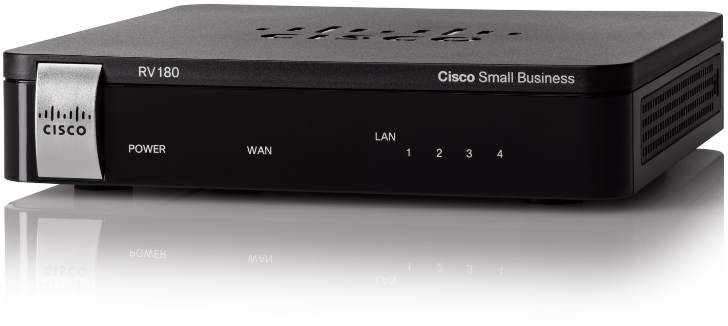


ADMINISTRATION GUIDE

Cisco Small Business

RV180 VPN Router
RV180W Wireless-N Multifunction Router

June 2012

Chapter 1: Introduction 1

1

Introduction

This chapter describes the features of the Cisco RV180/RV180W, guides you through the installation process, and gets you started using the Device Manager, a browser-based utility for configuring the Cisco RV180/RV180W.

Product Overview

Thank you for choosing the Cisco Small Business RV180/RV180W router.

The Cisco RV180 & RV180W Wireless-N VPN Router provides simple, affordable, highly secure, business-class connectivity to the Internet for small offices and remote workers. The RV180W features multi-function operation allowing the device to function as a wireless router, bridge, or access point. Both products include 4-port Gigabit Ethernet LAN ports, a Gigabit Ethernet WAN port, and an intuitive browser-based device manager.

LAN Ethernet Interfaces

Both the Cisco RV180 and Cisco RV180W models provide four full-duplex 10/1000 Ethernet LAN interfaces that can connect up to four devices.

Wireless Access Point (Cisco RV180W)

The Cisco RV180W model provides a wireless access point that supports the 802.11n standard with MIMO technology, which multiplies the effective data rate. This technology provides better throughput and coverage than 802.11g networks.

Router and VPN Client Access

The Cisco RV180/RV180W incorporates a Stateful Packet Inspection (SPI)-based router with Denial of Service (DoS) prevention and a Virtual Private Network (VPN) engine for secure communication between mobile or remote workers and branch offices.

The Cisco RV180/RV180W supports up to ten gateway-to-gateway IP Security (IPsec) tunnels to facilitate branch office connectivity through encrypted virtual links. Users connecting through a VPN tunnel are attached to your company’s network with secure access to files, e-mail, and your intranet as if they were in the building.

You can also use the VPN capability to allow users on your small office network to securely connect out to a corporate network.

Wireless Distribution System (Cisco RV180W)

The Cisco RV180W's wireless access point supports Wireless Distribution System (WDS), which allows the wireless coverage to be expanded without wires.

Virtual Networks

The access point also supports multiple SSIDs for the use of virtual networks (up to 4 separate virtual networks), with 802.1Q-based VLAN support for traffic separation.

Wireless Security (Cisco RV180W)

The Cisco RV180W implements WPA-PSK, WPA-ENT, WPA2-PSK, WPA2-ENT, and WEP encryption, along with other security features including the disabling of SSID broadcasts, MAC-based filtering, and allowing or denying "time of day" access per SSID.

Quality of Service (Cisco RV180W)

The Cisco RV180W supports Wi-Fi Multimedia (WMM) and Wi-Fi Multimedia Power Save (WMM-PS) for wireless Quality of Service (QoS). It supports 802.1p, Differentiated Services Code Point (DSCP), and Type of Service (ToS) for wired QoS, which can improve the quality of your network when using delay-sensitive Voice over IP (VoIP) applications and bandwidth-intensive video streaming applications.

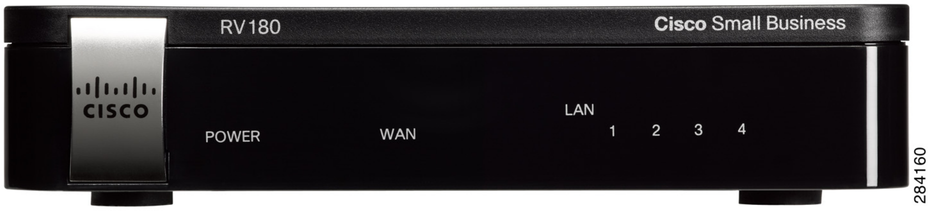
Configuration and Administration

With the Cisco RV180/RV180W's embedded web server, you can configure the router's settings using the browser-based Device Manager. The Cisco RV180/RV180W supports Internet Explorer, Firefox, and Safari web browsers.

The Cisco RV180/RV180W also provides a setup wizard. The setup wizard allows you to easily configure the Cisco RV180/RV180W's basic settings.

Getting to Know the Cisco RV180

Front Panel

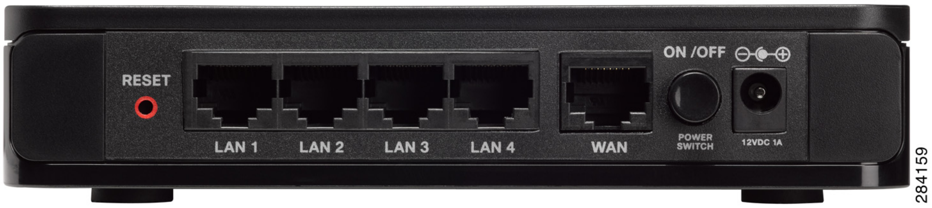


POWER—The Power LED lights up green to indicate the device is powered on. It flashes green when the power is coming on or software is being upgraded.

WAN LED—The WAN (Internet) LED lights up green when the device is connected to your cable or DSL modem. The LED flashes green when the device is sending or receiving data over the WAN port.

LAN—These four LEDs correspond to the four LAN (Ethernet) ports of the Cisco RV180. If the LED is continuously lit green, the Cisco RV180 is connected to a device through the corresponding port (1, 2, 3, or 4). The LED for a port flashes green when the Cisco RV180 is actively sending or receiving data over that port.

Back Panel



RESET Button—The Reset button has two functions:

- If the Cisco RV180 is having problems connecting to the Internet, press the RESET button for less than five seconds with a paper clip or a pencil tip. This is similar to pressing the reset button on your PC to reboot it.
- If you are experiencing extreme problems with the Cisco RV180 and have tried all other troubleshooting measures, press and hold in the RESET

button for at least 20 seconds. This will restore the factory defaults and clear all of the Cisco RV180 settings.

NOTE We recommend that you back up your current configuration before resetting the device to the factory default settings. See **Backing Up and Restoring the System, page 151**.

LAN Ports (1-4)—These ports provide a LAN connection to network devices, such as PCs, print servers, or additional switches.

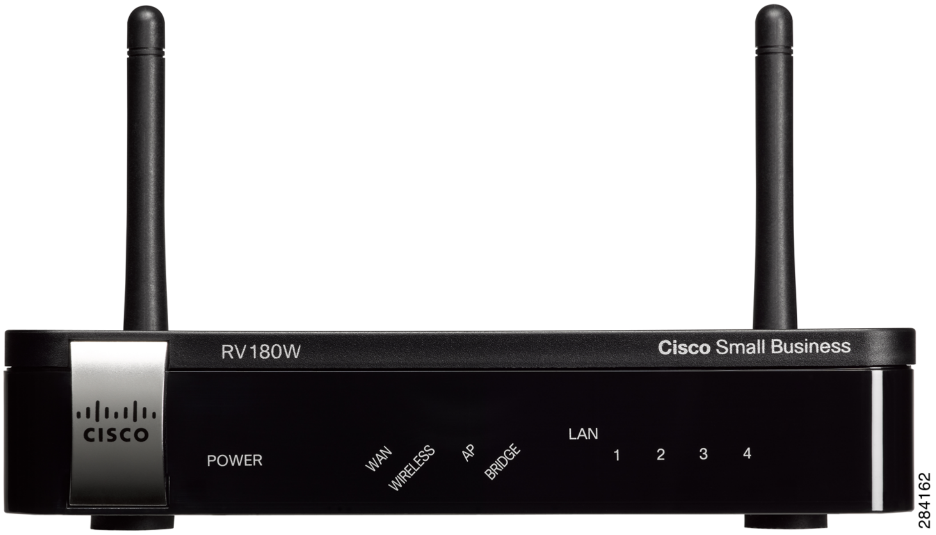
WAN Port—The WAN port is connected to your Internet device, such as a cable or DSL modem.

ON/OFF Power Switch—Press this button to turn the Cisco RV180 on and off. When the button is pushed in, power is on.

Power Port—The power port is where you connect the AC power cable.

Getting to Know the Cisco RV180W

Front Panel



POWER—The Power LED lights up green to indicate the device is powered on. It flashes green when the power is coming on or software is being upgraded.

WAN LED—The WAN (Internet) LED lights up green when the device is connected to your cable or DSL modem. The LED flashes green when the device is sending or receiving data over the WAN port.

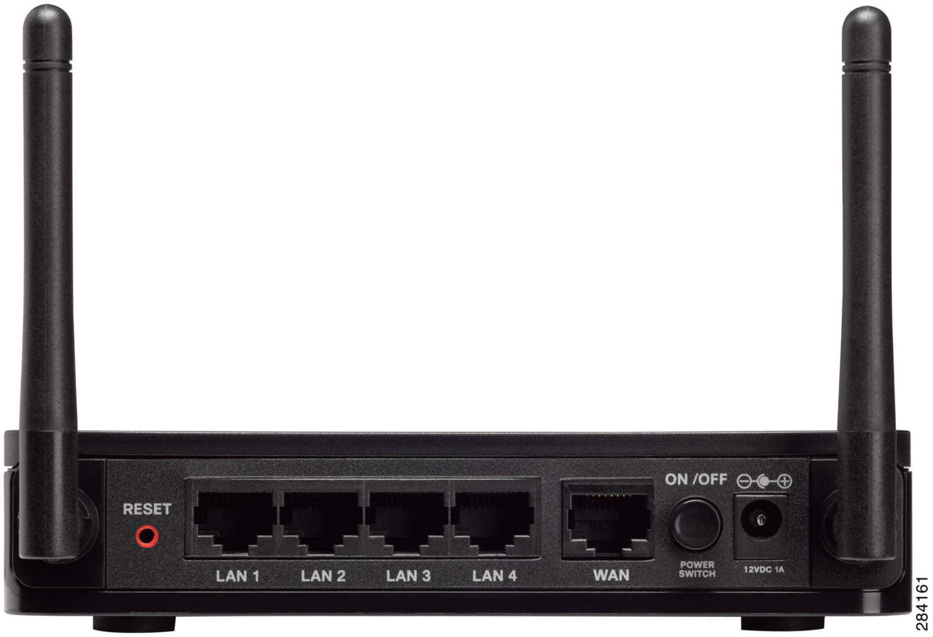
WIRELESS—The Wireless LED lights up green when the wireless module is enabled by the Device Manager. The LED is off when the wireless module is disabled. The LED flashes green when the device is transmitting or receiving data on the wireless module.

AP—The AP LED lights up solid green when the Cisco RV180W is in access point mode. See **Choosing the Device Mode (Cisco RV180W), page 15**.

BRIDGE—The BRIDGE LED lights up solid green when the Cisco RV180W is in bridge mode. See **Choosing the Device Mode (Cisco RV180W), page 15**.

LAN—These four LEDs correspond to the four LAN (Ethernet) ports of the Cisco RV180/RV180W. If the LED is continuously lit green, the Cisco RV180W is connected to a device through the corresponding port (1, 2, 3, or 4). The LED for a port flashes green when the Cisco RV180W is actively sending or receiving data over that port.

Back Panel



RESET Button—The Reset button has two functions:

- If the Cisco RV180W is having problems connecting to the Internet, press the **RESET** button for less than five seconds with a paper clip or a pencil tip. This is similar to pressing the reset button on your PC to reboot it.
- If you are experiencing extreme problems with the Cisco RV180W and have tried all other troubleshooting measures, press and hold in the **RESET** button for 10 seconds. This will restore the factory defaults and clear all of the Cisco RV180W settings.

LAN Ports (1-4)—These ports provide a LAN connection to network devices, such as PCs, print servers, or additional switches.

WAN Port—The WAN port is connected to your Internet device, such as a cable or DSL modem.

ON/OFF Power Switch—Press this button to turn the Cisco RV180W on and off. When the button is pushed in, power is on.

Power Port—The power port is where you connect the AC power cable.

Mounting the Cisco RV180/RV180W

You can place your Cisco RV180/RV180W on a desktop or mount it on a wall.

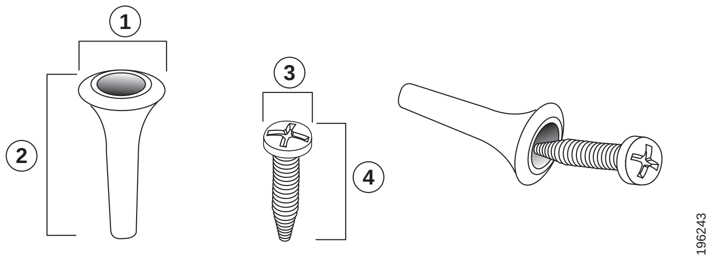
Placement Tips

- **Ambient Temperature**—To prevent the device from overheating, do not operate it in an area that exceeds an ambient temperature of 104°F (40°C).
- **Air Flow**—Be sure that there is adequate air flow around the device.
- **Mechanical Loading—**Be sure that the device is level and stable to avoid any hazardous conditions.

For desktop placement, place the Cisco RV180/RV180W device horizontally on a flat surface so that it sits on its four rubber feet.

Wall Mounting

The Cisco RV180/RV180W can be wall-mounted. You will need two mounting screws (not supplied) and drywall anchors (not supplied), if you are installing the screws into wallboard. The dimensions for the screws are as follows:



1	0.30 to 0.32 in/ 7.7 to 8.2 mm	2	0.86 to 0.88 in/ 21.8 to 22.3 mm	3	0.26 to 0.28 in/ 6.5 to 7.1 mm	4	0.61 to 0.63 in/ 15.5 to 16 mm

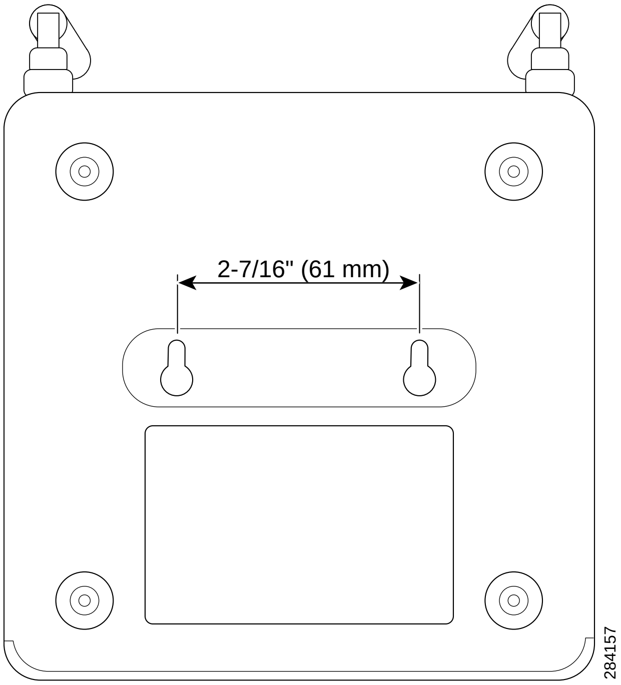
WARNING Insecure mounting might damage the device or cause injury. Cisco is not responsible for damages incurred by insecure wall-mounting.

To mount the firewall to the wall:

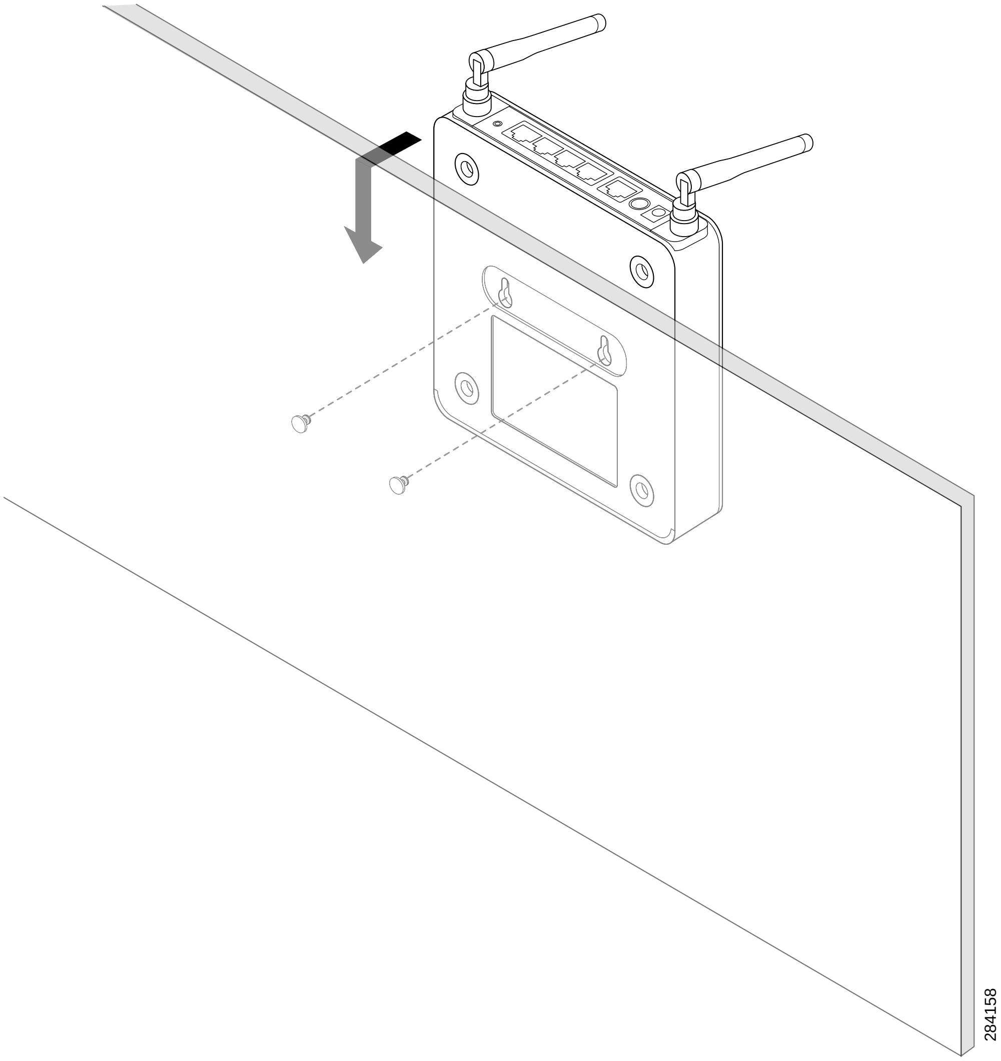
STEP 1 Determine where you want to mount the firewall. Verify that the surface is smooth, flat, dry, and sturdy.

STEP 2 Drill two pilot holes into the surface 2-7/16 inches (61 mm) apart, and with a minimum of 5.12 inches (130 mm) of clearance.

STEP 3 Insert a screw into each hole, leaving a gap between the surface and the base of the screw head of at least 0.1 inches (3 mm).



STEP 4 Place the firewall wall-mount slots over the screws and slide the firewall down until the screws fit snugly into the wall-mount slots.



Connecting the Equipment

Before you begin the installation, make sure that you have the following equipment and services:

Required

- Functional Internet Connection (Broadband DSL or cable modem).
- Ethernet cable for WAN (Internet) connection.
- PC with functional network adapter (Ethernet connection) to run the Setup Wizard or the Device Manager. The Setup Wizard is supported on Microsoft Windows 2000, Windows XP, Windows Vista, and Windows 7. The Device Manager is supported on the following web browsers:
  - Microsoft Internet Explorer 6.0 and later
  - Mozilla Firefox 3.0 and later
  - Apple Safari 3.0 and later
  - Google Chrome 1.0 and later
- Ethernet cable (provided) to connect the router to a PC for configuration.

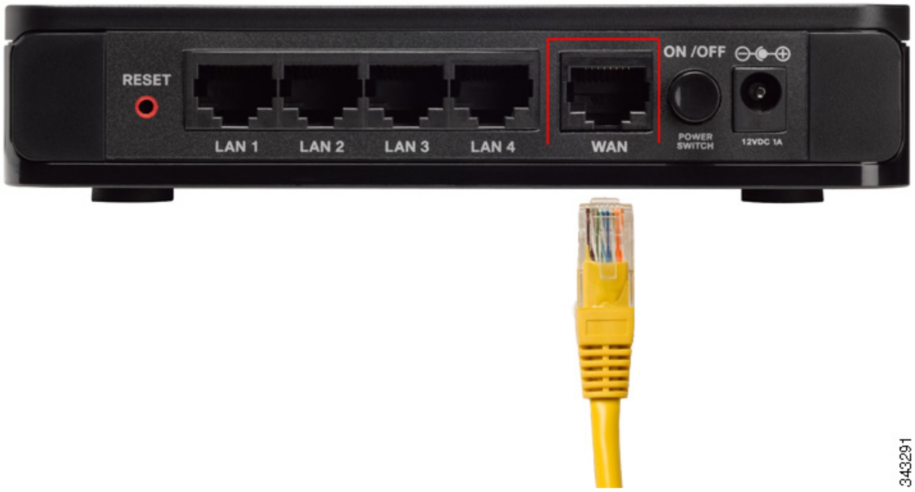
Optional

- Uninterruptible Power Supply (UPS) to provide backup power to essential devices (strongly recommended).
- Ethernet cables for LAN interfaces, if you want to connect additional devices to the router's LAN ports.

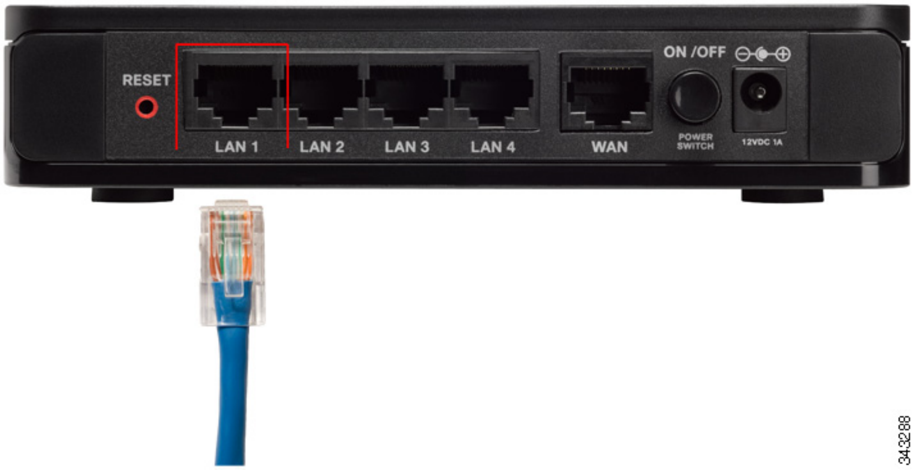
To connect your router to the Internet:

STEP 1 Power off all equipment, including the cable or DSL modem, the PC you will use to connect to the RV180/RV180W, and the RV180/RV180W.

STEP 2 If your Ethernet cable from your DSL or cable modem is currently connected to a device such as a router or PC, disconnect the cable from the device and plug it into the port marked "WAN" on the RV180/RV180W. The cable or DSL modem is now connected to the router.



STEP 3 Using the Ethernet cable included in the Cisco RV180/180W box, connect one end of the cable to one of the LAN ports of the router. (In this example, the LAN 1 port is used.) Connect the other end of the cable to an Ethernet port on the PC that will be used to connect to the Cisco RV180/180W Device Manager.

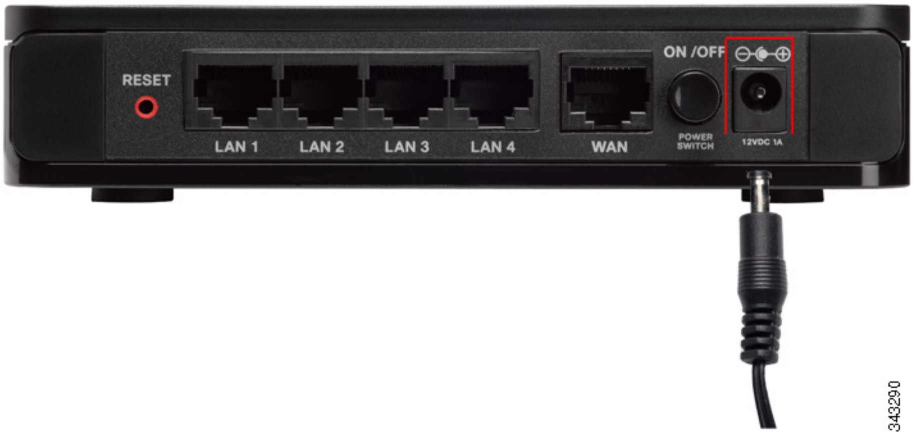


STEP 4 Power on the cable or DSL modem and wait until the connection is active.

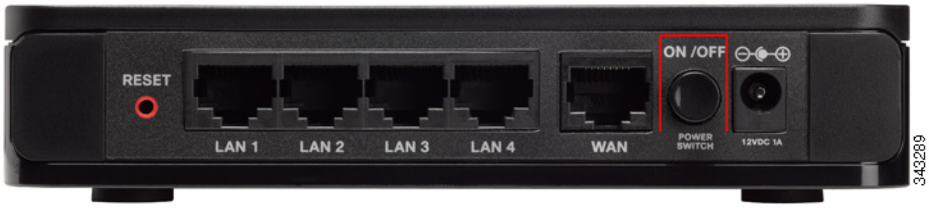
STEP 5 Connect the power adapter to the Cisco RV180/RV180W power port (12VDC).

CAUTION Use only the power adapter that is supplied with the device. Using a different power adapter could damage the device.

STEP 6 Plug the other end of the adapter into an electrical outlet. You may need to use a specific plug (supplied) for your country.



STEP 7 On the Cisco RV180/RV180W, push in the ON/OFF power button.



The power light on the front panel lights up green when the power adapter is connected properly and the unit is turned on.

Setting Up the Cisco RV180/RV180W Using the Setup Wizard

With the RV180/RV180W powered on and connected to a PC, use the Setup Wizard to configure the Cisco RV180/RV180W.

To use the Setup Wizard:

STEP 1 Start the PC connected to the RV180/RV180W. Your computer becomes a DHCP client of the RV180/RV180W and receives an IP address in the 192.168.1.xxx range.

STEP 2 Launch a web browser and enter **192.168.1.1** in the **Address** field. This is the default IP address of the RV180/RV180W.

A message appears about the site's security certificate. The RV110W uses a self-signed security certificate and this message appears because the router is not known to your computer.

STEP 3 Click **Continue to this website** (or the option shown on your particular web browser) to go to the web site.

The router's default IP address is 192.168.1.1. If there is another device connected to the network that is acting as a DHCP server, that device may assign a different address to the RV180/RV180W. If so, use that IP address to connect to the RV180/RV180W.

STEP 4 When the login page appears, enter the user name and password. The default user name is cisco. The default password is cisco. Passwords are case sensitive. To protect your router, change the default user name and password as soon as possible. See the **"Configuring User Accounts" section on page 139**.

STEP 5 Click **Log In**. The Setup Wizard starts.

STEP 6 Follow the Setup Wizard's on-screen instructions to set up the RV180/RV180W. The Setup Wizard tries to automatically detect and configure your connection. If it cannot, the Setup Wizard may ask you for information about your Internet connection. You may need to contact your ISP to obtain this information.

After the Setup Wizard is done configuring the RV180/RV180W, the **Getting Started** page appears. See **Using the Getting Started Page, page 17** for more information.

Choosing the Device Mode (Cisco RV180W)

You can configure the Cisco RV180W device mode to choose how the device performs in your network. To choose the device mode:

STEP 1 Choose **Device Mode**.

STEP 2 Click to select the device mode for the Cisco RV180W. See below for more information.

STEP 3 Click **Save**.

The RV180W provides the following modes:

Router

The Cisco RV180W acts as the wireless router in the network.

Access Point

The Cisco RV180W acts as the access point in the network. The WAN port is disabled, and the four Ethernet ports can be used to connect to another router or switch. The RV180W has the default IP address of 192.168.1.245. If you are connecting the RV180W to a network that uses 802.1x for authentication, you must enable 802.1x on the RV180W. See **Configuring 802.1x Port-Based Authentication, page 129**.

WDS Bridge

The Cisco RV180W acts as a wireless bridge to another wireless network. To set up the RV180W as a WDS bridge, perform the following tasks:

STEP 1 Connect the PC on which you will be using the Device Manager to the primary wireless host (in this example, called “Router A”).

STEP 2 Connect one of the LAN ports on Router A with one of the LAN ports on the Cisco RV180W.

STEP 3 On your PC, set your IP address to a static IP address that is on the same subnet as the Cisco RV180W. For example, change your PC’s IP address to 192.168.1.30.

STEP 4 Enable WDS on Router A and the RV180W. (On the RV180W, choose **Wireless** > **WDS.** Check **Enable**, and click **Save**.)

STEP 5 On the RV180W, enter the Router A's MAC address of the wireless network (access point). For example, if Router A is a Cisco RV220W, you would find the MAC address of its wireless network under **Status** > **System Summary**, in the **Available Access Points** table. To enter Router A's MAC address into the RV180W:

a. Choose **Wireless** > **WDS**.

b. In the **WDS Peer Table**, click **Add** and enter the MAC address of the host router (Router A)'s wireless network.

c. Click **Save**. For more information, see the **"Configuring a Wireless Distribution System (WDS)" section on page 73**.

STEP 6 On Router A, enter the MAC address of the wireless network on the RV180W. Enter only the MAC address of SSID 1 on router A because only SSID 1 supports WDS. (To view the available RV180W access points and their MAC addresses, go to **Status** > **System Summary** and look at the **Available Access Point Table**.)

STEP 7 Disconnect the Ethernet connection between Router A and the RV180W. After the WDS connection is established, you should be able to ping the RV180W from the PC that is connected to Router A.

The following situations may apply, depending on the host router and RV180W configuration:

- You may need to reboot the RV180W after configuring WDS and disconnecting it from the host router.
- If both routers are powered off, you may need to wait a few seconds after turning on the host router to turn on the RV180w.

WDS Repeater

The Cisco RV180W connects using wireless to another wireless network and repeats the wireless signal to clients behind the Cisco RV180W. You must configure the MAC address of the AP or peers in order to allow them to associate to the RV180W. See the **"Configuring a Wireless Distribution System (WDS)" section on page 73**.

Using the Getting Started Page

The **Getting Started** page displays the most common Cisco RV180/RV180W configuration tasks. Use the links on this page to jump to the relevant configuration page.

By default, this page appears when you start the Device Manager. However, you can change this behavior by checking **Don't show this on start up** at the bottom of the page.

Initial Settings

Run Setup Wizard	Click this link to launch the Setup Wizard.
Configure WAN (Internet) Settings	Click this link to open the **Internet Setup** page. See **Configuring the IPv4 WAN (Internet), page 24**.
Configure LAN (Local Network) Settings	Click this link to open the **LAN Configuration** page. See **Configuring IPv4 LAN (Local Network) Settings, page 32**.
Configure Wireless Settings (RV180W only)	Click this link to open the **Basic Settings** page. See **Configuring Basic Wireless Settings, page 63**.
Add VPN Clients	See **Configuring VPN Users, page 121**.

Quick Access

Upgrade Device Firmware	Click this link to open the **Firmware Upgrade** page. See **Upgrading Firmware, page 156**.
Backup/Restore Settings	Click this link to open the **Backup and Restore** page. See **Backing Up and Restoring the System, page 151**

Configure Site to Site VPN	Click this link to open the **Basic VPN Setup** page. See Configuring a Basic VPN, page 109.
Configure Web Access	Click this link to open the **Web Access** page. See Configuring Web Access, page 138.

Device Status

Dashboard	Click this link to open the **Dashboard** page. See Viewing the Dashboard, page 159.
System Summary	Click this link to open the **System Summary** page. See Viewing the System Summary, page 162.
Wireless Status (RV180W only)	Click this link to open the **Wireless Statistics** page. See Viewing the Wireless Statistics (Cisco RV180W), page 166.
VPN Status	Click this link to open the **IPsec Connection Status** page. See IPsec Connection Status, page 167.

Other Resources

Support	Click this link to open Cisco's support page.
Forums	Click this link to visit Cisco's online support forums.

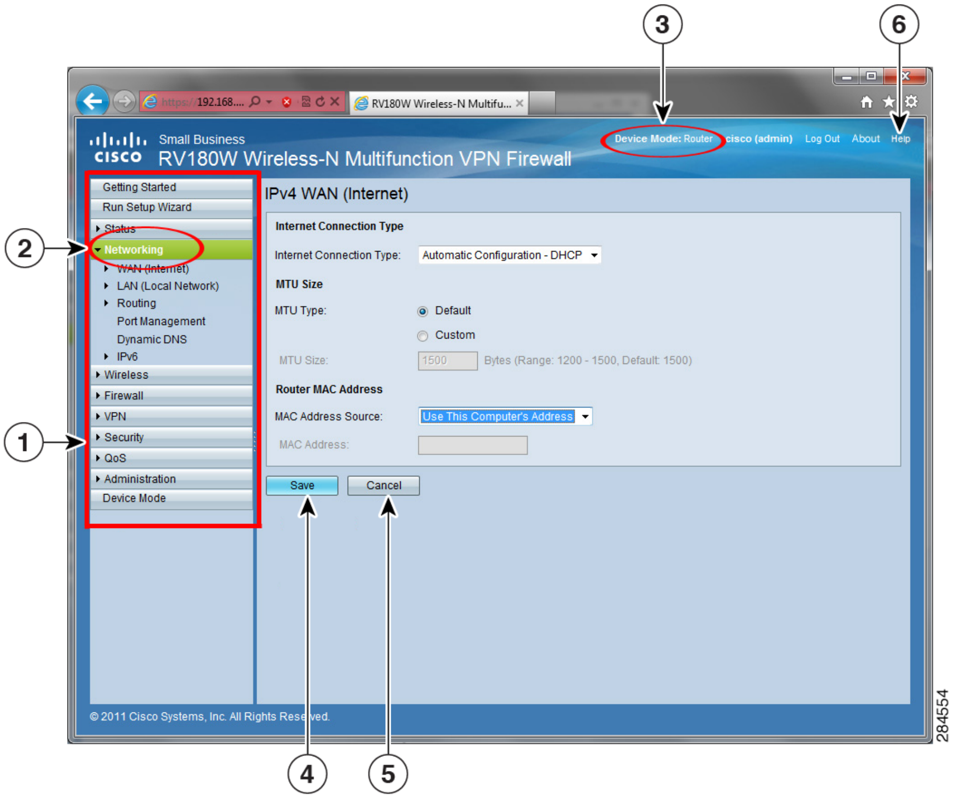
Navigating through the Pages

Use the navigation tree (numbered 1 in Figure 1) located in the in the left pane to open the configuration pages.

Click a menu item (numbered 2 in **Figure 1**) on the left panel to expand it. Click the menu names displayed underneath to perform an action or view a sub-menu.

NOTE The RV180W menus change depending on the router mode (Router, Access Point, WDS Bridge, or WDS Repeater) that you have configured for the RV180W. For example, the RV180W in WDS Bridge mode displays fewer choices under the **Security** menu than the RV180W in router mode.

On the RV180W, the upper right of the screen (numbered 3 in **Figure 1**) shows in which device mode the RV180W is running.



IPv4 WAN (Internet)

Internet Connection Type

Internet Connection Type: Automatic Configuration - DHCP

MTU Size

MTU Type: ● Default ○ Custom

MTU Size: 1500 Bytes (Range: 1200 - 1500, Default: 1500)

Router MAC Address

MAC Address Source: Use This Computer's Address

MAC Address:

Figure 1 RV180W Device Manager

Saving Your Changes

When you finish making changes on a configuration page, click **Save** (numbered 4 in **Figure 1**) to save the changes, or click **Cancel** (numbered 5 in **Figure 1**) to undo your changes.

Viewing the Help Files

To view more information about a configuration page, click the **Help** link near the top right corner of the page (numbered 6 in **Figure 1**).

Connecting Devices to Your Wireless Network

To connect a device such as a PC or printer to your wireless network, you must configure the wireless connection on the device using the security information you configured for the Cisco RV180/RV180W:

- Network name or Service Set Identifier (SSID). The default SSID is ciscosb-1.
- If applicable, the encryption type and security key.

Configuration Next Steps

Although the Setup Wizard automatically configures the RV180/RV180W, we recommend that you change some default settings to provide better security and performance.

In addition, you may need to manually configure some settings. A suggested outline of steps follows:

- Change the administrator name and password—See **"Configuring User Accounts" on page 139**.
- Change the idle timeout value—By default, The Device Manager logs you out after 10 minutes of inactivity. This can be frustrating if you are trying to configure your device. See **"Setting the Session Timeout Value" on page 140**.
- (Optional) If you already have a DHCP server on your network, and you do not want the Cisco RV180/RV180W to act as a DHCP server, see **"Configuring the LAN (Local Network) Settings" section on page 31**.

- (Cisco RV180W) Configure your wireless network, especially wireless security. See **Chapter 3, “Configuring the Wireless Network (Cisco RV180W).”**

- Configure your Virtual Private Network (VPN) using QuickVPN. The QuickVPN software is found on the documentation and software CD that shipped with your router. See **Appendix A, “Using Cisco QuickVPN for Windows 7, 2000, XP, or Vista.”**

Configuring Networking

The networking page allows you to configure networking settings. This chapter contains the following sections:

NOTE Cisco recommends you use the Setup Wizard to configure basic networking on the Cisco RV180/RV180W. You can then make changes and provision advanced features using the Device Manager.

Configuring the WAN (Internet) Settings

If you have an IPv4 network, use these sections to configure your network. If you have an IPv6 network, see **Configuring IPv6, page 49**.

Configuring the IPv4 WAN (Internet)

STEP 1 Choose **Networking** > **WAN (Internet)** > **IPV4 WAN (Internet)**.

STEP 2 Choose the type of Internet connection you have.

Configuring Automatic Configuration (DHCP)

If your Internet Service Provider (ISP) uses the Dynamic Host Configuration Protocol (DHCP) to assign you an IP address, you receive a dynamic IP address from your ISP.

To configure DHCP WAN settings:

STEP 1 Choose **Networking** > **WAN (Internet) > IPv4 WAN (Internet)**.

STEP 2 From the **Internet Connection Type** drop-down menu, choose **Automatic Configuration - DHCP**.

STEP 3 Enter MTU information. (See **Configuring MTU Settings, page 28**.)

STEP 4 Enter MAC Address information. (See **Configuring the MAC Address, page 29**.)

STEP 5 Click **Save**.

Configuring Static IP

If your ISP assigned you a permanent IP address, perform the following steps to configure your WAN settings:

STEP 1 Choose **Networking** > **WAN (Internet) > IPv4 WAN (Internet)**.

STEP 2 From the **Internet Connection Type** drop-down menu, choose **Static IP**.

STEP 3 Enter this information:

IP Address	Enter the IP address that your ISP has assigned to you.
Subnet mask	Enter subnet mask that your ISP has assigned to you.
Default Gateway	Enter the IP address of the IPS's gateway.
Primary DNS Server	Enter the IP address of the primary DNS server used by your ISP.
Secondary DNS Server	(Optional) Enter the IP address of the secondary DNS server. This is used if the primary DNS server fails.

STEP 4 Enter MTU information. (See **Configuring MTU Settings, page 28**.)

STEP 5 Enter MAC Address information. (See **Configuring the MAC Address, page 29**.)

STEP 6 Click **Save**.

Configuring PPPoE

If you have a Point-to-Point Protocol over Ethernet (PPPoE) connection to the Internet:

STEP 1 Choose **Networking** > **WAN (Internet) > IPv4 WAN (Internet)**.

STEP 2 From the **Internet Connection Type** drop-down menu, choose **PPPoE**.

STEP 3 From the **PPPoE Profile Name** drop-down menu, choose a PPPoE profile. If no profile is listed, click **Configure Profile** to create a new profile.

To see the details of available profiles, choose **Networking** > **WAN (Internet) > PPPoE Profiles**. See **Configuring PPPoE Profiles, page 29** for more information.

STEP 4 Enter MTU information. (See **Configuring MTU Settings, page 28**.)

STEP 5 Enter MAC Address information. (See **Configuring the MAC Address, page 29**.)

STEP 6 Click **Save**.

Configuring PPTP

If you have a Point-to-Point Tunneling Protocol (PPTP) connection to the Internet:

STEP 1 Choose **Networking** > **WAN (Internet) > IPv4 WAN (Internet)**.

STEP 2 From the **Internet Connection Type** drop-down menu, choose **PPTP**.

STEP 3 Enter this information:

User Name	Enter your username assigned to you by the ISP.
Password	Enter your password assigned to you by the ISP.

MPPE Encryption	If your ISP supports Microsoft Point-to-Point Encryption (MPPE), check to enable MPPE encryption.
Connection Type	Choose the connection type: ▪ **Keep connected**—The Internet connection is always on. ▪ **Idle Time**—The Internet connection is on only when traffic is present. If the connection is idle—that is, no traffic is occurring within the specified time frame—the connection is closed. You might want to choose this option if your ISP charges based on connection time.
Idle Time	If you choose **Idle Time** as the connection type, enter the number of minutes after which the connection terminates. The valid range is **5–999**.
My IP Address	Enter the IP address assigned to you by your ISP.
Server IP Address	Enter the IP address of the PPTP server.

STEP 4 Enter MTU information. (See **Configuring MTU Settings, page 28**.)

STEP 5 Enter MAC Address information. (See **Configuring the MAC Address, page 29**.)

STEP 6 Click **Save**.

Configuring L2TP

If you have a Layer 2 Tunneling Protocol (L2TP) connection to the Internet:

STEP 1 Choose **Networking** > **WAN**.

STEP 2 From the **Internet Connection Type** drop-down menu, choose **L2TP**.

STEP 3 Enter this information:

User Name	Enter your username assigned to you by the ISP.
Password	Enter your password assigned to you by the ISP.

Secret	(Optional) Enter your secret phrase. This phrase is known to you and your ISP for use in authenticating your logon.
Connection Type	Choose the connection type: ▪ **Keep connected**—The Internet connection is always on. ▪ **Idle Time**—The Internet connection is on only when traffic is present. If the connection is idle—that is, no traffic is occurring within the specified time frame—the connection is closed. You might want to choose this option if your ISP charges based on connection time.
Idle Time	If you choose **Idle Time** as the connection type, enter the number of minutes after which the connection terminates. The valid range is **5–999**.
My IP Address	Enter the IP address assigned to you by your ISP.
Server IP Address	Enter the IP address of the L2TP server.

STEP 4 Enter MTU information. (See **Configuring MTU Settings, page 28**.)

STEP 5 Enter MAC Address information. (See **Configuring the MAC Address, page 29**.)

STEP 6 Click **Save**.

Configuring MTU Settings

The Maximum Transmission Unit (MTU) is the size of the largest packet that can be sent over the network. The default MTU value for Ethernet networks is usually 1500 bytes and for PPPoE connections, it is 1492 bytes.

To configure the MTU settings:

STEP 1 Choose **Networking** > Choose **Networking** > **WAN (Internet) > IPv4 WAN (Internet)**.

STEP 2 Choose the MTU type:

- **Default**—Unless a change is required by your ISP, we recommend that you choose **Default** in the MTU Type field. The default MTU size is 1500 bytes.

- Custom—If your ISP requires a custom MTU setting, choose Custom and enter the MTU size (in bytes) in the **MTU Size** field.

STEP 3 Click Save.

Configuring the MAC Address

The Cisco RV180/RV180W has a unique 48-bit local Ethernet hardware address. In most cases, the default MAC address is used to identify your Cisco RV180/RV180W to your ISP. However, you can change this setting if required by your ISP.

To configure the MAC address settings:

STEP 1 Choose **Networking** > **WAN (Internet) > IPv4 WAN (Internet)**.

STEP 2 From the **MAC Address Source** drop-down menu, choose one of these options:

- Use Default Address—(Recommended) choose this option to use the default MAC address. However, if another MAC address has previously been registered with your ISP, choose either Use This Computer's Address or Use This MAC.
- Use This Computer's Address—Choose this option to assign the MAC address of your computer that you are using to connect to the Device Manager.
- Use This MAC—Choose this option if you want to enter a different MAC address. Enter the address in the MAC Address field.

STEP 3 Click Save.

Configuring PPPoE Profiles

If you have a PPPoE connection to the Internet, you can create profiles for multiple PPPoE accounts. This can be useful if you connect to the Internet using different service provider accounts. The PPPoE Profiles page lists the available PPPoE profiles and some attributes associated with each profile. To edit a PPPoE profile listed in the **Profile Table**, select the profile and click **Edit**. To delete selected profiles, click **Delete**.

Adding or Editing a PPPoE Profile

STEP 1 Choose **Networking** > **WAN (Internet)** > **PPPoE Profiles.**

STEP 2 Click **Add** to create a new profile, or select the check box in the row of the profile you want to edit and click **Edit.**

STEP 3 Enter or change the following information (you may need to contact your ISP to obtain your PPPoE login information):

Profile Name	Enter the name of the profile.
Username	Enter your username assigned to you by the ISP.
Password	Enter your password assigned to you by the ISP.
Authentication Type	Choose the authentication type from the drop-down menu: ▪ **Auto-negotiate—**The server sends a configuration request specifying the security algorithm set on it. Then, the Cisco RV180/RV180W sends back authentication credentials with the security type sent earlier by the server. ▪ **PAP—**The Cisco RV180/RV180W uses the Password Authentication Protocol (PAP) to connect to the ISP. ▪ **CHAP—**The Cisco RV180/RV180W uses the Challenge Handshake Authentication Protocol (CHAP) when connecting with the ISP. ▪ **MS-CHAP** or **MS-CHAPv2—**The Cisco RV180/RV180W uses Microsoft Challenge Handshake Authentication Protocol when connecting with the ISP.

Connection Type	Choose the connection type: ▪ **Keep connected**—The Internet connection is always on. ▪ **Idle Time**—The Internet connection is on only when traffic is present. If the connection is idle—that is, no traffic is occurring during the specified time period—the connection is closed. You might want to choose this option if your ISP charges based on connection time.
Idle Time	If you choose **Idle Time** as the connection type, enter the number of minutes after which the connection terminates. The valid range is **5–999**.

STEP 4 Click **Save**. The profile is added to the **Profile Table**.

Configuring the LAN (Local Network) Settings

If you have an IPv4 network, use these sections to configure your LAN settings. If you have an IPv6 network, see **Configuring IPv6 LAN Properties, page 50**.

Configuring IPv4 LAN (Local Network) Settings

Configuring the Host Name

To configure the host name of the Cisco RV180/RV180W:

STEP 1 Choose **Networking** > **LAN (Local Network)** > **IPv4 LAN (Local Network)**.

STEP 2 In the **Host Name** field, enter the host name of the Cisco RV180/RV180W. You can use only alpha-numeric characters and the hyphen.

The default hostname (for example, “router6DE44E”) consists of the word “router” followed by the last 3 bytes of the router’s LAN MAC address (in hexadecimal form). This format allows the FindIT application to use Bonjour to identify Cisco Small Business devices on the LAN.

NOTE: Changing the router name causes the router to reboot.

STEP 3 Click **Save**.

Configuring the IP Address

You might want to change the default IP address (for example, if the default address is already assigned to another piece of equipment in your network).

To configure the IP address of the Cisco RV180/RV180W:

STEP 1 Choose **Networking** > **LAN (Local Network)** > **IPv4 LAN (Local Network)**.

STEP 2 Enter this information:

IP Address	Enter the LAN IP address of the RV180/RV180W. Make sure the address is not in use by another device on the same network. The default IP address is 192.168.1.1.
Subnet mask	Choose the subnet mask for the new IP address from the drop-down menu. The default subnet is 255.255.255.0.

STEP 3 Click **Save**.

After changing the Cisco RV180/RV180W's LAN IP address, your PC is no longer connected to the Cisco RV180/RV180W.

STEP 4 To reconnect your PC to the Cisco RV180/RV180W:

- If DHCP is configured on the Cisco RV180/RV180W, release and renew your PC's IP address.
- If DHCP is not configured on the Cisco RV180/RV180W, manually assign an IP address to your PC. The address must be on the same subnet as the Cisco RV180/RV180W. For example, if you change the Cisco RV180/RV180W's IP address to 10.0.0.1, assign your PC an IP address in the range of 10.0.0.2 to 10.0.0.254.

STEP 5 Open a new browser window and enter the new IP address of the Cisco RV180/RV180W to reconnect.

Configuring DHCP

By default, the Cisco RV180/RV180W functions as a DHCP server to the hosts on the Wireless LAN (WLAN) or LAN network and assigns IP and DNS server addresses.

With DHCP enabled, the router's IP address serves as the gateway address to your LAN. The PCs in the LAN are assigned IP addresses from a pool of addresses. Each address is tested before it is assigned to avoid duplicate addresses on the LAN.

For most applications, the default DHCP settings are satisfactory. If you want another PC on your network to be the DHCP server, or if you are manually configuring the network settings of all of your PCs, disable DHCP.

To configure the DHCP settings of the Cisco RV180/RV180W:

STEP 1 Choose **Networking** > **LAN (Local Network)** > **IPv4 LAN (Local Network)**.

STEP 2 From the **DHCP Mode** drop-down menu, choose one of these options:

- None—Choose this option if the Cisco RV180/RV180W is not going to act as a DHCP server.
- **DHCP Server—**Choose this option to configure the Cisco RV180/RV180W to be a DHCP server and enter this information:
  - **Domain Name—** (Optional) Enter the domain name for your network.

- **Starting IP Address/Ending IP Address—**Enter the first and last of the contiguous addresses in the IP address pool. Any new DHCP client joining the LAN is assigned an IP address in this range. You can save part of the range for PCs with fixed addresses. These addresses should be in the same IP address subnet as the Cisco RV180/RV180W's LAN IP address.
- **Primary DNS Server/Secondary DNS Server—**DNS servers map Internet domain names (for example, www.cisco.com) to IP addresses. Enter the server IP addresses in these fields if you want to use different DNS servers than are specified in your WAN settings.
- **Lease time—**Enter the duration (in hours) for which IP addresses are leased to clients.

- **DHCP Relay—**Choose this option to configure the Cisco RV180/RV180W to be a DHCP relay agent and enter the address of the remote DHCP server in the **Remote DHCP Server** field. The relay agent transmits DHCP messages between multiple subnets.

STEP 3 Click **Save**.

Configuring the DNS Proxy

You can also enable a DNS proxy. When enabled, the router then acts as a proxy for all DNS requests and communicates with the ISP's DNS servers. When disabled, all DHCP clients receive the DNS IP addresses of the ISP.

To configure the DNS proxy server for the Cisco RV180/RV180W:

STEP 1 Choose **Networking** > **LAN (Local Network)** > **IPv4 LAN (Local Network)**.

STEP 2 In the **DNS Proxy** field, check to enable the Cisco RV180/RV180W to act as a proxy for all DNS requests and communicate with the ISP's DNS servers.

STEP 3 Click **Save**.

Configuring Virtual LAN (VLAN) Membership

A VLAN is a group of endpoints in a network that are associated by function or other shared characteristics. Unlike LANs, which are usually geographically based, VLANs can group endpoints without regard to the physical location of the equipment or users. You can create up to four new VLANS.

Enabling VLANs

STEP 1 Choose **Networking** > **LAN (Local Network)** > **VLAN Membership**.

STEP 2 Check the **Enable** box.

STEP 3 Click **Save**.

Under the **Enable VLAN** field, The VLAN Membership Table is shown. This shows available VLANs, including the VLAN ID, description, ports, and whether inter-VLAN routing is enabled or not for each configured VLAN.

Creating a VLAN

You can create up to four VLANs on the Cisco RV180/RV180W.

STEP 1 Choose **Networking** > **LAN (Local Network)** > **VLAN Membership**.

STEP 2 In the **VLAN Membership Table**, click **Add Row**.

STEP 3 Enter a numerical VLAN ID that will be assigned to endpoints in the VLAN membership. The VLAN ID can range from 2 to 4093. VLAN ID 1 is reserved for the default VLAN, which is used for untagged frames received on the interface, and VLAN ID 4094 is reserved and cannot be used.

STEP 4 Enter a description for the VLAN.

STEP 5 To enable routing between this and other VLANS, under **Inter VLAN Routing**, check the Enable box.

STEP 6 To enable device management, check the **Device Management** box. This allows you to access the Device Manager from that VLAN. For example, if you created a VLAN with the VLAN ID of 2 and enabled device management, you can access the Device Manager by using the first IP address on the created VLAN (for example, 192.168.2.1).

STEP 7 Under each of the ports for the VLAN, choose one of the following:

- **Tagged**—Used when connecting to switches carrying multiple VLANs.
- **Untagged**—Access ports connecting to end devices like printers and workstations.

STEP 8 Click **Save**.

Configuring Multiple VLAN Subnets

When you create a VLAN, a subnet is created automatically for the VLAN. You can then further configure the VLAN properties, such as the IP address and DHCP behavior. The Multiple VLAN Subnets page lists the VLAN subnets configured on the device and allows you to edit configured subnets.

To edit a VLAN subnet:

STEP 1 Choose **Networking** > **LAN** > **Multiple VLAN Subnets**. The list of subnets appears.

STEP 2 Check the box next to the VLAN subnet you want to edit and click **Edit**.

STEP 3 If you want to edit the IP address of this VLAN:

a. In the IP address field, enter the new IP address.

b. Enter the Subnet Mask for the new IP address.

c. Click **Save**. If you are connected to the Cisco RV180/RV180W by the LAN port that is a member of this VLAN, you might have to release and renew the IP address on the PC connected to the LAN port, or manually assign an IP address to your PC that is in the same subnet as the VLAN. Open a new browser window and re-connect to the Cisco RV180/RV180W.

STEP 4 If you want to edit the DHCP behavior of this VLAN:

In the DHCP Section, in the **DHCP Mode** field, choose one of the following:

- **DHCP Server**—Choose this to allow the VLAN to act as the DHCP server in the network. Enter the following information:
  - **Domain Name**—Enter the domain name for your network (optional).
  - **Starting and Ending IP Address**—Enter the first and last of the contiguous addresses in the IP address pool. Any new DHCP client joining the LAN is assigned an IP address in this range. You can save part of the range for PCs with fixed addresses. These addresses should be in the same IP address subnet as the VLAN's IP address.
  - **Primary and Secondary DNS Server**—DNS servers map Internet domain names (for example, www.cisco.com) to IP addresses. Enter the server IP addresses in these fields if you want to use different DNS servers than are specified in your WAN settings.
  - **Lease time**—Enter the duration (in hours) for which IP addresses are leased to clients.

- **Remote DHCP Server**—Choose this if you are using a DHCP relay gateway. The relay gateway transmits DHCP messages between multiple subnets. Enter the address of the relay gateway in the **Remote DHCP Server** field.
- **None**—Use this to disable DHCP on the VLAN.

In the **LAN Proxy** section, to enable the VLAN to act as a proxy for all DNS requests and communicate with the ISP's DNS servers, check the **Enable** box.

STEP 5 Click **Save**.

Configuring Static DHCP

The DHCP server function allows you to add the MAC address and IP address of endpoints that will connect to the network. When the endpoint connects to the router, the DHCP server identifies any endpoints that have been configured. If an endpoint has been configured in the server, the server assigns it the customized IP address. If the endpoint is not configured in the server, it is assigned an IP address from the generic DHCP pool.

STEP 1 Choose **Networking** > **LAN (Local Network)** > **Static DHCP**.

STEP 2 Click **Add**.

STEP 3 Enter the IP address of the device.

STEP 4 Enter the MAC address of the device. The format for the MAC Address is XX:XX:XX:XX:XX:XX where X is a number from 0 to 9 (inclusive) or an alphabetical letter between A and F (inclusive).

NOTE: The IP Address assigned should be outside the pool of the DHCP addresses configured on the router. The DHCP pool is treated as generic pool and all reserved IPs should be outside this pool. The DHCP server will then serve the reserved IP address when the device using the corresponding MAC address requests an IP address.

STEP 5 Click **Save**.

Configuring Advanced DHCP Settings

Configuring Automatic Configuration Download

You can configure devices that are connected to the Cisco RV180/RV180W to download configuration files from a TFTP server. This can be useful in scenarios like the following:

- You are deploying a large number of access points and you want them to all download and use the same configuration file.
- You have devices, such as IP phones, that need to load configuration files when they are connected to the network. (Non-router devices must have the ability to download files from a TFTP server.)

You must enter the MAC address of all of the devices you want to download the files, and the filenames to download in the DHCP Client Device vs. Configuration File Mapping table. When the devices connect to the RV180W, they will automatically download the configuration file specified in the table and reboot.

To configure automatic configuration download:

STEP 1 Choose **Networking** > **LAN (Local Network)** > **Advanced DHCP Configuration.**

STEP 2 Check **Enable** to enable downloading of configuration files.

STEP 3 Choose the TFTP server type:

- **Host Name**—Enter the host name of the TFTP server in the TFTP Server Host Name field.
- **Address**—Enter the IP address of the TFTP server in the TFTP Server IP field.

STEP 4 Click **Save**. You must then specify the MAC address of the clients that will be downloading files and the filename of the configuration file they need to download.

Adding a DHCP Client to Configuration File Map

In order to have devices connected to the RV180/RV180W automatically download configuration files, you must add the MAC address of the devices and the filename of the configuration file they need to download. This table displays the list of currently configured DHCP Client MAC addresses and configuration filenames. Click **Edit** to edit the MAC address or boot filename for a particular entry. Click **Delete** to delete a particular entry.

To add a new device:

STEP 1 Click **Add**.

STEP 2 Enter the MAC address of the device that will download configuration files.

STEP 3 Enter the filename of the file that the device should download.

STEP 4 Click **Save**.

Viewing DHCP Leased Clients

You can view a list of endpoints on the network (identified by MAC address) and see the IP address assigned to them by the DHCP server. The VLAN of the endpoint is also displayed.

STEP 1 Choose **Networking** > **LAN** > **DHCP Leased Clients (LAN)**.

STEP 2 The list of endpoints is displayed; you cannot edit this list.

Configuring RSTP (Cisco RV180W)

Rapid Spanning Tree Protocol (RSTP) is a network protocol that prevents loops in the network and dynamically reconfigures which physical links should forward frames. When RTSP is configured, multiple paths to the root networking node are created. Backup paths are automatically disabled unless the active path to the root node is down. If that occurs, a backup path is enabled.

NOTE RSTP is not aware of virtual LANs (VLANs) in a network, so it is not recommended for use in a network with VLANs.

To configure RTSP:

STEP 1 Choose **Networking** > **LAN** > **RSTP**.

STEP 2 Check **Enable** to enable RSTP.

STEP 3 Configure the following settings:

Bridge Priority	Enter a bridge priority from 0 to 61440 in increments of 4096. Valid values are 0, 4096, 8192, 12288, 16384, 20480, 24576, 28672, 32768, 40960, 45056, 49152, 53248, 57344, and 61440. This value is the priority component of the bridge identifier of the network node. The lower the system priority, the more likely the Cisco RV180W is to become the root in the Spanning Tree. The default is **327688**.
Hello Time	The hello time is the time period that the root of the spanning tree waits before sending hello messages. Enter a number from 1 to 10 seconds. The default is **2**.
Max Age	The max age is the time period that the router waits to receive a hello message. If the max age is reached, the router tries to change the spanning tree to use another path to the root node. Enter a number from 6 to 40 seconds. The default is **20**.
Forward Delay	The forward delay is the interval spent by a port in learning state before moving to the forwarding state. Enter a number from 4 to 30 seconds. The default is **15**.
Migrate Time	Migrate time is the maximum time spent by a port locked in RSTP mode. As soon as this timer expires, the port adapts to the mode (RSTP/STP) that corresponds to the next hello message. Enter a number from 0 to 65535. The default is 3.

STEP 4 In the **Port Configuration Table**, you can select a port and configure the following:

Interface	Displays the interface that is a port of the RSTP-enabled bridge.
Port Priority	The priority assigned tot he bridge port for determining the root port.
Edge Status	Displays the edge status of the port.

Port Cost	The cost of using the interface-based connection.

STEP 5 Click **Save**.

Configuring Jumbo Frames

A standard Ethernet frame contains 1,500 bytes of data. Enabling the Jumbo Frames feature allows the switch to send jumbo frames within the LAN containing up to 9,000 bytes of data per frame. You can configure the Cisco RV180/RV180W to support jumbo frames. After support is enabled, devices on the LAN side of the network can exchange traffic that contains jumbo frames. To configure jumbo frames:

STEP 1 Choose **Networking** > **LAN** > **Jumbo Frames.**

STEP 2 Check the **Enable** box.

STEP 3 Click **Save.**

Configuring Routing

Choosing the Routing Mode

The Cisco RV180/RV180W provides two different routing modes. Network Address Translation (NAT), or gateway routing, is a technique that allows several endpoints on a LAN to share an Internet connection. The computers on the LAN use a “private” IP address range while the WAN port on the router is configured with a single “public” IP address. The Cisco RV180/RV180W translates the internal private addresses into a public address, hiding internal IP addresses from computers on the Internet. If your ISP has assigned you a single IP address, you want to use NAT so that the computers that connect through the Cisco RV180/RV180W are assigned IP addresses from a private subnet (for example, 192.168.10.0).

The other routing mode, “router,” is used if your ISP has assigned you multiple IP addresses so that you have an IP address for each endpoint on your network. You must configure either static or dynamic routes if you use this type of routing.

See **Configuring Static Routes, page 44**, or **Configuring Dynamic Routing, page 45**.

To choose your routing mode:

STEP 1 Select **Networking** > **Routing** > **Routing Mode**.

STEP 2 Click the box next to the type of routing to configure.

STEP 3 Click **Save**.

NOTE If you have already configured DMZ or firewall settings on your router in gateway (NAT) mode, selecting “router” changes those settings back to the default.

Viewing the Routing Table

To view routing information your network:

STEP 1 Choose **Networking** > **Routing** > **Routing Table**.

STEP 2 Next to the type of network you have, click **Display**.

Information about your network routing is displayed, including the following:

IPv4 Routing Table

- Destination—Destination host/network IP address for which this route is added.
- Gateway—The gateway used for this route.
- Genmask—The netmask for the destination network.
- Metric—The distance to the target (usually counted in hops).
- Ref—Number of references to this route.
- Use—Count of lookups for the route. Depending on the use of -F and -C, this is either route cache misses (-F) or hits (-C).
- Interface—Interface to which packets for this route will be sent.

- Type—Type of routing used (RIP or static).
- Flags—For debugging purpose only; possible flags include:
  - UP—Route is up.
  - Host—Target is a host.
  - Gateway—Use gateway.
  - R—Reinstate route for dynamic routing.
  - D—Dynamically installed by daemon or redirect.
  - M—Modified from routing daemon or redirect.
  - A—Installed by *addrconf*.
  - C—Cache entry.
  - !—Reject route.

IPv6 Routing Table

- Destination—Destination host/network IP address for which this route is added.
- Next Hop—IP address of an adjacent or intermediate host or router through which traffic must flow before reaching its ultimate destination.
- Flags—For debugging purpose only; possible flags include:
  - UP—Route is up.
  - Host—Target is a host.
  - Gateway—Use gateway.
  - R—Reinstate route for dynamic routing.
  - D—Dynamically installed by daemon or redirect.
  - M—Modified from routing daemon or redirect.
  - A—Installed by *addrconf*.
  - C—Cache entry.
  - !—Reject route.
- Metric—The distance to the target (usually counted in hops).

- Ref—Number of references to this route.
- Use—Count of lookups for the route. Depending on the use of -F and -C, this is either route cache misses (-F) or hits (-C).
- Interface—Interface to which packets for this route will be sent.
- Type—Type of routing used (RIP or static).

Configuring Static Routes

You can configure static routes to direct packets to the destination network. A static route is a pre-determined pathway that a packet must travel to reach a specific host or network. Some ISPs require static routes to build your routing table instead of using dynamic routing protocols. Static routes do not require CPU resources to exchange routing information with a peer router. You can also use static routes to reach peer routers that do not support dynamic routing protocols. Static routes can be used together with dynamic routes. Be careful not to introduce routing loops in your network.

Adding a Static Route

To create a static route:

STEP 1 Select **Networking** > **Routing** > **Static Routes**.

STEP 2 In the **Static Route Table**, click **Add**.

STEP 3 In the **Route Name** field, enter the name of the route.

STEP 4 If a route is to be immediately active, check the **Active** check box. When a route is added in an inactive state, it will be listed in the routing table, but will not be used by the router. The route can be enabled later. This feature is useful if the network that the route connects to is not available when you added the route. When the network becomes available, the route can be enabled.

STEP 5 Check the **Private** check box to mark this route as private, which means that it will not be shared in a Routing Information Protocol (RIP) broadcast or multicast. Uncheck this box if the route can be shared with other routers when RIP is enabled.

STEP 6 In the **Destination IP Address** field, enter the IP address of the destination host or network to which the route leads. For a standard Class C IP domain, the network address is the first three fields of the Destination LAN IP; the last field should be zero.

STEP 7 In the **IP Subnet Mask** field, enter the IPv4 Subnet Mask for the destination host or network. For Class C IP domains, the Subnet Mask is 255.255.255.0.

STEP 8 From the **Interface** drop-down menu, choose the physical network interface through which this route is accessible (**WAN** or **LAN**).

STEP 9 In the **Gateway IP Address** field, enter the IP Address of the gateway through which the destination host or network can be reached. If this router is used to connect your network to the Internet, then your gateway IP is the router's IP address. If you have another router handling your network's Internet connection, enter the IP address of that router instead.

STEP 10 In the **Metric** field, enter a value between 2 and 15 to define the priority of the route. If multiple routes to the same destination exist, the route with the lowest metric is chosen.

STEP 11 Click **Save**.

Configuring Dynamic Routing

RIP (Routing Information Protocol, RFC 2453) is an Interior Gateway Protocol (IGP) that is commonly used in internal networks. It allows the Cisco RV180/RV180W to exchange its routing information automatically with other routers, and allows it to dynamically adjust its routing tables and adapt to changes in the network.

NOTE RIP is disabled by default on the Cisco RV180/RV180W.

To configure dynamic routing:

STEP 1 Choose **Networking** > **Routing** > **Dynamic Routing**.

STEP 2 To configure how the router sends and receives RIP packets, choose the RIP direction:

- **None**—The router neither broadcasts its route table nor does it accept any RIP packets from other routers. This option disables RIP.
- **In Only**—The router accepts RIP information from other router, but does not broadcast its routing table.
- **Out Only**—The router broadcasts its routing table periodically but does not accept RIP information from other routers.
- **Both**—The router both broadcasts its routing table and also processes RIP information received from other routers.

STEP 3 Choose the RIP version:

- **Disabled.**
- **RIP-1**—This is a class-based routing version that does not include subnet information. RIP-1 is the most commonly supported version.
- **RIP-2B**—This version broadcasts data in the entire subnet.
- **RIP-2M**—This version sends data to multicast addresses.

STEP 4 RIP v2 authentication forces authentication of RIP packets before routes are exchanged with other routers. It acts as a security feature because routes are exchanged only with trusted routers in the network. RIP authentication is disabled by default. You can enter two key parameters so that routes can be exchanged with multiple routers present in the network. The second key also acts as a failsafe when authorization with first key fails. To enable authentication for RIP-2B or RIP-2M, check the **Enable** box. (You must also choose the direction as explained in **Step 2**.)

STEP 5 If you enabled RIP v2 authentication, enter the following first and second key parameters:

- **MD5 Key ID**—Input the unique MD-5 key ID used to create the Authentication Data for this RIP v2 message.
- **MD5 Auth Key**—Input the auth key for this MD5 key, the auth key that is encrypted and sent along with the RIP-V2 message.
- **Not Valid Before**—Enter the start date when the auth key is valid for authentication.
- **Not Valid After**—Enter the end date when the auth key is valid for authentication.

STEP 6 Click **Save**.

Configuring Port Management

The Cisco RV180/RV180W has four LAN ports and one WAN port. You can enable or disable ports, configure if the port is half- or full-duplex, and set the port speed.

To configure ports:

STEP 1 Choose **Networking** > **Port Management**.

STEP 2 In the **Port Management Setting Table**, to enable a port, check the **Enable** box. To disable the port, uncheck the **Enable** box. By default, all ports are enabled.

STEP 3 Check the **Auto Negotiation** box to let the router and network determine the optimal port settings. By default, automatic mode is enabled. This setting is available only when the **Enable** box is checked.

STEP 4 Check the **Flow Control** box to enable flow control.

STEP 5 (Optional) Choose either half- or full-duplex based on the port support. The default is full-duplex for all ports. This setting is available only when the **Auto** check box is unchecked.

STEP 6 (Optional) Select one of the following port speeds: **10 Mbps**, **100 Mbps,** or **1000 Mbps**. The default setting is 100 Mbps for all ports. This setting is available only when the **Auto Negotiation** check box is unchecked. You can change the port speed if a network is designed to run at a particular speed, such as 10 Mbps mode. In this case, the endpoint also uses 10 Mbps mode either by auto-negotiation or manual setting.

STEP 7 Click **Save**.

Configuring Dynamic DNS (DDNS)

DDNS is an Internet service that allows routers with varying public IP addresses to be located using Internet domain names. To use DDNS, you must set up an account with a DDNS provider such as DynDNS.com, TZO.com, or 3322.org.

The router will notify dynamic DNS servers of changes in the WAN IP address, so that any public services on your network can be accessed by using the domain name.

To configure DDNS:

STEP 1 Choose **Networking** > **Dynamic DNS**.

STEP 2 Select the Dynamic DNS Service you are using. Selecting **None** disables this service.

STEP 3 If you selected **DynDNS.com**:

a. Specify the complete Host Name and Domain Name for the DDNS service.

b. Enter the DynDNS account username.

c. Enter the password for the DynDNS account.

d. Enter the password again to confirm.

e. Check the **Use Wildcards** box to enable the wildcards feature, which allows all subdomains of your DynDNS Host Name to share the same public IP as the Host Name. This option can be enabled here if not done on the DynDNS Web site.

f. In the **Update Period** field, enter the number of hours before the Cisco RV180/ RV180W updates the host information on DynDNS.com.

STEP 4 If you selected **TZO.com**:

a. Specify the complete Host Name and Domain Name for the DDNS service.

b. Enter the user e-mail address for the TZO account.

c. Enter the user key for the TZO account.

d. In the **Update Period** field, enter the number of hours before the Cisco RV180/ RV180W updates the host information on TZO.com.

STEP 5 If you selected 3322.org:

a. Specify the complete Host Name and Domain Name for the DDNS service.

b. Enter the account username.

c. Enter the password for the account.

d. Enter the password again to confirm.

e. Check the **Use Wildcards** box to enable the wildcards feature, which allows all subdomains of your 3322.org Host Name to share the same public IP as the Host Name. This option can be enabled here if not done on the 3322.org Web site.

f. In the **Update Period** field, enter the number of hours before the Cisco RV180/ RV180W updates the host information on 3322.org.

STEP 6 Click **Save**.

Configuring IPv6

Configuring the IP Mode

To configure IPv6 properties on the Cisco RV180/RV180W, set the IP mode to IPv6:

STEP 1 Choose **Networking** > **IPv6** > **IP Mode.**

STEP 2 Click the **IPv4 and IPv6 Dual-Stack** radio button.

STEP 3 Click **Save.**

NOTE: The router reboots after changing the IP mode.

Configuring IPv6 WAN Settings

Configuring WAN properties for an IPv6 network differs depending on which type of Internet connection you have. See the sections below for detailed instructions.

The Cisco RV180/RV180W can be configured to be a DHCPv6 client of the ISP for this WAN or a static IPv6 address provided by the ISP can be assigned.

Configuring DHCPv6

When the ISP allows you to obtain the WAN IP settings via DHCP, you need to provide details for the DHCPv6 client configuration.

STEP 1 Choose **IPv6** > **IPv6 WAN (Internet).**

STEP 2 In the **WAN (Internet) Address (IPv6)** field, choose **DHCPv6.**

STEP 3 Choose if the DHCPv6 client on the gateway is stateless or stateful. If a stateful client is selected, the gateway connects to the ISP's DHCPv6 server for a leased address. For stateless DHCP, it is not necessary to have a DHCPv6 server available at the ISP. Instead, an ICMPv6 discover message will originate from the Cisco RV180/RV180W and is used for auto-configuration.

STEP 4 Click **Save.**

Configuring a Static IP Address

If your ISP assigns you a fixed address to access the Internet, choose this option. The information needed for configuring a static IP address can be obtained from your ISP.

STEP 1 Choose **IPv6** > **IPv6 WAN (Internet).**

STEP 2 In the **WAN (Internet) Address (IPv6)** field, choose **Static IPv6.**

STEP 3 Enter the IPv6 IP address assigned to your router.

STEP 4 Enter the IPv6 prefix length defined by the ISP. The IPv6 network (subnet) is identified by the initial bits of the address which are called the prefix (for example, in the IP address 2001:0DB8:AC10:FE01::, 2001 is the prefix). All hosts in the network have identical initial bits for their IPv6 address; the number of common initial bits in the network's addresses is set in this field.

STEP 5 Enter the default IPv6 gateway address, or the IP address of the server at the ISP that this router will connect to for accessing the internet.

STEP 6 Enter the primary and secondary DNS server IP addresses on the ISP's IPv6 network. DNS servers map Internet domain names (for example, www.cisco.com) to IP addresses.

STEP 7 Click **Save.**

Configuring IPv6 LAN Properties

In IPv6 mode, the LAN DHCP server is enabled by default (similar to IPv4 mode). The DHCPv6 server assigns IPv6 addresses from configured address pools with the IPv6 Prefix Length assigned to the LAN.

To configure IPv6 LAN properties:

STEP 1 Choose **Networking** > **IPv6** > **IPv6 LAN (Local Area Network).**

STEP 2 Under **LAN TCP/IP Setup**, in the **IPv6 Address** field, enter the IP address of the Cisco RV180/RV180W. The default IPv6 address for the gateway is fec0::1. You can change this 128 bit IPv6 address based on your network requirements.

STEP 3 Enter the IPv6 prefix length. The IPv6 network (subnet) is identified by the initial bits of the address called the prefix. By default, the prefix is 64 bits long. All hosts in the network have the identical initial bits for their IPv6 address; the number of common initial bits in the network's addresses is set by the prefix length field.

STEP 4 In the **DHCPv6** field, choose to disable or enable the DHCPv6 server. If enabled, the Cisco RV180/RV180W assigns an IP address within the specified range plus additional specified information to any LAN endpoint that requests DHCP-served addresses.

STEP 5 Choose the DHCP mode. If stateless is selected, an external IPv6 DHCP server is not required as the IPv6 LAN hosts are auto-configured by the Cisco RV180/RV180W. In this case, the router advertisement daemon (RADVD) must be configured on this device and ICMPv6 router discovery messages are used by the host for auto-configuration. There are no managed addresses to serve the LAN nodes.

If stateful is selected, the IPv6 LAN host will rely on an external DHCPv6 server to provide required configuration settings.

STEP 6 (Optional) Enter the domain name of the DHCPv6 server.

STEP 7 Enter the server preference. This field is used to indicate the preference level of this DHCP server. DHCP advertise messages with the highest server preference value to a LAN host are preferred over other DHCP server advertise messages. The default is 255.

STEP 8 Choose the DNS proxy behavior:

- **Use DNS Proxy**—Check this box to enable DNS proxy on this LAN, or uncheck this box to disable this proxy. When this feature is enabled, the router acts as a proxy for all DNS requests and communicate with the ISP's DNS servers (as configured in the WAN settings page).
- **Use DNS from ISP**—This option allows the ISP to define the DNS servers (primary/secondary) for the LAN DHCP client.
- **Use below**—If selected, the primary/secondary DNS servers configured are used. If you chose this option, enter the IP address of the primary and secondary DNS servers.

STEP 9 Enter the lease/rebind time. Enter the duration (in seconds) for which IP addresses will be leased to endpoints on the LAN.

STEP 10 Click **Save**.

Configuring IPv6 Address Pools

This feature allows you to define the IPv6 delegation prefix for a range of IP addresses to be served by the Cisco RV180/RV180W's DHCPv6 server. Using a delegation prefix, you can automate the process of informing other networking equipment on the LAN of DHCP information specific for the assigned prefix.

STEP 1 Choose **Networking** > **IPv6** > **IPv6 LAN (Local Area Network).**

STEP 2 In the **IPv6 Address Pool Table**, click **Add**.

STEP 3 Enter the starting IP address and ending IP address of the pool.

STEP 4 Enter the prefix length. The number of common initial bits in the network's addresses is set by the prefix length field.

STEP 5 Click **Save**.

Configuring IPv6 Static Routing

You can configure static routes to direct packets to the destination network. A static route is a pre-determined pathway that a packet must travel to reach a specific host or network. Some ISPs require static routes to build your routing table instead of using dynamic routing protocols. Static routes do not require CPU resources to exchange routing information with a peer router. You can also use static routes to reach peer routers that do not support dynamic routing protocols. Static routes can be used together with dynamic routes. Be careful not to introduce routing loops in your network.

The Static Route Table lists all the static routes that have been added manually and allows several operations on the static routes.

Adding an IPv6 Static Route

To create a static route:

STEP 1 Select **Networking** > **IPv6** > **Routing.**

STEP 2 In the list of static routes, click **Add.**

STEP 3 Enter the route name.

STEP 4 If a route is to be immediately active, check the **Active** box. When a route is added in an inactive state, it will be listed in the routing table, but will not be used by the router. The route can be enabled later. This feature is useful if the network that the route connects to is not available when you added the route. When the network becomes available, the route can be enabled.

STEP 5 In the **IPv6 Destination** field, enter the IPv6 address of the destination host or network for this route.

STEP 6 In the **IPv6 Prefix Length** field, enter the number of prefix bits in the IPv6 address that define the destination subnet.

STEP 7 Choose the physical network interface through which this route is accessible:

- **WAN (Internet)**—The route goes through the WAN interface.
- **6 to 4 Tunnel**—Uses the tunnel interface to route traffic from an IPv6 network to other IPv6 networks over an IPv4 network.
- **LAN (Local Network)**—The route goes through the LAN interface.

STEP 8 Enter the IP Address of the gateway through which the destination host or network can be reached.

STEP 9 In the metric field, specify the priority of the route by choosing a value between 2 and 15. If multiple routes to the same destination exist, the route with the lowest metric is used.

STEP 10 Click **Save**.

Configuring Tunneling

The Cisco RV180/RV180W provides several IPv6 tunneling methods. 6to4 tunneling allows IPv6 packets to be transmitted over an IPv4 network. 6to4 tunneling is typically used when a site or end user wants to connect to the IPv6 Internet using the existing IPv4 network.

NOTE You must use static routes when tunneling. See **Configuring IPv6 Static Routing, page 52**.

To configure 6to4 Tunneling:

STEP 1 Select **Networking** > **IPv6** > **Tunneling**.

STEP 2 Next to **Automatic Tunneling**, check **Enable**.

STEP 3 If there is a remote endpoint to which you want to route IPv4 traffic, next to **Remote End Point**, check **Enable**. Enter the IP address of the remote endpoint in the field below.

STEP 4 Click **Save**.

Viewing IPv6 Tunnel Information

To view IPv6 tunnel information, choose **Networking** > **IPv6** > **Tunneling**. Click **Refresh** to get the latest information.

The IPv6 Tunnel Status table shows the name of tunnel and the IPv6 address that is created on the device.

Configuring Intra-Site Automatic Tunnel Addressing Protocol (ISATAP) Tunnels

Intra-site automatic tunnel addressing protocol (ISATAP) is a method to transmit IPv6 packets between dual-stack nodes over an IPv4 network. The Cisco RV180/RV180W is one endpoint (a node) for the tunnel. You must also set a local endpoint, as well as the ISATAP Subnet Prefix that defines the logical ISATAP subnet to configure a tunnel.

Adding an ISATAP Tunnel

To add an ISATAP tunnel:

STEP 1 Choose **Networking** > **IPv6** > **Tunneling**.

STEP 2 In the **ISATAP Tunnel Table**, click **Add**.

STEP 3 Enter the tunnel name.

STEP 4 Choose the local endpoint address, or the endpoint address for the tunnel that starts with the Cisco RV180/RV180W. The endpoint can be the LAN interface (if the LAN is configured as an IPv4 network), or another LAN IPv4 address.

STEP 5 If you chose **Other IP** in Step 4, enter the IPv4 address of the endpoint.

STEP 6 Enter the ISATAP subnet prefix. This is the 64-bit subnet prefix that is assigned to the logical ISATAP subnet for this intranet. This can be obtained from your ISP or internet registry, or derived from RFC 4193.

STEP 7 Click **Save**.

To modify the settings of an ISATAP tunnel:

STEP 1 Choose **Networking** > **IPv6** > **Tunneling.**

STEP 2 Check the check boxes for the tunnels you want to modify.

STEP 3 Click **Edit**, make the changes, and click **Save**.

To delete an ISATAP tunnel:

STEP 1 Choose **Networking** > **IPv6** > **Tunneling.**

STEP 2 Check the check boxes for the tunnels you want to delete.

STEP 3 Click **Delete.**

Configuring Router Advertisement

The Router Advertisement Daemon (RADVD) on the Cisco RV180/RV180W listens for router solicitations in the IPv6 LAN and responds with router advertisements as required. This is stateless IPv6 auto configuration, and the Cisco RV180/RV180W distributes IPv6 prefixes to all nodes on the network.

To configure the RADVD:

STEP 1 Choose **Networking** > **IPv6** > **Router Advertisement.**

STEP 2 Under **Router Advertisement Status**, choose **Enable.**

STEP 3 Under **Advertise Mode**, choose one of the following:

- **Unsolicited Multicast**—Select this option to send router advertisements (RAs) to all interfaces belonging to the multicast group.
- **Unicast only**—Select this option to restrict advertisements to well-known IPv6 addresses only (router advertisements [RAs] are sent to the interface belonging to the known address only).

STEP 4 If you chose **Unsolicited Multicast** in Step 3, enter the advertise interval. The advertise interval is a random value between the Minimum Router Advertisement Interval and Maximum Router Advertisement Interval. (MinRtrAdvInterval = 0.33 * MaxRtrAdvInterval.) The default is 30 seconds.

STEP 5 Under RA Flags, check **Managed** to use the administered/stateful protocol for address auto configuration. Check **Other** to use the administered/stateful protocol of other, non-address information auto configuration.

STEP 6 Under router preference, choose **Low**, **Medium**, or **High**. The router preference provides a preference metric for default routers. The low, medium and high values are signaled in unused bits in Router Advertisement messages. This extension is backward compatible, both for routers (setting the router preference value) and hosts (interpreting the router preference value). These values are ignored by hosts that do not implement router preference. This feature is useful if there are other RADVD-enabled devices on the LAN. The default is high.

STEP 7 Enter the MTU size. The MTU is the size of the largest packet that can be sent over the network. The MTU is used in RAs to ensure all nodes on the network use the same MTU value when the LAN MTU is not well-known. The default is 1500 bytes.

STEP 8 Enter the router lifetime value, or the time in seconds that the advertisement messages will exist on the route. The default is 3600 seconds.

STEP 9 Click **Save**.

Configuring Router Advertisement Prefixes

To configure the RADVD available prefixes:

STEP 1 Choose **Networking** > **IPv6** > **Advertisement Prefixes**.

STEP 2 Click **Add**.

STEP 3 Choose the IPv6 Prefix Type:

- **6to4**—6to4 is a system that allows IPv6 packets to be transmitted over an IPv4 network. It is used when an end user wants to connect to the IPv6 Internet using their existing IPv4 connection

- **Global/Local/ISATAP**—By using ISATAP, you can integrate IPv6 traffic into a IPv4 network environment. ISATAP uses a locally assigned IPv4 address to create a 64-bit interface identifier for IPv6.

STEP 4 If you chose **6to4** in Step 3, enter the Site-level aggregation identifier (SLA ID.) The SLA ID in the 6to4 address prefix is set to the interface ID of the interface on which the advertisements are sent.

STEP 5 If you chose **Global/Local/ISATAP** in Step 3, enter the IPv6 prefix and prefix length. The IPv6 prefix specifies the IPv6 network address. The prefix length variable is a decimal value that indicates the number of contiguous, higher-order bits of the address that make up the network portion of the address.

STEP 6 Enter the prefix lifetime, or the length of time during which the requesting router is allowed to use the prefix.

STEP 7 Click **Save**.

3

Configuring the Wireless Network (Cisco RV180W)

This chapter describes how to configure your wireless network and includes the following sections:

NOTE This chapter only applies to the Cisco RV180W model.

A Note About Wireless Security

Wireless networks are convenient and easy to install, so small businesses with high-speed Internet access are adopting them at a rapid pace. Because wireless networking operates by sending information over radio waves, it can be more vulnerable to intruders than a traditional wired network. Like signals from your cellular or cordless phones, signals from your wireless network can also be intercepted.

The following information will help you to improve your security:

- **Wireless Security Tips, page 61**
- **General Network Security Guidelines, page 62**

Wireless Security Tips

Since you cannot physically prevent someone from connecting to your wireless network, you need to take some additional steps to keep your network secure:

- Change the default wireless network name or SSID

  Wireless devices have a default wireless network name or Service Set Identifier (SSID) set by the factory. This is the name of your wireless network, and can be up to 32 characters in length.

  You should change the wireless network name to something unique to distinguish your wireless network from other wireless networks that may exist around you, but do not use personal information (such as your Social Security number) because this information may be available for anyone to see when browsing for wireless networks.

- Change the default password

  For wireless products such as access points, routers, and gateways, you will be asked for a password when you want to change their settings. These devices have a default password set by the factory. The default password is often **admin**. Hackers know these defaults and may try to use them to access your wireless device and change your network settings. To thwart any unauthorized changes, customize the device's password so it will be hard to guess.

- Enable MAC address filtering

  Cisco routers and gateways give you the ability to enable Media Access Control (MAC) address filtering. The MAC address is a unique series of numbers and letters assigned to every networking device. With MAC address filtering enabled, wireless network access is provided solely for wireless devices with specific MAC addresses. For example, you can specify the MAC address of each computer in your network so that only those computers can access your wireless network.

- Enable encryption

  Encryption protects data transmitted over a wireless network. Wi-Fi Protected Access (WPA/WPA2) and Wired Equivalency Privacy (WEP) offer different levels of security for wireless communication. Currently, devices that are Wi-Fi certified are required to support WPA2, but are not required to support WEP.

A network encrypted with WPA/WPA2 is more secure than a network encrypted with WEP, because WPA/WPA2 uses dynamic key encryption. To protect the information as it passes over the airwaves, you should enable the highest level of encryption supported by your network equipment.

WEP is an older encryption standard and may be the only option available on some older devices that do not support WPA.

- Keep wireless routers, access points, or gateways away from exterior walls and windows.
- Turn wireless routers, access points, or gateways off when they are not being used (at night, during vacations).
- Use strong passphrases that are at least eight characters in length. Combine letters and numbers to avoid using standard words that can be found in the dictionary.

General Network Security Guidelines

Wireless network security is useless if the underlying network is not secure. Cisco recommends that you take the following precautions:

- Password protect all computers on the network and individually password protect sensitive files.
- Change passwords on a regular basis.
- Install anti-virus software and personal router software.
- Disable file sharing (peer-to-peer). Some applications may open file sharing without your consent and/or knowledge.

Understanding the Cisco RV180W's Wireless Networks

The Cisco Small Business RV180W Wireless-N Multifunction Router provides four separate virtual wireless networks. These networks can be configured and enabled with individual settings. You can set up the multiple networks to segment the network traffic, to allow different levels of access, such as guest access, or to allow access for different functions such as accounting, billing, and so on.

Configuring Basic Wireless Settings

The following sections contain information on how to configure basic wireless settings on the Cisco RV180W. These settings apply to all of the wireless networks.

Configuring Radio, Mode, and Channel Settings

STEP 1 Choose **Wireless** > **Basic Settings**.

STEP 2 In the **Radio** field, choose **Enable** to enable wireless functionality for the Cisco RV180W. Choosing **Disable** turns off wireless functionality for the router.

STEP 3 In the **Wireless Network Mode** field, choose the type of wireless network based on the devices you have that will connect to the network:

- **B/G Mixed**—Select this mode if you have devices in the network that support 802.11b and 802.11g.
- **G Only**—Select this mode if all devices in the wireless network only support 802.11g.
- **B/G/N Mixed**—Select this mode if you have devices in the network that support 802.11b, 802.11g and 802.11n.
- **N Only**—Select this mode only if all devices in the wireless network support 802.11n.
- **G/N Mixed**—Select this mode if you have devices in the network that support 802.11g and 802.11n.

STEP 4 Select the channel bandwidth. Available choices depend on the wireless network mode chosen in Step 3.

STEP 5 The **Control Side Band** field defines the sideband which is used for the secondary or extension channel when the AP is operating in 40 Mhz channel width. Choose

lower or **upper**. The signal components above the carrier frequency constitute the upper sideband (USB) and those below the carrier frequency constitute the lower sideband (LSB).

STEP 6 The **Wireless Channel** field specifies the frequency that the radio uses to transmit wireless frames. Select a channel from the list of channels or choose **auto** to let the Cisco RV180W determine the best channel to use based on the environment noise levels for the available channels.

STEP 7 In the **U-APSD** field, choose **Enable** to enable the Unscheduled Automatic Power Save Delivery (also referred to as WMM Power Save) feature that allows the radio to conserve power. This feature is disabled by default.

STEP 8 Click **Save**.

Configuring Wireless Security and Other Settings

At a minimum, you should edit the default profiles to enable wireless security. You can configure wireless security and other settings for each wireless network. To configure wireless settings:

STEP 1 Choose **Wireless** > **Basic Settings**.

STEP 2 In the **Wireless Basic Settings Table**, check the box on the left of the wireless network you want to configure.

STEP 3 Click **Edit** to configure these network properties:

a. Enter the **SSID name**, or the unique name for this wireless network. Include up to 32 characters, using any of the characters on the keyboard. For added security, you should change the default value to a unique name.

b. Check the **Broadcast SSID** box if you want to allow all wireless clients within range to be able to detect this wireless network when they are scanning the local area for available networks. Disable this feature if you do not want to make the SSID known. When this feature is disabled, wireless users can connect to your wireless network only if they know the SSID (and provide the required security credentials).

c. Enter the **VLAN**, or network for this wireless network. (See **"Configuring Virtual LAN (VLAN) Membership" on page 34** for more information on VLANs.) Devices connecting to this network are assigned addresses on this VLAN. The default VLAN is 1 and if all the devices are on the same network, this can be left unchanged.

d. (Optional) Check the **Wireless Isolation within SSID** box to separate all wireless clients within the SSID. When this feature is enabled, the wireless client can communicate with the Cisco RV180W, but not with other clients connected wirelessly to that SSID. For example, if the Cisco RV180W has many wireless users, you can prevent users from accessing other parts of the network.

e. In the **Max Associated Clients** field, enter the maximum number of endpoints that can connect to this network. The default value is 8. You can change this number if you want to restrict traffic on the network to prevent it from being overloaded, for example. The number of clients connected across all four virtual access points cannot exceed 100.

f. Click **Save.**

Configuring Security

STEP 1 Choose **Wireless** > **Basic Settings.**

STEP 2 In the **Wireless Basic Settings Table**, check the box on the left of the wireless network you want to configure.

STEP 3 Click **Edit Security Mode** to configure security.

STEP 4 Select the SSID to configure.

STEP 5 Click **Enable** under **Wireless Isolation within SSID** to separate all wireless clients within the SSID.

STEP 6 In the **Security** field, select the type of security. All devices on this network must use the same security mode and settings to work correctly. Cisco recommends using the highest level of security that is supported by the devices in your network.

- **Disabled—**Any device can connect to the network. **Not recommended.**

- **Wired Equivalent Privacy (WEP)—** Weak security with a basic encryption method that is not as secure as WPA. WEP may be required if your network devices do not support WPA; however, it is not recommended.

- **Wi-Fi Protected Access (WPA) Personal—**WPA is part of the wireless security standard (802.11i) standardized by the Wi-Fi Alliance and was intended as an intermediate measure to take the place of WEP while the

802.11i standard was being prepared. It supports TKIP/AES encryption. The personal authentication is the preshared key (PSK) that is an alphanumeric passphrase shared with the wireless peer.

- **WPA Enterprise**—Allows you to use WPA with RADIUS server authentication.
- **WPA2 Personal**—WPA2 is the implementation of security standard specified in the final 802.11i standard. It supports AES encryption and this option uses preshared key (PSK) based authentication.
- **WPA2 Personal Mixed**—Allows both WPA and WPA2 clients to connect simultaneously using PSK authentication.
- **WPA2 Enterprise**—Allows you to use WPA2 with RADIUS server authentication.
- **WPA2 Enterprise Mixed**—Allows both WPA and WPA2 clients to connect simultaneously using RADIUS authentication.

STEP 7 The **Encryption Type** appears based on the type of network you chose in Step 3:

- WPA Personal, WPA Enterprise, WPA2 Personal Mixed, WPA2 Enterprise Mixed—TKIP+AES
- WPA2 Personal, WPA2 Enterprise—AES

STEP 8 If you chose **WEP**:

a. In the **Authentication** field, choose **Open System** or **Shared Key**. If you choose **Open System**, a wireless client doesn't need to provide a shared key in order to access the wireless network. Any client can associate to the router. If you choose **Shared Key**, a wireless client must provide the correct shared key (password) in order to access the wireless network.

b. Select the **Encryption Type** (**64-** or **128-bit WEP**). The larger size keys provide stronger encryption, making the key more difficult to crack (for example, 64-bit WEP has a 40-bit key which is less secure than the 128-bit WEP, which has a 104-bit key).

c. (Optional) In the **WEP Passphrase** field, enter an alphanumeric phrase (longer than eight characters for optimal security) and click **Generate Key** to generate four unique WEP keys in the WEP Key fields below.

d. Select one of the four keys to use as the shared key that devices must have in order to use the wireless network. If you did not generate a key in Step 7c, enter a key directly into the **WEP Key** field. The length of the key should be 5 ASCII characters (or 10 hexadecimal characters) for 64-bit WEP and 13 ASCII characters (or 26 hexadecimal characters) for 128-bit WEP. Valid hexadecimal characters are “0” to “9” and “A” to “F”.

STEP 9 If you chose **WPA Personal**, **WPA2 Personal**, or **WPA2 Personal Mixed**:

a. Enter the **WPA Key**, or password/phrase that will secure the network. Devices connecting to the network must use this phrase for authentication.

b. If you want to see the password as you are entering it, check the **Unmask Password** box.

c. In the **Key Renewal** field, enter the number of seconds after which the Cisco RV180W will generate a new key. These keys are internal keys exchanged between the Cisco RV180W and connected devices. The default value (3600 seconds) is usually adequate unless you are experiencing network problems.

STEP 10 If you chose **WPA Enterprise** or **WPA2 Enterprise Mixed**, no further configuration is required.

STEP 11 If you chose **WPA2 Enterprise**, you can check the **Pre-Authentication** box (optional). Pre-authentication allows wireless clients to quickly switch between connected wireless networks sharing the same security configuration. When a wireless client disconnects from a wireless network, a notification is sent to the network, which then sends the pre-authentication info to other wireless networks.

STEP 12 Click **Save**.

Configuring MAC Filtering

You can use MAC filtering to permit or deny access to the wireless network based on the MAC (hardware) address of the requesting device. For example, you can enter the MAC addresses of a set of PCs and only allow those PCs to access the network. MAC filtering is configured for each wireless network.

STEP 1 Choose **Wireless** > **Basic Settings**.

STEP 2 In the **Wireless Basic Settings Table**, check the box on the left of the wireless network you want to configure.

STEP 3 Click **Edit MAC Filtering**.

STEP 4 Choose **Enable**.

STEP 5 Under **Connection Control**, choose one of the following:

- **Block following MAC addresses from connecting to wireless network**—Blocks MAC addresses specified below from connecting to the wireless network.
- **Allow only following MAC addresses to connect to wireless network**—Allows only the MAC addresses specified below to connect to the wireless network.

STEP 6 Enter the MAC addresses of the endpoints to allow or deny. To see a list of currently-connected clients, click **Wireless Clients List**.

STEP 7 Click **Save**.

Configuring Wi-Fi Multimedia

Wi-Fi Multimedia (WMM) is used to prioritize different types of traffic. You can configure QoS settings to provide different priority to different applications, users, or data flows, or to guarantee a certain level of performance to a data flow.

To configure WMM:

STEP 1 Choose **Wireless** > **Basic Settings**.

STEP 2 In the **Wireless Basic Settings Table**, check the box on the left of the wireless network you want to configure.

STEP 3 Click **Edit WMM**.

STEP 4 In the SSID field, select SSID that clients use to connect to the AP.

STEP 5 Check the **WMM Enable** box to enable WMM based on the IEEE 802.11e standard for this profile. WMM helps in prioritizing wireless traffic according to four access categories:

- Voice (highest priority, 4)
- Video (high priority, 3)
- Best effort (medium priority, 2)
- Background (lowest priority, 1)

STEP 6 In the **DSCP to Queue** table, for each ingress DSCP, you can choose the output queue for the traffic. The Differentiated Services Code Point (DSCP) field identifies the data packet and the output queue identifies the output queue in which the packet is transmitted:

- Voice (4) or Video (3)—High priority queue, minimum delay. Typically used to send time-sensitive data such as video and other streaming media.
- Best Effort (2)—Medium priority queue, medium throughput and delay. Most traditional IP data is sent to this queue.
- Background (1)—Lowest priority queue, high throughput. Bulk data that requires maximum throughput and is not time-sensitive is typically sent to this queue (FTP data, for example).

If you want to change the output queue for packets marked with a particular DSCP, select the new output queue from the drop-down list.

STEP 7 Click **Save**.

Configuring Wireless Network (SSID) Scheduling

You can configure each of the four available wireless networks on the Cisco RV180W to be active during certain times of the day. To configure the schedule for a wireless network:

STEP 1 Choose **Wireless** > **Basic Settings**.

STEP 2 In the **Wireless Basic Settings Table**, check the box on the left of the wireless network you want to configure.

STEP 3 Select the wireless network for which you want to create a schedule.

STEP 4 Click **Edit SSID Scheduling**.

STEP 5 Check the **Enable** box to allow you to create a schedule to make the network active during certain times.

STEP 6 Enter the start and stop times for the network to be active.

STEP 7 Click **Save**.

Configuring Advanced Wireless Settings

To configure advanced wireless settings on the Cisco RV180W:

STEP 1 Choose **Wireless** > **Advanced Settings**.

STEP 2 In the **Beacon Interval** field, enter the time in milliseconds between beacon transmissions. The default interval is 100 milliseconds.

STEP 3 In the **DTIM Interval** field, enter the interval at which the delivery traffic indication message should be sent. A DTIM field is a countdown field informing clients of the next window for listening to broadcast and multicast messages. When the Cisco RV180W has buffered broadcast or multicast messages for associated clients, it sends the next DTIM with a DTIM Interval value. Its clients hear the beacons and awaken to receive the broadcast and multicast messages.The default interval is 2 beacon intervals.

STEP 4 The **Request to Send (RTS) Threshold** is the packet size, in bytes, that requires the AP to check the transmitting frames to determine if an RTS/Clear to Send (CTS) handshake is required with the receiving client. Using a small value causes RTS packets to be sent more often, consuming more of the available bandwidth, reducing the apparent throughput of the network packets. The default value is 2346, which effectively disables RTS.

STEP 5 The **Fragmentation Threshold** is the maximum length of the frame, in bytes, beyond which packets must be fragmented into two or more frames. Collisions occur more often for long frames because while sending them, they occupy the channel for a longer time. The default value is 2346, which effectively disables fragmentation. If you experience a high packet error rate, you can slightly increase the fragmentation threshold; setting the fragmentation threshold too low may result in poor network performance. Only minor reduction of the default value is recommended.

STEP 6 Choose the **Preamble Mode**. The 802.11b standard requires that a preamble be appended to every frame before it is transmitted through the air. The preamble may be either the traditional “long” preamble, which requires 192 μs for transmission, or it may be an optional “short” preamble that requires only 96 μs. A long preamble is needed for compatibility with the legacy 802.11 systems operating at 1 and 2 Mbps. The default selection is long.

STEP 7 Choose the **Protection Mode**. Select **none** (the default) to turn off CTS. The **CTS-to-Self Protection** option enables the CTS-to-Self protection mechanism, which is used to minimize collisions among stations in a mixed 802.11b and 802.11g environment. This function boosts the Cisco RV180W’s ability to catch all wireless transmissions but severely decreases performance.

STEP 8 The **Short Retry Limit** and **Long Retry Limit** fields determine the number of times the Cisco RV180W will reattempt a frame transmission that fails. The limit applies to both long and short frames of a size less than or equal to the RTS threshold.

STEP 9 Click **Save**.

Configuring Rogue Access Point Detection

You can configure the Cisco RV180W to detect rogue access points, or unauthorized access points that have been connected to your network.

Enabling Rogue AP Detection

To configure rogue AP detection:

STEP 1 Choose **Wireless** > **Rogue AP**.

STEP 2 Under **Rogue AP Detection**, check **Enable**.

STEP 3 Click **Save**.

Authorizing a Rogue AP

If an AP has been marked as a rogue AP, and you want to authorize it to connect to the network, you can authorize it from the **Rogue AP Detected** Table. To authorize an endpoint:

STEP 1 Choose **Wireless** > **Rogue AP**.

STEP 2 In the Rogue AP Detected Table, check the box corresponding to the AP, then click **Authorize**. Authorized APs are displayed in the **Wireless** > **Rogue AP** > **Authorized APs** list.

To change the interval at which APs are displayed in the table, enter the seconds in the **Poll Interval** field. You can click Start or Stop to stop the collection of data that will be displayed in the table.

Adding and Editing Authorized APs

To add or edit authorized APs:

STEP 1 Choose **Wireless** > **Rogue AP** > **Authorized APs.**

STEP 2 Click **Add** or check the box of an authorized AP and click **Edit.**

STEP 3 Select the following information:

- **MAC Address**—The MAC, or hardware, address of the AP.
- **SSID**—The broadcast name of the SSID.
- **Security**—The type of security the AP uses.
- **Encryption**—The type of encryption the AP uses.
- **Authentication**—The type of authentication the AP uses.
- **Network Mode**—The type of network on the AP.
- **Channel**—The wireless channel of the AP.

STEP 4 Click **Save.**

Configuring Wi-Fi Protected Setup

You can configure Wi-Fi Protected Setup (WPS) on the Cisco RV180W to allow WPS-enabled devices to more easily connect to the wireless network.

NOTE You must configure one AP with WPA/WPA2 to use WPS.

STEP 1 Choose **Wireless** > **WPS**.

STEP 2 In the **VAP** field, select the wireless network on which you want to enable WPS. The network must use WPA, WPA2, or WPA+WPA2 security.

NOTE: You can enable WPS on only **one** of the four networks, or virtual access points.

STEP 3 Under **WPS Status**, choose **Enable** to allow WPS configuration. By default, WPS is disabled.

STEP 4 Click **Save**.

To set up a WPS-enabled device in the network:

STEP 1 Choose **Wireless** > **WPS**.

STEP 2 Choose the WPS setup method:

- **Setup Using a PIN**—In the **WPS Setup Method** section, in the **Station PIN** field, enter the personal identification number (PIN) of the device you want to connect to the network. You must log in to that device to obtain its WPS PIN. Then click **Configure via PIN**. After clicking this button on the Cisco RV180W, on the WPS-enabled device, select the necessary option to begin WPS. The device should begin communication with the Cisco RV180W.
- **Setup Using a WPS Button**—If the device you want to connect has a WPS button, push the button on the device. Then, on the Cisco RV180W, click **Configure via PBC** (push button configuration).

Configuring a Wireless Distribution System (WDS)

A Wireless Distribution System (WDS) is a system that enables the wireless interconnection of access points in a network. It allows a wireless network to be expanded using multiple access points without the need for a wired backbone to link them.

WDS peers are other access points in the network connected in the WDS. All base stations in a WDS must be configured to use the same radio channel, method of encryption (none, WEP, or WPA) and encryption keys.

You need to configure WDS if you are using the Cisco RV180W in WDS Bridge or WDS Repeater mode.

See **Choosing the Device Mode (Cisco RV180W), page 15**.

To configure WDS:

STEP 1 Choose **Wireless** > **WDS**.

STEP 2 Check the **Enable** box to enable WDS in the Cisco RV180W.

STEP 3 Enter a **WPA Key** (password) for authentication.

STEP 4 Click **Save**.

You can manually add WDS peers that can connect to the Cisco RV180W:

STEP 1 In the **WDS Peer Table**, click **Add**.

STEP 2 Enter the MAC (hardware) address of the WDS peer and click **Save**.

Configuring Load Balancing

You can configure load balancing on the Cisco RV180W to balance traffic between the four available wireless networks to get optimal resource utilization, throughput, or response time.

To configure load balancing:

STEP 1 Choose **Wireless** > **Load Balancing.**

STEP 2 Check **Enable**.

STEP 3 Under **SSID Utilization Threshold**, enter the utilization percentage for each SSID, or network. When the network traffic exceeds that percentage, the Cisco RV180W will direct traffic to one of the other networks whose threshold has not been reached. The current utilization is displayed.

STEP 4 Click **Save**.

4

Configuring the Firewall

This chapter contains information about configuring the firewall properties of the Cisco RV180/RV180W and includes the following sections:

Cisco RV180/RV180W Firewall Features

You can secure your network by creating and applying access rules that the Cisco RV180/RV180W uses to selectively block and allow inbound and outbound Internet traffic. You then specify how and to what devices the rules apply. You can configure the following:

- Services or traffic types (examples: web browsing, VoIP, other standard services and also custom services that you define) that the router should allow or block.
- Rules for outbound (from your LAN to the Internet) or inbound (from the Internet to your LAN) traffic.

- Schedules as to when the router should apply rules.
- Keywords (in a domain name or on a URL of a web page) that the router should allow or block.
- MAC addresses of devices whose inbound access to your network the router should block.
- Port triggers that signal the router to allow or block access to specified services as defined by port number.
- Reports and alerts that you want the router to send to you.

You can, for example, establish restricted-access policies based on time-of-day, web addresses, and web address keywords. You can block Internet access by applications and services on the LAN, such as chat rooms or games. You can block just certain groups of PCs on your network from being accessed by the WAN or public network.

Inbound (Internet to LAN) rules restrict access to traffic entering your network, selectively allowing only specific outside users to access specific local resources. By default, all access from the insecure WAN side is blocked from accessing the secure LAN, except in response to requests from the LAN or DMZ. To allow outside devices to access services on the secure LAN, you must create a firewall rule for each service.

If you want to allow incoming traffic, you must make the router's WAN port IP address known to the public. This is called “exposing your host.” How you make your address known depends on how the WAN ports are configured; for the Cisco RV180/RV180W, you may use the IP address if a static address is assigned to the WAN port, or if your WAN address is dynamic, a DDNS (Dynamic DNS) name can be used.

Outbound (LAN to Internet) rules restrict access to traffic leaving your network, selectively allowing only specific local users to access specific outside resources. The default outbound rule is to allow access from the secure zone (LAN) to the insecure WAN. To block hosts on the secure LAN from accessing services on the outside (insecure WAN), you must create a firewall rule for each service.

Configuring Access Rules

Configure access rules to control traffic to and from your network. To configure access rules, choose **Firewall** > **Access Rules**. All configured firewall rules on the Cisco RV180/RV180W are displayed in the Access Rule Table.

Configuring the Default Outbound Policy

You can configure the default outbound policy for the traffic that is directed from your secure network (LAN) to the Internet. The default *inbound* policy for traffic flowing from the Internet to your LAN is always blocked and cannot be changed. The *default outbound policy* applies to traffic that is not covered by the specific firewall rules that you have configured. For example, you may have specific firewall rules restricting outbound instant messaging and video traffic, but all other traffic would be permitted if you choose **allow** as the default outbound policy.

To configure the default outbound policy:

STEP 1 Choose **Firewall** > **Access Rules**.

STEP 2 Under **Default Outbound Policy**, choose **Allow** or **Block. Allow** permits traffic from your LAN to the Internet. **Block** does not permit traffic from your LAN to the Internet.

STEP 3 Click **Save**.

Using the Access Rules Table

In the Access Rules table, you can add, edit, enable, disable, and delete access rules. Check the box next to the rule on which you want to perform the action, then select the action from the buttons below the table.

Reordering Access Rules

You may want to reorder the access rules you have created to change the priority of a rule. To reorder access rules:

STEP 1 Click **Reorder**.

STEP 2 In the Access Rule Table, check the rule that you want to move, and click the **Up** or **Down** arrow to move it up or down the list.

STEP 3 Click **Save**.

Creating an Access Rule

Access rules specify the type of traffic that is allowed into and out of your network. To create access rules:

STEP 1 Choose **Firewall** > **Access Rules**.

STEP 2 Click **Add Rule**.

STEP 3 Under **Connection Type**, choose the destination of traffic covered by this rule:

- **Inbound**—Traffic from the Internet (WAN) to your network (LAN)
- **Outbound**—Traffic from your network (LAN) to the Internet (WAN)

STEP 4 Choose the action:

- **Always Block**—Always block the selected type of traffic.
- **Always Allow**—Never block the selected type of traffic.
- **Block by schedule, otherwise allow**—Blocks the selected type of traffic according to a schedule. Choose the schedule from the drop-down list. See **Creating Schedules, page 96**.
- **Allow by schedule, otherwise block**—Allows the selected type of traffic according to a schedule. Choose the schedule from the drop-down list. See **Creating Schedules, page 96**.

STEP 5 Choose the service to allow or block for this rule. Choose **Any Traffic** to allow the rule to apply to all applications and services, or you can choose a single application to block:

- AIM (AOL Instant Messenger)
- BGP (Border Gateway Control)
- BOOTP_CLIENT (Bootstrap Protocol client)
- BOOTP_SERVER (Bootstrap Protocol server)
- CU-SEEME (videoconferencing) UDP or TCP
- DNS (Domain Name System), UDP or TCP
- FINGER
- FTP (File Transfer Protocol)
- HTTP (Hyptertext Transfer Protocol)

- HTTPS (Secure Hypertext Transfer Protocol)
- ICMP (Internet Control Message Protocol) type 3 through 11 or 13
- ICQ (chat)
- IMAP (Internet Message Access Protocol) 2 or 3
- IRC (Internet Relay Chat)
- NEWS
- NFS (Network File System)
- NNTP (Network News Transfer Protocol)
- PING
- POP3 (Post Office Protocol)
- PPTP (Point-to-Point Tunneling Protocol)
- RCMD (command)
- REAL-AUDIO
- REXEC (Remote execution command)
- RLOGIN (Remote login)
- RTELNET (Remote telnet)
- RTSP (Real-Time Streaming Protocol) TCP or UDP
- SFTP (Secure Shell File Transfer Protocol)
- SMTP (Simple Mail Transfer Protocol)
- SNMP (Simple Network Management Protocol) TCP or UDP
- SNMP-TRAPS (TCP or UDP)
- SQL-NET (Structured Query Language)
- SSH (TCP or UDP)
- STRMWORKS
- TACACS (Terminal Access Controller Access-Control System)
- TELNET (command)
- TFTP (Trivial File Transfer Protocol)

- RIP (Routing Information Protocol)
- IKE
- SHTTPD (Simple HTTPD web server)
- IPSEC-UDP-ENCAP (UDP Encapsulation of IPsec packets)
- IDENT protocol
- VDOLIVE (live web video delivery)
- SSH (secure shell)
- SIP-TCP or SIP-UDP

STEP 6 In the **Source IP** field, configure the IP address to which the firewall rule applies:

- **Any**—The rule applies to traffic originating from any IP address in the local network.
- **Single Address**—The rule applies to traffic originating from a single IP address in the local network. Enter the address in the **Start** field.
- **Address Range**—The rule applies to traffic originating from an IP address located in a range of addresses. Enter the starting IP address in the **Start** field, and the ending IP address in the **Finish** field.

STEP 7 If you are configuring an **inbound** firewall access rule:

a. Destination Network Address Translation (DNAT) maps a public IP address (your dedicated WAN address) to an IP address on your private network. In the **Send to Local Server (DNAT IP)** field, specify an IP address of a machine on the Local Network which is hosting the server.

b. The router supports multi-NAT, so your Internet Destination IP address does not have to be the address of your WAN. On a single WAN interface, multiple public IP addresses are supported. If your ISP assigns you more than one public IP address, one of these can be used as your primary IP address on the WAN port, and the others can be assigned to servers on the LAN. In this way, the LAN can be accessed from the internet by its aliased public IP address. Check the **Enable** box and enter the IP address you want to use.

c. Under **Rule Status**, choose **Enabled** or **Disabled**. You may want to configure a rule and choose **Disabled** if you want to enable it at a later time.

STEP 8 If you are configuring an **outbound** firewall access rule:

a. In the **Destination IP** field, configure the IP address to which the firewall rule applies:

- **Any**—The rule applies to traffic going to any IP address.
- **Single Address**—The rule applies to traffic going to a single IP address. Enter the address in the **Start** field.
- **Address Range**—The rule applies to traffic going to an IP address located in a range of addresses. Enter the starting IP address in the **Start** field, and the ending IP address in the **Finish** field.

b. You can configure Secure Network Address Translation (SNAT) to map a public IP address (your Dedicated WAN address, Optional WAN address, or another address) to an IP address on your private network. Under Use This SNAT IP Address, check **Enable** and enter the SNAT IP Address.

c. Under Rule Status, choose **Enabled** or **Disabled**. You may want to configure a rule and choose **Disabled** if you want to enable it at a later time.

Configuring Attack Prevention

Attacks are malicious security breaches or unintentional network issues that render the Cisco RV180/RV180W unusable. Attack prevention allows you to manage WAN security threats such as continual ping requests and discovery via ARP scans. TCP and UDP flood attack prevention can be enabled to manage extreme usage of WAN resources.

As well, certain Denial-of-Service (DoS) attacks can be blocked. These attacks, if uninhibited, can use up processing power and bandwidth and prevent regular network services from running normally. ICMP packet flooding, SYN traffic flooding, and Echo storm thresholds can be configured to temporarily suspend traffic from the offending source.

To configure attack prevention:

STEP 1 Choose **Firewall** > **Attack Prevention**.

STEP 2 Check the boxes to enable the following functions:

- WAN (Internet) Security Checks
  - **Respond to Ping on WAN (Internet)**—To configure the Cisco RV180/ RV180W to allow a response to an Internet Control Message Protocol (ICMP) Echo (ping) request on the WAN interface, check this box. This setting is used as a diagnostic tool for connectivity problems. Not enabled by default.
  - **Stealth Mode**—If Stealth Mode is enabled, the router will not respond to port scans from the WAN. This feature makes the network less susceptible to discovery and attacks. Enabled by default.
  - **Flood**— If this option is enabled, the router will drop all invalid TCP packets. This feature protects the network from a SYN flood attack. Enabled by default.
- LAN (Local Network) Security Checks
  - **Block UDP Flood**—If this option is enabled, the router will not accept more than 500 simultaneous, active UDP connections from a single computer on the LAN. Enabled by default.
- ICSA (International Computer Security Association) Settings
  - **Block Anonymous ICMP Messages**—ICSA requires the firewall to silently block without sending an ICMP notification to the sender. Some protocols, such as MTU Path Discovery, require ICMP notifications. Enable this setting to operate in "stealth" mode. Enabled by default.
  - **Block Fragmented Packets**—ICSA requires the firewall to block fragmented packets from ANY to ANY. Enabled by default.
  - **Block Multicast Packets**—ICSA requires the firewall to block multicast packets. Enabled by default.

STEP 3 Click **Save**.

Configuring Content Filtering

The Cisco RV180/RV180W supports several content filtering options. You can block certain web applications or components (such as ActiveX or Java). You can set up trusted domains from which to always allow content.

Enabling Content Filtering

To enable content filtering:

STEP 1 Choose **Firewall** > **Content Filtering.**

STEP 2 Check the **Enable** box.

STEP 3 Click **Save.**

Blocking Web Components

Certain commonly-used web components can be blocked for increased security. Some of these components can be used by malicious websites to infect computers that access them.

STEP 1 Choose **Firewall** > **Content Filtering.**

STEP 2 With content filtering enabled, under Web Components, select the check box for each component you wish to block:

- **Block Proxy**—A proxy server (or simply, proxy) allows computers to route connections to other computers through the proxy, thus circumventing certain firewall rules. For example, if connections to a specific IP address are blocked by a firewall rule, the requests can be routed through a proxy that is not blocked by the rule, rendering the restriction ineffective. Enabling this feature blocks proxy servers.
- **Block Java**—Blocks java applets from being downloaded from pages that contain them. Java applets are small programs embedded in web pages that enable dynamic functionality of the page. A malicious applet can be used to compromise or infect computers. Enabling this setting blocks Java applets from being downloaded.
- **Block ActiveX**—Similar to Java applets, ActiveX controls are installed on a Windows computer while running Internet Explorer. A malicious ActiveX control can be used to compromise or infect computers. Enabling this setting blocks ActiveX applets from being downloaded.

- **Block Cookies**—Cookies are used to store session information by websites that usually require login. However, several websites use cookies to store tracking information and browsing habits. Enabling this option filters out cookies from being created by a website.

NOTE: Many websites require that cookies be accepted in order for the site to be accessed properly. Blocking cookies can cause many websites to not function properly.

STEP 3 Click **Save**.

Adding Trusted Domains

You can add a list of trusted domains. These domains are bypassed during keyword filtering. For example, if "yahoo" is added to the blocked keywords list and www.yahoo.com is added to the trusted domain list, then www.yahoo.com will be allowed, but mail.yahoo.com will not be allowed.

NOTE Before adding trusted domains, you must enable content filtering. See **Enabling Content Filtering, page 85**.

To add trusted domains:

STEP 1 Choose **Firewall** > **Content Filtering**. The Trusted Domain Table displays a list of currently configured trusted domains.

STEP 2 Click **Add** and enter the name of the trusted domain.

STEP 3 Click **Save**.

Configuring URL Blocking

You can block access to websites that contain specific keywords in the URL or page contents. If these keywords are found in the site's name (for example, web site URL or newsgroup name), the site is blocked. To configure URL blocking:

STEP 1 Choose **Firewall** > **URL Blocking**. The table displays currently blocked keywords.

STEP 2 Click **Add Row**.

STEP 3 Under **Status**, check the box to enable blocking for the new keyword.

STEP 4 Select the group to which to apply the keyword blocking. If you need to configure a new group, click **Configure LAN Groups**. (See **Configuring LAN (Local Network) Groups, page 99**.)

STEP 5 Enter the keyword to block.

STEP 6 Click **Save**.

Configuring Port Triggering

Port triggering allows devices on the LAN to request one or more ports to be forwarded to them. Port triggering waits for an outbound request from the LAN on one of the defined outgoing ports, and then opens an incoming port for that specified type of traffic. Port triggering is a form of dynamic port forwarding while an application is transmitting data over the opened outgoing or incoming ports.

Port triggering opens an incoming port for a specific type of traffic on a defined outgoing port.

Port triggering is more flexible than static port forwarding (available when configuring firewall rules) because a rule does not have to reference a specific LAN IP or IP range. Ports are also not left open when not in use, thereby providing a level of security that port forwarding does not offer.

NOTE Port triggering is not appropriate for servers on the LAN, since there is a dependency on the LAN device making an outgoing connection before incoming ports are opened.

Some applications require that, when external devices connect to them, they receive data on a specific port or range of ports in order to function properly. The router must send all incoming data for that application only on the required port or range of ports. The gateway has a list of common applications and games with corresponding outbound and inbound ports to open. You can also specify a port triggering rule by defining the type of traffic (TCP or UDP) and the range of incoming and outgoing ports to open when enabled.

Adding a Port Triggering Rule

To add a port triggering rule:

STEP 1 Choose **Firewall** > **Port Triggering**.

STEP 2 Click **Add**.

STEP 3 Specify an easily-identifiable name for this rule.

STEP 4 Check the **Enable** box to enable the rule.

STEP 5 Select whether the port uses TCP, UDP, or both protocols.

STEP 6 In the **Outgoing (Trigger) Port Range** section, specify the port number or range of port numbers that will trigger this rule when a connection request from outgoing traffic is made. If the outgoing connection uses only one port, then specify the same port number in the **Start Port** and **End Port** fields.

STEP 7 In the **Incoming (Response) Port Range** section, specify the port number or range of port numbers used by the remote system to respond to the request it receives. If the incoming connection uses only one port, then specify the same port number in the **Start Port** and **End Port** fields.

STEP 8 Click **Save**.

Configuring Port Forwarding

Port forwarding is used to redirect traffic from the Internet from one port on the WAN to another port on the LAN. The port forwarding rules menu allows selection of a service. Common services are available or you can define a custom service and associated ports to forward.

The Port Forwarding Rule Table lists all the available port forwarding rules for this device and allows you to configure port forwarding rules. The table contains the following information:

- **Action**—Whether to block or allow traffic (always or by schedule) that meets these filter rules, and when the rule is applicable.
- **Service**—Service for which this port forwarding rule is applicable.

- **Status**—A port forwarding rule can be disabled if not in use and enabled when needed. The port forwarding rule is disabled if the status is disabled and it is enabled if the status is enabled. Disabling a port forwarding rule does not delete the configuration.
- **Source IP**—The source IP address for traffic from which traffic is forwarded (Any, Single Address or Address Range).
- **Destination IP**—The IP address of the server to which traffic is forwarded.
- **Internal Port**—To which port traffic will be forwarded.

Adding a Port Forwarding Configuration

To configure port forwarding:

STEP 1 Choose **Firewall** > **Port Forwarding.**

STEP 2 Click **Add.**

STEP 3 Choose the action:

- **Always Block**—Always block the selected type of traffic.
- **Always Allow**—Never block the selected type of traffic.
- **Block by Schedule**—Blocks the selected type of traffic according to a schedule. Choose the schedule from the drop-down list. See **Creating Schedules, page 96**.
- **Allow by Schedule**—Allows the selected type of traffic according to a schedule. Choose the schedule from the drop-down list. See **Creating Schedules, page 96**.

STEP 4 Under **Service**, select one of the common or custom services defined for this device:

- AIM (AOL Instant Messenger)
- BGP (Border Gateway Control)
- BOOTP_CLIENT (Bootstrap Protocol client)
- BOOTP_SERVER (Bootstrap Protocol server)
- CU-SEEME (videoconferencing) UDP or TCP
- DNS (Domain Name System), UDP or TCP

- FINGER
- FTP (File Transfer Protocol)
- HTTP (Hyptertext Transfer Protocol)
- HTTPS (Secure Hypertext Transfer Protocol)
- ICMP (Internet Control Message Protocol) type 3 through 11 or 13
- ICQ (chat)
- IMAP (Internet Message Access Protocol) 2 or 3
- IRC (Internet Relay Chat)
- NEWS
- NFS (Network File System)
- NNTP (Network News Transfer Protocol)
- PING
- POP3 (Post Office Protocol)
- PPTP (Point-to-Point Tunneling Protocol)
- RCMD (command)
- REAL-AUDIO
- REXEC (Remote execution command)
- RLOGIN (Remote login)
- RTELNET (Remote telnet)
- RTSP (Real-Time Streaming Protocol) TCP or UDP
- SFTP (Secure Shell File Transfer Protocol)
- SMTP (Simple Mail Transfer Protocol)
- SNMP (Simple Network Management Protocol) TCP or UDP
- SNMP-TRAPS (TCP or UDP)
- SQL-NET (Structured Query Language)
- SSH (TCP or UDP)
- STRMWORKS

- TACACS (Terminal Access Controller Access-Control System)
- TELNET (command)
- TFTP (Trivial File Transfer Protocol)
- RIP (Routing Information Protocol)
- IKE
- SHTTPD (Simple HTTPD web server)
- IPSEC-UDP-ENCAP (UDP Encapsulation of IPsec packets)
- IDENT protocol
- VDOLIVE (live web video delivery)
- SSH (secure shell)
- SIP-TCP or SIP-UDP

STEP 5 Select the **Source IP**:

- **Any**—Specifies that the rule being created is for traffic from the given endpoint.
- **Single Address**—Limit to one host. Requires the IP address of the host to which this rule would be applied.
- **Address Range**—This is used to apply this rule to a group of computers/ devices within an IP address range. Requires a **from IP address** and **to IP address**.

STEP 6 If you chose **Single Address** in Step 5, enter the IP address in the **Start** field.

STEP 7 If you chose **Address Range** in Step 5, enter the starting IP address of the range in the **Start** field and the ending IP address of the range in the **Finish** field.

STEP 8 If you chose **Always Allow**, **Block by Schedule**, or **Allow by Schedule** in Step 3:

a. Enter the Destination IP address, or the address where traffic meeting the rule should be sent.

b. In the **Internal Port** field, enter the port to which traffic should be forwarded.

STEP 9 Click **Save**.

Configuring a DMZ Host

The Cisco RV180/RV180W supports DMZ options. A DMZ is a sub-network that is open to the public but behind the firewall. DMZ allows you to redirect packets going to your WAN port IP address to a particular IP address in your LAN. It is recommended that hosts that must be exposed to the WAN (such as web or e-mail servers) be placed in the DMZ network. Firewall rules can be allowed to permit access to specific services and ports to the DMZ from both the LAN or WAN. In the event of an attack on any of the DMZ nodes, the LAN is not necessarily vulnerable as well.

You must configure a fixed (static) IP address for the endpoint that will be designated as the DMZ host. The DMZ host should be given an IP address in the same subnet as the router's LAN IP address but it cannot be identical to the IP address given to the LAN interface of this gateway.

STEP 1 Choose **Firewall** > **DMZ Host**.

STEP 2 Check the **Enable** box to enable DMZ on the network.

STEP 3 Enter the IP address for the endpoint that will receive the redirected packets. This is the DMZ host.

STEP 4 Click **Save**. You must then configure firewall rules for the zone.

See **Creating Custom Services, page 95**.

Configuring Advanced Firewall Settings

This page allows you to configure many advanced firewall settings.

Configuring One-to-One Network Address Translation (NAT)

One-to-one NAT is a way to make systems behind a firewall that are configured with private IP addresses appear to have public IP addresses.

To configure one-to-one NAT, choose **Firewall** > **Advanced Settings** > **One-to-One NAT**. The One-to-One-NAT Rules Table lists the available One-To-One NAT rules that have been configured. It displays the following fields:

- **Private Range Begin**—The starting IP address in the private (LAN) IP address.
- **Public Range Begin**—The starting IP address in the public (WAN) IP address.
- **Range Length**—Range length maps one to one private address to public address up to the given range.
- **Service**—Shows configured services. Services for one-to-one NAT allow you to configure the service to be accepted by the private IP (LAN) address when traffic is sent to the corresponding public IP address. Configured services on private IP addresses in the range are accepted when traffic is available on the corresponding public IP address.

Adding a One-to-One NAT Rule

To add a one-to-one NAT rule:

STEP 1 Choose **Firewall** > **Advanced Settings** > **One-to-One NAT**.

STEP 2 Click **Add**.

STEP 3 Enter information in the following fields:

- **Private Range Begin**—The starting IP address in the private (LAN) IP address.
- **Public Range Begin**—The starting IP address in the public (WAN) IP address.
- **Range Length**—Range length maps one to one private address to public address up to the given range.
- **Service**—Choose the service for which the rule applies.

STEP 4 Click **Save**.

Configuring MAC Address Filtering

MAC address filtering allows you to block traffic coming from certain known machines or devices. The router uses the MAC address of a computer or device on the network to identify it and block or permit the access. Traffic coming in from a specified MAC address will be filtered depending upon the policy.

To enable MAC address filtering:

STEP 1 Choose **Firewall** > **Advanced Settings** > **MAC Filtering.**

STEP 2 Check the **Enable** box to enable MAC Address Filtering for this device. Uncheck the box to disable this feature.

If you enable MAC filtering, in the **Policy for MAC Addresses Listed Below** field, choose one of the following options:

- **Block and Allow the Rest**—Choose this option to block the traffic from the specified MAC addresses and to allow traffic from all other addresses.
- **Allow and Block the Rest**—Choose this option to allow the traffic from the specified MAC addresses and to block traffic from all other machines on the LAN side of the router.

For example, two computers are on the LAN with MAC addresses of 00:01:02:03:04:05 (host1), and 00:01:02:03:04:11 (host2). If the host1 MAC address is added to the MAC filtering list and the “block and allow the rest” policy is chosen, when this computer tries to connect to a website, the router will not allow it to connect. However, host2 is able to connect because its MAC address is not in the list. If the policy is “allow and block the rest,” then host1 is able to connect to a website, but host2 is blocked because its URL is not in the list. The MAC filtering policy does not override a firewall rule that directs incoming traffic to a host.

STEP 3 In the MAC Addresses table, click **Add.**

STEP 4 Enter the MAC address and description to add to the table and click **Save.** Repeat for each address to allow or block.

STEP 5 Click **Save.**

Configuring IP/MAC Address Binding

IP/MAC Binding allows you to bind IP addresses to MAC address. Some machines are configured with static addresses. To prevent users from changing static IP addresses, IP/MAC Binding should be enabled. If the Cisco RV180/RV180W sees packets with matching IP address but inconsistent MAC addresses, it drops those packets.

To configure IP/MAC Address binding:

STEP 1 Choose **Firewall** > **Advanced Settings** > **IP/MAC Binding.** The table lists all the currently defined IP/MAC binding rules and allows several operations on the rules.

STEP 2 Click **Add** to add a new rule.

STEP 3 In the name field, enter the name for this rule.

STEP 4 In the MAC Addresses field, enter the MAC Addresses (the physical address of the piece of hardware) for this rule.

STEP 5 In the IP Addresses field, enter the IP Addresses to assign to the piece of hardware.

STEP 6 Click **Save.**

Creating Custom Services

When you create a firewall rule, you can specify a service that is controlled by the rule. Common types of services are available for selection, and you can create your own custom services. This page allows creation of custom services against which firewall rules can be defined. Once defined, the new service will appear in the **List of Available Custom Services** table.

Adding a Custom Service

To create a custom service:

STEP 1 Choose **Firewall** > **Advanced Settings** > **Custom Services.**

STEP 2 Click **Add.**

STEP 3 Enter a service name for identification and management purposes.

STEP 4 Enter the service type, or layer 4 protocol that the service uses (**TCP**, **UDP**, **ICMP**, **ICMPv6**, or **other**).

If you chose ICMP or ICMPv6 as the service type, enter the ICMP type. This is a numeric value from 0 through 40 for ICMP and from 0 through 255 for ICMPv6.

STEP 5 If you chose TCP or UDP, in the **Start Port** field, enter the first TCP or UDP port of the range that the service uses. In the **Finish Port** field, enter the last TCP or UDP port of the range that the service uses.

STEP 6 If you chose **Other**, enter the number of the protocol in the Protocol Number field. (For example, if you are using RDP, enter 27 in the protocol number field.)

STEP 7 Click **Save**.

Creating Schedules

You can create firewall schedules to apply firewall or port forwarding rules on specific days or at specific times of the day.

Adding a Schedule

To create a schedule:

STEP 1 Choose **Firewall** > **Advanced Settings** > **Schedules**.

STEP 2 Click **Add**.

STEP 3 Enter a unique name to identify the schedule. This name is then available when you create access or port forwarding rules.

STEP 4 Under **Time**, check **All Day** if you want the schedule to apply to the entire day. Leave the box unchecked if you want it to only apply to certain hours of the day, and enter the specific start and end times, selecting **a.m.** or **p.m.**

STEP 5 Under **Repeat**, check **Everyday** to apply the schedule to all the days of the week. Leave the box unchecked if you want it to only apply to certain days, and check the boxes next to the days you want to include in the schedule.

STEP 6 Click **Save**.

Configuring Session Settings

You can limit the maximum number of unidentified sessions and half-open sessions on the Cisco RV180/RV180W. You can also introduce timeouts for TCP and UDP sessions to ensure Internet traffic is not deviating from expectations in your private network.

To configure session settings:

STEP 1 Choose **Firewall** > **Advanced Settings** > **Session Settings.**

STEP 2 In the **Maximum Unidentified Sessions** field, enter the maximum number of unidentified sessions for the ALG identification process. This value can range from 2 through 128. The default is 32 sessions.

STEP 3 In the **Maximum Half Open Sessions** field, enter the maximum number of half-open sessions. A half-open session is the session state between receipt of a SYN packet and the SYN/ACK packet. Under normal circumstances, a session is allowed to remain in the half-open state for 10 seconds. The maximum value ranges from 0 through 3,000. The default is 128 sessions.

STEP 4 In the **TCP Session Timeout Duration** field, enter the time, in seconds, after which inactive TCP sessions are removed from the session table. Most TCP sessions terminate normally when the RST or FIN flags are detected. This value ranges from 0 through 4,294,967 seconds. The default is 1,800 seconds (30 minutes).

STEP 5 In the **UDP Session Timeout Duration** field, enter the time, in seconds, after which inactive UDP sessions are removed from the session table. This value ranges from 0 through 4,294,967 seconds. The default is 120 seconds (2 minutes).

STEP 6 In the **Other Session Timeout Duration** (seconds) field, enter the time, in seconds, after which inactive non-TCP/UDP sessions are removed from the session table. This value ranges from 0 through 4,294,967 seconds. The default is 60 seconds.

STEP 7 In the **TCP Session Cleanup Latency (seconds)** field, enter the maximum time for a session to remain in the session table after detecting both FIN flags. This value ranges from 0 through 4,294,967 seconds. The default is 10 seconds.

STEP 8 Click **Save**.

Configuring Internet Group Management Protocol (IGMP)

Internet Group Management Protocol (IGMP) is an exchange protocol for routers. Hosts that want to receive multicast messages need to inform their neighboring routers of their status. In some networks, each node in a network becomes a member of a multicast group and receives multicast packets. In these situations, hosts exchange information with their local routers using IGMP. Routers use IGMP periodically to check if the known group members are active. IGMP provides a method called dynamic membership by which a host can join or leave a multicast group at any time.

The Allowed Networks table lists all the allowed networks configured for the device and allows several operations on the allowed networks:

- **Network Address**—The network address from which the multicast packets originate.
- **Mask Length**— Mask Length for the network address.

In this table you can perform the following actions:

- **Check Box**—Select all the allowed networks in the table.
- **Delete**—Deletes the selected allowed network or allowed networks.
- **Add**—Opens the Allowed Network Configuration page to add a new network.
- **Edit**—Opens the Allowed Network Configuration page to edit the selected network.

NOTE By default the device will forward multicast packets which are originating from its immediate WAN network.

Adding Allowed Networks

To configure IGMP:

STEP 1 Choose **Firewall** > **Advanced Settings** > **IGMP Configuration.**

STEP 2 Check the **Enable** box to allow IGMP communication between the router and other nodes in the network.

STEP 3 Choose the **Upstream Interface** (WAN or LAN). Select the interface (LAN or WAN) on which the IGMP proxy acts as a normal multicast client.

STEP 4 Click **Save**.

Configuring LAN (Local Network) Groups

You can create LAN groups, which are groups of endpoints that are identified by their IP address. After creating a group, you can then configure actions, such as blocked keywords in a firewall rule, that apply to the group.

(See **Configuring URL Blocking, page 86**.)

Adding a New LAN Group

To create a LAN Group:

STEP 1 Choose **Firewall** > **Advanced Settings** > **LAN (Local Network) Groups.**

STEP 2 Click **Add**.

STEP 3 Enter the group name; spaces and quotes are not supported. Click **Save**.

STEP 4 If the group consists of a single IP address, choose **Single Address** and enter the address in the **Start IP Address** field. If the group consists of a range of IP addresses, choose **Address Range** and enter the addresses in the **Finish IP Address** fields.

STEP 5 Click **Save**.

Enabling Session Initiation Protocol Application-Level Gateway (SIP ALG)

SIP ALG can rewrite information within SIP messages (SIP headers and SDP body) making signaling and audio traffic possible between a client behind Network Address Translation (NAT) and the SIP endpoint.

To enable SIP ALG:

STEP 1 Choose **Firewall** > **Advanced Settings** > **SIP ALG**.

STEP 2 Check the **Enable** box to enable SIP ALG support. If disabled, the router will not allow incoming calls to the UAC (User Agent Client) behind the Cisco RV180/ RV180W.

STEP 3 Click **Save**.

Firewall Configuration Examples

Example 1: Allow inbound HTTP traffic to the DMZ

In this example, you host a public web server on your local DMZ network. You want to allow inbound HTTP requests from any outside IP address to the IP address of your web server at any time of day.

Create an inbound rule as follows:

Parameter	Value
Connection Type	Inbound
Action	Always Allow
Service	HTTP
Source IP	Any
Send to Local Server (DNAT IP)	192.168.5.2 (web server IP address)
Rule Status	Enabled

Example 2: Allow videoconferencing from range of outside IP addresses.

In this example, you want to allow incoming videoconferencing to be initiated from a restricted range of outside IP addresses (132.177.88.2 - 132.177.88.254), from a branch office.

Create an inbound rule as follows. In the example, CUSeeMe connections are allowed only from a specified range of external IP addresses.

Parameter	Value
Connection Type	Inbound
Action	Always Allow
Service	CU-SEEME:UDP
Source IP	Address Range
Start	132.177.88.2
Finish	134.177.88.254
Send to Local Server (DNAT IP)	192.168.1.11
Rule Status	Enabled

Example 3: Multi-NAT Configuration

In this example, you want to configure multi-NAT to support multiple public IP addresses on one WAN port interface.

Create an inbound rule that configures the firewall to host an additional public IP address. Associate this address with a web server on the DMZ. If you arrange with your ISP to have more than one public IP address for your use, you can use the additional public IP addresses to map to servers on your LAN. One of these public IP addresses is used as the primary IP address of the router. This address is used to provide Internet access to your LAN PCs through NAT. The other addresses are available to map to your DMZ servers.

The following addressing scheme is used to illustrate this procedure:

- WAN IP address: 10.1.0.118
- LAN IP address: 192.168.1.1; subnet 255.255.255.0

- Web server PC in the DMZ, IP address: 192.168.1.2
- Access to Web server: (simulated) public IP address 10.1.0.52

Parameter	Value
Connection Type	Inbound
Action	Always Allow
Service	HTTP
Source IP	Single Address
Start	10.1.0.52
Send to Local Server (DNAT IP)	192.168.1.2 (local IP address of your web server)
Rule Status	Enabled

Example 4: Block traffic by schedule if generated from specific range of machines

In this example, you want to block all HTTP traffic on the weekends if the request originates from a specific group of machines in the LAN having a known range of IP addresses, and anyone coming in through the Network from the WAN (i.e. all remote users).

STEP 1 Setup a schedule. Choose **Firewall** > **Advanced Settings** > **Schedules.**

STEP 2 Click **Add.**

STEP 3 Enter the schedule name (for example, “Weekend”).

STEP 4 Under Time, check **All Day.**

STEP 5 Under **Repeat**, leave **Everyday** unchecked.

STEP 6 Check **Saturday** and **Sunday.**

STEP 7 Click **Save.**

Create an outbound access rule with the following parameters:

Parameter	Value
Connection Type	Outbound
Action	Block by Schedule
Schedule	Weekend
Service	HTTP
Source IP	Address Range
Start	starting IP address
Finish	ending IP address
Destination IP	Any
Rule Status	Enabled

Create an inbound access rule with the following parameters:

Parameter	Value
Connection Type	Inbound
Action	Block by Schedule
Schedule	Weekend
Service	All Traffic
Source IP	Any
Rule Status	Enabled

5

Configuring VPN and Security

This chapter describes VPN configuration. It also describes how to configure router security, beginning with the **"Configuring Security" section on page 124**.

The following sections are covered:

A VPN provides a secure communication channel ("tunnel") between two gateway routers or a remote worker and a gateway router. You can create different types of VPN tunnels, depending on the needs of your business. Several scenarios are described below. Read these descriptions to understand the options and the steps required to set up your VPN.

Site-to-Site Access with Gateway-to-Gateway VPN

A gateway-to-gateway VPN connects two or more routers using an IPsec policy to secure traffic between two sites. Use this type of VPN if you need to connect the network at a branch office to the network at your main office, for example.

STEP 1 Use the *Basic VPN Setup* page to create a VPN. Choose Gateway as the peer type, and enter the following:

- new connection name
- pre-shared key
- remote gateway type and remote WAN IP address or fully-qualified domain name (FQDN)
- local gateway type and local WAN IP address or FQDN

You will also need to configure the corresponding settings on the router at the other site.

See **Configuring a Basic VPN, page 109**.

STEP 2 If needed, edit the default settings by using the *Advanced VPN Setup* page.

See **Configuring Advanced VPN Parameters, page 111**.

Remote Access with an IPsec Client (Client-to-Gateway VPN)

In this scenario, a remote client, such as a PC running IPsec VPN client software, initiates a VPN tunnel. The IP address of the remote PC client is not necessarily known in advance. The gateway acts as responder. Configure this type of VPN tunnel if you have a teleworkers who need to securely connect to your network from their home offices, for example.

You will need to configure this router with the specific IPsec policies required for the IPsec client. You also will need to install and configure the IPsec client software on the users' computers.

STEP 1 Use the *Basic VPN Setup* page to quickly configure the IKE Policy and the VPN Policy by using the standard settings. Choose VPN Client as the peer type, and enter the other basic settings. Note that the users' VPN client software will need to be configured with the same Pre-Shared Key that you enter here.

See **Configuring a Basic VPN, page 109**.

STEP 2 To configure the settings required by the VPN client software, use the *Advanced VPN Setup* page to edit the IKE Policy and the VPN Policy. For the required settings, refer to the VPN client documentation.

See **Configuring Advanced VPN Parameters, page 111**.

STEP 3 Set up the users:

- If you configured the VPN policy to authenticate from the local database, add the users on the *VPN > IPsec > VPN Users* page. Choose XAUTH as the user protocol.

  See **Configuring VPN Users, page 121**.

- If you configured the VPN policy to authenticate from an external database, configure the connection to the RADIUS server.

See **Using the Cisco RV180/RV180W With a RADIUS Server, page 127**.

Remote Access with Cisco QuickVPN

For quick setup with basic VPN security settings, distribute Cisco QuickVPN software to your users, who can then securely access your network resources. Use this option if you want to simplify the VPN setup process. You do not have to configure VPN policies. Remote users can connect securely with the Cisco QuickVPN client and an Internet connection.

STEP 1 Add the users on the *VPN > IPsec > VPN Users* page.

Choose QVPN as the user protocol. See **Configuring VPN Users, page 121**.

STEP 2 Instruct users to obtain the free Cisco QuickVPN software from Cisco.com, and install it on their computers.

For more information, see **Appendix A, “Using Cisco QuickVPN for Windows 7, 2000, XP, or Vista.”**

Note: To enable access via Cisco QuickVPN this router, you must enable remote management to open port 443 for SSL.

See **Using the Management Interface, page 137**.

Remote access using PPTP

In this scenario, a remote user with a Microsoft computer connects to a PPTP server at your site to access network resources. Use this option to simplify VPN setup. You do not have to configure VPN policies. Remote users can connect by using the PPTP client from a Microsoft computer. There is no need to install a VPN client. However, be aware that security vulnerabilities have been found in this protocol.

Enter the PPTP server settings and add the users on the *VPN > IPsec > VPN Users* page. Choose PPTP as the user protocol.

See **Configuring VPN Users, page 121**.

Configuring a Basic VPN

Use the *Basic VPN Setup* page to create a VPN. Entering information into this page creates a VPN using a Pre-shared Key (PSK) and default values as proposed by the VPN Consortium (VPNC).

If you need to change the default values, use the *Advanced VPN Setup* page.

For more information, see **Configuring Advanced VPN Parameters, page 111**.

To open this page: In the navigation tree, choose **VPN** > **IPsec** > **Basic VPN Setup**.

STEP 1 Choose the type of peer that the VPN tunnel will connect:

- **Gateway—**Connects the Cisco RV180W to a gateway, such as another Cisco RV180W at another site.
- **VPN Client—**Connects the Cisco RV180W to remote clients. The remote clients must run VPN client software.

STEP 2 In the *Connection Name and Remote IP Type* section, enter the following information:

- **New Connection Name—**Enter a name to identify this connection. The connection name is used for management.
- **Pre-Shared Key—**Enter an alpha-numeric key to be used when setting up a connection. Include 8 to 49 characters. The double-quote character is not allowed. Ensure that the VPN client or remote gateway is configured with this key.

STEP 3 In the *Endpoint Information* section, enter the following information:

- **Remote Gateway Type**—If the peer is a gateway, choose a method for identifying the remote router. You can use either an IP address or a FQDN. You must configure the same type for the remote gateway and the local gateway.
- **Remote WANs IP Address / FQDN**—Enter one of the following options:
  - *For a gateway-to-gateway connection:* If known, enter the remote router's IP address or its domain name (for example, *MyServer.MyDomain.com*). If you do not have that information, keep the default setting, *remote.com*.

- *For a client-to-gateway connection*: Keep the default setting, *remote.com*, specify a client WAN IP address/FQDN if you want to restrict access only to clients from that site.
- **Local Gateway Type**—Choose a method for identifying this router. You can use either an IP address or a Fully-Qualified Domain Name. If the peer is a gateway, choose the same type that you chose for the Remote Gateway Type above.
- **Local WANs IP Address / FQDN**—Based on the above selection, enter either this router's IP address or its domain name (for example, *MyServer.MyDomain.com*). This field can be left blank if you want to use the same FQDN or IP address that is specified in the WAN configuration. If you do not know the address, keep the default setting, *local.com*.

STEP 4 In the *Secure Connection Remote Accessibility* section, enter the following information:

- **Remote LAN (Local Network) IP Address** *(for a Gateway only)***—**Enter the subnet IP address of the remote LAN. A subnet IP address is one that gives the "network number" of the IP range. For example, a network address of 192.168.1.10 with a Subnet Mask of 255.255.255.0 would have a network number or subnet IP address of 192.168.1.0.
- **Remote LAN (Local Network) Subnet Mask** *(for a Gateway only)***—**Enter the associated Subnet Mask for the remote LAN.
- **Local LAN (Local Network) IP Address—**Enter the subnet IP address of the local LAN. A subnet IP address is one that gives the "network number" of the IP range. For example, a network address of 192.168.1.10 with a Subnet Mask of 255.255.255.0 would have a network number or subnet IP address of 192.168.1.0.
- **Local LAN (Local Network) Subnet Mask—**Enter the Subnet Mask for the local LAN.

  Note: The IP address range used on the remote LAN must be different from the IP address range used on the local LAN.

STEP 5 Click **Save** to save your settings, or click **Cancel** to reload the page with the current settings. After you save your settings, the *Advanced VPN Setup* page appears.

Viewing Basic VPN Default Values

This page lists the default values that are used in the VPN configuration that is created when you use the Basic VPN Setup page. If you need to change the default values, use the *Advanced VPN Setup* page.

For more information, see **Configuring Advanced VPN Parameters, page 111**.

Configuring Advanced VPN Parameters

The *Advanced VPN Setup* page allows you to configure advanced VPN parameters, such as IKE and other VPN policies. These policies control how the Cisco RV180/RV180W initiates and receives VPN connections with other endpoints.

Use the *VPN > IPsec > Advanced VPN Setup* page to view, add, edit, and delete IKE and VPN policies.

To open this page: In the navigation tree, choose **VPN** > **IPsec** > **Advanced VPN Setup**.

The tables list the existing policies.

IKE Policies

The Internet Key Exchange (IKE) protocol dynamically exchanges keys between two IPsec hosts. You can create IKE policies to define the security parameters such as authentication of the peer, encryption algorithms, etc. to be used in this process. Be sure to use compatible encryption, authentication, and key-group parameters for the VPN policy.

In the *IKE Policy Table*, perform these tasks:

- To add a policy, click **Add**. Then enter the settings on the *Add/Edit IKE Policy Configuration* page.

  See **Configuring IKE Policies, page 112**.

- To edit a policy, check the box and then click **Edit**. Then enter the settings on the *Add/Edit IKE Policy Configuration* page.

  See **Configuring IKE Policies, page 112**.

- To delete a policy, check the box and then click **Delete**. To select all policies, check the box in the heading row, and then click **Delete**. When the confirmation message appears, click **OK** to continue with the deletion, or otherwise click **Cancel**.

VPN Policies

In the *VPN Policy Table*, perform these tasks:

- To add a policy, click **Add**. Then enter the settings on the *Add/Edit VPN Policy Configuration* page.

  See **Configuring VPN Policies, page 116**.

  Note: To create an Auto VPN Policy, you need to first create an IKE policy and then add the corresponding Auto Policy for that IKE Policy.

- To edit a policy, check the box and then click **Edit**. Then enter the settings on the *Add/Edit VPN Policy Configuration* page.

  See **Configuring VPN Policies, page 116**.

- To delete a policy, check the box and then click **Delete**. To select all policies, check the box in the heading row, and then click **Delete**. When the confirmation message appears, click **OK** to continue with the deletion, or otherwise click **Cancel**.

- To enable a policy, check the box and then click **Enable**. To select all policies, check the box in the heading row, and then click **Enable**.

- To enable a policy, check the box and then click **Disable**. To select all policies, check the box in the heading row, and then click **Disable**.

Configuring IKE Policies

Use the *Add / Edit IKE Policy Configuration* page to configure an IKE (Internet Key Exchange) Policy. You can create IKE policies to define the security parameters such as authentication of the peer, encryption algorithms, etc. to be used in this process. Be sure to use compatible encryption, authentication, and key-group parameters for the VPN policy.

To open this page: From the *VPN > IPsec > Advanced VPN Setup* page, in the *IKE Policy* table, click **Add** or select an existing policy and click **Edit**.

STEP 1 At the top of the page, enter these settings:

- **Policy Name—**Enter a unique name for the policy for identification and management purposes.
- **Direction/Type—**Choose one of the following connection methods:
  - **Initiator**—The router will initiate the connection to the remote end.
  - **Responder**—The router will wait passively and respond to remote IKE requests.
  - **Both**—The router will work in either Initiator or Responder mode.
- **Exchange Mode—**Choose one of the following options:
  - **Main**—This mode negotiates the tunnel with higher security, but is slower.
  - **Aggressive**—This mode establishes a faster connection, but with lowered security.

  Note: If either the Local or Remote identifier type is not an IP address, then negotiation is only possible in Aggressive Mode. If FQDN, User FQDN or DER ASN1 DN is selected, the router disables Main mode and sets the default to Aggressive mode.

STEP 2 In the *Local* section, enter the **Identifier Type** to specify the Internet Security Association and Key Management Protocol (ISAKMP) identifier for the local router:

- **Local WAN (Internet) IP**
- **FQDN**
- **User-FQDN**
- **DER ASN1 DN**

  If you chose **FQDN**, **User-FQDN**, or **DER ASN1 DN** as the identifier type—Enter the IP address or domain name in the **Identifier** field.

STEP 3 In the *Remote* section, enter the **Identifier Type** to specify the Internet Security Association and Key Management Protocol (ISAKMP) identifier for the remote router:

- **Remote WAN (Internet) IP**
- **FQDN**
- **User FQDN**

- **DER ASN1 DN**

  If you chose **FQDN**, **User-FQDN**, or **DER ASN1 DN** as the identifier type**—**Enter the IP address or domain name in the **Identifier** field.

STEP 4 In the *IKE SA Parameters* section, enter these settings:

The Security Association (SA) parameters define the strength and mode for negotiating the SA.

- **Encryption Algorithm—**Choose the algorithm used to negotiate the SA:
  - **DES**
  - **3DES**
  - **AES-128**
  - **AES-192**
  - **AES-256**
- **Authentication Algorithm—**Specify the authentication algorithm for the VPN header:
  - **MD5**
  - **SHA-1**
  - **SHA2-256**
  - **SHA2-384**
  - **SHA2-512**

  Ensure that the authentication algorithm is configured identically on both sides.
- **Authentication Method—**Choose one of the following options:
  - **Pre-Shared Key—**Choose this option for a simple password-based key that is shared with the IKE peer. Then enter the key in the space provided. Note that the double-quote character (“) is not supported in the pre-shared key.
  - **RSA-Signature—**Choose this option to disable the pre-shared key text field and use the Active Self Certificate that was uploaded on the *Security > SSL Certificate* page. A certificate must be configured in order for RSA-Signature to work.

- **Diffie-Hellman (DH) Group—**Specify the DH Group algorithm, which is used when exchanging keys. The DH Group sets the strength of the algorithm in bits. Ensure that the DH Group is configured identically on both sides of the IKE policy.
- **SA Lifetime—**Enter the interval, in seconds, after which the Security Association becomes invalid.
- **Dead Peer Detection—**Check the **Enable** box to enable this feature, or uncheck the box to disable it. Dead Peer Detection (DPD) is used to detect whether the peer is alive or not. If peer is detected as dead, the router deletes the IPsec and IKE Security Association. If you enable this feature, also enter these settings:
  - **Detection Period—**Enter the interval, in seconds, between consecutive DPD R-U-THERE messages. DPD R-U-THERE messages are sent only when the IPsec traffic is idle.
  - **Reconnect after Failure Count—**Enter the maximum number of DPD failures allowed before tearing down the connection.

STEP 5 Optionally in the **Extended Authentication** section, enable Extended Authentication (XAUTH). When connecting many VPN clients to a VPN gateway router, XAUTH allows authentication of users with methods in addition to the authentication method mentioned in the IKE SA parameters.

- **XAUTH Type—**Choose one of the following options:
  - **None**—Disables XAUTH.
  - **Edge Device**—Authentication is done by one of the following methods:

    User Database—User accounts created in the router are used to authenticate users. After completing this procedure, enter the users on the *VPN > IPsec > VPN Users* page.

    See **Configuring VPN Users, page 121**.

    RADIUS-PAP or **RADIUS-CHAP**—Authentication is done by using a RADIUS server and either password authentication protocol (PAP) or challenge handshake authentication protocol (CHAP). After completing this procedure, set up the RADIUS server on the *Security > RADIUS Server* page.

    See **Using the Cisco RV180/RV180W With a RADIUS Server, page 127**.

   - **IPsec Host**—The router is authenticated by a remote gateway with a username and password combination. In this mode, the router acts as a VPN Client of the remote gateway. If you select this option, also enter the **Username** and **Password** for the host.

STEP 6 Click **Save** to save your settings, or click **Cancel** to reload the page with the current settings. Click **Back** to return to the *VPN > IPsec > Advanced VPN Setup* page.

Configuring VPN Policies

To open this page: From the *VPN > IPsec > Advanced VPN Setup* page, in the *VPN Policy* table, click **Add** or select an existing policy and click **Edit**.

NOTE To create an Auto VPN Policy, you need to first create an IKE policy and then add the corresponding Auto Policy for that IKE Policy.

STEP 1 At the top of this page, enter these settings:

- **Policy Name—**Enter a unique name to identify the policy.
- **Policy Type—**Choose one of the following options:
   - **Auto Policy**—Some parameters for the VPN tunnel are generated automatically. This requires using the IKE (Internet Key Exchange) protocol to perform negotiations between the two VPN Endpoints.
   - **Manual Policy**—All settings (including the keys) for the VPN tunnel are manually input for each end point. No third-party server or organization is involved.
- **Remote Endpoint—**Select the type of identifier that you want to provide for the gateway at the remote endpoint: **IP Address** or **FQDN** (Fully Qualified Domain Name). Then enter the identifier in the space provided.
- **NETBIOS—**Check the **Enable** box to allow NetBIOS broadcasts to travel over the VPN tunnel, or uncheck this box to disable NetBIOS broadcasts over the VPN tunnel. For client policies, the NetBIOS feature is available by default.

STEP 2 In the *Local Traffic Selection* and *Remote Traffic Section*, enter these settings:

- **Local/Remote IP—**Select the type of identifier that you want to provide for the endpoint:
  - **Any—**Specifies that the policy is for traffic from the given end point (local or remote). Note that selecting Any for both local and remote end points is not valid.
  - **Single—**Limits the policy to one host. Enter the IP address of the host that will be part of the VPN in Start IP Address field. Then enter the IP address in the **Start Address** field.
  - **Range—**Allows computers within an IP address range to connect to the VPN. Enter the Start IP Address and End IP Address in the provided fields. Enter the first IP address of the range in the **Start Address** field. Enter the final IP address of the range in the **End Address** field.
  - **Subnet—**Allows an entire subnet to connect to the VPN. Enter the network address in the Start IP Address field, and enter the Subnet Mask in the Subnet Mask field. Enter the subnet's network IP address in the **Start Address** field. Enter the subnet mask, such as 255.255.255.0, in the **Subnet Mask** field. The field automatically displays a default subnet address based on the IP address.

    IMPORTANT: Make sure that you avoid using overlapping subnets for remote or local traffic selectors. Using these subnets would require adding static routes on the router and the hosts to be used.

    For example, a combination to avoid would be:

    Local Traffic Selector: 192.168.1.0/24

    Remote Traffic Selector: 192.168.0.0/16

STEP 3 In the **Split DNS** section, check the **Enable** box to allow the Cisco RV180/RV180W to find the DNS server of the remote router without going through the ISP (Internet). Otherwise, uncheck the box to disable this feature. If you enable Split DNS, also enter these settings:

- **Domain Name Server 1—**Enter a Domain Name server IP address to resolve the domain that you enter in the **Domain Name 1** field.
- **Domain Name Server 2—**Optionally, enter a Domain Name server IP address to resolve the domain that you enter in the **Domain Name 2** field.

- **Domain Name 1—**Enter a domain name, which will be queried only using the DNS server configured in the **Domain Name Server 1** field.
- **Domain Name 2—**Enter a domain name, which will be queried only using the DNS server configured in the **Domain Name Server 2** field.

STEP 4 For a Manual policy type, enter the settings in the **Manual Policy Parameters** section.

For more information, see **Manual Policy Example, page 120**.

- **SPI-Incoming, SPI-Outgoing**—Enter a hexadecimal value between 3 and 8 characters; for example, 0x1234.
- **Encryption Algorithm—**Select the algorithm used to encrypt the data.
- **Key-In**—Enter the encryption key of the inbound policy. The length of the key depends on the algorithm chosen:
  - DES—8 characters
  - 3DES—24 characters
  - AES-128—16 characters
  - AES-192—24 characters
  - AES-256—32 characters
  - AES-CCM—16 characters
  - AES-GCM—20 characters
- **Key-Out**—Enter the encryption key of the outbound policy. The length of the key depends on the algorithm chosen, as shown above.
- **Integrity Algorithm**—Select the algorithm used to verify the integrity of the data.
- **Key-In—**Enter the integrity key (for ESP with Integrity-mode) for the inbound policy. The length of the key depends on the algorithm chosen:
  - MD5—16 characters
  - SHA-1— 20 characters
  - SHA2-256—32 characters
  - SHA2-384— 48 characters
  - SHA2-512—64 characters

- **Key-Out**—Enter the integrity key (for ESP with Integrity-mode) for the outbound policy. The length of the key depends on the algorithm chosen, as shown above.

STEP 5 For an Auto policy type, enter the settings in the **Auto Policy Parameters** section.

- **SA-Lifetime**—Enter the duration of the Security Association and choose the unit from the drop-down list:
  - **Seconds**—Choose this option to measure the SA Lifetime in seconds. After the specified number of seconds passes, the Security Association is renegotiated. The default value is 3600 seconds. The minimum value is 300 seconds.
  - **Kbytes**—Choose this option to measure the SA Lifetime in kilobytes. After the specified number of kilobytes of data is transferred, the SA is renegotiated. The minimum value is 1920000 KB.
  - When configuring a lifetime in kilobytes (also known as lifebytes), be aware that two SAs are created for each policy. One SA applies to inbound traffic, and one SA applies to outbound traffic. Due to differences in the upstream and downstream traffic flows, the SA may expire asymmetrically. For example, if the downstream traffic is very high, the lifebyte for a download stream may expire frequently. The lifebyte of the upload stream may not expire as frequently. It is recommended that the values be reasonably set, to reduce the difference in expiry frequencies of the SAs; otherwise the system may eventually run out of resources as a result of this asymmetry. The lifebyte specifications are generally recommended for advanced users only.
- **Encryption Algorithm—**Select the algorithm used to encrypt the data.
- **Integrity Algorithm—**Select the algorithm used to verify the integrity of the data.
- **PFS Key Group—**Check the **Enable** box to enable Perfect Forward Secrecy (PFS) to improve security. While slower, this protocol helps to prevent eavesdroppers by ensuring that a Diffie-Hellman exchange is performed for every phase-2 negotiation.
- **Select IKE Policy—**Choose the IKE policy that will define the characteristics of phase 1 of the negotiation. To add an IKE policy to the list, click the **IKE Policies** link.

See **Configuring Advanced VPN Parameters, page 111**.

STEP 6 Click **Save** to save your settings, or click **Cancel** to reload the page with the current settings. Click **Back** to return to the *VPN > IPsec > Advanced VPN Setup* page.

Manual Policy Example

Creating a VPN tunnel between two routers:

```
Router 1: WAN1=10.0.0.1 LAN=192.168.1.1 Subnet=255.255.255.0
Policy Name: manualVPN
Policy Type: Manual Policy
Local Gateway: WAN1
Remote Endpoint: 10.0.0.2
Local IP: Subnet 192.168.1.0 255.255.255.0
Remote IP: Subnet 192.168.2.0 255.255.255.0
SPI-Incoming: 0x1111
Encryption Algorithm: DES
Key-In: 11112222
Key-Out: 33334444
SPI-Outgoing: 0x2222
Integrity Algorithm: MD5
Key-In: 1122334444332211
Key-Out: 5566778888776655
Router 2: WAN1=10.0.0.2 LAN=192.168.2.1 Subnet=255.255.255.0
Policy Name: manualVPN
Policy Type: Manual Policy
Local Gateway: WAN1
Remote Endpoint: 10.0.0.1
Local IP: Subnet 192.168.2.0 255.255.255.0
Remote IP: Subnet 192.168.1.0 255.255.255.0
SPI-Incoming: 0x2222
Encryption Algorithm: DES
Key-In: 33334444
Key-Out: 11112222
SPI-Outgoing: 0x1111
Integrity Algorithm: MD5
Key-In: 5566778888776655
Key-Out: 1122334444332211
```

Monitoring VPN Tunnel Status

You can view and change the status of (connect or drop) the router’s IPsec security associations by performing one of the following actions:

- Choose **VPN** > **IPsec** > **Advanced VPN Setup** and click **IPsec VPN Connection Status.**
- Choose **Status** > **IPsec Connection Status.**

Here the active IPsec SAs (security associations) are listed along with the traffic details and tunnel state. The traffic is a cumulative measure of transmitted/ received packets since the tunnel was established.

The Active IPsec SAs table displays a list of active IPsec SAs. Table fields are as follows:

Field	**Description**
Policy Name	IKE or VPN policy associated with this SA.
Endpoint	IP address of the remote VPN gateway or client.
Packets	Number of IP packets transmitted over this SA.
Kbytes	Kilobytes of data transmitted over this SA.
State	Status of the SA for IKE policies: Not Connected or IPsec SA Established. If a VPN policy state is “not connected”, it can be enabled from the List of VPN Policies in the **VPN** > **IPsec** > **Advanced VPN Setup** page.
Action	Choose **Connect** to establish a connection, or **Drop** to terminate an established connection.

Configuring VPN Users

Use the *VPN > IPsec > VPN Users* page to configure PPTP Server settings (if applicable) and to add VPN clients for PPTP, XAUTH, and Cisco QuickVPN.

NOTE You can also created comma-separated value (CSV) files containing user information and import them to easily add multiple users.

See **Importing CSV Files, page 153**.

VPN clients must be configured with the same VPN policy parameters used in the VPN tunnel that the client wishes to use: encryption, authentication, lifetime, and PFS key-group. Upon establishing these authentication parameters, the VPN client user database must also be populated with an account to give a user access to the tunnel. The VPN gateway authenticates users in this list when XAUTH is used in an IKE policy.

VPN client software is required to establish a VPN tunnel between the router and remote endpoint. Open source software (such as OpenVPN or Openswan) as well as Microsoft IPsec VPN software can be configured with the required IKE policy parameters to establish an IPsec VPN tunnel. Refer to the client software guide for detailed instructions on setup as well as the router's online help.

To open this page: In the navigation tree, choose **VPN** > **IPsec** > **VPN Users**.

STEP 1 If you are using a Point-to-Point Tunneling Protocol VPN server, enter these settings in the *PPTP Server Configuration* section:

- **PPTP Server—**Check the **Enable** box to enable this feature, or uncheck the box to disable it.
- **Starting IP Address—**Enter the starting IP address of the range of IP addresses for the PPTP VPN tunnel.
- **Ending IP Address—**Enter the ending IP address of the range of IP addresses for the PPTP VPN tunnel. The range can include up to 10 addresses.

  Note: The starting IP of the PPTP client IP range is used as the PPTP server IP of the router and the remaining PPTP client IP address range is used to assign IP address to PPTP clients. If the address range is within a VLAN range, the PPTP clients are members of that VLAN. Access to other VLANs is subject to the inter-VLAN routing settings. For example, if PPTP clients are on VLAN 3, and VLAN 2 prevents inter-VLAN routing, then the PPTP clients are unable to access resources on VLAN 2.

STEP 2 If you checked the *Enable* box for the PPTP Server, save your settings. You can add PPTP users only if you enabled the PPTP Server.

STEP 3 In the *VPN Client Setting Table*, perform these tasks:

- To add a client, click **Add**. Enter these settings:
  - **Enabled—**For PPTP, check the box to activate the user account. Uncheck the box to de-activate the user account. This setting is not applicable to QuickVPN or XAUTH.

- **Username—**Enter the username for user authentication. For QuickVPN, it must include at least 6 characters.
- **Password—**Enter the password for user authentication. For QuickVPN, it must include at least 6 characters.
- **Allow User to Change Password—**Check the box if you want the user to be able to change the password. Otherwise, uncheck the box.
- **Protocol—**Choose the type of user:

  QuickVPN—The user uses the Cisco QuickVPN client and is authenticated by the VPN server.

  PPTP—The user is authenticated by a PPTP server.

  XAUTH—The user is authenticated by an external authorization server, such as a RADIUS server.

- To edit a client, check the box and then click **Edit**. To select all entries, check the box in the heading row. Then edit the information, as described above.
- To delete a client, check the box and then click **Delete**. To select all entries, check the box in the heading row.

STEP 4 Click **Save** to save your settings, or click **Cancel** to reload the page with the current settings.

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Configuring VPN Passthrough

VPN passthrough allows VPN traffic that originates from VPN clients to pass through the router. For example, if you are not using a VPN that is configured on the Cisco RV180/RV180W, but are using a laptop to access a VPN at another site, configuring VPN passthrough allows that connection.

To open this page: In the navigation tree, choose **VPN** > **IPsec** > **VPN Passthrough**.

STEP 1 Choose the type of traffic to allow to pass through the router:

- **IPsec**—Check **Enable** to allow IP security tunnels to pass through the router.
- **PPTP**—Check **Enable** to allow Point-to-Point Tunneling Protocol tunnels to pass through the router.

- **L2TP—**Check **Enable** to allow Layer 2 Tunneling Protocol tunnels to pass through the router.

STEP 2 Click **Save** to save your settings, or click **Cancel** to reload the page with the current settings.

Configuring Security

The Cisco RV180/RV180W provides several security methods, including certificate authentication, RADIUS server support, and 802.1x port-based authentication.

Using SSL Certificates for Authentication

The Cisco RV180/RV180W uses digital certificates for IPsec VPN authentication and SSL validation (for HTTPS and SSL VPN authentication). You can obtain a digital certificate from a well-known Certificate Authority (CA) such as VeriSign, or generate and sign your own certificate using functionality available on this gateway. The gateway comes with a self-signed certificate, and this can be replaced by one signed by a CA as per your networking requirements. A CA certificate provides strong assurance of the server's identity and is a requirement for most corporate network VPN solutions.

A self certificate is a certificate issued by a CA identifying your device (or self-signed if you don't want the identity protection of a CA). To request a self certificate to be signed by a CA, you can generate a Certificate Signing Request from the gateway by entering identification parameters and sending to the CA for signing. Once signed, the CA's Trusted Certificate and signed certificate from the CA are uploaded to activate the self-certificate validating the identity of this gateway. The self certificate is then used in IPsec and SSL connections with peers to validate the gateway's authenticity.

To configure certificates, choose **Security** > **SSL Certificate.** You can choose the following options:

- **Trusted Certificates—**Upload a certificate from a trusted authority (for example, a certificate Authority such as Microsoft or VeriSign).

  See **Uploading a Trusted Certificate**.

- **Self Certificates**—Upload a certificate that has been generated from the Cisco RV180/RV180W, and either signed by a CA, or self-signed.

  See **Uploading a Self Certificate**.

- **Self Certificate Requests**—Generate a self-certificate request to give to a CA for signing, or to self-certify.

  See **Generating New Certificate Requests**.

- **Export Router Certificate**—Export a router certificate to give to clients who want to connect to the router and use the certificate for authentication.

  See **Exporting the Router's Current Certificate**.

Uploading a Trusted Certificate

If you have a certificate from a trusted authority to upload, the file must be located on the computer connected to the Cisco RV180/RV180W. Perform the following steps:

STEP 1 Choose **Security** > **SSL Certificate.**

STEP 2 In the **Trusted Certificates (CA Certificate) Table**, click **Upload.**

STEP 3 Click **Browse** and locate the file on your computer.

STEP 4 Click **Upload.** The new certificate appears in the table.

Generating New Certificate Requests

One of the steps in creating a certificate is to generate a certificate request from the computer or the device that will be using the certificate. The Certificate Signing Request (CSR) file needs to be submitted to the CA who will then generate a certificate for this device.

To generate a certificate request:

STEP 1 Choose **Security** > **SSL Certificate.**

STEP 2 Under **Self Certificate Requests**, click **Generate Certificate.**

STEP 3 Enter the name of the certificate request.

STEP 4 Enter the subject of the certificate request. The Subject field populates the CN (Common Name) entry of the generated certificate. Subject names are usually defined in the following format:

CN=, OU=, O=, L=, ST=, C=.

For example, CN=router1, OU=my_company, O=mydept, L=SFO, C=US.

STEP 5 Choose the Hash Algorithm: MD5 or SHA-1. The algorithm used to sign the certificate (RSA) is shown.

STEP 6 Enter the signature key length, or the length of the signature (**512**,**1024**, or **2048**).

STEP 7 (Optional) Enter the IP address of the router.

STEP 8 (Optional) Enter the domain name of the router.

STEP 9 (Optional) Enter the e-mail address of the company contact that is used when generating the self certificate request.

STEP 10 Click **Save**. A new certificate request is created and appears in the **Self Certificate Requests Table**.

STEP 11 Click **Export for Admin** to save the certificate file. This file is submitted to the CA for signing, unless your organization is self-certifying.

Viewing a Self Certificate Request

To view the contents of a self certificate request:

STEP 1 Choose **Security** > **SSL Certificate**.

STEP 2 Under **Self Certificate Requests**, click **View**.

STEP 3 The contents of the request are displayed. This information is necessary to give to the CA if you are getting the certificate signed.

Exporting a Self Certificate Request

To export the router’s current certificate request:

STEP 1 Choose **Security** > **SSL Certificate.**

STEP 2 Under **Self Certificate Requests**, click **Export for Admin.** This exports the certificate request to a .csr file.

Uploading a Self Certificate

You can upload a certificate that you have generated from the Cisco RV180/RV180W and has been either signed by a CA, or signed by your organization. The file must be located on the computer connected to the Cisco RV180/RV180W. Perform the following steps:

STEP 1 Choose **Security** > **SSL Certificate.**

STEP 2 In the **Active Self Certificates Table**, click **Upload.**

STEP 3 Click **Browse** and locate the file on your computer.

STEP 4 Click **Upload.** The new certificate appears in the table.

Exporting the Router’s Current Certificate

To export the router’s current certificate:

STEP 1 Choose **Security** > **SSL Certificate.**

STEP 2 Under **Export Certificate**, click **Export for Client** to export the certificate. It will be uploaded to an endpoint that will connect to the Cisco RV180/RV180W as a VPN client.

Using the Cisco RV180/RV180W With a RADIUS Server

A RADIUS server can be configured to maintain a database of user accounts and can be used for authenticating this device's users. To configure a connection with a RADIUS server, choose **Security** > **RADIUS Server.** You can configure and view the following details in the RADIUS configuration pages:

- **IP address**—The IP address of the authenticating RADIUS server.
- **Authentication Port**—The RADIUS authentication server's port number used to send RADIUS traffic.
- **Timeout**—The timeout interval (in seconds) after which the Cisco RV180/RV180W re-authenticates with the RADIUS server.
- **Retries**—The number of retries for the Cisco RV180/RV180W to re-authenticate with the RADIUS server. If the number of retries is exceeded, authentication of this device with the RADIUS server has failed.

Adding a RADIUS Server Configuration

To configure a connection with a RADIUS server:

STEP 1 In the **RADIUS Server Table**, click **Add**.

STEP 2 In the **Authentication Server IP Address** field, enter the IP address of the authenticating RADIUS Server.

STEP 3 In the **Authentication Port** field, enter the port number on which the RADIUS server sends traffic.

STEP 4 In the **Secret** field, enter the shared key that allows the Cisco RV180/RV180W to authenticate with the RADIUS server. This key must match the key configured on the RADIUS server. The single quote, double quote, and space characters are not allowed in this field.

STEP 5 In the **Timeout** field, enter the timeout interval after which the Cisco RV180/RV180W re-authenticates with the RADIUS server.

STEP 6 In the **Retries** field, enter the number of retries for the Cisco RV180/RV180W to re-authenticate with the RADIUS server.

STEP 7 Click **Save**.

Configuring Captive Portal

A captive portal is a web page that LAN users see when they try to access the public network. The web page typically requires user interaction or authentication before network access is granted.

Configuring Captive Portal Settings

STEP 1 Under **Captive Portal**, check **Enable.**

STEP 2 Click **Save.**

STEP 3 Choose the Captive Portal LAN interface.

STEP 4 Enter the authenticating server's IP address.

STEP 5 Enter the Gateway's ID, or name.

STEP 6 In the **Permitted MAC Address Table**, enter the MAC addresses of the permitted hardware These are the MAC addresses of hardware allowed to connect to the router.

STEP 7 Click **Save.**

Configuring Captive Portal Users

Click **Add** to add a captive portal user. Check the box and click **Edit** to edit an existing captive portal user. Check the box and click **Delete** to delete a captive portal user.

Configuring 802.1x Port-Based Authentication

A port-based network access control uses the physical access characteristics of IEEE 802 LAN infrastructures in order to provide a means of authenticating and authorizing devices attached to a LAN port that has point-to-point connection characteristics. It also prevents access to that port in cases where the authentication fails. It provides an authentication mechanism to devices trying to connect to a LAN. The Cisco RV180/RV180W acts as a supplicant in the 802.1x authentication system.

To configure 802.1x Authentication:

STEP 1 Choose **Security** > **802.1x Configuration.**

STEP 2 Check the **Enable** box to configure a port as an 802.1x supplicant.

STEP 3 Select the LAN port that should be configured as an 802.1x supplicant.

STEP 4 Enter the username and password sent by the Cisco RV180/RV180W to the authenticator for authentication. The username and password are the credentials sent to the authenticating server (the device running 802.1X in an authenticator role; for example, a Cisco Catalyst switch).

STEP 5 Press **Save**.

6

Configuring Quality of Service (QoS)

The Cisco RV180/RV180W lets you configure the following Quality of Service (QoS) features:

Configuring WAN QoS Profiles

WAN QoS profiles let you manage the bandwidth of the traffic flowing from the secure network (LAN) to the insecure network (WAN).

You can configure WAN QoS profiles to control the rate at which the RV180/RV180W transmits data. For example, limiting the outbound traffic helps you prevent the LAN users from consuming all of the bandwidth of the Internet link.

Configuring Global Settings

To configure the WAN QoS global settings:

STEP 1 Choose **QoS** > **WAN QoS Profiles.**

STEP 2 Under **Global Settings**:

a. To enable WAN QoS, check **Enable**.

b. Set the WAN QoS mode by clicking the **Priority** or **Rate Limit** radio button. The **Priority** option lets you allocate bandwidth based on a priority level. The **Rate Limit** option lets you specify the total WAN bandwidth (**1–100** Mbps).

For more information, see **Configuring Bandwidth Allocation Settings, page 132**.

STEP 3 When prompted to reset the previous priority or rate limit configuration, click **OK.**

STEP 4 Click Save.

Configuring Bandwidth Allocation Settings

To configure the WAN QoS bandwidth allocation settings:

STEP 1 Choose QoS > WAN QoS Profiles.

STEP 2 Under **Priority Bandwidth Allocation Settings**:

If the WAN QoS mode is set to **Priority**, enter this information:

High Priority	Enter a value between **61** (default) and **100.**
Medium Priority	Enter a value between **31** (default) and **60.**
Low Priority	Enter a value between **10** (default) and **30.**

Each one of these values specifies the percentage of the total bandwidth (100 Mbps) allocated to these priority levels.

If the WAN QoS mode is set to **Rate Limit**, enter this information:

Total WAN (Internet) Bandwidth	Enter the total WAN bandwidth (**1–100** Mbps).

STEP 3 Click Save.

Adding WAN QoS Profiles

To add a WAN QoS profile:

STEP 1 Choose QoS > WAN QoS Profiles.

STEP 2 In the **WAN QoS Profile Table**, click Add.

STEP 3 Enter this information:

Name	Enter the name of the profile.
Priority	If the WAN QoS mode is set to **Priority**, choose the priority level from the drop-down menu.
Minimum Bandwidth Rate	If the WAN QoS mode is set to **Rate Limit**, enter the minimum bandwidth rate (**1** to total WAN bandwidth in Kbps).
Maximum Bandwidth Rate	If the WAN QoS mode is set to **Rate Limit**, enter the maximum bandwidth rate (**100–1000000** Kbps).

STEP 4 Click **Save**.

STEP 5 To bind the profile to a traffic selector, see **Configuring Profile Binding, page 133**.

Configuring Profile Binding

After creating WAN QoS profiles, you must bind them to traffic selectors. The **Profile Binding Table** displays the profiles you have added, along with the service to which the profile applies, the traffic selector match type (IP address range, MAC address, VLAN, DSCP, or SSID), and the profile to which the binding is matched (in the “match configuration” field).

Adding a Profile Binding

To create a profile binding:

STEP 1 Choose **QoS** > **Profile Binding**.

STEP 2 In the **Available Profiles** field, choose a WAN QoS profile.

To create a profile, click **Configure Profile**. See **Configuring WAN QoS Profiles, page 131** for more information.

STEP 3 From the **Service** drop-down menu, choose the service to which the profile applies.

If the service you are looking for is not in the drop-down menu, you can configure a custom service in the Firewall page (see **Creating Custom Services, page 95**.)

STEP 4 From the **Traffic Selector Match Type** drop-down menu, choose the traffic selector to use to bind traffic to the profile.

STEP 5 Depending on the traffic selector you chose, enter this information:

Starting IP Address	Enter the starting IP address of the range.
Ending IP Address	Enter the ending IP address of the range.
MAC Address	Enter the MAC address for any client device (for example, a PC or wireless client) to which you want to assign the bandwidth.
VLAN ID	Choose the VLAN ID on the router to which the traffic selector applies.
DSCP Value	Enter the Differentiated Services Code Point (DSCP) value (**0–63**). This value determines how the traffic is prioritized.
Available SSIDs	Choose the SSID the selector applies to from the drop-down menu.

STEP 6 Click **Save**.

Configuring CoS Settings

You can map CoS priority settings to the traffic forwarding queue on the RV180/ RV180W.

To map CoS priority settings to the traffic forwarding queue:

STEP 1 Choose **QoS** > **CoS Settings** > **Cos Settings**.

STEP 2 In the **CoS to Queue** field, check **Enable**.

STEP 3 For each CoS priority level in the **CoS to Traffic Forwarding Queue Mapping Table**, choose a priority value from the **Traffic Forwarding Queue** drop-down menu.

These values mark traffic types with higher or lower traffic priority depending on the type of traffic.

STEP 4 Click **Save**.

To restore the default CoS settings, click **Restore Default** and, when prompted, click **OK**. Then, click **Save**.

Mapping CoS Settings to DSCP Values

NOTE Before you can map CoS settings to DSCP values, you must first enable the CoS to Queue option.

See **Configuring CoS Settings, page 134** for more information.

To map CoS settings to DSCP values:

STEP 1 Choose **QoS** > **CoS Settings** > **CoS to DSCP**.

STEP 2 In the **CoS to DSCP** field, check **Enable**.

STEP 3 For each CoS priority level, enter the corresponding DSCP value (**0–63**). The default value is **63**.

STEP 4 Click **Save**.

To restore the default CoS to DSCP mappings, click **Restore Default** and, when prompted, click **OK**. Then, click **Save**.

7

Administering Your Cisco RV180/RV180W

This chapter describes the administration features of the Cisco RV180/RV180W, including creating users, configuring network management, diagnostics and logging, date and time, and other settings. It contains the following sections:

Configuring Language

To configure the language for the Cisco RV180/RV180W graphical user interface:

STEP 1 Choose **Administration** > **Language Selection.**

STEP 2 Choose the language you want to use from the drop-down list.

STEP 3 Click **Save.**

Configuring Password Rules

The Cisco RV180/RV180W can enforce rules for passwords selected by administrators and users. To configure password rules:

STEP 1 Choose **Administration** > **Password Rules.**

STEP 2 Check the **Enable** box.

STEP 3 In the **Individual Rule Settings** field, in the **Minimal Password Length** field, enter the minimum password length.

NOTE: Passwords cannot be the same as the username, which is "cisco" by default.

STEP 4 Click **Save.**

Using the Management Interface

The Cisco RV180/RV180W provides a management interface to configure accounts for user and administrative access to the system.

Configuring Web Access

You can enable HTTPS and remote management on the LAN interface of the Cisco RV180/RV180W. If a user connects a PC to the LAN port, web access is then allowed using secure HTTP (HTTPS).

To enable HTTPS access on the LAN port:

STEP 1 Choose **Administration** > **Management Interface** > **Web Access.**

STEP 2 Under **HTTPS Web Access on LAN Interface**, check **Enable.**

To configure Remote Management:

STEP 1 Under **Remote Management**, check **Enable**.

STEP 2 Under **Access Type**, choose the type of entity that will be allowed to remotely manage the router:

- **All IP Addresses—**All IP addresses will be allowed to connect to the web management interface.
- **IP Address Range—**Only IP addresses in the configured range will be allowed to connect to the web management interface.
- **Single IP Address—**Only the configured IP address will be allowed to connect to the web management interface.

STEP 3 If you chose **IP Address Range** in Step 2, enter the **Start** and **End** of the IP Address Range in the **Start of Range** and **End of Range** fields. If you chose **Single IP Address**, enter the IP address in the IP Address field.

STEP 4 Enter the port number on which remote access will be enabled.

STEP 5 To enable remote management of the router by SNMP, check the **Enable** box.

STEP 6 Click **Save**.

Configuring User Accounts

The Cisco RV180/RV180W supports two user accounts for administering and viewing settings: an administrative user (default user name: “cisco”) and a “guest” user (default user name: “guest”). The guest account has read-only access. You can set and change the username and password for both the administrator and guest accounts.

Configuring Password Aging

STEP 1 Choose **Administration** > **Management Interface** > **User Accounts.**

STEP 2 In the Password Aging section, check **Enable** to enable password aging. Password aging requires the user to enter a new password after the password has expired.

STEP 3 Enter the password aging time. This is the number of days before the password expires.

STEP 4 Click Save.

Configuring Usernames and Passwords

STEP 1 Choose **Administration** > **Management Interface** > **User Accounts.**

STEP 2 Click either **Edit Admin Settings** or **Edit Guest Settings.**

STEP 3 Enter the new username.

STEP 4 Enter the old password.

STEP 5 Enter the new password. It is recommended that passwords contains no dictionary words from any language, and are a mix of letters (both uppercase and lowercase), numbers, and symbols. The password can be up to 30 characters.

STEP 6 Click **Save.**

Setting the Session Timeout Value

The timeout value is the number of minutes of inactivity that are allowed before the Device Manager session is ended. This can be configured for the Admin and Guest accounts:

STEP 1 Choose **Administration** > **Session Timeout.**

STEP 2 In the **Administrator Inactivity Timeout** field, enter the number, in minutes, before an administrator login session times out due to inactivity.

STEP 3 In the **Guest Inactivity Timeout** field, enter the number, in minutes, before a guest login session times out due to inactivity.

STEP 4 Click **Save.**

Configuring Network Management

The Cisco RV180/RV180W supports Simple Network Management (SNMP) to allow you to monitor and manage your router from an SNMP manager. SNMP provides a remote means to monitor and control network devices, and to manage configurations, statistics collection, performance, and security.

Configuring SNMP

To configure SNMP:

STEP 1 Choose **Administration** > **Network Management.**

STEP 2 Under SNMP, check **Enable.**

STEP 3 Click **Save.**

Editing SNMPv3 Users

SNMPv3 parameters can be configured for the two default Cisco RV180/RV180W user accounts (Admin and Guest). To configure:

STEP 1 In the **SNMPv3 User Table**, check the box for the user to edit and click **Edit**.

STEP 2 Under **Security Level,** choose the amount of SNMPv3 Privileges:

- **NoAuthNoPriv**—Doesn't require any Authentication and Privacy.
- **AuthNoPriv**—Submit only Authentication algorithm and password.
- **AuthPriv**—Submit Authentication/privacy algorithm and password.

STEP 3 If you chose **AuthNoPriv** or **AuthPriv**, choose the type of authentication algorithm (**MD5** or **SHA**) and enter the authentication password.

STEP 4 If you chose **AuthPriv**, choose the type of privacy algorithm (**DES** or **AES**) and enter the privacy password.

STEP 5 Click **Save**.

Adding SNMP Traps

The **Traps List Table** lists IP addresses of SNMP agents to which the router will send trap messages (notifications) and allows several operations on the SNMP agents.

To add a new trap:

STEP 1 In the **Trap Table**, click **Add**.

STEP 2 Enter the IP Address of the SNMP manager or trap agent.

STEP 3 Enter the SNMP trap port of the IP address to which the trap messages will be sent.

STEP 4 Choose the SNMP Version: **v1**, **v2c**, or **v3**.

STEP 5 Enter the community string to which the agent belongs. Most agents are configured to listen for traps in the **Public** community.

STEP 6 Click **Save**.

Configuring Access Control Rules

The SNMP v1/v2c Access Control Table is a table of access rules that enables read-only or read-write access for select IP addresses in a defined SNMP agent's community.

To configure access control rules:

STEP 1 In the **SNMP v1/v2c Access Control Table,** click **Add.**

STEP 2 Enter the IP Address of the specific SNMP manager or trap agent on which to create an access rule.

STEP 3 Enter the subnet mask used to determine the list of allowed SNMP managers.

STEP 4 Enter the community string to which the agent belongs. Most agents are configured to listen for traps in the Public community.

STEP 5 Choose the access type. The SNMP manager or trap agent can either be allowed to read and modify all SNMP accessible settings (**rwcommunity**) or be given read-only access (**rocommunity**).

STEP 6 Click **Save.**

Configuring Additional SNMP Information

To configure additional SNMP information:

STEP 1 Choose **Administration** > **Network Management** > **SNMP System Information.**

STEP 2 You can enter the following information:

- **SysContact**—Enter the name of the contact person for this router. Examples: admin, John Doe.
- **SysLocation**—Enter the physical location of the router. Example: Rack #2, 4th Floor.
- **SysName**—The default system name is displayed. To change, click **Edit** and enter a name for easy identification of the router.

STEP 3 Click **Save.**

Configuring the WAN Traffic Meter

The WAN traffic meter displays statistics for traffic coming from the WAN (Internet) to the Cisco RV180/RV180W, and traffic going from the Cisco RV180/RV180W to the WAN.

To configure the WAN Traffic Meter:

STEP 1 Choose **Administration** > **WAN Traffic Meter**.

STEP 2 Under **WAN Traffic Meter**, to enable the display of WAN traffic statistics, check **Enable**.

STEP 3 Choose the type of traffic to display:

- **No Limit**—Display all traffic.
- **Download Only**—Only display traffic coming to the Cisco RV180/RV180W from the Internet.
- **Both Directions**—Display traffic coming to the Cisco RV180/RV180W from the Internet, and traffic going from the Cisco RV180/RV180W to the Internet.

STEP 4 If you want to limit traffic to or from the router, you can specify a size limit. When that size limit is reached, traffic is prevented from entering or exiting the router. Enter a number, in megabytes, in the **Monthly Limit** field.

STEP 5 To increase the monthly limit for that month, check **Increase this Month's Limit by:** and enter the additional megabytes for that month.

STEP 6 Click **Save**.

To restart the traffic counter:

STEP 1 Choose **Administration** > **WAN Traffic Meter**.

STEP 2 Under **Traffic Counter**, select **Restart Now**, or **Specific Time**, and enter the time you want the traffic counter to restart.

STEP 3 (Optional) Check the box to send an email report containing the traffic meter statistics before the counter is reset.

STEP 4 Click **Save**.

To configure what the Cisco RV180/RV180W does when the traffic limit is reached:

STEP 1 Choose **Administration** > **WAN Traffic Meter.**

STEP 2 Under **When Limit Is Reached**, select one of the following:

- **Block All Traffic**—All traffic to and from the Cisco RV180/RV180W is blocked.
- **Block All Traffic Except E-Mail**—Only email is allowed to and from the Cisco RV180/RV180W.

STEP 3 (Optional) Check the box to send an email alert when the traffic limit has been reached and traffic is being blocked.

STEP 4 Click **Save.**

To view traffic statistics, choose **Administration** > **WAN Traffic Meter.** Under **WAN (Internet) Traffic Statistics**, information is displayed about WAN traffic to and from the Cisco RV180/RV180W.

Using Network Diagnostic Tools

Using PING

PING can be used to test connectivity between this router and another device on the network connected to this router. To use PING:

STEP 1 Choose **Diagnostics** > **Network Tools.**

STEP 2 Under **Ping or Trace an IP Address**, enter an IP address or domain name and click **Ping.** A popup window appears, indicating the ICMP echo request status.

STEP 3 (Optional) Check the box if you want to allow PING traffic to pass through VPN tunnels.

Using Traceroute

Traceroute displays all the routers present between the destination IP address and this router. Up to 30 “hops” (intermediate routers) between this router and the destination will be displayed. To use traceroute:

STEP 1 Choose **Diagnostics** > **Network Tools.**

STEP 2 Under **Ping or Trace an IP Address**, enter an IP address or domain name and click **Traceroute.** A popup window appears with the hop information.

Performing a DNS Lookup

A DNS lookup can be performed to retrieve the IP address of a Web, FTP, Mail or any other Server on the Internet. To perform a DNS lookup:

STEP 1 Choose **Diagnostics** > **Network Tools.**

STEP 2 Enter the **WAN (Internet) Name** in the text box and click **Lookup.** If the host or domain entry exists, you will see a response with the IP address. A message stating “Unknown Host” indicates that the specified Internet Name does not exist.

Capturing and Tracing Packets

You can capture all packets that pass through a selected interface (LAN or WAN). To capture packets:

STEP 1 Choose **Diagnostics** > **Capture Packets.**

STEP 2 Click **Packet Trace**; a new window appears.

STEP 3 Select the interface whose packets you want to trace and click **Start.** To stop the packet capture, click **Stop.** Click **Download** to save a copy of the packet capture.

NOTE The packet trace is limited to 1MB of data per capture session. When the capture file size exceeds 1MB, it will be deleted automatically and a new capture file will be created.

Configuring Logging

NOTE Enabling logging options may generate a significant volume of log messages and is recommended for debugging purposes only.

Configuring Logging Policies

To configure general logging policies:

STEP 1 Choose **Administration** > **Logging** > **Logging Policies.**

STEP 2 The **Logging Policy Table** shows the types of logging that are configured on the system. To add a new type of logging, click **Add.**

STEP 3 Enter a name for the policy.

STEP 4 (Optional) Check **Enable** to log IPSec VPN events.

STEP 5 In the table, select the type of logs to capture for each severity. For example, you might want to log all types of events that have a severity level of “Emergency,” so you would check System, Kernel, and Wireless under “Emergency.”

STEP 6 Click **Save.**

Configuring Firewall Logs

To configure firewall logs:

STEP 1 Choose **Administration** > **Logging** > **Firewall Logs.**

STEP 2 Under the type of routing logs, check the box to choose one or both of the following for each type:

- **Accepted Packets**—Check this box to log packets that were successfully transferred through the segment. This option is useful when the Default Outbound Policy is “Block” (see **Configuring the Default Outbound Policy, page 79**). For example, if **Accept Packets** is checked for **LAN to WAN** and there is a firewall rule to allow ssh traffic from the LAN, then whenever a LAN machine tries to make an ssh connection, those packets will be accepted and a message will be logged. (Make sure the log option is set to allow for this firewall rule.)

- **Dropped Packets**—Check this box to log packets that were blocked from being transferred through the segment. This option is useful when the Default Outbound Policy is "Allow" (see **Configuring the Default Outbound Policy, page 79**). For example, if **Dropped Packets** is checked for **LAN to WAN** and there is a firewall rule to block ssh traffic from LAN, then whenever a LAN machine tries to make an ssh connection, those packets will be dropped and a message will be logged. (Make sure the log option is set to allow for this firewall rule.)

STEP 3 Under the type of system logs, select the type of system events to be logged. The following system events can be recorded:

- **All Unicast Traffic**—Check this box to log all unicast packets directed to the router.
- **All Broadcast/Multicast Traffic**—Check this box to log all broadcast or multicast packets directed to the router.

STEP 4 Under "other events logs," select the type of event to be logged. The following events can be recorded:

- **Source MAC Filter**—Check this box to log packets matched due to source MAC filtering. Uncheck this box to disable source MAC filtering logs.
- **Bandwidth Limit**—Check this box to log packets dropped due to Bandwidth Limiting.

STEP 5 Click **Save**.

Configuring Remote Logging

To configure remote logging:

STEP 1 Choose **Administration** > **Logging** > **Remote Logging Configuration.**

STEP 2 In the **Remote Log Identifier** field, enter a prefix to add to every logged message for easier identification of the source of the message. The log identifier will be added to both e-mail and Syslog messages.

STEP 3 Click **Save**.

Configuring Email Logging

STEP 1 Choose **Administration** > **Logging** > **Remote Logging Configuration.**

STEP 2 Select the check box to enable e-mail logs. Then enter the following:

- **E-mail Server Address**—Enter the IP address or Internet Name of an SMTP server. The router will connect to this server to send e-mail logs when required.
- **SMTP Port**—Configure the port to connect smtp server.
- **Return E-mail Address**—Enter the e-mail address where the replies from the SMTP server are to be sent (required for failure messages).
- **Send To E-mail Address(1)**—Enter the e-mail address where the logs and alerts are to be sent.
- **Send To E-mail Address(2)**—Enter the e-mail address where the logs and alerts are to be sent.
- **Send To E-mail Address(3)**—Enter the e-mail address where the logs and alerts are to be sent.
- **Authentication with SMTP server**—If the SMTP server requires authentication before accepting connections, select either **Login Plain** or **CRAM-MD5** and enter the Username and Password to be used for authentication. To disable authentication, select **None**.
- **Respond to Identd from SMTP Server**—Check this box to configure the router to respond to an IDENT request from the SMTP server.

STEP 3 To confirm that the e-mail logs function is configured correctly, press **Test**.

STEP 4 (Optional) To receive e-mail logs according to a schedule, configure the appropriate schedule settings:

- **Unit**—Select the period of time that you need to send the log: **Hourly, Daily**, or **Weekly**. To disable sending of logs, select **Never**. This option is useful when you do not want to receive logs by e-mail, but want to keep e-mail options configured so that you can use the Send Log function from the **Status** > **View Logs** pages.
- **Day**—If logs are to be sent on a weekly basis, choose the day of the week.
- **Time**—Select the time of day when logs should be sent.

STEP 5 Under **Logging Policy**, choose the type of logging policy. (See **Configuring Logging Policies, page 146**.) By default, only IPsec VPN logs are enabled. Others are disabled.

STEP 6 If you want the router to send logs to a Syslog server, check the box next to a syslog server field and enter the IP address or Internet Name of the Syslog server in the **Syslog Server** field. Choose the logging policy for each syslog server. You can configure up to 8 syslog servers.

STEP 7 Click **Save**.

Configuring the Discovery Settings

The Cisco RV180/RV180W supports two types of discovery protocols: Bonjour and Universal Plug and Play (UPnP).

Configuring Bonjour

Bonjour is a service advertisement and discovery protocol. To configure Bonjour:

STEP 1 Choose **Administration** > **Discovery Settings** > **Discovery - Bonjour.**

STEP 2 Check the **Enable** box to enable Bonjour on the router. Unchecking this will disable Bonjour.

STEP 3 In the **Bonjour Interface Control Table**, you can see on which VLANs Bonjour is enabled. For example, Bonjour is by default enabled on the default VLAN ID 1. That means that the Cisco RV180/RV180W advertises itself to all devices connected to it on VLAN 1, and devices joining the network can connect to the Cisco RV180/RV180W. If you have other VLANs created on your network, you can enable Bonjour on those VLANs too. (See **Configuring Virtual LAN (VLAN) Membership, page 34** for more information.)

STEP 4 Click **Save**.

Configuring UPnP

Universal Plug and Play (UPnP) is a networking protocol that allows devices to discover each other and communicate on the network. To configure UPnP:

STEP 1 Choose **Administration** > **Discovery Settings** > **Discovery - UPnP**.

STEP 2 Check **Enable** to enable UPnP.

STEP 3 In the **Advertisement Period** field, enter the number of seconds to specify how often this router will broadcast its UPnP information to all devices within range.

STEP 4 In the **Advertisement Time to Live** field, enter the number of seconds for the advertisement to be active.

In the **UPnP Interface Control Table**, you can see on which VLANs UPnP is enabled. For example, UPnP is by default enabled on the default VLAN ID 1. That means that the Cisco RV180/RV180W advertises itself to plug and play devices connected to it on VLAN 1, and plug and play devices joining the network can connect to the Cisco RV180/RV180W. If you have other VLANs created on your network, you can enable UPnP on those VLANs too. (See **Configuring Virtual LAN (VLAN) Membership, page 34** for more information.)

The **UPnP Portmap Table** shows IP addresses and other settings of UPnP devices that have accessed the Cisco RV180/RV180W:

- **Active**—Indicates whether or not the port of the UPnP device that established a connection is currently active by displaying Yes or No.
- **Protocol**—The network protocol (i.e. TCP, UDP, etc) that the device is using to connect to the Cisco RV180/RV180W.
- **Internal Port**—Indicates which, if any, internal ports are opened by the UPnP device.
- **External Port**—Indicates which, if any, external ports are opened by the UPnP device.
- **IP Address**—The IP address of the UPnP device that is accessing this router.

STEP 5 Click **Save**.

Configuring Time Settings

You can configure your time zone, whether or not to adjust for Daylight Savings Time, and with which Network Time Protocol (NTP) server to synchronize the date and time. The router then gets its date and time information from the NTP server. To configure NTP and time settings:

STEP 1 Choose **Administration** > **Time Settings**.

STEP 2 Select your time zone, relative to Greenwich Mean Time (GMT).

STEP 3 If supported for your region, check the **Adjust for Daylight Savings Time** box. In the "From" and "To" fields, enter the month and day for which Daylight Saving Time will be active. In the **Daylight Saving Offset** field, choose the amount of time, in minutes, that the clock will be offset during daylight saving time.

STEP 4 Select whether to use a Network Time Protocol (NTP) server, or set the time and date manually.

STEP 5 If you chose NTP, choose to use either a default NTP server, or a custom NTP server.

STEP 6 If you chose to use a default NTP server, choose the server you want to use from the list. If you chose to use a custom NTP server, enter the server addresses or fully-qualified domain name.

STEP 7 If you chose to set the date and time manually, enter the date and time.

STEP 8 Click **Save**.

Backing Up and Restoring the System

You can back up custom configuration settings for later restoration or restore from a previous backup from the **Administration** > **Backup/Restore Settings** page.

When the router is working as configured, you can back up the configuration for restoring later. During backup, your settings are saved as a file on your PC. You can restore the router's settings from this file.

⚠

CAUTION During a restore operation, do not try to go online, turn off the router, shut down the PC, or do anything else to the router until the operation is complete. This should take about a minute. When the test light turns off, wait a few more seconds before doing anything with the router.

To back up a configuration or restore a previously-saved configuration, select **Administration** > **Backup/Restore Settings**.

To restore your saved settings from a backup file, click **Browse**, locate and select the file, and click **Restore**. An alert page displays the status of the restore operation. After the restore, the router restarts automatically with the restored settings.

To save a copy of your router's startup configuration, click **Backup Startup Configuration**. The browser downloads the configuration file and prompts you to save the file on the PC.

To save a copy of your router's mirror configuration, click **Backup Mirror Configuration**. The browser downloads the configuration file and prompts you to save the file on the PC.

The mirror image is the last working configuration. The startup configuration is the configuration that the device used to boot up. The startup and mirror configurations can differ. For example, if you made changes to the current configuration but forgot to save it, after 24 hours, the device automatically saves the currently-running configuration as the "mirror" image. But if the device crashed during the 24 hour window, then the device will use the startup configuration to boot up.

To copy the mirror configuration file to the startup configuration file, click **Copy Mirror to Startup**. This replaces the startup configuration file with the mirror configuration file. You may want to do this if the device crashed and you had to reset the device to factory defaults. After you perform the factory reset, the mirror image is not erased, and you can copy it to the startup configuration to allow the device to use the configuration to boot up.

Importing CSV Files

You can import VPN client setting files that contain the username and passwords of clients in a Comma Separated Value (CSV) text file. You can use Excel to create a CSV file containing the VPN client settings. The file should contain one row for the headings and one or more rows for the VPN clients. For example, the following specifies the settings of two users (a PPTP user and a QuickVPN user) to import:

PROTOCOL	USERNAME	PASSWORD
PPTP	pptp-user-1	12345678
QuickVPN	qv-user-1	12345678

The Format of the *.csv* file is as follows:

```
"<SSLVPNDomain Code>", "<DomainName>", "<PortalLayoutName>",
"<AuthenticationType>", "<AuthenticationServer>",
"<AuthenticationRadiusSecret>", "<NTDomainWorkGroup>", "<LDAPBaseDN>",
"<ActiveDirectoryDomain>"
```

Possible Values:

- SSLVPNDomain Code - 5
- Domain Name - String
- PortalLayoutName - String
- AutheticationType - String
- AuthenticationServer - IP Address
- AuthenticationRadiusSecret - String
- NTDomainWorkGroup - String
- LDAPBaseDN - String
- ActiveDirectoryDomain - String

```
"<SSLVPNGroup Code>", "<GroupName>", "<DomainName>", "<GroupTimeOut>"
```

Possible Values:

- SSLVPNGroup Code - 4
- GroupName - String

- DomainName - String
- GroupTimeOut - integer

```
"<SNMPv3USER Code>","<userName>", "<accessType>",
"<securityLevel>","<authAlgo>","<authPassword>","<privAlgo>","<privPassword>
"
```

Possible Values:

- SNMPv3USER Code - 3
- userName - cisco/guest
- accessType - RWUSER/ROUSER
- securityLevel - integer
- authAlgo - MD5 / SHA
- authPassword - String
- privAlgo - DES / AES
- privPassword - String

```
"<PPTPUSER Code>", "<userName>", "<password>"
```

Possible Values:

- PPTPUSER Code: 2
- userName - String
- password - String

```
"<IPSECUSER Code>", "<UserName>", "<Password>", "<UserType>",
"<AllowChangePassword>"
```

Possible Values:

- IPSECUSER Code: 1
- Username - String
- Password - String
- UserType - boolean (0 - Standard Ipsec / 1 - Cisco Quick VPN)
- AllowChangePassword - boolean

```
"<SSLVPNUSER Code>", "<UserName>", "<FirstName>", "<LastName>",
"<GroupName>", "<UserType>", "<UserTimeOut>", "<DenyLogin>",
"<DenyLoginFromWan>", "<LoginFromIP>", "<LoginFromBrowser>", "<Password>"
```

Possible Values:

- SSLVPNUSER Code: 0
- UserName - String
- FirstName - String
- LastName - String
- GroupName - String
- UserType - integer
- UserTimeOut - integer
- DenyLogin - boolean
- DenyLoginFromWan - boolean
- LoginFromIP - boolean
- LoginFromBrowser - boolean
- Password - String

Sample CSV file format:

```
"5","domain1","SSLVPN","radius_pap","14.0.0.1","test","","",""
"4","group2","domain1","30"
"3","cisco","RWUSER","1","SHA","authPassword","AES","privPassword"
"2","p2","pp2"
"1","rrrr","sss","0","1"
"0","user102","sss","dddd","SSLVPN","4","10","0","1","0","0","fail"
```

Importing a File

Use the **Administration** > **CSV File Import** page to import a CSV file that you created for domains, groups, and users.

STEP 1 Click **Browse**.

STEP 2 On your computer, locate and select the *.csv* file. Click **Import**.

Upgrading Firmware

⚠ CAUTION During a firmware upgrade, do not try to go online, turn off the device, shut down the PC, or interrupt the process in any way until the operation is complete. This process takes about a minute, including the reboot process. Interrupting the upgrade process at specific points when the flash is being written to may corrupt the flash memory and render the router unusable.

You can upgrade to a newer firmware version from the **Administration** > **Firmware Upgrade** page. To upgrade:

STEP 1 Click **Browse**, locate and select the downloaded firmware, and click **Upload**.

STEP 2 (Optional) Check the box to reset all configuration and settings to the default values. **Do not check this box if you want to keep any settings you have changed on the router!**

STEP 3 Click **Start Firmware Upgrade**. After the new firmware image is validated, the new image is written to flash, and the router is automatically rebooted with the new firmware. Choose **Status** > **System Summary** to make sure the router installed the new firmware version.

Rebooting the Cisco RV180/RV180W

To reboot the router, choose **Administration** > **Reboot Router**. Click **Reboot**.

Restoring the Factory Defaults

⚠ CAUTION During a restore operation, do not try to go online, turn off the router, shut down the PC, or do anything else to the router until the operation is complete. This should take about a minute. When the test light turns off, wait a few more seconds before doing anything with the router.

To restore factory defaults to the router, choose **Administration** > **Restore Factory Defaults.** Click **Default.**

⚠ CAUTION Do not perform this procedure unless you want to erase all configuration you have performed on the router.

8

Viewing the Cisco RV180/RV180W Status

This chapter describes how to view real-time statistics and other information about the Cisco RV180/RV180W.

Viewing the Dashboard

The **Dashboard** page provides you with a view of important router information.

To view the Dashboard:

STEP 1 Choose **Status** > **Dashboard**.

STEP 2 To display an interactive view of the router's back panel, click **Show Panel View**.

The view of the back panel shows you which ports are used (colored in green) and allows you to click the port to obtain information about the connection.

- To view a port's connection information, click the port.
- To refresh the port information, click **Refresh**.
- To close the port information sheet, click **Close**.

The **Dashboard** page displays the following:

Device Information

Host Name	The name of the device. To change the name, click **Edit**. See **Configuring IPv4 LAN (Local Network) Settings, page 32**.
Firmware Version	The current software version the device is running. By default, the router boots from this version.
Serial Number	The serial number of the device.
Users	Displays the number of users configured on the device and the number of active users. For example, "1/2" means that there is one active user logged on and a total of two configured users.

Resource Utilization

CPU	CPU utilization by the router.
Memory	Memory utilization by the router.
Current Time	Time of day.
System Up Time	How long the system has been running.

Syslog Summary

Displays the number of events logged for these categories:

- **Emergency**
- **Alert**
- **Critical**
- **Error**
- **Warning**

To view the logs, click **details**. For more information see **Viewing Logs, page 169**.

To manage logs, click **manage logging**. For more information see **Configuring Logging, page 146**.

LAN (Local Network) Interface

MAC Address	The MAC address of the LAN interface on the router.
IPv4 Address	The IPv4 IP address of the LAN interface on the router. To change the IP address, see **Configuring the IPv4 WAN (Internet), page 24**.
DHCP Server	The status of the router's DHCP server (enabled or disabled). To configure the DHCP settings, see **Configuring the IPv4 WAN (Internet), page 24**.

To view the LAN settings, click **details**. For more information see **Viewing Port Statistics, page 171**.

WAN (Internet) Information

IP Address	The IP address of the router's WAN interface. To change the IP address, see **Configuring the WAN (Internet) Settings, page 24**.
State	The state of the Internet connection.

To view the WAN settings, click **details**. For more information see **Viewing Port Statistics, page 171**.

Wireless Networks

Lists the status of the four wireless network SSIDs.

To view the router's wireless settings, click **details**. For more information see **Viewing the Wireless Statistics (Cisco RV180W), page 166**.

VPN

Site-to-Site Tunnels	Displays the connected IPSec VPN tunnels. Click to view the IPsec Connection Status page.
PPTP Users	The number of Point-to-Point Tunneling Protocol (PPTP) users. Click to view the VPN Client Connection Status page.
QuickVPN Users	The number of QuickVPN users. Click to view the VPN Client Connection Status page.

Viewing the System Summary

The **System Summary** page displays a summary of the router's settings.

To view a summary of system settings:

STEP 1 Choose **Status** > **System Summary**.

STEP 2 Click **Refresh** to obtain the latest information.

STEP 3 If applicable, to change a system setting, click its corresponding **Edit** link.

The **System Summary** page displays this information:

System Information

Host Name	The name of the device.
Firmware Version	Current software version the device is running.
Firmware MD5 Checksum	The message-digest algorithm used to verify the integrity of files.
PID VID	Product ID and vendor ID of the device.
Serial Number	The serial number of the device.

LAN (Local Network) Information

MAC Address	The MAC address of the device.
IPv4 Address	The IP address and subnet mask of the device.
IPv6 Address	The IP address and subnet mask of the device (shown only if IPv6 is enabled).
DHCP Server	The status of the router’s DHCP server (enabled or disabled). If it is enabled, DHCP client machines connected to the LAN port receive their IP address dynamically.
DHCP Relay	Indicates if the device is acting as a DHCP relay.
DHCPv6 Server	Indicates if the device’s DHCPv6 server is enabled or disabled. If it is enabled, DHCPv6 client systems connected to the LAN port receive their IP address dynamically.

WAN (Internet) Information (IPv4)

MAC Address	The MAC address of the WAN port.
Connection Time	The time duration for which the connection is up.
Connection Type	Indicates if the WAN IPv4 address is obtained dynamically through a DHCP server, assigned statically by the user, or obtained through a PPPoE/ PPTP/L2TP ISP connection.
Connection State	Indicates if the WAN port is connected to the Internet service provider.
DHCP Server	The IP address of the DHCP server to which the WAN port is connected.
Lease Obtained	The the time at which lease is obtained from the DHCP server.
Lease Duration	The duration for which the lease remains active.
IP Address	The WAN Address of the device.
Subnet Mask	The subnet mask of the WAN port.
Gateway	The gateway IP address of the WAN port.
Primary DNS Server	The IP address of the primary DNS server.
Secondary DNS Server	The IP address of the secondary DNS server.
NAT (IPv4 Only Mode)	Indicates if the router is in NAT mode (enabled) or routing mode (disabled).
Release/Renew	Visible if **automatic configuration - DHCP** is connected as the Internet connection type. Click **Release** to release the current IP address that was assigned to your WAN port. Click **Renew** to obtain a new IP address for your WAN port.
Connect/Disconnect	Visible if an Internet connection type other than automatic (DHCP) has been chosen. Click **Connect** to connect to the selected server. Click **Disconnect** to disconnect from the server to which you are connected.

WAN (Internet) Information (IPv6)

Connection Time	The time duration for which the connection is up.
Connection Type	Indicates if the WAN IPv6 address is obtained dynamically through a DHCP server, assigned statically by the user, or obtained through a PPPoE/ PPTP/L2TP ISP connection.
Connection State	Indicates if the WAN port is connected to the ISP.
IP Address	The IP address of the WAN port.
Gateway	The gateway IP address of the WAN port.
DNS Server	DNS server IP address of the WAN port.
Release/Renew	Visible if **automatic configuration - DHCP** is connected as the Internet connection type. Click **Release** to release the current IP address that was assigned to your WAN port. Click **Renew** to obtain a new IP address for your WAN port.
Connect/Disconnect	Visible if an Internet connection type other than automatic (DHCP) has been chosen. Click **Connect** to connect to the selected server. Click **Disconnect** to disconnect from the server to which you are connected.

Wireless Information (Cisco RV180W)

Operating Frequency	Displays the operational frequency band.
Wireless Network Mode	Displays the Wi-Fi mode of the radio (for example, N or N/G).
Channel	Displays the current channel in use by the radio.

Available Access Points Table

This table displays the list of access points currently enabled on the router. It contains the following information:

SSID	The SSID (name) of the access point.
MAC Address	The MAC address of the SSID.
Security	The security setting for the SSID.
Encryption	The encryption type used by the SSID.
Authentication	The authentication type used by the SSID.

Viewing the Wireless Statistics (Cisco RV180W)

The **Wireless Statistics** page shows a cumulative total of relevant wireless statistics for the radio on the device.

To view wireless statistics:

STEP 1 Choose **Status** > **Wireless Statistics**.

STEP 2 Click **Stop**.

STEP 3 In the **Poll Interval** field, enter the number of seconds the router waits before updating the information on this page.

STEP 4 Click **Start** to restart automatic refresh at the specified poll interval.

The **Wireless Statistics** page displays this information:

SSID	The name of the wireless network.
Packets	The number of received/sent wireless packets reported to the radio over all configured and active SSIDs.
Bytes	The number of received/sent bytes of information reported to the radio, over all configured APs.

Errors	The number of received/sent packet errors reported to the radio, over all configured APs.
Dropped	The number of received/sent packets dropped by the radio, over all configured APs.
Multicast	The number of multicast packets sent over this radio.
Collisions	The number of packet collisions reported to the AP.

NOTE The counters are reset when the device is restarted.

IPsec Connection Status

The **IPsec Connection Status** page displays the status of IPsec connections.

To view the status of IPsec connections:

STEP 1 Choose **Status** > **IPsec Connection Status**.

STEP 2 Click **Stop**.

STEP 3 In the **Poll Interval** field, enter the number of seconds the router waits before updating the information on this page.

STEP 4 Click **Start** to restart automatic refresh at the specified poll interval.

You can change the status of a connection to either establish or disconnect the configured SAs (Security Associations).

Policy Name	The name of the IKE or VPN policy associated with this SA.
Endpoint	Displays the IP address of the remote VPN gateway or client.
Kbytes	The data transmitted (in KB) over this SA.
Packets	The number of IP packets transmitted over this SA.

State	The current status of the SA for IKE policies. The status can be IPsec SA Established or IPsec SA Not Established.
Action	Click **Connect** to establish an inactive SA connection. Click **Drop** to terminate an active SA connection.

Viewing VPN Client Connection Status

The **VPN Client Connection Status** page displays the status of VPN connections.

To view VPN user connection status:

STEP 1 Choose **Status** > **VPN Client Connection Status**.

STEP 2 Click **Stop**.

STEP 3 In the **Poll Interval** field, enter the number of seconds the router waits before updating the information on this page.

STEP 4 Click **Start** to restart automatic refresh at the specified poll interval.

The **VPN Client Connection Status** page displays this information:

Username	The username of the VPN user associated with the QuickVPN or PPTP tunnel.
Remote IP	Displays the IP address of the remote QuickVPN client. This could be a NAT/Public IP if the client is behind the NAT router.
Status	Displays the current status of QuickVPN client. OFFLINE means that QuickVPN tunnel is not initiated/established by the VPN user. ONLINE means that QuickVPN Tunnel, initiated/established by the VPN user, is active.
Start Time	The time of the VPN user establishing a connection.

End Time	The time of the VPN user ending a connection.
Duration	The duration between the VPN user establishing and ending a connection.
Protocol	The protocol the user uses, QuickVPN or PPTP.
Disconnect	Click to disconnect this user.

Viewing Logs

The **View Logs** page allows you to view the Cisco RV180/RV180W logs.

To view the logs:

STEP 1 Choose **Status** > **View Logs**.

STEP 2 Click **Refresh Logs** to display the latest log entries.

STEP 3 To specify the types of logs to display, choose an option from the **Logging Policy** drop-down menu.

To delete all entries in the log window, click **Clear Logs**.

To email all log messages from the router, click **Send Logs**.

Viewing Available LAN Hosts

The **Available LAN (Local Network) Hosts** page displays information about the devices connected to the Cisco RV180/RV180W.

To view a list of all available LAN hosts:

STEP 1 Choose **Status** > **Available Local Network Hosts**.

STEP 2 From the **Filter** drop-down menu, choose the interface type. You can choose one of the following options:

All	Displays a list of all devices connected to the router.
Wireless	Displays a list of all devices connected through the wireless interface.
Wired	Displays a list of all devices connected through the Ethernet ports on the router.

STEP 3 Click **Refresh** to display the latest LAN host information.

The **Available LAN (Local Network) Hosts** page displays the following fields:

Name	The name of the connected host.
IP Address	The IP address of the host.
MAC Address	The MAC address of the host.
Type	The type of connection (for example, static or dynamic).
Interface Type	The interface type (Wired or Wireless).

Viewing Port Triggering Status

To view the status of port triggering:

STEP 1 Choose **Status** > **Port Triggering Status**.

STEP 2 Click **Refresh** to display the latest port triggering information.

The **Port Triggering Status** window provides information on the ports that have been opened per the port triggering configuration rules. The ports are opened dynamically whenever traffic that matches the port triggering rules flows through them.

The **Port Triggering Status** page displays the following fields:

LAN (Local Network) IP Address	Displays the LAN IP address of the device which caused the ports to be opened.
Open Ports	Displays the ports that have been opened so that traffic from WAN destined to the LAN IP address can flow through the router.
Time Remaining Seconds	This field displays the time for which the port will remain open when there is no activity on that port. The time is reset when there is activity on the port.

Click **Refresh** to refresh the current page and obtain the latest statistics.

Viewing Port Statistics

The **Port Statistics** page displays port statistics.

To view port statistics:

STEP 1 Choose **Status** > **Port Statistics**.

STEP 2 In the **Poll Interval** field, enter the auto-refresh time interval in seconds. The default value is 10.

STEP 3 To start the display of port statistics, click **Start**.

This page displays the latest port statistics based on the value you enter in the **Poll Interval** field. For example, if you enter a poll interval value of 5, the router refreshes the information on this page every 5 seconds.

This table displays the data transfer statistics for the Dedicated WAN, LAN, and WLAN ports, including the duration for which they were enabled.

The **Port Statistics** page displays this information:

Port	The name of the port.
Status	The status of the port (enabled or disabled).
Operational Mode	The bandwidth the port is operating at.
Packets	The number of received/sent packets per second.
Bytes	The number of received/sent bytes of information per second.
Frames	The number of received/sent frames per second.

Viewing Open Ports

The **View Open Ports** page displays a listing of all open ports.

To view open ports, choose **Status** > **View Open Ports**.

This page displays this information about open ports:

Proto	The protocol (TCP, UDP, and raw) used by the port.
Recv-Q	The number of bytes not copied by the program connected to this port.
Send-Q	The number of bytes not acknowledged by the program connected to this port.
Local Address	The address and port number of the local end of this socket.
Foreign Address	The address and port number of the remote end of this socket.
State	The state of the port.
PID/Program name	The process ID (PID) and name of the program using the port (for example, 1654/thttpd, where 1654 is the PID and thttpd is the program's name).

A

Using Cisco QuickVPN for Windows 7, 2000, XP, or Vista

Overview

This appendix explains how to install and use the Cisco QuickVPN software that can be downloaded from www.cisco.com. QuickVPN works with computers running Windows 7, 2000, XP, or Vista. (Computers using other operating systems will have to use third-party VPN software.)

This appendix includes the following sections:

Before You Begin

The QuickVPN program only works with a router that is properly configured to accept a QuickVPN connection. You must first create Quick VPN user accounts. See **Configuring VPN Users, page 121**. After a user account is created, the credentials can be used by the Quick VPN client.

Installing the Cisco QuickVPN Software

Installing from the CD-ROM

STEP 1 Insert the Cisco RV180/RV180W CD-ROM into your CD-ROM drive. After the Setup Wizard begins, click the **Install QuickVPN** link. The License Agreement window appears.

STEP 2 Click **Yes** to accept the agreement. The InstallShield Wizard copies the appropriate files to the computer.

STEP 3 Click **Browse** and choose where to copy the files to (for example, C:\Cisco Small Business\QuickVPN Client).

STEP 4 Click **Next**.

STEP 5 Click **Finish** to complete the installation.

Downloading and Installing from the Internet

STEP 1 Open a web browser and enter the following URL:

http://tools.cisco.com/support/downloads

STEP 2 Enter RV180/RV180W in the search box and find the QuickVPN software.

STEP 3 Save the zip file to your PC, and extract the .exe file.

STEP 4 Double-click the .exe file, and follow the on-screen instructions.

Using the Cisco QuickVPN Software

STEP 1 Double-click the Cisco QuickVPN software icon on your desktop or in the system tray.

QuickVPN Desktop Icon

QuickVPN Tray Icon—
No Connection

STEP 2 The QuickVPN Login window will appear. In the **Profile Name** field, enter a name for your profile. In the **User Name** and **Password** fields, enter the User Name and Password that were created in **Configuring VPN Users, page 121**. In the **Server Address** field, enter the IP address or domain name of the Cisco RV180/RV180W. In the **Port For QuickVPN** field, enter the port number that the QuickVPN client will use to communicate with the remote VPN router, or keep the default setting, **Auto**.

To save this profile, click **Save**. (If there are multiple sites to which you will need to create a tunnel, you can create multiple profiles, but note that only one tunnel can be active at a time.) To delete this profile, click **Delete**. For information, click **Help**.

STEP 3 To begin your QuickVPN connection, click **Connect**. The connection's progress is displayed: *Connecting*, *Provisioning*, *Activating Policy*, and *Verifying Network*.

STEP 4 When your QuickVPN connection is established, the QuickVPN tray icon turns green, and the QuickVPN Status window appears. The window displays the IP address of the remote end of the VPN tunnel, the time and date the VPN tunnel began, and the total length of time the VPN tunnel has been active.

QuickVPN Tray Icon—
Connection

STEP 5 To terminate the VPN tunnel, click **Disconnect**. To change your password, click **Change Password**. For information, click **Help**.

STEP 6 If you clicked **Change Password** and have permission to change your own password, you will see the **Connect Virtual Private Connection** window. Enter your password in the **Old Password** field. Enter your new password in the **New Password** field. Then enter the new password again in the **Confirm New Password** field. Click **OK** to save your new password. Click **Cancel** to cancel your change. For information, click **Help**.

NOTE You can change your password only if the **Allow User to Change Password** box has been checked for that username. See **Configuring VPN Users, page 121**.

B

Where to Go From Here

Cisco provides a wide range of resources to help you obtain the full benefits of the Cisco RV180/RV180W.

Product Resources

Support	
Cisco Small Business Support Community	www.cisco.com/go/smallbizsupport
Cisco Small Business Support and Resources	www.cisco.com/go/smallbizhelp
Phone Support Contacts	www.cisco.com/en/US/support/tsd_cisco_small_business_support_center_contacts.html
Cisco Small Business Firmware Downloads	www.cisco.com/go/software Select a link to download firmware for Cisco Small Business Products. No login is required.
Cisco Small Business Open Source Requests	www.cisco.com/go/smallbiz_opensource_request
Product Documentation	
Cisco RV180/RV180W	www.cisco.com/go/smallbizrouters
Cisco Small Business	
Cisco Partner Central for Small Business (Partner Login Required)	www.cisco.com/web/partners/sell/smb
Cisco Small Business Home	www.cisco.com/smb