

# Configuring Static Routing on the RV160 and RV260

## Objective

This document shows you how to configure IPv4 or IPv6 Static Routing on the RV160 and RV260.

## Introduction

A router is essential in a network because it routes packets. It enables a computer to communicate with other computers that are not on the same network or subnet. A router accesses a routing table to determine where packets should be sent. The routing table lists destination addresses. Static and dynamic configurations can both be listed on the routing table in order to get packets to their specific destination.

Static Routing is a manually configured fixed pathway that a packet must travel through to reach a destination. Static routings uses less network resources than dynamic routings because they do not constantly calculate and analyze routing updates.

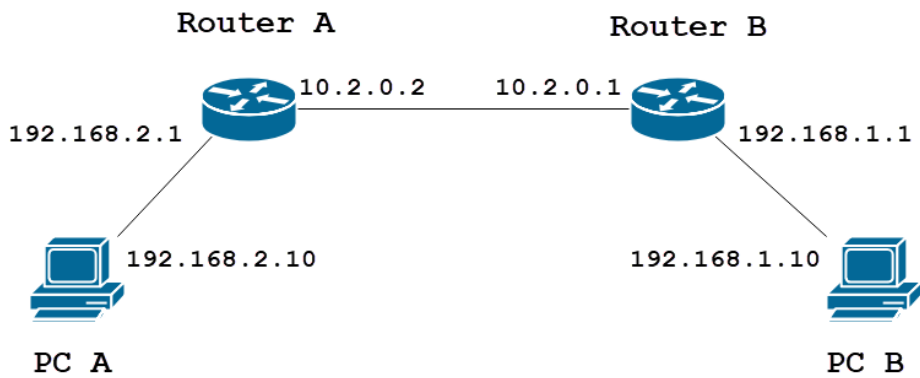
It is best to use static routes when network traffic is predictable, and the network design is simple. It is not recommended to use static routes in a large environment where networks are constantly changing because static routes would not update to any network changes. When using static routes, you would need to configure the other router to have static routes as well depending on what you are trying to do.

One example where static routes can be useful would be specifying a gateway of last resort (a default router to which all unroutable packets are sent). Another example is to facilitate communication between routers that are not able to communicate on your current network topology.

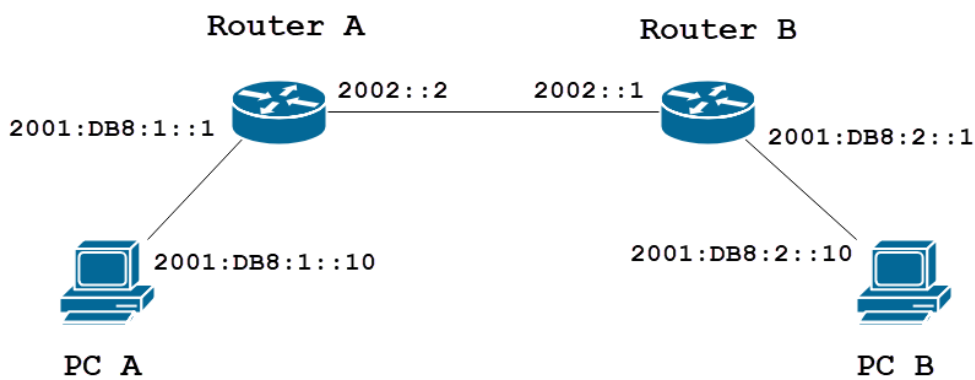
Dynamic routing is calculated by using dynamic routing algorithms. Dynamic routing protocols automatically create and update the routing table. Most networks use dynamic routes and might have at least one or two static routes configured for special cases.

Below is an example of a topology that we are going to configure static routes for. In the topology, PC A will not be able to communicate with PC B and vice versa until a static route is created.

This is a network diagram that is going to be used to help demonstrate IPv4 static route. In this topology, we are using /24 as our subnet mask.



A simple IPv6 static route topology is shown below.



## Applicable Devices

RV160

RV260

## Software Version

1.0.0.13

## IPv4 Static Routing Configuration

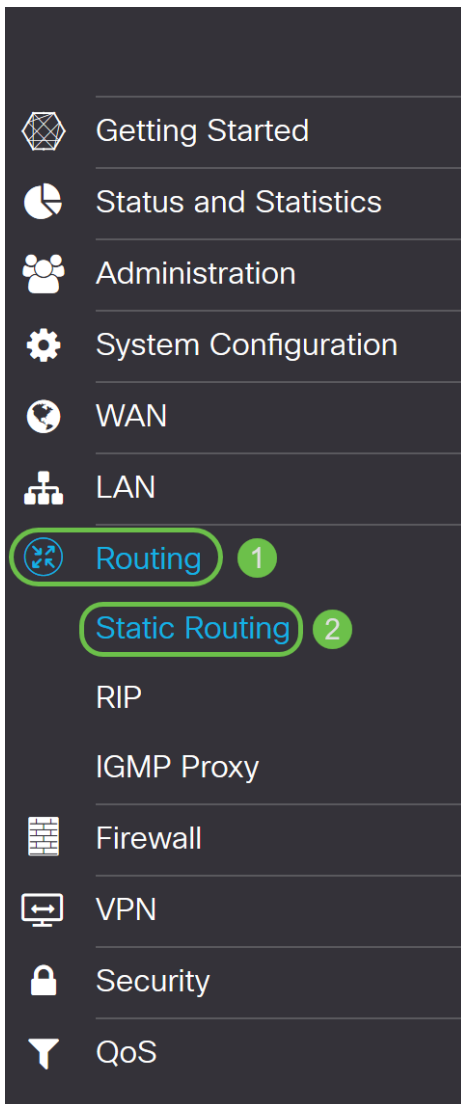
### Step 1

Log into the web configuration page for Router A.



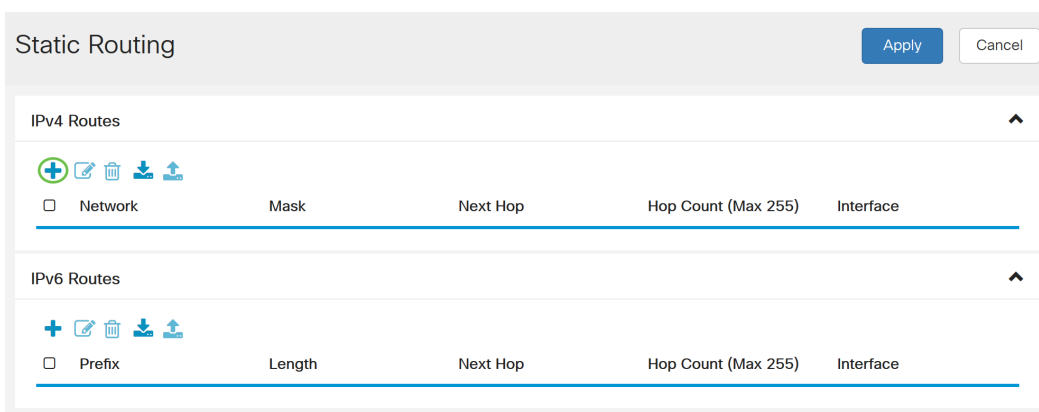
## Step 2

Navigate to **Routing > Static Routing**.



## Step 3

In the *IPv4 Routes* section, click the **Plus** icon to add a new IPv4 static route. You can edit an existing static route by clicking the **Pencil and Notepad** icon. In this example, we will be adding a new IPv4 static route.




## Step 4

Enter the destination network IP address in the *Network* field to which you want to assign a static

route. In this example, we will enter in **192.168.1.0** as we don't have any routes to reach that network.

IPv4 Routes ^




<input type="checkbox"/> Network	Mask	Next Hop	Hop Count (Max 255)	Interface
<input type="checkbox"/> 192.168.1.0	255.255.255.0	<input type="text" value=""/>	<input type="text" value="1"/>	WAN

Please enter a valid IPv4 Address.

## Step 5

In the *Mask* field, enter the subnet mask of the destination address. For this demonstration, we will be using the /24 (255.255.255.0) subnet mask.

IPv4 Routes ^



<input type="checkbox"/> Network	Mask	Next Hop	Hop Count (Max 255)	Interface
<input type="checkbox"/> 192.168.1.0	255.255.255.0	<input type="text" value=""/>	<input type="text" value="1"/>	WAN


Please enter a valid IPv4 Address.

## Step 6

Using the topology that was shown in Introduction section, enter in Router B's IP address in the *Next Hop* field. We will be entering **10.2.0.1** as that is our next hop to the destination 192.168.1.0.

**Note:** Each hop directs the packet to the next router in the path.

IPv4 Routes ^




<input type="checkbox"/> Network	Mask	Next Hop	Hop Count (Max 255)	Interface
<input type="checkbox"/> 192.168.1.0	255.255.255.0	10.2.0.1	<input type="text" value="1"/>	WAN

## Step 7

Enter the hop count number. The max hop number is 255. In this example, **1** is entered as there will be 1 hop count to the destination.

IPv4 Routes ^




<input type="checkbox"/> Network	Mask	Next Hop	Hop Count (Max 255)	Interface
<input type="checkbox"/> 192.168.1.0	255.255.255.0	10.2.0.1	1	WAN

## Step 8

Choose the interface to use for this static route from the drop-down list. We will be selecting **WAN** as our interface.

IPv4 Routes ^



<input type="checkbox"/> Network	Mask	Next Hop	Hop Count (Max 255)	Interface
<input type="checkbox"/> 192.168.1.0	255.255.255.0	10.2.0.1	1	WAN

## Step 9

Click **Apply** to add the static route.

**Note:** For more information about Router B's configuration, please continue to the next step. To learn how to configure IPv6 static routes, please refer to the next section.

Network	Mask	Next Hop	Hop Count (Max 255)	Interface
192.168.1.0	255.255.255.0	10.2.0.1	1	WAN

## Step 10

The configuration for the IPv4 static route on the Router B should look like the picture below. We will be entering **192.168.2.0** as the destination network with **255.255.255.0** subnet mask, **10.2.0.2** as the *Next Hop*, **1** as the *Hop Count*, and the *Interface* as **WAN**. Click **Apply** to add the IPv4 static route.

Network	Mask	Next Hop	Hop Count (Max 255)	Interface
192.168.2.0	255.255.255.0	10.2.0.2	1	WAN

## IPv6 Static Routing Configuration

### Step 1

Log into the web configuration page for Router A.

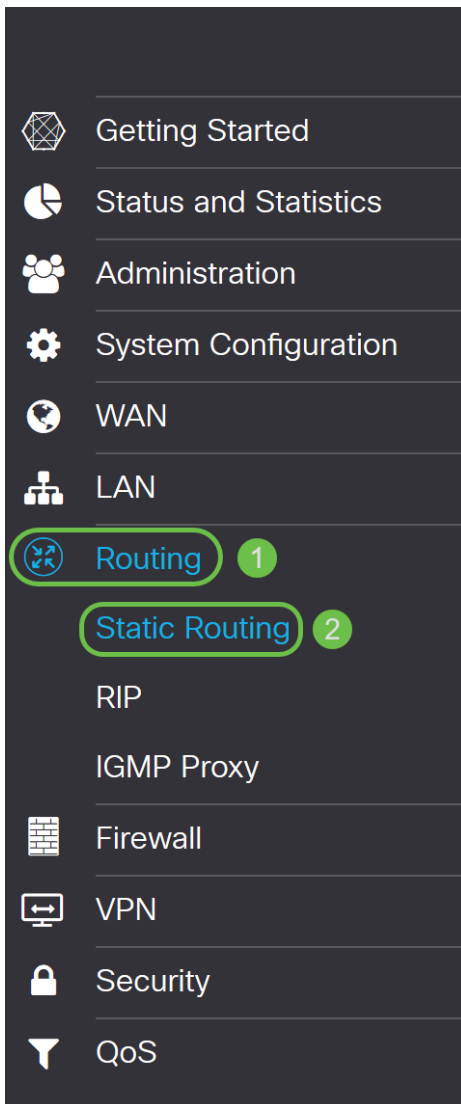


# Router

- 1 Username: cisco
- 2 Password: .....
- 3 Login

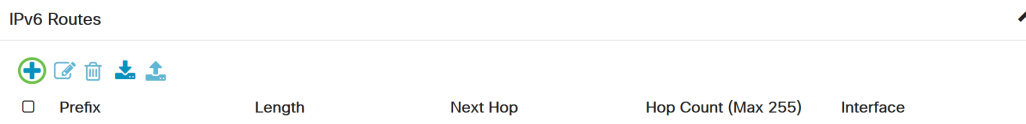
## Step 2

Navigate to **Routing > Static Routing**.



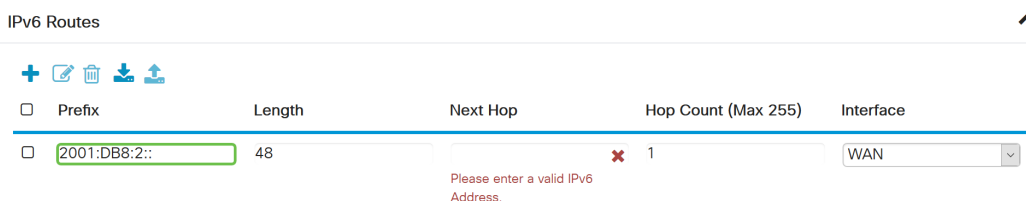
## Step 3

If you want to configure IPv6 routes, go to the *IPv6 Routes* section. Click the **Plus** icon to add a new IPv6 static route. You can edit an existing static route by clicking the **Pencil and Notepad** icon. In this example, we will be adding a new IPv6 static route.



## Step 4


Enter the destination host/network in the IPv6 *prefix* field.



## Step 5

Enter the length of the prefix bits in the IPv6 destination in the IPv6 prefix *Length* field. This specifies the size of the destination subnet. We will be using 48 as the prefix length for this example.

IPv6 Routes ^




Prefix	Length	Next Hop	Hop Count (Max 255)	Interface
<input type="checkbox"/> 2001:DB8:2::	<input type="text" value="48"/>	<input type="text" value=""/>	<input type="text" value="1"/>	<input type="text" value="WAN"/>

Please enter a valid IPv6 Address.

## Step 6

Enter the next hop router IP address in the *Next Hop* field. We will be using Router B's IPv6 address.

IPv6 Routes ^




Prefix	Length	Next Hop	Hop Count (Max 255)	Interface
<input type="checkbox"/> 2001:DB8:2::	<input type="text" value="48"/>	<input type="text" value="2002::1"/>	<input type="text" value="1"/>	<input type="text" value="WAN"/>

## Step 7

Enter the hop count number. The maximum hop count number is 255.

IPv6 Routes ^




Prefix	Length	Next Hop	Hop Count (Max 255)	Interface
<input type="checkbox"/> 2001:DB8:2::	<input type="text" value="48"/>	<input type="text" value="2002::1"/>	<input type="text" value="1"/>	<input type="text" value="WAN"/>

## Step 8

Choose the interface to use for this static route from the drop-down list.

IPv6 Routes ^



Prefix	Length	Next Hop	Hop Count (Max 255)	Interface
<input type="checkbox"/> 2001:DB8:2::	<input type="text" value="48"/>	<input type="text" value="2002::1"/>	<input type="text" value="1"/>	<input type="text" value="WAN"/>


## Step 9

Click **Apply**.

**Note:** To see Router B configuration, please refer to the next step.


Static Routing

IPv4 Routes ^



Network	Mask	Next Hop	Hop Count (Max 255)	Interface
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IPv6 Routes ^








Prefix	Length	Next Hop	Hop Count (Max 255)	Interface
<input type="checkbox"/> 2001:DB8:2::	<input type="text" value="48"/>	<input type="text" value="2002::1"/>	<input type="text" value="1"/>	<input type="text" value="WAN"/>

## Step 10

For IPv6 static route on Router B, we will be putting **2001:DB8:1::** as the destination *Prefix* network, **48** as the *Length*, **2002::2** as the *Next Hop*, **1** *Hop Count*, and **WAN** as the *Interface*. Click **Apply** to add the static route.

IPv6 Routes ^

<input type="checkbox"/>	Prefix	Length	Next Hop	Hop Count (Max 255)	Interface
<input type="checkbox"/>	2001:DB8:1::	48	2002::2	1	WAN

## Conclusion

You should now have successfully added a static route on the RV160 or RV260 for either IPv4 or IPv6 on Router A and B. After configuring both Router A and Router B with static routes, PC A should be able to ping PC B and vice versa. If they are not able to ping, double check your configuration.