IPv6 Internet using the existing IPv4 network.

**Note:** Configuring 6 to 4 tunneling is only possible if you select **LAN:IPv6, WAN:IPv4** or **LAN:IPv4+IPv6, WAN:IPv4** as the router's IP mode. To learn more, refer to the article: [Configuring IP Mode on the RV130W](#).

Step 1. Log in to the web configuration utility and choose **Networking > IPv6 > Tunneling**. The tunneling page opens:

**Tunneling**

**6 to 4 Tunneling**

6 to 4 Tunneling:  Enable

6to4

Automatic Tunneling:  Enable

Remote End Point IPv4 Address: 192 .88 .99 .1

6RD Tunneling:  Auto  Manual

IPv6 Prefix:

IPv6 Prefix Length:  (Range: 1 - 64)

Border Relay:

IPv4 Mask Length:  (Range: 0 - 32)

ISATAP Tunneling:

IPv6 Prefix:

IPv6 Prefix Length: 64 (Range: 1 - 64)

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**4 to 6 Tunneling**

4 to 6 Tunneling:  Enable

Local WAN IPv6 Address:

Remote IPv6 Address:

Step 2. In the 6 to 4 Tunneling field, check **Enable**.

**6 to 4 Tunneling**

6 to 4 Tunneling:  Enable

Step 3. In the *6 to 4 Tunneling* drop-down list, select one of the options: 6to4, 6RD, or ISATAP.

**6 to 4 Tunneling**

6 to 4 Tunneling:  Enable

Automatic Tunneling:

Remote End Point IPv4 Address: 192 .88 .99 .1

6to4

6to4

6RD

ISATAP

The following options are defined as:

- 6to4 — 6to4 is a prefix that allows IPv6 packets to traverse an IPv4 network. If this is selected, go to Step 4.
- 6RD — 6RD (IPv6 rapid deployment) is a more secure version of 6to4 tunneling. In 6RD each ISP provides its own unique IPv6 prefix instead of the standard 2002::/16 6to4 prefix. This allows the ISP to control QoS of the tunnel and decides who gets to use the relay servers. If this is selected, go to Step 6.
- ISATAP — ISATAP (Intra-Site Automatic Tunnel Addressing Protocol) is used to send IPv6 packets using an IPv4 network. If this is selected, go to Step 11.

Step 4. In the *Automatic Tunneling* field, check the **Enable** checkbox if you want Automatic Tunneling, then skip to step 13; otherwise, uncheck it. Automatic Tunneling is used to automatically determine the tunnel endpoints.

**6 to 4 Tunneling**

6 to 4 Tunneling:  Enable

6to4

Automatic Tunneling:  Enable

**Note:** This is only available if 6to4 is selected.

Step 5. (Optional) If you unchecked the **Enable** checkbox in the *Automatic Tunneling* field, enter an IPv4 Address in the *Remote End Point IPv4 Address* field. This is the IP Address of the machine on the other end of the IPv6 network that you want to send IPv4 packets to. Once you are done, skip to Step 13.

**6 to 4 Tunneling**

6 to 4 Tunneling:  Enable

6to4

Automatic Tunneling:  Enable

Remote End Point IPv4 Address: 196 . 168 . 4 . 9

**Note:** The address that is shown above may not be the same as yours.

Step 6. In the *6RD Tunneling* field, choose either the **Auto** or **Manual** radio button. Selecting **Auto** will configure the 6RD settings for you, while **Manual** lets you input these settings yourself. If you selected **Auto**, skip to Step 12.

6RD Tunneling:  Auto  Manual

IPv6 Prefix:

IPv6 Prefix Length:  (Range: 1 - 64)

Border Relay:

IPv4 Mask Length:  (Range: 0 - 32)

Step 7. In the *IPv6 Prefix* field, enter the IPv6 prefix that specifies the IPv6 network address.

6RD Tunneling:  Auto  Manual

IPv6 Prefix: 2001:0DB8:AC10:FE01::

IPv6 Prefix Length:  (Range: 1 - 64)

Border Relay:

IPv4 Mask Length:  (Range: 0 - 32)

Step 8. Enter the Prefix Length in the *IPv6 Prefix Length* field. The Prefix Length ranges from 1 – 64.

6RD Tunneling:	<input type="radio"/> Auto <input checked="" type="radio"/> Manual
IPv6 Prefix:	2001:0DB8:AC10:FE01::
IPv6 Prefix Length:	64 (Range: 1 - 64)
Border Relay:	
IPv4 Mask Length:	(Range: 0 - 32)

Step 9. In the *Border Relay* field, enter in the IP that serves as a bridge between the Internet and the IPv4-only network.

6RD Tunneling:	<input type="radio"/> Auto <input checked="" type="radio"/> Manual
IPv6 Prefix:	2001:0DB8:AC10:FE01::
IPv6 Prefix Length:	64 (Range: 1 - 64)
Border Relay:	172.16.254.1
IPv4 Mask Length:	(Range: 0 - 32)

Step 10. In the *IPv4 Mask Length* field, enter in the IPv4 mask length. This ranges from 0-32.

6RD Tunneling:	<input type="radio"/> Auto <input checked="" type="radio"/> Manual
IPv6 Prefix:	2001:0DB8:AC10:FE01::
IPv6 Prefix Length:	64 (Range: 1 - 64)
Border Relay:	172.16.254.1
IPv4 Mask Length:	32 (Range: 0 - 32)

Step 11. For ISATAP Tunneling, enter the following information.

IPv6 Prefix:	2001:CDBA:3257:9652::
IPv6 Prefix Length:	64 (Range: 1 - 64)

The available options are defined as:

- IPv6 prefix — The IPv6 prefix specifies the IPv6 network address.
- IPv6 Prefix Length — Length of the IPv6 prefix (typically defined by the ISP). The IPv6 network (subnet) is identified by the initial bits of the address called the prefix. All hosts in the subnetwork have the identical prefix.

Step 12. Click **Save**.

## Configuring 4 to 6 Tunneling

**Note:** Configuring 4 to 6 tunneling is only possible if you select **LAN:IPv4, WAN:IPv6** as the router's IP mode. To learn more, refer to the article: [Configuring IP Mode on the RV130W](#).

Step 1. Log in to the web configuration utility and choose **Networking > IPv6 > Tunneling**. The tunneling page opens:

The screenshot shows the '6 to 4 Tunneling' configuration section. The '6 to 4 Tunneling' checkbox is checked and labeled 'Enable'. Below it is a dropdown menu set to '6to4'. The 'Automatic Tunneling' checkbox is also checked and labeled 'Enable'. The 'Remote End Point IPv4 Address' is shown as four input boxes, each containing '0'. The '6RD Tunneling' section has radio buttons for 'Auto' (selected) and 'Manual'. Below are several empty text input fields for 'IPv6 Prefix', 'IPv6 Prefix Length' (with a range of 1-64), 'Border Relay', 'IPv4 Mask Length' (with a range of 0-32), and 'ISATAP Tunneling' fields for 'IPv6 Prefix' and 'IPv6 Prefix Length' (with a value of 64 and a range of 1-64). The '4 to 6 Tunneling' section below has an unchecked '4 to 6 Tunneling' checkbox and empty input fields for 'Local WAN IPv6 Address' and 'Remote IPv6 Address'. At the bottom are 'Save' and 'Cancel' buttons.

Step 2. In the *4 to 6 Tunneling* field, check **Enable**.

This screenshot shows the 'Tunneling' page with the '4 to 6 Tunneling' checkbox now checked and labeled 'Enable'. The '6 to 4 Tunneling' section remains the same as in the previous screenshot. The '4 to 6 Tunneling' section now has the '4 to 6 Tunneling' checkbox checked. The 'Local WAN IPv6 Address' and 'Remote IPv6 Address' input fields are still empty.

Step 3. Enter the Local IPv6 Address in the *Local WAN IPv6 Address* field.

This is a close-up of the '4 to 6 Tunneling' section. The '4 to 6 Tunneling' checkbox is checked and labeled 'Enable'. The 'Local WAN IPv6 Address' input field is highlighted with a red rounded rectangle and contains the IPv6 address 'FD6D:56ED:67AB:99DC::'. The 'Remote IPv6 Address' input field is empty.

Step 4. Enter the Remote IPv6 Address in the *Remote IPv6 Address* field.

#### 4 to 6 Tunneling

4 to 6 Tunneling:  Enable

Local WAN IPv6 Address: FD6D:56ED:67AB:99DC::

Remote IPv6 Address: 45AD:78FA:BCDA:8912::

Step 5. Click **Save**.