

Configuring VLAN Settings on the RV160 and RV260

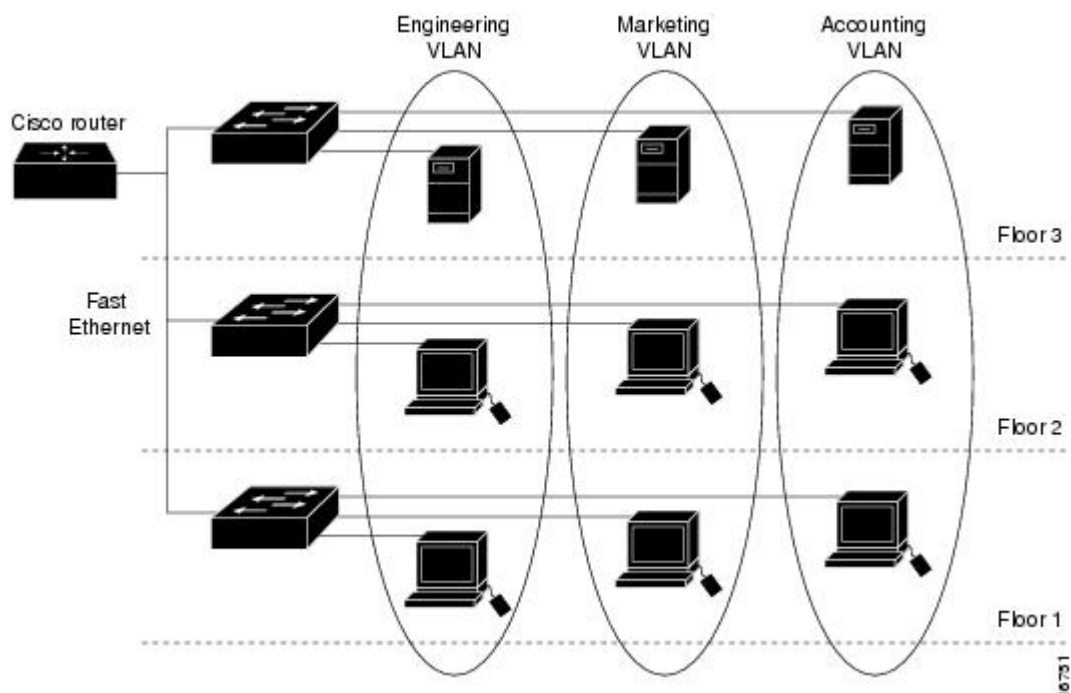
Objective

The objective of this document is to show you how to configure IPv4 Virtual Local Area Network (VLAN) settings on the RV160 and RV260.

Introduction

A VLAN allows you to logically segment a Local Area Network (LAN) into different broadcast domains. In scenarios where sensitive data may be broadcast on a network, VLANs can be created to enhance security by designating a broadcast to a specific VLAN. Only users that belong to a VLAN are able to access and manipulate the data on that VLAN. VLANs can also be used to enhance performance by reducing the need to send broadcasts and multicasts to unnecessary destinations. You can create a VLAN, but this has no effect until the VLAN is attached to at least one port, either manually or dynamically. Ports must always belong to one or more VLANs.

Below is an example of three VLANs that were created for an Engineering, Marketing, and Accounting team.



Applicable Devices

- RV160
- RV260

Software Version

- 1.0.00.13

VLAN Configuration

Step 1. Log in to the Graphical User Interface (GUI) of the router.



Router

cisco

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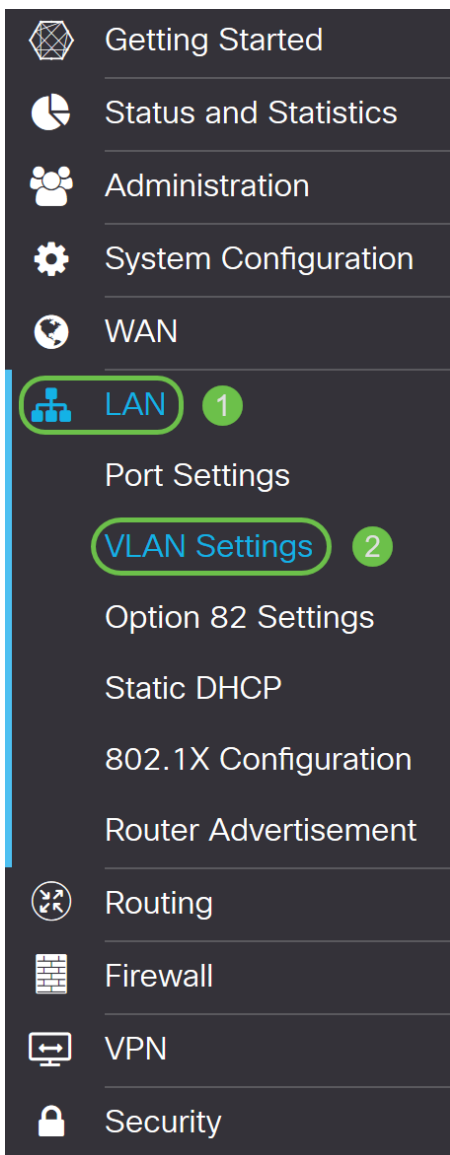
English ▼

Login

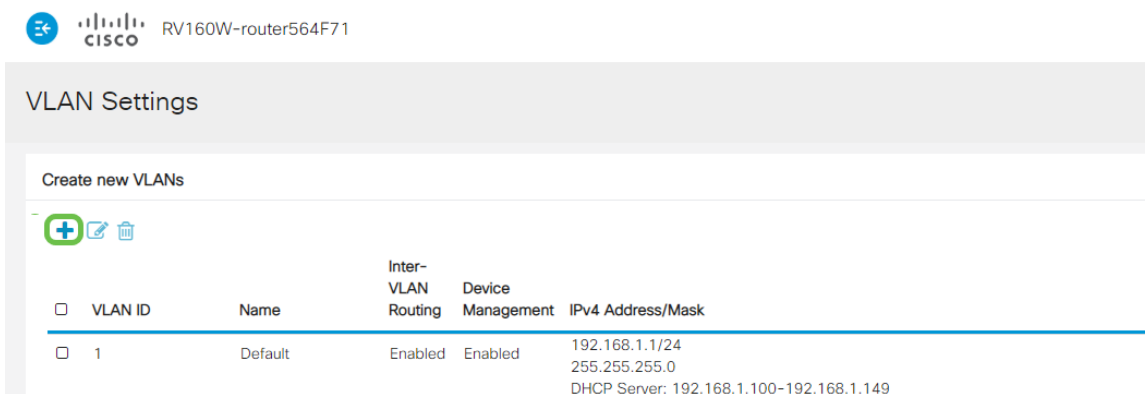
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Step 2. Navigate to **LAN > VLAN Settings**.



Step 3. Click **Add** to create a new VLAN.



Step 4. Enter the *VLAN ID* that you want to create and a *Name* for it. The *VLAN ID* range is from 1-4093.

We entered **200** as our *VLAN ID* and **Engineering** as the *Name* for the VLAN.

VLAN Settings

Create new VLANs



| <input type="checkbox"/> | VLAN ID | Name | Inter-VLAN Routing | Device Management | IPv4 Address/Mask |
|--------------------------|---------|-------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | 1 | Default | Enabled | Enabled | 192.168.1.1/24 255.255.255.0 DHCP Server: 192.168.1.100-192.168.1.149 |
| <input type="checkbox"/> | 200 | Engineering | <input type="checkbox"/> | <input type="checkbox"/> | IP Address: 192.168.2.1 / 24 Subnet Mask: 255.255.255.0 DHCP Type: <input type="radio"/> Disabled <input checked="" type="radio"/> Server <input type="radio"/> Relay Lease Time: 1440 min. Range Start: 192.168.2.100 Range End: 192.168.2.149 DNS Server: Use DNS Proxy WINS Server: |

Step 5. **Uncheck** the *Enabled* box for both *Inter-VLAN Routing* and *Device Management*.

Inter-VLAN routing is used to route packets from one VLAN to another VLAN. In general, this is not recommended as it leaves VLANs less secure. There are times when it may be necessary for VLANs to route between each other. If this is the case, check out [Inter-VLAN Routing on an RV34x Router with Targeted ACL Restrictions](#) for more information.

Device Management is the software that allows you to use your browser to log into the GUI of the device, from the VLAN, and manage the device.

In this example, we did not enable either the *Inter-VLAN Routing* or *Device Management* to keep the VLAN more secure.

VLAN Settings

Create new VLANs



| <input type="checkbox"/> | VLAN ID | Name | Inter-VLAN Routing | Device Management | IPv4 Address/Mask |
|--------------------------|---------|-------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | 1 | Default | Enabled | Enabled | 192.168.1.1/24 255.255.255.0 DHCP Server: 192.168.1.100-192.168.1.149 |
| <input type="checkbox"/> | 200 | Engineering | <input type="checkbox"/> | <input type="checkbox"/> | IP Address: 192.168.2.1 / 24 Subnet Mask: 255.255.255.0 DHCP Type: <input type="radio"/> Disabled <input checked="" type="radio"/> Server <input type="radio"/> Relay Lease Time: 1440 min. Range Start: 192.168.2.100 Range End: 192.168.2.149 DNS Server: Use DNS Proxy WINS Server: |

Step 6. The private IPv4 address will auto-populate in the *IP Address* field. You can adjust this if you choose.

VLAN Settings

Create new VLANs



| VLAN ID | Name | Inter-VLAN Routing | Device Management | IPv4 Address/Mask |
|------------------------------|-------------|-------------------------------------|-------------------------------------|---|
| <input type="checkbox"/> 1 | Default | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 192.168.1.1/24 255.255.255.0 DHCP Server: 192.168.1.100-192.168.1.149 |
| <input type="checkbox"/> 200 | Engineering | <input type="checkbox"/> | <input type="checkbox"/> | IP Address: 192.168.2.1 / 24 Subnet Mask: 255.255.255.0 DHCP Type: <input type="radio"/> Disabled <input checked="" type="radio"/> Server <input type="radio"/> Relay Lease Time: 1440 min. Range Start: 192.168.2.100 Range End: 192.168.2.149 DNS Server: Use DNS Proxy WINS Server: |

Step 7. The subnet mask under *Subnet Mask* will auto-populate. If you make changes, this will automatically adjust the field.

For this demonstration, we will be leaving the *Subnet Mask* as **255.255.255.0** or **/24**.

VLAN Settings

Create new VLANs



| VLAN ID | Name | Inter-VLAN Routing | Device Management | IPv4 Address/Mask |
|------------------------------|-------------|-------------------------------------|-------------------------------------|---|
| <input type="checkbox"/> 1 | Default | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 192.168.1.1/24 255.255.255.0 DHCP Server: 192.168.1.100-192.168.1.149 |
| <input type="checkbox"/> 200 | Engineering | <input type="checkbox"/> | <input type="checkbox"/> | IP Address: 192.168.2.1 / 24 Subnet Mask: 255.255.255.0 DHCP Type: <input type="radio"/> Disabled <input checked="" type="radio"/> Server <input type="radio"/> Relay Lease Time: 1440 min. Range Start: 192.168.2.100 Range End: 192.168.2.149 DNS Server: Use DNS Proxy WINS Server: |

Step 8. Select a *Dynamic Host Configuration Protocol (DHCP) Type*. The following options are:

Disabled – Disables the DHCP IPv4 server on VLAN. This is recommended in a test environment. In this scenario, all IP addresses would need to be manually configured and all communication would be internal.

Server - This is the most often used option.

- *Lease Time* – Enter a time value of 5 to 43,200 minutes. Default is 1440 minutes (equal to 24 hours).
- *Range Start and Range End* – Enter the range start and end of IP addresses that can be assigned dynamically.

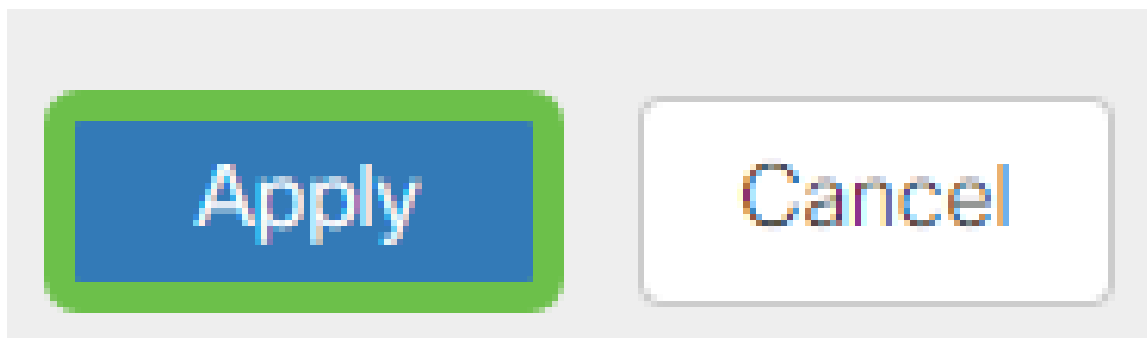
- *DNS Server* – Select to use DNS server as proxy, or from ISP from the drop-down list.
- *WINS Server* – Enter the WINS server name.
- *DHCP Options:*
 - *Option 66* – Enter the IP address of the TFTP server.
 - *Option 150* – Enter the IP address of a list of TFTP servers.
 - *Option 67* – Enter the configuration filename.
- *Relay* – Enter the remote DHCP server IPv4 address to configure the DHCP relay agent. This is a more advanced configuration.

VLAN Settings

Create new VLANs

| VLAN ID | Name | Inter-VLAN Routing | Device Management | IPv4 Address/Mask |
|------------------------------|-------------|-------------------------------------|-------------------------------------|---|
| <input type="checkbox"/> 1 | Default | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 192.168.1.1/24 255.255.255.0 DHCP Server: 192.168.1.100-192.168.1.149 |
| <input type="checkbox"/> 200 | Engineering | <input type="checkbox"/> | <input type="checkbox"/> | IP Address: 192.168.2.1 / 24 Subnet Mask: 255.255.255.0 DHCP Type: <input checked="" type="radio"/> Server <input type="radio"/> Disabled <input type="radio"/> Relay Lease Time: 1440 min. Range Start: 192.168.2.100 Range End: 192.168.2.149 DNS Server: Use DNS Proxy WINS Server: |

Step 9. Click **Apply** to create the new VLAN.



Assign VLANs to Ports

16 VLANs can be configured on the RV160 or RV260, with one VLAN for the Wide Area Network (WAN). VLANs that are not on a port should be *Excluded*. This keeps the traffic on that port exclusively for the VLAN/VLANs the user specifically assigned. It is considered a best practice.

Ports can be set to be an Access Port or a Trunk Port:

- Access Port - Assigned one VLAN. *Untagged* frames are passed.
- Trunk Port - Can carry more than one VLAN. 802.1q. “Trunking” allows for a native VLAN to be *Untagged*. VLANs that you don’t want on the Trunk should be *Excluded*.

One VLAN assigned its own port:

- Considered an Access port.
- The VLAN that is assigned this port should be labeled *Untagged*.
- All other VLANs should be labeled *Excluded* for that port.

Two or more VLANs that share one port:

- Considered a Trunk Port.
- One of the VLANs can be labeled *Untagged*.
- The rest of the VLANs that are part of the Trunk Port should be labeled *Tagged*.
- The VLANs that are not part of the Trunk Port should be labeled *Excluded* for that port.

Note: In this example, there are no trunks.

Step 10. Select the *VLAN IDs* to edit. Click **Edit**.

In this example, we have selected *VLAN 1* and *VLAN 200*.

Assign VLANs to ports

| <input type="checkbox"/> | VLAN ID | LAN1 | LAN2 |
|-------------------------------------|---------|----------|----------|
| <input checked="" type="checkbox"/> | 1 | Untagged | Excluded |
| <input checked="" type="checkbox"/> | 200 | Excluded | Untagged |

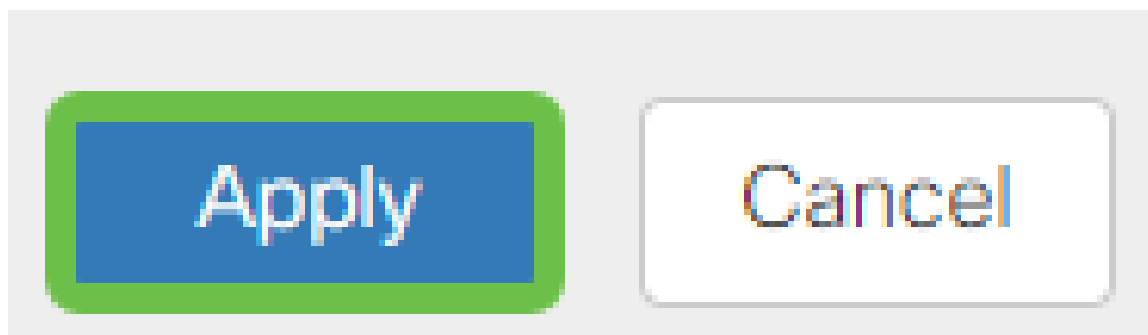
Step 11. Click **Edit** to assign a VLAN to a LAN port and specify each setting as *Tagged*, *Untagged*, or *Excluded*.

In this example, on LAN1 we assigned VLAN 1 as **Untagged** and VLAN 200 as **Excluded**. For LAN2 we assigned VLAN 1 as **Excluded** and VLAN 200 as **Untagged**.

Assign VLANs to ports

| <input type="checkbox"/> | VLAN ID | LAN1 | LAN2 |
|-------------------------------------|---------|----------|----------|
| <input checked="" type="checkbox"/> | 1 | Untagged | Excluded |
| <input checked="" type="checkbox"/> | 200 | Excluded | Untagged |

Step 12. Click **Apply** to save the configuration.



Conclusion

You should now have successfully created a new VLAN and configured VLANs to ports on the RV160 and RV260. Repeat the process to create other VLANs.