ADMINISTRATION GUIDE

Cisco Small Business

RV315W Broadband Wireless VPN Router

OL-25648-01

Federal Communication Commission Interference Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Radiation Exposure Statement

1. 20 cm minimum when the product is operated alone without co-transmitting with a plug-in 3G USB dongle device.
2. 33 cm minimum when the product is operated with a plug-in 3G USB device which has maximum of 7 W ERP output power.
3. For co-transmission scenario which is not covered above, please consult the RF technician or device supplier.

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1

Getting Started

This chapter provides information to familiarize you with the product features, guide you through the installation process, and get started using web-based Configuration Utility. Refer to the following sections:

- **Product Overview**
- **Mounting the RV315W**
- **Connecting the RV315W**
- **Getting Started with the Configuration**
- **Performing Basic Configuration Tasks**

Product Overview

Thank you for choosing the Cisco RV315W Broadband Wireless VPN Router. The RV315W provides routing, switching, security, wireless, 3G, Virtual Private Network (VPN), quality of service (QoS), and flow-control capabilities for small businesses.

Before you use the RV315W, become familiar with the lights on the front panel and the ports on the rear panel.

Front Panel

The lights are located on the front panel of the RV315W.

POWER	▪ Solid green when the RV315W is powered on and is operating normally. ▪ Off when the RV315W is powered off or the power has problems.
SYS	▪ Solid green when the RV315W is connected to the Internet through your cable or DSL modem. ▪ Flashes green when the RV315W is attempting to connect to the Internet, the RV315W cannot connect to the Internet, or the system is upgrading the firmware. ▪ Solid red when the system has problems. ▪ Flashes red when the system is overloaded, such as the CPU utilization or the memory utilization exceeds the limitation. ▪ Off when there is no Internet connection.
WAN0	▪ Solid green when the RV315W is connected to the Internet through the WAN0 port, but there is no traffic over this port. ▪ Flashes green when the RV315W is sending or receiving data over the WAN0 port. ▪ Off when the WAN0 port has no connection.

WAN1	If the WAN1/LAN0 port on the back panel is set to a secondary WAN interface (WAN1): ▪ Solid green when the RV315W is connected to the Internet through the WAN1 port, but there is no traffic over this port. ▪ Flashes green when the RV315W is sending or receiving data over the WAN1 port. ▪ Off when the WAN1 port has no connection.
LAN0	If the WAN1/LAN0 port on the back panel is set to an additional LAN interface (LAN0): ▪ Solid green when the RV315W is connected to a device through the LAN0 port, but there is no traffic over this port. ▪ Flashes green when the RV315W is sending or receiving data over the LAN0 port. ▪ Off when the LAN0 port has no connection.
LAN1-8	The numbered lights correspond to the LAN ports on the back panel of the RV315W. ▪ Solid green when the RV315W is connected to a device through the corresponding port (LAN1 to 8), but there is no traffic over that port. ▪ Flashes green when the RV315W is sending or receiving data over the corresponding LAN port. ▪ Off when the corresponding LAN port has no connection.
USB	▪ Solid green when a USB device is detected, but has no read and write operations. ▪ Flashes green when a USB device is detected and has read and write operations. ▪ Off when the RV315W does not detect a USB device.
3G	▪ Solid green when the RV315W is connected to a 3G wireless network, but there is no traffic over the 3G USB port. ▪ Flashes green when the RV315W is sending or receiving data over the 3G USB port. ▪ Off when the RV315W does not connect to a 3G wireless network.

WLAN	▪ Solid green when the wireless module is enabled, but there is no traffic over the wireless network. ▪ Flashes green when the RV315W is sending or receiving data on the wireless module. ▪ Off when the wireless module is disabled.
VPN	▪ Solid green when there are active VPN tunnels. ▪ Flashes green once per two seconds when the RV315W is attempting to establish a VPN tunnel, or the attempt of establishing a new VPN tunnel fails. ▪ Off when there is no VPN connection.
NMS	▪ Solid green when the RV315W is connected to an upper-level Network Management System (NMS) but has no operations. ▪ Flashes green when the RV315W is connected to an upper-level NMS and has operations. ▪ Off when the RV315W does not connect to an upper-level NMS.

Back Panel

WARNING 33 cm minimum when the product is operated with a plug-in 3G USB device which has maximum of 7 W ERP output power.

3G USB Port	The 3G USB port connects your RV315W to a 3G wireless network through a 3G USB device. To obtain the list of 3G USB dongle models supported by the RV315W, go to www.cisco.com/go/rv315w.
USB Port	The USB port connects to a USB storage device to save syslog messages.
WAN0 Port	The WAN0 (Internet) port is connected to your Internet device, such as a cable or DSL modem.
WAN1/LAN0 Port	The WAN1/LAN0 port can be set to a secondary WAN interface (WAN1) or an additional LAN interface (LAN0).
LAN1-8 Ports	These ports provide a LAN connection to network devices, such as PCs, print servers, or switches.
RESET	The **RESET** button has two functions: ▪ **Reboot:** Press the **RESET** button for at least 1, but no more than 5 seconds with a paper clip or a pencil tip to reboot the unit. ▪ **Restore to Factory Defaults:** Press and hold the **RESET** button for more than 5 seconds to reboot the unit and restore to factory defaults. Changes that you have previously made to the RV315W settings are lost.
POWER (12VDC)	The POWER port is where you connect the supplied power adapter (12 V/3 A).
Power Switch	Powers the unit on or off.

Default Settings

These are the default settings used when configuring your RV315W for the first time.

Parameter	Default Value
Username	cisco
Password	cisco
LAN IP	192.168.1.1
DHCP Range	192.168.1.100 to 192.168.1.200

NOTE Press and hold the **RESET** button for more than 5 seconds with a paper clip or a pencil tip to reboot the unit and restore the factory defaults. Changes that you have previously made to the RV315W settings are lost.

Mounting the RV315W

You can place your RV315W on a desktop or mount it on a wall.

Placement Tips

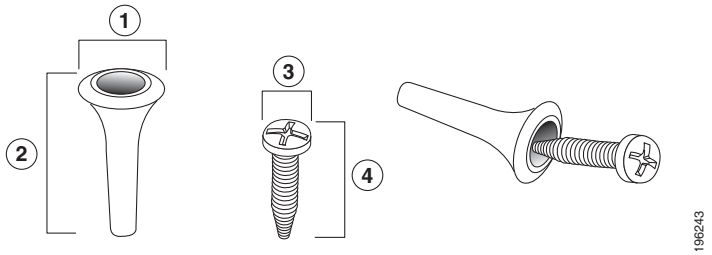
- **Ambient Temperature**—To prevent the RV315W from overheating, do not operate it in an area that exceeds an ambient temperature of 104°F (40°C).
- **Air Flow**—Be sure that there is adequate air flow around the RV315W.
- **Mechanical Loading**—Be sure that the RV315W is level and stable to avoid any hazardous conditions.

Place the RV315W horizontally on a flat surface so that it sits on its four rubber feet.

Wall-Mounting

The RV315W can be wall-mounted. The wall-mounting hardware is user-supplied. The ports on the back panel must face either upward or downward when mounting the RV315W to the wall.

The recommended dimensions for the mount kit are as follows:



1 8 mm/0.31 in **2** 25 mm/0.98 in **3** 6.5 mm/0.26 in **4** 17.9 mm/0.7 in

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

To mount the RV315W to the wall:

STEP 1 Determine where you want to mount the RV315W. Verify that the surface is smooth, flat, dry, and sturdy.

STEP 2 Drill two pilot holes into the surface 5.9 inches (150 mm) apart.

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 RV315W wall-mount slots over the screws and slide the RV315W down until the screws fit snugly into the wall-mount slots.

Connecting the RV315W

NOTE The wireless module of the RV315W is enabled by default. You can connect one PC with an Ethernet cable or through a wireless connection to perform the initial configuration. Use the default wireless network name (SSID) and pre-shared key that are provided on the product label at the bottom of the RV315W to connect the PC to your wireless network for the first time.

STEP 1 Power off all equipment, including the cable or DSL modem, the PC that you will use to connect to the RV315W, and the RV315W.

STEP 2 Connect one end of an Ethernet cable to your cable or DSL modem. Connect the other end to the WAN0 port on the back panel of the RV315W.

STEP 3 Connect one end of a different Ethernet cable to one of the LAN ports on the back panel. Connect the other end to an Ethernet port on the PC that you will use to run web-based Configuration Utility.

NOTE Skip this step if you want to connect the PC to the RV315W through a wireless connection.

STEP 4 Connect the supplied power adapter to the **POWER** port on the back panel. Plug the other end of the power adapter into an electrical outlet. Make sure that the power switch is turned off.

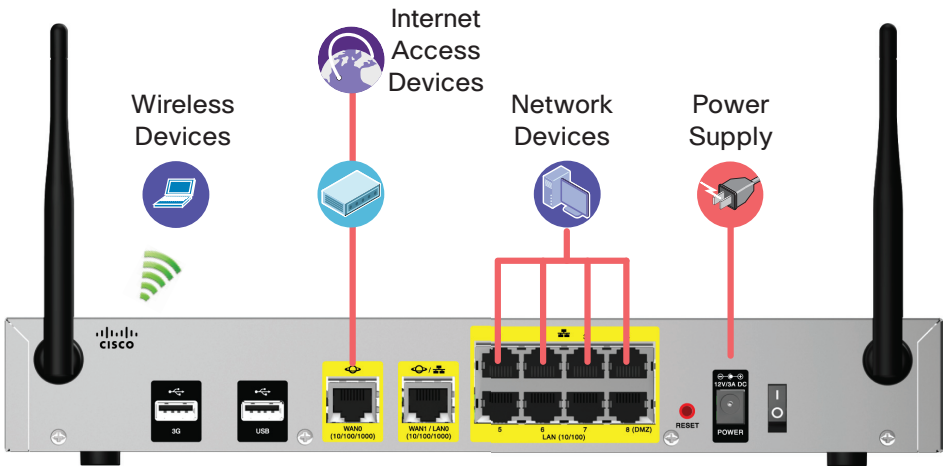
NOTE Use only the power adapter that is supplied with the unit. Using a different power adapter could damage the unit.

STEP 5 Power on all connected devices including the cable or DSL modem and the PC and wait until the connections are active.

STEP 6 Power on the RV315W.

STEP 7 To connect the PC to your wireless network for the first time, you can configure the wireless connection using the default SSID name and pre-shared key that are provided on the product label.

A sample configuration is illustrated here.



Getting Started with the Configuration

You can use web-based Configuration Utility of the RV315W to view the system information, configure key parameters, upgrade system firmware, reboot the unit, or restore the unit to its factory default settings.

Before You Begin

Before you begin to use web-based Configuration Utility, make sure that you have a PC with Microsoft Internet Explorer 6.0 (or later) or Mozilla Firefox 3.0 (or later).

NOTE The minimum recommended display resolution for the PC running the web browser used to access the utility is 1024 x 768.

Logging in to the Configuration Utility

To log in to the utility:

STEP 1 Connect a PC to an available LAN port on the back panel. After you power on the PC, your PC becomes a DHCP client of the RV315W and receives an IP address in the 192.168.1.xxx range.

STEP 2 Start a web browser. In the address bar, enter the default IP address of the RV315W: **192.168.1.1**.

STEP 3 When the login page appears, choose the language that you prefer to use in the utility and enter the username and password.

The default username is **cisco**. The default password is **cisco**. Both usernames and passwords are case sensitive.

STEP 4 Click **Login**. The Change Password page opens.

For security purposes, change the password from its default settings at your first login to prevent unauthorized access.

STEP 5 Enter the old password.

STEP 6 Enter the new password. Passwords should contain at least three of these character classes: uppercase letters, lowercase letters, digits, and special characters. Passwords must be at least eight characters in length.

NOTE Checking **Disable Password Strength Enforcement** will not enforce the minimum password complexity requirements for password changes.

STEP 7 Enter the new password again to confirm and click **Save**. You are required to log in to the utility again with the new password.

Using the Help System

The utility provides a context-sensitive help file for all configuration tasks. To view the help page, click the **Help** link in the top right corner of the screen. A new window opens with information about the page that you are currently viewing.

Performing Basic Configuration Tasks

We recommend that you complete the tasks in this section before you configure the RV315W.

Changing the Default Administrator Password

The default administrator account (cisco) has full privilege to set the configuration and read the system status. For security purposes, we recommend that you change the default administrator password after your first login.

To change the default administrative password:

STEP 1 Click **System Management** > **User Management**. The User Management page opens.

STEP 2 Check the default administrator account (cisco) and click **Change Password**.

STEP 3 Enter the following information:

- **Old Password:** Enter the current administrator password.
- **New Password:** Enter a new administrator password. Passwords are case sensitive. By default, passwords should contain at least three of these character classes: uppercase letters, lowercase letters, digits, and special characters. Passwords must be at least eight characters in length.
- **Password Confirm:** Enter the password again for confirmation.

STEP 4 Click **Save** to save your settings.

Upgrading Your Firmware After Your First Login

After you log in to web-based Configuration Utility for the first time, we recommend that you upgrade your firmware to the latest version before you do any other tasks.

NOTE This feature requires that you have an active WAN connection to access the Internet.

To upgrade the firmware:

STEP 1 Click **System Management** > **Firmware Upgrade**. The Firmware Upgrade page opens.

STEP 2 In the **Download the latest firmware** area, click **Download** to download the latest version of the firmware from the specified website to your local PC. Make sure that you have an active WAN connection.

STEP 3 In the **Locate & select the upgrade file** area, click **Browse** to locate and select the downloaded firmware image from your local PC.

STEP 4 Click **Upgrade**.

After the new firmware image is validated, the system first overwrites the secondary firmware with the new version in the flash, and then reboots with the new firmware image. The new firmware image becomes the primary firmware image and the previous primary firmware image becomes the secondary firmware image.

Backing Up Your Configuration

At any point during the configuration process, you can back up your configuration. Later, if you make changes that you want to abandon, you can easily restore the saved configuration.

To back up your configuration:

STEP 1 Click **System Management** > **Configuration Management**. The Configuration Management page opens.

STEP 2 Click **Backup Configuration** to back up the settings currently used on your RV315W.

STEP 3 Select where to locate the configuration file, and then click **Save**.

2

Using the Setup Wizard

This chapter describes how to use the Setup Wizard to quickly configure the initial settings of your RV315W. Refer to the following sections:

- **Starting the Setup Wizard**
- **Configuring WAN Connection**
- **Configuring Default LAN Settings**
- **Configuring Wireless Connection**
- **Completing the Setup Wizard**

Starting the Setup Wizard

STEP 1 Click **Setup Wizard** in the left-hand navigation pane. The Setup Wizard launches.

STEP 2 If you are an expert, you can exit the Setup Wizard and click the menu in the left-hand navigation pane to configure the specific feature directly. If you want to continue, click **Next** to proceed to the WAN Configuration page. Or you can click **Exit** to exit the Setup Wizard.

Configuring WAN Connection

From the WAN Configuration page you can configure the WAN connection by using information provided by your Internet Service Provider (ISP).

Depending on the requirements of your ISP, choose the Internet connection type and configure the corresponding fields. The RV315W supports four types of network addressing modes: DHCP, Static IP, PPPoE, and L2TP.

STEP 3 Choose **WAN0** or **WAN1** (only available when the WAN1/LAN0 port on the back panel is set to a secondary WAN port) from the **WAN Port** drop-down menu to connect to the Internet.

STEP 4 Choose a proper network addressing method from the **Internet Connection Type** drop-down menu and specify the corresponding settings.

The following table provides the configuration instruction for each Internet connection type. Confirm that you have proper network information from your ISP or a peer router to configure the RV315W to access the Internet.

Connection Type	Configuration
DHCP	Connection type often used with cable modems. Choose this option if your ISP dynamically assigns an IP address on connection, and enter the following information: ▪ **Enable DNS Server:** Click **Enable** to enable the DNS server, or click **Disable** to disable this feature. ▪ **Primary DNS Server:** Enter the IP address of the primary DNS server. ▪ **Secondary DNS Server:** (Optional) Enter the IP address of the secondary DNS server.

Connection Type	Configuration
Static IP	Choose this option if your ISP provides you with a static (permanent) IP address and does not assign it dynamically, and use the corresponding information from your ISP to complete the following fields: ▪ **IP Address:** Enter the IP address of the WAN port that can be accessible from the Internet. ▪ **Subnet Mask:** Enter the IP address of the subnet mask. ▪ **Default Gateway:** Enter the IP address of default gateway. ▪ **Primary DNS Server:** DNS servers map Internet domain names to IP addresses. Enter the IP address of the primary DNS server. You can get the DNS server address from your ISP. ▪ **Secondary DNS Server:** (Optional) Enter the IP address of the secondary DNS server.

Connection Type	Configuration
PPPoE	Choose this option if your ISP provides the username and password to connect to the Internet, and use the corresponding information from your ISP to complete the following fields: ▪ **Username:** Enter the username that is required to log into the ISP. ▪ **Password:** Enter the password that is required to log into the ISP. ▪ **Service Name:** Enter the name for the PPPoE service. ▪ **Enable DNS Server:** Click **Enable** to enable the DNS server, or click **Disable** to disable this feature. ▪ **Primary DNS Server:** Enter the IP address of the primary DNS server. ▪ **Secondary DNS Server:** (Optional) Enter the IP address of the secondary DNS server. ▪ **Keep Alive:** Choose one of the following options: - **Connect on Demand:** Let the RV315W disconnect from the Internet after a specified period of inactivity (Idle Time). This option is recommended if your ISP fees are based on the time that you spend online. If you choose this option, enter the idle time in the **Maximum Idle Time** field. The default value is 300 seconds. - **Keep Alive:** Keep the connection always on, regardless of the level of activity. This option is recommended if you pay a flat fee for your Internet service. If you choose this option, enter the interval to automatically reestablish the WAN connection after the connection is down. The default value is 30 seconds.

Connection Type	Configuration
L2TP	Choose this option if you want to use Layer 2 Tunneling Protocol (L2TP) to connect to the Internet, and use the necessary information from your ISP to complete the L2TP configuration: ▪ **Auto Get IP:** Click **Enable** to automatically obtain an IP address from your service provider, or click **Disable** to disable this feature. ▪ **L2TP Server IP Address:** Enter the IP address of the L2TP server. ▪ **Username:** Enter the username that is required to log in to the L2TP server. ▪ **Password:** Enter the password that is required to log in to the L2TP server. ▪ **Enable DNS Server:** Click **Enable** to enable the DNS server, or click **Disable** to disable this feature. ▪ **Primary DNS Server:** Enter the IP address of the primary DNS server. ▪ **Secondary DNS Server:** (Optional) Enter the IP address of the secondary DNS server. ▪ **Keep Alive:** Choose one of the following options: - **Connect on Demand:** Let the RV315W disconnect from the Internet after a specified period of inactivity (Idle Time). This option is recommended if your ISP fees are based on the time that you spend online. If you choose this option, enter the idle time in the **Maximum Idle Time** field. The default value is 300 seconds. - **Keep Alive:** Keep the connection always on, regardless of the level of activity. This option is recommended if you pay a flat fee for your Internet service. If you choose this option, enter the interval to automatically reestablish the WAN connection after the connection is down. The default value is 30 seconds.

STEP 5 In the **Enable VLAN** area, click **Enable** when the ISP uses the VLAN ID to add the tag to the users, and enter the following information:

- **VLAN ID:** Enter the tag of the VLAN ID.
- **802.1p Priority:** Enter the value of the 802.1p priority.

STEP 6 In the **MTU** area, choose **Auto** to use the default MTU size or choose **Manual** if you want to specify another size. If you choose Manual, enter the custom MTU size in bytes.

STEP 7 If you want to continue, click **Next** to proceed to the LAN Configuration page. If you want to return to the previous page, click **Back**. If you want to exit the Setup Wizard, click **Exit**.

Configuring Default LAN Settings

From the LAN Configuration page you can configure the default LAN settings of the RV315W.

STEP 8 Enter the following information:

- **VLAN:** Select a VLAN from the drop-down menu. See **Configuring VLAN Settings** for more information on configuring the VLANs.
- **IP Address:** Enter the subnet IP address of the default LAN.
- **Subnet Mask:** Enter the subnet mask of the default LAN.
- **DHCP Server:** Click **Enable** to allow the RV315W to act as a DHCP server and assign IP addresses to all devices that are connected to the LANs. Any new DHCP client joining the LANs is assigned an IP address of the DHCP pool. Click **Disable** to disable the DHCP server on the RV315W.
- **Start IP:** Enter the starting IP address of the DHCP pool if you enable the DHCP server.
- **End IP:** Enter the ending IP address of the DHCP pool if you enable the DHCP server.
- **Lease Time:** Enter the maximum connection time in minutes that a dynamic IP address is “leased” to a network user. When the time elapses, the dynamic IP address of the user is automatically renewed. The default is 0, indicates that the lease time is 1 day.

STEP 9 If you want to continue, click **Next** to proceed to the Wireless Configuration page. If you want to return to the previous page, click **Back**. If you want to exit the Setup Wizard, click **Exit**.

Configuring Wireless Connection

From the Wireless Configuration page you can configure the wireless network of the RV315W and the security settings for the selected SSID.

STEP 10 Enter the following information:

- **Current SSID:** Select the SSID as the default wireless access point of the RV315W.
- **SSID Name:** Displays the name of the selected SSID. You can edit the SSID name. Enter a unique name for the SSID for identification.
- **Enable Current SSID:** Click **Enable** to enable this SSID, or click **Disable** to disable the SSID.
- **Security Mode:** Choose the security mode and configure the corresponding security settings. For security purposes, we strongly recommend that you use WPA2 for wireless security.

  The following table lists all available security modes:

Security Mode	Configuration
Disable	Any wireless device that is in range can connect to the SSID.

Security Mode	Configuration
WEP	WEP encryption is an older encryption method that is not considered to be secure and can easily be broken. Choose this option only if you need to allow access to devices that do not support WPA or WPA2, and enter the following information: ▪ **Authentication Type:** Choose either **Open System** or **Shared key**. The default is Open System. ▪ **Key Length:** Choose either **64 bits** or **128 bits**. The default is 64 bits. The larger size keys provide stronger encryption, which makes the key more difficult to crack. ▪ **Passphrase:** If you want to generate WEP keys by using a Passphrase, enter any alphanumeric phrase (between 4 to 63 characters) and then click **Generate** to generate 4 unique WEP keys. Select one key to use as the key that devices must have to use the wireless network. ▪ **Key Index:** Choose a key index as the default transmit key. Key indexes 1 through 4 are available. ▪ **Key 1-4:** If a WEP Passphrase is not specified, a key can be entered directly into one of the Key boxes. The length of the key should be 5 ASCII characters (or 10 hex characters) for 64-bit encryption and 13 ASCII characters (or 26 hex characters) for 128-bit encryption.

Security Mode	Configuration
WPA-Personal	Wi-Fi Protected Access (WPA) provides better security than WEP because it uses dynamic key encryption. This standard was implemented as an intermediate measure to replace WEP, pending final completion of the 802.11i standard for WPA2. WPA-Personal supports Temporal Key Integrity Protocol (TKIP) or Advanced Encryption System (AES) encryption mechanisms for data encryption (default is TKIP+AES). TKIP uses dynamic keys and incorporates Message Integrity Code (MIC) to provide protection against hackers. AES uses symmetric 128-bit block data encryption. If you choose this option, enter the following information: ▪ **WPA Pre-Shared Key:** The Pre-shared Key (PSK) is the shared secret key for WPA. Enter a string of at least 8 characters to a maximum of 63 characters. ▪ **Show Password:** Check to show the pre-shared key in plaintext. ▪ **WPA Key Renewal Timeout:** Enter a value to set the interval at which the key is refreshed for clients associated to this SSID. A value of zero (0) indicates that the key is not refreshed. The default value is 3600 seconds. ▪ **WPA Encryption:** Choose either AES or TKIP+AES as the encryption algorithm for data encryption. The default is TKIP+AES.

Security Mode	Configuration
WPA2-Personal	WPA2 provides the best security for wireless transmissions. This method implements the security standards specified in the final version of 802.11i. WPA2-Personal always uses AES encryption mechanism for data encryption. If you choose this option, enter the following information: ▪ **WPA Pre-Shared Key:** The Pre-shared Key (PSK) is the shared secret key for WPA. Enter a string of at least 8 characters to a maximum of 63 characters. ▪ **Show Password:** Check to show the pre-shared key in plaintext. ▪ **WPA Key Renewal Timeout:** Enter a value to set the interval at which the key is refreshed for clients associated to this SSID. A value of zero (0) indicates that the key is not refreshed. The default value is 3600 seconds. ▪ **WPA Encryption:** Choose either AES or TKIP+AES as the encryption algorithm for data encryption. The default is AES.

Security Mode	Configuration
WPA-Enterprise	WPA-Enterprise uses WPA with RADIUS authentication. This mode supports TKIP and AES encryption mechanisms (default is TKIP+AES) and requires the use of a RADIUS server to authenticate users. If you choose this option, enter the following information: ▪ **WPA Key Renewal Timeout:** Enter a value to set the interval at which the key is refreshed for clients associated to this SSID. A value of zero (0) indicates that the key is not refreshed. The default value is 3600 seconds. ▪ **WPA Encryption:** Choose AES or TKIP+AES as the encryption algorithm for data encryption. The default is TKIP+AES. ▪ **RADIUS Server IP Address:** Enter the IP address of the RADIUS server. ▪ **RADIUS Server Port:** Enter the port number of the primary RADIUS server. The default value is 1812. ▪ **RADIUS Server Key:** Enter the key for authentication used by the RADIUS server and the RV315W. ▪ **Show Password:** Check to show the key for authentication in plaintext.

Security Mode	Configuration
WPA2-Enterprise	WPA2-Enterprise uses WPA2 with RADIUS authentication. This mode always uses AES encryption mechanism for data encryption and requires the use of a RADIUS server to authenticate users. If you choose this option, enter the following information: ▪ **WPA Key Renewal Timeout:** Enter a value to set the interval at which the key is refreshed for clients associated to this SSID. A value of zero (0) indicates that the key is not refreshed. The default value is 3600 seconds. ▪ **WPA Encryption:** Choose AES or TKIP+AES as the encryption algorithm for data encryption. The default is AES. ▪ **RADIUS Server IP Address:** Enter the IP address of the RADIUS server. ▪ **RADIUS Server Port:** Enter the port number of the primary RADIUS server. The default value is 1812. ▪ **RADIUS Server Key:** Enter the key for authentication used by the RADIUS server and the RV315W. ▪ **Show Password:** Check to show the key for authentication in plaintext.

STEP 11 If you want to continue, click **Next** to proceed to the Complete Setup Wizard page. If you want to return to the previous page, click **Back**. If you want to exit the Setup Wizard, click **Exit**.

Completing the Setup Wizard

From the Complete Setup Wizard page you can see the summary information for all configurations.

STEP 12 If you want to return to the previous page, click **Back**. If you want to exit the Setup Wizard, click **Exit**.

STEP 13 If the configuration is correct, click **Finish** to apply the settings and complete the Setup Wizard configuration.

3

Viewing System Status

This chapter describes how to view real-time statistics and other information about the RV315W. Refer to the following sections:

- **Device Information**
- **WAN Connection**
- **3G Wireless Connection**
- **LAN Interfaces**
- **WLAN Connection**
- **DHCP Clients**
- **Application Information**
- **Processes Information**
- **Refresh Rate**

Click **System Summary**. The System Summary page opens.

Device Information

The **Device Information** area displays the following information:

- **Product Name:** Product name of the unit.
- **Device Model:** Product model of the unit.
- **VID:** Version ID of the unit.
- **Serial Number:** Serial number of the unit.
- **Hardware Version:** Hardware version that the unit is currently using.

- **Primary Firmware Version:** Firmware version that the unit is currently using.
- **Secondary Firmware Version:** Firmware version that is used as backup.
- **System Up Time:** Duration for which the system has been running.
- **CPU Utilization:** Current CPU utilization in percentage of the unit.
- **Memory Utilization:** Current memory utilization in percentage of the unit.

WAN Connection

The **WAN Connections** area displays the following information:

- **WAN Port:** Name of the physical WAN interface.
- **Port Status:** Shows if the physical WAN interface is active or inactive for routing.
- **WAN Connection Name:** Connection name through the WAN interface or its WAN subinterface.
- **IP Address:** IP address of the WAN interface or its WAN subinterface.

3G Wireless Connection

The **3G Wireless Connection** area displays the following information:

- **3G Wireless Network:** Displays whether the RV315W is connected to a 3G wireless network or not.
- **3G Modem Status:** Displays whether a 3G USB dongle is detected or not. The 3G USB dongle should be inserted into the 3G USB port on the back panel.
- **UIM Card Status:** Displays whether the UIM card is detected or not. The UIM card should be inserted into the 3G USB dongle.
- **Signal Strength:** Displays current 3G wireless signal strength if the RV315W is connected to a 3G wireless network.

To see complete details of the 3G wireless connection:

STEP 1 Click **Details**. The following information is displayed:

- **3G Modem Information:** Displays information of the 3G USB dongle that is detected by the RV315W:
  - **3G Modem Status:** Displays whether the RV315W is connected to a 3G wireless network or not.
  - **Device Model:** Model number of the detected 3G USB dongle.
  - **Manufacturer:** Manufacturer name of the detected 3G USB dongle.
  - **Network Access License:** Identification number of the network access certificate.
  - **Serial Number:** Serial number of the 3G USB dongle.
  - **Hardware Version:** Hardware version of the 3G USB dongle.
  - **Firmware Version:** Software version that the 3G USB dongle is currently using.
  - **PRL Version:** PRL version of the 3G USB dongle.
- **UIM Card Information:** Displays information of the UIM card that is detected by the 3G USB dongle:
  - **UIM Card Status:** Current status of the UIM card.
  - **IMSI:** IMSI number of the UIM card.
  - **Voltage:** Current voltage of the UIM card.
- **3G Network Information:** Displays information of the 3G wireless network:
  - **Service Operator:** Name of the 3G network service provider.
  - **Operating Status:** Displays whether the RV315W is connected to a 3G wireless network or not.
  - **Flow Rate:** Current flow rate of the 3G wireless network.
  - **Transfer Rate:** Current transfer rate of the 3G wireless network.
  - **Uptime:** Duration for which the 3G wireless connection has been running.
  - **Signal Strength:** Wi-Fi signal strength of the 3G wireless connection.

STEP 2 Click **Back** to return to the System Summary page.

LAN Interfaces

The **LAN Interfaces** area displays the connection status for each LAN port.

- **LANx:** Displays the LAN port number.
- **Status:** Displays whether the LAN port is connected or disconnected.

WLAN Connection

The **WLAN Connections** area displays the following information for all wireless access points supported on the RV315W:

- **SSID:** Name of the wireless access point.
- **Status:** Shows if the wireless access point is enabled or disabled.
- **Number of Connected Devices:** Number of the client stations that are connected to the wireless access point.

DHCP Clients

The **DHCP Clients** area displays information for all DHCP servers defined on the RV315W and its DHCP clients.

To see complete details for all clients that are connected to the RV315W:

STEP 1 Click **Details** and choose a DHCP server from the drop-down menu.

The following information is displayed:

- **Hostname:** Hostname of the connected device.
- **IP Address**: IP address of the connected device.
- **MAC Address:** MAC address of the connected device.

- **Lease Time:** Duration for which the IP address is leased to the connected device.
- **Interface**: Shows how the client is connected to the RV315W.

STEP 2 Click **Back** to return to the System Summary page.

Application Information

The **Application Information** area displays the following information for the applications (such as IPsec VPN) that are running on the RV315W:

- **Application Name:** Name of the running service or application.
- **Status:** Shows if the service or application is enabled or disabled.

Processes Information

The **Processes** area displays information for active Internet connections.

To see complete details for active Internet connections:

STEP 1 Click **Details**. The following information is displayed:

- **Proto:** The protocol (TCP, UDP, or raw) used by the socket.
- **Recv-Q:** The count of bytes not copied by the user program connected to this socket.
- **Send-Q:** The count of bytes not acknowledged by the remote host.
- **Local Address:** Address and port number of the local end of the socket.
- **Foreign Address:** Address and port number of the remote end of the socket.
- **State:** The state of the socket. Because there are no states in raw mode and usually no states used in UDP, this column may be left blank. Normally the state can be one of several values:
  - **ESTABLISHED:** The socket has an established connection.
  - **SYN_SENT:** The socket is actively attempting to establish a connection.

- **SYN_RECV:** A connection request has been received from the network.
- **FIN_WAIT1:** The socket is closed, and the connection is shutting down.
- **FIN_WAIT2:** The connection is closed, and the socket is waiting for a shutdown from the remote end.
- **TIME_WAIT:** The socket is waiting after the closing to handle packets still in the network.
- **CLOSED:** The socket is not being used.
- **CLOSE_WAIT:** The remote end has shut down, waiting for the socket to close.
- **LAST_ACK:** The remote end has shut down, and the socket is closed. Waiting for acknowledgement.
- **LISTEN:** The socket is listening for incoming connections. Such sockets are not included in the output unless you specify the --listening (-l) or --all (-a) option.
- **CLOSING:** Both sockets are shut down but we still do not have all our data sent.
- **UNKNOWN:** The state of the socket is unknown.

STEP 2 Click **Back** to return to the System Summary page.

Refresh Rate

Choose a refresh rate from the **Refresh Rate** drop-down menu, or choose **Manually Refresh** to manually refresh the page at any time by clicking **Refresh**. This operation causes the page to re-read the statistics from the RV315W and refresh the page.

4

Port Management

This chapter describes how to configure your Internet connection, LAN, wireless network, and 3G wireless network. Refer to the following sections:

- **Configuring WAN**
- **Configuring LAN**
- **Configuring WLAN**
- **Configuring 3G Wireless Connection**

Configuring WAN

By default, the RV315W is configured to receive a public IP address from your ISP automatically through DHCP. Depending on the requirements of your ISP, you may need to modify the WAN settings to ensure the Internet connectivity.

Viewing WAN Connection Information

Click **Port Settings** > **WAN** > **WAN Interface Settings**. The WAN Interface Settings page opens.

This page displays the following information:

Parameter	Description
Port	Port number of the physical WAN interface, such as WAN0 or WAN1.
Connection Name	WAN connection name through the physical WAN interface or its subinterface.

Parameter	Description
Internet Connection Type	Network addressing mode used to connect to the Internet. See **Configuring WAN Connection** for more information.
IP Address	IP address of the WAN interface.
DNS	IP address of the DNS server for the WAN interface.
Status	Shows if the WAN interface is active or inactive for routing.

Configuring WAN Connections

By default, the WAN1/LAN0 port on the back panel of the RV315W is set to a secondary WAN interface so that the RV315W can support a second Internet connection to ensure continuous connectivity or to increase available bandwidth and balance traffic.

The RV315W allows you to add multiple subinterfaces on a physical WAN interface. Each WAN subinterface can be used to set up an Internet connection but only one of these connections can be used as the default route of the physical WAN interface. Up to eight WAN subinterfaces can be added on the physical WAN interfaces.

To configure a WAN connection through a physical WAN interface or its subinterface:

STEP 1 Click **Port Settings** > **WAN** > **WAN Interface Settings**. The WAN Interface Settings page opens.

STEP 2 To add a WAN subinterface on a physical WAN interface, click **Add Subinterface**.

STEP 3 Choose either **Route Mode** or **Bridge Mode** for a WAN subinterface from the **Internet Connection Type** drop-down menu.

NOTE The Route Mode is always selected for a physical WAN interface.

STEP 4 If Route Mode is selected, select one of the following options to connect to the Internet and specify the corresponding fields:

- **DHCP:** Choose this option if your ISP dynamically assigns an IP address on connection and enter the following information:

- **Enable DNS Server:** Click **Enable** to enable the DNS server, or click **Disable** to disable this feature.
- **Primary DNS Server:** Enter the IP address of the primary DNS server.
- **Secondary DNS Server:** Enter the IP address of the secondary DNS server.

- **Static IP:** Choose this option if the ISP provides you with a static (permanent) IP address and does not assign it dynamically, and use the corresponding information from your ISP to complete the following fields:
  - **IP Address:** Enter the IP address of the WAN port that can be accessible from the Internet.
  - **Subnet Mask:** Enter the IP address of the subnet mask.
  - **Default Gateway:** Enter the IP address of default gateway.
  - **Primary DNS Server:** Enter the IP address of the primary DNS server.
  - **Secondary DNS Server:** Enter the IP address of the secondary DNS server.
- **PPPoE:** Choose this option if your ISP provides you with client software, username, and password, and use the necessary PPPoE information from your ISP to complete the PPPoE configuration:
  - **Username:** Enter the username that is required to log into the ISP.
  - **Password:** Enter the password that is required to log into the ISP.
  - **Service Name:** Enter the name for the PPPoE service.
  - **Enable DNS Server:** Click **Enable** to enable the DNS server, or click **Disable** to disable this feature.
  - **Primary DNS Server:** Enter the IP address of the primary DNS server.
  - **Secondary DNS Server:** Enter the IP address of the secondary DNS server.
  - **Keep Alive:** Choose one of the following options:

    Connect on Demand: Choose this option to let the RV315W disconnect from the Internet after a specified period of inactivity (Idle Time). This option is recommended if your ISP fees are based on the time that you spend online. Enter the idle time in the **Maximum Idle Time** field. The default value is 300 seconds.

Keep Alive: Choose this option to keep the connection always on, regardless of the level of activity. This option is recommended if you pay a flat fee for your Internet service. You can specify the interval to automatically reestablish the WAN connection after the connection is down. The default value is 30 seconds.

- **L2TP:** Choose this option if you want to use Layer 2 Tunneling Protocol (L2TP) to connect to the Internet, and use the necessary information from your ISP to complete the L2TP configuration:
  - **Auto Get IP (DHCP):** Click **Enable** to automatically obtain an IP address from your service provider, or click **Disable** to disable this feature.
  - **L2TP Server IP Address:** Enter the IP address of the L2TP server.
  - **Username:** Enter the username that is required to log into the L2TP server.
  - **Password:** Enter the password that is required to log into the L2TP server.
  - **Enable DNS Server:** Click **Enable** to enable the DNS server, or click **Disable** to disable this feature.
  - **Primary DNS Server:** Enter the IP address of the primary DNS server.
  - **Secondary DNS Server:** Enter the IP address of the secondary DNS server.
  - **Keep Alive:** Choose one of the following options:

    Connect on Demand: Let the RV315W disconnect from the Internet after a specified period of inactivity (Idle Time). This option is recommended if your ISP fees are based on the time that you spend online. Enter the idle time in the **Maximum Idle Time** field. The default value is 300 seconds.

    Keep Alive: Keep the connection always on, regardless of the level of activity. This option is recommended if you pay a flat fee for your Internet service. You can specify the interval to automatically reestablish the WAN connection after the connection is down. The default value is 30 seconds.

STEP 5 Specify other settings if Route Mode is selected:

- **Enable NAT:** Click **Enable** to enable NAT, or click **Disable** to disable NAT. Disable this feature if the WAN connection is only used for management purposes.

- **Enable VLAN:** Click **Enable** to enable VLAN if your ISP uses the VLAN ID to identify the users, and specify the VLAN ID and the 802.1p priority in the **VLAN ID** and **802.1p Priority** fields.
- **MTU:** Choose **Auto** to use the default MTU size or choose **Manual** if you want to specify another size. If you choose **Manual**, enter the custom MTU size in bytes.
- **Service Binding:** Choose one of the following service types for the WAN connection:
  - **Management:** Only use for management purpose.
  - **Internet:** Only use for Internet access purpose.
  - **Management_Internet:** Use for both management and Internet access purposes.
  - **VoIP:** Only use for VoIP traffic.
  - **IPTV:** Only use for IPTV traffic.
  - **Other:** Use for other purposes.

STEP 6 If Bridge Mode is selected, enter the following information:

- **Enable NAT:** Click **Enable** to enable NAT or click **Disable** to disable NAT. Disable this feature if the WAN connection is only used for management purpose.
- **Enable VLAN:** Click **Enable** to enable VLAN if your ISP uses the VLAN ID to identify the users, and specify the VLAN ID and the 802.1p priority in the **VLAN ID** and **802.1p Priority** fields.
- **MTU:** Choose **Auto** to use the default MTU size or choose **Manual** if you want to specify another size. If you choose **Manual**, enter the custom MTU size in bytes.
- **Binding Ports:** Specify the port as the subinterface's downstream path.

STEP 7 Click **Save** to save your settings and return to the WAN Interface Settings page.

To edit the settings of a WAN connection through a physical WAN interface or a WAN subinterface, click **Edit**. To delete a WAN connection through a WAN subinterface, click **Delete**.

Configuring Default Route of the Physical WAN Interface

If multiple WAN connections are defined on a physical WAN interface, you must choose the default route of the physical WAN interface.

To configure the default route of the physical WAN interface:

STEP 1 Click **Port Settings** > **WAN** > **WAN Interface Settings**. The WAN Interface Settings page opens.

STEP 2 In the **WAN Port Default Route** area, choose the default route interface for each physical WAN interface.

STEP 3 Click **Save** to save your settings.

Configuring Multi-WAN

If you have two ISP links, one for WAN0 and another for WAN1, you can configure the WAN redundancy to determine how the two ISP links are used.

NOTE Multi-WAN is only available when the WAN0/LAN1 port on the back panel is set to a secondary WAN port (WAN1).

To configure Multi-WAN:

STEP 1 Click **Port Settings** > **WAN** > **Multi-WAN**. The Multi-WAN page opens.

STEP 2 In the **Multi-WAN** area, enter the following information:

- **WAN Failover:** Click **Enable** to enable the WAN Failover feature, or click **Disable** to disable it. When WAN Failover is enabled, the RV315W diverts all Internet traffic to the backup link if a failure is detected on the primary link. When the primary link regains connectivity, all Internet traffic is directed to the primary link and the backup link becomes idle. By default, WAN0 is set as the primary link and the WAN1 is set as the backup link.
- **Link Query Interval:** The RV315W detects the WAN failure by pinging the specified IP address. Enter the interval in seconds between two ping detections. The default is 60 seconds.
- **Ping Timeout:** If the connection to the ISP is down, the RV315W tries to connect to the ISP after a specified timeout. Enter the timeout, in seconds, to reconnect to the ISP. The default is 5 seconds.

- **Number of Pings:** Enter the number of pings. The default is 1.
- **Recover the connection after x connection queries:** Enter the number of successful ping detections to recover the connection. The WAN connection with the higher priority will be recovered.

STEP 3 In the **Failover Detection** area, specify the IP address used to detect the WAN failure. By default, RV315W pings the IP address of default WAN gateway with the higher priority. If the default WAN gateway can be detected, the network connection is active. You can also ping a specific remote host to detect the WAN failure.

- **Gateway:** Pings the IP address of default WAN gateway.
- **User-defined:** Pings a specific remote host. If you choose this option, enter the IP address of the specific remote host to ping.

STEP 4 In the **WAN Interfaces** area, specify the priorities for the WAN interfaces, including the 3G USB port:

- **Interface:** Name of the WAN interface.
- **Status:** Connection status of the WAN interface.
- **Priority:** Choose the priority of the WAN interface from the drop-down menu.

STEP 5 In the **WAN Interface Details** area, view the following information of the WAN interfaces:

- **Interface:** Name of the WAN interface.
- **IP Address:** IP address of the WAN interface.
- **Subnet Mask:** Subnet mask of the WAN interface.
- **Gateway:** Default gateway IP address of the WAN interface.

STEP 6 In the **Load Balancing** area, click **Enable** to enable Load Balancing to distribute the bandwidth to two WAN ports by the weighted percentages, or click **Disable** to disable this feature.

STEP 7 In the **Load Balancing Settings** area, specify the weighted percentage for each WAN interface, such as 50% bandwidth for WAN0, 50% bandwidth for WAN1, and 0% for USB_3G, which indicates that 50% bandwidth is distributed to WAN0 and 50% bandwidth is distributed to WAN1. The value of zero (0) indicates that Load Balancing is disabled on the 3G WAN interface.

STEP 8 Click **Save** to save your settings.

Configuring WAN1/LAN0 Interface

The WAN1/LAN0 interface on the back panel of the RV315W can be configured to a secondary WAN interface (WAN1) or an additional LAN interface (LAN0).

To set the port type of the WAN1/LAN0 interface:

STEP 1 Click **Port Settings** > **WAN** > **WAN1/LAN0**. The WAN1/LAN0 page opens.

STEP 2 Click **LAN0** to set this port to an additional LAN port, or click **WAN1** to set this port to a secondary WAN port.

STEP 3 Click **Save** to save your settings.

CAUTION Changing the port type of the WAN1/LAN0 interface requires the RV315W to be rebooted. Note that changing the port type from WAN1 to LAN0 will reboot the RV315W with the factory default settings. The previous settings that you made on the RV315W will be lost.

Configuring LAN

A virtual LAN (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.

The VLANs allow you to segregate the network into LANs that are isolated from one another. Any PC that is connected to the specified LAN port is on a separate VLAN and cannot access other VLANs.

Configuring LAN Interface Settings

Use the LAN Configuration page to configure the LAN interface settings for a VLAN.

To configure the LAN interface settings for a VLAN:

STEP 1 Click **Port Settings** > **LAN** > **LAN Configuration**. The LAN Configuration page opens.

STEP 2 In the **LAN Configuration** area, specify the following information for a VLAN:

- **VLAN:** Choose a VLAN that you want to configure from the drop-down menu. To add a new VLAN and assign physical LAN interfaces or wireless interfaces to the VLAN, go to the VLAN Settings page. See **Configuring VLAN Settings** for more information.
- **IP Address:** Enter the subnet IP address for the VLAN.
- **Subnet Mask:** Enter the subnet mask for the VLAN.
- **DHCP Service:** Click **Enable** to allow the RV315W to act as a DHCP server and assign IP addresses to all devices that are connected to the VLAN. Any new DHCP client joining the VLAN is assigned an IP address of the DHCP pool. Click **Disable** to disable the DHCP server on the RV315W.
- **Start IP:** Enter the starting IP address of the DHCP pool if you enable the DHCP service.
- **End IP:** Enter the ending IP address of the DHCP pool if you enable the DHCP service.
- **Gateway Address:** Enter the IP address for default gateway.
- **Lease Time:** Enter the maximum connection time that a dynamic IP address is “leased” to a network user. When the time elapses, the user is automatically renewed the dynamic IP address. The default value is 1 day.
- **DNS Proxy:** Click **Enable** to enable the DNS proxy feature, or click **Disable** to disable this feature.
- **DNS Server 1:** Enter the IP address of the primary DNS server.
- **DNS Server 2:** Optionally, enter the IP address of the secondary DNS server.
- **Reserve Address:** Click **Enable** to allow you to reserve some IP addresses of the DHCP pool for specific hosts, or click **Disable** to disable this feature.

- **Manually Add Hosts:** Specify the following information to reserve an IP address for a host and then click **Add**:
  - **Hostname:** Enter the name of the host for identification.
  - **IP Address:** Enter the IP address that you want to reserve for the host.
  - **Host MAC Address:** Enter the MAC address of the host.

STEP 3 Click **Save** to save your settings.

STEP 4 In the **DHCP Service List** area, the DHCP service status and its DHCP pool settings for each VLAN are displayed. To delete a DHCP server, check the VLAN and click **Delete**. Default VLAN 1 cannot be deleted.

Configuring VLAN Settings

Use the VLAN Settings page to create new VLANs and assign physical LAN ports and/or wireless interfaces to the specified VLANs.

To create a new VLAN:

STEP 1 Click **Port Settings** > **LAN** > **VLAN Settings**. The VLAN Settings page opens.

STEP 2 To create a new VLAN, select the **Add** radio button and enter a unique identification number for the VLAN in the **VLAN ID** field (VLAN1 and VLAN2 are reserved by default).

STEP 3 Assign the physical LAN interfaces or wireless interfaces to the VLAN by moving them from the list of **Available Ports** to the list of **Selected Ports**. Traffic through the selected interfaces is mapped to the VLAN.

STEP 4 Click **Save** to save your settings.

STEP 5 To delete a VLAN, select the **Delete** radio button and choose the VLAN ID from the **Choose VLAN** drop-down men, and then click **Save**. The reserved VLAN1 and VLAN2 cannot be deleted.

Configuring WLAN

The wireless module of the RV315W is enabled by default. To connect to the default wireless network of the RV315W for the first time, use the default wireless network name (SSID) and pre-shared key that are provided on the product label at the bottom of the RV315W.

Configuring Wireless Radio Settings

To configure wireless radio settings:

STEP 1 Click **Port Settings** > **Wireless**. The Wireless page opens.

STEP 2 In the **Wireless Radio Settings** area, enter the following information:

- **Wireless Radio:** Click **Enable** to turn the wireless radio on, or click **Disable** to turn the wireless radio off. The wireless radio is turned on by default.
- **Wireless Network Mode:** Choose one of the following options:
  - **802.11b/g/n mixed:** Choose this option if you have Wireless-N, Wireless-B, and Wireless-G devices in your network. This is the default setting (recommended).
  - **802.11b/g mixed:** Choose this option if you have Wireless-B and Wireless-G devices in your network.
  - **802.11b:** Choose this option if you have only Wireless-B devices in your network.
  - **802.11g:** Choose this option if you have only Wireless-G devices in your network.
  - **802.11n:** Choose this option if you have only Wireless-N devices in your network.
- **Wireless Band Selection:** Choose either **20 MHz** or **20/40 MHz** as the wireless bandwidth on your network.
- **Wireless Channel:** Choose the wireless channel from the drop-down menu or choose **Auto** to let the system determine the optimal channel to use based on the environmental noise levels for the available channels.
  - Choose any channel from 1 to 13 channels when the wireless bandwidth is set to 20 MHz.

- Choose any channel from 3 to 11 channels when the wireless bandwidth is set to 20/40 MHz (the default is 11 channel).

- **Wi-Fi Power:** Choose the Wi-Fi power on your network. The default is **High**.
- **Station Isolation:** Check so that the wireless clients on the same SSID cannot see each other, or uncheck so that the wireless clients on the same SSID can see each other.
- **Wireless QoS:** Check to enable WiFi MultiMedia (WMM), or uncheck to disable this feature.

STEP 3 Click **Save** to save your settings.

Configuring Wireless Network Settings

To configure the settings for a wireless network:

STEP 1 Click **Port Settings** > **Wireless**. The Wireless page opens.

The **Wireless Basic and Security Settings** area displays the following information for a wireless network:

- **SSID:** Name of the SSID.
- **Security Mode:** Security settings of the SSID.
- **Status:** Shows whether the SSID is enabled or disabled.

STEP 2 To enable a SSID, check the corresponding SSID and click **Enable**.

STEP 3 To disable a SSID, check the corresponding SSID and click **Disable**.

STEP 4 To edit the settings of a SSID, check the corresponding SSID and click **Edit**.

STEP 5 Enter the following information:

- **SSID Name:** Enter a unique name of the wireless access point for identification.
- **Hide Wireless Network:** Check to prevent auto-detection of the SSID. In this case, users must know the SSID to set up a wireless connection to this SSID. Uncheck to enable SSID broadcast and broadcast the SSID in its beacon frames. All wireless devices within range are able to see the SSID when they scan for available networks.

- **Allow Remote Management:** Check to allow you to remotely access the RV315W through the wireless network and configure the settings of the RV315W.
- **User Limit:** Click **Enable** to specify the maximum number of users that can simultaneously connect to this SSID. Enter a value in the range of 0 to 30. The default value is zero (0), which indicates that there is no limit for this SSID.
- **Security Mode:** Choose one of the following security modes for the SSID and configure the corresponding security settings. For security purposes, we strongly recommend that you use WPA2 for wireless security.

Security Mode	Configuration
Disable	Any wireless device that is in range can connect to the SSID. This is the default setting but not recommended.

Security Mode	Configuration
WEP	Wired Equivalent Privacy (WEP) is a data encryption protocol for 802.11 wireless networks. All wireless stations and SSIDs on the network are configured with a static 64-bit or 128-bit shared key for data encryption. The higher the bit for data encryption, the more secure for your network. WEP encryption is an older encryption method that is not considered to be secure and can easily be broken. Choose this option only if you need to allow access to devices that do not support WPA or WPA2. If you choose this option, enter the following information: ▪ **Authentication Type:** Choose either **Open System** or **Shared key**. The default is Open System. ▪ **Encryption:** Choose the encryption type: 64 bits (10 hex digits), 64 bits (5 ASCII), 128 bits (26 hex digits), or 128 bits (13 ASCII). The default is 64 bits (10 hex digits). The larger size keys provide stronger encryption, thus making the key more difficult to crack. ▪ **Passphrase:** If you want to generate WEP keys by using a Passphrase, enter any alphanumeric phrase (between 4 to 63 characters) and then click **Generate** to generate 4 unique WEP keys. Select one key to use as the key that devices must have to use the wireless network. ▪ **Default Transmit Key:** Choose a key index as the default transmit key. Key indexes 1 through 4 are available. ▪ **Key 1-4:** If a WEP Passphrase is not specified, a key can be entered directly into one of the Key boxes. The length of the key should be 5 ASCII characters (or 10 hex characters) for 64-bit encryption and 13 ASCII characters (or 26 hex characters) for 128-bit encryption.

Security Mode	Configuration
WPA-Personal	Wi-Fi Protected Access (WPA) provides better security than WEP because it uses dynamic key encryption. This standard was implemented as an intermediate measure to replace WEP, pending final completion of the 802.11i standard for WPA2. WPA-Personal supports Temporal Key Integrity Protocol (TKIP) or Advanced Encryption System (AES) encryption mechanisms for data encryption (default is TKIP+AES). TKIP uses dynamic keys and incorporates Message Integrity Code (MIC) to provide protection against hackers. AES uses symmetric 128-bit block data encryption. If you choose this option, enter the following information: ▪ **WPA Pre-Shared Key:** The Pre-shared Key (PSK) is the shared secret key for WPA. Enter a string of at least 8 characters to a maximum of 63 characters. ▪ **Show Password:** Check to show the pre-shared key in plaintext. ▪ **WPA Key Renewal Timeout:** Enter a value to set the interval at which the key is refreshed for clients associated to this SSID. A value of zero (0) indicates that the key is not refreshed. The default value is 3600 seconds. ▪ **Encryption Algorithm:** Choose either AES or TKIP+AES as the encryption algorithm for data encryption. The default is TKIP+AES.

Security Mode	Configuration
WPA2-Personal	WPA2 provides the best security for wireless transmissions. This method implements the security standards specified in the final version of 802.11i. WPA2-Personal always uses AES encryption mechanism for data encryption. If you choose this option, enter the following information: ▪ **WPA Pre-Shared Key:** The Pre-shared Key (PSK) is the shared secret key for WPA. Enter a string of at least 8 characters to a maximum of 63 characters. ▪ **Show Password:** Check to show the pre-shared key in plaintext. ▪ **WPA Key Renewal Timeout:** Enter a value to set the interval at which the key is refreshed for clients associated to this SSID. A value of zero (0) indicates that the key is not refreshed. The default value is 3600 seconds. ▪ **Encryption Algorithm:** Choose either AES or TKIP+AES as the encryption algorithm for data encryption. The default is AES.

Security Mode	Configuration
WPA-Enterprise	WPA-Enterprise uses WPA with RADIUS authentication. This mode supports TKIP and AES encryption mechanisms (default is TKIP+AES) and requires the use of a RADIUS server to authenticate users. If you choose this option, enter the following information: ▪ **WPA Key Renewal Timeout:** Enter a value to set the interval at which the key is refreshed for clients associated to this SSID. A value of zero (0) indicates that the key is not refreshed. The default value is 3600 seconds. ▪ **Encryption Algorithm:** Choose either AES or TKIP+AES as the encryption algorithm for data encryption. The default is TKIP+AES. ▪ **RADIUS Server IP Address:** Enter the IP address of the RADIUS server. ▪ **RADIUS Server Port:** Enter the port number of the primary RADIUS server. The default value is 1812. ▪ **RADIUS Server Key:** Enter the key for authentication used by the RADIUS server and the RV315W. ▪ **Show Password:** Check to show the key in plaintext.

Security Mode	Configuration
WPA2-Enterprise	WPA2-Enterprise uses WPA2 with RADIUS authentication. This mode always uses AES encryption mechanism for data encryption and requires the use of a RADIUS server to authenticate users. If you choose this option, enter the following information: ▪ **WPA Key Renewal Timeout:** Enter a value to set the interval at which the key is refreshed for clients associated to this SSID. A value of zero (0) indicates that the key is not refreshed. The default value is 3600 seconds. ▪ **Encryption Algorithm:** Choose either AES or TKIP+AES as the encryption algorithm for data encryption. The default is AES. ▪ **RADIUS Server IP Address:** Enter the IP address of the RADIUS server. ▪ **RADIUS Server Port:** Enter the port number of the primary RADIUS server. The default value is 1812. ▪ **RADIUS Server Key:** Enter the key for authentication used by the RADIUS server and the RV315W. ▪ **Show Password:** Check to show the key in plaintext.

STEP 6 Click **Save** to save your settings.

Configuring 3G Wireless Connection

To connect the RV315W to a 3G wireless network, you should first insert an applicable 3G USB dongle into the 3G interface on the back panel of the RV315W and then configure the 3G wireless network settings on the RV315W.

To obtain the list of 3G USB dongle models supported by the RV315W, see www.cisco.com/go/rv315w.

To configure the 3G wireless network settings:

STEP 1 Click **Port Settings** > **3G Interface Settings**. The 3G Interface Settings page opens.

STEP 2 Enter the following information:

- **Current 3G Network:** Displays whether the RV315W is detected a 3G USB dongle. The 3G USB dongle should be inserted into the 3G USB port on the back panel.
- **Configure Mode:** Choose **Auto** to automatically detect the settings of the 3G USB dongle, or choose **Manual** to manually specify the following settings of the 3G USB dongle:
  - **APN:** Enter the APN provided by the 3G wireless network service provider.
  - **Username:** Enter the username provided by the 3G wireless network service provider.
  - **Password:** Enter the password provided by the 3G wireless network service provider.
  - **Dial String:** Enter the dial string provided by the 3G wireless network service provider.
- **Connect Mode:** Choose either **Auto** or **Manual** to dial in the 3G wireless network.
- **Keep Alive:** If the dial method is set to Auto, choose one of the following options:
  - **Keep Alive:** Keep the connection always on, regardless of the level of activity. This option is recommended if you pay a flat fee for your Internet service. You can specify the interval to automatically re-dial in the 3G wireless network after the connection is down. The default is 30 seconds.
  - **Connect on Demand:** Let the RV315W disconnect from the 3G wireless network after a specified period of inactivity (Idle Time). This option is recommended if your ISP fees are based on the time that you spend online. Enter the idle time in the **Maximum Idle Time** field. The default is 5 seconds.
- **Manual Dial Up:** If the dial method is set to Manual, specify how to manually dial in the 3G wireless network from the drop-down menu.
  - To manually connect to the 3G wireless network, click **Connect**.

  - To manually terminate the 3G wireless connection, click **Disconnect**.

- **Service Type:** If your ISP supports both 3G wireless network and 4G wireless network, choose one of the following options to dial in the wireless network:
  - **Auto:** Automatically dial in the 3G wireless network or 4G wireless network.
  - **3G Only:** Only dial in the 3G wireless network.
  - **4G Only:** Only dial in the 4G wireless network.

    NOTE You should first check the types of wireless network supported by your 3G USB dongle, and then determine which wireless network you want to dial in.
- **Status:** Shows whether the RV315W is connected to a 3G wireless network or not.

STEP 3 Click **Save** to save your settings.

5

Networking

This chapter describes how to configure other network settings of the RV315W. Refer to the following sections:

- **Configuring DDNS**
- **Configuring Port Forwarding**
- **Configuring Port Triggering**
- **Configuring DMZ**
- **Configuring UPnP**
- **Configuring Port Mirroring**
- **Configuring Routing**
- **Configuring IGMP**

Configuring DDNS

Dynamic DNS (DDNS) is an Internet service that allows routers with varying public IP addresses to be located using Internet domain names. If your ISP has not provided you with a static IP and your WAN connection is configured to use DHCP to obtain an IP address dynamically, then DDNS provides the domain name to map the dynamic IP address for your website. To use DDNS, you must set up an account with a DDNS provider such as DynDNS.org or TZO.

To configure a DDNS service:

STEP 1 Click **Networking** > **Dynamic DNS**. The Dynamic DNS page opens.

STEP 2 In the **DDNS Settings** area, click **Add** to add a DDNS service.

STEP 3 Enter the following information:

- **DDNS Service:** Specify the provider for your DDNS service. You can choose either DynDNS.org or TZO.
- **Domain Name:** Enter the complete domain name of the DDNS service.
- **Username:** Enter the username of the account that you registered in the DDNS provider.
- **Password:** Enter the password of the account that you registered in the DDNS provider.

STEP 4 Click **Save** to save your settings.

Configuring Port Forwarding

Port forwarding forwards a TCP/IP packet traversing a Network Address Translator (NAT) gateway to a predetermined network port on a host within a NAT-masqueraded, typically private network based on the port number on which it was received at the gateway from the originating host.

Configuring Single Port Forwarding

To add a single port forwarding rule:

STEP 1 Click **Networking** > **Port Forwarding** > **Single Port Forwarding**. The Single Port Forwarding page opens.

STEP 2 Enter the following information:

- **Interface:** Choose a WAN interface or the 3G interface for this single port forwarding rule.
- **Protocol:** Choose either TCP or UDP protocol for this single port forwarding rule.
- **External Port:** Specify the port number that triggers this rule when a connection request from outgoing traffic is made. You can choose a predefined option (such as Finger, FTP, NNTP, POP3, SMTP, Telnet, or HTTP) to use its default port value or choose **Other** to manually specify the external port used by the application.
- **Internal IP Address:** Enter the IP address of the internal server.

- **Internal Port:** Specify the port number used by the remote system to respond to the request that it receives. You can choose a predefined option (such as Finger, FTP, NNTP, POP3, SMTP, Telnet, or HTTP) to use its default port value or choose **Other** to manually specify the internal port used by the application.
- **Status:** Click **Enable** to enable this single port forwarding rule, or click **Disable** to disable this rule.

STEP 3 Click **Add**.

Configuring Port Range Forwarding

To add a port range forwarding rule:

STEP 1 Click **Networking** > **Port Forwarding** > **Port Range Forwarding**. The Port Range Forwarding page opens.

STEP 2 Enter the following information:

- **Interface:** Choose a WAN interface or the 3G interface for this port range forwarding rule.
- **Protocol:** Choose either TCP or UDP protocol for this port range forwarding rule.
- **Port Range:** Specify the starting port and ending port to forward.
- **Internal IP Address:** Enter the IP address of the internal server.
- **Status:** Click **Enable** to enable this port range forwarding rule, or click **Disable** to disable this rule.

STEP 3 Click **Add**.

Configuring Port Triggering

Port triggering allows devices on the LAN or DMZ to request one or more ports to be forwarded to them. Port triggering waits for an outbound request from the LAN or DMZ 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, which provides a level of security that port forwarding does not offer.

To add a port triggering rule:

STEP 1 Click **Networking** > **Port Triggering**. The Port Triggering page opens.

STEP 2 Enter the following information:

- **WAN Port:** Choose the WAN interface for this port triggering rule.
- **LAN Port:** Choose the LAN port for this port triggering rule.
- **Protocol:** Choose either TCP or UDP protocol.
- **Triggering Range:** Enter the port number or a 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, enter the same port number in both fields.
- **Forwarding Range:** Enter the port number or a range of port numbers used by the remote system to respond to the request that it receives. If the incoming connection uses only one port, then specify the same port number in both fields.
- **Status:** Click **Enable** to enable the port triggering rule, or click **Disable** to disable this rule.

STEP 3 Click **Add**.

Configuring DMZ

A DMZ (Demarcation Zone or Demilitarized Zone) is a sub-network that is behind the firewall but that is open to the public. By placing your public services on a DMZ, you can add an additional layer of security to the LAN. The public can connect to the services on the DMZ but cannot penetrate the LAN. You should configure your DMZ to include any hosts that must be exposed to the WAN (such as web or email servers).

The RV315W supports the software DMZ and hardware DMZ features. The software DMZ allows you to expose an internal host (such as the web or email server) to the WAN. The hardware DMZ sets the LAN8 port on the back panel to a DMZ port. This feature is only available when you use Static IP or DHCP to connect to the Internet.

Configuring Software DMZ

To configure software DMZ:

STEP 1 Click **Networking** > **DMZ** > **Software DMZ**. The Software DMZ page opens.

STEP 2 To create a DMZ rule, enter the following information:

- **DMZ Status:** Click **Enable** to enable this DMZ rule, or click **Disable** to disable this DMZ rule.
- **External Address:** Enter the external IP address.
- **Internal Address:** Enter the IP address of the internal server in the DMZ network.
- **Binding Interface:** Choose an interface for this DMZ rule.

STEP 3 Click **Save** to save your settings.

Configuring Hardware DMZ

To configure the hardware DMZ:

STEP 1 Click **Networking** > **DMZ** > **Hardware DMZ**. The Hardware DMZ page opens.

STEP 2 In the **Hardware DMZ** area, click **Enable** to enable the hardware DMZ feature and set the LAN8 part on the back panel to a DMZ port.

STEP 3 Click **Save** to save your settings.

STEP 4 If you enable the hardware DMZ feature, click **Add** to create a hardware DMZ rule.

STEP 5 Enter the following information:

- **Status:** Click **Enable** to enable this DMZ rule, or click **Disable** to disable this DMZ rule.
- **Public IP:** Enter the public IP address.
- **WAN Port:** Choose a WAN interface for this DMZ rule.

STEP 6 Click **Save** to save your settings.

Configuring UPnP

Universal Plug and Play (UPnP) allows for automatic discovery of devices that can communicate with your RV315W.

To enable or disable UPnP on the RV315W:

STEP 1 Click **Networking** > **UPnP**. The UPnP page opens.

STEP 2 Click **Enable** to enable UPnP, or click **Disable** to disable UPnP. If UPnP is disabled, the RV315W will not allow for automatic device configuration.

STEP 3 Click **Save** to save your settings.

Configuring Port Mirroring

Port Mirroring allows traffic on one port to be visible on other ports. This feature is useful for debugging or traffic monitoring.

To configure port mirroring:

STEP 1 Click **Networking** > **Port Mirroring**. The Port Mirroring page opens.

STEP 2 In the **Port Mirroring** area, click **Enable** to enable the Port Mirroring feature, or click **Disable** to disable this feature.

STEP 3 If Port Mirroring is enabled, enter the following information:

- **Mirror Destination Port:** Choose the port that monitors the transmitted (TX) or received (RX) traffic for other ports.
- **Mirror Source Port:** Check the ports that are monitored. The port that you set as a TX destination port cannot be selected as a monitored port.

STEP 4 Click **Save** to save your settings.

Configuring Routing

This section provides information on configuring the routing mode between WAN and LAN, viewing the routing table, and configuring the static routing, dynamic routing, and policy-based routing settings.

Configuring Basic Routing Settings

Depending on the requirements of your ISP, you can configure the RV315W to operate in NAT mode or Router mode. By default, NAT mode is enabled.

Configuring Routing Mode

To configure the routing mode:

STEP 1 Click **Networking** > **Routing** > **Basic Routing**. The Basic Routing page opens.

STEP 2 In the **Routing Mode** area, configure the routing mode between WAN and LAN.

- If your ISP assigns an IP address for each computer that you use, click **Router** to enable the Router mode.
- If you are sharing IP addresses across several devices such as your LAN, and are using other dedicated devices for the DMZ, click **Gateway** to enable the Gateway mode.

STEP 3 Click **Save** to save your settings.

Configuring Inter-VLAN Routing

To configure inter-VLAN routing:

STEP 1 Click **Networking** > **Routing** > **Basic Routing**. The Basic Routing page opens.

STEP 2 In the **Inter-VLAN Routing** area, click **Enable** to enable inter-VLAN routing.

STEP 3 Click **Save** to save your settings.

Configuring Static Routing

To configure static routes, specify the IP address and related information for the destination.

STEP 1 Click **Networking** > **Routing** > **Basic Routing**. The Basic Routing page opens.

STEP 2 In the **Static Routes** area, click **Add** to add a new static route.

STEP 3 Enter the following information:

- **Destination Address:** Enter the IP address for the host or for the network that the route leads to.
- **Subnet Mask:** Enter the subnet mask of the destination network.
- **Next Hop:** Enter the IP address of the gateway through which the destination host or network can be reached.

STEP 4 Click **Save** to save your settings.

Configuring Policy-based Routing

Policy-based routing allows users to specify the internal IP and/or service going through a specified WAN port to provide more flexible and granular traffic handling capabilities.

This feature can be used to segregate traffic between links that are not of the same speed. High volume traffic can be routed through the port connected to a high-speed link and low-volume traffic can be routed through the port connected to the slow link.

To configure policy-based routing:

STEP 1 Click **Networking** > **Routing** > **Policy-based Routing**. The Policy-based Routing page opens.

STEP 2 Click **Add** to create a policy-based routing rule.

STEP 3 Enter the following information:

- **Policy-based Routing Rule Name:** Enter a unique name of the policy-based routing rule for identification.
- **Interface:** Choose an interface for the policy-based routing rule.
- **Source IP Address:** Enter the source IP address for outbound traffic.
- **Subnet Mask:** Enter the subnet mask of the source network.
- **Destination IP Address:** Enter the destination IP address for outbound traffic.
- **Subnet Mask:** Enter the subnet mask of the destination network.
- **Port:** Specify the port number that the policy-based routing sends out the packages. Choose one of the following options:
  - **Any:** Automatically select a routing port.
  - **Single:** Manually set the port number.
  - **Range:** Manually set a port range.
- **Protocol:** Choose **Any**, or choose either TCP or UDP.
- **DSCP:** Enter the value of DSCP.
- **Next Hop:** Choose one of the following options as the next hop:
  - **IPsec Tunnel:** Use an IPsec VPN tunnel as the next hop.

- **Interface:** Use a WAN interface as the next hop.
- **Disable this rule if the interface is down:** Check to disable this rule when the selected WAN interface is down.

STEP 4 Click **Save** to save your settings.

Configuring Dynamic Routing

Dynamic routing is an Interior Gateway Protocol (IGP) that is commonly used in internal networks. It allows a router 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.

Dynamic routing enables the RV315W to automatically adjust to physical changes in the network's layout and exchange routing tables with the other routers.

The RV315W determines the network packets' route based on the fewest number of hops between the source and the destination.

To configure dynamic routing:

STEP 1 Click **Networking** > **Routing** > **RIP**. The RIP page opens.

STEP 2 In the **RIP Basic Settings** area, enter the following information:

- **RIP Status:** Click **Enable** to enable RIP, or click **Disable** to disable it. By default, RIP is disabled.
- **RIP Version:** Specify the RIP version. The RV315W supports RIPv1 and RIPv2.
- **RIP Timer:** Enter the values for the RIP refresh time, RIP timeout, and Flush time.
- **RIP Advertisement By:** Choose either an interface or a RIP network for routing.

STEP 3 If you choose an interface for routing in the **RIP Advertisement By** area, specify the RIP interface settings in the **RIP Members** area.

- Check **Enable RIP** to enable RIP on an interface.
- Click **Edit** to specify the following RIP settings for an interface:
  - **RIP:** Displays whether RIP is enabled or disabled on this interface.

- **Passive Interface:** Determines how the RV315W receives RIP packets. Click **Enable** to enable this feature on the port, or click **Disable** to disable this feature.
- **Authentication:** Specify the authentication method for the port.

  None: Choose this option to invalidate the authentication.

  Simple Password Authentication: Choose this option to validate the simple password authentication. Enter the password in the field.

  MD5 Authentication: Choose this option to validate the MD5 authentication.

STEP 4 If you choose **Network** for routing in the **RIP Advertisement By** area, you can manually add RIP networks in the **RIP Networks** area. Click **Add** to add a new RIP network.

STEP 5 Enter the IP address of the RIP network in the **Network Address** field.

STEP 6 Click **Save** to save your settings.

Viewing the Routing Table

To open the Routing Table page, click **Networking** > **Routing** > **Routing Table**. The following information is displayed:

- **Destination LAN IP:** The IP address of the host or the network that the route leads to.
- **Subnet Mask:** The subnet mask of the destination network.
- **Gateway:** The IP address of the gateway through which the destination host or network can be reached.
- **Interface and Tunnel:** The physical port or VPN tunnel through which this route is accessible.

Configuring IGMP

Internet Group Management Protocol (IGMP) is a communication protocol used by hosts and adjacent routers on IP networks to establish multicast group memberships. IGMP can be used for online streaming video and gaming, and can allow more efficient use of resources when supporting these types of applications.

IGMP Proxy enables hosts that are not directly connected to a downstream router to join a multicast group sourced from an upstream network. IGMP Snooping constrains IPv4 multicast traffic at Layer 2 by configuring Layer 2 LAN ports dynamically to forward IPv4 multicast traffic only to those ports that want to receive it.

To configure IGMP:

STEP 1 Click **Networking** > **IGMP**. The IGMP page opens.

STEP 2 Enter the following information:

- **IGMP Version:** Choose either IGMP v1 or IGMP v2.
- **IGMP Proxy:** Click **Enable** to enable IGMP Proxy so that the RV315W can act as a proxy for all IGMP requests and communicate with the IGMP servers of the ISP, or click **Disable** to disable it.
- **IGMP Snooping:** You can use IGMP Snooping in subnets that receive IGMP queries from either IGMP or IGMP Snooping querier. Click **Enable** to enable IGMP Snooping, or click **Disable** to disable it.

STEP 3 Click **Save** to save your settings.

6

VPN

The RV315W supports the IPsec Virtual Private Network (VPN) feature to set up a single gateway-to-gateway VPN tunnel or a client-to-gateway VPN tunnel. In this configuration, the RV315W creates a secure VPN connection to another VPN-enabled router or a remote PC that installs third-party VPN client software. For example, you can configure the RV315W at a branch site to connect to the VPN router at the corporate site so that the branch site can securely access the corporate network.

This chapter describes how to configure IPsec VPN that allows remote workers to access your network resources. Refer to the following sections:

- **Viewing IPsec VPN Status**
- **Configuring IPsec VPN Policies**

Viewing IPsec VPN Status

Use the IPsec VPN page to view the status of all IPsec VPN connections.

To view information for an IPsec VPN connection:

STEP 1 Click **VPN** > **IPsec VPN**. The IPsec VPN page opens.

The **IPsec VPN Connections** area displays the following information for all existing IPsec VPN policies specified on the RV315W:

- **Policy Name:** Name of the IPsec VPN policy.
- **Status:** Shows whether the IPsec VPN policy is enabled or disabled.
- **Interface:** Interface used for the IPsec VPN policy.
- **Connection Type:** VPN connection type, such as Site-to-Site or PC-to-Site.
  - **Site-to-Site VPN:** A secure VPN tunnel between the RV315W and a remote VPN router.

  - **PC-to-Site VPN:** A secure VPN tunnel between the RV315W and a remote PC that installs a third-party client software.

- **Remote Gateway Address/Hostname:** IP address or hostname of the remote network.
  - For a Site-to-Site VPN, the IP address or hostname of the remote gateway is displayed.
  - For a PC-to-Site VPN, the IP address or hostname of the remote PC is displayed. Separate multiple IP addresses with commas (,).
- **Local Gateway Address:** IP address of the local network.
- **Authentication Method:** Authentication method used by the IPsec VPN policy.
- **Connection Status:** Shows whether the IPsec VPN tunnel is connected or disconnected.

STEP 2 Click **Add** to add an IPsec VPN policy or click **Edit** to edit the settings of an existing IPsec VPN policy. See **Configuring IPsec VPN Policies**.

STEP 3 Click **Delete** to delete an existing IPsec VPN policy.

Configuring IPsec VPN Policies

An IPsec VPN policy is used to establish a VPN connection between two peers. Up to 50 IPsec VPN policies can be configured on the RV315W.

Setting Up a Site-to-Site VPN

A Site-to-Site VPN policy is used to create a new tunnel between two VPN devices, such as a Cisco RV315W router at your office and a Cisco RV315W router at a remote office.

To create a Site-to-Site (gateway-to-gateway) VPN policy:

STEP 1 Click **VPN** > **IPsec VPN**. The IPsec VPN page opens.

STEP 2 Click **Add**.

STEP 3 In the **IPsec VPN Policy** area, specify the IPsec VPN policy name and identification:

- **Status:** Click **Enable** to enable the IPsec VPN policy, or click **Disable** to disable the policy.
- **Policy Number:** Choose the identification for the IPsec VPN policy.
- **IPsec VPN Policy Name:** Enter a unique name for the IPsec VPN policy.

STEP 4 In the **Gateway Information** area, specify the local and remote gateway settings:

- **VPN Failover:** Click **Enable** to enable the VPN Failover feature, or click **Disable** to disable this feature.
- **Interface:** If VPN Failover is disabled on your RV315W, choose a WAN interface that traffic passes through over the IPsec VPN tunnel.
- **Connection Type:** Choose **Site-to-Site** as the type of the VPN connection.
- **VPN Redundant:** VPN Redundant allows the backup connection to be active automatically when the connection of the remote gateway fails. Click **Enable** to enable this feature and enter the following information:
  - **Primary:** Enter the IP address or hostname of the primary remote gateway.
  - **Backup:** Enter the IP address or hostname of the secondary remote gateway.
  - **Switch from backup to primary:** Click **Enable** to enable this feature, or click **Disable** to disable it. Enabling this feature allows the primary VPN connection to be active automatically when the primary connection is recovered. If you disable this feature, the backup connection still becomes active even though the primary connection is recovered.
- **Local Gateway Address:** Displays the IP address of the local network. In general, the local gateway address is the public IP address obtained by the selected WAN interface.
- **Local Gateway ID:** Choose how to specify your local gateway ID.
  - **Auto:** Automatically obtain the local gateway ID.
  - **Manual:** Manually enter the IP address or the fully qualified domain name (FQDN) of the local gateway ID.
- **Remote Gateway ID:** Choose how to specify the primary remote gateway ID.

- **Auto:** Automatically obtain the primary remote gateway ID.
- **Manual:** Manually enter the IP address or the fully qualified domain name (FQDN) of the primary remote gateway ID.

- **Backup Remote Gateway ID:** Choose how to specify the secondary remote gateway ID.
  - **Auto:** Automatically obtain the secondary remote gateway ID.
  - **Manual:** Manually enter the IP address or the fully qualified domain name (FQDN) of the secondary remote gateway ID.
- **Authentication Method:** The IPsec VPN uses a simple, password-based key to authenticate. Enter the desired value that the peer device must provide to establish a connection in the **Pre-shared Key** field. The pre-shared key must be entered exactly the same here and on the remote peer.
- **Show Password:** Check to show the pre-shared key in plaintext.

STEP 5 In the **Interest Traffic** area, choose one of the following methods:

- **Route:** If you choose this option, enter the IP address and subnet mask protected by the IPsec VPN.
- **Flow-based:** If you choose this option, enter the source IP address/wildcard and destination IP address/wildcard.

STEP 6 In the **Advanced VPN Settings** area, specify advanced VPN settings of the IPsec VPN policy.

- **1st Phase:** Enter the following information:
  - **Exchange Mode:** Choose either **Main Mode** or **Aggressive Mode**. The main mode has a higher priority than the aggressive mode.
  - **Authentication Algorithm:** Specify the authentication algorithm for the VPN header. There are two hash algorithms supported by the RV315W: SHA1 and MD5. The default is SHA1.
  - **Encryption Algorithm:** Choose the algorithm used to negotiate the security association. The encryption standard supports DES, 3DES, AES-128, AES-192, and AES-256. The default is AES-256.
  - **DH Group:** Choose the Diffie-Hellman (DH) group identifier, which the two IPsec peers use to derive a shared secret without transmitting it to each other. The DH group sets the strength of the algorithm in bits. The lower the DH group number, the less CPU time it requires to be executed. The higher the DH group number, the greater the security.

- **SA Lifetime:** Enter the lifetime of the IPsec Security Association (SA). The IPsec SA lifetime represents the interval after which the IPsec SA becomes invalid. The IPsec SA is renegotiated after this interval. The default value is 86400 seconds.

▪ **2rd Phase:** Enter the following information:

- **ESP Authentication Algorithm:** Choose either **SHA1** or **MD5** as the ESP authentication algorithm. The default is SHA1.
- **ESP Encryption Algorithm:** Choose the symmetric encryption algorithm that protects data transmission between two IPsec peers. The advanced encryption standard supports DES, 3DES, AES-128, AES-192, and AES-256. The default is AES-256.
- **PFS:** Choose **Enable** to enable Perfect Forward Secrecy (PFS) to improve security, or choose **Disable** to disable it. If you enable PFS, a DH exchange is performed for every phase-2 negotiation. PFS is desired on the keying channel of the VPN connection.
- **SA Lifetime:** Enter the values for the time-based SA lifetime and the flow-based SA lifetime.
- **DPD:** Click **Enable** to enable Dead Peer Detection (DPD), or click **Disable** to disable it. DPD is a method of detecting a dead Internet Key Exchange (IKE) peer. This method uses IPsec traffic patterns to minimize the number of messages required to confirm the availability of a peer. DPD is used to reclaim the lost resources in case a peer is found dead and it is also used to perform IKE peer failover. If you enable DPD, specify the delay time and DPD timeout.

  DPD Delay Time: Enter the value of delay time in seconds between consecutive DPD R-U-THERE messages. DPD R-U-THERE messages are sent only when IPsec traffic is idle.

  DPD Timeout: Enter the value of detection timeout in seconds. If there are no responses and no traffic over the timeout, declare the peer dead.

STEP 7 Click **Save** to save your settings.

Setting Up a PC-to-Site VPN

A PC-to-Site VPN policy is used to create a VPN tunnel to allow teleworkers and business travelers to access to your network by using third-party VPN client software, such as TheGreenBow IPsec VPN client 5.1 and Shrewsoft VPN client 2.17.

To create a PC-to-Site (client-to-gateway) VPN policy:

STEP 1 Click **VPN** > **IPsec VPN**. The IPsec VPN page opens.

STEP 2 Click **Add**.

STEP 3 In the **IPsec VPN Policy** area, specify the IPsec VPN policy name and identification:

- **Status:** Click **Enable** to enable the IPsec VPN policy, or click **Disable** to disable the policy.
- **Policy Number:** Choose the identification for the IPsec VPN policy.
- **IPsec VPN Policy Name:** Enter a unique name for the IPsec VPN policy.

STEP 4 In the **Gateway Information** area, specify the local and remote gateway settings:

- **VPN Failover:** Click **Enable** to enable the VPN Failover feature, or click **Disable** to disable this feature.
- **Interface:** If VPN Failover is disabled on your RV315W, choose a WAN interface that traffic passes through over the IPsec VPN tunnel.
- **Connection Type:** Choose **PC-to-Site** as the type of the VPN connection.
- **Local Gateway Address:** Displays the IP address of the local network. In general, the local gateway address is the public IP address obtained by the selected WAN interface.
- **Local Gateway ID:** Choose how to specify your local gateway ID.
  - **Auto:** Automatically obtain the local gateway ID.
  - **Manual:** Manually enter the IP address or the fully qualified domain name (FQDN) of the local gateway ID.
- **Remote Gateway ID:** Choose how to specify the primary remote gateway ID.
  - **Auto:** Automatically obtain the primary remote gateway ID.

- **Manual:** Manually enter the IP address or the fully qualified domain name (FQDN) of the primary remote gateway ID.

- **Backup Remote Gateway ID:** Choose how to specify the secondary remote gateway ID.
  - **Auto:** Automatically obtain the secondary remote gateway ID.
  - **Manual:** Manually enter the IP address or the fully qualified domain name (FQDN) of the secondary remote gateway ID.

- **Authentication Method:** The IPsec VPN uses a simple, password-based key to authenticate. Enter the desired value that the peer device must provide to establish a connection in the **Pre-shared Key** field. The pre-shared key must be entered exactly the same here and on the remote peer.

- **Show Password:** Check to show the pre-shared key in plaintext.

STEP 5 In the **Advanced VPN Settings** area, specify advanced VPN settings of the IPsec VPN policy:

- **1st Phase:** Enter the following information:
  - **Exchange Mode:** Choose either **Main Mode** or **Aggressive Mode**. The main mode has a higher priority than the aggressive mode.
  - **Authentication Algorithm:** Specify the authentication algorithm for the VPN header. There are two hash algorithms supported by the RV315W: SHA1 and MD5. The default is SHA1.
  - **Encryption Algorithm:** Choose the algorithm used to negotiate the security association. The encryption standard supports DES, 3DES, AES-128, AES-192, and AES-256. The default is AES-256.
  - **DH Group:** Choose the DH group identifier, which the two IPsec peers use to derive a shared secret without transmitting it to each other. The DH Group sets the strength of the algorithm in bits. The lower the DH group number, the less CPU time it requires to be executed. The higher the Diffie-Hellman group number, the greater the security.
  - **SA Lifetime:** Enter the lifetime of the IPsec SA. The IPsec SA lifetime represents the interval after which the IPsec SA becomes invalid. The IPsec SA is renegotiated after this interval. The default value is 86400 seconds.

- **2rd Phase:** Enter the following information:

- **ESP Authentication Algorithm:** Choose either **SHA1** or **MD5** as the ESP authentication algorithm. The default is SH1.
- **ESP Encryption Algorithm:** Choose the symmetric encryption algorithm that protects data transmission between two IPsec peers. The advanced encryption standard supports DES, 3DES, AES-128, AES-192, and AES-256. The default is AES-256.
- **PFS:** Click **Enable** to enable PFS to improve security, or click **Disable** to disable it. If you enable PFS, a DH exchange is performed for every phase-2 negotiation. PFS is desired on the keying channel of the VPN connection.
- **SA Lifetime:** Enter the values for the time-based SA lifetime and the flow-based SA lifetime.
- **DPD:** Click **Enable** to enable DPD, or click **Disable** to disable it. DPD is a method of detecting a dead IKE peer. This method uses IPsec traffic patterns to minimize the number of messages required to confirm the availability of a peer. DPD is used to reclaim the lost resources in case a peer is found dead and it is also used to perform IKE peer failover. If you enable DPD, specify the delay time and DPD timeout.

  DPD Delay Time: Enter the value of delay time in seconds between consecutive DPD R-U-THERE messages. DPD R-U-THERE messages are sent only when IPsec traffic is idle.

  DPD Timeout: Enter the value of detection timeout in seconds. If there are no responses and no traffic over the timeout, declare the peer dead.

STEP 6 Click **Save** to save your settings.

7

Quality of Service (QoS)

This chapter describes how to configure the quality of service (QoS) features. Refer to the following sections:

- **Configuring Bandwidth Management**
- **Configuring Flow Control Policies**
- **Configuring Session Limits**

Configuring Bandwidth Management

Use the Bandwidth Control page to specify the maximum bandwidth for upstream traffic allowed on each WAN interface, including the 3G WAN interfaces.

To set the upstream bandwidth:

STEP 1 Click **QoS** > **Bandwidth Control**. The Bandwidth Control page opens.

STEP 2 Check **Enable** to limit the upstream bandwidth on the WAN interface.

STEP 3 Click **Save** to save your settings.

STEP 4 Click **Edit** to modify the rate limit settings for that WAN interface.

STEP 5 In the **Rate Limit** field, enter the amount of maximum bandwidth in Kbps for upstream traffic allowed on the WAN interface. The values range from 64 to 100,000 Kbps.

STEP 6 In the **Interface Queue Settings** area, specify the amount of minimum and maximum upstream bandwidths for each interface queue.

- **Queue Name:** Name of the queue.
- **Strict Priority Queue:** Enter the amount of minimum bandwidth in Kbps for upstream traffic allowed on the strict priority queue.

- **Guaranteed Rate:** Enter the amount of minimum bandwidth in Kbps for upstream traffic allowed on other queues.
- **Maximum Rate:** Enter the amount of maximum bandwidth in Kbps for upstream traffic allowed on other queues.

STEP 7 Click **Save** to save your settings.

Configuring Flow Control Policies

Use the Flow Control Policies page to configure the flow control policies. A flow control policy is used to classify network traffic and prioritize traffic by using the specified CoS or DSCP remarking value. Up to 25 flow control policies can be configured on the RV315W.

To create a flow control policy:

STEP 1 Click **QoS** > **Flow Control Policies**. The Flow Control Policies page opens.

STEP 2 Click **Add** to create a new flow control policy. The Flow Control Policy Settings page opens.

STEP 3 Enter the following information:

- **Policy Name:** Enter a unique name for the flow control policy.
- **Policy Type:** Choose one of the following options for flow control:
  - **Destination Port:** Controls flow based on the specified destination port. If you choose this option, specify the values in the **Application Protocol**, **LAN Interface**, and **Destination Port** fields. You can choose a predefined application that specifies the destination port, or manually specify the application protocol and port range.
  - **MAC Address:** Controls flow based on the specified MAC address. If you choose this option, specify the values in the **MAC Address** and **LAN Interface** fields.
  - **Physical Port:** Controls flow based on the specified physical port. If you choose this option, specify the values in the **LAN Interface** and **Physical Port** fields.

- **VLAN:** Controls flow based on the specified VLAN. If you choose this option, choose a VLAN from the **VLAN** drop-down menu.
- **Source IP Address:** Controls flow based on the specified IP addresses of the source hosts. If you choose this option, enter the starting and ending IP addresses in the **Start Address** and **End Address** fields and choose a LAN interface from the **LAN Interface** drop-down menu.
- **Destination IP Address:** Controls flow based on the specified IP addresses of the destination hosts. If you choose this option, enter the starting and ending IP addresses in the **Start Address** and **End Address** fields and choose a LAN interface from the **LAN Interface** drop-down menu.

- **Application Queue:** Choose an interface queue to which this flow control policy applies.
- **Enable Tag:** Click **Enable** to prioritize network traffic, or click **Disable** to disable this feature.
- **Tag Value:** Choose one of the following options to prioritize network traffic:
  - **CoS:** Class of service (CoS) prioritizes network traffic by using the specified CoS remarking value. If you choose this option, enter the CoS remarking value in the field.
  - **DSCP:** Differentiated Services Code Point (DSCP) prioritizes network traffic by using the specified DSCP remarking value. If you choose this option, enter the DSCP remarking value in the field.

STEP 4 Click **Save** to save your settings.

Configuring Session Limits

Use the Session Limits page to limit the maximum number of connection sessions for the complete system, for a range of IP addresses, or for each physical port. When the connection table is full, the new sessions that access the RV315W are dropped.

To limit the maximum number of connection sessions:

STEP 1 Click **QoS** > **Session Limits**. The Session Limits page opens.

STEP 2 Click **Enable** to limit the number of connection sessions, or click **Disable** to disable this feature.

STEP 3 If you enable this feature, enter the following information:

- **IP-based Limit:** Limits the sessions based on IP address. If you choose this option, enter the maximum number of connection sessions allowed on each IP address and/or the range of IP addresses.
- **Port-based Limit:** Limits the sessions based on the physical ports. If you choose this option, enter the maximum number of connection sessions allowed on each physical port.
- **Maximum Sessions:** Enter the maximum number of connection sessions allowed on the complete system.

STEP 4 Click **Save** to save your settings.

8

Security

This chapter describes how to configure the firewall, content filtering, access control, and other security features. Refer to the following sections:

- **Configuring the Firewall**
- **Configuring DoS Protection**
- **Configuring Content Filtering**
- **Configuring Access Control**
- **Configuring MAC Address Filtering**
- **Preventing ARP Attacks**
- **Configuring ALG**

Configuring the Firewall

To configure basic firewall settings:

STEP 1 Click **Security** > **Firewall**. The Firewall page opens.

STEP 2 In the **Firewall** area, click **Enable** to enable the firewall feature (recommended), or click **Disable** to disable this feature.

STEP 3 In the **Block Proxy** area, check to block proxy servers.

A proxy server (or proxy) allows computers to route the connections to other computers through the proxy, thus circumventing certain firewall rules.

For example, if the 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.

STEP 4 In the **Block Java** area, check to block Java applets.

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.

STEP 5 In the **Block ActiveX** area, check to block ActiveX content.

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.

STEP 6 In the **Block Cookies** area, check to 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.

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 7 In the **Filter Port** field, enter the port number that is used for filtering HTTP traffic. The firewall only monitors and controls the website visits through this HTTP port..

STEP 8 Click **Save** to save your settings.

Configuring DoS Protection

Use the DoS Protection page to specify how to protect your network against common types of Deny of Service (DoS) attacks.

To configure DoS protection:

STEP 1 Click **Security** > **DoS Protection**. The DoS Protection page opens.

STEP 2 In the **DoS Protection** area, click **Enable** to enable the DoS protection on your RV315W, or click **Disable** to disable this feature.

STEP 3 The RV315W can prevent three types of DoS attacks: SYN Flood, UDP Flood, and ICMP Flood. If you enable DoS protection, check **Enable** to enable the protection for that DoS attack, or click **Disable** to disable it.

STEP 4 Specify the threshold of DoS attacks to trigger the protection. The default is 1000 attacks per second.

STEP 5 Click **Save** to save your settings.

Configuring Content Filtering

Content filtering blocks or allows HTTP access to websites containing specific keywords or domains. It controls access to certain Internet sites based on analysis of its content (domain), rather than its source or other criteria. It is most widely used on the Internet to filter web access.

Use the Content Filtering page to define the type of content filtering, configure the content filtering rules, export the content filtering rules to your local PC, and import the content filtering rules from a file.

To configure the content filtering settings:

STEP 1 Click **Security** > **Content Filtering**. The Content Filtering page opens.

STEP 2 Specify the type of filtering:

- **Blacklist:** Select this option to block HTTP access to websites in the blacklist and allow HTTP access for other websites.
- **Whitelist:** Select this option to allow HTTP access to websites in the whitelist and block HTTP access for other websites.

STEP 3 To add a content filtering rule, enter the following information:

- **URL/Keyword:** Enter the domain name or a keyword of a website that you want to permit or block. If you enter a keyword, HTTP access to a website that contains this keyword can be blocked or allowed.
- **File Type:** Choose the type of files that you want to permit or block.

STEP 4 Click **Add**.

STEP 5 To delete a content filtering rule, select it and click **Delete**.

STEP 6 To export the content filtering rules to your local PC, select the content filtering rules that you want to export and click **Export**.

STEP 7 In the **Import Content Filtering Rules** area, you can import a mass of content filtering rules from your local PC. Click **Browse** to locate and select the file, and then click **Import**.

Configuring Access Control

Access Control permits or blocks access to a specific destination on schedule. Use the Access Control page to enable or disable the Access Control feature on the RV315W and configure the access control policies.

To configure the access control settings:

STEP 1 Click **Security** > **Access Control**. The Access Control page opens.

STEP 2 In the **Control Type** area, choose one of the following access control options:

- **Blacklist:** Permits all traffic from LAN to WAN and only blocks traffic that matches the access control policies.
- **Whitelist:** Blocks all traffic from LAN to WAN and only permits traffic that matches the access control policies.

STEP 3 In the **Access Control Policies** area, click **Add** to create a new access control policy. The Access Control Policy Settings page opens.

STEP 4 Enter the following information:

- **Time Range:** Enter the starting time and ending time to keep the access control policy active at specific times.
- **Week:** Check the days to keep the access control policy active at specific days.
- **Protocol:** Choose the protocol to which the access control policy applies, or choose All Traffic.
- **Physical Port:** Choose a physical port to which the access control policy applies, or choose **Any**.
- **Source IP Address:** Choose one of the following options to specify the traffic source:
  - **Any:** Controls traffic from any source IP address.

  - **Single IP Address:** Controls traffic from a specific source IP address.
  - **IP Address Range:** Controls traffic from a specific range of source IP addresses.
- **Destination IP Address:** Choose one of the following options as the traffic destination:
  - **Any:** Controls traffic to any destination IP address.
  - **Single IP Address:** Controls traffic to a specific destination IP address.
  - **IP Address Range:** Controls traffic to a specific range of destination IP addresses.
- **Action:** Click **Enable** to enable this policy, or click **Disable** to disable this policy.

STEP 5 Click **Save** to save your settings.

Configuring MAC Address Filtering

MAC address filtering permits and blocks network access from specific devices through the use of MAC address list.

To configure MAC address filtering:

STEP 1 Click **Security** > **MAC Address Filtering**. The MAC Address Filtering page opens.

STEP 2 In the **Filter Policy** area, choose one of the following filtering policies:

- **Deny Network Access:** The MAC addresses in the list are denied and all other MAC addresses not included in the list are permitted.
- **Permit Network Access:** Only the MAC addresses in the list are permitted and all other MAC addresses not included in the list are denied.

STEP 3 In the **MAC Address Filtering Policies** area, specify the list of MAC addresses. Click **Add** to add a MAC address**.** The MAC Address Filtering Policy page opens.

NOTE Up to 20 MAC addresses can be configured on the RV315W.

STEP 4 Enter the following information:

- **MAC Address:** Enter the MAC address that you want to filter.

- **Time Range:** Enter the starting time and ending time to keep the MAC address filtering rule active at specific times.
- **Week:** Check the days to keep the MAC address filtering rule active at specific days.

STEP 5 Click **Save** to save your settings.

Preventing ARP Attacks

Use the ARP Attack Protection page to specify how to protect your network against common types of ARP attacks and configure the IP&MAC binding rules.

IP&MAC Binding allows you to bind an IP address to a MAC address and vice versa. It only allows traffic when the host IP address matches a specified MAC address. By requiring the gateway to validate the source traffic's IP address with the unique MAC address of device, this ensures that traffic from the specified IP address is not spoofed.

To prevent ARP attacks and configure the IP&MAC binding settings:

STEP 1 Click **Security** > **ARP Attack Protection**. The ARP Attack Protection page opens.

STEP 2 Enter the following information:

- **ARP Attack Protection:** Click **Enable** to enable ARP Attack Protection, or click **Disable** to disable this feature.
- **Enable Auto Learning:** Click **Enable** to enable Auto Learning, or click **Disable** to disable this feature. Enabling this feature allows the system to determine whether the IP address and MAC address of the user are valid or not.
- **ARP Flooding Threshold:** Enter the threshold value of ARP Flooding attacks. This value determines the amount of ARP packets that the system allows to receive per second. The greater value, the more ARP packets can be allowed to receive.
- **ARP Broadcast Interval:** Enter the interval for ARP broadcasting. The value of zero indicates that this feature is disabled.

STEP 3 Click **Save** to save your settings.

STEP 4 If you enable Auto Learning, you can manually configure the IP&MAC binding rules in the **IP&MAC Binding** area. Click **Add** to create a new IP&MAC binding rule. The Add IP&MAC Binding Rule page opens.

STEP 5 Enter the following information:

- **IP Address:** Enter the IP address that you want to bind with a MAC address.
- **MAC Address:** Enter the MAC address.

STEP 6 Click **Save** to save your settings.

Configuring ALG

The RV315W can function as an Application Level Gateway (ALG) to allow certain NAT incompatible applications to operate properly through the RV315W.

To configure ALG:

STEP 1 Click **Security** > **Application Level Gateway**. The Application Level Gateway page opens.

STEP 2 Enable or disable the ALG support for these protocols: GRE, SIP, H.323, IPsec, L2TP, RTSP, and IPsec NAT-T.

STEP 3 Click **Save** to save your settings.

9

System Management

This chapter describes the administration features of the RV315W, including user management, remote management, system diagnostics and logs, system time settings, and other settings. Refer to the following sections:

- **Rebooting the RV315W**
- **Configuring Password Complexity**
- **Configuring User Accounts**
- **Restoring Factory Default Settings**
- **Managing System Configuration**
- **Upgrading the Firmware**
- **Using Diagnostic Utilities**
- **Configuring System Time**
- **Configuring TR-069 Settings**
- **Configuring SNMP**
- **Configuring Remote Management**
- **Log Management**

Rebooting the RV315W

To reboot the RV315W, you can press and release the **RESET** button on the back panel for less than 5 seconds, or perform the **Reboot** operation from web-based Configuration Utility.

To reboot the RV315W through web-based Configuration Utility:

STEP 1 Click **System Management** > **Reboot**. The Reboot page opens.

STEP 2 Click **Reboot**.

STEP 3 Click **OK** to reboot the unit. Rebooting the unit will close all current sessions and the system will be down for several seconds.

Configuring Password Complexity

The RV315W can enforce the minimum password complexity requirements for password changes. Use the Password Complexity page to define the password complexity settings on the RV315W.

To define the minimum password complexity settings:

STEP 1 Click **System Management** > **Password Complexity**. The Password Complexity page opens.

STEP 2 In the **Password Complexity Settings** area, click **Enable** to enable the password strength enforcement on the RV315W, or click **Disable** to disable this feature.

STEP 3 If you enable this feature, specify the following password complexity settings:

- **Minimum password length:** Enter the minimum password length (0 to 64 characters). The default is 8 characters.
- **Minimum number of character classes:** Enter a number representing one of the following character classes:
  - Uppercase letters
  - Lowercase letters
  - Numbers

- Special characters available on a standard keyboard

By default, passwords must contain characters from at least three of these classes.

- **The new password must be different than the current one:** Click **Enable** to require that new passwords differ from the current password.
- **Password Aging:** Click **Enable** to expire passwords after a specified time, or click **Disable** to always keep the passwords active.
- **Password Aging Time:** Enter the number of days after which the password expires (1 to 365). The default is 180 days.

STEP 4 Click **Save** to save your settings.

Configuring User Accounts

Use the User Management page to manage the user accounts. You can view information of the users on the RV315W, change user's password, and add or delete normal users.

Viewing User Information

The RV315W predefines an administrative account (cisco) and a guest user (guest). The usernames of the system administrator (cisco) and the guest user (guest) cannot be modified, but their passwords can be changed. For security purposes, we recommend that you change the default administrator password at your first login.

To view user information, click **System Management** > **User Management**. The User Management page opens.

All existing users are listed in the **Local User List**. The following information is displayed:

- **Username:** Displays the name of the user account.
  - **cisco:** Default system administrator. Its default password is **cisco**.
  - **guest:** Default guest user. Its default password is **guest**.

- **Privilege:** Displays the privilege of the user account, such as Administrator and Normal User. The administrator has full privilege to set the configuration and read the system status. The normal users can only read the system status after they login. They cannot edit any configuration.

Creating a New User

To create a normal user, you must log in to web-based Configuration Utility by using the system administrator account. Up to 5 user accounts can be configured on the RV315W, including the default system administrator and guest accounts.

To create a new user:

STEP 1 Click **System Management** > **User Management**. The User Management page opens.

STEP 2 In the **Add Local User** area, enter the following information:

- **Username:** Enter the username for the user.
- **Password:** Enter the password for the user. Passwords are case sensitive. By default, passwords should not contain dictionary words from any language or be the default password. They should contain a mixture of uppercase and lowercase letters, numbers, and symbols. Passwords must be at least 8 characters in length.
- **Password Confirm:** Enter the password again for confirmation.

STEP 3 Click **Add**. The new user is added in the Local User List.

Changing User Password

For security purposes, we recommend that you change the default administrator password at the first login.

To change the password of a user:

STEP 1 Click **System Management** > **User Management**. The User Management page opens.

STEP 2 In the **Local User List** area, check the corresponding user and click **Change Password**.

STEP 3 Enter the following information:

- **Old Password:** Enter the current administrator password.
- **New Password:** Enter a new administrator password. Passwords are case sensitive.
- **Password Confirm:** Enter the password again for confirmation.

STEP 4 Click **Save** to save your settings.

Deleting a Local User

The system administrator can remove a new added user from the local user database.

To delete a user:

STEP 1 Click **System Management** > **User Management**. The User Management page opens.

STEP 2 In the **Local User List** area, check the corresponding user and click **Delete**.

STEP 3 Click **OK** to delete it from the local user database.

Restoring Factory Default Settings

To restore the RV315W to the factory default settings, you can press and hold the **RESET** button on the back panel for more than 5 seconds, or perform the **Reset to Factory Defaults** operation from web-based Configuration Utility.

CAUTION During restoring to factory defaults, do NOT turn off the device, shut down the PC, remove the cable, or interrupt the process in any way until the operation is complete. This process should take several minutes including the reboot process.

CAUTION The Reset To Factory Defaults operation will wipe out the current settings used on the RV315W. We recommend that you back up your current settings before restoring the RV315W to the factory default settings.

To restore the RV315W to the factory default settings through the utility:

STEP 1 Click **System Management** > **Reset To Factory Defaults**. The Reset To Factory Defaults page opens.

STEP 2 Click **Reset to Factory Defaults**.

STEP 3 Click **OK**. This operation reboots the unit and restores the RV315W to the factory default settings. The settings that you have previously made to the RV315W are lost.

Managing System Configuration

This section describes how to work with the configuration. You can perform the following tasks to maintain system configuration:

- Back up the settings currently used on your RV315W.
- Restore your settings from a saved configuration file.
- Upload the configuration to an upper-level Network Management System (NMS).

To manage system configuration:

STEP 1 Click **System Management** > **Configuration Management**. The Configuration Management page opens.

STEP 2 To back up the settings currently used on your RV315W, click **Backup Configuration**. Select where to locate the configuration file, and then click **Save**.

STEP 3 To restore your setting from a saved configuration file, click **Browse** to locate and select a saved configuration file, and then click **Import**. The system will reboot with the loaded configuration file.

STEP 4 To upload the configuration to an upper-level Network Management System (NMS), you must first configure the TR-069 settings on your RV315W (see **Configuring TR-069 Settings**), and then click **Upload Configuration**.

The RV315W first sends a message to the upper-level NMS. The upper-level NMS automatically gets the configuration file of the RV315W after the NMS receives the requesting message.

Upgrading the Firmware

Use the Firmware Upgrade page to view information of the primary and secondary firmware images used on the RV315W, download the latest firmware image from a specific website, and upgrade your firmware to a newer version.

CAUTION During a firmware upgrade, do NOT turn off the device, shut down the PC, remove the cable, or interrupt the process in any way until the operation is complete. This process should take several minutes including the reboot process. Interrupting the upgrade process at specific points when the flash is being written to can corrupt the flash memory and render the RV315W unusable.

To upgrade the RV315W to a newer firmware:

STEP 1 Click **System Management** > **Firmware Upgrade**. The Firmware Upgrade page opens.

The following information is displayed:

- **Device Model:** Displays the device model.
- **PID VID:** Displays the product ID and version ID.
- **Primary Firmware Version:** Displays the firmware version (primary firmware) that the RV315W is currently using.
- **Secondary Firmware Version:** Displays the firmware version (secondary firmware) that is used as a backup.

When you upgrade the firmware to a newer version, the system first overwrites the secondary firmware with the new version in the flash, and then reboots with the new firmware. The new firmware becomes the primary firmware and the previous primary firmware becomes the secondary firmware.

STEP 2 In the **Download the latest firmware** area, click **Download** to download the latest version of the firmware from the specified website to your local PC. Make sure that you have an active WAN connection.

STEP 3 In the **Locate & select the upgrade file** area, click **Browse** to locate and select the downloaded firmware image from your local PC.

STEP 4 Click **Upgrade**.

After the new firmware image is validated, the new image is written to flash and the RV315W is automatically rebooted with the new firmware.

Using Diagnostic Utilities

Use the following diagnostic utilities to access configuration of the RV315W and to monitor the overall network health:

Ping

Use the Ping page to test the connectivity between the RV315W and a connected device on the network.

STEP 1 Click **System Management** > **Diagnostic Utilities** > **Ping**. The Ping page opens.

STEP 2 In the **Destination IP Address or Hostname** area, enter the IP address or domain name to ping.

STEP 3 Click **Start** to ping the IP address or the domain name.

Traceroute

Use the Traceroute page to view the route between the RV315W and a destination.

STEP 1 Click **System Management** > **Diagnostic Utilities** > **Traceroute**. The Traceroute page opens.

STEP 2 Enter the IP address or URL of the destination.

STEP 3 Click **Start** to trace the route of the IP address or URL, or click **Stop** to stop tracing.

HTTP Get

Use the HTTP Get page to query the URL information of a website.

STEP 1 Click **System Management** > **Diagnostic Utilities** > **HTTP Get**. The HTTP Get page opens.

STEP 2 Enter the IP address or URL of the website.

STEP 3 Click **Start**.

DNS Query

Use the DNS Query page to retrieve the IP address of any server on the Internet.

STEP 1 Click **System Management** > **Diagnostic Utilities** > **DNS Query**. The DNS Query page opens.

STEP 2 In the **Domain Name** field, enter the IP address or domain name that you want to look up.

STEP 3 Click **Run** to query the server on the Internet. If the host or domain name exists, you will see a response with the IP address.

Configuring System Time

Use the Time Settings page to manually configure the system time, or to dynamically synchronize the system time with a Network Time Protocol (NTP) server.

To configure the system time:

STEP 1 Click **System Management** > **Time Settings**. The Time Settings page opens.

The **Current System Time** field displays the current date and time.

STEP 2 In the **Set System Time** area, select the **Manually** radio button to manually set the date and time. Enter the values in the **Date** and **Time** fields.

STEP 3 In the **Set System Time** area, select the **Dynamically** radio button to automatically synchronize the date and time with the specified NTP servers, and then enter the following information:

- **NTP Server 1:** Enter the IP address or domain name of the primary NTP server.
- **NTP Server 2:** Enter the IP address or domain name of the secondary NTP server.

STEP 4 Click **Save** to save your settings.

Configuring TR-069 Settings

TR-069 is a DSL Forum specification for CPE WAN Management Protocol (CWMP). It defines an application layer protocol for remote management of end-user devices. As a bidirectional SOAP/HTTP-based protocol, it provides the communication between customer-premises equipment (CPE) and Auto Configuration Servers (ACS).

To configure general TR-069 settings:

STEP 1 Click **System Management** > **TR-069 Settings**. The TR-069 Settings page opens.

STEP 2 In the **TR-069 Settings** area, click **Enable** to enable the TR-069 server, or click **Disable** to disable it.

STEP 3 In the **ACS** area, specify the settings of the ACS remote management server:

- **URL:** Enter the URL of the ACS remote management server.
- **Username:** Enter the username to log in to the ACS remote management server.
- **Password:** Enter the password to log in to the ACS remote management server.

STEP 4 In the **CPE** area, specify the CPE settings for TR-069 remote management:

- **Username:** Enter the username of the remote management server in order to send the connection requests to CPE.
- **Password:** Enter the password of the remote management server in order to send the connection requests to CPE.
- **Send Inform Packets:** (Optional) Click **Enable** to enable the Send Inform Packets feature, or click **Disable** to disable this feature.
- **Send Interval:** Enter the interval in seconds to send the inform packets. The default is 43200 seconds.
- **Request Connection Port:** Enter the port number used to request the connection to TR-069.
- **Download Request:** (Optional) Specify the type of download request and then click **Send** to send the corresponding download request to the TR-069 server.
  - **Firmware:** Request to download the firmware of the RV315W from the TR-069 server.
  - **Vendor Configuration:** Request to download the configuration file from the TR-069 server.
- **Upload Request:** (Optional) Specify the type of upload request, and then click **Send** to send the corresponding request to the TR-069 server.
  - **Configuration File:** Request to upload the current configuration file of the RV315W to the TR-069 server.
  - **Vendor Configuration:** Request to upload the configuration file with the factory default settings of the RV315W to the TR-069 server.
- **Change Account Request:** Click **Send** to send the request of changing the administrative password of the RV315W to the TR-069 server.

STEP 5 Click **Save** to save your settings.

Configuring SNMP

Simple Network Management Protocol (SNMP) is a network protocol used over User Datagram Protocol (UDP) that lets you monitor and manage the RV315W from a SNMP manager. SNMP provides a remote means to monitor and control the network devices, and to manage the configuration, statistics collection, performance, and security.

To configure SNMP:

STEP 1 Click **System Management** > **SNMP**. The SNMP page opens.

STEP 2 Enter the following information:

- **SNMP:** Click **Enable** to enable SNMP, or click **Disable** to disable SNMP. By default, SNMP is disabled.
- **SNMP Version:** If you enable SNMP, specify the SNMP version. The RV315W provides support for network monitoring using SNMP Versions 1, 2c, and 3. By default, SNMP v1&2 is selected.
- **System Contact:** Enter the name of the contact person for your RV315W.
- **System Name:** Enter the device name for easy identification of your RV315W.
- **System Location:** Enter the physical location of your RV315W.
- **Security Username:** Enter the name of the administrator account with the ability to access and manage the SNMP MIB objects. This is only available for SNMPv3.
- **Authentication Password:** Enter the password of the administrator account for authentication (the minimum length of password is 8 characters). This is only available for SNMPv3.
- **Authentication Method:** Select either None or CBC-DES as the authentication method.
- **Encrypted Password:** Enter the password for data encryption (the minimum length of password is 8 characters). This is only available for SNMPv3.

- **Encryption Method:** (Optional) Select either None or CBC-DES as the encryption method.
- **SNMP Read-Only Community:** Enter the read-only community used to access the SNMP entity.
- **SNMP Read-Write Community:** Enter the read-write community used to access the SNMP entity.
- **Trap Community:** Enter the community that the remote trap receiver host receives the traps or notifications sent by the SNMP entity.
- **SNMP Trusted Host:** Enter the IP address or domain name of the host trusted by the SNMP entity. The trusted host can access the SNMP entity. Entering 0.0.0.0 in this field allows any host to access the SNMP entity.
- **Trap Receiver Host:** Enter the IP address or domain name of the remote host that is used to receive the SNMP traps.

STEP 3 Click **Save** to save your settings.

Configuring Remote Management

You can access web-based Configuration Utility from the LAN side by using the RV315W LAN IP address and HTTP, or from the WAN side by using the RV315W WAN IP address and HTTPS (HTTP over SSL) or HTTP. You can also remotely access the RV315W through SSH for system troubleshooting.

Configuring Remote Access Protocols and Ports

The RV315W allows remote management securely by using HTTPS or HTTP, for example, https://xxx.xxx.xxx.xxx:443.

To configure the protocol and port number for remote management:

STEP 1 Click **System Management** > **Remote Management** > **Remote Access Protocols and Ports**. The Remote Access Protocols and Ports page opens.

STEP 2 Enter the following information:

- **HTTP:** Click **Enable** to enable remote management by using HTTP, or click **disable** to disable it.

- **HTTP Listen Port Number:** If you enable remote management by using HTTP, enter the port number. By default, the listen port number for HTTP is 80.
- **HTTPS:** Click **Enable** to enable remote management by using HTTPS, or click **disable** to disable it. We recommend that you use HTTPS for secure remote management.
- **HTTPS Listen Port Number:** If you enable remote management by using HTTPS, enter the port number. By default, the listen port number for HTTP is 443.

STEP 3 Click **Save** to save your settings.

Configuring Trusted Remote Hosts

Use the Trusted Remote Hosts page to specify the hosts that are allowed to access the RV315W remotely. Only the trusted hosts can access the RV315W remotely by using HTTP or HTTPS from the WAN side.

To specify the trusted hosts:

STEP 1 Click **System Management** > **Remote Management** > **Trusted Remote Hosts**. The Trusted Remote Hosts page opens.

STEP 2 Select the **Any IP Address** radio button to allow all hosts from the WAN side to access the RV315W remotely.

STEP 3 Or select the **Specific IP Address** radio button to allow a specific host to access the RV315W remotely. Enter the IP address of the trusted host and click **Save**. This host is added in the list of **Trusted Remote Host List**.

STEP 4 To delete a trusted remote host, select the entry from the list of **Trusted Remote Host List** and then click **Delete**.

Configuring SSH

Use the SSH page to configure the SSH service on your RV315W so that you can remotely access the RV315W through SSH for system troubleshooting.

To configure SSH:

STEP 1 Click **System Management** > **Remote Management** > **SSH**. The SSH page opens.

STEP 2 Check the **Enable Remote Support** box to enable remote access through SSH for debugging purposes.

STEP 3 If you enable SSH, enter the following information:

- **Access Port:** Enter the port number that the SSH client can connect to the RV315W.
- **Remote Support Password:** Enter the password to access the RV315W from SSH shell. This password will be expired in one hour. You need to set a new password again on this page if it expires.
- **Show Password:** Check to show the password in plaintext.

STEP 4 Click **Save** to save your settings.

STEP 5 Click **Collect Device Status Information** to collect system configuration and other useful routing information of the RV315W for debugging purposes. The device status information will be compressed in a zip package. You can download the zip file to your local PC.

Log Management

You can log the system events and firewall events on your RV315W to track potential security threats. These logs can be saved to the local syslog daemon, a USB storage device, a specified remote syslog server, or be emailed to a specified email address.

Configuring Log Settings

Use the Log Settings page to configure general log settings. You can set the local log buffer size and specify the file name and log size to be saved on a USB storage device. If you have a remote syslog server support, you can save logs to the remote syslog server. You can also specify the logs to be mailed to a specified email address on schedule.

To configure general log settings:

STEP 1 Click **System Management** > **Logs** > **Log Settings**.

STEP 2 In the **Local Buffer Size** field, specify the size for the local log buffer. The default is 200 Kilobytes.

STEP 3 To save logs to a USB storage device, specify the following information in the **USB** area:

- **File Name:** Enter the name for the syslog file saved on the USB storage device.
- **Log Size:** Enter the maximum size for the syslog file saved on the USB storage device.

  NOTE You must first insert a USB storage device in the USB port on the back panel of the RV315W, otherwise a message saying “USB device not connected or detected” will be displayed in this area.

STEP 4 To save logs to a remote syslog server, specify the following information in the **Syslog Server** area:

- **IP Address:** Enter the IP address of the remote syslog server.
- **Port:** Enter the port number of the remote syslog server.

STEP 5 To send logs to a specified email address on schedule, enter the following information in the **Email Notification** area:

- **Sender:** Enter the email address used to send the logs.

- **Receiver:** Enter the email address used to receive the logs.
- **SMTP Server:** Enter the IP address or Internet name of the SMTP server.
- **SMTP Port:** Enter the port number of the SMTP server.
- **Mail Subject:** Enter the subject name of the email. For example, if you set the device name as the subject name, the email recipient can quickly recognize which device the logs are coming from.
- **Number of Logs:** Enter the maximum number of logs that can be sent in an email.
- **Interval:** Enter the period of time that you want to send the logs.
- **Username:** Enter the username to log in to the SMTP server.
- **Password:** Enter the password to log in to the SMTP server.

STEP 6 Click **Save** to save your settings.

Configuring Log Facilities

Use the Log Facilities page to specify which system messages are logged based on the facility and determine where to save logs and whether to send logs to a specified email address on schedule.

NOTE Before you configure the log facilities, make sure that you set the log settings on the Log Settings page. See **Configuring Log Settings** for more information.

To configure the log facilities:

STEP 1 Click **System Management** > **Logs** > **Log Facilities**. The Log Facilities page opens.

STEP 2 In the **Status** area, click **Enable** to enable logging on the RV315W, or click **Disable** to disable this feature.

STEP 3 If you enable logging on the RV315W, specify the following information:

- **Facility:** Check the **Enable** box for a facility to log its events.
- **Severity:** Choose the severity level of the events that you want to log. The event severity levels are listed from the highest severity to the lowest severity, as follows:

- **Emergency (Highest severity):** System is not usable.
- **Alert:** Action is needed.
- **Critical:** System is in a critical condition.
- **Error:** System is in error condition.
- **Warning:** System warning occurred.
- **Notification:** System is functioning properly, but a system notice occurred.
- **Information:** Device information.
- **Debugging (Lowest severity):** Provides detailed information about an event. Choosing this severity uses large amounts of logs to be generated and is not recommended during normal router operation.

For example: If you choose Critical, the events listed under the Critical, Emergency, and Alert categories are logged.

- **Local:** Check to save logs to the local syslog daemon.
- **USB:** Check to save logs to a USB storage device. You must first insert a USB storage device in the USB port on the back panel of the RV315W.
- **Email Notification:** Check to send logs to the specified email address on schedule. You must first configure the email notification settings on the Log Settings page. See **Configuring Log Settings** for more information.
- **Syslog Server:** Check to save logs to the specified remote server that runs a syslog daemon. You must first configure the syslog server settings on the Log Settings page. See **Configuring Log Settings** for more information.

STEP 4 Click **Save** to save your settings.

Viewing Logs

Use the View Logs page to view information for all logs or for the logs that match the specified filtering rules.

To view logs:

STEP 1 Click **System Management** > **Logs** > **View Logs**.

STEP 2 Specify the type of logs to be viewed:

- **Facility:** Choose the facility to filter the logs. All logs that belong to the selected facility are displayed.
- **Filter by Keyword:** Enter the keyword (such as WAN, VPN, Firewall, and TR-069) to filter the logs. For example, if you want to only view the VPN logs, enter the VPN keyword in the field and click **Filter**.

STEP 3 Click **Download All Logs** to download all logs saved in the local syslog daemon for debugging purposes.

STEP 4 Click **Clear Logs** to clean up all logs saved in the local syslog daemon.

Configuring Firewall Logs

Use the Firewall Logs page to log firewall events. You can specify the severity level of firewall events to be logged.

To configure firewall logging settings:

STEP 1 Click **System Management** > **Logs** > **Firewall Logs**.

STEP 2 In the **Firewall Logs** area, click **Enable** to log firewall events, or click **Disable** to disable this feature.

STEP 3 If you enable logging firewall events, specify the following information:

- **Log Severity:** Choose the severity level of firewall events to be logged.
- **Log Category:** Check the types of firewall events to be logged and specify the number of events to be recorded per log.

STEP 4 Click **Save** to save your settings.

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Where to Go From Here

Cisco provides a wide range of resources to help you and your customer obtain the full benefits of the Cisco RV315W Broadband Wireless VPN Router.

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/go/sbsc
Cisco Small Business Firmware Downloads	www.cisco.com/go/smallbizfirmware Select a link to download firmware for Cisco Small Business Products. No login is required.
Cisco RV315W Technical Documentation	www.cisco.com/go/rv315w
Cisco Partner Central for Small Business (Partner Login Required)	www.cisco.com/web/partners/sell/smb
Cisco Small Business Home	www.cisco.com/smb