ADMINISTRATION GUIDE

Cisco Small Business

ISA500 Series Integrated Security Appliance

Federal Communication Commission Interference Statement

(For ISA570 and ISA570W)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

(For ISA550 and ISA550W)

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 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.

IMPORTANT NOTE:

FCC Radiation Exposure Statement: (For ISA550W and ISA570W)

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

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

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

Industry Canada statement:

This device complies with RSS-210 of the Industry Canada 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.

Ce dispositif est conforme à la norme CNR-210 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

IMPORTANT NOTE:

Canada Radiation Exposure Statement: (For ISA550W and ISA570W)

This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

NOTE IMPORTANTE: (Pour l'utilisation de dispositifs mobiles)

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

This device has been designed to operate with an antenna having a maximum gain of **1.8** dBi. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

(Le manuel d'utilisation de dispositifs émetteurs équipés d'antennes amovibles doit contenir les informations suivantes dans un endroit bien en vue:)
Ce dispositif a été conçu pour fonctionner avec une antenne ayant un gain maximal de 1.8 dBi. Une antenne à gain plus élevé est strictement interdite par les règlements d'Industrie Canada. L'impédance d'antenne requise est de 50 ohms.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peutfonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pourl'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectriqueà l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que lapuissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire àl'établissement d'une communication satisfaisante.

UL/CB

Rack Mount Instructions - The following or similar rack-mount instructions are included with the installation instructions:

A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) 40 degree C specified by the manufacturer.

B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Contents

1

Getting Started

This chapter provides the product overview and installation instruction to help you to install the security appliance, and describes the default settings and some basic configuration tasks to help you to begin configuring your security appliance. It includes the following sections:

Introduction

The Cisco ISA500 Series Integrated Security Appliances are a set of Unified Threat Management (UTM) security appliances that provide business class security gateway solutions with zone-based firewall, site-to-site and remote access VPN (including Cisco IPSec VPN and SSL VPN) support, and Internet threat protection with multiple UTM security services. The ISA550W and ISA570W include 802.11b/g/n access point capabilities.

The following table lists the available model numbers to help you become familiar with your security appliance.

Models	Description	Configuration
ISA550	Cisco ISA550 Integrated Security Appliance	1 WAN port, 2 LAN ports, 4 configurable ports, and 1 USB 2.0 port
ISA550W	Cisco ISA550 Integrated Security Appliance with WiFi	1 WAN port, 2 LAN ports, 4 configurable ports, 1 USB 2.0 port, and 802.11b/g/n
ISA570	Cisco ISA570 Integrated Security Appliance	1 WAN port, 4 LAN ports, 5 configurable ports, and 1 USB 2.0 port
ISA570W	Cisco ISA570 Integrated Security Appliance with WiFi	1 WAN port, 4 LAN ports, 5 configurable ports, 1 USB 2.0 port, and 802.11b/g/n

Feature Overview

The features of the Cisco ISA500 Series Integrated Security Appliance are compared in the following table.

Feature	ISA550	ISA550W	ISA570	ISA570W
Firewall Throughput (1000B)	150 Mbps	150 Mbps	300 Mbps	300 Mbps
Firewall Throughput (IMIX)	70 Mbps	70 Mbps	150 Mbps	150 Mbps
IPSec VPN (large packet)	75 Mbps	75 Mbps	150 Mbps	150 Mbps
Anti-Virus Throughput	60 Mbps	60 Mbps	130 Mbps	130 Mbps
Intrusion Prevention Service Throughput	80 Mbps	80 Mbps	150 Mbps	150 Mbps
UTM Throughput	45 Mbps	45 Mbps	120 Mbps	120 Mbps

Feature	ISA550	ISA550W	ISA570	ISA570W
Maximum Concurrent Sessions	15,000	15,000	40,000	40,000
Sessions per Seconds (cps)	2,500	2,500	3,000	3,000
Wireless (802.11b/g/n)	No	Yes	No	Yes
IPSec Tunnels	50	50	100	100
SSL VPN Tunnels	25	25	50	50

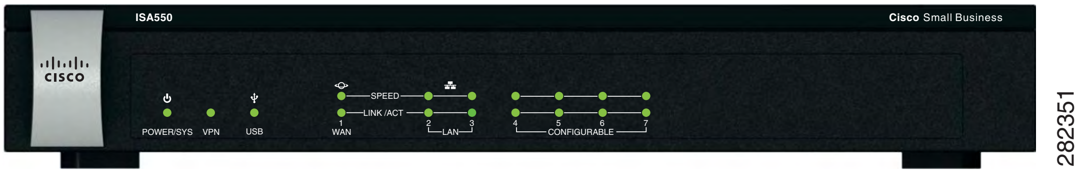
Device Overview

Before you begin to use the security appliance, become familiar with the lights on the front panel and the ports on the rear panel. It includes the following sections:

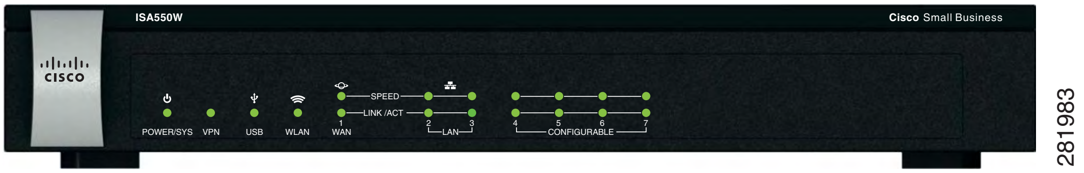
- Front Panel, page 14
- Back Panel, page 17

Front Panel

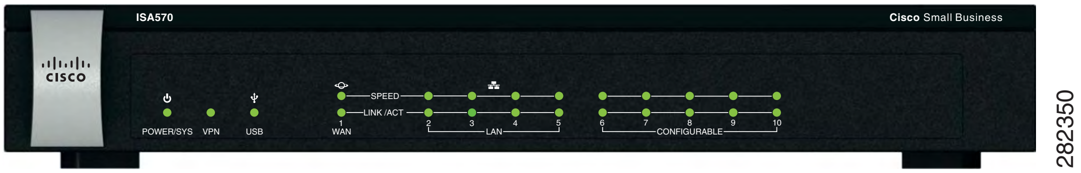
ISA550 Front Panel



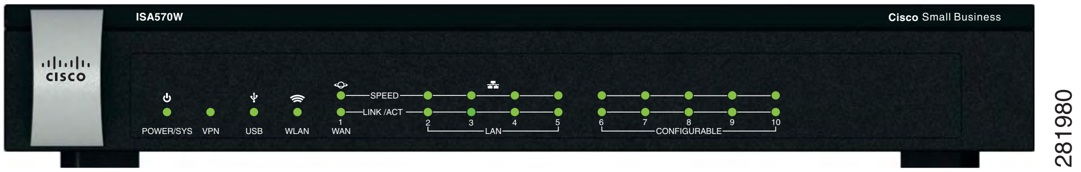
ISA550W Front Panel



ISA570 Front Panel



ISA570W Front Panel



Front Panel Lights

The following table describes the lights on the front panel of the security appliance. These lights are used for monitoring system activity.

Lights	Description
POWER/SYS	Indicates the power status and system status. ▪ Green lights when the system is powered on and operates normally. ▪ Green flashes when the system is booting. ▪ Amber flashes when the system booting has a problem, a device error occurs, or the system has a problem.
VPN	Indicates the Site-to-Site VPN connection status. ▪ Green lights when the Site-to-Site VPN tunnel is established. ▪ Green flashes when attempting to establish the Site-to-Site VPN tunnel. ▪ Amber flashes when the system is experiencing problems setting up the Site-to-Site VPN connection.

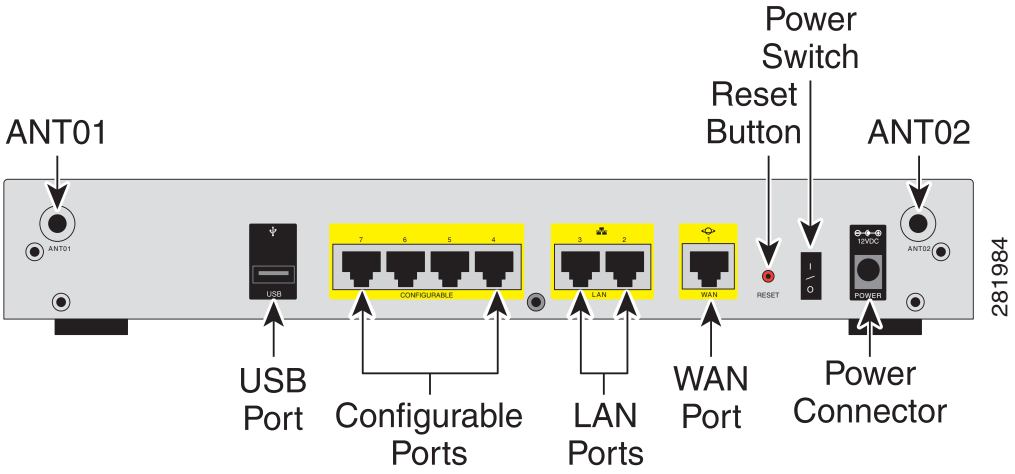
Lights	Description
USB	Indicates the USB device status. - Green lights when a USB device is detected and operates normally. - Green flashes when the USB device is transmitting and receiving data.
WLAN **(ISA550W and ISA570W only)**	Indicates the WLAN status. - Green lights when the WLAN is enabled and associated. - Green flashes when the WLAN is transmitting and receiving data.
SPEED	Indicates the traffic rate of the associated port. - Off when the traffic rate is 10 or 100 Mbps. - Green lights when the traffic rate is 1000 Mbps.
LINK/ACT	Indicates a connection is being made through the port. - Green lights when the link is up. - Green flashes when the port is transmitting and receiving data.

NOTE The front panel of the ISA550 and ISA570 does not include the WLAN light.

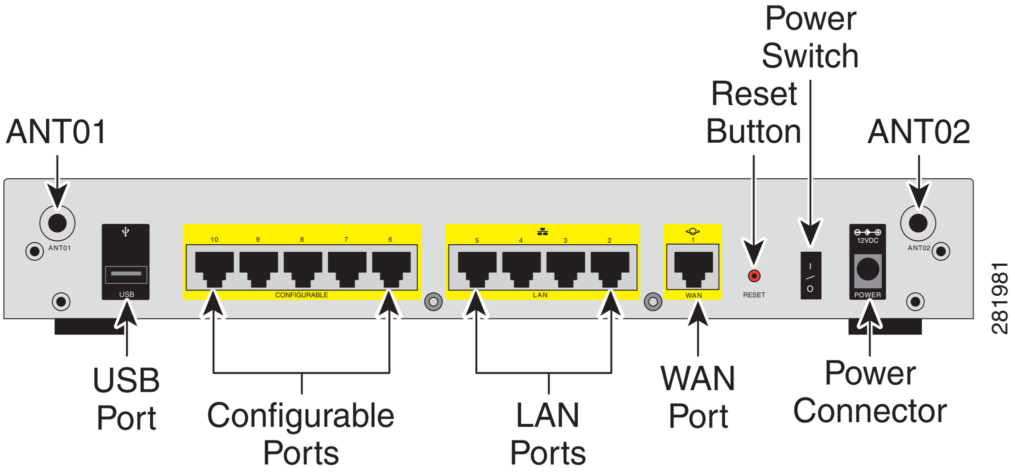
Back Panel

The back panel is where you connect the network devices. The ports on the panel vary depending on the model.

ISA550 and ISA550W Back Panel



ISA570 and ISA570W Back Panel



Back Panel Descriptions

Feature	Description
ANT01/ANT02	Threaded connectors for the antennas (**for ISA550W and ISA570W only**).
USB Port	Connects the unit to a USB device. You can use a USB device to backup and restore the configurations, or to upgrade the firmware images.
Configurable Ports	Can be set to operate as WAN, LAN, or DMZ ports. The ISA550 and ISA550W have 4 configurable ports. The ISA570 and ISA570W have 5 configurable ports.
LAN Ports	Connects PCs and other network appliances to the unit. The ISA550 and ISA550W have 2 dedicated LAN ports. The ISA570 and ISA570W have 4 dedicated LAN ports.
WAN Port	Connects the unit to a DSL or a cable modem, or another WAN connectivity device.
RESET Button	To reboot the unit, push and release the RESET button. To restore the factory default settings, push and hold the RESET button for 3 seconds.
Power Switch	Turns the unit on or off.
Power Connector	Connects the unit to power using the supplied power cord and adapter.

NOTE The back panel of ISA550 and ISA570 does not include two threaded connectors for the antennas.

Installation

This section describes how to install the security appliance. It includes the following topics:

- **Before You Begin, page 19**

- **Installation Options, page 19**
- **Hardware Installation, page 22**

Before You Begin

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

- An active Internet account.
- Mounting kits and tools for installing the hardware. The kits packed with the security appliance are used for desktop placement and rack mounting. The kits include 4 rubber feet, 2 brackets, 2 silicon rubber spacers, 8 M3 screws, 4 M5 screws, and 4 washers.

  NOTE The Wall-mounting kit is not included.

- RJ-45 Ethernet cables (Category 5 or higher) for connecting computers, WAN and LAN interfaces, or other devices.
- A computer with Microsoft Internet Explorer 8.0, or Mozilla Firefox 3.6.x (or later) for using the web-based Configuration Utility.

Installation Options

You can place your security appliance on a desktop, mount it on a wall, or mount it in a rack. It includes the following topics:

- **Placement Tips, page 19**
- **Wall Mounting, page 20**
- **Rack Mounting, page 21**

Placement Tips

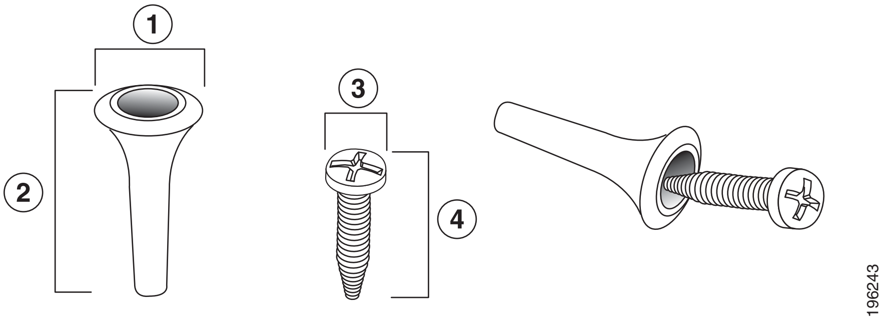
- **Ambient Temperature:** To prevent the security appliance from overheating, do not operate it in an area that exceeds an ambient temperature of 104°F (40°C).
- **Air Flow:** Be sure that there is adequate air flow around the device.

- **Mechanical Loading:** Be sure that the security appliance is level and stable to avoid any hazardous conditions.

To place the security appliance on a desktop, install the supplied four rubber feet on the bottom of the security appliance. Place the security appliance on a flat surface.

Wall Mounting

There is no wall-mounting kit included with your security appliance. We recommend that you use the following screws to install your security appliance to the wall or the ceiling:



1 8mm/0.32 in	2 25mm/0.98 in	3 6.5mm/0.26in	4 18.6mm/0.73in

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

To mount the security appliance to the wall:

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

STEP 2 Insert two 18.6 mm (0.73 inch) screws, with anchors, into the wall 234 mm apart (9.21 inches). Leave 3 to 4 mm (about 1/8 inch) of the head exposed.

STEP 3 Place the security appliance wall-mount slots over the screws. Slide the security appliance down until the screws fit snugly into the wall-mount slots.

Rack Mounting

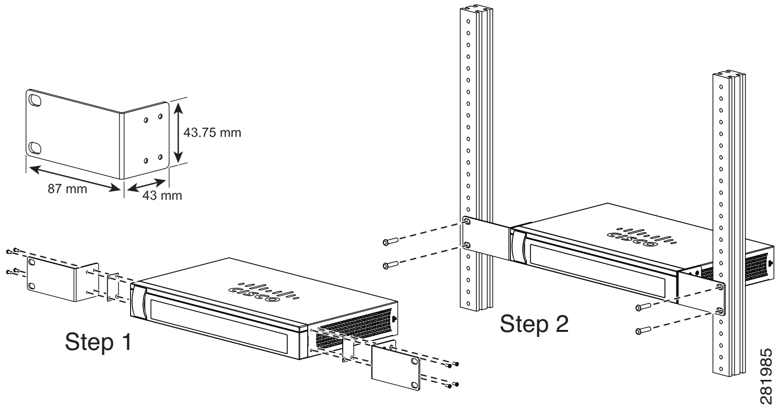
You can mount the security appliance in any standard size, 19-inch (about 48 cm) wide rack. The security appliance requires 1 rack unit (RU) of space, which is 1.75 inches (44.45 mm) high.

CAUTION Do not overload the power outlet or circuit when installing multiple devices in a rack.

STEP 1 Place one of the supplied silicon rubber spacers on the side of the security appliance so that the four holes align to the screw holes. Place the rack mount bracket next to the silicon rubber spacer and install the M3 screws.

NOTE If the M3 screws are not long enough to reattach the bracket with the silicon rubber spacer, attach the bracket directly to the case without the silicon rubber spacer.

STEP 2 Install the security appliance into a standard rack as shown below. Place the washers on the brackets so that the holes align to the screw holes and then install the M5 screws.



Hardware Installation

Follow these steps to connect the security appliance:

STEP 1 Connect the security appliance to power using the supplied power cord and adapter. Make sure that the power switch is turned off.

STEP 2 If you are installing the ISA550W and ISA570W, screw each antenna onto a threaded connector on the back panel. Orient each antenna to point upward.

STEP 3 For a DSL or cable modem, or other WAN connectivity devices, connect an Ethernet network cable from the device to the WAN port on the back panel. Cisco strongly recommends using Cat5E or better cable.

STEP 4 For network devices, connect an Ethernet network cable from the network device to one of the dedicated LAN ports on the back panel.

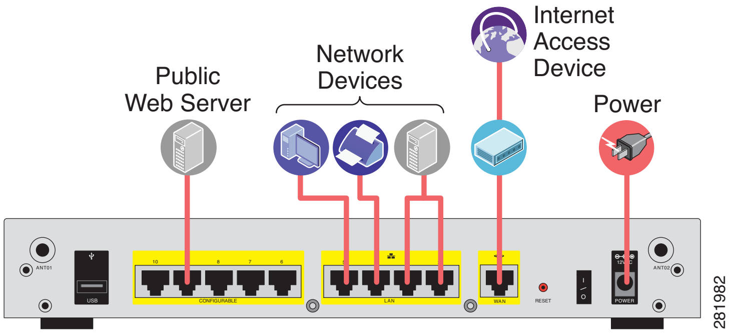
STEP 5 For a UC 500 or a UC 300, connect an Ethernet network cable from the WAN port of the UC 500 or a UC 300 to an available LAN port of the security appliance.

STEP 6 For a UC500 or a UC300, connect an Ethernet network cable from the WAN port of the UC500 or UC300 to an available LAN port on the back panel of the security appliance.

STEP 7 Power on the connected devices.

STEP 8 Power on the security appliance. The lights on the front panel for all connected ports light up to show active connections.

A sample configuration is illustrated below.



Congratulations! The installation of the security appliance is complete.

Getting Started with the Configuration Utility

The Configuration Utility is a web based device manager that is used to provision the security appliance. To use this utility, you must be able to connect to the security appliance from your administration PC or laptop. You can access the security appliance by using web browser such as Microsoft Internet Explorer 8.0, or Mozilla Firefox 3.6.x (or later). It includes the following sections:

- **Launching the Configuration Utility, page 23**
- **Navigating Through the Configuration Utility, page 24**
- **Using the Help System, page 25**
- **Using the Management Buttons, page 25**

Launching the Configuration Utility

STEP 1 Connect your computer to an available LAN port on the back panel of the security appliance.

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

NOTE The above address is the factory default LAN address. If you change this setting in the DEFAULT VLAN configuration, you will need to enter the new IP address to connect to the Configuration Utility.

STEP 3 Enter the default user name and password in the login screen:

- Username: cisco
- Password: cisco

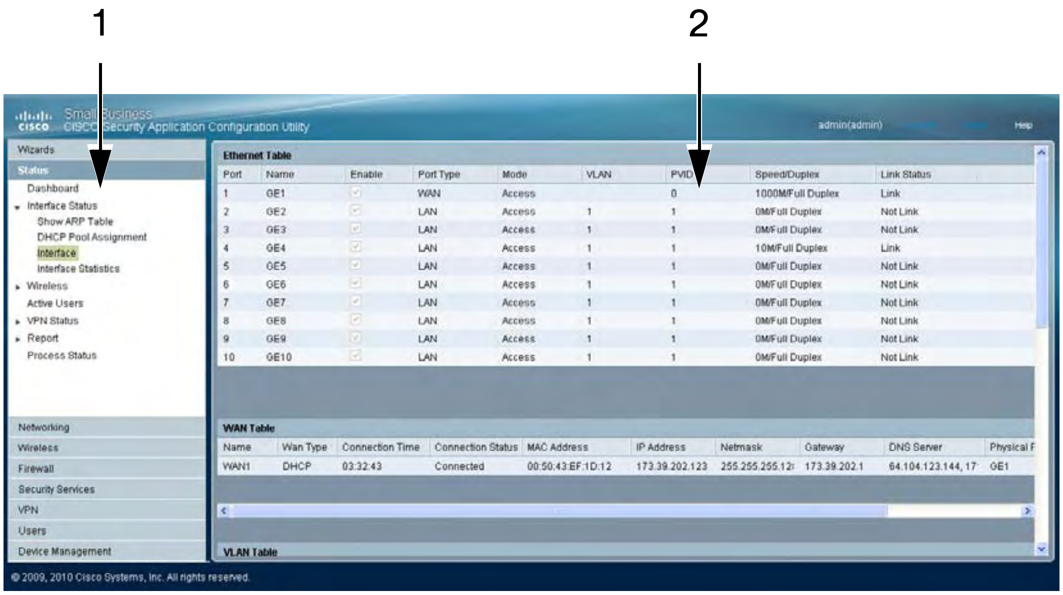
STEP 4 Click **Login**.

For the first login, you are forced to immediately change the default user name and password of the default administrator account to prevent unauthorized access. For more information, see **Changing the User Name and Password of the Default Administrator Account at Your First Login, page 27**.

After you change them, the **Startup Wizard** launches. For more information about how to use the Startup Wizard to configure your security appliance, see **Using the Startup Wizard, page 32**.

Navigating Through the Configuration Utility

Use the left hand navigation pane and content pane to perform the tasks in the Configuration Utility.



Ethernet Table

Port	Name	Enable	Port Type	Mode	VLAN	PVID	Speed/Duplex	Link Status
1	GE1	☑	WAN	Access		0	1000M/Full Duplex	Link
2	GE2	☑	LAN	Access	1	1	0M/Full Duplex	Not Link
3	GE3	☑	LAN	Access	1	1	0M/Full Duplex	Not Link
4	GE4	☑	LAN	Access	1	1	10M/Full Duplex	Link
5	GE5	☑	LAN	Access	1	1	0M/Full Duplex	Not Link
6	GE6	☑	LAN	Access	1	1	0M/Full Duplex	Not Link
7	GE7	☑	LAN	Access	1	1	0M/Full Duplex	Not Link
8	GE8	☑	LAN	Access	1	1	0M/Full Duplex	Not Link
9	GE9	☑	LAN	Access	1	1	0M/Full Duplex	Not Link
10	GE10	☑	LAN	Access	1	1	0M/Full Duplex	Not Link

WAN Table

Name	Wan Type	Connection Time	Connection Status	MAC Address	IP Address	Netmask	Gateway	DNS Server	Physical F
WAN1	DHCP	03:32:43	Connected	00:50:43:EF:1D:12	173.39.202.123	255.255.255.12	173.39.202.1	64.104.123.144, 17	GE1

VLAN Table

Number	Components	Description
1	Left Hand Navigation Pane	The left hand navigation pane provides easy navigation through the configurable features. The main branches expand to provide the features. Click on the main branch title to expand its contents. Click on the right arrow of a feature to open its subfeatures, or click on the down arrow of a feature to contract its subfeatures. Click on the title of a feature or subfeature to open it.
2	Content Pane	The content of the feature or subfeature appears in this area.

Using the Help System

The Configuration Utility includes a detailed Help file for all configuration tasks. To view the Help page, click the **Help** link in the top right corner of the screen.

Using the Management Buttons

Device Management buttons and icons provide an easy method of configuring device information. In this guide, we use the texts by replacing the buttons or icons to indicate what the buttons or icons are used for.

Icons	Actions	Icons	Actions
⇅	Move	▶	Expand
↓	Move Down	▼	Collapse
↑	Move Up	✎	Edit or other specific actions with relative description
		✖	Delete or Delete Selection

About the Default Settings

The security appliance is predefined with the settings that allow you to start using the device with minimal changes needed. Depending the requirements of your Internet Service Provider (ISP) and the needs of your business, you might need to modify some of these settings. You can use the Configuration Utility to customize all settings, as needed.

Settings of particular interest are described below. For a full list of all factory default settings, see **Appendix C, "Factory Default Settings."**

- **IP Routing Mode:** By default, only the IPv4 mode is enabled. To support the IPv4 and IPv6 addressing, you need to enable the IPv4/IPv6 mode. To change the IP routing mode, see **Configuring IP Routing Mode, page 95**.

- **WAN Configuration:** By default, the security appliance is configured to obtain an IP address from your ISP by using Dynamic Host Configuration Protocol (DHCP). Depending on the requirement of your ISP, you will need to configure the network address mode for the primary WAN and the secondary WAN if applicable. You can change other WAN settings as well. See **Configuring the WAN, page 101**.

- **LAN Configuration:** By default, the LAN of the security appliance is configured in the 192.168.1.0 subnet and the LAN IP address is 192.168.1.1. The security appliance acts as a DHCP server to the hosts on the WLAN or LAN network. It can automatically assign IP addresses and DNS server addresses to the PCs and other devices on the LAN. For most deployment scenarios, the default DHCP and TCP/IP settings should be satisfactory. However, you can change the subnet address or the default IP address. You can assign static IP addresses to connected devices rather than allowing the security appliance to act as a DHCP server. See **Configuring the VLAN, page 118**.

- **VLAN Configuration:** The security appliance predefines a native VLAN (DEFAULT) and a guest VLAN (GUEST). You can customize new VLANs for your specific business needs. See **Configuring the VLAN, page 118**.

- **Configurable Ports:** By default, all configurable ports are set to act as LAN ports. Alternatively, you can configure the configurable port for use as a DMZ port or a secondary WAN port. See **Configuring the WAN, page 101** or **Configuring the DMZ, page 123**.

- **Wireless Network (for ISA550W and ISA570W only):** The ISA550W or ISA570W is configured with four SSIDs. All SSIDs are disabled by default. For security purposes, we strongly recommend that you configure the SSIDs with the appropriate security settings. See **Wireless Configuration for ISA550W and ISA570W, page 157**.

- **Administrative Access:** You can access the Configuration Utility by using a web browser and entering the default LAN IP address of 192.168.1.1. You can log into by entering the username and password of the default administrator account. You are forced to change the default username and password after the first login. See **Changing the User Name and Password of the Default Administrator Account at Your First Login, page 27**. You also may want to change the user login settings for authentication. See **Configuring the User Authentication Settings, page 277**.

- **Security Services:** By default, the UTM security services such as Intrusion Prevention Service (IPS), Web URL Filter, Web Reputation Filter, Anti-Virus, and Email Reputation Filter are disabled. For more information about how to configure the security services, see **Security Services, page 210**.
- **Firewall:** By default, the firewall prevents inbound traffic and allows all outbound traffic. If you want to allow some inbound traffic or prevent some outbound traffic, you must customize firewall access rules. The security appliance supports up to 100 custom access rules. See **Configuring the Firewall Access Rules to Control Inbound and Outbound Traffic, page 178**.
- **VPN:** By default, the VPN feature is disabled. The security appliance can function as a Cisco IPSec VPN server or a Cisco VPN hardware client, or as a SSL VPN gateway so that remote users can securely access the corporate network resources over the VPN tunnels. You can also establish a secure IPSec VPN tunnel between two sites that are physically separated by using the Site-to-Site VPN feature. For more information about how to configure the VPN features, see **VPN, page 232**.

Performing Common Configuration Tasks

We strongly recommend that you complete the following common tasks before you begin configuring your security appliance. It includes the following sections:

- **Changing the User Name and Password of the Default Administrator Account at Your First Login, page 27**
- **Saving Your Configuration, page 28**
- **Upgrading the Firmware if needed, page 29**
- **Resetting the Device, page 30**

Changing the User Name and Password of the Default Administrator Account at Your First Login

The default administrator account is an administrative account that has fully privilege to set the configurations and read the system status. It does not belong to any user group. To prevent unauthorized access, you are forced to immediately change the default user name and password at its first login.

STEP 1 After the first login, a prompt window opens.

STEP 2 Enter the following information:

- **User Name:** Enter a new user name that contains the letters, numbers, or underline for the default administrator account.
- **New Password:** Enter a new password for the default administrator account. Passwords are case-sensitive.

  NOTE **Restrictions for password:** The password should contain at least three types of these character classes: lower case letters, upper case letters, numbers, and special characters. Do not repeat any character more than three times consecutively. Do not set the password as the user name or the reversed user name. The password cannot be set as "cisco", "ocsic", or any variant obtained by changing the capitalization of letters.

- **Confirm Password:** Enter the new password again for confirmation.

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

Saving Your Configuration

At any point during the configuration process, you can save your configurations. Later, if you make changes that you want to abandon, you can easily revert to the saved configurations.

STEP 1 Click **Device Management -> Firmware and Configuration -> Configuration**.

The Configuration window opens.

STEP 2 To save the current settings on your local PC, perform the following steps:

a. In **Backup/Restore Settings** area, click **Backup** after the **Save A Copy of Current Settings** option.

b. The Encryption window opens. You can optionally encrypt the configurations for security purposes, check the **Encrypt** box and enter the password in the **Key** field, and then click **OK**.

c. Locate where to save the configuration file, and then click **Save**.

STEP 3 To save the current settings on a USB device, perform the following steps:

a. Insert a USB device into the USB interface on the back panel of your security appliance. The USB device is automatically mounted once you insert it.

b. In the **USB -> Mount/Unmount** area, check the mounting status of the USB device. Make sure that the USB Driver Status shows as “UP” when you use the USB device to manage the configurations.

c. In the **USB -> Backup/Restore Settings** area, click **Backup** after the **Save A Copy of Current Settings** option.

d. The Encryption window opens. You can optionally encrypt the configurations for security purposes, check the **Encrypt** box and then enter the password in the **Key** field, and then click **OK**. Your current settings are saved as a configuration file on the root folder of the USB device.

Upgrading the Firmware if needed

Before you do any other tasks, ensure that you are using the latest firmware version. You can upgrade from a firmware file stored on your computer or a mounted USB device.

⚠ **CAUTION** During a firmware upgrade, do NOT try to go online, turn off the device, shut down the PC, remove the cable, or interrupt the process in anyway until the operation is complete. This process should take several minutes or so 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 security appliance unusable.

STEP 1 Click **Device Management -> Firmware and Configuration -> Firmware**.

The Firmware window opens.

STEP 2 To manually upgrade the firmware from your local PC, perform the following steps:

a. In the **Network -> Firmware Upgrade** area, click **Browse** to locate and select the firmware image from your local PC.

b. To upgrade the firmware and keep using the current settings, click **Upgrade**.

c. To upgrade the firmware and revert to the factory default settings, click **Upgrade & Factory Reset**. When the operation is complete, the security appliance automatically reboots with the factory default settings.

STEP 3 To upgrade the firmware through a USB device, perform the following steps:

a. Insert the USB device with the firmware images into the USB interface on the back panel of your security appliance. The USB device is automatically mounted after you inserted it.

b. In the **USB -> Mount/Unmount** area, check the mounting status of the USB device. Make sure that the USB Driver Status shows as “UP” when you use the USB device to manage the firmware.

c. In the **USB -> Backup/Restore Settings** area, all firmware images located on the USB device appears in the list.

- To upgrade the firmware and keep using the current settings, select the latest firmware image from the list and then click **Upgrade**.
- To upgrade the firmware and revert to the factory default settings, select the latest firmware image from the list and then click **Upgrade & Factory Reset**. When the operation is complete, the security appliance automatically reboots with the factory default settings.

Resetting the Device

To revert your security appliance to the factory default settings, you can press and hold the RESET button on the back panel for minimum of 3 seconds, or perform the following procedures.

CAUTION The Revert To Factory Default Settings operation will wipe out the current configurations used on your security appliance (including the imported certificates). We recommmend that you save the current settings before reverting to the factory default settings.

STEP 1 Click **Device Management -> Firmware and Configuration -> Configuration**.

The Configuration window opens.

STEP 2 In the **Backup/Restore Settings -> Revert To Factory Default Settings** area, click **Default**.

The security appliance will reboot with the factory default settings.

2

Wizards

This chapter describes how to use the wizards to configure your security appliance.

To access the Wizards pages, click **Wizards** in the left hand navigation pane.

Using the Startup Wizard

The Startup Wizard helps you configure the remote management, port, WAN, LAN, DMZ, and WLAN (for ISA550W and ISA570W only) settings. The first time you log into your security appliance, the Startup Wizard automatically launches.

STEP 1 Click **Wizard -> Startup Wizard**.

The Getting Started window opens. A prompt warning message is displayed as below.

CAUTION When the Startup Wizard is complete, the previous settings relevant to the changed WAN, DDNS, LAN, DMZ, and WLAN are cleaned up, and relevant services are reinitialized.

For the first login, you can ignore this warning message and follow the on-screen prompts to complete the initial configuration. If you have already configured the security appliance, make sure that you have read the warning message before you use the Startup Wizard to configure your security appliance. Click **OK** to close the warning message window.

STEP 2 Click **Begin**.

The Remote Management window opens. The security appliance allows remote management securely by using HTTPS and HTTP. For example, https://xxx.xxx.xxx.xxx:8080.

Enter the following information:

- **Remote Management:** Click **On** to enable remote management by using HTTPS, or click **Off** to disable it. We recommend that you use HTTPS for secure purposes.
- **HTTPS Listen Port Number:** If you enable remote management by using HTTPS, enter the port number to be listened on. By default, the listened port for HTTPS is 8080.
- **HTTP Enable:** Click **On** box to enable remote management by using HTTP, or click **Off** to disable it.
- **HTTP Listen Port Number:** If you enable remote management by using HTTP, enter the port number to be listened on. By default, the listened port for HTTP is 80.
- **Access Type:** Choose the level of permission for remote management:
  - **Allow access from any IP address:** Any IP address from a remote WAN network can access the Configuration Utility.
  - **Restrict a specific IP address:** Only the specified remote host can access the Configuration Utility. Enter the IP address of the remote host in the **IP Address** field.

  - **Restrict access to a range of IP addresses:** Only the hosts in the specified remote network can access the Configuration Utility. Enter the starting IP address in the **From** field and the ending IP address in the **To** field.

- **Remote SNMP:** Click **On** to enable SNMP for the remote connection, or click **Off** to disable SNMP. Enabling SNMP allows remote users to use the SNMP protocol to access the Configuration Utility.

STEP 3 After you are finished, click **Next**.

The Port Configuration window opens. From this page you can specify the port configuration. The Startup Wizard predefines four port configuration solutions. You can also modify the port types for the configurable ports when you create a secondary WAN or configure the DMZs.

If you are using the ISA570 or ISA570W, choose one of the following options:

- **1 WAN, 9 LAN Switch:** This is the default setting. The security appliance is set to one WAN port (WAN1) and nine LAN ports.

- **1 WAN, 1 DMZ, and 8 LAN Switch:** The security appliance is set to one WAN port (WAN1), one DMZ port, and eight LAN ports. The configurable port GE10 is set to a DMZ port.

- **1 WAN, 1 WAN Backup, and 8 LAN Switch:** The security appliance is set to two WAN ports (WAN1 is the primary WAN and WAN2 is the secondary WAN) and eight LAN ports. The configurable port GE10 is set to a secondary WAN port.

- **1 WAN, 1 WAN Backup, 1 DMZ, and 7 LAN Switch:** The security appliance is set to two WAN ports (WAN1 is the primary WAN and WAN2 is the secondary WAN), one DMZ port, and seven LAN ports. The configurable port GE10 is set to a secondary WAN port and the configurable port GE9 is set to a DMZ port.

If you are using the ISA550 or ISA550W, choose one of the following options:

- **1 WAN, 6 LAN Switch:** This is the default setting. The security appliance is set to one WAN port (WAN1) and six LAN ports.

- **1 WAN, 1 DMZ, and 5 LAN Switch:** The security appliance is set to one WAN port (WAN1), one DMZ port, and five LAN ports. The configurable port GE7 is set to a DMZ port.

- **1 WAN, 1 WAN Backup, and 5 LAN Switch:** The security appliance is set to two WAN ports (WAN1 is the primary WAN and WAN2 is the secondary WAN) and five LAN ports. The configurable port GE7 is set to a secondary WAN port.
- **1 WAN, 1 WAN Backup, 1 DMZ, and 4 LAN Switch:** The security appliance is set to two WAN ports (WAN1 is the primary WAN and WAN2 is the secondary WAN), one DMZ port, and four LAN ports. The configurable port GE7 is set to a secondary WAN port and the configurable port GE6 is set to a DMZ port.

NOTE If you have two ISP links, we recommend that you set a backup WAN so that you can provide backup connectivity or load balancing. If you need to host public services, we recommend that you set a DMZ port.

NOTE The configurable ports can be set as the WAN, LAN, and DMZ ports. Up to two WAN ports and four DMZ ports can be configured on the security appliance. To configure multiple DMZ ports, go to the **Networking -> DMZ** page. For more information, see Configuring the DMZ, page 123.

STEP 4 After you are finished, click **Next**.

The Primary WAN Connection window opens. From this page you can configure the primary WAN port.

Choose the network addressing mode from the **IP Address Assignment** drop-down list and complete the corresponding fields for the primary WAN port depending on the requirements of your ISP. The security appliance supports DHCPC, Static IP, PPPoE, PPTP, and L2TP. For complete details, see Configuring the Network Addressing Mode, page 106.

NOTE If only one single WAN port is configured on your security appliance, skip the next two steps and proceed to the step 7.

STEP 5 After you are finished, click **Next**.

The Secondary WAN Connection window opens. From this page you can configure the secondary WAN port.

Choose the network addressing mode from the **IP Address Assignment** drop-down list and complete the corresponding fields for the secondary WAN port depending on the requirements of your ISP. For complete details, see **Configuring the Network Addressing Mode, page 106**.

STEP 6 After you are finished, click **Next**.

The WAN Redundancy window opens. From this page you can determine how the two ISP links are used.

- Use the Loab Balancing mode if you want to use both ISP links simultaneously. The two links will carry data for the protocols that are bound to them. Enter the following information:
  - **Equal Load Balancing (Round Robin):** Re-orders the WAN interfaces for Round Robin selection. The order is as follows: WAN1 and WAN2. The Round Robin will then repeat back to WAN1 and continue the order.
  - **Weighted Load Balancing:** Distributes the bandwidth to two WAN ports by the weighted percange or by the weighted link bandwidth. If you choose this mode, then choose one of the following options and finish the setting:

    Weighted By percentage: Allows you to set the percentage for each WAN, such as 80% percentage bandwidth for WAN1 and lest 20% percentage bandwidth for WAN2.

    Weighted By Link Bandwidth: Allows you to set the rate limiting for each WAN, such as 10 Mbps for WAN1 and 5 Mbps for WAN2.
- Use the Failover mode if you want to use one ISP link as a backup. If a failure is detected on the primary link, then the security appliance directs all Internet traffic to the backup link. When the primary link regains connectivity, all Internet traffic is directed to the primary link, and the backup link becomes idle. Enter the following information:
  - **Auto Failover to:** Choose either WAN1 or WAN2 as the primary link. By default, WAN1 is set as the primary link and WAN2 is set as the backup link. You can also set WAN2 as the primary link.
  - **Preempt Delay Timer:** Enter the time in seconds that the system will preempt the primary link from the backup link when the primary link is up again. The default is 5 seconds.

STEP 7 After you are finished, click **Next**.

The LAN Configuration window opens. From this page you can configure the default LAN settings.

- **IP:** Enter the IP address of the default LAN.
- **Netmask:** Enter the IP address of the netmask.
- **DHCP Server:** Choose one of the following DHCP modes:
  - **Disable:** Choose this option if the computers on the VLAN are configured with static IP addresses or are configured to use another DHCP server.
  - **DHCP Server:** Allows the security appliance to act as a DHCP server and assigns IP addresses to all devices that are connected to the DEFAULT VLAN. Any new DHCP client joining the DEFAULT VLAN is assigned an IP address of the DHCP pool.
  - **DHCP Relay:** Allows the security appliance to use a DHCP Relay. If you choose DHCP Relay, enter the IP address of the remote DHCP server in the **Relay IP** field.

If you choose **DHCP Server** as the DHCP mode, enter the following information:

- **Start IP:** Enter the starting IP address of the DHCP pool.
- **End IP:** Enter the ending IP address of the DHCP pool.

NOTE The starting and ending IP addresses should be in the same range as the LAN's subnet address.

- **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.
- **DNS 1:** Enter the IP address of the primary DNS server.
- **DNS 2:** Optionally, enter the IP address of the secondary DNS server.
- **WINS 1:** Enter the IP address for the primary WINS server.
- **WINS 2:** Optionally, enter the IP address of the secondary WINS server.
- **Domain Name:** Optionally, enter the domain name for the default LAN.
- **Default Gateway:** Enter the IP address of default gateway.

STEP 8 After you are finished, click **Next**.

If you have no DMZ port, skip the next two steps and proceed to the step 10.

If you have a DMZ port, the DMZ Configuration window opens. To host public services, you need to configure a DMZ network in this page and specify the relevant DMZ services from the next DMZ Service page.

- **IP:** Enter the subnet IP address of the DMZ.
- **Netmask:** Enter the subnet mask of the DMZ.
- **DHCP Service:** Choose one of the following options:
  - **Disable:** Choose this option if the computers on the DMZ are configured with static IP addresses or are configured to use another DHCP server.
  - **DHCP Server:** Allows the security appliance to act as a DHCP server and assigns IP addresses to all devices that are connected to the DMZ. Any new DHCP client joining the DMZ is assigned an IP address of the DHCP pool.
  - **DHCP Relay:** Allows the security appliance to use a DHCP Relay. If you choose DHCP Relay, enter the IP address of the remote DHCP server in the **Relay IP** field.

If you choose **DHCP Server** as the DHCP mode, enter the following information:

- **Start IP:** Enter the starting IP address of the DHCP pool.
- **End IP:** Enter the ending IP address of the DHCP pool.

NOTE The starting and ending IP addresses should be in the same range as the DMZ's subnet address.

- **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.
- **DNS 1:** Enter the IP address of the primary DNS server.
- **DNS 2:** Optionally, enter the IP address of the secondary DNS server.
- **WINS 1:** Enter the IP address for the primary WINS server.
- **WINS 2:** Optionally, enter the IP address of the secondary WINS server.
- **Domain Name:** Optionally, enter the domain name for the DMZ.
- **Default Gateway:** Enter the IP address of default gateway.

STEP 9 After you are finished, click **Next**.

The DMZ Service window opens. From this page you can configure the DMZ services. For complete details, see **Configuring the DMZ Services, page 49**.

NOTE After you configure the DMZ services, the firewall access rules will automatically generated by the security appliance to allow the access to the services on your DMZ.

STEP 10 After you are finished, click **Next**.

The Wireless Radio Setting window opens. From this page you can configure the wireless radio settings.

NOTE The wireless configurations such as wireless radio settings and Intranet WLAN access (see next step) are only available for the ISA550W and ISA570W. If your security appliance is not a wireless device, proceed to the step 12.

- **Wireless Network Mode:** Choose the 802.11 modulation technique. The ISA550W and ISA550W supports the following radio modes:
  - **802.11b only:** Choose this mode if all devices in the wireless network use 802.11b. Only 802.11b clients can connect to the access point.
  - **802.11g only:** Choose this mode if all devices in the wireless network use 802.11g. Only 802.11g clients can connect to the access point.
  - **802.11b/g mixed:** Choose this mode if some devices in the wireless network use 802.11b and others use 802.11g. Both 802.11b and 802.11g clients can connect to the access point.
  - **802.11n only:** Choose this mode if all devices in the wireless network can support 802.11n. Only 802.11n clients operating in the 2.4 GHz frequency can connect to the access point.
  - **802.11g/n mixed:** Choose this mode to allow 802.11g and 802.11n clients operating in the 2.4 GHz frequency to connect to the access point.
  - **802.11b/g/n mixed:** Choose this mode to allow 802.11b, 802.11g, and 802.11n clients operating in the 2.4 GHz frequency to connect to the access point.

- **Wireless Channel:** Choose a channel or choose **Auto** to let the system determine the best channel to use based on the environmental noise levels for the available channels.

STEP 11 After you are finished, click **Next**.

The Wireless Connectivity Type **-** Intranet WLAN Access window opens. From this page you can configure the wireless connectivity settings for the SSID1.

NOTE The ISA550W and ISA570W support four SSIDs. To configure the wireless connectivity settings for other SSIDs, go to the **Wireless -> Basic Settings** page or use the Wireless wizard. For more information, see **Configuring the Access Points, page 151** or **Using the Wireless Wizard to Configure the Wireless Settings for ISA550W and ISA570W, page 40**.

- **SSID Name:** The SSID name.
- **Security Mode:** Choose the encryption algorithm for data encryption for this SSID. Depending on the selected security mode, configure the corresponding settings. See **Configuring the Security Mode, page 162**.
- **VLAN Name:** Choose the VLAN to which this SSID is mapped. All traffic from the wireless clients that are connected to this SSID will be directed to the selected VLAN.

STEP 12 After you are finished, click **Next**.

The Summary window opens. The Summary page displays the summary information for all configurations you made.

STEP 13 Click **Submit** to save the settings.

Using the Wireless Wizard to Configure the Wireless Settings for ISA550W and ISA570W

Use the Wireless Wizard to configure the wireless radio and Intranet connectivity settings for the ISA550W and ISA570W. It includes the following sections:

- **Using the Wireless Wizard to Configure the Wireless Settings, page 41**

- **Configuring the SSID for Intranet WLAN Access, page 43**
- **Configuring the SSID for Guest WLAN Access, page 44**
- **Configuring the SSID for Guest WLAN Access (Captive Portal), page 45**

Using the Wireless Wizard to Configure the Wireless Settings

STEP 1 Click **Wizards -> Wireless Wizard**.

The Getting Started window opens.

STEP 2 Click **Begin**.

The Wireless Radio Setting window opens. Enter the following information:

- **Wireless Network Mode:** Specify the Physical Layer (PHY) standard that the wireless radio uses.
  - **802.11b only:** Choose this mode if all devices in the wireless network use 802.11b. Only 802.11b clients can connect to the access point.
  - **802.11g only:** Choose this mode if all devices in the wireless network use 802.11g. Only 802.11g clients can connect to the access point.
  - **802.11b/g mixed:** Choose this mode if some devices in the wireless network use 802.11b and others use 802.11g. Both 802.11b and 802.11g clients can connect to the access point.
  - **802.11n only:** Choose this mode if all devices in the wireless network can support 802.11n. Only 802.11n clients operating in the 2.4 GHz frequency can connect to the access point.
  - **802.11g/n mixed:** Choose this mode to allow 802.11g and 802.11n clients operating in the 2.4 GHz frequency to connect to the access point.
  - **802.11b/g/n mixed:** Choose this mode to allow 802.11b, 802.11g, and 802.11n clients operating in the 2.4 GHz frequency to connect to the access point.
- **Wireless Channel:** Choose a channel or choose **Auto** to let the system determine the best channel to use based on the environmental noise levels for the available channels.

STEP 3 After you are finished, click **Next**.

The Choose SSIDs window opens. From this page you can enable the SSIDs and choose the wireless connectivity type for each active SSID.

- **Enable:** Check this box to enable the SSID.
- **Mode:** Choose the wireless connectivity type for each enabled SSID.
  - **Intranet WLAN Access:** Allows wireless users to access the corporate network via the wireless network. The WLAN is mapped to the DEFAULT VLAN.
  - **Guest WLAN Access:** Only allows guest users to access the corporate network via the wireless network. The WLAN is mapped to the GUEST VLAN.
  - **Guest WLAN Access (Captive Portal):** Only allows guest users who authenticated successfully to access the corporate network via the wireless network. The wireless users will be directed to a specific web authentication login page to authenticate, and then be directed to a specified web portal after login successfully before they can access the Internet.

NOTE Only one SSID can be set for Guest WLAN access and Captive Portal WLAN access.

STEP 4 Specify the wireless connectivity settings for all enabled SSIDs.

Depending on the wireless connectivity type that you selected for the SSID, you need to complete the relevant settings for each enabled SSID.

For complete details to configure the Intranet WLAN access, see **Configuring the SSID for Intranet WLAN Access, page 43**.

For complete details to configure the Guest WLAN access, see **Configuring the SSID for Guest WLAN Access, page 44**.

For complete details to configure the Captive Portal WLAN access, see **Configuring the SSID for Guest WLAN Access (Captive Portal), page 45**.

STEP 5 After you are finished, click **Next**.

The Summary window opens. The Summary page displays the summary information for all configurations you made for the SSIDs.

STEP 6 Click **Submit** to save your settings and exit the Wireless Wizard.

Configuring the SSID for Intranet WLAN Access

This section describes how to configure the connectivity settings for Intranet WLAN access.

STEP 1 After you enable the SSIDs and specify the wireless connectivity type for each SSID, click **Next**.

If SSID1 is enabled and is set to Intranet WLAN Access, the SSID1 window opens.

STEP 2 Enter the following information:

- **SSID:** Enter the SSID name.
- **Broadcast SSID:** Check the box to broadcast the SSID in its beacon frames. All wireless devices within range are able to see the SSID when they scan for available networks. Uncheck the box to prevent auto-detection of the SSID. In this case, users must know the SSID to set up a wireless connection to this SSID.
- **PC Visibility:** Check the box so that the wireless clients on the same SSID will be able to see eachother.

STEP 3 In the **Security Settings** area, specify the wireless security settings.

- **Security Mode:** Choose the security mode and configure the correspoinding information. For security purposes, Cisco strongly recommends WPA2 for wireless security. For example, if you choose WPA2-Personal, enter the following information:
    - **Encryption:** WPA2-Personal always uses AES for data encryption.
    - **Shared Secret:** 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.
    - **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 0 indicates that the key is not refreshed. The default is 3600 seconds.

NOTE For complete details for other security modes, see **Configuring the Security Mode, page 162**.

STEP 4 In the **Advanced Settings** area, enter the following information:

- **VLAN Mapping:** Choose the VLAN to which the SSID is mapped. All traffic from the wireless clients that are connected to this SSID will be directed to the selected VLAN. For Intranet VLAN access, you should choose a VLAN that is mapped to a trust zone.
- **User Limit:** Specify the maximum number of users that can simultaneously connect to this SSID.

Configuring the SSID for Guest WLAN Access

This section describes how to configure the connectivity settings for Guest WLAN access.

STEP 1 After you are finished the SSID1 configuration, click **Next**.

If SSID2 is enabled and is set to Guest WLAN Access, the SSID2 window opens.

STEP 2 Enter the following information:

- **SSID:** Enter the SSID name.
- **Broadcast SSID:** Check the box to broadcast the SSID in its beacon frames. All wireless devices within range are able to see the SSID when they scan for available networks. Uncheck the box to prevent auto-detection of the SSID. In this case, users must know the SSID to set up a wireless connection to this SSID.
- **PC Visibility:** Check the box so that the wireless clients on the same SSID are able to see eachother.

STEP 3 In the **Security Settings** area, specify the wireless security settings.

- **Security Mode:** Choose the security mode and configure the correspoinding information. For the complete details for how to configure the security modes, see **Configuring the Security Mode, page 162**.

STEP 4 In the **Advanced Settings** area, enter the following information:

- **VLAN Mapping:** Choose the VLAN to which the SSID is mapped. All traffic from the wireless clients that are connected to this SSID will be directed to the selected VLAN. For Guest VLAN access, you should choose a VLAN that is mapped to a guest zone.

- **User Limit:** Specify the maximum number of users that can simultaneously connect to this SSID.

Configuring the SSID for Guest WLAN Access (Captive Portal)

This section describes how to configure the connectivity settings for Captive Portal WLAN access.

STEP 1 After you are finished the SSID2 configuration, click **Next**.

If SSID3 is enabled and is set to Guest WLAN Access (Captive Portal), the SSID3 window opens.

STEP 2 Enter the following information:

- **SSID:** Enter the SSID name.
- **Broadcast SSID:** Check the box to broadcast the SSID in its beacon frames. All wireless devices within range are able to see the SSID when they scan for available networks. Uncheck the box to prevent auto-detection of the SSID. In this case, users must know the SSID to set up a wireless connection to this SSID.
- **PC Visibility:** Check the box so that the wireless clients on the same SSID are able to see eachother.

STEP 3 In the **Security Settings** area, specify the wireless security settings.

- **Security Mode:** Choose the security mode and configure the correspoinding information. For the complete details for how to configure the security modes, see **Configuring the Security Mode, page 162**.

STEP 4 In the **Captive Portal WLAN Access -> Autentication** area, enter the following information:

- **Autentication Method:** The authentication method that is used to authenticate the wireless users. This setting is derived from the user login settings. Go to the **Users -> Settings** page to set the authentication method. For more information, see **Configuring the User Authentication Settings, page 277**.

STEP 5 In the **Captive Portal WLAN Access -> Captive Portal Authentication Type** area, specify the web authentication type and configure the relevant settings:

- **Web Authentication Type:** Choose one of the following methods:

- **Internal:** Allows you to use the default web authentication login page to authenticate the wireless users. If you choose this option, enter the URL of the portal in the **Redirect URL After Login** field and specify the monitored HTTP port list. If you do not specify the portal, the wireless user can access the original web site directly.
- **External Web Server:** Allows you to use a customized web authentication login page on an external web server to authenticate the wireless users. If you choose this option, enter the IP address of the external web server in the **Authentication Web Server** field and the key in the **Authentiation Web Key** field. The authentication web key is used to protect the user name and password that the external web server sends to your security appliance for authentication.

  For example, if you select **Internal** for authentication and the web portal is set to www.ABcompanyC.com, when a wireless user tries to access the website www.google.com, the default web authentication login page opens. The user needs to enter the user name and password, and then click **Submit**. After login, the user is directed to the www.ABcompanyC.com and can then access the www.google.com.

STEP 6 In the **Advanced Settings** area, enter the following information:

- **VLAN Mapping:** Choose the VLAN to which the SSID is mapped. All traffic from the wireless clients that are connected to this SSID will be directed to the selected VLAN.
- **User Limit:** Specify the maximum number of users that can simultaneously connect to this SSID.

Using the DMZ Wizard to Configure the DMZ Settings

Use the DMZ Wizard to configure the DMZ and DMZ services if you need to host public services. It includes the following sections:

- **Using the DMZ Wizard to Configure the DMZ Settings, page 47**
- **Configuring the DMZ, page 48**
- **Configuring the DMZ Services, page 49**

Using the DMZ Wizard to Configure the DMZ Settings

STEP 1 Click **Wizards -> DMZ Wizard**.

The Getting Started window opens.

STEP 2 Click **Begin**.

The DDNS Setup window opens. From this page you can optionlly configure the DDNS for the remote management of the DMZ network. Enter the following information:

- **Service:** Choose either DynDNS or No-IP service.
- **Active on Startup:** Click **On** to activate the DDNS setting when the security appliance starts up.
- **User Name:** Enter the user name of the account that you registered in the DDNS provider.
- **Password:** Enter the password of the account that you registered in the DDNS provider.
- **Host & Domain Name:** Specify the complete host name and domain name for the DDNS service.

STEP 3 After you are finised, click **Next**.

The DMZ Configure window opens. From this page you can the DMZ network. For complete details, see **Configuring the DMZ, page 48**.

STEP 4 After you are finished, click **Next**.

The DMZ Service window opens. From this page you can configure the DMZ services. For complete details, see **Configuring the DMZ Services, page 49**.

NOTE After you configure the DMZ services, the firewall access rules will automatically generated by the security appliance to allow the access to the services on your DMZ.

STEP 5 After you are finished, click **Next**.

The Summary window opens. The Summary window displays the summary information for all configurations you made.

STEP 6 Click **Submit** to save your settings and exit the DMZ Wizard.

Configuring the DMZ

In the DMZ Configure window, follow these procedures to create a DMZ network.

STEP 1 Click **Add** to create a DMZ network.

Other Options: To edit an entry, click **Edit**. To delete an entry, click **Delete**.

The DMZ - Add/Edit window opens.

STEP 2 In the **Basic Setting** tab, enter the following information:

- **Name:** Enter a descriptive name for the DMZ.
- **IP:** Enter the subnet IP address of the DMZ.
- **Netmask:** Enter the subnet mask of the DMZ.
- **Spanning Tree:** Check the box to enable the Spanning Tree feature to determine if there are loops in the network topology.
- **Port:** Choose a configurable port from the **Port** list and click **->Access** to add it to the **Member** list. The selected configurable port will be set to a DMZ port with Access mode.
- **Zone:** Choose the default or custom DMZ zone to which the DMZ is mapped.

STEP 3 In the **DHCP Pool Settings** tab, choose the DHCP mode from the **DHCP Server** drop-down list.

- **Disable:** Choose this option if the computers on the DMZ are configured with static IP addresses or are configured to use another DHCP server.
- **DHCP Server:** Allows the security appliance to act as a DHCP server and assigns IP addresses to all devices that are connected to the DMZ. Any new DHCP client joining the DMZ is assigned an IP address of the DHCP pool.
- **DHCP Relay:** Allows the security appliance to use a DHCP Relay. If you choose DHCP Relay, enter the IP address of the remote DHCP server in the **Relay IP** field.

STEP 4 If you choose **DHCP Server** as the DHCP mode, enter the following information:

- **Start IP:** Enter the starting IP address of the DHCP pool.

- **End IP:** Enter the ending IP address of the DHCP pool.

NOTE The starting and ending IP addresses should be in the same range as the DMZ's subnet address.

- **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 assigned a new dynamic IP address.
- **DNS 1:** Enter the IP address of the primary DNS server.
- **DNS 2:** Optionally, enter the IP address of a secondary DNS server.
- **WINS 1:** Enter the IP address for the primary WINS server.
- **WINS 2:** Optionally, enter the IP address of a secondary WINS server.
- **Domain Name:** Optionally, enter the domain name for the DMZ.
- **Default Gateway:** Enter the IP address of default gateway.

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

STEP 6 Connect your local server to the specified DMZ port, and then configure the DMZ service.

Configuring the DMZ Services

In the DMZ Service window, follow these procedures to configure the DMZ services.

NOTE After you configure the DMZ services, the firewall access rules will automatically generated by the security appliance to allow the access to the services on your DMZ.

STEP 1 Click **Add** to create a DMZ service.

Other Options: To edit an entry, click **Edit**. To delete an entry, click **Delete.** To delete multiple entries, check the boxes of multiple entries and click **Delete Selection**.

The DMZ Service - Add/Edit window opens.

STEP 2 Enter the following information:

- **Original Service:** Choose a service as the incoming service.
- **Translated Service:** Choose a service as the translated service that you will host. If the service you want is not in the list, choose **Create a Service** to create a new service object. To maintain the service objects, go to the **Networking -> Service Management** page. See **Service Management, page 154**.
- **Translated IP:** Choose the IP address of your local server that will need to be translated. You can get the IP address after you connect your local server to the specified DMZ port. If the IP address you want is not in the list, choose **Create an IP Address** to create a new IP address object. To maintain the IP address objects, go to the **Networking -> Address Object Management** page. See **Address Management, page 152**.
- **WAN:** Choose either WAN1 or WAN2, or both as the incoming WAN interface.
- **WAN IP:** Specify the public IP address of the server. You can use the WAN's IP address or a public IP address that is provided by your ISP. When you choose **Both** as the incoming WAN interface, this option is grayed out.
- **Enable DMZ Service:** Click **On** to enable the DMZ service, or click **Off** to create only the DMZ service.
- **Description:** Enter the name for the DMZ service.

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

Using the Dual WAN Wizard to Configure the WAN Redundancy Settings

If you have two ISP links, a backup WAN is required so that you can provide backup connectivity or load balancing. Use the Dual WAN Wizard to configure the WAN redundancy settings.

NOTE When the security appliance is working in the Load Balancing or Failover mode, if one WAN link is down such as the cable is plug out, the WAN redundancy and Policy-based Routing settings are ignored, and all traffic is handled by the active WAN port. The WAN link means

STEP 1 Click **Wizards -> Dual WAN Wizard**.

The Getting Started window opens.

STEP 2 Click **Begin**.

The Port Configuration window opens. Specify a configurable port (from GE 6 to GE10) as the secondary WAN interface. The dedicated physical port GE1 is set as the primary WAN interface.

STEP 3 After you are finished, click **Next**.

The Primary WAN Connection window opens. Depending on the requirements of your ISP, choose the network addressing mode from the **IP Address Assignment** drop-down list for the primary WAN port and complete the corresponding fields. The security appliance supports DHCPC, Static IP, PPPoE, PPTP, and L2TP. For complete details, see **Configuring the Network Addressing Mode, page 106**.

STEP 4 After you are finished, click **Next**.

The Secondary WAN Connection window opens. Depending on the requirements of your ISP, choose the network addressing mode from the **IP Address Assignment** drop-down list for the secondary WAN port and complete the corresponding fields. For complete details, see **Configuring the Network Addressing Mode, page 106**.

STEP 5 After you are finished, click **Next**.

The WAN Redundancy Configuration window opens. From this page you can determine how the two ISP links are used.

Choose the WAN redundancy mode and configure the relevant settings:

- **Weighted Load Balancing:** Distributes the bandwidth to two WAN ports by the weighted percentage or by weighted link bandwidth. If you choose this mode, choose one of the following options:
  - **Weighted By percentage:** If you choose this option, specify the percentage for each WAN, such as 80% percentage bandwidth for WAN1 and least 20% percentage bandwidth for WAN2.
  - **Weighted By Link Bandwidth:** If you choose this option, specify the rate limiting for each WAN, such as 10 Mbps for WAN1 and 5 Mbps for WAN2.
- **Failover:** Automatically directs all Internet traffic to the secondary link if the primary link is down. When the primary link regains connectivity, all Internet traffic is directed to the primary link and the secondary link becomes idle.
  - **Auto Failover to:** Choose either WAN1 or WAN2 as the primary link. By default, WAN1 is set as the primary link and WAN2 is set as the backup link. You can also set WAN2 as the primary link.
  - **Preempt Delay Timer:** Enter the time in seconds that the system will preempt the primary link from the backup link after the primary link is up again. The default is 5 seconds.

STEP 6 After you are finished, click **Next**.

The Network Detection window opens. From this page you can configure how to detect the link failure.

Enter the following information:

- **Retry Count:** Enter the number of retries. The security appliance repeatedly tries to connect to the ISP after the link failure is detected.
- **Retry Timeout:** Enter the interval value between two detection packets (Ping or DNS detection).
- **Ping Detection-Ping using WAN Default Gateway:** If you choose this option, ping the IP address of the default WAN gateway. If the default WAN gateway can be detected, the network connection is active.
- **DNS Detection-DNS Lookup using WAN DNS Servers:** If you choose this option, the security appliance sends out the DNS query for www.cisco.com to the default WAN DNS server. If the DNS server can be detected, the network connection is active.

STEP 7 After you are finished, click **Next**.

The Summary window opens. The Summary window displays the summary information for all configurations you made.

STEP 8 Click **Submit** to save your settings and exit the Dual WAN Wizard.

Using the Site-to-Site Wizard to Establish the Site-to-Site VPN Tunnels

Use the Site-to-Site Wizard to configure the site-to site VPN to provide a secure connection between two routers that are physically separated over the IPSec VPN tunnel. It includes the following sections:

NOTE Before you begin, you need to know the subnet address of your local and remote networks, and import the digital certificates for authentication between the two peers if needed.

Using the Site-to-Site Wizard to Establish the Site-to-Site VPN tunnel

STEP 1 Click **Wizards -> Site-to-Site Wizard**.

The Getting Started window opens.

STEP 2 Click **Begin**.

The VPN Peer Settings window opens. From this page you can specify the IPSec VPN policy profile for establishing the IPSec VPN tunnel with a remote router.

Enter the following information:

- **Profile Name:** Enter the name for the IPSec VPN policy profile.
- **The Interface for this VPN:** Choose the WAN interface that the traffic passes through over the IPSec VPN tunnel.

- **IP Address/FQDN of Remote Peer Site:** Choose one of the following options:
  - **Static IP:** If the remote peer uses a static IP address, choose this option. Enter the IP address of the remote device in the **Address** field.
  - **Dynamic IP:** If the remote peer uses a dynamic IP address, choose this option.
  - **FQDN (Fully Qualified Domain Name):** To use the domain name of the remote network, such as vpn.company.com, choose this option. Enter the domain name of the remote device in the **Address** field.
- **Authentication:** Specify the authentication method.
  - **Pre-Shared Key:** If you choose this option, enter the desired value that the peer device must provide to establish a connection in the **Key** field, and enter the same value in the **Retype Key** field for confirmation. The pre-shared key must be entered exactly the same here and on the remote peer.
  - **Certificate:** If you choose this option, choose the local certificate and the peer certificate for authentication. On the remote site, the selected local certificate should be set as the peer certificate, and the selected peer certificate should be set as the local certificate. If the certificate you want is not in the list, go to the **Device Management -> Certificate Management** page to import the certificates. See **Managing the Certificates for Authentication, page 310**.

STEP 3 After you are finished, click **Next**.

The IKE Policy window opens. You must specify the IKE policy for the IPSec VPN policy profile. You can choose the default or a custom IKE policy. For complete detals, see **Configuring the IKE Policies, page 55**.

STEP 4 After you are finished, click **Next**.

The Transform Policy window opens. You must specify the transform policy for the IPSec VPN policy profile. You can choose the default or a custom transform policy. For complete detals, see **Configuring the Transform Policies, page 57**.

STEP 5 After you are finished, click **Next**.

The Local and Remote VPN Networks window opens. Enter the following information:

- **Local Network:** Choose the IP address of the local network. If you want to enable zone access control settings for the IPSec VPN tunnels, choose **Any** for the local network.
- **Remote Network:** Choose the IP address of the remote network. You must know the IP address of the remote network before connecting the IPSec VPN tunnel.

  If the IP address object you want is not in the list, choose **Create an IP Address** to add a new address object. To maintain the IP address objects, go to the **Networking -> Address Object Management** page. See **Address Management, page 152**.

  NOTE The security appliance can support multiple subnets for IPSec VPN tunnel, you may need to select a group address object including multiple VLANs for local and remote network.

STEP 6 After you are finished, click **Next**.

The Summary window opens. The Summary window displays the summary information for all configurations you made.

STEP 7 Click **Submit** to save your settings and exit the Site-to-Site Wizard.

Configuring the IKE Policies

In the IKE Policy window, follow these procedures to create a new IKE policy.

STEP 1 To add an IKE policy, click **Add**.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**.

After you click Add, the IKE Policy - Add/Edit window opens.

STEP 2 Enter the following information:

- **Name:** Enter an unique name for the IKE policy.
- **Encryption:** Choose the algorithm used to negotiate the security association. There are four algorithms supported by the security appliance: ESP_3DES, ESP_AES-128, ESP_AES-192, and ESP_AES-256.

- **HASH:** Specify the authentication algorithm for the VPN header. There are two HASH algorithms supported by the security appliance: SHA1 and MD5.

  NOTE Ensure that the authentication algorithm is configured identically on both sides.

- **Authentication:** Specify the authentication method that the security appliance uses to establish the identity of each IPSec peer.
  - **PRE-SHARE:** Uses a simple password based key to authenticate. The alpha-numeric key is shared with IKE peer. Pre-shared keys do not scale well with a growing network but are easier to set up in a small network.
  - **RSA-SIG:** Uses a digital certificate to authenticate. RSA-SIG is a digital certificate with keys generated by the RSA signatures algorithm. In this case, a certificate must be configured in order for the RSA-Signature to work.
- **D-H Group:** Choose the Diffie-Hellman group identifier. The identifier is used by two IPsec peers to derive a shared secret without transmitting it to each other. The D-H Group sets the strength of the algorithm in bits. The default is D-H Group 5. The lower the Diffie-Hellman group number, the less CPU time it requires to execute. The higher the Diffie-Hellman group number, the greater the security.
  - Group 2 (1024-bit)
  - Group 5 (1536-bit)
  - Group 14 (2048-bit)
- **Lifetime:** Enter the number of seconds for the IKE Security Association to remain valid. The default is 24 hours. As a general rule, a shorter lifetime provides more secure ISAKMP negotiations. However, with shorter lifetimes, the security appliance sets up future IPsec SAs more quickly.

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

Configuring the Transform Policies

In the Transform Policy window, follow these procedures to create a new transform policy.

STEP 1 To add an entry, click **Add**.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**.

After you click Add, the Transform Policy - Add/Edit window opens.

STEP 2 Enter the following information:

- **Name:** Enter an unique name for the transform policy.
- **Integrity:** Choose the hash algorithm used to ensure data integrity. The hash algorithm ensures that a packet comes from where it says it comes from, and that it has not been modified in transit. The default is ESP_SHA1_HMAC.
  - **ESP_SHA1_HMAC:** Authentication with SHA_1 (160-bit).
  - **ESP_MD5_HMAC:** Authentication with MD5 (128-bit). MD5 has a smaller digest and is considered to be slightly faster than SHA_1. A successful (but extremely difficult) attack against MD5 has occurred; however, the HMAC variant IKE uses prevents this attack.
- **Encryption:** Choose the symmetric encryption algorithm that protects data transmitted between two IPSec peers. The default is ESP-3DES. The Advanced Encryption Standard supports key lengths of 128, 192, 256 bits.
  - **ESP_3DES:** Encryption with 3DES (168-bit).
  - **ESP_AES_128:** Encryption with AES (128-bit).
  - **ESP_AES_192:** Encryption with AES (192-bit).
  - **ESP_AES_256:** Encryption with AES (256-bit).

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

Using the Remote Access Wizard to Establish the IPSec VPN Tunnels or SSL VPN Tunnels for Remote Access

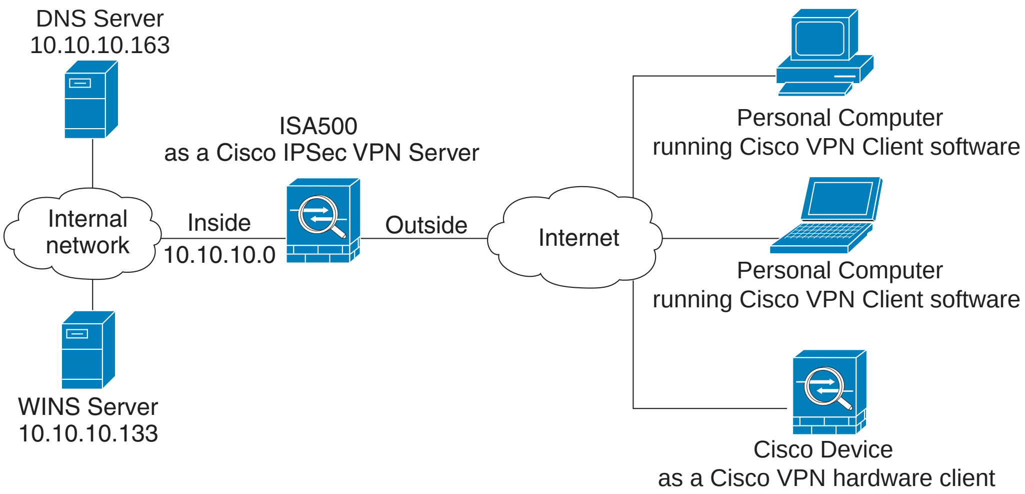
The Remote Access Wizard helps you configure your security appliance as a Cisco IPSec VPN server or as a SSL VPN gateway so that remote users can securely access the corporate network resources over the VPN tunnels. It includes the following sections:

Using Cisco IPSec VPN to Establish the IPSec VPN Tunnels

The security appliance can function as a Cisco IPSec VPN server to allow the remote users to establish the IPSec tunnels and securely access the corporate network resources.

The Cisco IPSec VPN server pushes the security policies to remote clients so that remote clients have up-to-date policies in place before establishing the connections. This flexibility allows mobile and remote users to access critical data and applications on the corporate Intranet. The remote client can be a Cisco device that supports the Cisco VPN hardware client or a PC running the Cisco VPN Client software (v4.x or v5.x).

Figure 1 IPSec Remote Access with a Cisco VPN Client Software or a Cisco Device as a Cisco VPN Hardware Client



STEP 1 Click **Wizards -> Remote Access**.

The Getting Started window opens.

STEP 2 To establish the IPSec VPN tunnel for remote access, choose **Cisco IPSec VPN** as the VPN tunnel type.

STEP 3 Click **Begin**.

The Group Setting window opens. From this page you can specify the Cisco IPSec VPN server group policy:

- **Group Name:** Enter the name for the group policy.
- **IKE Authentication Method:** Specify the authentication method.
  - **Preshare Key:** If you choose this option, enter the desired value that the peer device must provide to establish a connection. The pre-shared key must be entered exactly the same here and on the remote clients.
  - **Certificate:** If you choose this option, choose a local certificate and a remote certificate for authentication. On the remote clients, the selected local certificate should be set as the remote certificate, and the selected remote certificate should be set as the local certificate. If the certificate is not in the list, go to the **Device Management -> Certificate Management** page to import the certificates. See **Managing the Certificates for Authentication, page 310**.

STEP 4 After you are finished, click **Next**.

The WAN Setting window opens. From this page you can choose the WAN interface that the traffic passes through over the IPSec VPN tunnel. If you have two links, you can enable WAN Failover to redirect the traffic to the secondary link when the primary link is down.

- **WAN Failover:** Click **On** to enable WAN Failover, or click **Off** to disable it.

NOTE To enable the WAN Failover for Cisco IPSec VPN tunnels, make sure that the secondary WAN interface was configured and the WAN redundancy was set to the Loab Balancing or Failover mode.

NOTE The security appliance will automatically update the local WAN gateway for the VPN tunnel based on the configurations of the backup WAN link. For this purpose, Dynamic DNS has to be configured because the IP address will change due to failover, or let the remote gateway use a dynamic IP address.

- **WAN Interface:** Choose the WAN interface that the traffic passes through over the IPSec VPN tunnel.

STEP 5 After you are finished, click **Next**.

The Network Setting window opens. From this page you can configure the mode of operation. The operation mode determines whether the inside host relative to the Cisco VPN hardware client is accessible from the corporate network over the tunnel. Specifying a operation mode is mandatory before making a connection because the Cisco VPN hardware client does not have a default mode. For more information, see **Modes of Operation, page 240**.

- **Client:** Choose this mode for the group policy that is used for both the PC running the Cisco VPN Client software and the Cisco device that supports the Cisco VPN hardware client. In client mode, the server can assign the IP address to the outside interface of remote clients. To define the pool range for the clients, enter the starting and ending IP addresses in the **Start IP** and **End IP** fields.

- **NEM:** Choose this mode for the group policy that is only used for the Cisco device that supports the Cisco VPN hardware client. The Cisco VPN hardware client will obtain a private IP address from a DHCP server over the IPSec VPN tunnel.

STEP 6 After you are finished, click **Next**.

The Access Control Setting window opens. From this page you can control the access from the PC running the Cisco VPN Client software or the private network of the Cisco VPN hardware client to the zones over the IPSec VPN tunnels. Click **Permit** to permit the access, or click **Deny**. By default, the access for all zones is permitted.

NOTE The VPN access rules that generated by the Zone Access Control settings will be automatically added to the firewall access rule table with the priority higher than the default access rules, but lower than the custom access rules.

STEP 7 After you are finished, click **Next**.

The DNS/WINS Setting window opens. From this page you can specify the DNS and domain settings:

- **Primary DNS Server:** Enter the IP address of the primary DNS server.
- **Secondary DNS Server:** Enter the IP address of the secondary DNS server.
- **Primary WINS Server:** Enter the IP address of the primary WINS server.
- **Secondary WINS Server:** Enter the IP address of the secondary WINS server.
- **Default Domain:** Enter the default domain name.

STEP 8 After you are finished, click **Next**.

The Backup Server Setting window opens. From this page you can specify up to three backup servers. When the primary server is down, the client can connect to the backup servers.

- **Backup Server 1/2/3:** Enter the IP addresses of backup servers. The backup server 1 has the highest priority and the backup server 3 has the lowest priority.

NOTE The backup servers specified on the Cisco IPSec VPN server will be sent to remote clients when initiating the VPN connection. The remote clients will cache them.

- **Peer Timeout:** Enter the time in minutes that the client retries to connect the backup server.

STEP 9 After you are finished, click **Next**.

The Split Tunnel Setting window opens. From this page you can specify the split tunneling settings:

- **Split Tunnel:** Click **On** to enable the split tunneling feature, or click **Off** to disable it. Split tunneling allows only the traffic that is specified by the VPN client routes to corporate resources through the VPN tunnel. If you enable the split tunneling feature, you need to define the split subnets. To add a subnet, enter the IP address in the **IP** filed and and netmask address in the **Netmask** filed, and then click **Add**. To delete a subnet, choose a subnet from the list and then click **Delete**.

STEP 10 After you are finished, click **Next**.

The Cisco IPSec VPN-Group Policy Summary window opens. The Group Policy Summary page displays the summary information for all configurations that you made for the Cisco IPSec VPN group policy.

STEP 11 Click **Next** to configure the Cisco IPSec VPN user group settings.

The Cisco IPSec VPN - User Group Setting window opens. From this page you can configure the user groups and enable the Cisco IPSec VPN service for them. The users in the specified user group can use the Cisco IPSec VPN group policies to establish the IPSec VPN tunnels. For complete details, see **Configuring the Cisco IPSec VPN User Groups, page 63**.

STEP 12 After you are finished, click **Next**.

The Cisco IPSec VPN Summary window opens. The Summary page displays the summary information for all Cisco IPSec VPN group policies and user groups you made.

STEP 13 Click **Submit** to save your settings and exit the Remote Access Wizard.

Configuring the Cisco IPSec VPN User Groups

In the Cisco IPSec VPN - User Group Setting window, follow these procedures to create a Cisco IPSec VPN user group.

STEP 1 Click **Add** to add a Cisco IPSec VPN user group.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. To delete multiple entries, check the boxes of multiple entries and click **Delete Selection**.

After you click Add, the New Group - Add/Edit window opens.

STEP 2 In the **Group Settings** tab, enter the following information:

- **Name:** Enter an unique name that contains the letters, numbers, or underline for the Cisco IPSec VPN user group.
- **Services:** Specify the service policy for the group. The Cisco IPSec VPN service must be enabled for this user group so that all members of the group to securely access your network resources over the IPSec VPN tunnels.

STEP 3 In the **Membership** tab, specify the members of the user group.

- To add a member, select an existing user from the **User** list and then click the right arrow **->**. The members of the groups appear in the **Membership** list.
- To delete a member from the group, select the member from the **Membership** list and then click the left arrow **<-**.
- To create a new user, enter the user name in the **User Name** field and the password in the **Password** field, enter the password again in the **Password Confirm** field, and click **Create**.

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

Using SSL VPN to Establish the SSL VPN Tunnels

Use the Remote Access Wizard to set your security appliance as a SSL VPN gateway to establish the SSL VPN tunnels and allow remote users to securely access the corporate network resources.

STEP 1 Click **Wizards -> Remote Access**.

The Getting Started window opens.

STEP 2 To establish the SSL VPN tunnels for remote access, choose **SSL VPN** as the VPN tunnel type.

STEP 3 Click **Begin**.

The SSL VPN Configuration window opens.

STEP 4 In the **Gateway (Basic)** area, enter the following information:

- **Gateway Interface:** Choose the WAN interface that the traffic over the SSL VPN tunnel passes through.
- **Gateway Port:** Enter the port number used on the SSL VPN gateway. HTTPS or SSL typically operates on port 443. However, the SSL VPN gateway can also operate on a user defined port. The firewall should permit the port to ensure delivery of packets destined for the SSL VPN gateway. The SSL VPN clients need to enter the entire address pair “Gateway IP Address: Port Number” for connectting purposes.
- **Certificate File:** Choose a certificate to authenticate the users who want to access your network resource through the SSL VPN tunnel.
- **Client Address Pool:** The SSL VPN gateway has a configurable address pool with maximum size of 255 which is used to allocate IP addresses to the remote clients. Enter the IP address pool for all remote clients. The client is assigned an IP address by the SSL VPN gateway.

NOTE Configure an IP address range that does not directly overlap with any of addresses on your local network.

- **Client Netmask:** Enter the IP address of the netmask used for SSL VPN clients.

  The Client Address Pool is used with the Client Netmask. If they are set as follows, then the SSL VPN client will obtain a VPN address whose range is from 10.0.0.1 to 10.0.0.254.

  - Client Address Pool = 10.0.0.0
  - Client Netmask = 255.255.255.0
- **Client Domain:** Enter the domain name used for the SSL VPN clients.
- **Login Banner:** After the user successfully logs into the SSL VPN server, a configurable login banner is displayed. Enter the message text to display along with the banner.

STEP 5 In the **Gateway (Advanced)** area, enter the following information:

- **Idle Timeout:** Enter the timeout value in seconds that the SSL VPN session can remain idle.
- **Session Timeout:** Enter the timeout value in seconds that the SSL VPN session can remain connected.
- **Client DPD Timeout:** Dead Peer Detection (DPD) allows detection of dead peers. Enter the DPD timeout for client in this field.
- **Gateway DPD Timeout:** Enter the DPD timeout for SSL VPN gateway in this field.
- **Keep Alive:** If you want the SSL VPN server to keep sending a message at an interval, enter the interval value in this field.
- **Lease Duration:** Enter the amount of time after which the SSL VPN client must send an IP address lease renewal request to the server.
- **Max MTU:** Enter the maximum transmission unit for the session.
- **Rekey Method:** Specify the session rekey method (**SSL** or **New Tunnel**). Rekey allows the SSL keys to be renegotiated after the session is established.
- **Rekey Interval:** Enter the frequency of the rekey in this field.

STEP 6 After you are finished, click **Next**.

The SSL VPN Group Policy window opens. From this page you can configure the SSL VPN goup policies. For complete details, see **Configuring the SSL VPN Group Policies, page 66**.

NOTE The security appliance supports up to 32 SSL VPN goup policies.

STEP 7 After you are finished, click **Next**.

The SSL VPN-User Group Setting window opens. From this page you can configure the SSL VPN user groups and enable the SSL VPN service for them. The users in the specified user group can use the selected SSL VPN group policy to establish the SSL VPN tunnels. For complete details, see **Configuring the SSL VPN User Groups, page 69**.

STEP 8 After you are finished, click **Next**.

The SSL VPN Summary window opens. The Summary page displays the summary information for all SSL VPN group policies and user groups you made.

STEP 9 Click **Submit** to save your settings and exit the Remote Access Wizard.

Configuring the SSL VPN Group Policies

In the SSL VPN Group Policy window, follow these procedures to create a SSL VPN goup policy.

STEP 1 To add a new SSL VPN group policy, click **Add**.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. To delete multiple entries, check the boxes of multiple entries and click **Delete Selection**.

After you click Add, the Group Policy - Add/Edit window opens.

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

- **Policy Name:** Enter the name for the SSLP VPN group policy.
- **Primary DNS:** Enter the IP address of the primary DNS server.
- **Secondary DNS:** Enter the IP address of the secondary DNS server.
- **Primary WINS:** Enter the IP address of the primary WINS server.
- **Secondary WINS:** Enter the IP address of the secondary WINS server.

STEP 3 In the **IE Proxy Settings** tab, enter the following information:

The SSL VPN gateway can specify several Microsoft Internet Explorer (MSIE) proxies for client PCs. If these settings are enabled, IE on the client PC is automatically configured with these settings.

- **IE Proxy Policy:** Choose one of the following options:
  - **None:** Allows the browser to use no proxy settings.
  - **Auto:** Allows the browser to automatically detect proxy settings.
  - **Bypass-local:** Allows the browser to bypass proxy settings that are configured on the remote user.

- **Address:** If you choose Bypass-Local, enter the IP address or domain name of the MSIE proxy server. It is configured as an IPv4 address or fully qualified domain name, followed by a colon and port number, for example xxx.xxx.xxx.xxx:80.
- **Port:** Enter the port number of the MSIE proxy server.
- **IE Proxy Exception:** If you choose Bypass-Local, enter the IP address or domain name of an exception host. This option allows the browser not to send traffic for the given hostname or IP address through the proxy.

STEP 4 In the **Split Tunneling Settings** area, enter the following information:

Split tunnel mode permits specific traffic to be carried outside of the SSL VPN tunnel. Traffic is either included (resolved in tunnel) or excluded (resolved through the Internet Service Provider or WAN connection). Tunnel resolution configuration is mutually exclusive. An IP address cannot be both included and excluded at the same time.

- **Enable Split Tunneling:** By default, the SSL VPN gateway operates in full tunnel mode which means that all of traffic from the host is directed through the tunnel. Check the box to enable the Split Tunnel mode so that the tunnel is used only for the traffic that is specified by the client routes.
- **Split Include:** If you enable split tunneling, choose one of the following options:
  - **Include Traffic:** Allows you to add the client routes on the SSL VPN client so that only traffic to the destination networks redirected through the SSL VPN tunnels.

    To add a client route, enter the destination subnet to which a route is added on the SSL VPN client in the **Address** field and the the subnet mask for the destination network in the **Netmask** field, and then click **Add**.
  - **Exclude Traffic:** Allows you to exclude the destination networks on the SSL VPN client. The traffic to the destination networks is redirected using the SSL VPN clients native network interface (resolved through the Internet Service Provider or WAN connection).

    To add a destination subnet, enter the destination subnet to which a route is excluded on the SSL VPN client in the **Address** field and the the subnet mask for the excluded destination in the **Netmask** field, and then click **Add**.

- **Exclude LAN:** If you choose Exclude Traffic, click **True** to deny the SSL VPN clients to access the local LANs over the VPN tunnel, or click **False** to allow the SSL VPN clients to access the local LANs over the VPN tunnel.

- **Split DNS:** Split DNS provides the ability to direct DNS packets in clear text over the Internet to domains served through an external DNS (serving your ISP) or through a SSL VPN tunnel to domains served by the corporate DNS.

  For example, a query for a packet destined for corporate.com would go through the tunnel to the DNS that serves the private network, while a query for a packet destined for myfavoritesearch.com would be handled by the ISP's DNS. By default, this feature is configured on the SSL VPN gateway and is enabled on the client. To use Split DNS, you must also have Split Tunnel mode configured.

  To add a domain to the Cisco AnyConnect VPN Client for tunneling packets to destinations in the private network, end the domian name in the field and then click **Add**. To delete a domain, select it from the list and click **Delete**.

STEP 5 In the **Zone-based Firewall Settings** area, you can control the access over the SSL VPN tunnels.

- Click **Permit** to permit the access from the SSL VPN clients to the zones.

- Click **Deny** to deny the access from the SSL VPN clients to the zones.

NOTE The VPN access rules that automatically generated by the zone-based firewall settings will be added to the firewall access rule table with the priority higher than the default firewall ACL rules, but lower than the custom firewall ACL rules.

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

Configuring the SSL VPN User Groups

In the SSL VPN-User Group Setting window, follow these procedures to create a SSL VPN user group.

STEP 1 Click **Add** to add a SSL VPN user group.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. To delete multiple entries, check the boxes of multiple entries and click **Delete Selection**.

After you click Add, the New Group - Add/Edit window opens.

STEP 2 In the **Group Settings** tab, enter the following information:

- **Name:** Enter an unique name that contains the letters, numbers, or underline for the SSL VPN user group.
- **Services:** Specify the service policy for the group. The SSL VPN service must be enabled for this user group. Choose a SSL VPN group policy so that all members of the group at the remote site can establish the SSL VPN tunnels based on the selected SSL VPN group policy to access your network resources.

STEP 3 In the **Membership** tab, specify the members of the user group.

- To add a member, select an exsiting user from the **User** list and then click the right arrow **->**. The members of the groups appear in the **Membership** list.
- To delete a member from the group, select the member from the **Membership** list, and then click the left arrow **<-**.
- To create a new member, enter the user name in the **User Name** field and the password in the **Password** field, enter the password again in the **Password Confirm** field, and click **Create**.

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

3

Status

This chapter describes how to monitor the system status and performance for your security appliance.

To access the Status pages, click **Status** in the left hand navigation pane.

System Status

The Dashboard page displays the current system status. To open this page, click **Status -> Dashboard**.

Router Information

System Name	The device name of your security appliance.

Firmware (Primary/ Secondary)	The firmware version that the security appliance is currently using (primary) and the firmware version that was previously running (secondary). By default, the security appliance boots up with the primary firmware. To switch to the secondary firmware, see **Using the Secondary Firmware, page 300**.
Bootloader Version	The bootloader version.
Serial Number	The security appliance serial number.
PID	The product identifier (PID) of the security appliance, also known as product name, model name, and product number.
UDI	The Unique Device Identifier (UDI) of the security appliance. UID is Cisco's product identification standard for hardware products.

Resource Utilization

To see complete details for resource utilization, click **Details**.

CPU Utilization	The CPU usage.
Memory Utilization	The allocated memory space after the security appliance boots.
System Up Time	How long the security appliance has been running.

Licenses

Display the security license status. To manage the security license, click **Manage**.

Syslog Summary

Display the summary of the system event logs. Syslog entries are defined by different severity levels. To see complete logs, click **details**.

Emergency	Total number of Emergency logs. Click the number link for details.
Alert	Total number of Alert logs. Click the number link for details.

Critical	Total number of Critical logs. Click the number link for details.
Error	Total number of Error logs. Click the number link for details.
Warning	Total number of Warning logs. Click the number link for details.
Notification	Total number of Notification logs. Click the number link for details.
Information	Total number of Information logs.

Site-to-Site VPN

Display the total number of Site-to-Site VPN sessions. To see complete details, click **details.**

Remote Access VPN

SSL Users	Total number of active SSL VPN sessions. Click the **SSL Users** link for details.
IPSec Users	Total number of active IPSec VPN sessions that initiated by your security appliance. Click the **IPSec Users** link for details. This option is available when your security appliance is set as the Cisco IPSec VPN Server or Cisco IPSec VPN Client.

Routing Mode

Display the routing mode between WAN and LAN. By default, the NAT mode is enabled. Click **details** to enable or disable the Routing mode.

Physical Ports

To see complete details for all physical ports, click **details**.

Single - Dedicated Port	How many WAN interfaces are set, for example, Single - Dedicated Port.
Name	The name of the physical interface.
Port Type	The port type of the physical interface.

Mode	The link status of the physical interface.

WAN Mode

Display the WAN configuration mode of the security appliance (Single WAN port, Failover, or Load Balancing). To see complete details for WAN redundancy, click **details**.

WAN Interfaces

To see complete details for all WAN interfaces, click **details**.

WAN1 to WAN*x*	The name of the WAN interface.
IP Address	The IP addresses assigned to the WAN interface.

LAN Interface

To see complete details for all VLANs, click **details**.

Index	The VLAN ID.
Name	The VLAN name.
DHCP Mode	The DHCP mode of the VLAN.
IP Address	The subnet IP address of the VLAN.

DMZ Interface

To see complete details for DMZ, click **details**.

Port	The configurable interface that is set as the DMZ interface.
Name	The name of the DMZ interface.
IP Address	The subnet IP address of the DMZ interface.

Wireless Interface

To see complete details for all SSIDs, click **details**.

SSID Number	The SSID ID.
SSID Name	The SSID name.
VLAN	The VLANs to which the SSID is mapped.
Client List	The number of client stations that are connected to the SSID.

Interface Status

The Interface Status pages display the ARP entries, IP address assignment of DHCP pool, and the status and statistic information for all Ethernet ports, WANs, VLANs, and DMZs. It includes the following sections:

ARP Table

The Address Resolution Protocol (ARP) is a computer networking protocol that determines a network host's Link Layer or hardware address when only the Internet Layer (IP) or Network Layer address is known.

The ARP table displays the IP addresses and corresponding MAC addresses of the devices under your local network. To open this page, click **Status -> Interface Status -> Show ARP Table**.

IP Address	Indicates the station IP address, which is associated with the MAC address.
MAC Address	Indicates the station MAC address, which is associated with the IP address.
Flag	Indicates the ARP entry status.

Device	Indicates the interface for which the ARP parameters are defined.

DHCP Pool Assignment

The DHCP Pool Assignment page displays the IP address assignment by the DHCP server on your security appliance. Click **Refresh** to refresh the data. To open this page, click **Status -> Interface Status -> DHCP Pool Assignment**.

IP Address	The IP address assigned to the host or the remote device.
MAC Address	The MAC address of the host or the remote device.
Lease Start Time	The lease starting time of the IP address.
Lease End Time	The lease ending time of the IP address.

Interface

The Interface page displays the status for all Ethernet ports, WANs, VLANs, and DMZs. To open this page, click **Status -> Interface Status -> Interface**.

Ethernet Table

The Ethernet table displays the following information for all physical ports:

Port	The number of the physical port.
Name	The name of the physical port.
Enable	Shows if the physical port is enabled or disabled.
Port Type	The physical port type, such as WAN, LAN, or DMZ.
Mode	The physical port access mode. A WAN or DMZ port is always set to Access mode and a LAN port can be set to Access or Trunk mode.
VLAN	The VLANs to which the physical port is mapped.

PVID	The Port VLAN ID (PVID) to be used to forward or filter the untagged packets coming into the port. The PVID of a Trunk port is fixed to the DEFAULT VLAN (1).
Speed/Duplex	The duplex mode (speed and duplex setting) of the physical port.
Link Status	Shows if the physical port is connected or not.

WAN Table

The WAN table displays the following information of all WAN interfaces:

Name	The name of the WAN interface.
WAN Type	The network addressing mode used to connect to the Internet for the WAN interface.
Connection Time	How long the WAN interface is connected, in seconds.
Connection Status	Shows if the WAN interface obtains an IP address successfully or not. If yes, the connection status shows as “Connected”.
MAC Address	The MAC address of the WAN interface.
IP Address	The IP address of the WAN interface that is accessible from the Internet.
Netmask	The IP address of subnet mask for the WAN interface.
Gateway	The IP address of default gateway for the WAN interface.
DNS Server	The IP address of the DNS server for the WAN interface.
Physical Port	The physical interface that is associated with the WAN interface.
Link Status	Shows if the cable is inserted to the WAN interface or not. If the link status shows as “Not Link”, the cable may be loose or malfunctioning.
Zone	The zone to which the WAN interface is assigned.

VLAN Table

The VLAN table displays the following VLAN information:

Name	The VLAN name.
VID	The VLAN ID.
Address	The subnet IP address and netmask of the VLAN.
Physical Port	The physical ports that are assigned to the VLAN.
Zone	The zone to which the VLAN is mapped.

DMZ Table

The DMZ table displays the following DMZ information:

Name	The DMZ name.
VID	The VLAN ID.
Address	The subnet IP address and netmask of the DMZ.
Physical Port	The physical port that is assigned to the DMZ.
Zone	The zone to which the DMZ is mapped.

Interface Statistics

The Interface Statistics page displays the traffic data for active physical ports, WANs, VLANs, and DMZs. This page is automatically updated every 10 seconds. To open this page, click **Status -> Interface Status -> Interface Statistics**.

Ethernet Table

The Ethernet table displays the traffic data for all active physical ports:

Port	The name of the physical port.
Link Status	Shows if the port is connected or not.
Tx Pxts	The number of IP packets going out of the port.
Rx Pxts	The number of IP packets received by the port.

Collisions	The number of signal collisions that have occurred on this port. A collision occurs when the port tries to send data at the same time as a port on the other router or computer that is connected to this port.
Tx B/s	The number of bytes going out of the port per second.
Rx B/s	The number of bytes received by the port per second.
Up Time	How long the port has been active. The uptime is reset to zero when the security appliance or the port is restarted.

WAN Table

The WAN table displays the traffic statistic information for all WAN ports:

Name	The name of the WAN port.
Tx Pkts	The number of IP packets going out of the WAN port.
Rx Pkts	The number of IP packets received by the WAN port.
Collisions	The number of signal collisions that have occurred on this WAN port.
Tx B/s	The number of bytes going out of the WAN port per second.
Rx B/s	The number of bytes received by the WAN port per second.
Up Time	How long the WAN port has been active. The uptime is reset to zero when the security appliance or the WAN port is restarted.

VLAN Table

The VLAN table displays the flow statistic information for all VLANs:

Name	The VLAN name.
Tx Pkts	The number of IP packets going out of the VLAN.
Rx Pkts	The number of IP packets received by the VLAN.

Collisions	The number of signal collisions that have occurred on this VLAN.
Tx B/s	The number of bytes going out of the VLAN per second.
Rx B/s	The number of bytes received by the VLAN per second.
Up Time	How long the LAN port has been active.

DMZ Table

The DMZ table displays the flow statistic information for all DMZs:

Name	The name of the DMZ.
Tx Pkts	The number of IP packets going out of the DMZ.
Rx Pkts	The number of IP packets received by the DMZ.
Collisions	The number of signal collisions that occurred on the DMZ.
Tx B/s	The number of bytes going out of the DMZ per second.
Rx B/s	The number of bytes received by the DMZ per second.
Up Time	How long the DMZ port has been active.

Poll Interval

Enter a value in seconds for the poll interval. This causes the page to re-read the statistic information from the security appliance and refreshes the page automatically.

To modify the poll interval, click **Stop** and then click **Start** to restart the automatic refresh by using the specified poll interval.

Wireless Status for ISA550W and ISA570W

Use the Wireless pages to view the wireless status and the number of client stations that are connected to the SSIDs. It includes the following sections:

- **Wireless Status, page 80**
- **Client Status, page 81**

Wireless Status

The Wireless Status page displays the cumulative total of relevant wireless statistics for all active SSIDs. The counters is reset when the security appliance reboots. To open this page, click **Status -> Wireless -> Wireless Status**.

Wireless Table

The security appliance may have multiple SSIDs enabled and configured concurrently. This table displays the following information of all active SSIDs.

SSID Number	The SSID ID.
SSID Name	The SSID name.
MAC	The MAC address of the SSID.
VLAN	The VLAN to which the SSID is mapped.
Client List	The number of client stations that are connected to the SSID.

Wireless Statistics Table

This table displays the traffic data for a given SSID.

Name	The SSID name.
Tx Pkts	The number of transmitted packets on the SSID.
Rx Pkts	The number of received packets on the SSID.
Collisions	The number of packet collisions reported to the SSID.
Tx B/s	The number of transmitted bytes of information on the SSID.
Rx B/s	The number of received bytes of information on the SSID.
Up Time	How long the SSID has been active.

Client Status

The Client Status page displays the MAC address and IP address of all client stations that are already connected to each SSID. Click **Refresh** to refresh the data. To open this page, click **Status -> Wireless -> Client Status**.

Active Users

The Active Users page displays all active users who are currently logged into the security appliance. Click the **Logout** button to terminate an active user session. To open this page, click **Status -> Active Users**.

You can check the following user session information.

User Name	The name of the logged user.
Address Information	The host IP address from which the user accessed the security appliance.
Login Method	How the user logs into the security appliance, such as web login, SSL VPN, or Cisco IPSec VPN.
Session Time	How long the user logged into the security appliance.

VPN Status

The VPN Status pages display the status and statistic information of IPSec and SSL VPN sessions. You can manually connect or disconnect the VPN tunnels. It includes the following sections:

- **IPSec VPN Status, page 82**
- **SSL VPN Status, page 83**

IPSec VPN Status

The VPN Table page displays the status and statistic information for IPsec VPN sessions. To open this page, click **Status -> VPN Status -> VPN Table**.

Status for all IPSec VPN Sessions

The **Active Sessions** tab displays the following IPsec VPN session information:

Name	The name of the IPSec VPN policy that is used for the VPN session.
VPN Type	The connection type of the IPSec VPN session, such as Site-to-Site, Cisco IPSec VPN Server, or Cisco IPSec VPN Client.
WAN Interface	The WAN interface used for the IPSec VPN session.
Remote Gateway	The IP address of the remote gateway for a Site-to-Site VPN session or the IP address of the remote VPN client for a Cisco IPSec VPN session.
Local Network	The subnet IP address and netmask of your local network.
Remote Network	The subnet IP address and netmask of the remote network.
Connect	Click this button to manually establish a VPN connection.
Disconnect	Click this button to manually terminate an active VPN connection.

Statistics for all active IPSec VPN Sessions

The **IPSec VPN Statistic** tab displays the statistic information for all active IPsec VPN sessions:

Name	The name of the IPSec VPN policy used for the VPN session.
VPN Type	The connection type of the IPSec VPN session.
WAN Interface	The WAN interface used for the IPSec VPN session.

Remote Gateway	The IP address of the remote gateway for a Site-to-Site VPN session or the IP address of the remote VPN client for a Cisco IPSec VPN session.
Tx Bytes	The volume of traffic in Kilobytes transmitted from the VPN tunnel.
Rx Bytes	The volume of traffic in Kilobytes received from the VPN tunnel.
Tx Pkts	The number of IP packets transmitted from the VPN tunnel.
Rx Pkts	The number of IP packets received from the VPN tunnel.

SSL VPN Status

The SSL VPN Monitoring page displays the status and traffic statistic information of all SSL VPN sessions. To open this page, click **Status -> VPN Status -> SSLVPN Monitoring**.

Status of all Active SSL VPN Sessions

The **Sessions** tab displays the following information of all active SSL VPN sessions:

Session ID	The SSL VPN session ID.
User Name	The name of the connected SSL VPN user.
Client IP (Actual)	The actual IP address used by the SSL VPN client.
Client IP (VPN)	The virtual IP address assigned by the SSL VPN gateway.
Time Connected	The amount of time since the user first established the connection.
Disconnect	Click this button to terminate an active SSL VPN session and hence the associated SSL VPN tunnel.
Disconnect All	Click this button to terminate all active SSL VPN sessions and hence the associated SSL VPN tunnels.

Statistics for all SSL VPN Sessions or for a single SSL VPN session

The **Statistic** tab displays the global statistic information for all active SSL VPN sessions or for each SSL VPN session.

In the **Global Status** area, the global statistic information is displayed. To clear the global statistic information, click **Clear Global**.

Active Users	The number of all connected SSL VPN users.
In CSTP frames	The number of CSTP frames received from all clients.
In CSTP bytes	The total number of bytes in the CSTP frames received from all clients.
In CSTP data	The number of CSTP data frames received from all clients.
In CSTP control	The number of CSTP control frames received from all clients.
Out CSTP frames	The number of CSTP frames sent to all clients.
Out CSTP bytes	The total number of bytes in the CSTP frames sent to all clients.
Out CSTP data	The number of CSTP data frames sent to all clients.
Out CSTP control	The number of CSTP control frames sent to all clients.

The following statistic information for each SSL VPN session is displayed in the table. To clear the statistic information of a single SSL VPN session, click **Clear**.

Session ID	The SSL VPN session ID.
In CSTP frames	The number of CSTP frames received from the client.
In CSTP bytes	The total number of bytes in the CSTP frames received from the client.
In CSTP data	The number of CSTP data frames received from the client.
In CSTP control	The number of CSTP control frames received from the client.

Out CSTP frames	The number of CSTP frames sent to the client.
Out CSTP bytes	The total number of bytes in the CSTP frames sent to the client.
Out CSTP data	The number of CSTP data frames sent to the client.
Out CSTP control	The number of CSTP control frames sent to the client.

NOTE CSTP is a Cisco proprietary protocol for SSL VPN tunneling. “In” means “from the client” and “Out” means “to the client”. The client is the PC running the Cisco AnyConnect VPN Client software that connects to the security appliance running the SSL VPN server. A CSTP frame is a packet that carrying CSTP protocol information. There are two major frame types, control frames and data frames. Control frames implement control functions within the protocol. Data frames carry the client data, such as the tunneled payload.

Reports

The security appliance provides the report ability to help the operator or administrator analyze the system performance and security. It includes the following sections:

- **Reports of Event Logs, page 86**
- **Reports of WAN Bandwidth, page 87**
- **Reports of Security Services, page 87**

Reports of Event Logs

The security appliance can perform a rolling analysis of the event logs. The Report page displays the top 25 most frequently accessed websites, the top 25 users of bandwidth usage, and the top 25 services that consume the most bandwidth.

CAUTION Enabling the IP Bandwidth, Service Bandwidth, and TopN Web reports consumes additional system resources and may impact the system performance. Go to the **Status -> Dashboard** page to view the CPU and memory utilization. To conserve the system resources, disable the reports when they are no longer needed.

STEP 1 To open the Report page, click **Status -> Report -> Report**.

STEP 2 Click **On** to enable a report, or click **Off** to disable a report.

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

STEP 4 If you enable a report, choose this report from the **Type** drop-down list, the corresponding statistic information is displayed.

- **IP Bandwidth:** This report lists the top 25 users of bandwidth usage. It displays the number of megabytes transmitted per IP address since the system is up.

- **Service Bandwidth:** This report lists the top 25 Internet services that consume the most bandwidth. It displays the number of megabytes received from the service since the system is up.

  This report is helpful to determine whether the services being used are appropriate for your organization. If the services such as video or push broadcasts are consuming a large portion of the available bandwidth, you can block them.

- **Web Vistor:** This report lists the top 25 most frequently accessed websites. It displays the number of hits to a website since the system is up.

  This report ensures that the majority of web access is to appropriate websites. If inappropriate sites appear in this report, you can block the websites. For more information on blocking inappropriate websites, see **Configuring the Content Filtering to Control Access to Internet, page 201**, or **Web URL Filter, page 226**.

  Click on the domain name or site name of a website to open that site in a new prompt window to see what this website is about.

STEP 5 Click **Refresh Data** to update the data on the screen or click **Reset Data** to reset the values to zero.

Reports of WAN Bandwidth

The WAN Bandwidth report displays the run-time WAN network bandwidth usage by hour in the past 24 hours.

STEP 1 Click **Status -> Report -> WAN Bandwidth**.

STEP 2 Check the **Enable WAN Bandwidth** box to enable this report.

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

STEP 4 After you enable this report, in the **Primary WAN** tab, you can see the run-time network bandwidth usage for the primary WAN interface by hour in the past 24 hours.

STEP 5 If a secondary WAN interface is configured, in the **Secondary WAN** tab, you can see the run-time network bandwidth usage for the secondary WAN interface by hour in the past 24 hours.

STEP 6 Click **Reset** to reset the network bandwidth usages for both the primary WAN and secondary WAN interfaces.

Reports of Security Services

The Security Services page displays the statistical information for all enabled security services. To open the pages, click **Status -> Report -> Security Services**. It includes the following sections:

- **Web Security Blocked Report, page 88**
- **Anti-Virus Report, page 88**
- **Email Security Report, page 89**
- **Network Reputation Report, page 90**
- **IPS Policy Protocol Inspection Report, page 90**
- **IM and P2P Blocking Report, page 91**

NOTE The reports for the security services are provided only if the corresponding security services are enabled.

Web Security Blocked Report

This report displays the number of web access requests logged and the number of websites blocked by the Web URL Filter service, Web Reputation Filter service, or both.

In the **Web Security Blocked Report** tab, check the **Enable Web Security Blocked Report** box to enable this report, and then click **Save** to save your settings.

After you enable this report, the corresponding statistic information is displayed.

Device System Date	The current date for counting the data.
Total since the service was actived	The total number of web access requests processed and the total number of websites blocked since the Web URL Filter service, Web Reputation Filter service, or both were enabled.
Total for last 7 days	The total number of web access requests processed and the total number of websites blocked in last seven days.
Total for today	The total number of web access requests processed and the total number of websites blocked in one day.
Graph	Shows the total number of web access requests processed and the total number of websites blocked by day for last seven days.

Anti-Virus Report

This report displays the number of files checked and the number of viruses detected by the Anti-Virus service.

In the **Anti-Virus** tab, check the **Enable Anti-Virus Report** box to enable this report, and then click **Save** to save your settings.

After you enable this report, the corresponding statistic information is displayed.

Device System Date	The current date for counting the data.
Total since the service was actived	The total number of files checked and the total number of viruses detected since the Anti-Virus service was enabled.
Total for last 7 days	The total number of files checked and the total number of viruses detected in last seven days.
Total for today	The total number of files checked and the total number of viruses detected in one day.
Graph	Shows the total number of files checked and the total number of viruses detected by day for last seven days.

Email Security Report

This report displays the number of emails checked and the number of spams or supposed spams detected by the Email Reputation Filter service.

In the **Email Security Report** tab, check the **Enable Email Security Report** box to enable this report, and then click **Save** to save your settings.

After you enable this report, the corresponding statistic information is displayed.

Device System Date	The current date for counting the data.
Total since the service was actived	The total number of emails checked and the total number of spams or supposed spams detected since the Email Reputation Filter service was enabled.
Total for last 7 days	The total number of emails checked and the total number of spams or supposed spams detected in last seven days.
Total for today	The total number of emails checked and the total number of spams or supposed spams detected in one day.
Graph	Shows the total number of emails checked and the total number of spams or supposed spams detected by day for last seven days.

Network Reputation Report

This report displays the total number of packets checked and the number of packets blocked by the Network Reputation service.

In the **Network Reputation Report** tab, check the **Enable Network Reputation Report** box to enable this report, and then click **Save** to save your settings.

After you enable this report, the corresponding statistic information is displayed.

Device System Date	The current date for counting the data.
Total since the service was actived	The total number of packets checked and the total number of packets blocked since the Network Reputation service was enabled.
Total for last 7 days	The total number of packets checked and the total number of packets blocked in last seven days.
Total for today	The total number of packets checked and the total number of packets blocked in one day.
Graph	Shows the total number of packets checked and the total number of packets blocked by day for last seven days.

IPS Policy Protocol Inspection Report

This report displays the total number of packets for suspicious behaviors and attacks (such as Denial-of-Service attacks, malware, and backdoor exploits) detected and the number of packets dropped by the IPS service.

In the **IPS Policy Protocol Inspection** tab, check the **Enable IPS Policy Protocol Inspection Report** box to enable this report, and then click **Save** to save your settings.

After you enable this report, the corresponding statistic information is displayed.

Device System Date	The current date for counting the data.

Total since the service was actived	The total number of packets for suspicious behaviors and attacks detected and the total number of packets dropped since both the IPS service and the IPS Policy and Protocol Inspection were enabled.
Total for last 7 days	The total number of packets for suspicious behaviors and attacks detected and the total number of packets dropped in last seven days.
Total for today	The total number of packets for suspicious behaviors and attacks detected and the total number of packets dropped in one day.
Graph	Shows the total number of packets for suspicious behaviors and attacks detected and the total number of packets dropped by day for last seven days.

IM and P2P Blocking Report

This report displays the number of packets for the predefined Instant Message (IM) and Peer-to-Peer (P2P) applications detected, and the number of packets blocked by the IPS service.

In the **IM and P2P Blocking** tab, check the **Enable IM and P2P Blocking Report** box to enable this report, and then click **Save** to save your settings.

After you enable this report, the corresponding statistic information is displayed.

Device System Date	The current date for counting the data.
Total since the service was actived	The total number of packets for the predefined IM and P2P applications detected and the total number of packets blocked since both the IPS service and the IM & P2P Blocking were enabled.
Total for last 7 days	The total number of packets for the predefined IM and P2P applications detected and the number of packets blocked in the last seven days.
Total for today	The total number of packets for the predefined IM and P2P applications detected and the number of packets blocked in one day.

Graph	Shows the total number of packets for the predefined IM and P2P applications detected and the total number of packets blocked by day for last seven days.

Process Status

The Process Status page displays the status for all sockets and the processes to which each socket belongs. To open this page, click **Status -> Process Status**.

Name	The process name that is running on your security appliance.
Description	A brief description for the running process.
Protocol	The protocol that is used by the socket.
Port	The port number of the local end of the socket.
Local Address	The IP address of the local end of the socket.
Foreign Address	The IP address of the remote end of the socket.

Resource Utilization

The Resource Utilization page displays the overall CPU and memory utilizations. To open this page, click **Status -> Resource Utilization**.

CPU Utilization	
CPU Usage by User	The percentage of CPU resource used by user space processes since the security appliance boots up.
CPU Usage by kernal	The percentage of CPU resource used by kernel space processes since the security appliance boots up.
CPU Idle	The percentage of CPU idle since the security appliance boots up.

CPU Waiting for I/O	The percentage of CPU waiting for I/O since the security appliance boots up.
Memory Utilization	
Total Memory	The total amount of memory space available on the security appliance.
Used Memory	The amount of memory space used by the processes at current time.
Free Memory	The amount of memory space not used by the processes at current time.
Cached Memory	The amount of memory space used as cache at current time.
Buffer Memory	The amount of memory space used as buffers at current time.

4

Networking

This chapter describes how to configure your Internet connection, VLAN, DMZ, zones, routing, Quality of Service, and related features. It includes the following sections:

To access the Networking pages, click **Networking** in the left hand navigation pane.

Configuring IP Routing Mode

Internet Protocol Version 6 (IPv6) is a new IP protocol designed to replace IPv4, the Internet protocol that is predominantly deployed and extensively used throughout the world. IPv6 quadruples the number of network address bits from 32 bits (in IPv4) to 128 bits, resulting in an exponentially larger address space. You can configure the security appliance to support IPv6 addressing on the WAN, LAN, and DMZ.

By default, only IPv4 addressing is supported. If you need to configure IPv6 addressing, enable the IPv4/IPv6 mode.

STEP 1 Click **Networking -> IPv4/IPv6 Routing Mode**.

The IPv4/IPv6 Routing Mode window opens.

STEP 2 Click **IPv4/IPv6 mode** to enable both IPv4 and IPv6 addressing, or click **IPv4 only mode** to enable only IPv4 addressing.

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

Port Management

This section describes how to configure the physical ports, enable or disable the port mirroring, and configure 802.1X access control settings on the physical ports. It includes the following topics:

- **Viewing the Status of Physical Interfaces, page 95**
- **Configuring the Physical Interfaces, page 96**
- **Configuring 802.1X Access Control on Physical Ports, page 98**
- **Configuring the Port Mirroring, page 100**

Viewing the Status of Physical Interfaces

STEP 1 Click **Networking -> Port -> Physical Interface**.

The Physical Interface window opens.

In the **Physical Interfaces** area, all physical ports available on your security appliance are listed in the table. The following information is displayed:

- **Name:** The name of the physical port.
- **Enable:** Shows if the physical port is enabled or disabled.
- **Port Type:** The physical port type, such as WAN, LAN, or DMZ. The type of the dedicated WAN and LAN ports cannot be changed, but the type of the configurable ports can be set to LAN, WAN, or DMZ.
- **Mode:** The physical port access mode. A WAN or DMZ port is always set to Access mode. A LAN port can be set to Access or Trunk mode.
- **VLAN:** The VLANs to which the physical port is mapped.
- **PVID:** The Port VLAN ID (PVID) to be used to forward or filter the untagged packets coming into port. The PVID of a trunk port is fixed to the DEFAULT VLAN (1).
- **Speed/Duplex:** The duplex mode (speed and duplex setting) of the physical port.
- **Link Status:** Shows if the physical port is connected or not.

If you are using the ISA550W or ISA570W, in the **Wireless Interfaces** area, all active SSIDs available on your security appliance are listed in the table. The following information is displayed:

- **SSID Name:** The SSID name.
- **VLAN:** The VLAN to which the SSID is mapped.
- **Client List:** The number of client stations that are connected to the SSID.

To configure the wireless radio and connectivity settings, go to the **Wireless** pages. See **Wireless Configuration for ISA550W and ISA570W**.

Configuring the Physical Interfaces

You can enable or disable a physical interface, assign the physical interfaces to VLANs, and configure the duplex mode.

STEP 1 Click **Networking -> Port -> Physical Interface**.

The Physical Interface window opens.

STEP 2 To edit the setting of a physical port, click **Edit**.

After you click Edit, the Ethernet Configuration - Add/Edit window opens.

STEP 3 Enter the following information:

- **Name:** The name of the physical port.
- **Port Type:** The physical port type, such as WAN , LAN, or DMZ.
- **Mode:** Choose either Access or Trunk mode for a LAN port, and choose Access mode for a WAN or DMZ port. By default, all ports are set to Access mode.
  - **Access:** All data going into and out of the Access port is untagged. Access mode is recommended if the port is connected to a single end-user device which is VLAN unaware.
  - **Trunk:** All data going into and out of the Trunk port is tagged. Untagged data coming into the port is not forwarded, except for the DEFAULT VLAN, which is untagged. Trunk mode is recommended if the port is connected to a VLAN-aware switch or router.
- **Port:** Click **On** to enable the port, or click **Off** to disable it. By default, all ports are enabled.
- VLAN: You can assign the physical port to VLANs.
  - To assign the port to a VLAN, choose an existing VLAN from the **Availbale VLAN** list and click the right arrows **>>** to add it to the **VLAN** list.
  - To release the port from a VLAN, choose a VLAN from the **VLAN** list and click the left arrows **<<**.

NOTE A LAN port can be assigned to multiple VLANs, but an Access LAN port can only be assigned to one VLAN. A DMZ port must be assigned to a DMZ network.

NOTE To create new VLANs, click **Create VLAN**. For more information about how to configure the VLANs, see **Configuring the VLAN, page 118**.

- **Flow Control:** Click **On** to control the flow on the port, or click **Off** to disable it.

- **Speed:** Choose one of these options: AUTO, 10 Mbps, 100 Mbps, and 1000 Mbps. The default is AUTO for all ports. The AUTO option lets the system and network determine the optimal port speed.
- **Duplex:** Choose either Half Duplex or Full Duplex based on the port support. The default is Full Duplex for all ports.
  - **Full:** Indicates that the port supports transmissions between the device and the client in both directions simultaneously.
  - **Half:** Indicates that the port supports transmissions between the device and the client in only one direction at a time.

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

STEP 5 Repeat the above steps to edit the settings for other physical ports.

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

Configuring 802.1X Access Control on Physical Ports

Port-Based Access Control configures IEEE 802.1X port-based authentication to prevent unauthorized devices (802.1X-capable clients) from gaining access to the network.

The IEEE 802.1X standard defines a client-server-based access control and authentication protocol that restricts unauthorized devices from connecting to a LAN through publicly accessible ports. The authentication server authenticates each client (supplicant in Windows 2000, XP, Vista, Windows 7, and Mac OS) connected to a port before making available any service offered by the security appliance or the LAN.

Until the client is authenticated, 802.1X access control allows only Extensible Authentication Protocol over LAN (EAPOL) traffic through the port to which the client is connected. After authentication is successful, normal traffic can pass through the port.

This feature simplifies the security management by allowing you to control access from a master database in a single server (although you can use up to three RADIUS servers to provide backups in case access to the primary server fails). It also means that user can enter the same authorized RADIUS username and password pair for authentication, regardless of which switch is the access point into the LAN.

STEP 1 Click **Networking -> Port -> Port-Based Access Control**.

The Port-Based Access Control window opens.

STEP 2 Specify the RADIUS servers for authentication.

The security appliance predefines three RADIUS groups. You can choose a predefined RADIUS group from the **RADIUS Index** drop-down list to authenticate the users on 802.1X-capable clients. The RADIUS server settings of the selected group are displayed. You can also edit the RADIUS server settings here but the settings that you specify will replace the default settings of the selected group. For more information, see **Configuring the RADIUS Servers, page 319**.

STEP 3 To configure the access control settings for a physical port, click **Edit** in the **Action** column.

The Port-Base Access Control window opens.

STEP 4 Enter the following information:

- **Access Control:** Check the box to enable 802.1X access control. This feature is not available for Trunk ports.
- **Authenticated VLAN:** If you enable 802.1X access control, choose the authenticated VLAN to which this port is assigned. The users who authenticated successfully can access the authenticated VLAN through the port. If the authentication fails, block the access on the port.
- **Guest Authenticated:** If you enable 802.1X access control, check the box to enable Guest Authentication.
- **Authenticated VLAN:** If you enable Guest Authentication, choose the guest VLAN to be associated with the port. If the authentication fails, the port is assigned to the selected guest VLAN instead of shutting down. For 802.1X-incapable clients, the port is also assigned to the selected guest VLAN when Guest Authentication is enabled.

STEP 5 You can perform other actions as follows:

- **Access Control:** Check the box in this column to enable 802.1X access control, or uncheck the box to disable it.
- **Guest Authentication:** After you enable 802.1X access control, check the box in this column to enable Guest Authentication, or uncheck the box to disable it.

- **Forced Authentication:** Disables 802.1X access control and causes the port to transition to the authorized state without any authentication exchange required. The port transmits and receives normal traffic without 802.1X-based authentication of the client.
- **Forced Unauthentication:** Causes the port to remain in the unauthorized state, ignoring all attempts by the client to authenticate. The security appliance cannot provide authentication services to the client through the port.
- **Auto:** Enables 802.1X access control and causes the port to begin in the unauthorized state, allowing only EAPOL frames to be sent and received through the port. The authentication process begins when the link state of the port transitions from down to up, or when an EAPOL-start frame is received. The security appliance requests the identity of the client and begins relaying authentication messages between the client and the authentication server. Each client attempting to access the network is uniquely identified by the security appliance by using the client's MAC address.

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

Configuring the Port Mirroring

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

NOTE The dedicated WAN port (GE1) can not be set as a destination or monitored port.

STEP 1 Click **Networking -> Port -> Port Mirroring**.

The Port Mirroring window opens.

STEP 2 Click **On** to enable port mirroring, or click **Off** to disable it.

STEP 3 If you enable port mirroring, enter the following information:

- **TX Destination:** Choose the port that monitors the tranmitted traffic for other ports.

- **TX Monitored Ports:** Check the boxes of the ports that are monitored. The port that you set as a TX Destination port cannot be selected as a monitored port.
- **RX Destination:** Choose the port that monitors the received traffic for other ports.
- **RX Monitored Ports:** Check the boxes of the ports that are monitored. The port that you set as a RX Destination port cannot be selected as a monitored port.

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

Configuring the WAN

By default, the security appliance 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 Internet connectivity.

This section describes how to configure the WAN connections by using the account information provided by your ISP. It includes the following sections:

- Configuring the Primary WAN, page 101
- Configuring the Secondary WAN, page 104
- Configuring the Network Addressing Mode, page 106
- Configuring the PPPoE Profiles, page 111

Configuring the Primary WAN

STEP 1 Click **Networking -> WAN**.

The WAN window opens.

STEP 2 To edit the settings of the primary WAN, click **Edit**.

After you click Edit, the WAN - Add/Edit window opens.

STEP 3 In the **IPv4** tab, enter the following information:

- **Physical Port:** The physical port associated with the primary WAN.

- **WAN Name:** The name of the primary WAN (WAN1).
- **IP Address Assignment:** Choose the network addressing mode for the primary WAN depending on the requirements of your ISP. The security appliance supports DHCPC, Static IP, PPPoE, PPTP, and L2TP. For complete details to configure the network addressing mode, see **Configuring the Network Addressing Mode, page 106**.
- **DNS Server Source:** DNS servers map Internet domain names (example: www.cisco.com) to IP addresses. You can get DNS server addresses automatically from your ISP or use ISP-specified addresses.
  - **Get Dynamically from ISP:** Choose this option if you have not been assigned a static DNS IP address.
  - **Use These DNS Servers:** Choose this option if your ISP assigned a static DNS IP address. Also enter the addresses for the **DNS1** and **DNS2** fields.
- **MAC Address Source:** Specify the MAC address for the primary WAN. Typically, you can use the unique 48-bit local Ethernet address of the security appliance as your MAC address source.
  - **Use Default MAC Address:** Choose this option to use the default MAC address.
  - **Use the Following MAC Address:** If your ISP requires MAC authentication and another MAC address has been previously registered with your ISP, choose this option and enter the MAC address that your ISP requires for this connection.
- **MAC Address:** Enter the MAC Address in the format xx:xx:xx:xx:xx:xx where x is a number from 0 to 9 (inclusive) or an alphabetical letter between A and F (inclusive), for example, 01:23:45:67:89:ab.
- **Zone:** The primary WAN must be mapped to an untrusted zone. The WAN zone is the default unstrusted zone. Click **Create Zone** to create other untrusted zones. See **Configuring the Zones, page 127**.

STEP 4 In the **IPv6** tab, specify the IPv6 addressing if you enable the IPv4/IPv6 mode.

- **IP Address Assignment:** Choose **Static IP** if your ISP assigned a fixed (static or permanent) IP address. If you were not assigned a static IP address, choose **SLAAC**. By default, your security appliance is configured to be a DHCPv6 client of the ISP, with stateless address auto-configuration (SLAAC).

- **SLAAC:** SLAAC provides a convenient method to assign IP addresses to IPv6 nodes. This method does not require any human intervention from an IPv6 user. If you choose SLAAC, the security appliance can generate its own addresses using a combination of locally available information and information advertised by routers.
- **Static IP:** If your ISP assigned a static IPv6 address, configure the IPv6 WAN connection in the following fields:

  IPv6 Address: Enter the static IP address that was provided by your ISP.

  IPv6 Prefix Length: The IPv6 network (subnet) is identified by the initial bits of the address called the prefix. All hosts in the network have the identical initial bits for their IPv6 address. Enter the number of common initial bits in the network's addresses. The default prefix length is 64.

  Default IPv6 Gateway: Enter the IPv6 address of the gateway for your ISP. This is usually provided by the ISP or your network administrator.

  Primary DNS Server: Enter a valid IP address of the primary DNS Server.

  Secondary DNS Server (Optional): Optionally, enter a valid IP address of the secondary DNS Server.

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

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

NOTE Next steps:

- To configure another ISP link, click **Add**. See **Configuring the Secondary WAN, page 104**.
- To create multiple PPPoE profiles, go to the **Networking -> PPPoE Profile** page. See **Configuring the PPPoE Profiles, page 111**.
- To determine how the two ISP links are used, you first need to add a secondary WAN port, and then configure the WAN redundancy settings. See **Configuring the WAN Redundancy, page 112**.
- If you are having problems with your WAN connection, see the **Internet Connection, page 333** in **Troubleshooting, page 333**.

Configuring the Secondary WAN

A secondary WAN is required to set up two ISP links for your network. You can use one link as the primary link and another link for backup purposes, or you can configure the load balancing to use both links simultaneously.

STEP 1 Click **Networking -> WAN**.

The WAN window opens.

STEP 2 To add the secondary WAN, click **Add**.

After you click Add, the WAN - Add/Edit window opens.

STEP 3 In the **IPv4** tab, enter the following information:

- **Physical Port:** Choose a configurable port for the secondary WAN. The selected configurable port is set to a WAN port. Up to two WAN interfaces can be configured for the security appliance, which means that only one configurable port can be set as a WAN port.
- **WAN Name:** The name of the secondary WAN (WAN2).
- **IP Address Assignment:** Choose the network addressing mode for the secondary WAN depending on the requirements of your ISP. For complete details, see **Configuring the Network Addressing Mode, page 106**.
- **DNS Server Source:** DNS servers map Internet domain names (example: www.cisco.com) to IP addresses. You can get DNS server addresses automatically from your ISP or use ISP-specified addresses.
    - **Get Dynamically from ISP:** Choose this option if you have not been assigned a static DNS IP address.
    - **Use These DNS Servers:** Choose this option if your ISP assigned a static DNS IP address. Also enter the addresses for the **DNS1** and **DNS2** fields.
- **MAC Address Source:** Specify the MAC address for the secondary WAN. Typically, you can use the unique 48-bit local Ethernet address of the security appliance as your MAC address source.
    - **Use Default MAC Address:** Choose this option to use the default MAC address
    - **Use the Following MAC Address:** If your ISP requires MAC authentication and another MAC address has been previously registered with your ISP, choose this option and enter the MAC address that your ISP requires for this connection.

- **MAC Address:** Enter the MAC address in the format xx:xx:xx:xx:xx:xx where x is a number from 0 to 9 (inclusive) or an alphabetical letter between A and F (inclusive), for example, 01:23:45:67:89:ab.
- **Zone:** Maps the secondary WAN to an untrusted zone. The WAN zone is the default unstrusted zone. Click **Create Zone** to create other untrusted zones. See **Configuring the Zones, page 127**.

STEP 4 In the **IPv6** tab, specify the IPv6 addressing settings for the secondary WAN connection if you enable the IPv4/IPv6 mode.

- **IP Address Assignment:** Choose **Static IP** if your ISP assigned a fixed (static or permanent) IP address. If you were not assigned a static IP address, choose **SLAAC**.
  - **SLAAC:** If you choose SLAAC, the security appliance can generate its own addresses using a combination of locally available information and information advertised by routers.
  - **Static IP:** If your ISP assigned a static IPv6 address, configure the IPv6 WAN connection in the following fields:

    IPv6 Address: Enter the static IP address that was provided by your ISP.

    IPv6 Prefix Length: The IPv6 network (subnet) is identified by the initial bits of the address called the prefix. All hosts in the network have the identical initial bits for their IPv6 address. Enter the number of common initial bits in the network's addresses. The default prefix length is 64.

    Default IPv6 Gateway: Enter the IPv6 address of the gateway for your ISP. This is usually provided by the ISP or your network administrator.

    Primary DNS Server: Enter a valid IP address of the primary DNS Server.

    Secondary DNS Server (Optional): Optionally, enter a valid IP address of the secondary DNS Server.

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

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

Configuring the Network Addressing Mode

The security appliance supports five types of network addressing modes. Specify the network addressing mode for the primary WAN and the secondary WAN depending on your ISP requirements.

Network Addressing Mode	Configurations
DHCPC	DHCP is the default settting. If you use DHCP, the WAN port will be the DHCP client and get the IP address from your ISP or the peer router. Choose DHCP for most of Internet service providers that use the cable modem. Choose this option if your ISP automatically assigns you a dynamic IP address, and enter the following information: ▪ **MTU:** The Maximum Transmission Unit is the size, in bytes, of the largest packet that can be passed on. Choose **Auto** to use the default MTU size, or choose **Manual** if you want to specify another size. ▪ **MTU Value:** If you choose **Manual**, enter the custom MTU size in bytes. **NOTE** Unless a change is required by your ISP, it is recommended that the MTU values be left as is.

Network Addressing Mode	Configurations
Static IP	Choose this option if your ISP assigns you a specific IP address or a group of addresses. 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 accessable from the Internet. ▪ **Netmask:** Enter the IP address of the subnet mask. ▪ **Gateway:** Enter the IP address of default gateway. ▪ **DNS0:** Enter the IP address of the primary DNS server. ▪ **DNS1:** Enter the IP address of the secondary DNS server. ▪ **MTU:** The Maximum Transmission Unit is the size, in bytes, of the largest packet that can be passed on. Choose **Auto** to use the default MTU size, or choose **Manual** if you want to specify another size. ▪ **MTU Value:** If you choose **Manual**, enter the custom MTU size in bytes. NOTE Unless a change is required by your ISP, it is recommended that the MTU values be left as is.

Network Addressing Mode	Configurations
PPPoE	PPPoE uses Point to Point Protocol over Ethernet (PPPoE) to connect to the Internet. The PPPoE protocol is typically found when using a DSL modem. Choose this option if your ISP provides you with client software, user name, and password. Use the necessary PPPoE information from your ISP to complete the PPPoE configurations. You can predefine multiple PPPoE profiles before you set the network addressing mode as PPPoE. ▪ **Profile Name:** Choose an existing PPPoE profile. The User Name, Password, Authentication Type, and Connectivity Type settings of the selected PPPoE profile are displayed. You can edit the settings of the selected PPPoE profile, or create a new PPPoE profile by choosing **Create a PPPoE Profile**. See **Configuring the PPPoE Profiles, page 111**. ▪ **User Name/Password:** Enter the user name and password that are required to log into the ISP. ▪ **Authentication Type:** Choose the authentication type specified by your ISP. ▪ **Connect Idle Time:** Choose this option to let the security appliance disconnect from the Internet after a specified period of inactivity (Idle Time). This choice is recommended if your ISP fees are based on the time that you spend online. ▪ **Keep Live:** Choose this option to keep the connection always on, regardless of the level of activity. This choice is recommended if you pay a flat fee for your Internet service. ▪ **MTU:** Choose **Auto** to use the default MTU size, or choose **Manual** if you want to specify another size. ▪ **MTU Value:** If you choose **Manual**, enter the custom MTU size in bytes. **NOTE** Unless a change is required by your ISP, it is recommended that the MTU values be left as is.

Network Addressing Mode	Configurations
PPTP	The PPTP protocol is typically used for VPN connection. Use the necessary information from your ISP to complete the PPTP configurations: ▪ **IP Address:** Enter the IP address of the WAN port that can be accessable from the Internet. ▪ **Netmask:** Enter the IP address of the subnet mask. ▪ **Gateway:** Enter the IP address of default gateway. ▪ **User Name/Password:** Enter the user name and password that are required to log into the PPTP server. ▪ **PPTP Server IP Address:** Enter the IP address of the PPTP server. ▪ **MPPE Encryption:** Microsoft Point-to-Point Encryption (MPPE) encrypts data in PPP-based dial-up connections or PPTP VPN connections. Check the box to enable the MPPE encryption to provide data security for the PPTP connection that is between the VPN client and VPN server. ▪ **Connect Idle Time:** Choose this option to let the security appliance disconnect from the Internet after a specified period of inactivity (Idle Time). This choice is recommended if your ISP fees are based on the time that you spend online. ▪ **Keep Live:** Choose this option to keep the connection always on, regardless of the level of activity. This choice is recommended if you pay a flat fee for your Internet service. ▪ **MTU:** Choose **Auto** to use the default MTU size, or choose **Manual** if you want to specify another size. ▪ **MTU Value:** If you choose **Manual**, enter the custom MTU size in bytes. NOTE Unless a change is required by your ISP, it is recommended that the MTU values be left as is.

Network Addressing Mode	Configurations
L2TP	Choose this option if you want to use IPSec to connect a L2TP (Layer 2 Tunneling Protocol) server and encrypt all data transmitted from the client to the server. However, it does not encrypt network traffic to other destinations. Use the necessary information from your ISP to complete the L2TP configurations: ▪ **IP Address:** Enter the IP address of the WAN port that can be accessable from the Internet. ▪ **Netmask:** Enter the IP address of the subnet mask. ▪ **Gateway:** Enter the IP address of default gateway. ▪ **User Name/Password:** Enter the user name and password that are required to log into the L2TP server. ▪ **L2TP Server IP Address:** Enter the IP address of the L2TP server. ▪ **Secret (Optional):** L2TP incorporates a simple, optional, CHAP-like tunnel authentication system during control connection establishment. Enter the secret for tunnel authentication if necessary. ▪ **Connect Idle Time:** Choose this option to let the security appliance disconnect from the Internet after a specified period of inactivity (Idle Time). This choice is recommended if your ISP fees are based on the time that you spend online. ▪ **Keep Live:** Choose this option to keep the connection always on, regardless of the level of activity. This choice is recommended if you pay a flat fee for your Internet service. ▪ **MTU:** Choose **Auto** to use the default MTU size, or choose **Manual** if you want to specify another size. ▪ **MTU Value:** If you choose **Manual**, enter the custom MTU size in bytes. **NOTE** Unless a change is required by your ISP, it is recommended that the MTU values be left as is.

NOTE Confirm that you have the proper network information from your ISP or a peer router to configure the security appliance to access the Internet.

Configuring the PPPoE Profiles

If you have multiple PPPoE accounts, use the PPPoE Profile page to configure multiple PPPoE profiles for later use.

STEP 1 Click **Networking -> PPPoE Profile**.

The PPPoE Profile window opens. All existing PPPoE profiles are listed in the table.

STEP 2 To add a new PPPoE profile, click **Add**.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**.

After you click Add or Edit, the PPPoE Profile - Add/Edit window opens.

STEP 3 Enter the following information:

- **Name:** Enter the name for the PPPoE profile.
- **User Name:** Enter the user name that is required to log into the ISP.
- **Password:** Enter the password that is required to log into the ISP.
- **Authentication Type:** Choose the method to authenticate the PPP sessions, as specified by your ISP.
  - **Auto:** The PPP protocol auto-negotiates the authentication method.
  - **PAP:** Password authentication protocol (PAP) is used by PPP protocol to validate the users before allowing them access to server resources. Almost all network operating system remote servers support PAP.
  - **CHAP:** Challenge Handshake Authentication Protocol (CHAP) is an authentication scheme used by Point to Point Protocol (PPP) servers to validate the identity of remote clients. CHAP periodically verifies the identity of the client by using a three-way handshake. The verification is based on a shared secret (such as the client user's password).
  - **MS-CHAP:** MS-CHAP is the Microsoft version of the CHAP. The protocol exists in two versions, MS-CHAPv1 (defined in RFC 2433) and MS-CHAPv2 (defined in RFC 2759).

  - **MS-CHAPv2:** MS-CHAPv2 provides mutual authentication between peers by piggybacking a peer challenge on the Response packet and an authenticator response on the Success packet.

- **Keep Live:** Keeps the connection always on, regardless of the level of activity. This option is recommended if you pay a flat fee for your Internet service.
- **Max Idle Time:** Lets the security appliance disconnect from the Internet after a specified period of inactivity (Idle Time). If you choose this option, enter the value in minutes in the **Maximum Idle Time** field. This option is recommended if your ISP fees are based on the time that you spend online.
- **MTU:** The Maximum Transmission Unit (MTU) is the size, in bytes, of the largest packet that can be passed on. Choose **Auto** to use the default MTU size, or choose **Manual** if you want to specify another size.
- **MTU Size:** If you choose **Manual**, enter the custom MTU size in bytes.

NOTE For PPPoE connections, the default MTU size is 1492 bytes. Unless a change is required by your ISP, it is recommended that the MTU values be left as is.

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

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

Configuring the WAN Redundancy

If you have two ISP links, one for WAN1 and another for WAN2, you can configure the WAN redundancy to determine how the two ISP links are used.

NOTE Before you configure the WAN redundancy, you must configure the secondary WAN connection. See **Configuring the Secondary WAN, page 104**.

NOTE When the security appliance is working in Dual WAN mode, if one WAN link is down, the WAN redundancy and Policy-based Routing settings are ignored and all traffic is handled by the active WAN port.

This section describes how to configure the WAN redundancy and the link failover detection settings. It includes the following topics:

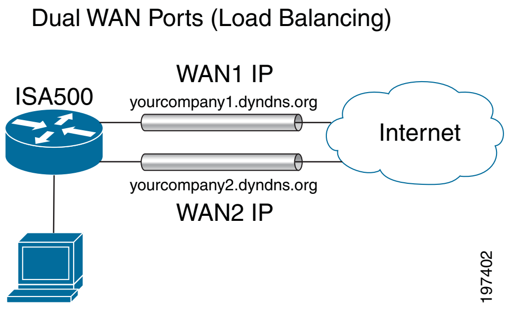
Loading Balancing for WAN Redundancy

The Load Balancing can segregate traffic between links that are not of the same speed. For example, you can bind the high-volume services through the port that is connected to a high speed link, and bind the low-volume services to the port that is connected to the slower link.

The Load Balancing is implemented for outgoing traffic and not for incoming traffic. To maintain better control of WAN port traffic, consider making the WAN port Internet address public and keeping the other one private.

Figure?2 shows an example of Dual WAN configured with the Load Balancing.

Figure 2 Example of Dual WAN Ports with Load Balancing



NOTE To configure the Loading Balancing, make sure that you configure both WAN ports to Keep Live. If the WAN port is configured to time out after a specified period of inactivity, then the Loading Balancing is not applicable.

STEP 1 Click **Networking -> WAN Redundancy -> WAN Redundancy Operation Configuration**.

The WAN Redundancy Operation Configuration opens.

STEP 2 Use the Load Balancing mode if you want to use both ISP links simultaneously. The two links will carry data for the protocols that are bound to them. Enter the following information:

- **Equal Load Balancing (Round Robin):** Re-orders the WAN interfaces for Round Robin selection. The order is as follows: WAN1 and WAN2. The Round Robin will then repeat back to WAN1 and continue the order. This is the default setting.
- **Weighted Load Balancing:** Distributes the bandwidth to two WAN ports by the weighted percange or by the weighted link bandwidth. If you choose this mode, choose one of the following options and finish the setting:
  - **Weighted By Percentage:** Allows you to set the percentage for each WAN, such as 80% percentage bandwidth for WAN1 and lest 20% percentage bandwidth for WAN2.
  - **Weighted By Link Bandwidth:** Allows you to set the rate limiting for each WAN, such as 10 Mbps for WAN1 and 5 Mbps for WAN2.

STEP 3 If you choose Load Balancing as the WAN redundancy operation mode, you can optionally enable the Policy-based Routing (PBR) settings to determine how the traffic is balanced between the two ISP links. The PBR settings specify the internal IP and/or service going through a specified WAN port to provide more flexbile and granular traffic handling capabilities.

- **Policy Based Routing Enable:** Click **On** to enable the PBR settings, or click **Off** to disable it. To configure the PBR settings, click **Configure PBR**.

NOTE If you enable PBR, the PBR settings will be applied first and then the load balancing settings next.

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

STEP 5 To check the connection of both links at regular intervals after you enable the Load Balancing mode, you first need to enable the Link Failover Detection feature. To configure the Link Failover Detection settings, go to the **Networking -> Link Failover Detection Settings** page. See **Configuring the Link Failover Detection, page 117**.

Load Balancing with Policy-based Routing Configuration Example

Use Cases: The customer has two lines, one is a cable link and another is a DSL link. The majority of trafffic goes through the cable link since it has larger bandwidth, and the rest traffic goes through the DSL link. As lots of secure websites (such as bank, or online shopping) are sensitive to flip flop the source IP address, let the traffic for https, ftp, video, and game go through the cable link.

Configuration Tasks:

- Configure a configurable port as the secondary WAN port (WAN2). See **Configuring the Secondary WAN, page 104**.
- Connect the cable modem to the primary WAN port (WAN1), and connect the DSL modem to the secondary WAN port (WAN2).
- Enable the Weighted Load Balancing mode, and set the weighted value of WAN1 to 80% and the weighted value of WAN2 to 20%. See **Loading Balancing for WAN Redundancy, page 113**.
- Enable the Policy-based Routing (PBR) feature, and configure PBR rules so that the traffic for https, ftp, video, and game is directed to the WAN1 port. See **Configuring Policy-based Routing Settings, page 134**.
- Enable the IP Bandwidth, Service Bandwidth, and WAN Bandwidth reports so that you can check the WAN bandwidth usage by IP address, service, and time. See **Reports, page 85**.

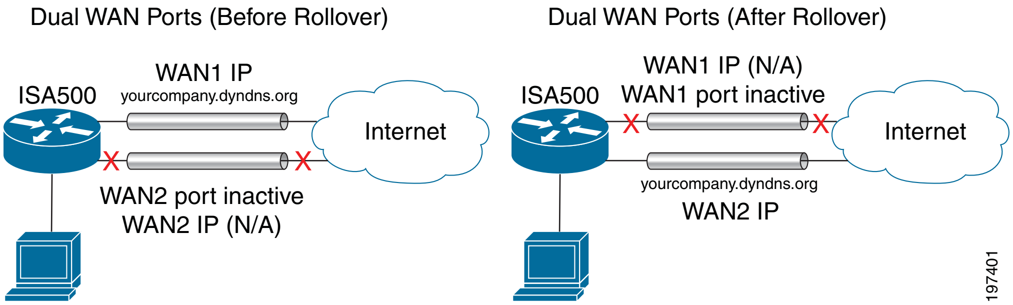
Failover for WAN Redundancy

Use the Failover mode when you want to use one ISP link as a backup. If a failure is detected on the primary link, then the security appliance directs all Internet traffic to the backup link. When the primary link regains connectivity, all Internet traffic is directed to the primary link and the backup link becomes idle. By default, the primary WAN is set as the primary link and the secondary WAN is set to the backup link.

NOTE When the security appliance is working in the Failover mode, the Policy-based Routing settings will be ignored.

Figure?3 shows an example of Dual WAN configured with Failover.

Figure 3 Example Dual WAN Ports with Failover



STEP 1 Click **Networking -> WAN Redundancy -> WAN Redundancy Operation Configuration**.

The WAN Redundancy Operation Configuration opens.

STEP 2 Choose **Failover** if you want to use one ISP link as a backup and enter the following information:

- **Auto Failover to:** Choose either WAN1 or WAN2 as the primary link. By default, WAN1 is set as the primary link and WAN2 is set as the backup link. You can also set WAN2 as the primary link.
- **Preempt Delay Timer:** Enter the time in seconds that the system will preempt the primary link from the backup link when the primary link is up again. The default is 5 seconds.

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

STEP 4 To check the connection of both links at regular intervals after you enable the Failover mode, you first need to enable the Link Failover Detection feature. To configure the Link Failover Detection settings, go to the **Networking -> Link Failover Detection Settings** page. See **Configuring the Link Failover Detection, page 117**.

Routing Table for WAN Redundancy

The Routing Table feature allows the traffic to meet the static routing policies you defined on your security appliance to pass through different WAN interfaces.

You need to add default routing policies that forward the traffic to the primary WAN. The traffic for other static routings are forwarded to the secondary WAN. For more inforamtion to configure the static routing policies, see **Configuring the Static Routing, page 132**.

NOTE The Link Failover Detection settings will be ignored if you enable the Routing Table feature.

Configuring the Link Failover Detection

The Link Failover Detection feature detects the link failure. If a failure occurs, traffic for the unavailable link is diverted to the active link.

NOTE The Link Failover Detection settings are only available when the WAN redundancy is set to Load Balancing or Failover.

STEP 1 Click **Networking -> WAN Redundancy -> Link Failover Detection Settings**.

The Link Failover Detection Settings window opens.

STEP 2 Enter the following information:

- **Failover Detection:** Click **On** to enable the Link Failover Detection feature, or click **Off** to disable it.

- **Retry Count:** Enter the number of retries. The security appliance repeatedly tries to connect to the ISP after the link failure is detected. The default is 5.
- **Retry Timeout:** If the connection to the ISP is down, the security appliance tries to connect to the ISP after a specified timeout. Enter the timeout in seconds to re-connect to the ISP. The default is 5 seconds.
- **Ping Detection:** Choose this option to detect the WAN failure by pinging the IP address that you specify in the following fields:
  - **Ping using WAN Default Gateway:** Ping the IP address of the WAN default gateway. If the default WAN gateway can be detected, the network connection is active.
  - **Ping using these Hosts:** Ping the specified remote hosts. Enter the IP addresses in the **Primary WAN Remote Host** and **Secondary WAN Remote Host** fields. In Failover mode, if the primary WAN remote host can be detected, the network connection is active. In Load Balancing mode, if the primary WAN and secondary WAN remote hosts can be detected, the WAN connection is active.
- **DNS Detection:** Choose this option to detect the WAN failure by looking up the DNS servers that you specify in the following fields:
  - **DNS Lookup using WAN DNS Servers:** The security appliance sends the DNS query for www.cisco.com to the default WAN DNS server. If the DNS server can be detected, the network connection is active.
  - **DNS Lookup using these DNS Servers:** The security appliance sends the DNS query for www.cisco.com to the specified DNS servers. Enter the IP addresses in the **Primary WAN DNS Server** and **Secondary WAN DNS Server** fields. If the primary or secondary DNS server can be detected, the network connection is active.

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

Configuring the VLAN

The Virtual LANs (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. You can add up to 16 VLANs.

This section describes how to configure the VLANs. It includes the following topics:

Configuring the VLANs

The security appliance predefines a native VLAN (DEFAULT) and a guest VLAN (GUEST). You can change the settings for the predefined VLANs, or add new VLANs, for up to a total of 16 VLANs. Any PC that is connected to the specified LAN port is on a separate VLAN and cannot access other VLANs.

STEP 1 Click **Networking -> VLAN**.

The VLAN window opens.

STEP 2 To add a new VLAN, click **Add**.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. The default VLANs can not be deleted.

After you click Add or Edit, the VLAN - Add/Edit window opens.

STEP 3 In the **Basic Setting** tab, enter the following information:

- **Name:** Enter a descriptive name for the VLAN.
- **VID:** Enter an unique identification number for the VLAN, which can be any number from 3 to 4089. The VLAN ID 1 is reserved for the DEFAULT VLAN and the VLAN ID 2 is reserved for the GUEST VLAN.
- **IP:** Enter the subnet IP address for the VLAN.
- **Netmask:** Enter the subnet mask for the VLAN.
- **Spanning Tree:** Check the box to enable the Spanning Tree feature to determine if there are loops in the network topology. The Spanning Tree Protocol (STP) is a link layer network protocol that ensures a loop-free topology for any bridged LAN. The STP is used to prevent bridge loops and to ensure broadcast radiation.
- **Port:** Assigns the LAN ports to the VLAN. The traffic through the selected LAN ports is directed to the VLAN. All available ports including the dedicated LAN ports and configurable ports appear in the **Port** list.

Choose the ports from the **Port** list and click **->Access** to add them to the **Member** list and set the selected ports as Access mode. All packets going into and out of the Access ports are untagged. Access mode is recommended if the port is connected to a single end-user device which is VLAN unaware.

Alternatively, you can choose the ports from the **Port** list and click **->Trunk** to add them to the **Member** list and set the selected ports as Trunk mode. All packets going into and out of the Trunk port are tagged. Untagged data coming into the port is not forwarded. Trunk mode is recommended if the port is connected to a VLAN-aware switch or router.

NOTE This setting will change the port type and access mode of the selected physical ports. For example, choose a port that was set as a DMZ port and add it to the Member list. The DMZ port will be changed to a LAN port. Changing the port type will wipe out all configurations relative to the physical port.

- **Zone:** Choose the zone to which the VLAN is mapped. By default, the DEFAULT VLAN is mapped to the LAN zone and the GUEST VLAN is mapped to the GUEST zone.

STEP 4 In the **DHCP Pool Settings** tab, choose the DHCP mode from the **DHCP Server** drop-down list.

- **Disable:** Choose this option if the computers on the VLAN are configured with static IP addresses or are configured to use another DHCP server.
- **DHCP Server:** Allows the security appliance to act as a DHCP server and assigns 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.
- **DHCP Relay:** Allows the security appliance to use a DHCP Relay. If you choose DHCP Relay, enter the IP address of the remote DHCP server in the **Relay IP** field.

STEP 5 If you choose **DHCP Server** as the DHCP mode, enter the following information:

- **Start IP:** Enter the first IP address in the DHCP range.
- **End IP:** Enter the last IP address in the DHCP range. Any new DHCP client joining the VLAN is assigned an IP address between the Start IP address and End IP address.

NOTE The Start and End IP addresses must be in the same subnet with the VLAN IP address.

- **Lease Time:** Enter the maximum connection time that a dynamic IP address is “leased” to a network user. When the time elapses, the user will be automatically renewed the dynamic IP address.
- **DNS 1:** Enter the IP address of the primary DNS server.
- **DNS 2:** Optionally, enter the IP address of the secondary DNS server.
- **WINS 1:** Enter the IP address for the primary WINS server.
- **WINS 2:** Optionally, enter the IP address of the secondary WINS server.
- **Domain Name:** Optionally, enter the domain name for the VLAN
- **Optional 66:** Only supports the IP address or host name of a single TFTP server. Enter the IP address of the single TFTP server for the VLAN.
- **Optional 67:** Enter the boot file name or configuration file name on the specified TFTP server.
- **Optional 150:** Supports a list of TFTP servers (2 TFTP servers). Enter the IP addresses of TFTP servers. Separate multiple entries with commas (,).

NOTE Enterprises with small branch offices that implement a Cisco IP Telephony Voice over IP solution typically implement Cisco CallManager at a central office to control Cisco IP Phones at small branch offices. This implementation allows centralized call processing, reduces the equipment required, and eliminates the administration of additional Cisco CallManager and other servers at branch offices. Cisco IP Phones download their configuration from a TFTP server. When a Cisco IP Phone starts, if it does not have both the IP address and TFTP server IP address pre-configured, it sends a request with option 150 or 66 to the DHCP server to obtain this information.

STEP 6 In the **IPv6 Setting** tab, specify the IPv6 addressing for the VLAN if you enable the IIPv4/Pv6 mode.

- **IPv6 Address:** Enter the IPv6 address based on your network requirements.

- **IPv6 Prefix Length:** Enter the number of characters in the IPv6 prefix.

  The IPv6 network (subnet) is identified by the prefix, which consists of the initial bits of the address. The default prefix length is 64 bits. All hosts in the network have the identical initial bits for the IPv6 address. The number of common initial bits in the addresses is set by the prefix length field.

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

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

Configuring DHCP Reserved IPs

Even when the security appliance is configured to act as a DHCP server, you can reserve certain IP addresses to always be assigned to specified devices.

Use the Static IP Reservations page to bind the MAC address of the device with the desired IP address. Whenever the DHCP server receives a request from a device, the hardware address is compared with the database. If the device is found, then the reserved IP address is used. Otherwise, an IP address is assigned automatically from the DHCP pool.

STEP 1 Click **Networking -> Static IP Reservations**.

The Static IP Reservations window opens.

STEP 2 To add a new reserved IP, click **Add**.

Other Options: To edit an entry, click **Edit**. To delete an entry, click **Delete**.

After you click Add or Edit, the Static IP Reservations - Add/Edit window opens.

STEP 3 Enter the following information:

- **Name:** Enter the name for the static IP reservation rule.
- **MAC Address:** Enter the MAC address of the host under a VLAN.
- **IP Address:** Enter the IP address within the VLAN’s DHCP pool that is assigned to the host.

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

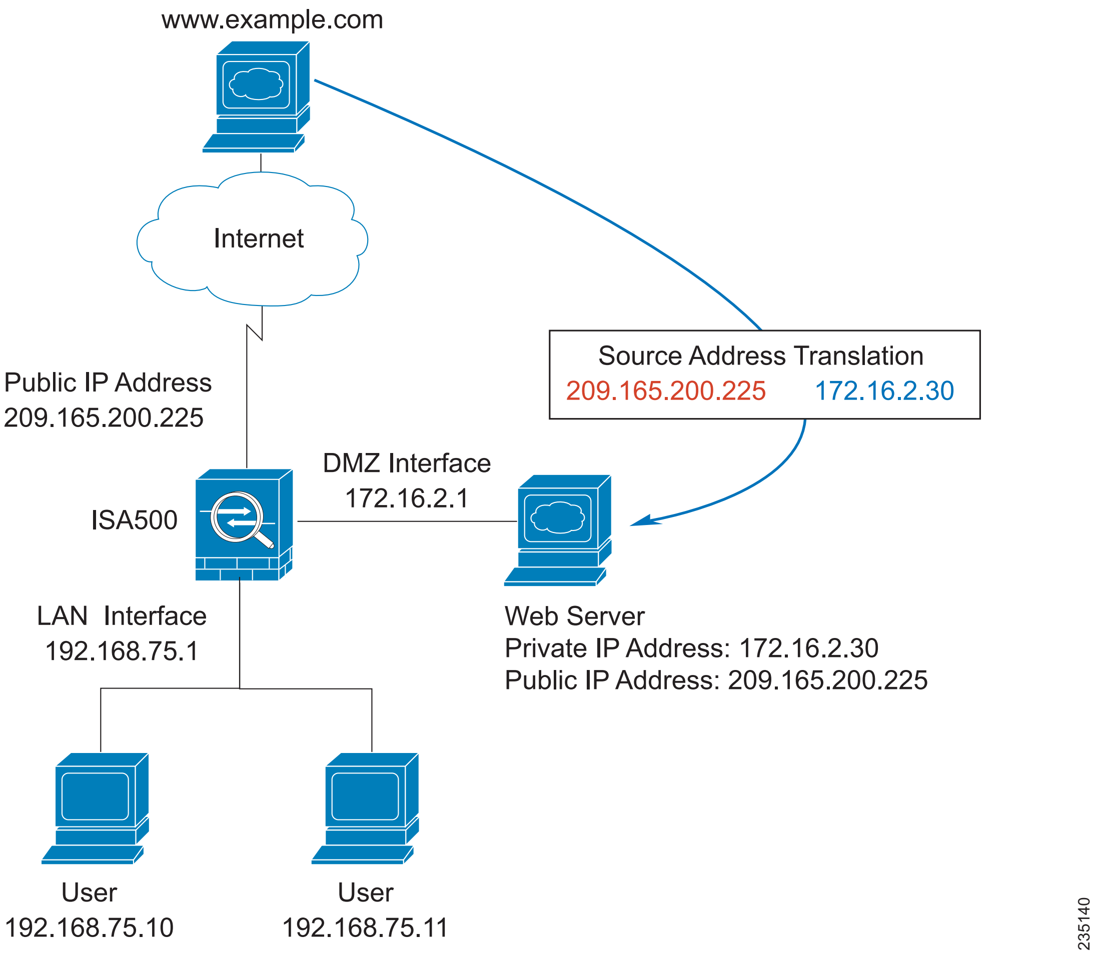
STEP 5 Click **Save** to apply your settings.

Configuring the DMZ

A DMZ (Demarcation Zone or Demilitarized Zone) is a subnetwork 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).

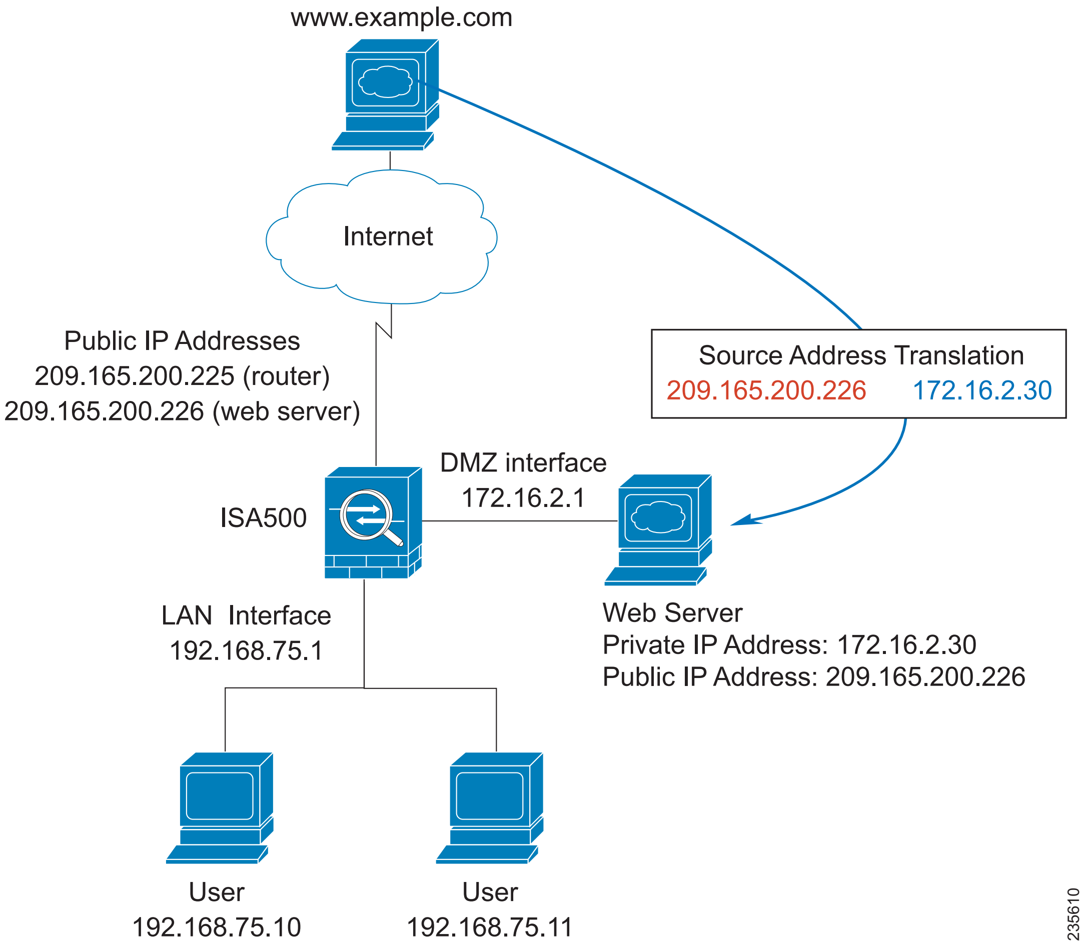
The DMZ configuration is identical to the VLAN configuration. There are no restrictions on the IP address or subnet assigned to the DMZ port, except it cannot be identical to the IP address given to the predefined VLANs.

Figure 4 Example DMZ with One Public IP Address for WAN and DMZ



In this scenario, the business has one public IP address, 209.165.200.225, which is used for both the security appliance's public IP address and the web server's public IP address. The administrator configures the configurable port to be used as a DMZ port. A firewall access rule allows inbound HTTP traffic to the web server at 172.16.2.30. Internet users enter the domain name that is associated with the IP address 209.165.200.225 and can then connect to the web server. The same IP address is used for the WAN interface.

Figure 5 Example DMZ with Two Public IP Addresses



In this scenario, the ISP has supplied two static IP addresses: 209.165.200.225 and 209.165.200.226. The address 209.165.200.225 is used for the security appliance's public IP address. The administrator configures the configurable port to be used as a DMZ port and created a firewall access rule to allow inbound

HTTP traffic to the web server at 172.16.2.30. The firewall rule specifies an external IP address of 209.165.200.226. Internet users enter the domain name that is associated with the IP address 209.165.200.226 and can then connect to the web server.

STEP 1 Click **Networking -> DMZ**.

The DMZ window opens.

STEP 2 To add a DMZ, click **Add**.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**.

After you click Add or Edit, the DMZ - Add/Edit window opens.

STEP 3 In the **Basic Setting** tab, enter the following information:

- **Name:** Enter the name for the DMZ.
- **IP Address:** Enter the subnet IP address for the DMZ.
- **Netmask:** Enter the subnet mask for the DMZ.
- **Spanning Tree:** Check the box to enable the Spanning Tree feature to determine if there are loops in the network topology.
- **Port:** Specify a configurable port as a DMZ port. The traffic through the DMZ port is directed to the DMZ. All available configurable ports appears in the **Port** list, choose a port and click **->Access** to add it to the **Member** list. The selected configurable port will be set to a DMZ port with Access mode. All data going into and out of the Access port is untagged.

  NOTE This setting will change the port type and access mode of the selected configurable port. Changing the port type will wipe out all configurations relative to the physical port.

  NOTE Up to five DMZ interfaces can be configured for ISA570 and ISA570W. Up to four DMZ interfaces can be configured for ISA550 and ISA550W.

- **Zone:** Choose the default or custom DMZ zone to which the DMZ is mapped.

STEP 4 In the **DHCP Pool Settings** tab, choose the DHCP mode from the **DHCP Server** drop-down list.

- **Disable:** Choose this option if the computers on the DMZ are configured with static IP addresses or are configured to use another DHCP server.
- **DHCP Server:** Allows the security appliance to act as a DHCP server and assigns IP addresses to all devices that are connected to the DMZ. Any new DHCP client joining the DMZ is assigned an IP address of the DHCP pool.
- **DHCP Relay:** Allows the security appliance to use a DHCP Relay. If you choose DHCP Relay, enter the IP address of the remote DHCP server in the **Relay IP** field.

STEP 5 If you choose **DHCP Server** as the DHCP mode, enter the following information:

- **Start IP:** Enter the first IP address in the DHCP range.
- **End IP:** Enter the last IP address in the DHCP range. Any new DHCP client joining the DMZ is assigned an IP address between the Start IP address and the End IP address.

NOTE The Start and End IP addresses must be in the same subnet with the DMZ's subnet IP address .

- **Lease Time:** Enter the maximum connection time that a dynamic IP address is "leased" to a network user. When the time elapses, the user will be automatically renewed the dynamic IP address.
- **DNS 1:** Enter the IP address of the primary DNS server.
- **DNS 2:** Enter the IP address of the secondary DNS server.
- **WINS 1:** Enter the IP address for the primary WINS server.
- **WINS 2:** Enter the IP address of the secondary WINS server.
- **Domain Name:** Enter the domain name for the DMZ.
- **Default Gateway:** Enter the IP address of default gateway.

STEP 6 In the **IPv6 Setting** tab, specify the IPv6 addressing for the DMZ if you enable the IPv4/IPv6 mode.

- **IPv6 Address:** Enter the IPv6 address based on your network requirements.
- **IPv6 Prefix Length:** Enter the number of characters in the IPv6 prefix.

The IPv6 network (subnet) is identified by the prefix, which consists of the initial bits of the address. The default prefix length is 64 bits. All hosts in the network have the identical initial bits for the IPv16 address. The number of common initial bits in the addresses is set by the prefix length field.

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

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

NOTE Next steps:

- After you configure the DMZ, connect the local server that you want to public to Internet to the specified DMZ port, and then configure a port forwarding rule or an advanced NAT rule to specify the public IP address of the server (see **Configuring Port Forwarding Rules, page 195** or **Configuring Advanced NAT Rules, page 197**), and create a firewall access rule to allow the inbound access to the server (see **Configuring a Firewall Access Rule, page 183**).
- If you want to reserve certain IP addresses for specified devices, go to the **Networking -> Static IP Reservations** page. See **Configuring DHCP Reserved IPs, page 122**. You must enable DCHP Server mode or DHCP Relay mode for this purpose.

Configuring the Zones

A zone is a group of interfaces to which a security policy can be applied. The interfaces in a zone share common functions or features. The interfaces are IP-based interfaces (VLANs, WAN1, WAN2, and so forth). Each interface can only join one zone, but each zone with specific security level can have multiple interfaces.

This section describes the security level definition for zones, the predefined zones, and how to create new zones. It includes the following topics:

- **Security Levels for Zones, page 128**
- **Predefined Zones, page 128**
- **Configuring the Zones, page 129**

NOTE We recommend that you configure the zones before configuring the WAN, VLAN, DMZ, and the security features such as zone-based firewall and UTM security services.

Security Levels for Zones

The security appliance supports five security levels for zones as described below. The greater value, the higher the permission level. The VPN and SSLVPN zones have the same security level.

- **Trusted (100):** Offers the highest level of trust. The LAN zone is always trusted.
- **VPN (75):** Used exclusively by the predefined VPN and SSLVPN zones. All traffic to and from a VPN zone is encrypted.
- **Public (50):** Offers a higher level of trust than a Guest zone, but a lower level of trust than a VPN zone. The DMZ zone is a public zone.
- **Guest (25):** Offers a higher level of trust than an untrusted zone, but a lower level of trust than a public zone. Guest zones can only be used for guest access.
- **Untrusted (0):** Offers the lowest level of trust. It is used by both the WAN and the virtual multicast zones. You can map one or multiple WAN interfaces to an untrusted zone.

Predefined Zones

The security appliance predefines the following zones with different security levels:

- **WAN:** The WAN zone is an untrusted zone. By default, the WAN1 interface is mapped to the WAN zone. If the secondary WAN (WAN2) is applicable, it can be mapped to the WAN zone or other untrusted zones.
- **LAN:** The LAN zone is a trusted zone. You can map one or multiple VLANs to a trusted zone. By default, the DEFAULT VLAN is mapped to the LAN zone.
- **DMZ:** The DMZ zone is a public zone used for accessible servers.

- **SSLVPN:** The SSLVPN zone is a virtual zone used for simplifying secure and remote SSL VPN connections. This zone does not have an assigned physical interface.
- **VPN:** The VPN zone is a virtual zone used for simplifying secure IPSec VPN connections. This zone does not have an assigned physical interface.
- **GUEST:** The GUEST zone can only be used for guest access. By default, the GUEST VLAN is mapped to this zone.
- **VOICE:** The VOICE zone is a security zone designed for voice traffic. Traffic coming and outgoing from this zone will be optimized for voice operations. If you have voice devices, such as a Cisco IP Phone, it is desirable to place the devices into the VOICE zone.

Configuring the Zones

You can custom new zones for your specific business needs.

STEP 1 Click **Networking -> Zone**.

The Zone window opens. All predefined and custom zones are listed in the table.

STEP 2 Click **Reset Zone Configuration** to restore your zone configurations to the factory default settings. All custom zones will be removed and the relevant settings to these custom zones will be cleaned up after you perform this operation.

STEP 3 To add a new zone, click **Add**.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. To delete multiple entires, check the boxes of multiple entries and then click **Delete Selection**.

NOTE All predefined zones (except for the VOICE zone) cannot be deleted. Only the associated interfaces and VLANs for the predefined zones can be edited. The VPN and SSLVPN zones cannot be edited.

After you click Add or Edit, the Zone - Add/Edit window opens.

STEP 4 Enter the following information:

- **Name:** Enter the name for the zone.
- **Security Level:** Specify the security level for the zone.

  - For VLANs, all security levels are selectable.
  - For DMZs, choose Public (50).
  - For WAN interfaces, choose Untrusted (0).

- **Map VLANs to This Zone:** Choose the existing VLANs or WAN interfaces from the **Available VLANs** list, and click the right arrow **->** to add them to the **Mapped to Zone** list. You can create new VLANs by clicking **Create VLAN**.

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

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

NOTE Next Steps:

- After you create a new zone, a certain of firewall access rules are automatically generated to permit or block the traffic from the new zone to any other zone or from any other zone to the new zone. The permit or block action is determined by the security level of the new zone. By default, the firewall prevents all inbound traffic and allows all outbound traffic. To customize firewall access rules for the new zone, go to the **Firewall -> ACL Rules -> Rule** page. For more information, see **Configuring the Firewall Access Rules to Control Inbound and Outbound Traffic, page 178**.

- Map the security services to zones. If you enabled the security services such as IPS and Anti-Virus on your security appliance, you need to map the security services to the zones. By default, the IPS and Anti-Virus services are mapped to the WAN zone. To specify the mapping relationships between the security services and zones, go to the **Security Services** pages. See **Security Services, page 210**.

Configuring the Routing

Use the Routing pages to change the routing mode between WAN and LAN, view the routing table, configure the static routing, dynamic routing, and Policy-based Routing settings. It includes the following sections:

- **Configuring the Routing Mode, page 131**

Configuring the Routing Mode

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

STEP 1 Click **Networking -> Routing -> Routing**.

The Routing window opens.

STEP 2 If your ISP assigns an IP address for each of the computers that you use, click **On** to enable the Routing mode. When you enable the Routing mode, the NAT settings are disabled.

STEP 3 If you are sharing IP addresses across several devices such as your LAN and using other dedicated devices for the DMZ, click **Off** to disable the Routing mode.

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

Viewing the Routing Table

STEP 1 Click **Networking -> Routing -> Routing Table**.

The Routing Table window opens. The Routing table displays the following routing information:

- **Destination Address:** The IP address of the host or the network that the route leads to.
- **Netmask:** The subnet mask of the destination network.
- **Gateway:** The IP address of the gateway through which the destination host or network can be reached.

- **Symbol:** The routing status flags.
- **Metric:** The cost of a route. Routing metrics are assigned to routes by routing protocols to provide measurable values that can be used to judge how useful (or how low cost) a route will be.
- **Interface:** The physical network interface through which this route is accessible.

STEP 2 Click **Refresh** to refresh the routing table.

Configuring the Static Routing

To configure static routes, specify the IP address and related information for the destination. You must also assign a priority, which determines the selected route when there are multiple routes travelling to the same destination.

STEP 1 Click **Networking -> Routing -> Static Routing**.

The Static Routing window opens.

STEP 2 To add a static route, click **Add**.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. To delete multiple entries, check the boxes of multiple entries and click **Delete Selection**.

After you click Add or Edit, the Static Routing - Add/Edit window opens.

STEP 3 Enter the following information:

- **Destination Address:** Choose an existing IP address object of the host or of the network that the route leads to. If the address object is not in the list, choose **Create an IP Address/Network** to create a new address object. To main the address objects, go to the **Networking -> Address Object Management** page. See **Address Management, page 152**.
- **Setting as Default Route:** Check this box to set this static route as the default route.
- **Next Hop:** Choose an interface or an IP address as the next hop for this static route.
  - **Interface:** Choose either WAN1 or WAN2 as the next hop.

  - **IP Address:** Choose an IP address of the gateway through which the destination host or network can be reached.

- **Metric:** If needed, enter a number to manage the route priority. If multiple routes to the same destination exist, the route with the lowest metric is selected.

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

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

Configuring the Dynamic Routing

Dynamic Routing or RIP, 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.

STEP 1 Click **Networking -> Routing -> Dynamic-RIP**.

The Dynamic-RIP window opens.

STEP 2 Enter the following information:

- **RIP Enable:** Click **On** to enable RIP, or click **Off** to disable it. By default, RIP is disabled.
- **RIP Version:** If you enable RIP, specify the RIP version. The security appliance supports RIPv1 and RIPv2.
  - **RIPv1** is a class-based routing version that does not include subnet information. This is the most commonly supported version.
  - **RIPv2** includes all the functionality of RIPv1 plus it supports subnet information.
  - **Default:** The data is sent in RIPv1 format and received in RIPv1 and RIPv2 format. This is the default setting.

STEP 3 Specify the RIP setting for each available interface:

- **RIP Enable:** Check this box to enable the RIP settings on the interface or VLAN.

- **Port Passive:** Determines how the security appliance receives RIP packets. Check this box to enable this feature on the interface or VLAN.
- **Authentication:** If you are using RIPv2, click **Edit** to specify the authentication method for the interface or VLAN.
  - **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. Enter the unique key ID in the **MD5 Key ID** field and the Key in the **MD5 Auth Key** field.

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

Configuring Policy-based Routing Settings

Policy-based Routing (PBR) allows users to specify the internal IP and/or service going through a specified WAN port to provide more flexbile 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.

For example, although HTTP traffics is typically routed through WAN1, by using PBR you can bind the HTTP protocol to WAN1 and bind the FTP protocol to WAN2. In this case, the security appliance automatically channels FTP data through WAN2.

NOTE Make sure that you configure a secondary WAN connection and that the WAN redundancy is set to the Load Balancing or Routing Table mode before you configure the policy-based routing settings. See **Configuring the Secondary WAN, page 104** and **Configuring the WAN Redundancy, page 112**.

NOTE The security appliance supports up to 100 PBR rules.

STEP 1 Click **Networking -> Routing -> Policy Based Routing**.

The Policy-based Routing window opens.

STEP 2 Click **On** to enable PBR, or click **Off** to disable it.

STEP 3 To add a new PBR rule, click **Add**.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**.

The Policy-based Routing - Add/Edit window opens.

STEP 4 Enter the following information;

- **From VLAN:** Choose the VLAN for the outbound traffic.
- **Service:** For service binding only, choose an existing service or choose **Create New Service** to create a new service. For IP binding only, choose **All Traffic**.
- **Source IP:** For service binding only, choose **Any**. For IP binding only, choose an internal IP address that passes through the specific WAN port.
- **Dest IP:** For service binding only, choose **Any**. For IP binding only, choose an IP address as the destination IP address of the outbound traffic. If the address object is not in the list, choose **Create New Address** to create a new address object. To main the address objects, go to the **Networking -> Address Object Management** page. See **Address Management, page 152**.
- **DCSP:** Choose the DCSP remarking value to assign the traffic priority.
- **Route to:** Choose the WAN interface that the outbound traffic passes through.
- **Failover:** Click **On** to enable WAN Failover, or click **Off** to disable it. When the selected WAN interface for routing is down, enabling Failover will forward the traffic to the backup WAN.

NOTE If one WAN connection is down (a connection failure is detected by ping the host or DNS server) and the PBR Failover is “Off”, the traffic will be dropped.

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

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

Priority of Routing Rules

If multiple routing features operate simultaneously, the security appliance first matches up with the Policy-based Routing rules, and then matches up with the Static Routing and default Routing rules.

For example, if WAN redundancy is set to the Weighted Loading Balancing mode, and the PBR and Static Routing rules are configured, the routing priority works as follows:

1. If all traffic cannot match up with the PBR or Static Routing rules, all traffic follows the Weighted Loading Balance settings.
2. If traffic A matches up with the PBR or Static Routing rules, traffic A will be firstly handled by the PBR or Static Routing rules, while other traffic follows the Weighted Loading Balance settings.

Dynamic DNS

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.com.

STEP 1 Click **Networking -> DDNS**.

The DDNS window opens.

STEP 2 To add a new DDNS service, click **Add**.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**.

After you click Add or Edit, the Edit window opens.

STEP 3 Enter the following information:

- **Service:** Choose either DynDNS or No-IP service.

  - **DynDNS.org:** Dynamic Network Services provides world-class DNS hosting and management services, domain registration, email services, network monitoring by hostname or IP address, and web redirection.
  - **No-IP.com:** No-IP is a dynamic DNS provider (DDNS), both free and paid, backed by our industry proven network of highly available name servers.
- **Active on Startup:** Check this box to activate the DDNS service when the security appliance starts up.
- **WAN Interface:** Choose the WAN interface for the DDNS service. The traffic for DDNS services will pass through the specified WAN interface.

NOTE If the WAN redundancy is set to the Failover mode, this option is grayed out. When WAN failover occurs, DDNS will switch the traffic to the active WAN interface.

- **User Name:** Enter the user name of the account you registered in the DDNS provider.
- **Password:** Enter the password of the account you registered in the DDNS provider.
- **Host and Domain Name:** Specify the complete host name and domain name for the DDNS service.
- **Use wildcards:** Check this box to allow all subdomains of your DDNS host name to share the same public IP address as the host name.
- **Update every 30 mins:** Check this box to update the host information every 30 minutes.
- **Status:** Displays the status of DDNS service.
  - **Non-active:** Indicates that the DDNS service is not active (daemon does not start).
  - **Active(initial):** Indicates that the DDNS daemon starts but the DDNS updating process is NOT complete yet.
  - **Active(updated WAN*x*):** Indicates that the DDNS updating process is complete and the address of WANx is updated to the user-specified domain name.

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

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

IGMP

The 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 allows more efficient use of resources when supporting these types of applications.

The IGMP Proxy mechanism 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. The IGMP snooping is based on the IGMP version 3 that is backward compatible with the previous versions.

NOTE By default, the multicast traffic from Any zone to Any zone is blocked by the default firewall access rules. When you enable IGMP Proxy and want to receive the multicast packets from WAN to LAN, you need to uncheck the **Block Multicast Packets** box in the **Firewall -> Attack Protection** page, and create a firewall access rule to permit the multicast traffic from WAN to LAN. For more information, see **Configuring a Firewall Access Rule to Allow the Multicast Traffic, page 185**.

STEP 1 Click **Networking -> IGMP**.

The IGMP window opens.

STEP 2 Enter the following information:

- **IGMP Proxy:** Click **On** to enable IGMP Proxy so that your security appliance can act as a proxy for all IGMP requests and communicate with the IGMP servers of the ISP, or click **Off** to disable it.
- **IGMP Version:** Choose either IGMPv1&v2 or IGMPv3.
  - **IGMPv1:** Hosts can join multicast groups. There are no leave messages. Routers use a time-out based mechanism to discover the groups that are of no interest to the members.

  - **IGMPv2:** Leave messages are added to the protocol. This allows group membership termination to be quickly reported to the routing protocol, which is important for high-bandwidth multicast groups and/or subnets with highly volatile group membership.

  - **IGMPv3:** Major revision of the protocol. It allows hosts to specify the lists of hosts from which they want to receive traffic. Traffic from other hosts is blocked inside the network. It also allows hosts to block packets inside the network that come from sources sending unwanted traffic.

- **IGMP Snooping:** You can use IGMP snooping in subnets that receive IGMP queries from either IGMP or the IGMP snooping querier. Click **On** to enable IGMP Snooping, or click **Off** to disable it.

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

VRRP

The Virtual Router Redundancy Protocol (VRRP) is a redundancy protocol for LAN access device. VRRP configures a groups of routers (include a master router and several backup routers) as a virtual router.

STEP 1 Click **Networking -> VRRP**.

The VRRP window opens.

STEP 2 Check the box of **Enable Virutal Router Redundancy Protocol (VRRP)** to enable VRRP, or uncheck the box to disable it.

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

- **Interface:** The default interface of the master virtual router (your security appliance).

- **Source IP:** The source IP address of the master virtual router.

NOTE If a VRRP router owns the IP address of the virtual router and the IP address of the physical interface, this router will function as a master virtual router .

- **VRID:** The master virtual router ID. A virtual router has an unique ID that will be represented as the unique virtual MAC address. Enter a value from 1 to 255.
- **Priority:** The priority of the master virtual router. Priority determines the role that each VRRP router plays and what happens if the master virtual router fails. Enter a value from 1 to 254.
- **Advertisement Interval:** Specify the interval in seconds between successive advertisements by the master virtual router in a VRRP group. By default, the advertisements are sent every second (1). The advertisements being sent by the master virtual router communicate the state and priority of the current master virtual router.

NOTE All routers in a VRRP group must use the same advertisement interval value. If the interval values are not same, the routers in the VRRP group will not communicate with eachother and any misconfigured router will change its state to master.

- **Verify:** Click **On** to enable the authentication, or click **Off** to disable it. If you enable the authentication, specify the authentication method.
  - **Pass:** Uses the simple text password as the authentication method. Enter the password in the field.
  - **AH:** Uses the IP authentication as the authentication method.
- **Virtual IP Address:** Enter the virtual IP address used for all backup virtual routers in the same group.

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

Configuring the Quality of Service

The Quality of Service (QoS) feature is applied throughout the network to ensure that network traffic is prioritized according to required criteria and that the desired traffic receives preferential treatment.

QoS guarantees are important if the network capacity is insufficient, especially for real-time streaming multimedia applications such as voice over IP, online games, and IPTV, since these applications are delay sensitive and often require a fixed bit rate.

This section describes how to configure the WAN, LAN, and WLAN QoS. It includes the following topics:

- **General QoS Settings, page 141**
- **Configuring the WAN QoS, page 141**
- **Configuring the LAN QoS, page 147**
- **Configuring the Wireless QoS, page 150**

General QoS Settings

STEP 1 Click **Networking -> QoS -> General Settings**.

The General Settings window opens.

STEP 2 Enter the following information:

- **WAN QoS:** Check this box to enbale the WAN QoS feature. By default, WAN QoS is disabled.
- **LAN QoS:** The LAN QoS specifies priority values that can be used to differentiate the traffic and give preference to higher-priority traffic, such as telephone calls. Check this box to enbale the LAN QoS feature. By default, LAN QoS is disabled.
- **Wireless QoS:** The Wireless QoS controls priority differentiation for data packets in wireless egress direction. Check this box to enbale the Wireless QoS feature. By default, Wireless QoS is disabled.

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

Configuring the WAN QoS

This section describes how to configure the WAN QoS settings. It includes the following topics:

- **Managing the WAN Bandwidth for Upstream Traffic, page 142**

- **Configuring the WAN Queue Settings, page 142**
- **Configuring the Traffic Selectors for WAN Interfaces, page 144**
- **Configuring the WAN QoS Policy Profiles, page 145**
- **Mapping the WAN QoS Policy Profiles to WAN Interfaces, page 146**

Managing the WAN Bandwidth for Upstream Traffic

Use the Bandwidth Settings page to determine how much traffic the WAN interfaces can send and receive.

STEP 1 Click **Networking -> QoS -> WAN QoS -> Bandwidth Settings**.

The Bandwidth Settings window opens.

STEP 2 Enter the amount of maximum bandwidth for upstream traffic to allow on WAN1 and WAN2 ports. The range is 0 to 1000000 Kbps.

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

NOTE Next Steps:

- To specify the WAN queue settings, go to the **WAN QoS -> Queue Settings** page. See **Configuring the WAN Queue Settings, page 142**.
- To specify the traffic classes for WAN interfaces, go to the **WAN QoS -> Traffic Selector (Classification)** page. See **Configuring the Traffic Selectors for WAN Interfaces, page 144**.
- To create the WAN QoS policy profiles, go to the **WAN QoS -> QoS Policy Profile** page. See **Configuring the WAN QoS Policy Profiles, page 145**.
- To assign the WAN QoS policy profiles to WAN interfaces, go to the **WAN QoS -> Policy Profile to Interface Mapping** page. See **Mapping the WAN QoS Policy Profiles to WAN Interfaces, page 146**.

Configuring the WAN Queue Settings

The security appliance supports six queues for WAN ports, Q1 to Q6. There are three ways of determining how traffic in queues is handled: Strict Priority (SP), Weighted Round Robin (WRR), and Low Latency Queueing (LLQ).

SP	Egress traffic from the highest-priority queue (Q1) is transmitted first. Traffic from the lower queues is processed only after the highest queue has been transmitted, thus providing the highest level of priority of traffic to the highest numbered queue.
WRR	Distributes the bandwidth between the classes using the weighted round robin scheme. The weights decide how fast each queue can send packets. In WRR mode the number of packets sent from the queue is proportional to the weight of the queue. The higher the weight, the more frames are sent.
LLQ	Integrates the SP and WRR queues to provide strict priority queuing (PQ) to Class-Based Weighted Fair Queuing (CBWFQ). LLQ allows delay-sensitive data (such as voice) to be given preferential treatment over other traffic by letting the data to be dequeued and sent first.

STEP 1 Click **Networking -> QoS -> WAN QoS -> Queue Settings**.

The Queue Settings window opens.

STEP 2 Specify the way of determining how traffic in queues is handled for each WAN port.

- **SP:** Set the order in which queues are serviced, traffic scheduling for the selected queue and all higher queues is based strictly on the queue priority, starting with Q1 (the highest priority queue) and going to the next lower queue when each queue is complete.
- **WRR:** Enter the WRR weight, in percentage, assigned to the queues that you want to use. Traffic scheduling for the selected queue is based on WRR.
- **LLQ:** Applies SP mode to Q1 and WRR mode to Q2 to Q6. Q1 has the highest priority and is always processed to completion before the lower priority queues. If you choose LLQ, enter the amount of bandwidth assigned to Q1, and enter the WRR weights for other queues that you want to use.
- **Random Early Detection:** Check the box to enable the Random Early Detection (RED) mechanism. RED is a congestion avoidance mechanism that takes advantage of TCP's congestion control mechanism. By randomly dropping packets prior to periods of high congestion, RED tells the packet source to decrease its transmission rate. Assuming the packet source is using TCP, it will decrease its transmission rate until all the packets reach their destination, indicating that the congestion is cleared.

STEP 3 If needed, you can enter a brief description for each queue in the **Queue Description** field.

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

Configuring the Traffic Selectors for WAN Interfaces

Traffic Selector (or Traffic Classification) is used to classify the traffic through WAN interfaces to a given traffic class so that traffic in need of management can be identified.

NOTE The security appliance allows you to create up to 256 traffic selectors.

STEP 1 Click **Networking -> QoS -> WAN QoS -> Traffic Selector (Classification)**.

The Traffic Selector window opens. All existing traffic selectors are listed in the table.

STEP 2 To add a new traffic selector, click **Add**.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**.

After you click Add or Edit, the QoS Class - Add/Edit window opens.

STEP 3 Enter the following information:

- **Class Name:** Enter a descriptive name for the traffic class.
- **Source Address:** Choose **Any** or choose an existing address or group address (network) that the traffic comes from.
- **Destination Address:** Choose **Any** or choose an existing address or group address (network) that the traffic goes to.

  If the address objects you want are not in the list, choose **Create a Group Address** to create a new group address object or choose **Create a Single Address** to create a new address object. To maintain the address or group address objects, go to the **Networking -> Address Object Management** page. See **Address Management, page 152**.
- **Source Service:** Choose **Any** or choose an existing service from the drop-down list.

- **Destination Service:** Choose **Any** or choose an existing service from the drop-down list.

  If the service objects you want are not in the list, choose **Create a Single Service** to create a new service object. To maintain the service objects, go to the **Networking -> Service Management** page. See **Service Management, page 154**.

- **DSCP:** DSCP is a field in an IP packet that enables different levels of service to be assigned to network traffic. Choose the DSCP remarking values for the traffic class to assign its priority.

- **CoS:** QoS-based IEEE 802.1p class of service (CoS) specifies a priority value of between 0 and 7 that can be used to differentiate traffic and give preference to higher-priority traffic.Choose the CoS remarking value for the traffic class.

- **VLAN:** Choose the VLAN for identifying the host to which the traffic selector will apply.

NOTE The traffic that matches up with the above settings will be classified to a class for management purposes.

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

Configuring the WAN QoS Policy Profiles

You can create class-based policy profiles for managing traffic through the WAN ports.

STEP 1 Click **Networking -> QoS -> WAN QoS -> QoS Policy Profile**.

The QoS Policy Profile window opens. All existing WAN QoS policy profiles are listed in the table.

STEP 2 To add a new WAN QoS policy profile, click **Add**.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**.

After you click Add or Edit, the QoS Policy Profile - Add/Edit window opens.

STEP 3 Enter the following information:

- **Policy Name:** Enter the name for the WAN QoS policy profile.
- **Policy In/Out:** Click **Inbound** to enable this policy profile for inbound traffic, or click **Outbound** to enable this policy profile for outbound traffic.

STEP 4 Specify the QoS settings for the traffic classes that you want to associate with the policy profile. Up to 64 traffic classes can be associate with one WAN QoS policy profile.

Click **Add** to add a rule. After you click Add, the QoS Class - Add/Edit window opens. Enter the following information:

- **Class:** Choose an existing traffic selector (traffic class) to associate with the policy profile.
- **Queue:** For an outbound traffic policy profile, choose the queue for sending the packets that belongs to the selected traffic class. This option will be disabled for the inbound traffic policy profile.
- **DSCP Marking:** Choose the DSCP remarking value to assign the priority for the traffic.
- **CoS Marking:** For an inbound traffic policy profile, choose the CoS remarking value to assign the priority for the inbound traffic. This option will be disabled for the outbound traffic policy profile.
- **Policing:** Enter the amount of bandwidth limitation for the selected traffic class. For example, if this policy profile is applied to inbound traffic, the policing setting only appies to the incoming traffic that belongs to the selected class.

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

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

Mapping the WAN QoS Policy Profiles to WAN Interfaces

You can associate the WAN QoS policy profiles with the WAN interfaces.

STEP 1 Click **Networking -> QoS -> WAN QoS -> Policy Profile to Interfaces Mapping**.

The Policy Profile to Interfaces Mapping window opens.

STEP 2 To edit the policy profile settings associated with a WAN interface, click **Edit**.

After you click Edit, the Policy Profile to Interfaces Mapping - Edit window opens.

STEP 3 Enter the following information:

- **Interface:** The name of the WAN interface with which the policy profiles are associated.
- **Inbound Policy Name:** Choose an inbound policy profile for managing the inbound traffic through the selected WAN interface.
- **Outbound Policy Name:** Choose an outbound policy profile for managing the outbound traffic through the selected WAN interface.

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

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

Configuring the LAN QoS

The LAN QoS specifies priority values that can be used to differentiate traffic and give preference to higher-priority traffic, such as telephone calls. It includes the following topics:

Configuring the LAN Queue Settings

Use the Queue Settings page to configure whether traffic scheduling on Ethernet interfaces is based on either SP or WRR, or the combination of the two. The security appliance supports four queues for LAN traffic, Q1 to Q4.

STEP 1 Click **Networking -> QoS -> LAN QoS -> Queue Settings**.

The Queue Settings window opens.

STEP 2 If needed, enter the description for each queue in the **Queue Description** column.

STEP 3 Specify how to determine the traffic in queues.

- **SP:** Indicates that traffic scheduling for the selected queue is based strictly on the queue priority.
- **WRR:** Indicates that traffic scheduling for the selected queue is based strictly on the WRR weights. If WRR is selected, the predefined weights 8, 4, 2 and 1 are assigned to queues 1, 2, 3 and 4 respectively.
- **SP+WRR:** Integrates the SP and WRR queues. It applies SP to two groups. The first group contains the PQ and the second group contains other queues. If SP+WRR is selected, the PQ is assigned to the Q1 and the predefined weights 4, 2 and 1 are assigned to Q2, Q3, and Q4 respectively. There is no limit for PQ, indicating that WRR queues may be starved if PQ is always sending traffic greater than the maximum bandwidth of the LAN ports.

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

NOTE Next Steps:

- To specify the LAN QoS classification method, go to the **LAN QoS -> Classification Method** page. See **Configuring the LAN QoS Classification Methods, page 148**.
- To map the CoS to LAN queues, go to the **LAN QoS -> Mapping CoS to Queue** page. See **Mapping CoS to LAN Queue, page 149**.
- To map the DSCP to LAN queues, go to the **LAN QoS -> Mapping DSCP to Queue** page. See **Mapping DSCP to LAN Queue, page 149**.
- To configure the default CoS value and trust mode for traffic through each LAN interface, go to the **LAN QoS -> Default CoS** page. See **Configuring Default CoS, page 149**.

Configuring the LAN QoS Classification Methods

Traffic Classification is used to classify the traffic through the LAN interfaces to a given traffic class so that the traffic in need of management can be identified.

STEP 1 Click **Networking -> QoS -> LAN QoS -> Classification Method**.

The Classification Method window opens.

STEP 2 Depending on your networking design, choose either DSCP or CoS remarking method for traffic through each LAN interface.

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

Mapping CoS to LAN Queue

STEP 1 Click **Networking -> QoS -> LAN QoS -> Mapping CoS to Queue**.

The Mapping CoS to Queue window opens.

STEP 2 Choose the traffic forwarding queue to which the CoS priority tag value is mapped. Four traffic priority queues are supported, where Q4 is the lowest and Q1 is the highest.

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

Mapping DSCP to LAN Queue

STEP 1 Click **Networking -> QoS -> LAN QoS -> Mapping DSCP to Queue**.

The Mapping DSCP to Queue window opens.

STEP 2 Choose the traffic forwarding queue to which the DSCP priority tag value is mapped. Four traffic priority queues are supported, where Q4 is the lowest and Q1 is the highest.

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

Configuring Default CoS

Use the Default CoS page to configure the default CoS values for incoming packets through each LAN interface. The possible field values are 0 to 7. The default CoS value is 0.

STEP 1 Click **Networking -> QoS -> LAN QoS -> Default CoS**.

The Default CoS window opens.

STEP 2 Enter the following information:

- **Default CoS:** Choose the default CoS priority tag value for the LAN interfaces, where 0 is the lowest and 7 is the highest.
- **Trust:** Choose **Yes** to keep the CoS tag value for packets through the LAN interfaces, or choose **No** to change the CoS tag value for packets through the LAN interface.

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

Configuring the Wireless QoS

The Wireless QoS controls priority differentiation for data packets in wireless egress direction. It includes the following topics:

- **Default Wireless QoS Settings, page 150**
- **Configuring the Wireless QoS Classification Methods, page 151**
- **Mapping CoS to Wireless Queue, page 151**
- **Mapping DSCP to Wireless Queue, page 151**

Default Wireless QoS Settings

The Wireless QoS uses the default queuing method for wireless traffic. Wireless traffic is always trusted. The wireless QoS treats all untagged packets as tagged packets with the default CoS value 0 so that the security appliance can refer to the CoS to Queue mapping settings to obtain the corresponding wireless egress queue.

If you enable WMM for the SSIDs, the following table displays the default mapping settings between DSCP and WMM. The default mapping settings between CoS or DSCP and WMM cannot be changed, but the default mapping settings between CoS or DSCP and wireless queues are editable.

802.1p	DSCP	Wireless Queue	WMM value
0	000xxx	Q3 (Best Effort Priority)	0
1	001xxx	Q4 (Background Priority)	1
2	010xxx	Q4 (Background Priority)	2
3	011xxx	Q3 (Best Effort Priority)	3

802.1p	DSCP	Wireless Queue	WMM value
4	100xxx	Q2 (Video Priority)	4
5	101xxx	Q2 (Video Priority)	5
6	110xxx	Q1 (Voice Priority)	6
7	111xxx	Q1 (Voice Priority)	7

Configuring the Wireless QoS Classification Methods

Traffic Classification is used to classify the traffic through the SSIDs to a given traffic class so that traffic in need of management can be identified. Use the Classification Method page to specify the classification method that is used by each SSID individually.

STEP 1 Click **Networking -> QoS -> Wireless QoS -> Classification Method**.

The Wireless Classification Method window opens.

STEP 2 Depending on your networking design, choose either DSCP or CoS remarking method for traffic through each active SSID.

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

Mapping CoS to Wireless Queue

STEP 1 Click **Networking -> QoS -> Wireless QoS -> Mapping CoS to Queue**.

The Mapping CoS to Queue window opens.

STEP 2 Choose the traffic forwarding queue to which the CoS priority tag value is mapped.

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

Mapping DSCP to Wireless Queue

STEP 1 Click **Networking -> QoS -> Wireless QoS -> Mapping DSCP to Queue**.

The Mapping DSCP to Queue window opens.

STEP 2 Choose the traffic forwarding queue to which the DSCP priority tag value is mapped.

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

Address Management

Use the Address Object Management page to manage the address and group address objects. The security appliance is configured with a long list of common address objects so that you can use to configure the firewall access rules, port forwarding rules, or other features. For more information, see **Default Address Objects, page 363**.

This section includes the following topics:

- **Configuring the Addresses, page 152**
- **Configuring the Group Addresses, page 153**

Configuring the Addresses

STEP 1 Click **Networking -> Address Object Management**.

The Address Object Management window opens. All existing address objects are listed in the Address table.

STEP 2 In the **Address Table** area, click **Add** to add a new address.

Other options: To edit an entry, check the box and click **Edit**. To delete an entry, check the box and click **Delete**. To delete multiple entries, check the boxes of multiple entries and click **Delete Selection**. The default address object cannot be edited.

After you click Add or Edit, the Address Table - Add/Edit window opens.

STEP 3 Enter the following informaiton:

- **Name:** Enter the name for the address object.
- **Type:** Specify the address type and then enter the corresponding information.

- **Host:** Defines a single host by its IP address. The netmask for a Host address object will automatically be set to 32-bit (255.255.255.255) to identify it as a single host. If you choose Host, enter the IP address of the host in the **IP Address** field.
- **Range:** Defines a range of contiguous IP addresses. No netmask is associated with the Range address object, but internal logic generally treats each member of the specified range as a 32-bit masked host object. If you choose Range, enter the starting IP address in the **IP Address** field and the ending IP address in the **End IP Address** field.
- **Network:** Network address object like the Range object comprises multiple hosts, but rather than being bound by specified upper and lower range delimiters, the boundaries are defined by a valid netmask. Network address objects must be defined by the network's address and a corresponding netmask. As a general rule, the first address in a network (the network address) and the last address in a network (the broadcast address) are unusable. If you choose Network, enter the subnet IP address in the **IP Address** field and the broadcast address in the **Netmask** field.
- **MAC:** Identifies a host by its hardware address or MAC (Media Access Control) address. MAC addresses are uniquely assigned to wired or wireless networking devices by their hardware manufacturers. MAC addresses are 48-bit values that are expressed in 6 byte hex-notation. If you choose MAC, enter the MAC address in the **MAC** field.

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

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

Configuring the Group Addresses

A group address combines with multiple addresses. The security appliance can support up to 64 group addresses. A group address can include up to 64 address members.

STEP 1 Click **Networking -> Address Object Management**.

The Address Object Management window opens. All existing group address objects are listed in the Group Address table.

STEP 2 In the **Group Address Table** area, click **Add Group** to add a new group address.

Other options: To edit an entry, check the box and click **Edit**. To delete an entry, check the box and click **Delete**. To delete multiple entries, check the boxes of multiple entries and click **Delete Group**.

After you click Add or Edit, the Address Table - Add/Edit window opens.

STEP 3 Enter the name for the group address in the **Group Name** field.

STEP 4 To add the address objects to the group, select the address objects from the left list and click the right arrow **->**.

STEP 5 To remove the address objects from the group, select the address objects from the right list and click the left arrow **<-**.

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

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

Service Management

Use the Services page to maintain the service or group service objects. The security appliance is configured with a long list of standard services so you can use to configure the firewall access rules, port forwarding rules, or other features. For more information, see **Default Service Objects, page 360**.

This section includes the following topics:

- **Configuring the Services, page 154**
- **Configuring the Group Services, page 155**

Configuring the Services

If you need to configure a feature for a custom service that is not in the standard list, you must first define the service object.

STEP 1 Click **Network -> Services**.

The Services window opens. All existing service objects are listed in the Service table.

STEP 2 In the **Service Table** area, click **Add** to add a new service.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. To delete multiple entries, check the boxs of multiple entries and click **Delete Service**.

After you click Add or Edit, the Service Table - Add/Edit window opens.

STEP 3 Enter the following information:

- **Name:** Enter the name for the service.
- **Protocol:** Specify the protocol and port range for the service:
  - **IP:** Uses only the predefined IP types. If you choose this option, enter the protocol number in the **IP Type** field.
  - **ICMP:** Internet Control Message Protocol (ICMP) is a TCP/IP protocol used to send error and control messages. If you choose this option, enter the ICMP type in the **ICMP Type** field.
  - **TCP:** Transmission Control Protocol (TCP) is a transport protocol in TCP/IP. TCP ensures that a message is sent accurately and in its entirety. If you choose this option, enter the starting port number in the **Port Range Start** field and the ending port number in the **Port Range End** field.
  - **UDP:** User Datagram Protocol (UDP) is a protocol within the TCP/IP protocol suite that is used in place of TCP when a reliable delivery is not required. If you choose this option, enter the starting port number in the **Port Range Start** field and the ending port number in the **Port Range End** field.
  - **Both (TCP/UDP):** If you choose this option, enter the starting port number in the **Port Range Start** field and the ending port number in the **Port Range End** field.

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

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

Configuring the Group Services

Services that apply to common applications are grouped as a group service object. The group service object is treated as a single service. A group service can include up to 64 service members. The security appliance can support up to 64 group services.

STEP 1 Click **Network -> Services**.

The Services window opens. All existing group service objects are listed in the Group Service table.

STEP 2 In the **Group Service Table** area, click **Add Group** to add a new group service.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. To delete multiple entries, check the boxs of multiple entries and click **Delete Group**.

After you click Add or Edit, the Service Table - Add/Edit window opens.

STEP 3 Enter the name for the group service in the **Name** field.

STEP 4 To add the services to the group, select the services from the **Services** list and click the right arrow **->** to add them into the **Member** list.

STEP 5 To remove the services from the group, select the services from the **Member** list and click the left arrow **<-**.

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

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

5

Wireless Configuration for ISA550W and ISA570W

This chapter describes how to configure the the radio settings and SSIDs for the ISA550W and ISA570W. It includes the following sections:

To access the Wireless pages, click **Wireless** in the left hand navigation pane.

Configuring the Radio Settings

The ISA550W and ISA570W can function as an Internet or network gateway for the wireless clients. The ISA550W and ISA570W supports wireless protocols called IEEE 802.11b, 802.11g, and 802.11n.

This section describes how to configure the wireless radio settings. It includes the following topics:

Basic Radio Settings

You can change the wireless network mode to suit the devices in your network, specify the wireless channel and bandwidth for operation to resolve issues with interference from other access points in the area, or enable the U-APSD and SSID Isolation if needed.

STEP 1 Click **Wireless -> Basic Settings**.

The Basic Settings window opens.

STEP 2 Enter the following information:

- **Wireless Radio:** Click **On** to turn the wireless radio on and hence enable the wireless network, or click **Off** to turn the wireless radio off. By default, the security appliance turns on the wireless radio with predefined standard settings.
- **Wireless Network Mode:** Choose the 802.11 modulation technique. The ISA550W and ISA550W supports the following radio modes:
  - **802.11b only:** Choose this mode if all devices in the wireless network use 802.11b. Only 802.11b clients can connect to the access point.
  - **802.11g only:** Choose this mode if all devices in the wireless network use 802.11g. Only 802.11g clients can connect to the access point.
  - **802.11b/g mixed:** Choose this mode if some devices in the wireless network use 802.11b and others use 802.11g. Both 802.11b and 802.11g clients can connect to the access point.
  - **802.11n only:** Choose this mode if all devices in the wireless network can support 802.11n. Only 802.11n clients operating in the 2.4 GHz frequency can connect to the access point.
  - **802.11g/n mixed:** Choose this mode to allow 802.11g and 802.11n clients operating in the 2.4 GHz frequency to connect to the access point.
  - **802.11b/g/n mixed:** Choose this mode to allow 802.11b, 802.11g, and 802.11n clients operating in the 2.4 GHz frequency to connect to the access point.
- **Wireless Channel:** Choose a channel or choose **Auto** to let the system determine the optical channel to use based on the environmental noise levels for the available channels.

- **Bandwidth Channel:** Choose 20 MHz or choose **Auto** to let the system determine the optical bandwidth channel to use. This setting is specific to 802.11n traffic.

- **Extension Channel:** If you choose **Auto** as the bandwidth channel, choose either **Lower** or **Upper**.

- **U-APSD:** Click **Enable** to enable the Unscheduled Automatic Power Save Delivery (U-APSD) feature to conserve the power, or click **Disable** to disable it.

- **SSID Isolation:** Click **Enable** to enable the SSID Isolation feature so that SSIDs will not be able to see each other when SSIDs belong to the same VLAN, or click **Disable** to disable it. When you enable the SSID Isolation (among SSIDs), traffic on one SSID will not be forwarded to any other SSIDs.

STEP 3 In the **SSID Table** area, the SSID table lists four predefined SSIDs on your security appliance. If needed, you can perform the following tasks:

- **Enable:** Check the box to enable the SSID, uncheck the box to disable the SSID. By default, all four SSID are enabled.

- **SSID Name:** Enter an unique identifier for the SSID.

- **SSID Broadcast:** Check this box to broadcast the SSID in its beacon frames. All wireless devices within range are able to see the SSID when they scan for available networks. Uncheck this box to prevent auto-detection of the SSID. In this case, users must know the SSID to set up a wireless connection to this SSID. By default, SSID Broadcast is enabled for each SSID.

NOTE Disabling the SSID Broadcast is sufficient to prevent clients from accidentally connecting to your network, but it will not prevent even the simplest of attempts by a hacker to connect or monitor unencrypted traffic. Suppressing the SSID broadcast offers a very minimal level of protection on an otherwise exposed network (such as a guest network) where the priority is making it easy for clients to get a connection and where no sensitive information is available.

- **WMM:** Check this box to enable the Wi-Fi Multimedia (WMM) QoS feature for the SSID. WMM refers to QoS over Wi-Fi. QoS enables Wi-Fi SSIDs to prioritize traffic and optimizes the way shared network resources are allocated among different applications.

If you enable WMM, the wireless QoS settings control the downstream traffic from the SSID to the client station and the upstream traffic from the client station to the SSID. Fore more information about Wireless QoS, see **Configuring the Wireless QoS, page 150**.

- **Station Isolation:** Check this box so that the wireless clients on the same SSID will not be able to see eachother.

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

Advanced Radio Settings

Use the Advanced Settings page to specify the advanced radio settings, such as Guard Interval, CTS Protection Mode, and so forth.

STEP 1 Click **Wireless -> Advanced Settings**.

The Wireless Advanced Settings window opens.

STEP 2 Enter the following information:

- **Guard Interval:** Choose either **Long (800 ns)** or **Short (400 ns)** that the security appliance will retry a frame transmission that fails.

NOTE The short frame is only available when the specified wireless network mode includes 802.11n.

- **CTS Protection Mode:** CTS (Clear-To-Send) Protection Mode function boosts the ability of the access point to catch all Wireless-G transmissions but will severely decrease performance.
  - Click **AUTO** if you want to perform a CTS handshake before transmitting a packet. This mode can minimize collisions among hidden stations.
  - Click **Disabled** if you want to permanently disable this feature.
- **Power Output:** You can adjust the output power of the access point to get the appropriate coverage for your wireless network. Choose the level you need for your environment. If you are not sure of which setting to select, then keep the default setting, 100%.

- **Beacon Interval:** Beacon frames are transmitted by the access point at regular intervals to announce the existence of the wireless network. Set the interval by entering a value in milliseconds. Enter a value from 20 to 999. The default is 100 milliseconds, which means that beacon frames are sent every 100 milliseconds.

- **DTIM Interval:** The Delivery Traffic Information Map (DTIM) message is an element that is included in some beacon frames. It indicates that the client stations that are currently sleeping in low-power mode and have buffered data on the access point awaiting pickup. Set the interval by entering a value in beacon frames. Enter a value from 1 to 255. The default is 1 beacon frame, which means that the DTIM message is included in every second beacon frame.

- **RTS Threshold:** The RTS threshold determines the packet size that requires a Request To Send (RTS)/Clear To Send (CTS) handshake before sending. A low threshold setting can be useful in areas where many client devices are associating with the wireless device, or in areas where the clients are far apart and can detect only the access point but not other clients. Although a low threshold value consumes more bandwidth and reduces the throughput of the packet, frequent RTS packets can help the network to recover from interference or collisions. Set the threshold by entering the packet size in bytes. Enter a value from 1 to 2347. The default value is 2347, which effectively disables RTS.

- **Fragmentation Threshold:** The fragmentation threshold is the frame length that requires packets to be broken up (fragmented) into two or more frames. Setting a lower value can reduce collisions because collisions occur more often in the transmission of long frames, which occupy the channel for a longer time. Use a low setting in areas where communication is poor or where there is a great deal of radio interference. Set the threshold by entering the frame length in bytes. Enter a value from 256 to 2346. The default value is 2346, which effectively disables fragmentation.

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

Configuring the Access Points

The ISA550W and ISA570W support four SSIDs. By default, each SSID has Open security and is identifying itself to all wireless devices that are in range. For security purposes, we strongly recommend that you configure each SSID with the highest level of security that is supported by the wireless devices that you want to allow into your network.

Multiple SSIDs can segment the wireless LAN into multiple broadcast domains. This configuration helps you to maintain better control over broadcast and multicast traffic, which affects network performance.

This section includes the following topics:

- **Configuring the Security Mode, page 162**
- **Controlling the Wireless Access Based on MAC Addresses, page 169**
- **Mapping the SSID to VLAN, page 170**
- **Configuring the SSID Schedule, page 171**

Configuring the Security Mode

This section describes how to configure the security mode for the SSID.

NOTE Cisco strongly recommends WPA2 for wireless security. Other security modes are vulnerable to attacks.

NOTE If the security mode is set as WEP or as WPA with TKIP encryption algorithm for the SSID that supports 802.11n, the transmit rate for its associated client stations will not exceed 54 Mbps.

STEP 1 Click **Wireless -> Basic Settings**.

The Basic Settings window opens.

STEP 2 In the **SSID table** area, click **Edit** to edit the settings for the SSID.

After you click Edit, the SSID Configurations - Edit window opens.

STEP 3 In the **Edit Security Mode** tab, choose the security mode and configure the correponding settings:

- **SSID Name:** The name of the SSID on which the security mode settings are applied.
- **Security Mode:** Choose the encryption algorithm for the data encryption to be configured in the SSID.

Security Mode	Description
Open	Any wireless device that is in range can connect to the SSID.
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. Select this option only if you need to allow access to devices that do not support WPA or WPA2.

Security Mode	Description
WPA	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. The following WPA security modes are supported on your security appliance. Choose one of them if you need to allow access to devices that do not support WPA2. ▪ **WPA-Personal:** WPA-Personal supports TKIP (Temporal Key Integrity Protocol) or AES (Advanced Encryption System) encryption mechanisms for data encryption (default is TKIP). TKIP uses dynamic keys and incorporates Message Integrity Code (MIC) to provide protection against hackers. AES uses symmetric 128-bit block data encryption. ▪ **WPA-Enterprise:** WPA-Enterprise uses an external RADIUS server for client authentication. WPA-Enterprise supports TKIP and AES encryption mechanisms (default is TKIP). This security mode is only available when a RADIUS server is connected to the SSID.
WPA2	WPA2 provides the best security for wireless transmissions. This method implements the security standards specified in the final version of 802.11i. The following WPA2 security modes are supported on your security appliance: ▪ **WPA2-Personal:** WPA2-Personal always uses AES encryption mechanism for data encryption. ▪ **WPA2-Enterprise:** WPA2-Enterprise uses an external RADIUS server for client authentication. WPA2-Enterprise always uses AES encryption mechanism for data encryption. This security mode is only available when a RADIUS server is connected to the SSID.

Security Mode	Description
WPA + WPA2	This mode allows both WPA and WPA2 clients to connect simultaneously. The SSID automatically chooses the encryption algorithm used by each client device. This option is a good choice to enable a higher level of security while allowing access by devices that might not support WPA2. The following WPA+WPA2 security modes are supported on your security appliance: ▪ **WPA/WPA2-Personal Mixed:** This security mode supports the transition from WPA?Personal to WPA2?Personal. You can have client devices that use either WPA?Personal or WPA2?Personal. ▪ **WPA/WPA2-Enterprise Mixed:** This security mode supports the transition from WPA?Enterprise to WPA2?Enterprise. You can have client devices that use either WPA?Enterprise or WPA2?Enterprise.
RADIUS	This security mode uses the RADIUS servers for client authentication and uses dynamic WEP key generation for data encryption. This security mode is only available when a RADIUS server is connected to the SSID.

STEP 4 If you choose **Open** as the security mode, no other options are configurable. This mode means that any data transferred to and from the SSID is not encrypted. This security mode can be useful during initial network configuration or for problem solving, but it is not recommended for regular use on the Internal network because it is not secure.

STEP 5 If you choose **WEP** as the security mode, enter the following information:

- **Authentication Type:** Choose either **Open System** or **Shared key**, or choose **Auto** to let the security appliance accept both Open System and Shared Key schemes.
- **Default Transmit Key:** Choose a key index as the default transmit key. Key indexes 1 through 4 are available.

- **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 (longer than 8 characters for optimal security) and then click **Generate** to generate four unique WEP keys. Select one key to use as the key that devices must have to use the wireless network.
- **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 WEP and 13 ASCII characters (or 26 hex characters) for 128-bit WEP.

STEP 6 If you choose **WPA-Personal** as the security mode, enter the following information:

- **Encryption:** Choose either TKIP or AES as the encryption algorithm for data encryption. The default is TKIP.
- **Shared Secret:** 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.
- **Key Renewal Timeout:** Enter a value to set the interval at which the key is refreshed for clients associated to this SSID. The valid range is 0 to 86400 seconds. A value of 0 indicates that the key is not refreshed. The default is 3600 seconds.

STEP 7 If you choose **WPA2-Personal** as the security mode, enter the following information:

- **Encryption:** WPA2-Personal always uses AES for data encryption.
- **Shared Secret:** 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.
- **Key Renewal Timeout:** Enter a value to set the interval at which the key is refreshed for clients associated to this SSID. The valid range is 0 to 86400 seconds. A value of 0 indicates that the key is not refreshed. The default is 3600 seconds.

STEP 8 If you choose **WPA/WPA2-Personal Mixed** as the security mode, enter the following information:

- **Encryption:** WPA/WPA2-Personal Mixed automtically choose TKIP or AES for data encryption.

- **Shared Secret:** 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.
- **Key Renewal Timeout:** Enter a value to set the interval at which the key is refreshed for clients associated to this SSID. The valid range is 0 to 86400 seconds. A value of 0 indicates that the key is not refreshed. The default is 3600 seconds.

STEP 9 If you choose **WPA-Enterprise** as the security mode, enter the following information:

- **Encryption:** Choose either TKIP or AES as the encryption algorithm for data encryption. The default is TKIP.
- **Key Renewal Timeout:** Enter a value to set the interval at which the key is refreshed for clients associated to this AP. The valid range is 0 to 86400 seconds. A value of 0 indicates that the key is not refreshed. The default is 3600 seconds.
- **RADIUS Server ID:** The security appliance predefines three RADIUS groups, choose an existing RADIUS group for client authentication. The following RADIUS server settings of the selected group are displayed.
  - **Primary RADIUS Server IP Address:** The IP address for the primary RADIUS server.
  - **Primary RADIUS Server Port:** The port number for the primary RADIUS server.
  - **Primary RADIUS Server Shared Secret:** The shared secret key for the primary RADIUS server.
  - **Secondary RADIUS Server IP Address:** The IP address for the secondary RADIUS server.
  - **Secondary RADIUS Server Port:** The port number for the secondary RADIUS server.
  - **Secondary RADIUS Server Shared Secret:** The shared secret key for the secondary RADIUS server.

NOTE You can also change the settings in the above fields.The RADIUS server settings you specify will replace the default settings of the selected group. Go to the **Device Management -> RADIUS Settings** page to maintain the RADIUS server settings. See **Configuring the RADIUS Servers, page 319**.

STEP 10 If you choose **WPA2-Enterprise** as the security mode, enter the following information:

- **Encryption:** WPA2-Enterprise always uses AES encryption algorithm for data encryption.
- **Key Renewal Timeout:** Enter a value to set the interval at which the key is refreshed for clients associated to this AP. The valid range is 0 to 86400 seconds. A value of 0 indicates that the key is not refreshed. The default is 3600 seconds.
- **RADIUS Server ID:** Choose an existing RADIUS group for client authentication. The RADIUS server settings of the selected group are displayed. You can also change the RADIUS server settings.The RADIUS server settings you specify will replace the default settings of the selected group. Go to the **Device Management -> RADIUS Settings** page to maintain the RADIUS server settings. See **Configuring the RADIUS Servers, page 319**.

STEP 11 If you choose **WPA/WPA2-Enterprise Mixed** as the security mode, enter the following information:

- **Encryption:** WPA/WPA2-Enterprise Mixed automatically choose TKIP or AES encryption algorithm for data encryption.
- **Key Renewal Timeout:** Enter a value to set the interval at which the key is refreshed for clients associated to this AP. The valid range is 0 to 86400 seconds. A value of 0 indicates that the key is not refreshed. The default is 3600 seconds.
- **RADIUS Server ID:** Choose an existing RADIUS group for client authentication. The RADIUS server settings of the selected group are displayed. You can also change the RADIUS server settings.The RADIUS server settings you specify will replace the default settings of the selected group. Go to the **Device Management -> RADIUS Settings** page to maintain the RADIUS server settings. See **Configuring the RADIUS Servers, page 319**.

STEP 12 If you choose **RADIUS** as the security mode, choose an existing RADIUS group for client authentication from the **RADIUS Server-ID** drop-down list. The RADIUS server settings of the selected group are displayed. You can also change the RADIUS server settings.The RADIUS server settings you specify will replace the default settings of the selected group. Go to the **Device Management -> RADIUS Settings** page to maintain the RADIUS server settings. See **Configuring the RADIUS Servers, page 319**.

STEP 13 Click **OK** to save your settings.

STEP 14 Click **Save** to apply your settings.

Controlling the Wireless Access Based on MAC Addresses

The MAC Filtering feature can permit or block the access to the SSID by the MAC addresses of wireless clients. The default is “Open” access, which means that the MAC filtering is disabled.

The MAC Filtering provides additional security, but it also adds to the complexity and maintenance. Be sure to enter each MAC address correctly to ensure that the policy is applied as intended.

Before performing this procedure, decide whether you want to enter a list of MAC addresses that will be blocked or allowed access. Generally it is easier and more secure to use this feature to allow access to the specified MAC addresses, thereby denying access to unknown MAC addresses.

STEP 1 Click **Wireless -> Basic Settings**.

The Wireless Basic Settings window opens.

STEP 2 In the **SSID table** area, click **Edit** to edit the settings of the SSID.

After you click Edit, the Edit window opens.

STEP 3 In the **Edit MAC Filtering** tab, enter the following information:

- **SSID Name:** The name of the SSID on which the MAC Filtering settings are applied.
- **Connection Control:** Check the **Enable** box to enable the MAC Filtering feature for the SSID. If you enabled this feature, choose one of the following options as the MAC filtering policy:

- **Allow Only the Following MAC Addresses to Connect to the Wireless Network:** All devices in the MAC Address table are allowed to connect to this SSID. All other devices are denied access.
- **Prevent the Following MAC Addresses from Connecting to the Wireless Network:** All devices in the MAC Address table are prevented from connecting to this SSID. All other devices are allowed access.

STEP 4 Specify the list of MAC addresses. You can add up to 16 MAC addresses you want to deny or permit.

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

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

Mapping the SSID to VLAN

STEP 1 Click **Wireless -> Basic Settings**.

The Wireless Basic Settings window opens.

STEP 2 In the **SSID table** area, click **Edit** to edit the settings of the SSID.

After you click Edit, the Edit window opens.

STEP 3 In the **Edit VLAN** tab, enter the following information:

- **SSID Name:** The name of the SSID on what the VLAN mapping setting is applied.
- **VLAN ID:** Choose the VLAN from the drop-down list. The SSID is mapped to the selected VLAN. All traffic from the wireless clients that are connected to this SSID will be directed to the selected VLAN.

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

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

Configuring the SSID Schedule

You can specify the schedule to keep the SSID active within a certained time per day.

STEP 1 Click **Wireless -> Basic Settings**.

The Wireless Basic Settings window opens.

STEP 2 In the **SSID table** area, click **Edit** to edit the settings of the SSID.

After you click Edit, the Edit window opens.

STEP 3 In the **Scheduling** tab, you can specify the time per day to keep the SSID active. Enter the following information:

- **SSID Name:** The name of the SSID on which the schedule setting is applied.
- **Active Time:** Click **On** to enable the schedule feature for the SSID, or click **Off** to disable it. Disabling the schedule feature will keep the SSID active in 24 hours per day. If you enable this feature, configure the time range per day to keep this SSID active.
  - **Start Time:** Enter the values in the **hour** and **minute** fields, and choose AM or PM from the drop-down list.
  - **Stop Time:** Enter the values in the **hour** and **minute** fields, and choose AM or PM from the drop-down list.

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

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

Configuring Wi-Fi Protected Setup

The Wi-Fi Protected Setup (WPS) protocol can simplify the process of configuring the security on wireless networks. The WPS protocol allows the home users who know little of wireless security and may be intimidated by the available security options to configure the Wi-Fi Protected Access, which is supported by all Wi-Fi certified devices.

STEP 1 Click **Wireless -> Wi-Fi Protected Setup**.

The Wi-Fi Protected Setup window opens.

STEP 2 Click **On** to enable WPS, or click **Off** to disable it. Three WPS methods are available to the wireless clients.

STEP 3 If the wireless client has a WPS button, follow these steps to estabilsh the wireless connection:

a. Press the **WPS** button on the wireless client.

b. Click the **WPS** button on this page.

c. Verify that the wireless client is connected to the SSID.

STEP 4 If the wireless client has a WPS PIN number, follow these steps to establish the wireless connection:

a. Get the PIN number on the wireless client.

b. Enter the PIN number on this page, and then click **Enter**.

c. Verify that the wireless client is connected to the SSID.

STEP 5 If the wireless client asks for the PIN number of the security appliance, follow these steps to establish the wireless connection:

a. Click **Generate** to generate a PIN number.

b. Enter the registered PIN number on the wireless client.

c. Verify that the wireless client is connected to the SSID.

STEP 6 Check the following WPS status:

- **WPS Config Status:** If you enable WPS, it shows as “Configured”.
- **Network Name (SSID):** Choose the SSID on which the WPS setting is applied.

- **Security:** The security mode used for the selected SSID.
- **Encryption:** The encryption method used for the selected SSID.

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

Configuring Wireless Rogue AP Detection

A Rogue access point (Rogue AP) is any Wi-Fi access point connected to your network without authorization. It is not under the management of your network administrators and does not necessarily conform to your network security policies.

A Rogue AP allows anyone with a Wi-Fi-equipped device to connect to your corporate network, leaving your IT assets wide open for the casual snooper or criminal hacker.

Rogue APs can be a problem even if your company does not have its own wireless LAN. Often employees seeking to enhance their productivity will innocently install an access point for their personal use on your network without understanding the security risks.

The security appliance is configurable by the network administrator to provide proactive rogue AP detection in the 2.4 GHz band. Rogue AP Detection (RAD) is able to discover, detect, and report an unauthorized AP. You can specify an authorized AP by its MAC address.

STEP 1 Click **Wireless -> Rogue AP Detection**.

The Rogue AP Detection window opens.

STEP 2 Click **On** to enable the Rogue AP Detection feature, or click **Off** to disable it.

STEP 3 After you enable Rogue AP Detection, Rogue APs detected by your security appliance appear in the Detected Rogue AP list. Click **Refresh** to update the Detected Rogue AP list.

STEP 4 To set an AP as an authorized AP, click **Grant Access**. The granted AP is moved to the Known AP list.

STEP 5 The security appliance will not detect the authorized APs. You can specify the authorized APs in the known AP list.

- To add an authorized AP in the known AP list, click **Add**.
- To delete an authorized AP from the known AP list, click **Delete**.
- To change the MAC address of an authorized AP, click **Edit**.
- To export the known AP list to a file, click **Export List**.
- To import the known AP list from a file, click **Import List.**
    - If you want to replace the current known AP list, choose **Replace**. Click **Browse** to locate the file, and then click **OK**.
    - If you want to merge with the current known AP list, choose **Merge**. click **Browse** to locate the file, and then click **OK**.

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

Configuring Wireless Captive Portal

The Captive Portal feature allows the wireless users who authenticated successfully to be directed to a specified web page (portal) before they can access the Internet. The wireless users will be directed to a specified web authentication login page to authenticate, and then be directed to the specified web portal after login.

STEP 1 Click **Wireless -> Captive Portal**.

The Captive Portal window opens.

STEP 2 Enter the following information:

- **Enable Captive Portal:** Click **On** to enable the captive portal feature, or click **Off** to disable it.
- **Apply On:** Choose the SSID on which the captive portal settings are applied.

NOTE The captive portal WLAN access can be only applied on one SSID.

- **Web Authentication Type:** Choose one of the following methods for web authentication. The security appliance can authenticate the wireless users by using the local database and external AAA server (such as RADIUS, AD, LDAP, and so forth). The authentication method is derived from the user login settings that you specified in the **Users -> Settings** page.
  - **Internal:** Uses the default web authentication login page to authenticate the wireless users. If you choose this option, you can modify the following information on the default web authentication login page:

    Cisco Logo: If you want to hide the Cisco logo that appears in the top right corner of the default page, choose **Hide**. Otherwise, choose **Show**.

    Headline: If you want to create your own headline on the login page, enter the desired text in this field.

    Message: If you want to create your own message on the login page, enter the desired text in this field.
  - **Internal, No auth with accept button:** Allows users to access the wireless network without entering a user name and password. If you choose this option, a web passthrough window is prompted. Click the **Accept** button to access the network without the user name and password.
  - **External Web Server:** Uses a customized web authentication login page on an external web server to authenticate the wireless users. If you choose this option, enter the IP address of the external web server in the **Authentication Web Server** field and the key in the **Authentiation Web Key** field. The authentication web key is used to protect the user name and password that the external web server sends to your security appliance for authentication.
  - **External, No auth with accept button:** Allows users to access the wireless network without entering a user name and password. If you choose this option, a web passthrough window is prompted. Click the **Accept** button to access the network without the user name and password.
- **Redirected URL After Login:** If you want the wireless users to be directed to a particular URL (such as the URL for your company) after login, enter the desired URL (such as www.AcompanyBC.com) in this field. If you do not specify the portal (keep it blank), the wireless user can access the original web site directly.

For example, if you select **Internal** for authentication and the web portal is set to www.ABcompanyC.com. When a wireless user tries to access the website www.google.com, the default web authentication login page opens. The user needs to enter the user name and password information, and then click **Submit**. After passed the authentication, first the user is directed to the web portal (www.ABcompanyC.com), and then access the website (www.google.com).

- **Session Timeout:** Enter the timeout value in minutes that the wireless session can remain connected. The session is terminated and the client needs to re-authenticate over the session timeout. A value of zero (0) indicates that the wireless client can log in and use the service as long as he or she wants to.
- **Logo File:** You can import your company logo to change the default Cisco logo that appears in the top right corner of the default page. Click **Browse** to locate and select the logo file from your local PC, and then click **Upgrade**. To delete the upgraded logo file and revert the default Cisco logo, click **Delete**.

STEP 3 In the **Monitored HTTP Port List** area, you can specify the HTTP ports to be monitored. The security appliance redirects the wireless access through the monitored ports to the specified web portal.

a. To add a monitored http port, click **Add**. After you click Add, the Port Configuration - Add/Edit window opens.

b. Enter the port number from 1 to 65535 in the **Port** field.

c. Click **OK** to save your settings.

STEP 4 In the **Open Domain List** area, you can specify an IP address or a domain name of a website to be opened by the security appliance. The wireless users can access the website directly.

a. To add an open domain, click **Add**. After you click Add, the Domain Configuration - Add/Edit window opens.

b. Enter the IP address or domain name in the **Domain** field.

c. Click **OK** to save your settings.

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

6

Firewall

This chapter describes how to control network access through the security appliance by using the zone-based firewall access rules or other methods such as MAC Filtering and Content Filtering. It includes the following sections:

To access the Firewall pages, click **Firewall** in the left hand navigation pane.

Configuring the Firewall Access Rules to Control Inbound and Outbound Traffic

The zone-based firewall access rules can permit or deny inbound or outbound traffic based on the zone, service, source and destination address. It includes the following sections:

- **Default Firewall Settings, page 178**
- **Priorities of Firewall Access Rules, page 180**
- **Preliminary Tasks for Configuring the Firewall Access Rules, page 180**
- **General Settings for Configuring the Firewall Access Rules, page 181**
- **Configuring a Firewall Access Rule, page 183**
- **Configuring a Firewall Access Rule to Allow the Multicast Traffic, page 185**

NOTE For detailed firewall configuration examples, see **Firewall Access Rule Configuration Examples, page 187**.

Default Firewall Settings

By default, your firewall prevents all traffic from a lower security level to a higher security level (commonly known as Inbound) and allows all traffic from a higher security level to a lower security level (commonly known as Outbound). If you want to allow some inbound access or prevent some outbound access, you must configure the firewall access rules.

The following table lists the default access control settings for the traffic between different security levels. For more information about the security level definition for zones, see **Security Levels for Zones, page 128**.

From\To	Trusted(100)	VPN(75)	Public(50)	GUEST(25)	Untrust(0)
Trusted(100)	Deny	Permit	Permit	Permit	Permit
VPN(75)	Deny	Deny	Permit	Permit	Permit

From\To	Trusted(100)	VPN(75)	Public(50)	GUEST(25)	Untrust(0)
Public(50)	Deny	Deny	Deny	Permit	Permit
GUEST(25)	Deny	Deny	Deny	Deny	Permit
Untrust(0)	Deny	Deny	Deny	Deny	Deny

The default access behaviors for all predefined zones and new zones follow the above settings depending on their security levels. For example, if you create a new trusted zone called “Data”, a certain of firewall access rules are automatically generated to permit or block the traffic from the Data zone to other zones or from other zones to the Data zone. The permit or block action is determined by the security levels of the From and To zones. For example, the traffic from the Data zone to the predefined WAN zone is permitted, but the traffic from the Data zone to the predefined LAN zone is blocked.

Use the Default Policy page to view the default firewall access settings for all predefined zones.

STEP 1 Click **Firewall -> ACL Rules -> Default Policy**.

The Default Policy window opens. The default access settings for all predefined zones are listed in the table.

STEP 2 To expand the default access settings for a specific zone, click the **Expand** button. To hide the default access settings for a specific zone, click the **Collapse** button. The following behaviors are predefined on the security appliance.

From \To	**LAN**	**VIOCE**	**VPN**	**SSLVPN**	**DMZ**	**GUEST**	**WAN**
LAN	NA	Deny	Permit	Permit	Permit	Permit	Permit
VOICE	Deny	NA	Permit	Permit	Permit	Permit	Permit
VPN	Deny	Deny	NA	Deny	Permit	Permit	Permit
SSLVPN	Deny	Deny	Deny	NA	Permit	Permit	Permit
DMZ	Deny	Deny	Deny	Deny	NA	Permit	Permit
GUEST	Deny	Deny	Deny	Deny	Deny	NA	Permit
WAN	Deny	Deny	Deny	Deny	Deny	Deny	NA

NOTE The firewall access rules only support for inter-zones.

Priorities of Firewall Access Rules

The security appliance includes three types of firewall access rules:

- **Default access rules:** The firewall access rules that are predefined on your security appliance for all predefined zones and new zones. The default access rules cannot be deleted and edited.
- **Custom access rules:** The firewall access rules that are customized by users. The security appliance supports up to 100 custom access rules.
- **VPN access rules:** The firewall access rules that are automatically generated by the VPN access control settings. The VPN access rules cannot be edited in the **Firewall -> ACL Rules -> Rule** page. To edit the VPN access control settings, go to the **VPN** pages. For more information about the VPN access control settings, see **VPN, page 232**.

All firewall access rules are displayed in the Rule table and sorted by the priority. The custom access rules have the highest priority. The VPN access rules have higher priorities than the default access rules, but lower than the custom access rules.

Preliminary Tasks for Configuring the Firewall Access Rules

Depending on the firewall settings that you want to use, you might need to complete the following tasks before you configure the firewall access rules:

- To create the firewall access rule that applies only to a specific zone except the predefined zones, first create the zone. See **Configuring the Zones, page 127**.
- To create the firewall access rule that applies to a specific service or service group, first create the service or service group object. See **Service Management, page 154**.
- To create the firewall access rule that applies only to a specific address or group address, first create the address or group address object. See **Address Management, page 152**.

- To create the firewall access rule that applies only at a specific day and time, first create the firewall schedule. See **Configuring the Firewall Schedule, page 186**.

General Settings for Configuring the Firewall Access Rules

STEP 1 Click **Firewall -> ACL Rules-> Rule**.

The ACL Rules window opens. The Rule table includes the default access rules, the custom access rules that are customized by users, and the VPN access rules that are automatically generated by your VPN configurations. The firewall access rules are sorted by the priority. The custom access rule with the highest priority locates at the top of the table.

STEP 2 You can reorder the custom access rules by priority. You can move a rule up, move a rule down, or move it to a specified location in the table.

- **MoveUp:** Moves the rule up one position.
- **MoveDown:** Moves the rule down one position.
- **Move:** Moves the rule to a specific location. Enter the target index number to move the selected rule to.

  For example: A target index of 2 moves the rule to position 2 and moves the other rules down to position 3 in the list.

NOTE You cannot reorder the default access rules and VPN access rules. The custom access rules cannot be moved lower than the default access rules and VPN access rules.

STEP 3 To view the access rules belonging to the same group, choose the source and destination zone from the **From Zone** and **To Zone** drop-down lists and click **Apply**. Only the rules for the specified zones appear.

For example: If you choose WAN from the **From Zone** drop-down list and choose LAN from the **To Zone** drop-down list, only the access rules from WAN zone to LAN zone appear.

STEP 4 You can perform other tasks for access rules:

- **Enable:** Check this box to enable an access rule, or uncheck this box to disable it. By default, all default access rules are enabled.

- **Add:** To add a new entry, click **Add**.
- **Edit:** To edit an entry, click **Edit**.
- **Delete:** To delete an entry, click **Delete**.
- **Delete Selection:** To delete multiple selected entries, check the boxes in the first column of the table heading and click **Delete Selection**.
- **Log:** Check this box to log the events when a firewall access rule is hit.

  To log the firewall events, check the **Log** boxes for the firewall access rules, and then go to the **Device Management -> Loggings** pages to configure the log settings and log facilities:

  - To save the firewall logs in the lcoal syslog daemon, you need to enable the Log feature, set the log buffer size and the severity for local log, and then check the **Local Log** box for the **Firewall** log facility.
  - To save the firewall logs to the remote syslog server if you have a remote syslog server support, you need to enable the Log feature, specify the Remote Log settings, and then check the **Remote Log** box for the **Firewall** log facility.

  For more information about how to configure the log settings and log facilities, and how to view the logs, see **Log Management, page 302**.
- **Action:** To permit traffic access, choose **Permit**. To deny traffic access, choose **Deny**. To increase the **Hit Count** number by one when the packet hits the access rule, choose **Accounting**.
- **Detail:** To view the detail of an access rule, click **Detail**.
- **Reset Count:** To set the values in the Hit Count culumn for all access rules to zero, click **Reset Count**.

NOTE The default access rules can not be disabled, deleted, edited, and moved.

Configuring a Firewall Access Rule

STEP 1 Click **Firewall -> ACL Rules -> Rule**.

The ACL Rules window opens.

STEP 2 To add a new access rule, click **Add**.

After you click Add, the Rule - Add/Edit window opens.

STEP 3 Enter the following information:

- **Enable:** Click **On** to enable the access rule, or click **Off** to create only the access rule.
- **From Zone:** Choose the source zone for the traffic that is covered by this access rule. For example, choose **DMZ** if the traffic is coming from a server on your DMZ.
- **To Zone:** Choose the destination zone for the traffic that is covered by this access rule. For example, choose **WAN** if the traffic is going to the Internet.

NOTE Only the existing zones are selectable. To create new zones, go to the **Networking -> Zone** page. For more information about zone configurations, see **Configuring the Zones, page 127**.

- **Services:** Choose an existing service or group service that is covered by this rule. If the service or group service you want is not in the list, choose **Create New Service** to create new service objects, or choose **Create New Group** to create new group service objects. To maintain the service and group service objects, go to the **Networking -> Service Management** page. See **Service Management, page 154**.
- **Source Address:** Choose an existing address or group address as the source address or network that is covered by this access rule.
- **Destination Address**: Choose an existing address or group address as the destination address or network that is covered by this access rule.

  If the address or group address you want is not in the list, choose **Create New Address** to create new address objects, or choose **Create New Group** to create new group address objects. To maintain the address and address group objects, go to the **Networking -> Address Object Management** page. See **Address Management, page 152**.

- **Schedule:** By default, the access rule is always on. If you want to keep the access rule active at the specified date and time, choose the schedule for the access rule. If the schedule you want is not in the list, choose **Create New Schedule** to create new firewall schedules. To maintain the firewall schedules, go to the **Firewall -> Schedule** page. See **Configuring the Firewall Schedule, page 186**.
- **Log:** Click **On** to log the event when a firewall access rule is hit. To log the firewall events, you first need to enable the **Log** feature and configure the log settings and log facilities. For more information about how to configure the log settings and log facilities, and how to view the logs, see **Log Management, page 302**.
- **Match Action:** Choose the action when the traffic match up with the access rule.
  - **Deny:** Deny the access.
  - **Permit:** Permit the access.
  - **Accounting:** Increase the Hit Count number by one when the packet hits the access rule.

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

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

NOTE In addition to configuring the firewall access rules, you can use the following methods to control the traffic:

- Preventing common types of attacks. See **Configuring the Attack Protection, page 207**.
- Allowing or blocking traffic from specified MAC addresses. See **Configuring the MAC Filtering to Permit or Block Traffic, page 205**
- Associating IP addresses with MAC addresses to prevent spoofing. See **Configuring the IP/MAC Binding to Prevent Spoofing, page 206**
- Allowing or blocking the websites that contain a specific URL or URL keyword. See **Configuring the Content Filtering to Control Access to Internet, page 201**.

Configuring a Firewall Access Rule to Allow the Multicast Traffic

By default, the multicast traffic from any zone to any zone is blocked by the default firewall access rules. To enable the multicast, you first need to uncheck the **Block Multicast Packets** box in the **Firewall -> Attack Protection** page and then manually create the firewall rules to allow multicast forwarding from a specific zone to other zones. The security appliance predefines a multicast address for this purpose.

For example, IGMP Proxy can be active from WAN to LAN. When you enable IGMP Proxy and want to receive the multicast packets from WAN to LAN, you need to uncheck the **Block Multicast Packets** box in the **Firewall -> Attack Protection** page, and create a firewall access rule to permit the multicast traffic from WAN to LAN.

This section provides a configuration example about how to create a WAN-to-LAN access rule to permit the multicast traffic by using the predefined multicast address.

STEP 1 Click **Firewall -> ACL Rules -> Rule**.

The ACL Rules window opens.

STEP 2 To add a new access rule, click **Add**.

After you click Add, the Rule - Add/Edit window opens.

STEP 3 Enter the following information:

- **Enable:** Click **On** to enable the fireall access rule.
- **From Zone:** Choose **WAN** as the source zone of the traffic.
- **To Zone:** Choose **LAN** as the destination zone of the traffic.
- **Services:** Choose **ANY** for this rule.
- **Source Address:** Choose **ANY** as the source address for this rule.
- **Destination Address:** Choose the existing address called "**Multicast**" as the destination address for this rule. The Multicast address object is predefined on your security appliance for creating multicast firewall access rules.
- **Schedule:** Choose **Always On** for this rule.
- **Log:** Click **Off** for this rule. We recommend that you disable the Log feature for a multicast firewall access rule.

- **Match Action:** Choose **Permit** to allow the access, or choose **Deny** to deny the access.

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

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

Configuring the Firewall Schedule

The schedule specifies when the access rule is active. For example, if you want a firewall access rule only to work on the weekend, you can create a schedule called “Weekend” that is only active on Saturday and Sunday.

STEP 1 Click **Firewall -> Schedules**.

The Schedules window opens.

STEP 2 To create a new schedule, click **Add**.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. To delete multiple entries, check the boxes of multiple entries and click **Delete Selection**.

After you click Add or Edit, the Schedule - Add/Edit window opens.

STEP 3 Enter the following information:

- **Schedule Name:** Enter the name for the schedule.
- **Schedule Days:** Schedule the access rules on all days or on specific days.
  - **All Days:** Choose this option if you want to keep the access rule always on.
  - **Specific Days:** Check the boxes of days you want to keep the access rule active in specific days.
- **Scheduled Time of Day:** Schedule the access rules on all days or at a specific time of day.
  - **All Days:** Choose this option if you want to keep the access rule always on.

- **Specific Times:** Choose this option if you want to keep the access rule active at specific times. Specify the **Start Time** and **End Time** by entering the hour and minute.

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

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

Firewall Access Rule Configuration Examples

This section provides some configuration examples on adding firewall access and NAT rules.

Allowing Inbound traffic to an Internal FTP server using the WAN IP Address

User Case: You host a FTP server on your LAN. You want to open the FTP server to Internet by using the IP address of the WAN1 interface. The inbound traffic is addressed to your WAN1 IP address but is directed to the FTP server.

Solution: You can create a port forwarding rule or an Advanced NAT rule to open the internal FTP server to Internet, and create a firewall access rule to allow the access.

STEP 1 Set the IP address 172.39.202.101 to the WAN1 interface.

STEP 2 Create a host address object with the IP 192.168.1.100 called “InternalFTP”.

STEP 3 Go to the **Firewall -> NAT -> Port Forwarding** page to create a port forwarding rule as follows.

Original Service	FTP-CONTROL
Translated Service	FTP-CONTROL
Translated IP	InternalFTP
WAN	WAN1
WAN IP	WAN1_IP
Enable Port Forwarding	On

STEP 4 Or go to the **Firewall -> NAT -> Advanced NAT** page to create an Advanced NAT rule as follows.

From	WAN1
To	DEFAULT
Original source address	ANY
Original destination address	WAN1_IP
Original services	FTP-CONTROL
Translated source address	ANY
Translated destination address	InternalFTP
Translated services	FTP-CONTROL

STEP 5 Then go to the **Firewall -> ACL Rules -> Rule** page to create a firewall access rule as follows to allow the access:

From Zone	WAN
To Zone	LAN
Services	FTP-CONTROL
Source Address	ANY
Destination Address	InternalFTP
Match Action	Permit

Allowing Inbound Traffic to the RDP Server using a Specified Public IP address

User Case: You host a RDP server on the DMZ. Your ISP has provided a static IP address that you want to expose to the public as your RDP server address. You want to allow Internet user to access the internal RDP server by using the specified public IP address.

Solution: You can create a port forwarding rule or an Advanced NAT rule and a firewall access rule as follows to allow inbound traffic to the RDP server.

Problem: DMZ Wizard?

STEP 1 Set the IP address of 172.39.202.101 to the WAN interface.

STEP 2 Create a host address object with the IP 192.168.12.101 called “RDPServer” and a host address object with the IP 172.39.202.102 called “PublicIP”.

STEP 3 Create a TCP service object with the port range from 3389 to 3389 called “RDP”.

STEP 4 Go to the **Firewall -> NAT -> Port Forwarding** page to create a port forwarding rule as follows.

Original Service	RDP
Translated Service	RDP
Translated IP	RDPServer
WAN	WAN1
WAN IP	PublicIP
Enable Port Forwarding	On

STEP 5 Or go to the **Firewall -> NAT -> Advanced NAT** page to create an Advanced NAT rule as follows.

From	WAN1
To	DMZ
Original source address	ANY
Original destination address	PublicIP

Original services	RDP
Translated source address	ANY
Translated destination address	RDPServer
Translated services	RDP

STEP 6 Then go to the **Firewall -> ACL Rules -> Rule** page to create a firewall access rule as follows to allow the access:

From Zone	WAN
To Zone	DMZ
Services	RDP
Source Address	ANY
Destination Address	RDPServer
Match Action	Permit

Allowing Inbound Traffic from Specified Range of Outside Hosts

User Case: You want to allow incoming video conferencing to be initiated from a restricted range of outside IP addresses (132.177.88.2 to 132.177.88.254).

Solution: Create a range address object with the range 132.177.88.2 to 132.177.88.254 called "OutsideNetwork" and a host address object with the IP address 192.168.1.110 called "InternalIP", and then create an access rule as follows. In the example, connections for CU-SeeMe (an Internet video-conferencing client) are allowed only from a specified range of external IP addresses.

Parameter	Value
From Zone	WAN
To Zone	LAN
Services	CU-SEEME

Parameter	Value
Source Address	OutsideNetwork
Destination Address	InternalIP
Match Action	Permit

Blocking Outbound Traffic By Schedule and IP Address Range

User Case: Block all weekend Internet usage if the request originates from a specified range of IP addresses.

Solution: Create a range address object with the range 10.1.1.1 to 10.1.1.100 called “TempNetwork” and a schedule called “Weekend” to define the time period when the access rule is in effect, and then configure an access rule as follows.

Parameter	Value
From Zone	LAN
To Zone	WAN
Services	HTTP
Source Address	TempNetwork
Destination Address	Any
Schedule	Weekend
Match Action	Deny

Blocking Outbound Traffic to an Offsite Mail Server

User Case: If you want to block access to the SMTP service to prevent a user from sending email through an offsite mail server.

Solution: Create a host address object with the IP address 10.64.173.20 called “OffsiteMail”, and then configure an access rule as follows.

Parameter	Value
From Zone	LAN
To Zone	WAN

Parameter	Value
Services	SMTP
Source Address	Any
Destination Address	OffsiteMail
Match Action	Deny

Configuring the NAT Rules to Securely Access a Remote Network

Network address translation (NAT) enables private IP networks to connect to the Internet. NAT replaces a private IP address with a public IP address, translating the private addresses in the internal private network into legal, routable addresses that can be used on the public Internet. In this way, NAT conserves public addresses because it can be configured to advertise only one public address for the entire network to the outside world.

NAT can also provide the following benefits:

- **Security:** Keeping internal IP addresses hidden discourages direct attacks.
- **IP routing solutions:** Overlapping IP addresses are not a problem when you use NAT.
- **Flexibility:** You can change internal IP addressing schemes without affecting the public addresses available externally; for example, for a server accessible to the Internet, you can maintain a fixed IP address for Internet use, but internally, you can change the server address.

This section includes the following topics:

- **Priorities of NAT Rules, page 200**

Configuring Dynamic PAT Rules

Dynamic PAT can only be used to establish connections from private network to public network. Dynamic PAT translates multiple private addresses to one or more public IP address.

NOTE For the duration of the translation, a remote host can initiate a connection to the translated host if a firewall access rule allows it. Because the port address (both real and mapped) is unpredictable, a connection to the host is unlikely. Nevertheless, in this case you can rely on the security of the firewall access rules.

STEP 1 Click **Firewall -> NAT -> Dynamic PAT**.

The Dynamic PAT window opens.

STEP 2 Specify the PAT IP address for each WAN interface.

- **Auto:** Use the IP address of the WAN port as the translated IP address.
- **Manual:** Choose a single public IP address or a network address as the translated IP address. If the address object you want is not in the list, choose **Create an IP Address** to create a new address object. To maintain the address objects, go to the **Networking -> Address Object Management** page. See **Address Management, page 152**.

STEP 3 Translate multiple private IP addresses of a VLAN to one or more mapped IP addresses.

- **Enable WAN1:** Check this box to translate all IP addresses of the selected VLAN into the public IP address specified on the WAN1 port.
- **Enable WAN2:** Check this box to translate all IP addresses of the selected VLAN into the public IP address specified on the WAN2 port.
- **VLAN IP:** The subnet IP address and netmask of the selected VLAN.

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

Configuring Static NAT Rules

Static NAT creates a fixed translation of a real address to a mapped address. Because the mapped address is the same for each consecutive connection, static NAT allows bidirectional connection initiation, both to and from the host (if a firewall access rule allows it). With dynamic PAT, on the other hand, each host uses a different address or port for each subsequent translation, so bidirectional initiation is not supported.

NOTE The security appliance supports up to 128 Static NAT mapping rules.

NOTE You must create a firewall access rule to allow the access so that the Static NAT rule can function properly.

STEP 1 Click **Firewall -> NAT -> Static NAT**.

The Static NAT window opens.

STEP 2 To add a static NAT rule, click **Add**.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. To delete multiple entries, check the boxes of multiple entries and click **Delete Selection**.

After you click Add or Edit, the Static NAT - Add/Edit window opens.

STEP 3 Enter the following information:

- **WAN:** Choose either WAN1 or WAN2 as the WAN interface for the static NAT rule.
- **Public IP:** Choose an IP address object as the public IP address.
- **Private IP:** Choose an IP address object as the private IP address.

  If the IP address you want is not in the list, choose **Create an IP Address** to create a new IP address object. To maintain the IP address objects, go to the **Networking -> Address Object Management** page. See **Address Management, page 152**.

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

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

Configuring Port Forwarding Rules

Port forwarding forwards a TCP/IP packet traversing a Network Address Translator (NAT) gateway to a pre-determined 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.

Use the Port Forwarding page to assign a port number to a service that is associated with the application you want to run, such as web servers, ftp servers, email servers, or other specialized Internet applications.

NOTE You must create a firewall access rule to allow the access so that the port forwarding rule can function properly.

NOTE To open an internal FTP server to Internet, make sure that the internal FTP server is listening on TCP port 21 or the FTP server and client must use the active mode when the internal FTP server is listening on some other TCP port. Otherwise the FTP client cannot access the FTP server.

STEP 1 Click **Firewall -> NAT -> Port Forwarding**.

The Port Forwarding window opens.

STEP 2 To add a port forwarding rule, click **Add**.

Other Options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. To select multiple entries, check the boxes of multiple entries and click **Delete Selection**.

After you click Add or Edit, the Port Forwrding - Add/Edit window opens.

STEP 3 Enter the following information:

- **Original Service:** Choose an existing service as the incoming service.
- **Translated Service:** Choose an existing service as the translated service that you will host.

If the service you want is not in the list, choose **Create a Service** to create a new service object. To maintain the service objects, go to the **Networking -> Service Management** page. See **Service Management, page 154**.

- **Translated IP:** Choose the IP address of your local server that needs to be translated. If the IP address you want is not in the list, choose **Create an IP Address** to create a new IP address object. To maintain the IP address objects, go to the **Networking -> Address Object Management** page. See **Address Management, page 152**.
- **WAN:** Choose either WAN1 or WAN2, or both as the incoming WAN interface.
- **WAN IP:** Specify the public IP address of the server. You can use the WAN's IP address or a public IP address that is provided by your ISP. When you choose **Both** as the incoming WAN interface, this option is grayed out.
- **Enable Port Forwarding:** Click **On** to enable the port forwarding rule, or click **Off** to create only the port forwarding rule .
- **Description:** Enter the name for the port forwarding rule.

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

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

Configuring Port Triggering Rules

Port triggering opens an incoming port for a specified type of traffic on a defined outgoing port. When a LAN device makes a connection on one of the defined outgoing ports, the security appliance opens the specified incoming port to support the exchange of data. The open ports will be closed again after 600 seconds when the data exchange is complete.

Port triggering is more flexible and secure than port forwarding, because the incoming ports are not open all the time. They are open only when a program is actively using the trigger port.

Some applications may require port triggering. Such applications require that, when external devices connect to them, they receive data on a specific port or range of ports in order to function properly. The security appliance must send all incoming data for that application only on the required port or range of ports. You can specify a port triggering rule by defining the type of traffic (TCP or UDP) and the range of incoming and outgoing ports to open when enabled.

NOTE Port triggering is not appropriate for servers on the LAN, since the LAN device must make an outgoing connection before an incoming port is opened. In this case, you can create port forwarding rules for this purpose.

STEP 1 Click **Firewall -> NAT -> Port Trigger**.

The Port Trigger window opens. All existing port triggering rules are listed in the table.

STEP 2 To enable a port triggering rule, check the box in the **Enable** column.

STEP 3 To add a new port triggering rule, click **Add**.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. To select multiple entries, check the boxes of multiple entries and click **Delete Selection**.

After you click Add or Edit, the Port Triggering - Add/Edit window opens.

STEP 4 Enter the following information:

- **Description:** Enter the name for the port triggering rule.
- **Trigger Service:** Choose an outgoing TCP or UDP service.
- **Opened Service:** Choose an incoming TCP or UDP service.

  If the service you want is not in the list, choose **Create a Service** to create a new service object. To maintain the service objects, go to the **Networking -> Service Management** page. See **Service Management, page 154**.

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

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

Configuring Advanced NAT Rules

Advanced NAT allows you to identify real addresses and real ports for address translation by specifying the source and destination addresses.

NOTE You must create firewall access rules to allow the access so that the advanced NAT rule can function properly.

STEP 1 Click **Firewall -> NAT -> Advanced NAT**.

The Advanced NAT window opens. All existing advanced NAT rules are listed in the table.

STEP 2 To add a new advanced NAT rule, click **Add**.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. To delete multiple entries, check the boxes of multiple entries and click **Delete Selection**.

After you click Add, the Add/Edit Rule window opens.

STEP 3 Enter the following information:

- **Name:** Enter the name for the advanced NAT rule.
- **Enable:** Click **On** to enable the advanced NAT rule, or click **Off** to create only the advanced NAT rule.
- **From:** Choose the WAN interface or the VLAN that the traffic originates from.
- **To:** Choose the VLAN or the WAN interface that the traffic goes to.
- **Original Source Address:** Choose the original source address for the packet.
- **Original Destination Address:** Choose the original destination address for the packet.
- **Original Service:** Choose the original TCP or UDP service.
- **Translated Source Address:** Choose the translated source address for the packet.
- **Translated Destination Address:** Choose the translated destination address for the packet.
- **Translated Service:** Choose the translated TCP or UDP service.

If the IP address you want is not in the list, choose **Create a New Address** to create a new IP address object. To maintain the IP address objects, go to the **Networking -> Address Object Management** page. See **Address Management, page 152**.

If the service you want is not in the list, choose **Create a New Service** to create a new service object. To maintain the service objects, go to the **Networking -> Service Management** page. See **Service Management, page 154**.

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

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

Viewing NAT Translation Status

Use the NAT Status page to view the status of all NAT rules.

STEP 1 Click **Firewall -> NAT -> NAT Status**.

The NAT Status window opens. All existing NAT rules are listed in the table. You can check the following information:

- **Original Source Address:** The original source IP address in the packet.
- **Original Destination Address:** The original destination IP address in the packet.
- **Source Port:** The interface that the traffic comes from.
- **Destination Port:** The interface that the traffic goes to.
- **Translated Source Address:** The IP address that the specified original source address is translated to.
- **Translated Destination Address:** The destination IP address that the specified original destination address is translated to.
- **Translated Source Port:** The source interface that the specified source port is translated to.
- **Translated Destination Port:** The destination interface that the specified destination port is translated to.
- **TxPkt:** The number of transmitted packets.

- **RxPkt:** The number of received packets.
- **Tx Traffic (bytes):** The volume in bytes of transmitted traffic.
- **Rx Traffic (bytes):** The volume in bytes of received traffic.

Priorities of NAT Rules

If multiple NAT features operate simultaneously on the security appliance:

- For pre-routing, the security appliance first matches up with the advanced NAT rules, and then matches up with the static NAT, port forwarding, and port triggering rules.
- For post-routing, the security appliance first matches up with the advanced NAT rules, and then matches up with the static NAT and dynamic PAT rules.

Configuring the Session Settings

Use the Session Settings page to configure the maximum number of connection sessions. When the connnection table is full, the new sessions that access the security appliance are dropped.

STEP 1 Click **Firewall -> Session Settings**.

The Session Settings window opens.

STEP 2 Enter the following information:

- **Current All Connections:** Displays the number of all current connected sessions. Click **Disconnect All** to clear up all connected sessions.
- **Maximum Connection:** Limits the number for TCP and UDP connections. The default is 60000.
- **TCP Timeout:** Enter the timeout value in seconds for TCP session. Inactive TCP sessions are removed from the session table after this duration. The default is 1200 seconds.
- **UDP Timeout:** Enter the timeout value in seconds for UDP session. Inactive UDP sessions are removed from the session table after this duration. The default is 180 seconds.

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

Configuring the Content Filtering to Control Access to Internet

The Content Filtering feature provides protection against websites. It blocks or allows web access based on analysis of its content (URL or URL keywords), rather than its source or other criteria. It is most widely used on the Internet to filter the web access.

The Content Filtering policy profile assigned to each zone determines whether to block or forward the HTTP request from the hosts in the zone. The blocked request will be logged.

This section includes the following topics:

- **Configuring the Content Filtering Policy Profiles, page 201**
- **Configuring the Website Access Control List, page 203**
- **Mapping the Content Filtering Policy Profiles to Zones, page 204**
- **Configuring Advanced Settings, page 204**

CAUTION Enabling the Web URL Filter service will disable the firewall content filtering settings.

Configuring the Content Filtering Policy Profiles

A Content Filtering policy profile is used to specify the websites to be blocked or permitted.

NOTE The security appliance supports up to 16 content filtering policy profiles.

STEP 1 Click **Firewall -> Content Filtering -> Content Filtering Policy**.

The Content Filtering Policy window opens.

STEP 2 To add a content filtering policy profile, click **Add**.

Other Options: To edit an entry, click **Edit**. To delete an entry, click **Delete**.

After you click Add or Edit, the Add/Edit window opens.

STEP 3 Enter the following information:

- **Policy Profile:** Enter a descriptive name for the content filtering policy profile.
- **Description:** Enter a brief message to describe the content filtering policy profile.

STEP 4 In the **Website Access Control List** area, specify the whitelist and blacklist of websites that you want to permit or block. For complete details, see **Configuring the Website Access Control List, page 203**.

STEP 5 In the **For URLs not Specified Above** area, specify the action how to deal with the websites that are not specified in the whitelist or blacklist.

- **Permit Them:** If you choose this option, all websites not specified in the list are permitted.
- **Deny Them:** If you choose this option, all websites not specified in the list are blocked.

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

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

NOTE Next Steps:

- To map the content filtering policy profile to zones, go to the **Policy Profile & Zone Mapping** page. See **Mapping the Content Filtering Policy Profiles to Zones, page 204**.
- To configure advanced content filtering settings, go to the **Advanced Settings** page. See **Configuring Advanced Settings, page 204**.

Configuring the Website Access Control List

The whitelist and blacklist defines the websites that you want to permit or block. Up to 32 websites can be defined for each content filtering policy profile.

STEP 1 To add a website access rule in the list, click **Add**.

Other Options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. To delete all entries, click **Delete All**.

After you click Add or Edit, the Add/Edit window opens.

STEP 2 Enter the following information:

- **Enable Content Filter URL:** Click **On** to enable the access control rule, or click **Off** to create only the access control rule.
- **URL:** Enter the domain name or URL keyword of a website that you want to permit or block.
- **Match Type:** Specify how to match up with this rule:
  - **Domain:** If you choose this option, permit or block the HTTP access of a website that fully matches up with the domain you entered in the **URL** field.

    For example, if you enter *yahoo.com* in the URL field, then it can match up with the website such as http://*.yahoo.com/*, but cannot match up with the website such as http://*.yahoo.com.uk/*.
  - **Keyword:** If you choose this option, permit or block the HTTP access of a website that contains the keyword you entered in the **URL** field.

    For example, if you enter *yahoo* in the URL field, then it can match up with the websites such as www.yahoo.com, tw.yahoo.com, www.yahoo.com.uk, and www.yahoo.co.jp.
- **Action:** Choose **Permit** to permit the access, or choose **Block** to block the access.

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

Mapping the Content Filtering Policy Profiles to Zones

Use the Policy Profile & Zone Mapping page to map the content filtering policy profile to each zone.

STEP 1 Click **Firewall -> Content Filtering -> Policy Profile & Zone Mapping**.

The Policy Profile & Zone Mapping window opens.

STEP 2 Click **On** to enable the content filtering feature, or click **Off** to disable it.

STEP 3 In the **Policy Profile & Zone Mapping List** area, choose the policy profile used for each zone. By default, the Default_Profile that permits all web access is selected for all predefined and new zones.

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

Configuring Advanced Settings

STEP 1 Click **Firewall -> Content Filtering -> Advanced Settings**.

The Advanced Settings window opens.

STEP 2 Enter the following information:

- **Specify HTTP port for the filtering (default: 80):** Enter the port number that is used for content filtering. The default is 80.

  For example, if you permit the HTTP access to the website http://www.ABcompanyC.com and set the HTTP port to 80. The access to http://www.ABcompanyC.com:8080 will be blocked.

- **Web Components:** You can block web components like Proxy, Java, ActiveX, and Cookies. By default, all of them are permitted.
  - **Proxy:** Check the box to block proxy servers, which can be used to circumvent certain firewall rules and thus present a potential security gap.
  - **Java:** Check the box to block applets from being downloaded from internet sites.
  - **ActiveX:** Check the box to prevent ActiveX controls from being downloaded via Internet Explorer.

  - **Cookies:** Check the box to block cookies, which typically contain sessions.

- **When a web page is blocked:** Choose one of the following actions when a web page is blocked:

  - **Use the default blocked page:** Use the default blocked page if a web page is blocked. The default blocked page will display a message such as “Access of this website is blocked due to security policy configurations on the security appliance”. You can edit the message in the **Block Message** field.

  - **Redirect to this URL:** Enter the URL to be redirected if a web page is blocked.

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

Configuring the MAC Filtering to Permit or Block Traffic

The MAC filtering feature can permit and deny network access from specific devices through the use of MAC address list. The firewall MAC filtering settings apply for all traffic except the traffic for Intra-VLAN and Intra-SSID.

STEP 1 Click **Firewall -> MAC Filtering -> MAC Filtering**.

The MAC Filtering window opens.

STEP 2 Click **On** to enable the MAC Filtering feature, or click **Off** to disable it.

STEP 3 If you enable MAC Filtering, specify the MAC filtering policy:

- **Block and Accept the rest:** If you choose this option, the MAC addresses in the table are blocked and all other MAC addresses not included in the table are permitted.

- **Accept and Block the rest:** If you choose this option, only the MAC addresses in the table are permitted and all other MAC addresses not included in the table are blocked.

STEP 4 Specify the list of MAC addresses. To add a MAC address to the table, click **Add**. To edit an entry, click **Edit**. To delete an entry, click **Delete**. To delete all selected entries, check the boxes of multiple entries and click **Delete Selection**.

For example, if you click **Add**, the MAC Filtering - Add/Edit window opens. Select the MAC address object from the **MAC Address** drop-down list, and then click **OK**.

If the MAC address object you want is not in the list, choose **Create New Address** to create a new MAC Address object. To maintain the MAC Address objects, go to the **Networking -> Address Object Management** page. See **Address Management, page 152**.

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

Configuring the IP/MAC Binding to Prevent Spoofing

The IP/MAC binding feature allows the traffic only when the host has an IP address that matches up with a specified MAC address. By requiring the gateway to validate the source traffic's IP address with the unique MAC address of device, please ensure that traffic from the specified IP address is not spoofed. If a violation (the traffic's source IP address doesn't match up with the expected MAC address having the same IP address) occurs, the packets will be dropped and can be logged for diagnosis.

STEP 1 Click **Firewall -> MAC Filtering -> IP/MAC Binding**.

The IP/MAC Binding window opens.

STEP 2 To add an IP/MAC binding rule, click **Add**.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. To delete all selected entries, check the boxes of multiple entries and click **Delete Selection**.

After you click Add or Edit, the IP/MAC Binding - Add/Edit window opens.

STEP 3 Enter the following information:

- **Name:** Enter a descriptive name for the IP/MAC binding rule.
- **MAC Address:** Choose an existing MAC address object. If the MAC address object you want is not in the list, choose **Create a MAC** to add a new MAC address object. To maintain the MAC address objects, go to the **Networking -> Address Object Management** page. See **Address Management, page 152**.

- **IP Address:** Choose an existing IP address object that you want to bind with the selected MAC address. If the IP address object you want is not in the list, choose **Create an IP Address** to add a new IP address object. To maintain the IP address objects, go to the **Networking -> Address Object Management** page. See Address Management, page 152.
- **Log Dropped Packets:** Choose **Enable** to log all packets that are dropped. Otherwise, choose **Disable**.

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

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

Configuring the Attack Protection

Use the Attack Protection page to specify how to protect your network against common types of attacks including discovery, flooding, and echo storms.

STEP 1 Click **Firewall -> Attack Protection**.

The Attack Protection window opens.

STEP 2 In the **WAN Security Checks** area, enter the following information:

- **Block Ping to WAN interface:** Check the box to prevent attackers from discovering your network through ICMP Echo (ping) requests. We recommend that you disable this feature only if you need to allow the security appliance to respond to pings for diagnostic purposes.
- **Enable Stealth Mode:** Check the box to prevent the security appliance from responding to incoming connection requests from the WAN. In Stealth Mode, your security appliance does not respond to blocked inbound connection requests, and your network is less susceptible to discovery and attacks.
- **Block TCP Flood:** Check this box to drop all invalid TCP packets. This feature protects your network from a SYN flood attack, in which an attacker sends a succession of SYN (synchronize) requests to a target system. It blocks all TCP SYN flood attackes (200 packets per seconds) from the WAN interfaces.

STEP 3 In the **LAN Security Checks** section, enter the following information:

- **Block UDP Flood:** Check the box to prevent the security appliance from accepting more than 200 simultaneous, active UDP connections per second from a single computer on the LAN.

STEP 4 In the **Firewall Settings** area, enter the following information:

- **Block ICMP Notification:** Check the box to silently block without sending an ICMP notification to the sender. Some protocols, such as MTU Path Discovery, require ICMP notifications.
- **Block Fragmented Packets:** Check the box to block fragmented packets from Any zone to Any zone.
- **Block Multicast Packets:** Check the box to block multicast packets. By default, the firewall blocks all multicast packets. This feature has higher priority than the firewall access rules, which means that the firewall access rules that permit the multicast traffic will be overrided if you enable this feature.

STEP 5 In the **DoS Attacks** area, enter the following information:

- **SYN Flood Detect Rate (max/sec):** Enter the maximum number of SYN packets per second that will cause the security appliance to determine that a SYN Flood Intrusion is occurring. Enter a value from 0 to 10000 SYN packets per second. A value of zero indicates that the SYN Flook Detect feature is disabled.
- **Echo Storm (ping pkts./sec):** Enter the number of pings per second that will cause the security appliance to determine that an echo storm intrusion event is occurring. Enter a value from 0 to 10000 ping packets per second. A value of zero indicates that the Echo Storm feature is disabled.
- **ICMP Flood (ICMP pkts./sec):** Enter the number of ICMP packets per second, including PING packets, that will cause the security appliance to determine that an ICMP flood intrusion event is occurring. Enter a value from 0 to 10000 ICMP packets per second. A value of zero indicates that the IGMP Flood feature is disabled.

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

Configuring the Application Level Gateway

The security appliance can function as an Application Level Gateway (ALG) to allow certain NAT un-friendly applications (such as SIP or H.323) to operate properly through the security appliance.

If Voice-over-IP (VoIP) is used in your organization, you should enable the H.323 ALG or SIP ALG to open the ports necessary to enable the VoIP through your voice device. The ALGs are created to work in a NAT environment to maintain the security for privately addressed conferencing equipment protected by your voice device.

You can use both H.323 and SIP ALGs at the same time, if necessary. To determine which ALG to use, consult the documentation for your VoIP devices or applications.

STEP 1 Click **Firewall -> Application Level Gateway**.

The Application Level Gateway window opens.

STEP 2 Enter the following information:

- **SIP Protocol Support:** SIP ALG can rewrite the information within the SIP messages (SIP headers and SDP body) to make signaling and audio traffic between the client behind NAT and the SIP endpoint possible. Check this box to allow the SIP sessions to pass through the security appliance, or uncheck this box to block the SIP sessions.

NOTE Enable SIP ALG when voice devices such as UC 500, UC 300, or SIP phones are connected to the network behind the security appliance.

- **H323 Support:** H.323 is a standard teleconferencing protocol suite that provides audio, data, and video conferencing. It allows for real-time point-to-point and multipoint communication between client computers over a packet-based network that does not provide a guaranteed quality of service. Check this box to allow the H.323 sessions to pass through the security appliance, or uncheck this box to block the H.323 sessions.

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

7

Security Services

This chapter describe how to configure the UTM security services to provide the Internet threat protection.

To access the Security Services pages, click **Security Services** in the left hand navigation pane.

Managing the Security Services

This section includes the following topics:

About the Security Services

The security services activated by the security license are listed in the following table.

Security Services	Description
Intrusion Prevention System	The Intrusion Prevention System (IPS) service can protect the zones for a given set of categories. IPS monitors network traffic for malicious or unwanted behaviors on the security appliance and can react, in real-time, to block or prevent those activities. For more information, see **Intrusion Prevention Service, page 214**.
Anti-Virus	The Anti-Virus service prevents network threats over a multitude of protocols including HTTP, FTP, POP3, SMTP, CIFS, NETBIOS, and IMAP. For more information, see **Anti-Virus, page 220**.
Email Reputation Filter	The Email Reputation Filter service detects the email sender's reputation score. If the reputation score is below a threshold, then the email is blocked or tagged as SPAM or SUSPECT SPAM. For more information, see **Email Reputation Filter, page 224**.
Web URL Filter	The Web URL Filter service provides protection against URL categories. For more information, see **Web URL Filter, page 226**.
Web Reputation Filter	The Web Reputation Filter service detects threats based on a web page's reputation score. Web pages with reputation scores below a specific threshold are considered threats and blocked. For more information, see **Web Reputation Filter, page 230**.
Network Reputation	The Network Reputation service checks the source and destination address of each packet against the address blacklist to determine whether to proceed or drop the packet. For more information, see **Network Reputation, page 231**.

Security License

The security services are licensable. The security license is valid for one year or three years depending on the bundle type. By default, the security appliance comes with a one year bundle license for all security services. To renew the security license before it expires, go to the **Device Management -> License Management** page. See **Managing the Security License, page 307**.

Priority of Security Services

Multiple security services can work simultaneously to protect your network. If you enable both the Web URL Filter and Web Reputation Filter services, the whitelist and blacklist of websites that you defined in the Web URL Filter settings cannot override the Web Reputation Filter settings.

For example, a website is permitted by the Web URL Filter setting, but it has reputation score lower than the web reputation threshold, the connection to this website will be blocked even if it is in the whitelist, unless you change the web reputation threshold.

Managing the Security Services

Use the Dashboard page to view the status of the security license, enable or disable the security services, and check new updates for all signature-based security services.

⚠ **CAUTION** Enabling the security services consumes additional system resources and may impact the system performance. Go to the **Status -> Dashboard** page to view the CPU and memory utilization. To conserve the system resources, disable the security services when they are no longer needed.

STEP 1 Click **Security Services -> Dashboard**.

The Dashboard window opens.

STEP 2 In the **License Status** area, check the expiration date for the security license. If the security license expires, go to the **Device Management -> License Management** page to renew the license.

STEP 3 In the **Settings Summary** area, you can perform the following tasks:

- To enable a security service, check the box in the **Enable** column. By default, only the Network Reputation service is enabled.

NOTE If you enable the IM & P2P Blocking service, it will enable both the IPS service and the IM & P2P Blocking settings. If you enable the IPS (Signature) service, it will enable both the IPS service and the IPS Policy and Protocol Inspection settings. Disabling the IM & P2P Blocking or IPS (Signature) service will not disable the IPS service. When both of them are disabled, the IPS service will be disabled.

- To configure the settings for a security service, click the **Configure** botton.
- For the signature-based security services, such as Anti-Virus and IPS, click **Check for Updates Now** to check for new signatures from the Cisco server. The date and time of the last check are displayed in the **Last Check** column. When the signature file is upated successfully, the date and time of the last successful update are displayed in the **Last Update** column.

  If a new signature file is available, the new signature file will be downloaded to your local flash partition. The registered CCO account is required to log into the Cisco server to download the signature file. To configure your CCO account, go to the **Device Management -> CCO Account** page. See **Configuring the CCO Account, page 331**.

NOTE Email Reputation Filter, Web URL Filter, and Web Reputation Filter are reputation-based services, clicking the **Check for Updates Now** button will not check for any new udpate.

STEP 4 In the **External Web Proxy Settings** area, enter the following information:

- **Web Proxy:** Click **On** to support such as Scansafe and third party outbound web proxies, or click **Off** to disable it.

NOTE When the external web proxy is enabled, the Firewall, QoS, Web URL Filter, and Web Reputation Filter settings will not work or be skipped for HTTP traffic.

- **Redirected Web Proxy IP:** Enter the IP address of the external web proxy used to redirect the HTTP traffic.

- **Redirected HTTP Port List:** Specify the number of the ports used to redirect the HTTP traffic. To add an entry, click **Add**. To edit an entry, click **Edit**. To delete an entry, click **Delete**.

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

Viewing the Security Service Reports

After you enable and configure the security services, you can enable the corresponding reports for these services to analyze the security performance.

For example, if the Web URL Filter and Web Reputation Filter services are enabled on your security appliance, you can enable the **Web Security Blocked Report** to view the total number of web access requests processed and the total number of websites blocked since these services were enabled, in last seven days, or in one day. A graph is provided to show the total number of web access requests processed and the total number of websites blocked by day for the last seven days.

For more information about the security service reports, go to the **Status -> Report -> Security Services** page. See Reports of Security Services, page 87.

Intrusion Prevention Service

The Intrusion Prevention Service (IPS) feature can protect the zones for a given set of categories. IPS monitors network traffic for malicious or unwanted behavior on the device and can react, in real-time, to block or prevent those activities.

When an attack is detected, offending packets are dropped or alerts are logged depending on the administrative settings, but all other traffic is unaffected. Unlike traditional firewalls, IPS makes access control decisions based on application content, rather than IP address or ports.

⚠ **CAUTION** Enabling IPS consumes additional system resources and may impact the system performance. Go to the **Status -> Dashboard** page to view the CPU and memory utilizations. To conserve the system resources, disable the IPS service when it is no longer needed.

This section includes the following topics:

General IPS Settings

Use the IPS Setup page to enable or disable the IPS service, choose the security zones you want to protect, update the IPS signatures, and view the IPS signature status and logs.

STEP 1 Click **Security Services -> IPS -> IPS Setup**.

The IPS Setup window opens.

STEP 2 Click **On** to enable IPS, or Click **Off** to disable IPS.

STEP 3 Specify the zones to block the intrusion for incoming traffic from the selected zones:

- **WAN zone:** Choose this option to block the intrusion for incoming traffic from the WAN zone. This is the default setting.
- **WAN + VPN zone:** Choose this option to block the intrusion for incoming traffic from both WAN and VPN zones.
- **All zones:** Choose this option to block the intrusion for the incoming traffic from all zones.

STEP 4 In the **IPS Status** area, you can perform the following tasks:

- **IPS Signatures:** Displays the status of IPS signature file, including the expiration date of the security license, the name of the signature file, and the date and time of your last signature update.
- **View IPS Logs:** IPS logs a message if an attack is detected. Click this button to view all IPS log messages.
- **Email Alert Setting:** IPS sends an alert message to the specified email account if an attack hits the email alert threshold. Click this link to see the email alert settings for IPS Alert events.

To send alert emails for IPS Alert events, you first need to enable the IPS Alert feature and configure the email account settings, see **Configuring the Email Alert Settings, page 316**. And then configure the IPS Policy and Protocol Inspection settings and/or the IM and P2P Blocking settings, see **Configuring the IPS Policy and Protocol Inspection, page 216** and **Blocking the Instant Messaging and Peer-to-Peer Applications, page 218**.

STEP 5 The IPS service uses the signatures to identify the attacks in progress. You can manually or automatically update the IPS signatures.

- **Automatic Signature Updates:** Click **On** to automatically update the IPS signatures periodically if a new signature file is available, or click **Off** to disable it.
  - **User Name:** The user name of your registered CCO account used to download the IPS signature file. To configure the CCO account, click **Edit Account Setting**.
  - **Update:** Click this button to immediately update the IPS signatures if a new signature file is available. The new signature file will be downloaded from the Cisco server and saved on the flash partition of your device.
- **Manual Signature Updates:** To manually update the IPS signatures, you first need to download the latest signature file from the Cisco server to your local PC. The user name and password of your registered CCO account are required to log into the Cisco server. Then click **Browse** to locate and select the signature file from your local PC, and click **Upload**.

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

Configuring the IPS Policy and Protocol Inspection

The IPS Policy protects the network against threats such as Denial-of-Service attacks, malware, and backdoor exploits. The Protocol Inspection detects suspicious behavior and attacks on various types of protocols.

STEP 1 Click **Security Services -> IPS -> IPS Policy & Protocol Inspection**.

The IPS Policy and Protocol Inspection window opens. The IPS categories and protocols supported on the security appliance are listed in the IPS table.

STEP 2 Enter the following information:

- **IPS (Signature) Enable:** If you enable IPS, click **On** to enable the IPS Policy and Protocol Inspection settings.
- **View IPS Category Items:** Allows you to view the signatures under a specific IPS category or protocol. For example, if you choose DoS, only the signatures under the DoS category are displayed. To display all signatures, choose **All**.
- **Search by IPS Signature ID:** Allows you to view a specific signature by searching the signature ID. Enter the signature ID in this field, and then click **Search**. To display all categories and protocols, click **Reset**.
- **Expand/Collapse:** To expand the signatures under a category, click the **+** button next to the category heading. To hide the signatures, click the **-** button.

NOTE To get the definition of the signatures, go to http://tools.cisco.com/security/center/search.x?search=Signature to check the Small Business IPS signature definitions by using the Signature ID or other information.

STEP 3 Specify the inspection setting for all signatures under a category or for a signature only.

- **Disabled:** Click this option to disable checking the attacks.
- **Detect Only:** Click this option to check the attacks and to log the event when an attack is detected. This option is mostly used for troubleshooting purposes.
- **Detect and Prevent:** Click this option to check the attacks and to log the event and drop the packet when an attack is detected.

  To log the IPS events, you first need to choose **Detect Only** or **Detect and Prevent** for the IPS categories or IPS signatures, and then go to the **Device Management -> Loggings** pages to configure the log settings and log facilities:

  - To save the IPS logs in the lcoal syslog daemon, you need to enable the Log feature, set the log buffer size and the severity for local log, and then check the Local Log box for the **IPS (signature based)** and **IPS (reputation based)** log facilities.

- To save the IPS logs to the remote syslog server if you have a remote syslog server support, you need to enable the Log feature, specify the Remote Log settings, and check the **Remote Log** boxes for the **IPS (signature based)** and **IPS (reputation based)** log facilities.

For more information about how to configure the log settings and log facilities, and how to view the logs, see **Log Management, page 302**.

- **Email Alert Threshold:** Enter the value of the email alert threshold. When the hit count is over the email alert threshold, an alert email is sent to the specified email acount.

  To send the IPS alert emails to the specified email accont, you first need to enable the IPS Alert feature and configure the email account settings, see **Configuring the Email Alert Settings, page 316**.

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

Blocking the Instant Messaging and Peer-to-Peer Applications

Use the IM & P2P blocking page to block Instant Message (IM) and Peer-to-Peer (P2P) traffic on the security appliance.

STEP 1 Click **Security Services -> IPS -> IM & P2P Blocking**.

The IM & P2P Blocking window opens. The supported IM applications are listed in the IM Blocking table. The supported P2P applications are listed in the P2P Blocking table.

STEP 2 Enter the following information:

- **IM & P2P Blocking Enable:** If you enable IPS, click **On** to enable the IM and P2P Blocking settings.
- **View IM Blocking Item:** Allows you to view the signatures under a specific IM application.

  For example, if you choose MSN, only the signatures under the MSN application are displayed. To display all signatures, choose **All**.
- **View P2P Blocking Item:** Allows you to view the signatures under a specific P2P application.

For example, if you choose BitTorrent, only the signatures under the BitTorrent application are displayed. To display all signatures, choose **All**.

- **Search by Signature ID:** Allows you to view a specific signature by searching the signature ID. Enter the signature ID in this field, and then click **Search**. To display all categories, click **Reset**.
- **Expand/Collapse:** To expand the signatures under an IM or P2P application, click the **+** button. To hide the signatures, click the **-** button.

STEP 3 Specify the setting for all signatures under an IM or P2P application or for a single signature:

- **Disabled:** Choose this option to disable checking attacks.
- **Detect Only:** Click this option to check the attacks and to log a message when an attack is detected. This option is mostly used for troubleshooting purposes.
- **Detect and Prevent:** Click this option to check the attacks, and to log a message and drop the packet when an attack is detected.

  To log the IPS events, you first need to choose **Detect Only** or **Detect and Prevent** for the IM or P2P applications, and then go to the **Device Management -> Loggings** pages to configure the log settings and log facilities:

  - To save the IPS logs in the lcoal syslog daemon, you need to enable the Log feature, set the log buffer size and the severity for local log, and then check the **Local Log** box for the **IM/P2P Blocking** log facility.
  - To save the IPS logs to the remote syslog server if you have a remote syslog server support, you need to enable the Log feature, specify the Remote Log settings, and check the **Remote Log** box for the **IM/P2P Blocking** log facility.

  For more information about how to configure the log settings and log facilities, and how to view the logs, see **Log Management, page 302**.

- **Email Alert Threshold:** Enter the value of the email alert threshold. When the hit count is over the email alert threshold, an alert email is sent to the specified email acount.

  To send the IPS alert emails to the specified email accont, you first need to enable the IPS Alert feature and configure the email account settings, see **Configuring the Email Alert Settings, page 316**.

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

Anti-Virus

The security appliance can scan for viruses over a multitude of protocols including HTTP, FTP, POP3, SMTP, CIFS, NETBIOS, and IMAP. Because files containing malicious code and viruses can also be compressed and therefore inaccessible to conventional anti-virus solutions, the security appliance integrates advanced decompression technology that automatically decompresses and scans the files on a per packet basis.

NOTE The Anti-Virus feature supports virus scanning for one layer compressed files in the zip, gzip, tar, bzip2, and rar2.0 formats.

CAUTION Enabling Anti-Virus consumes additional system resources and may impact the system performance. Go to the **Status -> Dashboard** page to view the CPU and memory utilizations. To conserve the system resources, disable the service when it is no longer needed.

This section includes the following topics:

- **Configuring the Anti-Virus, page 220**
- **Configuring the Email Notification, page 223**
- **Configuring the HTTP Notification, page 224**

Configuring the Anti-Virus

STEP 1 Click **Security Services -> Anti-Virus -> General Settings**.

The General Settings window opens.

STEP 2 Enter the following information:

- **Enable Anti-Virus:** Click **On** to enable Anti-Virus, or click **Off** to disable it.

- **Select which zone to scan for virus:** Specify the zones to scan the viruses for the incoming traffic from the selected zones:
  - **WAN zone:** Choose this option to scan the viruses only for the traffic from WAN zone to all other zones.
  - **WAN + VPN zone:** Choose this option to scan the viruses for the traffic from both WAN and VPN zones to all other zones.
  - **All zones:** Choose this option to scan the viruses for the incoming traffic from all zones. This is the default setting.

STEP 3 Specify the following settings for the protocols that you want to scan for viruses:

- **Enable:** Check the box in this column to scan for the viruses for the protocol.
- **Log:** Check the box in this column to log the event when viruses are detected.

  To log the Anti-Virus events, you first need to check the **Log** box for the protocols, and then go to the **Device Management -> Loggings** pages to configure the log settings and log facilities:

  - To save the Anti-Virus logs in the lcoal syslog daemon, you need to enable the Log feature, set the log buffer size and the severity for local log, and then check the **Local Log** box for the **Anti-Virus** log facility.
  - To save the Anti-Virus logs to the remote syslog server if you have a remote syslog server support, you need to enable the Log feature, specify the Remote Log settings, and check the **Remote Log** box for the **Anti-Virus** log facility.

  For more information about how to configure the log settings and log facilities, and how to view the logs, see **Log Management, page 302**.

- **Action:** Specify the preventive action for each protocol when viruses are detected.
  - **None:** No action is required when viruses are detected.
  - **Alert:** Sends an alert email to the specified email account when viruses are detected for the SMTP or POP3 protocol, or sends an alert message to the user when using the HTTP protocol to download the files containing viruses.
  - **Drop Connection:** Drops the connection when viruses are detected.
  - **Destruct File:** Destructs the file when viruses are detected.

The available preventive actions for each protocol are listed in the following table.

Protocols	Preventive Actions
HTTP	None, Alert, Alert+Drop Connection
SMTP	None, Alert, Alert+Destruct File
FTP	None, Drop Connection
POP3	None, Alert, Alert+Destruct File
IMAP	None, Drop Connection
NETBIOS	None, Drop Connection
CIFS	None, Drop Connection

STEP 4 Because the compressed files in .bz2 and .rar formats can be reassembled and uncompressed after collecting the whole packets, you need to specify the maximum size for scanning the viruses for them. Enter the value in Kilobytes in the **Max Scan File Compression File Size** field. When the size of the detected compressed file is larger than this setting, the compressed file will not be detected.

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

NOTE Next Steps:

- If you select Alert or Alert+Descruct File for SMTP or POP3 protocol, go to the **Email Notification** page to configure the email notification settings. See **Configuring the Email Notification, page 223**.
- If you select Alert or Alert+Drop Connection for HTTP protocol, go to the **HTTP Notification** page to configure the HTTP notification settings. See **Configuring the HTTP Notification, page 224**.

Configuring the Email Notification

Use the Email Notification page to configure the tag and content message that are displayed in the alert email. The subject of the alert email will be tagged such as **[Virus] Email Subject**.

If you select Alert for SMTP or POP3 protocol, when viruses are detected in the email, the original email and an alert email are sent to the email receiver.

If you select Alert + Descruct File for SMTP or POP3 protocol, when viruses are detected in the email, the original email is destructed and an alert email is sent to the email receiver.

STEP 1 Click **Security Services -> Anti-Virus -> Email Notification**.

The Email Notification window opens.

STEP 2 Enter the following information:

- **Email Alert Status:** Shows if the Alert or Alert+Destruct File action is selected or not for SMTP or POP3 protocol.
- **From Email Address:** The email address of the SMTP email account to send the alert email.
- **SMTP Server:** The IP address or Internet name of the SMTP server.
- **SMTP Authentication:** Shows if the SMTP authentication is enabled or disabled.

NOTE The above email account settings are read only. They are used to send the alert emails to the original email receiver. Click the **Email Alert Setting** link to configure the email account settings. For more information, see **Configuring the Email Alert Settings, page 316**.

- **Mail Tag:** Enter the tag that shows in the alert email 's subject. The tag will insert to the alert email subject in the **[Tag] Email Subject** format.
- **Mail Content:** Enter the content that appears in the alert email.

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

Configuring the HTTP Notification

Use the HTTP Notification page to configure the alert message if viruses are detected when using the HTTP protocol to download the files containing viruses.

If you select Alert , an alert message is sent to the user when viruses are detected.

If you select Alert+Drop Connection, the connection is dropped and an alert message is sent to the user when viruses are detected.

STEP 1 Click **Security Services -> Anti-Virus -> HTTP Notification**.

The HTTP Notification window opens.

STEP 2 Enter the alert message in the **HTTP Content** field.

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

Email Reputation Filter

The Email Reputation Filter feature detects the email sender's reputation score. The reputation scores range from -10 (bad) to +10 (good). An email is classified as SPAM if the sender's reputation is below the SPAM threshold, or is classified as SUSPECT SPAM if the sender's reputation is between the SPAM threshold and SUSPECT SPAM threshold. An email is not classified as SPAM if the sender's reputation is above the SUSPECT SPAM threshold.

CAUTION Enabling Email Reputation Filter consumes additional system resources and may impact the system performance. Go to the **Status -> Dashboard** page to view the CPU and memory utilizations. To conserve the system resources, disable the service when it is no longer needed.

STEP 1 Click **Security Services -> Anti-Spam**.

The Email Reputation Filter window opens.

STEP 2 Enter the following information:

- **Enable Anti-Spam Filter:** Click **On** to enable Email Reputation Filter, or check **Off** to disable it.
- **SMTP Server Address:** Enter the address of the SMTP server.
- **Choose Reputation Threshold:** Specify the block sensitivity as either Conservative, Moderate or Aggressive, or as a numerical threshold (Custom). When the Custom radio button is selected, the drop-down lists next to it are enabled allowing the threshold values to be entered. The allowable values for the threshold are integers from -10 to -1 and the value -0.5.

  The Email Reputation Filter detects spam emails based on the reputation score of the sender's IP address. The sender's address is the address that initiated the connection to the SMTP server, not an address within the email header.

STEP 3 Specify the actions for SPAM and SUSPECT SPAM emails:

- **Action for SPAM Is:** Choose **Block** to block the email, or choose **TAG** to get the email tagged with [SPAM].
- **Action for SUSPECT SPAM Is:** Choose **Block** to block the email, or choose **TAG** to get the email tagged with [SUSPECT SPAM].

STEP 4 Choose one of the following actions if the Email Reputation Filter service is unavailable:

- **Do not accept any emails until reputation services are restored (emails will be delayed):** If you choose this option, all emails will be delayed until the Email Reputation Filter service is restrored.
- **Deliver all emails without checking for spam:** If you choose this option, you can deliver all emails without checking for spam. This is the default setting if Email Reputation Filter service is unavailable.

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

Web URL Filter

The Web URL Filter feature provides protection against URL categories. The Web URL Filter policy profile assigned to each zone determines whether to block or forward the HTTP request from the hosts in the zone. The blocked request will be logged.

CAUTION Enabling Web URL Filter consumes additional system resources and may impact the system performance. Go to the **Status -> Dashboard** page to view the CPU and memory utilizations. To conserve the system resources, disable the service when it is no longer needed.

This section includes the following topics:

Configuring the Web URL Filter Policy Profiles

A Web URL Filter policy profile is used to specify the URL categories to be blocked.

STEP 1 Click **Security Services -> Web URL Filter -> Policy Profile**.

The Web URL Filter Policy Profile window opens. The default and custom Web URL Filter policy profiles are listed in the table.

STEP 2 To add a new Web URL Filter policy profile, click **Add**.

Other Options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. The default profile cannot be deleted.

After you click Add or Edit, the Add/Edit window opens.

STEP 3 Enter the following information:

- **Policy:** Enter an unique name for the policy profile.
- **Description:** Enter a brief message to describe the policy profile.

- **Select URL Categories to Block:** Specify the URL categories to be blocked. To block an URL catetory, check the box. Click **Select All** to block all categories, or click **Clear All** to permit all categories.

STEP 4 If needed, specify the whitelist and blacklist of websites to permit or block specific websites. For complete details, see **Configuring the Whitelist and Blacklist of Websites, page 227**.

If an URL category is blocked (or permited), all websites that belongs to this category will be blocked (or permited). The whitelist and blacklist of websites allows you to permit or block the websites against the URL category settings. The whitelist and blacklist have higher priority than the URL category settings.

For example, if the Sports category is blocked , but you want to permit the www.espn.com, you can add it to the whitelist.

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

NOTE Next Steps:

- To map the Web URL Filter policy profile to zones, go to the **Zone Mapping** page. See **Mapping the Web URL Filter Policy Profiles to Zones, page 228**.
- To configure advanced Web URL Filter settings, go to the **Advanced Settings** page. See **Configuring Advanced Web URL Filter Settings, page 229**.

Configuring the Whitelist and Blacklist of Websites

Blocking an URL category will block all websites that belong to this category. You can specify the whitelist and blacklist of websites to permit or block specific websites against the URL category settings.

STEP 1 In the **Define Policy Specify URLs or URL keywords you want to permit or deny** area, click **Edit**.

The Add/Edit window opens. The URLs and URL keywords specified in the whitelist and blacklist are displayed in the website access control list.

STEP 2 To add an access control rule for a website, click **Add**.

Other Options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. To delete all entries, click **Delete All**.

After you click Add or Edit, the Add/Edit window opens.

STEP 3 Enter the following information:

- **Enable Content Filter URL:** Click **On** to enable the access control rule, or click **Off** to create only the access control rule.
- **URL:** Enter the domain name or URL keyword of a website that you want to permit or block.
- **Match Type:** Specify the method for applying this rule:
  - **Domain:** Permit or deny the HTTP access of a website that fully matches up with the domain name you entered in the **URL** field.

    For example, if you enter *yahoo.com* in the URL field, then it can match up with the website such as http://*.yahoo.com/*, but cannot match up with the website such as http://*.yahoo.com.uk/*.
  - **Keyword:** Permit or deny the HTTP access of a website that contains the keyword you entered in the **URL** field.

    For example, if you enter *yahoo* in the URL field, then it can match up with the websites such as www.yahoo.com, tw.yahoo.com, www.yahoo.com.uk, and www.yahoo.co.jp.
- **Action:** Choose **Permit** to permit the access, or choose **Block** to block the access.

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

Mapping the Web URL Filter Policy Profiles to Zones

Use the Zone Mapping page to map the Web URL Filter policy profile to zones. By default, the Default Profile is assigned to all predefined zones and new zones.

STEP 1 Click **Security Services -> Web URL Filter -> Zone Mapping**.

The Zone Mapping window opens.

STEP 2 Click **On** to enable the Web URL Filter feature, or click **Off** to disable it.

NOTE Enabling the Web URL Filter service will disable the firewall content filtering settings.

STEP 3 In the **Specify the policy used for each zone** area, choose the Web URL Filter policy profile used for each zone.

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

Configuring Advanced Web URL Filter Settings

STEP 1 Click **Security Services -> Web URL Filter -> Advanced Settings**.

The Advanced Settings window opens.

STEP 2 Enter the following information:

- **Specify HTTP port for Web URL Filter (default: 80):** Enter the port number that is used for the Web URL Filter settings. The default is 80.

  For example, if you permit the HTTP access to the website http://www.ABcompanyC.com and set the HTTP port to 80. The access to http://www.ABcompanyC.com:8080 will be blocked.

- **Select which Web Components to block:** You can block or permit the web components like Proxy, Java, ActiveX, and Cookies. By default, all of them are permitted.

  - **Proxy:** Check the box to block proxy servers, which can be used to circumvent certain firewall rules and thus present a potential security gap.

  - **Java:** Check the box to block applets from being downloaded from internet sites.

  - **ActiveX:** Check the box to prevent ActiveX controls from being downloaded via Internet Explorer.

  - **Cookies:** Check the box to block cookies, which typically contain session information.

- **If Web URL Filter services are unavailable:** Specify one of the following actions if Web URL Filter services are unavailable:

- **Block all web traffic until web URL filter services are restored:** If you choose this option, all web traffic will be blocked until the Web URL Filter services are restored, and displays the default blocked page. The default blocked page will display a message to remind the user. You can edit the message in the **Block Message** field.
- **Allow all web traffic until web URL filter services are restored:** If you choose this option, all web traffic will be permitted until the Web URL Filter services are restored.

- **When a web page is blocked:** Specify one of the following actions if a web page is blocked:
  - **Use the default blocked page:** Use the default blocked page if a web page is blocked. The default blocked page will display a message such as "Access of this website is blocked due to security policy configurations on the security appliance". You can edit the message in the **Block Message** field.
  - **Redirect to this URL:** Enter the URL to be redirected if a web page is blocked.

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

Web Reputation Filter

The Web Reputation Filter service detects the web threats based on the reputation score of a web page. Reputation scores range from -10 (bad) to +10 (good). Web pages with reputation scores below a specific threshold are considered threats and blocked.

CAUTION Enabling Web Reputation Filter consumes additional system resources and may impact the system performance. Go to the **Status -> Dashboard** page to view the CPU and memory utilizations. To conserve the system resources, disable the service when it is no longer needed.

STEP 1 Click **Security Services -> Web Reputation Filter**.

The Web Reputation Filter window opens.

STEP 2 Enter the folllowing information:

- **Enable Web Threat Filter:** Click **On** to enable the Web Reputation Filter feature, or click **Off** to disable it.
- **Choose Reputation Threshold:** If you enable the Web Reputation Filter feature, specify the block sensitivity as either Conservative, Moderate, or Aggressive, or as a numerical threshold (Custom). The threshold values for Conservative, Moderate, or Aggressive option are predefined and uneditable. If you want to customize a threshold value, click **Custom** and choose the threshold value from the drop-down list. The available values for the threshold are integers from -10 to -1 and the value -0.5.

STEP 3 Specify one of the following actions if the Web Reputation Filter services are unavailable:

- **Block all web traffic until the web reputation filter services are restored:** If you choose this option, all web traffic will be blocked until the Web Reputation Filter services are restored, and the default blocked page will used. The default blocked page displays a message to remind the user. You can edit the message in the **Block Message** field.
- **Allow all web traffic until the web reputation filter services are restored:** If you choose this option, all web traffic will be allowed until the Web Reputation Filter services are restored.

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

Network Reputation

Network Reputation checks the source and destination address of each packet against the address blacklist to determine whether to proceed or to drop the packet. The blacklist data is automatically updated in its entirety a few times per day.

NOTE No configuration is needed for the Network Reputation feature. You only need to enable or disable this feature from the **Security Services -> Dashboard** page.

8

VPN

This chapter describes how to configure Virtual Private Networks (VPN) that allowing other sites and remote workers to access your network resources. It includes the following sections:

To access the VPN pages, click **VPN** in the left hand navigation pane.

About VPN

A VPN provides a secure communication channel (“tunnel”) between two gateway routers or between a remote PC and a gateway router. The security appliance provides the following VPN solutions:

- **Cisco IPSec VPN Server:** The Cisco IPSec VPN Server feature allows the security appliance to act as a head-end device in remote access VPNs. The server pushes the security policies to remote clients, so that remote clients have up-to-date policies in place before establishing the connections. The server can also terminate the VPN tunnels initiated by the clients. This flexibility allows mobile and remote users to access critical data and applications on corporate Intranet. See **Configuring the Cisco IPSec VPN Server, page 233**.

- **Cisco IPSec VPN Client:** The Cisco IPSec VPN Client feature minimizes the configuration requirements at remote locations by allowing the security appliance to work as a Cisco VPN hardware client to receive the security policies upon the VPN tunnel from a remote Cisco IPSec VPN Server. See **Configuring the Cisco IPSec VPN Client, page 238**.
- **Site-to-Site VPN:** The Site-to-Site VPN tunnel connects two routers to secure traffic between two sites that are physically separated. See **Configuring the Site-to-Site VPN, page 246**.
- **SSL VPN:** The SSL VPN feature allows remote users to access the corporate network by using the Cisco AnyConnect VPN Client. Remote access is provided through a SSL VPN gateway. See **Configuring the SSL VPN, page 257**.
- **L2TP:** L2TP allows remote clients to use a public IP network to secure communicate with private corporate network servers. This protocol is based on the client and server model. See **Configuring the L2TP Server, page 266**.

NOTE The security appliance can function as a Cisco IPSec VPN server or as a Cisco IPSec VPN client, but not both simutaneously. It does not have a default role.

Configuring the Cisco IPSec VPN Server

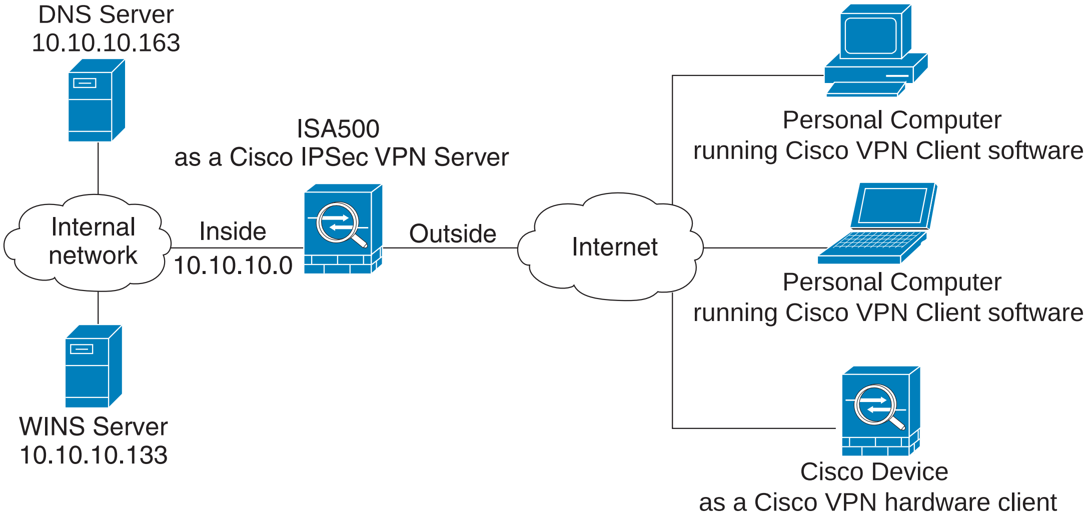
The Cisco IPSec VPN Server feature allows remote users to establish the IPSec VPN tunnels to securely access the corporate network resources. It includes the following sections:

- **Cisco VPN Client Compatibility, page 234**
- **Configuring the Group Policies for Cisco IPSec VPN Server, page 235**

Cisco VPN Client Compatibility

The remote client can be a Cisco device that supports the Cisco IPSec VPN Client feature (a Cisco VPN hardware client) or a PC running the Cisco VPN Client software (v4.x or 5.x, a Cisco VPN software client).

Figure 6 IPSec Remote Access with a Cisco VPN Client Software or a Cisco Device as a Cisco VPN Hardware Client



The Cisco VPN Client is an IPSec client software for Windows, Mac, or Linux users. The Cisco VPN Client is compatible with the following platforms:

- Windows 7 32-bit (x86) and 64-bit (x64)
- Windows Vista 32-bit (x86) and 64-bit (x64)
- Windows XP 32-bit (x86) and 64-bit (x64)
- Mac OS X 10.5 and 10.6

You can find the software installers for Cisco VPN Client on the CD, or download the software installers from Cisco.com (A registered CCO account is required to log into the website). For more information about how to download, install, and configure the Cisco VPN Client software, see http://www.cisco.com/en/US/products/sw/secursw/ps2308/index.html.

Configuring the Group Policies for Cisco IPSec VPN Server

This section describes how to enable the Cisco IPSec VPN Server feature and specify the group policies that can be used by the remote clients to establish the IPSec VPN tunnels.

NOTE The security appliance supports up to 16 group policies for Cisco IPSec VPN Server.

STEP 1 Click **VPN -> Remote User Access -> Cisco IPSec VPN Server**.

The Cisco IPSec VPN Server window opens. All existing group policies are listed in the table.

STEP 2 Click **On** to enable the Cisco IPSec VPN Server feature and set the security appliance as a head-end device in remote access VPN, or click **Off** to disable it.

STEP 3 Specify the group policies that can be used by the remote clients to establish the IPSec VPN tunnels. To add a group policy, click **Add**.

Other Options: To edit an entry, click **Edit**. To delete an entry, click **Delete**.

After you click Add or Edit, the Cisco IPSec VPN Server - Add/Edit window opens.

STEP 4 In the **Basic Settings** tab, enter the following information:

- **Group Name:** Enter the name for the group policy.
- **WAN Interface:** Choose the WAN interface that the traffic passes through over the IPSec VPN tunnel.
- **Authentication Method:** Choose the authentication method.
  - **Preshare:** If you choose this option, enter the desired value that the peer device must provide to establish a connection in the **Password** field. The pre-shared key must be entered exactly the same here and on the remote clients.
  - **Certificate:** If you choose this option, choose the local certificate and the peer certificate for authentication. On the remote clients, the selected local certificate should be set as the peer certificate, and the selected peer certificate should be set as the local certificate. If the certificates are not in the list, go to the **Device Management -> Certificate Management** page to import the certificates. See **Managing the Certificates for Authentication, page 310**.

- **Mode:** The operation mode determines whether the inside hosts relative to the Cisco VPN hardware client are accessible from the corporate network over the IPSec VPN tunnel. Specifying a operation mode is mandatory before making a connection because the Cisco VPN hardware client does not have a default mode. For more information, see **Modes of Operation, page 240**.
  - **Client:** Choose this mode for the group policy that is used for both the PC running the Cisco VPN Client software and the Cisco device that works as the Cisco VPN hardware client. In client mode, the server can assign the IP address to the outside interface of remote clients. To define the pool range for the clients, enter the starting and ending IP addresses in the **Start IP** and **End IP** fields.
  - **NEM:** Choose this mode for the group policy that is only used for the Cisco device that works as the Cisco VPN hardware client. The Cisco VPN hardware client can obtain a private IP address from a DHCP server over the IPSec VPN tunnel.
- **WAN Failover:** Click **On** to enable WAN Failover, or click **Off** to disable it. If you enable WAN Failover, the traffic is automatically redirected to the secondary link when the primary link is down.

NOTE To enable the WAN Failover for Cisco IPSec VPN tunnels, make sure that the secondary WAN interface was configured and the WAN redundancy was set to the Loab Balancing or Failover mode.

NOTE The security appliance will automatically update the local WAN gateway for the VPN tunnel based on the configurations of the backup WAN link. For this purpose, Dynamic DNS has to be configured because the IP address will change due to failover, or let the remote gateway use a dynamic IP address.

STEP 5 In the **Zone Access Control** tab, you can control the access from the PC running the Cisco VPN Client software or the private network of the Cisco VPN hardware client to the zones over IPSec VPN tunnels. Click **Permit** to permit the access, or click **Deny** to deny the access. By default, the access for all zones is permitted.

NOTE The VPN access rules that are automatically generated by the Zone Access Control settings will be added to the firewall access rule table with the priority higher than the default access rules, but lower than the custom access rules.

STEP 6 In the **Mode Config Settings** tab, enter the following information:

- **Primary DNS Server:** Enter the IP address of the primary DNS server.
- **Secondary DNS Server:** Enter the IP address of the secondary DNS server.
- **Primary WINS Server:** Enter the IP address of the primary WINS server.
- **Secondary WINS Server:** Enter the IP address of the secondary WINS server.
- **Default Domain:** Enter the default domain name.
- **Backup Server 1/2/3:** Enter the IP addresses of backup servers. When the primary server is down, the client can connect to the backup server. The backup server 1 has the highest priority and the backup server 3 has the lowest priority.

  NOTE The backup servers that you specified on the Cisco IPSec VPN Server will be sent to the remote clients when initiating the VPN connection. The remote clients will cache them.

- **Split Tunnel:** Click **On** to enable the split tunneling feature, or click **Off** to disable it. Split tunneling allows only the traffic that is specified by the VPN client routes to corporate resources through the VPN tunnel. If you enable the split tunneling feature, you need to define the split subnets. To add a subnet, enter the IP address in the **IP** filed and and netmask address in the **Netmask** filed, and then click **Add**. To delete a subnet, choose a subnet from the list and then click **Delete**.
- **Split DNS:** Split DNS directs DNS packets in clear text through the VPN tunnel to domains served by the corporate DNS. To add a domain, enter the IP address or domain name in the **Domain Name** filed and then click **Add**. To delete a domain, select it from the list and then click **Delete**.

NOTE To use Split DNS, you must also enable the split tunneling feature and specify the domains. The Split DNS feature supports up to 10 domains.

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

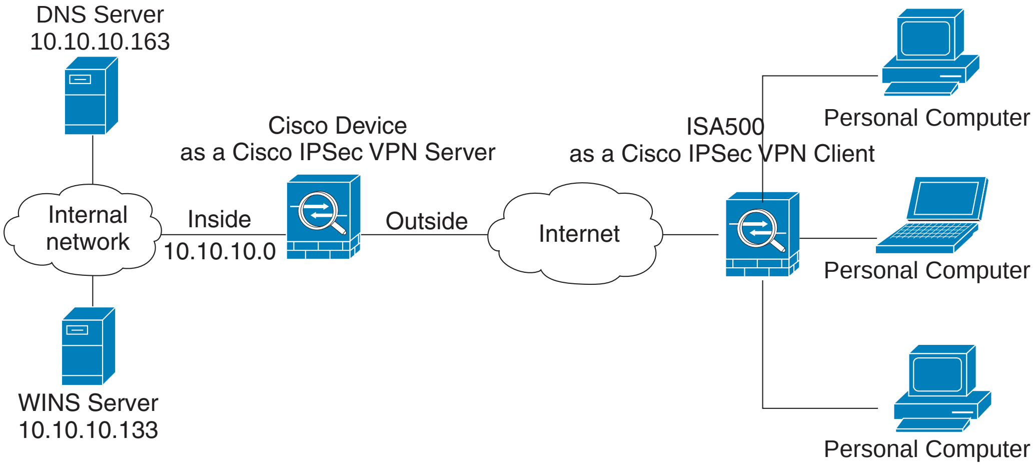
STEP 8 Click **Save** to apply your settings.

STEP 9 To check the status and statistic information for IPSec VPN tunnels, go to the **Session Status -> VPN Table** page. See **Monitoring the IPSec VPN Status, page 269**.

Configuring the Cisco IPSec VPN Client

The Cisco IPSec VPN Client feature minimizes the configuration requirements at remote locations by allowing the security appliance to work as a Cisco VPN hardware client to receive the security policies upon the VPN tunnel from a remote Cisco IPSec VPN Server. This solution is ideal for remote offices with little IT support or for large customer premises equipment (CPE) deployments where it is impractical to configure multiple remote devices individually.

Figure 7 IPSec Remote Access with a Cisco IPSec VPN Server



This section describes how to configure the Cisco IPSec VPN Client feature. It includes the following topics:

Restrictions for Cisco IPSec VPN Client

The Cisco IPSec VPN Client feature requires that the destination peer is a Cisco ISA500 Series Integrated Security Appliance that works as the Cisco IPSec VPN Server, or a Cisco IOS router (such as C871, C1801, C1812, C1841, and C2821) or a Cisco ASA5500 platform that supports the Cisco IPSec VPN Server feature.

The Cisco IPSec VPN Client feature supports configuration of only one destination peer. If your application requires multiple VPN tunnels, you must manually configure the IPSec VPN and Network Address Translation/Peer Address Translation (NAT/PAT) parameters on both client and server.

NOTE If you set the security appliance as a Cisco VPN hardware client, the VPN tunnels established by Site-to-Site VPN or Cisco IPSec VPN Server are automatically disconnected. The Cisco IPSec VPN Client feature allows you to create multiple group polices to connect different servers but only one group policy can be used to establish the IPSec tunnel with a specified server.

Benefits of the Cisco IPSec VPN Client Feature

- Allows dynamic configuration of end-user policy, requiring less manual configuration by end users and field technicians, thus reducing errors and further service calls.
- Allows the provider to change equipment and network configurations as needed, with little or no reconfiguration of the end-user equipment.
- Provides for centralized security policy management.
- Enables large-scale deployments with rapid user provisioning.

- Eliminates the need for end users to purchase and configure external VPN devices.
- Eliminates the need for end users to install and configure Cisco VPN Client software on their PCs.
- Offloads the creation and maintenance of the VPN connections from the PC to the router.
- Reduces interoperability problems between the different PC-based software VPN clients, external hardware-based VPN solutions, and other VPN applications.
- Sets up a single IPsec tunnel regardless of the number of multiple subnets that are supported and the size of the split-include list.

Modes of Operation

The Cisco VPN hardware client supports two operation modes: Client Mode or Network Extension Mode (NEM). The operation mode determines whether the inside hosts relative to the Cisco VPN hardware client are accessible from the corporate network over the tunnel. Specifying a operation mode is mandatory before making a connection because the Cisco VPN hardware client does not have a default mode.

All modes of operation also optionally support split tunneling, which allows secure access to corporate resources through the VPN tunnel while also allowing Internet access through a connection to an Internet service provider (ISP) or other service—thereby eliminating the corporate network from the path for web access.

This section includes the following topics:

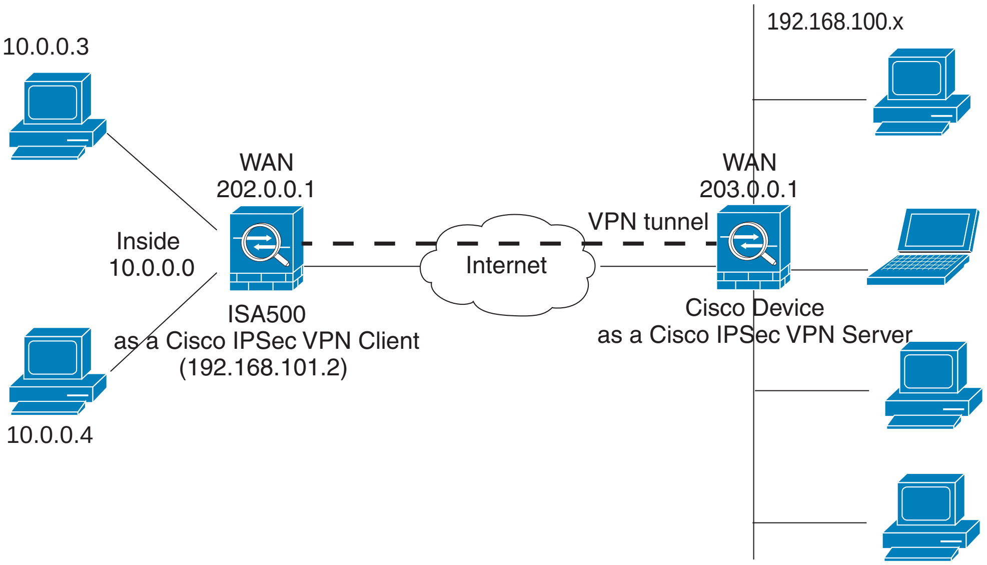
- **Client Mode, page 240**
- **Network Extension Mode, page 241**

Client Mode

Client mode specifies that NAT or PAT be done so that the PCs and other hosts at the remote end of the VPN tunnel form a private network that does not use any IP addresses in the IP address space of the desination server. In Client mode, the outside interface of the Cisco VPN hardware client can be assigned an IP address by the remote server.

Figure 7 illustrates the client mode of operation. In this example, the security appliance provides access to two PCs, which have IP addresses in the 10.0.0.0 private network space. These PCs connect to the Ethernet interface on the security appliance, and the server assigns an IP address 192.168.101.2 to the security appliance. The security appliance performs NAT or PAT translation over the VPN tunnel so that the PCs can access the destination network. When accessing the remote network 192.168.100.x, the hosts 10.0.0.3 and 10.0.04 will be translated to 192.168.101.2, but hosts in the remote network 192.168.100.x can not access the hosts 10.0.0.3 and 10.0.04.

Figure 8 Cisco IPSec VPN Client Connection



Network Extension Mode

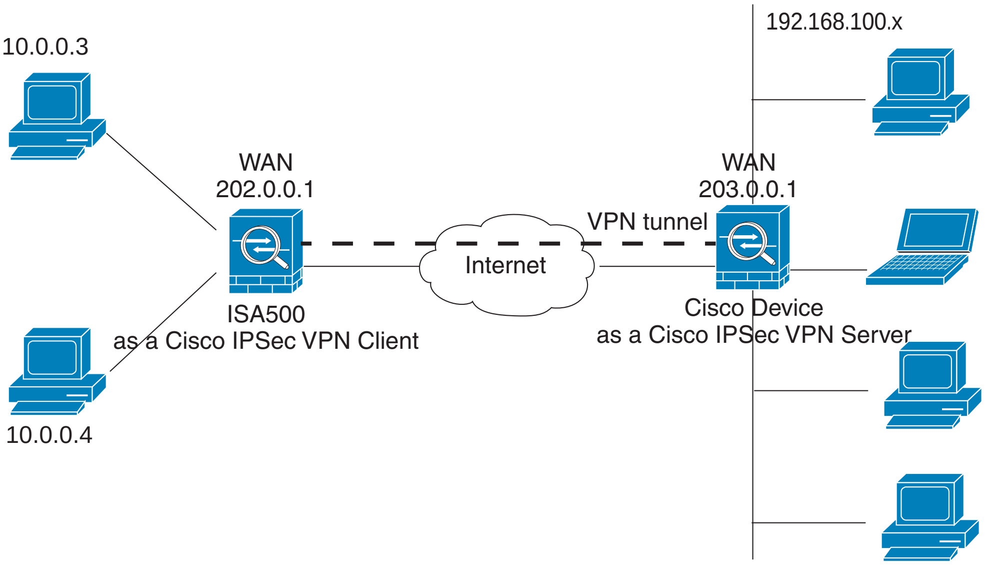
Network Extension Mode (NEM) specifies that the PCs and other hosts at the client end of the VPN tunnel should be given IP addresses that are fully routable and reachable by the destination network over the tunneled network so that they form one logical network. PAT is not used, which allows the client PCs and hosts to have direct access to the PCs and hosts at the destination network. In NEM mode, the Cisco VPN hardware client obtains a private IP address from a DHCP server over the VPN tunnel.

Figure 9 illustrates the network extension mode of operation. In this example, the security appliance acts as a Cisco VPN hardware client, connecting to a remote Cisco IPSec VPN Server. The hosts attached to the security appliance have IP addresses in the 10.0.0.0 private network space. The server does not assign an IP address to the security appliance, and the security appliance does not perform

NAT or PAT translation over the VPN tunnel. When accessing the remote network 192.168.100.x, the hosts 10.0.0.3 and 10.0.04 will not be translated, and hosts in the remote network 192.168.100.x can access the hosts 10.0.0.3 and 10.0.04 directly.

The client hosts are given IP addresses that are fully routable by the destination network over the tunnel. These IP addresses could be either in the same subnet space as the destination network or in separate subnets, assuming that the destination routers are configured to properly route those IP addresses over the tunnel.

Figure 9 Cisco IPSec VPN Network Extension Connection



General Settings

You can enable the Cisco IPSec VPN Client feature, configure the Auto Initiation Retry settings, or manually connect or disconnect the IPSec VPN tunnels.

STEP 1 Click **VPN -> Remote User Access -> Cisco IPSec VPN Client**.

The Cisco IPSec VPN Client window opens.

STEP 2 Enter the following information:

- **Cisco IPSec VPN Client Enable:** Click **On** to enable the Cisco IPSec VPN Client feature and set the security appliance as a Cisco VPN hardware client, or click **Off** to disable it.

- **Auto Initiation Retry:** Click **On** to enable the Auto Initiation Retry feature, or click **Off** to disable it. This feature is used to re-initiate the VPN connection to the primary server if it does not response during the timeout. When the primary server can not be connected over the timeout, the client will try to initiate the VPN connection to the backup servers. If you enable this feature, enter the following information:
  - **Retry Interval:** Specify how often, in seconds, the security appliance initiates the VPN conection to the primary server. The default is 120 seconds.
  - **Retry Limit:** Enter the number of times the security appliance will retry a connection initiation. The default is 0.
- **Connect:** To manually initiate the IPSec VPN connection, check the box of the group policy you want and then click **Connect**.
- **Disconnect:** To manuall terminate an estalished the IPsec VPN connection, click **Disconnect**.

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

Configuring the Group Policies for Cisco IPSec VPN Client

As a Cisco VPN hardware client, the security appliance will initiate the VPN connection with a remote Cisco IPSec VPN Server. You can specify up to 16 group policies used for Cisco IPSec VPN Client to establish the IPSec VPN tunnel.

STEP 1 Click **VPN -> Remote User Access -> Cisco IPSec VPN Client**.

The Cisco IPSec VPN Client window opens. All existing group policies are listed in the table.

STEP 2 To add a group policy, click **Add**.

Other Options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. To delete multiple entries, check the boxes of multiple entries and click **Delete Selection**.

After click Add or Edit, the Cisco IPSec VPN Client - Add/Edit window opens.

STEP 3 In the **Basic Settings** tab, enter the following inforamtion:

- **Description:** Enter the name for the group policy.

- **Server (Remote Address):** Enter the IP address of the remote Cisco IPSec VPN server.

- **Connection on Startup:** Click **On** to establish the connection with the remote server when your security appliance starts up, or click **Off** to disable it. Only one connection can be active on startup.

- **Authentication Method:** The client must be properly authenticated before it can access the remote network. Choose one of the following authentication methods:

  - **Preshare:** If you choose this option, specify the pre-shared key and the group policy in the following fields.

    Password: Enter the desired value, which the peer device must provide to establish a connection. The pre-shared key must be entered exactly the same here and on the remote server.

    Group Name: Enter the name of the group policy that is defined on the remote server. Your security appliance will use this group policy to establish the VPN tunnel with the remote server. The server pushes the security settings over the IPSec VPN tunnel to the clients.

  - **Certificate:** If you choose this option, choose a local certificate and a peer certificate for authentication. On the remote server, the selected local certificate should be set as the peer certificate, and the selected peer certificate should be set as the local certificate. If the certificates are not in the list, go to the **Device Management -> Certificate Management** page to import the certificates. See **Managing the Certificates for Authentication, page 310**.

- **Mode:** Specify the operation mode before making a connection because the client does not have a default mode. For more information about the operation mode, see **Modes of Operation, page 240**.

- **VLAN:** If you choose the NEM mode, specify the VLAN that permits the access from and to the private network of the remote server.

- **User Name:** Enter the user name used by the client to establish a VPN connection.

- **User Password:** Enter the password used by the client to establish a VPN connection.

STEP 4 In the **Zone Access Control** tab you can control the access from the zones in your network to the remote network if you choose the Client mode. Click **Permit** to permit the access, or click click **Deny** to deny the access. By default, the access from all zones to the remote network is permitted.

NOTE The VPN access control rules that are automatically generated by the Zone Access Control settings will be added to the firewall access rule table with the priority higher than the default firewall access rules, but lower than the custom firewall access rules.

STEP 5 In the **Advanced Settings** tab, enter the following information.

- **Backup Server 1/2/3:** You can specify up to three backup servers. When the primary server is disconnected, your security appliance can initiate the VPN connection to the backup servers. The backup server 1 has the highest priority and the backup server 3 has the lowest priority.

  NOTE The Cisco VPN hardware client can get the backup servers from the remote Cisco IPSec VPN server during the tunnel negotiation. The backup servers specified on the remote Cisco IPSec VPN server have higher priority than the back servers specified on the Cisco VPN hardware client. When the primary server is disconnected, firstly try to connect to the backup servers specified on the Cisco IPSec VPN server, and then try to connect to the backup servers specified on the Cisco VPN hardware client.

- **Peer Timeout:** Enter the time in minutes that the client retries to connect the backup server.

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

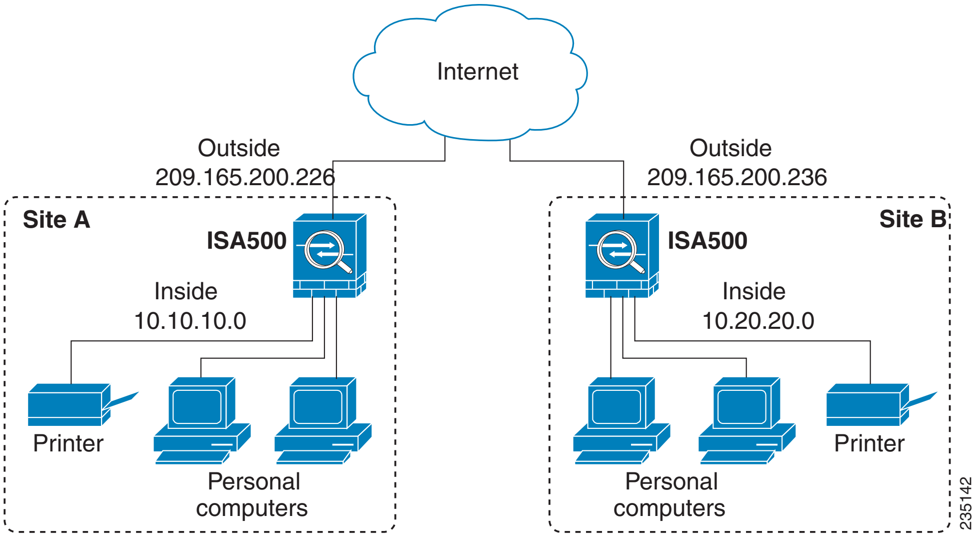
STEP 7 Click **Save** to apply your settings.

STEP 8 To check the status and statistic information for IPSec VPN tunnels, go to the **Session Status -> VPN Table** page. See **Monitoring the IPSec VPN Status, page 269**.

Configuring the Site-to-Site VPN

The Site-to-Site VPN tunnel connects two routers to secure traffic between two sites that are physically separated.

Figure 10 Site-to-Site VPN



This section describes how to configure a Site-to-Site VPN tunnel. It includes the following topics:

- **Configuration Tasks to Establish a Site-to-Site VPN, page 246**
- **General Site-to-Site VPN Settings, page 247**
- **Configuring the IPSec VPN Policies, page 248**
- **Configuring the IPSec IKE Policies, page 254**
- **Configuring the IPSec Transform Policies, page 256**

Configuration Tasks to Establish a Site-to-Site VPN

To establish a Site-to-Site VPN tunnel, complete the following configuration tasks:

- Add the subnet IP address objects of the local network and remote network. See **Address Management, page 152**.

- (Optional) Import the certificate for authentication between two peers. Skip this step if you want to use the pre-shared key for authentication. See **Managing the Certificates for Authentication, page 310**.
- Enable the Site-to-Site VPN feature on your security appliance. See **General Site-to-Site VPN Settings, page 247**.
- Configure the IPSec IKE policies. See **Configuring the IPSec IKE Policies, page 254**.
- Configure the IPSec Transform policies. See **Configuring the IPSec Transform Policies, page 256**.
- Configure the IPSec VPN policies. See **Configuring the IPSec VPN Policies, page 248**.
- Check the box of an enabled IPSec VPN policy, and then click **Connect** to initiate the IPSec VPN connection.
- Check the status and statistic information for IPSec VPN tunnels. See **Monitoring the IPSec VPN Status, page 269**.

General Site-to-Site VPN Settings

STEP 1 Click **VPN -> Site-to-Site -> IPSec Policies**.

The IPSec Policies window opens. All existing IPSec VPN policies are listed in the table. You can check the following information of an IPSec VPN policy:

- **Name:** The name of the IPSec VPN policy.
- **Enable:** Shows that the IPSec VPN policy is enabled or disabled.
- **Status:** Shows if the IPSec VPN tunnel is connected or disconnected.
- **WAN Interface:** The WAN interface that the traffic over the IPSec VPN tunnel passes through.
- **Peers:** The IP address of the remote peer.
- **Zone Access:** The zone to which the remote peer can access.
- **Local:** The local network of the local peer.
- **Remote:** The remote network of the remote peer.
- **Policy:** The IKE policy used for the IPSec VPN policy.

- **Tranform:** The tranform policy used for the IPSec VPN policy.

STEP 2 Click **On** to enable the Site-to-Site VPN feature, or click **Off** to disable it.

STEP 3 Check the box of an IPSec VPN policy in the **Enable** column to enable the IPSec VPN policy, or uncheck the box to disable the policy.

STEP 4 After you enable the Site-to-Site VPN feature, check the box of an enabled IPSec VPN policy and click **Connect** to establish the IPSec VPN tunnel.

STEP 5 To terminate a connected VPN tunnel between two peers, check the box and click **Disconnect**.

STEP 6 To refresh the status of Site-to-Site VPN, click **Refresh**.

Configuring the IPSec VPN Policies

The Site-to-Site VPN policy is used to establish the IPSec VPN tunnel between two peers. The ISA550 and ISA550W supports up to 50 IPSec VPN tunnels. The ISA570 and ISA570W supports up to 100 IPSec VPN tunnels.

NOTE Before you create an IPSec VPN policy, make sure that the IKE and transform policies are configured. Then you can apply the IKE and transform policy on the IPSec VPN policy.

STEP 1 Click **VPN -> Site-to-Site -> IPSec Policies**.

The IPSec Policies window opens. All existing IPSec VPN policies are listed in the table.

STEP 2 To add a new IPSec VPN policy, click **Add**.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. To delete multiple entries, check the boxes of the entries and then click **Delete Selection**.

After you click Add or Edit, the IPSec Policies - Add/Edit window opens.

STEP 3 In the **Basic Settings** tab, enter the following information:

- **Description:** Enter the name for the IPSec VPN policy.

- **IPSec Policy Enable:** Click **On** to enable the IPSec VPN policy, or click **Off** to create only the IPSec VPN policy. For an enabled IPSec VPN policy, the VPN tunnel can be connected by manually clicking **Connect** or be triggered by traffic.
- **Remote Type:** Choose one of the following types for the remote peer:
  - **Static IP:** Choose this option if the remote peer uses a static IP address. Enter the IP address of the remote peer in the **Address** field.
  - **Dynamic IP:** Choose this option if the remote peer uses a dynamic IP address.
  - **FQDN (Fully Qualified Domain Name):** Choose this option to use the domain name of the remote network, such as vpn.company.com. Enter the domain name of the remote peer in the **Address** field.

  For the example as illustrated in **Figure 10**, the remote site, Site B, has a public IP address of 209.165.200.236. You should choose **Static IP** for the type, and enter 209.165.200.236 in the **Address** field.
- **Authentication Method:** Choose the authentication method for the IPSec VPN policy.
  - **Preshare Key:** If you choose this option, enter the desired value that the peer device must provide to establish a connection. The same pre-shared key has to be entered on the remote peer device.
  - **Certificate:** If you choose this option, choose a local certificate and a remote certificate for authentication. On the remote clients, the selected local certificate should be set as the remote certificate, and the selected remote certificate should be set as the local certificate. If the certificate is not in the list, go to the **Device Management -> Certificate Management** page to import the certificates. See **Managing the Certificates for Authentication, page 310**.
- **WAN Interface:** Choose the WAN interface that the traffic passes through over the IPSec VPN tunnel.
- **Local Network:** Choose the IP address of the local network. If you want to configure the zone access control settings for Site-to-Site VPN, choose **Any** for the local network.
- **Remote Network:** Choose the IP address of the remote network. You must know the IP address of the remote network before connecting the IPSec VPN tunnel.

For the example as illustrated in **Figure 10**, Site A has a LAN IP address of 10.10.10.0 and Site B has a LAN IP address of 10.20.20.0. When you configure the Site-to-Site VPN on Site A, the local network is 10.10.10.0 and the remote network is 10.20.20.0.

If the IP address object is not in the list, choose **Create an IP Address** to add a new address object. To maintain the address objects, go to the **Networking -> Address Object Management** page. See **Address Management, page 152**.

NOTE The security appliance can support multiple subnets for IPSec VPN tunnel, you may need to select a group address object including multiple VLANs for local and remote network.

STEP 4 In the **Advanced Settings** tab, enter the following information:

- **PFS Enable:** Click **On** to enable Perfect Forward Secrecy (PFS) to improve security, or click **Off** to disable it. If you enable PFS, a Diffie-Hellman exchange is performed for every phase-2 negotiation. PFS is desired on the keying channel of the VPN connection.
- **DPD Enable:** Click **On** to enable Dead Peer Detection (DPD), or click **Off** to disable it. DPD is a method of detecting a dead Internet Key Exchange (IKE) peer. The 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, enter the following information:

  - **Delay Time:** Enter the value of delay time in seconds between DPD sending two keepalive messages for this IPSec VPN connection. The default is 30 seconds.
  - **Detection Timeout:** Enter the value of detection timeout in seconds. If no response and no traffic over the timeout, declare the peer dead. The default is 120 seconds.
  - **DPD Action:** Choose one of the following actions over the timeout:

    Hold: Traffic from local network to remote network can trigger the security appliance to re-initiate the IPSec VPN tunnel over the timeout. We recommend that you use **Hold** when the remote peer uses a static IP address.

Clean: Terminates the IPSec tunnel over the timeout. You must manually re-initiate the IPSec VPN tunnel . We recommend that you use **Clean** when the remote peer uses dynamic IP address.

Restart: Re-initiates the IPSec VPN tunnel for three times over the timeout.

- **Windows Network (NetBios) Broadcasting:** Click **On** to allow access remote network resources by using its NetBIOS name, for example, browsing Windows Neighborhood. NetBIOS broadcasting can resolve a NetBIOS name to a network address. This option allows NetBIOS broadcasts to travel over the VPN tunnel.
- **Access Control:** You can control the incoming traffic from a remote VPN network to the zones. Click **Permit** to permit the access, or click **Deny** to deny the access. By default, the incoming traffic from the remote network to all zones is permitted.

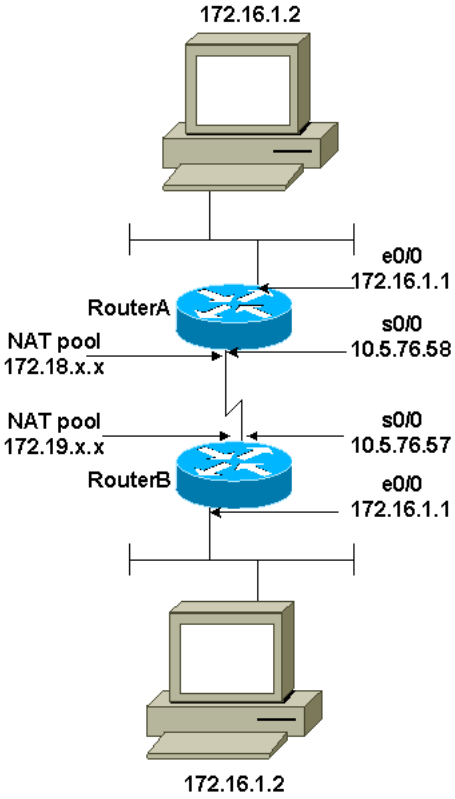
NOTE The VPN access rules that are automatically generated by the zone access control settings will be added in the firewall access rule table with the priority higher than the default firewall access rules, but lower than the custom firewall access rules.

- **Apply NAT Policies:** Click **On** to apply the NAT settings for both the local network and remote network communicating over the VPN tunnel. This option is particularly useful in cases where both sides of a tunnel use either the same or overlapping subnets.
  - **Translated Local Network:** To translate the local network, select the translated address object of the local network.
  - **Translated Remote Network:** To translate the remote network, select translated address object of the remote network.

If the IP address object is not in the list, choose **Create an IP Address** to add a new address object. To maintain the IP address objects, go to the **Networking -> Address Object Management** page. See **Address Management, page 152**.

Figure 11 shows a networking example that simulates two merging companies with the same IP addressing scheme. Two routers are connected with a VPN tunnel, and the networks behind each router are the same. For one site to access the hosts at the other site, Network Address Translation (NAT) is used on the routers to change both the source and destination addresses to different subnets.

Figure 11 Networking example that simulates two merging companies with the same IP addressing scheme



In this example, when the host 172.16.1.2 at Site A accesses the same IP-addressed host at Site B, it connects to a 172.19.1.2 address rather than to the actual 172.16.1.2 address. When the host at Site B to accesses Site A, it connects to a 172.18.1.2 address. NAT on Router A translates any 172.16.x.x address to look like the matching 172.18.x.x host entry. NAT on Router B changes 172.16.x.x to look like 172.19.x.x.

NOTE This configuration only allows the two networks to communicate. It does not allow for Internet connectivity. You need additional paths to the Internet for connectivity to locations other than the two sites; in other words, you need to add another router or firewall on each side, with multiple routes configured on the hosts.

- **IKE Policy:** Choose the IKE policy used for the IPSec VPN tunnel. If the IKE policy is not in the list, go to the **IKE Policies** page to create new IKE policies. See **Configuring the IPSec IKE Policies, page 254**.
- **Transform:** Choose the transform policy used for the IPSec VPN tunnel. If the transform policy is not in the list, go to the **Transform Policies** page to create new transform policies. See **Configuring the IPSec Transform Policies, page 256**.
- **Security Time:** Enter the lifetime of the IPSec Security Association (SA). The lifetime of the IPSec SA represents the interval after which the IPSec SA becomes invalid. The IPSec SA is renegotiated after this interval. The default is 1 hour.

STEP 5 In the **VPN Failover** tab, enter the following information:

- **WAN Failover Enable:** Click **On** to enable WAN Failover for the IPSec VPN connection, or click **Off** to disable it. If you enable WAN Failover, the backup WAN interface ensures that VPN traffic rolls over to the backup link whenever the primary link fails. The security appliance will automatically update the local WAN gateway for the VPN tunnel based on the configurations of the backup WAN link. For this purpose, Dynamic DNS has to be configured because the IP address will change due to failover, or let the remote gateway use dynamic IP address.

NOTE To enable the WAN Failover for Site-to-Site VPN, make sure that the secondary WAN interface was configured and the WAN redundancy was set as the Failover or Load Balancing mode.

- **Redundant Gateway:** Click **On** to enable Redundant Gateway, or click **Off** to disable it. If you enable Redundant Gateway, when the connection of remote gateway is down, the backup connection automatically becomes active. A backup policy comes into effect only if the primary policy fails.
  - **Select Backup Policy:** Choose a policy to act as a backup of this policy.
  - **Failback Time to Switch:** Enter the number of seconds that must pass to confirm that the primary tunnel has recovered from a failure. If the primary tunnel is up for the specified number of seconds, the security appliance will switch to the primary tunnel by disabling the backup tunnel.

NOTE The DPD should be enabled if you want to use the Redundant Gateway feature for the IPSec VPN connection.

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

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

NOTE Next Steps:

- To maintain the IKE policies, click **Site-to-Site -> IKE Policies**. See **Configuring the IPSec IKE Policies, page 254**.
- To maintain the Tranform policies, click **Site-to-Site -> Transform Policies**. See **Configuring the IPSec Transform Policies, page 256**.

Configuring the IPSec IKE Policies

The Internet Key Exchange (IKE) protocol is a negotiation protocol that includes an encryption method to protect data and ensure privacy. It is also an authentication method to verify the identity of devices that are trying to connect to your network. You can create IKE policies to define the security parameters (such as authentication of the peer, encryption algorithms, and so forth) to be used for a VPN tunnel.

NOTE The security appliance supports up to 16 IKE policies.

STEP 1 Click **VPN -> Site-to-Site -> IKE Policies**.

The IKE Policies window opens. The default and custom IKE policies are listed in the table.

STEP 2 To add a new IKE policy, click **Add**.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. The default IKE policy (**DefaultIke**) can not be edited or deleted.

After you click Add or Edit, the IKE Policy - Add/Edit window opens.

STEP 3 Enter the following information:

- **Name:** Enter an unique name for the IKE policy.
- **Encryption:** Choose the algorithm used to negotiate the security association. There are four algorithms supported by the security appliance: ESP_3DES, ESP_AES-128, ESP_AES-192, and ESP_AES-256.
- **HASH:** Specify the authentication algorithm for the VPN header. There are two HASH algorithms supported by the security appliance: SHA1 and MD5.

  NOTE Ensure that the authentication algorithm is configured identically on both sides.

- **Authentication:** Specify the authentication method that the security appliance uses to establish the identity of each IPsec peer.
  - **PRE-SHARE:** Uses a simple password based key to authenticate. The alpha-numeric key is shared with IKE peer. Pre-shared keys do not scale well with a growing network but are easier to set up in a small network.
  - **RSA-SIG:** Uses a digital certificate to authenticate. RSA-SIG is a digital certificate with keys generated by the RSA signatures algorithm. In this case, a certificate must be configured in order for the RSA-Signature to work.
- **D-H Group:** Choose the Diffie-Hellman group identifier, which the two IPsec peers use to derive a shared secret without transmitting it to eachother. The D-H Group sets the strength of the algorithm in bits. The lower the Diffie-Hellman group number, the less CPU time it requires to execute. The higher the Diffie-Hellman group number, the greater the security.
  - Group 2 (1024-bit)
  - Group 5 (1536-bit)
  - Group 14 (2048-bit)
- **Lifetime:** Enter the number of seconds for the IKE Security Association to remain valid. The default is 24 hours. As a general rule, a shorter lifetime provides more secure ISAKMP negotiations (up to a point). However, with shorter lifetimes, the security appliance sets up future IPsec SAs more quickly.

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

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

Configuring the IPSec Transform Policies

A transform policy specifies the algorithms of integrity and encrytion the peers will use to protect data communications. Two peers must use the same algorithm to communicate.

NOTE The security appliance supports up to 16 transform policies.

STEP 1 Click **VPN -> Site-to-Site -> Transform Policies**.

The Transform Policies window opens. The default and custom transform policies are listed in the table.

STEP 2 To add an IPSec transform policy, click **Add**.

Other options: To edit an entry, **Edit**. To delete an entry, click **Delete**. The default transform policy (**DefaultTrans**) can not be edited or deleted.

After you click Add or Edit, the Transform Policy - Add/Edit window opens.

STEP 3 Enter the following information:

- **Name:** Enter an unique name for the transform policy.
- **Integrity:** Choose the hash algorithm used to ensure the data integrity. It ensures that a packet comes from where it says it comes from, and that it has not been modified in transit. The default is ESP_SHA1_HMAC.
  - **ESP_SHA1_HMAC:** Authentication with SHA_1 (160-bit).
  - **ESP_MD5_HMAC:** Authentication with MD5 (128-bit). MD5 has a smaller digest and is considered to be slightly faster than SHA_1. A successful (but extremely difficult) attack against MD5 has occurred; however, the HMAC variant IKE uses prevents this attack.

- **Encryption:** Choose the symmetric encryption algorithm that protects data transmitted between two IPsec peers. The default is 168-bit Triple DES (ESP_3DES). The Advanced Encryption Standard supports key lengths of 128, 192, 256 bits.
    - **ESP_3DES:** Encryption with 3DES (168-bit).
    - **ESP_AES_128:** Encryption with AES (128-bit).
    - **ESP_AES_192:** Encryption with AES (192-bit).
    - **ESP_AES_256:** Encryption with AES (256-bit).

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

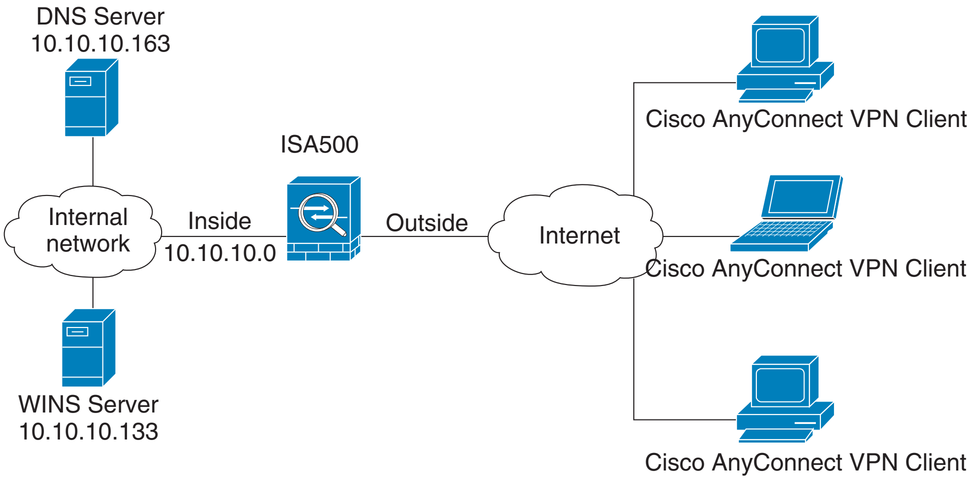
STEP 5 Click **Save** to apply your settings.

Configuring the SSL VPN

SSL VPN is a flexible and secure way to extend network resources to virtually any remote user. The security appliance supports the SSL VPN, and interoperates with the Cisco AnyConnect VPN Client software.

Figure 12 shows an example of SSL VPN. Users can remotely access the network by using the Cisco AnyConnect VPN Client software. When the VPN tunnel is established, each user will have an IP address on the internal network, such as 10.10.10.x.

Figure 12 SSL VPN for Remote Access



Use the SSL Remote Access pages to configure the SSL VPN gateway, SSL VPN group policies, and SSL VPN portal. The security appliance supports multiple concurrent SSL VPN sessions to allow remote users to access the LAN. It includes the following sections:

- **Elements of the SSL VPN, page 258**
- **Configuration Tasks to Establish a SSL VPN Tunnel, page 259**
- **Installing the Cisco AnyConnect VPN Client on User's PC, page 260**
- **Importing the Certificates for User Authentication, page 260**
- **Configuring the SSL VPN Users, page 260**
- **Configuring the SSL VPN Gateway, page 261**
- **Configuring the SSL VPN Group Policies, page 263**
- **Configuring the SSL VPN Portal, page 266**

Elements of the SSL VPN

Several elements work together to support SSL VPN.

- **SSL VPN Users:** Create your SSL VPN users. The user groups to which the SSL VPN users belong must be assigned a specific SSL VPN group policy to enable the SSL VPN service for the users. See **Configuring the SSL VPN Users, page 260**.

- **SSL VPN Group Policies:** The default SSL VPN policy ("SSLVPNDefaultPolicy") is sufficient for most purposes. As needed, you can custom new policies to meet specific business needs. See **Configuring the SSL VPN Group Policies, page 263**.
- **Cisco AnyConnect VPN Client:** The Cisco AnyConnect VPN Client is the next-generation VPN client, providing remote users with secure VPN connections to the security appliance.

Configuration Tasks to Establish a SSL VPN Tunnel

You need to complete below configuration tasks to establish a SSL VPN tunnel.

- Download and install the Cisco AnyConnect VPN Client software on remote user's PC. See **Installing the Cisco AnyConnect VPN Client on User's PC, page 260**.
- Import the SSL VPN certificate to your security appliance used for user authentication. See **Importing the Certificates for User Authentication, page 260**.
- Enable and configure the SSL VPN gateway on your security appliance. See **Configuring the SSL VPN Gateway, page 261**.
- Define the SSL VPN group policies. See **Configuring the SSL VPN Group Policies, page 263**.
- Add SSL VPN users and user groups, and then specify the SSL VPN group policy for each SSL VPN user group. See **Configuring the SSL VPN Users, page 260**.
- Launch the Cisco AnyConnect VPN Client on the user's PC, enter the gateway IP Address:gateway interface to connect the remote gateway, and then enter the user name and password to establish a SSL VPN tunnel.
- Check the status and statistic information of all SSL VPN sessions. See **Monitoring the SSL VPN Status, page 270**.

Installing the Cisco AnyConnect VPN Client on User's PC

You can set up a user's PC to run the Cisco AnyConnect VPN Client in standalone mode by installing the client software for the appropriate operating system directly on the user's PC. In standalone mode, the user starts the Cisco AnyConnect VPN Client, and needs to provide the authentication credentials.

The security appliance supports the Cisco AnyConnect VPN Client v2.x and v3.0 (SSL VPN function only). The Cisco AnyConnect VPN Client is compatible with the following platforms:

- Windows 7 32-bit (x86) and 64-bit (x64)
- Windows Vista 32-bit (x86) and 64-bit (x64), including Service Packs 1 and 2 (SP1/SP2)
- Windows XP SP2+ 32-bit (x86) and 64-bit (x64)
- Mac OS X 10.5 and 10.6.x
- Linux Intel (2.6.x kernel)

You can find the software installer on the CD. If you have a CCO account, you can access the SSL VPN portal to download the software installer from Cisco.com website. For more information about the SSL VPN portal, see **Configuring the SSL VPN Portal, page 266**.

Importing the Certificates for User Authentication

The SSL VPN gateway holds a CA certificate that is presented to the client when the client first connects to the gateway. The purpose of this certificate is to authenticate the server. For complete details about importing the certificates, see **Managing the Certificates for Authentication, page 310**.

Configuring the SSL VPN Users

The ISA550 and ISA550W supports 25 SSL VPN users. The ISA570 and ISA570W supports 50 SSL VPN users.

To configure the SSL VPN users and user groups, go to the **Users -> Users & Groups** page. You can add all SSL VPN users to one group (such as " SSL VPN User Group"). However, if you have multiple SSL VPN group policies for different SSL VPN users, you must create multiple user groups and specify different SSL

VPN group policies for them. Specifying a SSL VPN group policy for a user group can enable the SSL VPN service for all included SSL VPN users. For complete details about the users and user groups, see **Configuring the Users and Groups, page 275**

According to the user login settings specified on your security appliance, the SSL VPN users can be authenticated by the local database or external AAA server (such as Active Directory, LDAP, or RADIUS). For complete details about the user login settings, see **Configuring the Users and Groups, page 275** and **Configuring the User Authentication Settings, page 277**.

Configuring the SSL VPN Gateway

Use the SSL VPN Configuration page to enable SSL VPN and configure the SSL VPN gateway settings.

STEP 1 Click **VPN -> SSL Remote Aceess -> SSL VPN Configuration**.

The SSL VPN Configuration window opens.

STEP 2 Click **On** to enable SSL VPN, or click **Off** to disable SSL VPN. If you enable SSL VPN, the security appliance is set as the SSL VPN server.

STEP 3 In the **Gateway (Mandatory)** area, enter the following information:

- **Gateway Interface:** Choose the WAN interface that the traffic passes through over the SSL VPN tunnel.
- **Gateway Port:** Enter the port number used for the SSL VPN gateway. By default, HTTPS or SSL typically operates on port 443. However, the SSL VPN gateway should be flexible to operate on a user defined port. The SSL VPN clients need to enter the entire address pair “Gateway IP Address: Port Number” for connectting purposes.
- **Certificate File:** Choose a certificate to authenticate the users who want to access your network resource through the SSL VPN tunnel. To import the digital certificates for authentication, go to the **Device Management -> Certificate Management** page. See **Managing the Certificates, page 311**.
- **Client Address Pool:** The SSL VPN gateway has a configurable address pool with maximum size of 255 that is used to allocate IP addresses to the remote clients. Enter the IP address pool for all remote clients. The client is assigned an IP address by the SSL VPN gateway.

NOTE Configure an IP address range that does not directly overlap with any of addresses on your local network.

- **Client Netmask:** Enter the IP address of the netmask used for SSL VPN clients. The Client Address Pool is used with the Client Netmask. If they are set as follows, then the SSL VPN client will get a VPN address whose range is from 10.0.0.1 to 10.0.0.254.
  - Client Address Pool = 10.0.0.0
  - Client Netmask = 255.255.255.0
- **Client Domain:** Enter the domain name used for the SSL VPN clients.
- **Login Banner:** When the users successfully log into the SSL VPN gateway, a configurable login banner is displayed. Enter the message text to display along with the banner.

STEP 4 In the **Gateway (Optional)** area, enter the following information:

- **Idle Timeout:** Enter the timeout value in seconds that the SSL VPN session can remain idle.
- **Session Timeout:** Enter the timeout value in seconds that a SSL VPN session can remain connected.
- **Client DPD Timeout:** Dead Peer Detection (DPD) allows detection of dead peers. Enter the DPD timeout for client in this field.
- **Gateway DPD Timeout:** Enter the DPD timeout for SSL VPN gateway in this field.
- **Keep Alive:** If you want the SSL VPN server to keep sending a message at an interval, enter the value of interval in this field.
- **Lease Duration:** Enter the amount of time after which the SSL VPN client must send an IP address lease renewal request to the server.
- **Max MTU:** Enter the maximum transmission unit for the session.
- **Rekey Method:** Specify the session rekey method (**SSL** or **New Tunnel**). Rekey allows the SSL keys to be renegotiated after the session has been established.
- **Rekey Interval:** Enter the frequency of the rekey in this field.

- **SSL VPN Portal Message:** Enter the message that you want to display on the SSL VPN portal. The SSL VPN portal provides a link to download the Cisco AnyConnect VPN Client software installer from Cisco.com website. The CCO account is required to log into the website for downloading. For more information about the SSL VPN portal, see **Configuring the SSL VPN Portal, page 266**.

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

Configuring the SSL VPN Group Policies

SSL VPN users of the group can establish the SSL VPN tunnels based on the selected SSL VPN group policy to access your network resources. A SSL VPN group policy applies to a specific network resource, IP address, or IP address range on the LAN, or to other SSL VPN services that are supported by the security appliance.

NOTE The security appliance supports up to 32 SSL VPN goup policies.

STEP 1 Click **VPN -> SSL Remote Acess -> SSL VPN Group Policies**.

The SSL VPN Group Policies window opens. The default and custom SSL VPN group policies are listed in the table.

STEP 2 To add a new SSL VPN group policy, click **Add**.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. To delete multiple entries, check the boxes and then click **Delete Selection**. The default SSL VPN group policy can not be deleted.

After you click Add or Edit, the Group Policy - Add/Edit window opens.

STEP 3 In the **Basic Settings** tab, enter the following information:

- **Policy Name:** Enter the name for the SSL VPN group policy.
- **Primary DNS:** Enter the IP address of the primary DNS server.
- **Secondary DNS:** Enter the IP address of the secondary DNS server.
- **Primary WINS:** Enter the IP address of the primary WINS server.

- **Secondary WINS:** Enter the IP address of the secondary WINS server.

STEP 4 In the **IE Proxy Settings** tab, enter the following information:

The SSL VPN gateway can specify several Microsoft Internet Explorer (MSIE) proxies for client PCs. If these settings are enabled, IE on the client PC is automatically configured with these settings:

- **IE Proxy Policy:** Choose one of the following IE proxy policies:
  - **None:** Allows the browser to use no proxy settings.
  - **Auto:** Allows the browser to automatically detect the proxy settings.
  - **Bypass-Local:** Allows the browser to bypass the proxy settings that are configured on the remote user.
- **Address:** If you choose Bypass-Local, enter the IP address or domain name of the MSIE proxy server. It is configured as an IPv4 address or fully qualified domain name, followed by a colon and port number, for example xxx.xxx.xxx.xxx:80.
- **Port:** Enter the port number of the MSIE proxy server.
- **IE Proxy Exception:** If you choose Bypass-Local, enter the IP address or domain name of an exception host. This option allows the browser not to send traffic for the given hostname or IP address through the proxy.

STEP 5 In the **Split Tunneling Settings** area, enter the following information:

Split tunneling permits specific traffic to be carried outside of the SSL VPN tunnel. Traffic is either included (resolved in tunnel) or excluded (resolved through the Internet Service Provider or WAN connection). Tunnel resolution configuration is mutually exclusive. An IP address cannot be both included and excluded at the same time.

- **Enable Split Tunneling:** By default, all of traffic from the SSL VPN clients is directed through the SSL VPN tunnel. Check this box to enable split tunneling so that the tunnel is used only for the traffic that is specified by the client routes.
- **Split Include:** Choose one of the following options:
  - **Include Traffic:** Allows you to add the client routes on the SSL VPN client so that only traffic to the destination networks redirected through the SSL VPN tunnels. To add a client route, enter the destination subnet to which

a route is added on the SSL VPN client in the **Address** field and the the subnet mask for the destination network in the **Netmask** field, and then click **Add**.

- **Exclude Traffic:** Allows you to exclude the destination networks on the SSL VPN client. The traffic to the destination networks is redirected using the SSL VPN clients native network interface (resolved through the Internet Service Provider or WAN connection). To add a destination subnet, enter the destination subnet to which a route is excluded on the SSL VPN client in the **Address** field and the the subnet mask for the excluded destination in the **Netmask** field, and then click **Add**.

- **Exclude LAN:** If you choose Exclude Traffic, click **True** to deny the SSL VPN clients to access the local LANs over the VPN tunnel, or click **False** to allow the SSL VPN clients to access the local LANs over the VPN tunnel.

- **Split DNS:** Split DNS provides the ability to direct DNS packets in clear text over the Internet to domains served through an external DNS (serving your ISP) or through SSL VPN tunnel to domains served by the corporate DNS.

  For example, a query for a packet destined for corporate.com would go through the tunnel to the DNS that serves the private network, while a query for a packet destined for myfavoritesearch.com would be handled by the ISP's DNS. By default, this feature is configured on the SSL VPN gateway and is enabled on the client. To use Split DNS, you must also have Split Tunneling configured.

  To add a domain to the Cisco AnyConnect VPN Client for tunneling packets to destinations in the private network, end the domian name in the field and then click **Add**. To delete a domain, select it from the list and click **Delete**.

STEP 6 In the **Zone-based Firewall Settings** area, you can control the access from the SSL VPN clients to the zones over the SSL VPN tunnels. Click **Permit** to permit the access, or click **Deny** to deny the access. By default, the access for all zones is permitted.

NOTE The VPN access rules that are automatically generated by the zone-based firewall settings will be added to the firewall access rule table with the priority higher than the default firewall ACL rules, but lower than the custom firewall ACL rules.

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

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

Configuring the SSL VPN Portal

User can access the SSL VPN portal via web browser from WAN or LAN side to download the Cisco AnyConnect VPN Client software installer from Cisco.com website. The CCO account is required to log into the website for downloading the software installer.

For example, if the IP address of the SSL VPN gateway is 173.39.202.103, enter https://173.39.202.103/sslvpn in the address bar to open the SSL VPN portal from WAN side. Or if the IP address of the default LAN is 192.168.1.1, enter the https://192.168.1.1/sslvpn in the address bar to open the SSL VPN portal from LAN side.

STEP 1 Click **VPN -> SSL Remote Acess -> SSL VPN Portal**.

The SSL VPN Portal window opens.

STEP 2 Enter the message that you want to display on the SSL VPN portal.

STEP 3 The SSL VPN portal provides a link to download the Cisco AnyConnect VPN Client software installer from Cisco.com website. Click **Download** to open the website and enter your CCO account to login. Depending on your operating system or platform, choose the correct installer package.

Configuring the L2TP Server

Layer 2 Tunneling Protocol (L2TP) is a VPN tunneling protocol that allows remote clients to use the public IP network to securely communicate with private corporate network servers.

L2TP protocol is based on the client and server model. The security appliance can terminate the L2TP-over-IPsec connections from incoming Microsoft Windows 2000 and Windows XP clients.

STEP 1 Click **VPN -> L2TP Server**.

The L2TP Server window opens.

STEP 2 Click **On** to enable L2TP server, or click **Off** to disable it.

STEP 3 If you enable L2TP, enter the following information:

- **Listen WAN Interface:** Choose the WAN interface on which the L2TP server listens to accept the incoming L2TP VPN connection.
- **User Name:** Enter the user name that all L2TP clients use to access the L2TP server.
- **Password:** Enter the password that all L2TP clients use to access the L2TP server.

NOTE All L2TP clients use the same user name and password to log into the L2TP server.

- **MTU:** Enter the MTU size in bytes that can be sent over the network (the range from 128 to 1400 bytes). The default is 1400 bytes.
- **Authentication Method:** You can choose either CHAP or PAP, or both to authenticate to the L2TP clients. Click **On** to enable CHAP or PAP, or click **Off** to disable it.
- **Local Service IP:** Enter the IP address of the established PPP link.
- **Address Pool:** The L2TP server assigns IP addresses to L2TP clients. Enter the starting IP address in the **Start IP** field and the ending IP address in the **End IP** field.
- **DNS1 IP:** Enter the IP address of the primary DNS server.
- **DNS2 IP:** Optionally, enter the IP address of the secondary DNS server.
- **Enable over IPSec:** Click **On** to enable the data encryption over the IPSec VPN tunnel, or click **Off** to disable it.
- **Preshare Key:** The data encryption over the IPSec VPN tunnel uses a pre-shared key for authentication. If you enable Enable over IPSec, enter the desired value, which the L2TP clients must provide to establish a connection. The pre-shared key must be entered exactly the same here and on the L2TP clients.

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

Configuring the VPN Passthrough

You need to configure VPN passthrough if there are devices behind the security appliance that need to set up the VPN tunnels independently, for example, to connect to another router on the WAN.

STEP 1 Click **VPN -> Passthrough**.

The Passthrough window opens.

STEP 2 Enter the following information:

- **L2TP:** Click **On** to allow L2TP clients at LAN site to connect to a L2TP server on Internet, or click **Off** to disable it.
- **PPTP:** Click **On** to allow the hosts at LAN site to establish a tunnel with a PPTP server on Internet, click **Off** to disable it.
- **IPSec:** Click **On** to allow the IPSec traffic to pass through the security appliance over the IPSec VPN tunnel, or click **Off** to disable it. The VPN tunnel can be established by a Site-to-Site VPN session or a Cisco IPSec VPN session.

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

Viewing the VPN Status

Use the Session Status pages to view the status and statistic information for IPSec VPN and SSL VPN sessions, and manually connect or disconnect the VPN tunnels. It includes the following sections:

- **Monitoring the IPSec VPN Status, page 269**
- **Monitoring the SSL VPN Status, page 270**

Monitoring the IPSec VPN Status

The VPN Table page displays the status and statistic information for all IPSec VPN sessions.

STEP 1 Click **VPN -> Session Status -> VPN Table**.

The VPN Table window opens.

STEP 2 In the **Active Sessions** tab, all IPSec VPN sessions are listed in the table.

- **Name:** The name of the VPN policy that is used for the IPSec VPN session.
- **VPN Type:** The connection type of the IPSec VPN session, such as Site-to-Site, Cisco IPSec VPN server, or Cisco IPSec VPN client.
- **WAN Interface:** The WAN interface that is used for the IPSec VPN session.
- **Remote Gateway:** The IP address of the remote gateway for a Site-to-Site VPN session or the IP address of the remote client for a Cisco IPSec VPN session.
- **Local Network:** The subnet IP address and netmask of your local network.
- **Remote Network:** The subnet IP address and netmask of the remote network.
- **Connect:** To manually establish a VPN connection, click **Connect**.
- **Disconnect:** To terminate an active VPN connection, click **Disconnect**.

NOTE When a VPN policy is in place and enabled, a connection is triggered by any traffic that matches up with the policy and the VPN tunnel is set up automatically. However, you can use the **Connect** or **Disconnect** button to manually connect or disconnect the VPN tunnel.

STEP 3 In the **IPSec VPN Statistic** tab, you can view the statistic information for all active IPSec VPN sessions:

- **Name:** The name of the VPN policy that is used for the IPSec VPN session.
- **VPN Type:** The connection type of the IPSec VPN session, such as Site-to-Site, Cisco IPSec VPN server, or Cisco IPSec VPN client.
- **WAN Interface:** The WAN interface that is used for the IPSec VPN session.

- **Remote Gateway:** The IP address of the remote gateway for a Site-to-Site VPN session or the IP address of the remote client for a Cisco IPSec VPN session.
- **Tx Bytes:** The total volume of traffic in Kilobytes transmitted from the VPN tunnel.
- **Rx Bytes:** The total volume of traffic in Kilobytes received from the VPN tunnel.
- **Tx Pkts:** The number of IP packets transmitted from the VPN tunnel.
- **Rx Pkts:** The number of IP packets received from the VPN tunnel.

Monitoring the SSL VPN Status

The SSL VPN Monitoring page displays the status and traffic statistic information of all active SSL VPN sessions.

STEP 1 Click **VPN -> Session Status -> SSL VPN Monitoring**.

The SSL VPN Monitoring window opens.

STEP 2 In the **Active Sessions** tab, all active SSL VPN sessions are listed in the table.

- **Session ID:** The SSL VPN session ID.
- **User Name:** The name of the logged SSL VPN user.
- **Client IP (Actual):** The actual IP address used by the SSL VPN client.
- **Client IP (VPN):** The virtual IP address of the SSL VPN client assigned by the SSL VPN gateway.
- **Time Connected:** The amount of time since the user first established the connection.
- **Disconnect:** Click **Disconnect** to terminate an active SSL VPN session and hence the associated SSL VPN tunnel.
- **Disconnect All:** Click **Disconnect All** to terminate all active SSL VPN sessions and hence all associated SSL VPN tunnels.

STEP 3 In the **SSL VPN Statistics** tab, you can see the statistic information for all active SSL VPN sessions or for a single SSL VPN session.

CSTP is a Cisco proprietary protocol for SSL VPN tunneling. “In” means “from the client” and “Out” means “to the client”. The client is the PC running the Cisco AnyConnect VPN Client software that connects to the security appliance running the SSL VPN server.

A CSTP frame is a packet carrying CSTP protocol information. There are two major frame types, control frames and data frames. Control frames implement control functions within the protocol. Data frames carry the client data, such as the tunneled payload.

The following table displays the global statistic information. To clear the global statistic information, click **Clear Global**.

Active Users	The number of all connected SSL VPN users.
In CSTP frames	The number of CSTP frames received from all clients.
In CSTP bytes	The total number of bytes in the CSTP frames received from all clients.
In CSTP data	The number of CSTP data frames received from all clients.
In CSTP control	The number of CSTP control frames received from all clients.
Out CSTP frames	The number of CSTP frames sent to all clients.
Out CSTP bytes	The total number of bytes in the CSTP frames sent to all clients.
Out CSTP data	The number of CSTP data frames sent to all clients.
Out CSTP control	The number of CSTP control frames sent to all clients.

The Statistic table lists the statistic information for each SSL VPN session. The following information is displayed for a single SSL VPN session. To clear the statistic information of the SSL VPN session, click **Clear.**

Session ID	The SSL VPN session ID.
In CSTP frames	The number of CSTP frames received from the client.

In CSTP bytes	The total number of bytes in the CSTP frames received from the client.
In CSTP data	The number of CSTP data frames received from the client.
In CSTP control	The number of CSTP control frames received from the client.
Out CSTP frames	The number of CSTP frames sent to the client.
Out CSTP bytes	The total number of bytes in the CSTP frames sent to the client.
Out CSTP data	The number of CSTP data frames sent to the client.
Out CSTP control	The number of CSTP control frames sent to the client.

User Management

This chapter describes how to manage the users and user groups, and configure the user login settings when they try to access your network resources.

To access the Users pages, click **Users** in the left hand navigation pane.

About the Users and Groups

The security appliance maintains the user and user group information in the local database. The local database supports up to 100 users and 16 user groups. A user group can include up to 100 users. Any user must be a member of a user group. It includes the following sections:

Available Services for User Groups

A user can only belong to one user group. The users in the same group shares the same service policy. A user group has only one service policy. The services available for a user group include:

- **Web Login:** Allows the members of the group to log into the Configuration Utility through the web brower to view the configurations only or to set all configurations.

NOTE You cannot disable the web login service or change its web login service level for the default user group (admin).

- **SSL VPN:** Allows the members of the group at the remote site to establish the SSL VPN tunnels based on the selected SSL VPN group policy to access your network resources. The Cisco AnyConnect VPN Client must be installed on the user's PC.
- **Cisco IPSec VPN:** Allows the members of the group at the remote site to securely access your network resources over the IPSec VPN tunnels.
- **Captive Portal:** Allows the wireless users who authenticated successfully to be directed to a specified web page (portal) before they can access the Internet. This service only applies to the ISA550W and ISA570W.

NOTE The security appliance can perform the authentications in parallel when multiple services need to authenticate at the same time.

Default User and Group

The default administrator account (user name: cisco, password: cisco) is an administrative account that has fully privilege to set the configurations and read the system status. It does not belong to any user group. To prevent unauthorized access, you are forced to immediately change the default user name and password at its first login. See **Changing the User Name and Password of the Default Administrator Account at Your First Login, page 27**. The default administrator account cannot be deleted.

The default user group (admin) is a user group that has the administrative web login access ability and enables the SSL VPN, Cisco IPSec VPN, and captive portal (for ISA550W and ISA570W only) services. You cannot delete the default user group, but can modify its service policy settings.

Preempt the Administrators

If an administrator account was already logged in, when the administrator account attempts to log in again, a prompted warning message is displayed. Click **Yes** to kick off the previous login, or click **No** to retun to the login screen.

Configuring the Users and Groups

This section describes how to maintain the users and user groups in local database. It includes the following topics:

- **Configuring Local Users, page 275**
- **Configuring Local User Groups, page 276**

Configuring Local Users

The local database supports up to 100 users. You can add new accounts for specific services, such as the SSL VPN and Cisco IPSec VPN services.

STEP 1 Click **Users -> Users & Groups**.

The Users & Groups window opens. All existing local users are listed in the Local Users table.

STEP 2 In the **Local Users** area, click **Add** to add a user.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. To delete multiple entries, check the boxes of multiple entries and click **Delete Selection**.

After you click Add/Edit, the Local User - Add/Edit window opens.

STEP 3 Enter the following information:

- **User:** Enter an unique identifier that contains the letters, numbers, or underline for the user.
- **New Password:** Enter the password for the user. Passwords are case-sensitive.

NOTE **Restrictions for password:** The password should contain at least three types of these character classes: lower case letters, upper case letters, numbers, and special characters. Do not repeat any character more than three times consecutively. Do not set the password as the user name or the reversed user name. The password cannot be set as “cisco”, “ocsic”, or any variant obtained by changing the capitalization of letters.

- **New Password Confirm:** Enter the password again for confirmation.
- **Group:** Choose the user group to which the user belongs.

NOTE For SSL VPN or Cisco IPSec VPN users, you need to enable the corresponding services for the user groups to which they belongs.

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

Configuring Local User Groups

Groups are used to create a logical grouping of users that share the service policies. The local database supports up to 16 groups.

STEP 1 Click **Users -> Users & Groups**.

The Users & Groups window opens. All existing user groups are listed in the Groups table.

STEP 2 In the **Groups** area, click **Add** to add a user group.

Other options: To edit an entry, click **Edit**. To delete an entry, click **Delete**. To delete multiple entries, check the boxes of multiple entries and click **Delete Selection**.

After you click Add or Edit, the Group - Add/Edit window opens.

STEP 3 In the **Group Settings** tab, enter the following information:

- **Name:** Enter an unique name that contains the letters, numbers, or underline for the user group.
- **Services:** Specify the service policy for the user group. You can enable multiple services for the user group.
  - **Web Login:** Specify the web login policy for the group.

    Disable: All members of the group cannot log into the Configuration Utility through the web browser.

    Read Only: All members of the group can only read the system status after they login. They can not edit any configuration.

Administrator: All members of the group have full privilege to set the configurations and read the system status.

- **SSLVPN:** Choose a SSL VPN group policy so that all members of the group at the remote site can establish the SSL VPN tunnels based on the selected SSL VPN group policy to access your network resources, or choose **Disable** to disable it. For more information about the SSL VPN group policy, see **Configuring the SSL VPN Group Policies, page 263**.
- **Cisco IPSec VPN:** Click **Enable** to enable the Cisco IPSec VPN service so that all members of the group can access the your network resources over the IPSec VPN tunnels, or click **Disable** to disable it.
- **Captive Portal:** Click **Enable** to enable the Captive Portal service, or click **Disable** to disable it. If you enable Captive Portal, the wireless members of the user group who authenticated successfully will be directed to a specified web page (portal) before they can access the Internet. This service only applies to the ISA550W and ISA570W.

STEP 4 In the **Membership** tab, specify the members of the group.

- To add a member, select the member from the **User** list and click the right arrow **->**. The members of the groups appear in the **Membership** list.
- To delete a member from the user group, select the member from the **Membership** list and click the left arrow **<-**.

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

Configuring the User Authentication Settings

The security appliance provides a mechanism for user level authentication. It authenticates all users when they attempt to access your network resources in different zones. Users on the VLANs performs only local tasks, and are not required to be authenticated by the security appliance.

User level authentication can be performed by using the local database that is stored on the security appliance, an AAA server (a variety of AAA server types are supported, such as RADIUS, Lightweight Directory Access Protocol (LDAP), Active Directory (AD)), or both.

The local database on the security appliance can support up to 100 users and 16 groups. If you have more than 100 users, you need to use the AAA server for authentication.

This section includes the following topics:

Authentication Methods for User Login

The security appliance supports the following authentication methods for user login.

- **Local Database:** Allows you to use the local database for authentication if the number of users is relatively small. Only the local users in local database are allowed to access the network resources. See **Using Local Database for Authentication, page 279**.
- **RADIUS:** Allows you to use the RADIUS server for authentication if you have more than 100 users. See **Using RADIUS Server for Authentication, page 279**.
- **RADIUS + Local Database:** Allows you to use both the RADIUS server and local database for authentication. See **Using Local Database and RADIUS Server for Authentication, page 282**.
- **LDAP:** Allows you to use the LDAP for authentication if you use an AAA server such as LDAP and AD to maintain the user and user group information. See **Using LDAP for Authentication, page 283**.
- **LDAP + Local Database:** Allows you to use both the LDAP and local database for authentication. See **Using Local Database and LDAP for Authentication, page 286**.

Using Local Database for Authentication

Use the local database to authenticate the users when the number of users accessing the network is less than 100 users. When you use the local database for authentication, the local database verifies the user name and password information of the users who try to access the network. Only the valid local users are allowed to access the network.

STEP 1 Click **Users -> Settings**.

The User Settings window opens.

STEP 2 In the **User Login Settings** area, choose **Local Database** as the authentication method from the **Authentication Method** drop-down list.

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

Using RADIUS Server for Authentication

Use the RADIUS server to authenticate the users when more than 100 users need to access the network. The security appliance uses the Framed-Filter-ID attribute to store the user and group information in the RADIUS server, and checks a user's credentials by using the Password Authentication Protocol (PAP) authentication scheme.

If you use RADIUS for user authentication, users must log into the security appliance using HTTPS in order to encrypt the password. The security appliance verifies the user name and password information of the users through the RADIUS server. The RADIUS server returns the authentication result to the security appliance. For a valid RADIUS user, the security appliance checks its user group service policy from the local database and permits the access. For a invalid RADIUS user, the security appliance denies the access.

NOTE The user group service policies can only be configured locally. All user groups on an AAA server need to be duplicated locally.

STEP 1 Click **Users -> Settings**.

The User Settings window opens.

STEP 2 In the **User Login Settings** area, choose **RADIUS** as the authentication method from the **Authentication Method** drop-down list.

STEP 3 Click **Configure** to configure the RADIUS settings.

The RADIUS Settings window opens.

STEP 4 In the **Settings** tab, choose the RADIUS group for authentication and configure the global timeout and retry settings.

- **Global RADIUS Settings:** Specify the global timeout and retry settings for the selected RADIUS servers:
  - **RADIUS Server Timeout:** Enter the number of seconds that the connection can exist before re-authentication is required. The default value is 10 seconds.
  - **Retries:** Enter the number of retries for the device to re-authenticate with the RADIUS server. If the RADIUS server does not respond within the specified number of retries, the connection is dropped. The default value is 3.
- **RADIUS Servers:** Choose the RADIUS group index from the drop-down list. The RADIUS server settings of the selected group are disaplayed. You can edit these settings here but the settings you specify will replace the default settings of the selected group. To maintain the RADIUS settings, go to the **Device Management -> RADIUS Settings** page. See **Configuring the RADIUS Servers, page 319**.

STEP 5 In the **RADIUS Users** tab, enter the following informaiton:

- **Allow Only Users Listed Locally:** Click **On** to permit only the RADIUS users also be present in the local database for login, or click **Off** to disable it.
- **Mechanism for Setting User Group Membership for RADIUS Users:** Select one of the following mechanisms to configure the user group memberships for RADIUS users:
  - **Use RADIUS Filter-ID:** Find the group information by using the Framed-Filter-ID attribute from the RADIUS server.

    For example, the RADIUS server has three user groups (Group1, Group2, and Group3) and the local database has two user groups (Group1, and Group2). The following table displays the user group membership settings.

Local Database Settings	**RADIUS Server Settings**		
	User1 in Group1	User1 in Group2	User1 in Group3
User1 in Group1	Group1	Group2	Default Group
User1 in Group2	Group1	Group2	Default Group
User1 does not exist	Group1	Group2	Default Group

In the above table, if the User1 in the RADIUS server belongs to the Group1 and the User1 in the local database belongs to the Group2, then the User1 belongs to the Group1 after passed the RADIUS authentication. If the User1 in the RADIUS server belongs to the Group3, but the local database has not the Group3, then the User1 is set to the specified default group.

- **Local Configuration Only:** Find the user group membership information from the local database only.

For example, the RADIUS server has three user groups (Group1, Group2, and Group3) and the local database has two user groups (Group1, and Group2). The following table displays the user group membership settings.

Local Database Settings	**RADIUS Server Settings**		
	User1 in Group1	User1 in Group2	User1 in Group3
User1 in Group1	Group1	Group1	Group1
User1 in Group2	Group2	Group2	Group2
User1 does not exist	Default Group	Default Group	Default Group

In the above table, if the User1 in the RADIUS server belongs to the Group1 and the User1 in the local database belongs to the Group2, then the User1 belongs to the Group2 after passed the RADIUS authentication. If the User1 doex not exist in the local database, it is set to the specified default group.

- **Defualt User Group to Which all RADIUS Users Belong:** If the group of a RADIUS user does not exist in the local database, you can set the RADIUS user to a specific local user group. Choose a local user group as the default local group to which the RADIUS user belongs.

STEP 6 In the **Test** tab, enter the user and password credentials in the **User** and **Password** fields to test the configured RADIUS settings. Click the **Test** button to verify whether the RADIUS user is valid

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

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

Using Local Database and RADIUS Server for Authentication

You can use both the local database and RADIUS server to authenticate the users who try to access the network.

When you use both the local database and RADIUS server for authentication, the security appliance first verifies the user name and password information of the users through the RADIUS server. The RADIUS server returns the authentication result to the security appliance. For a valid RADIUS user, the security appliance checks its user group service policy from the local database and allows the user to access the network. For an invalid RADIUS user, then the security appliance uses the local database to verify the user. For a valid local user, the security appliance checks its user group service policy from the local database and allows the user to access the network. For an invalid local user, the security appliance denies the user to access the network.

STEP 1 Click **Users -> Settings**.

The User Settings window opens.

STEP 2 In the **User Login Settings** area, choose **RADIUS + Local Database** as the authentication method from the **Authentication Method** drop-down list .

STEP 3 Click **Configure** to configure the RADIUS settings for user authentication.

The RADIUS Settings window opens. To configure the RADIUS server settings for user authentication, see **Using RADIUS Server for Authentication, page 279**.

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

Using LDAP for Authentication

The security appliance can use the LDAP directory for user authentication, with support for three schemes including Microsoft Active Directory, RFC2798 InterOrgPerson, and RFC2307 Network Information Service.

STEP 1 Click **Users -> Settings**.

The User Settings window opens.

STEP 2 In the **User Login Settings** area, choose **LDAP** as the authentication method from the **Authentication Method** drop-down list.

STEP 3 Click **Configure** to configure the LDAP settings.

The LADP Settings window opens.

STEP 4 In the **Settings** tab, enter the following information:

- **IP Address:** Enter the IP address of the LDAP server that you use for authentication.
- **Port Number:** Enter the number of the listening port used on the LDAP server. Enter a value from 1 to 65535. The default is 389.
- **Server Timeout:** Enter the amount of time in seconds that the security appliance will wait for a response from the LDAP server before timing out.
- **Login Method:** Choose one of the following login methods:
  - **Annonymous Login:** Choose this option if the LDAP server allows for the user tree to be accessed anonymously.
  - **Give Login Name or Location in Tree:** Choose this option to build the distinguished name of the user that is used to bind to the LDAP server from the **Primary Domain** and **User Tree for Login to Server** fields in the **Directory** tab.
  - **Give Bind Distinguished Name:** Choose this option if the destination name is known. You must provide the destination name explicitly to be used to bind to the LDAP server.
- **Login User Name:** If you choose **Give Login Name or Location in Tree** or **Give Bind Distinguished Name** as the login method, enter the user name of the account that can log into the LDAP directory.

- **Login Password:** If you choose **Give Login Name or Location in Tree** or **Give Bind Distinguished Name** as the login method, enter the password of the account that can log into the LDAP server.
- **Protocol Version:** Choose either LDAP Version 2 or LDAP Version 3. Most LDAP directories, including Active Directory, use LDAP Version 3.

STEP 5 In the **Schema** tab, enter the following information:

- **LDAP Schema:** Choose one of the following schemes:
  - Microsoft Active Directory
  - RFC2798 InetOrgPerson
  - RFC2307 Network Information Service
- **User Objects:** The selected predefined scheme will automatically populate below fields with their correct values. The fields that are grayed out cannot be edited, but you can manually specify some editable fields if you have specific or proprietary LDAP scheme configurations.
  - **Object Class:** The object class of the individual user account.
  - **Login Name Attribute:** The user name that is used for login authentication.
  - **Qualified Login Name Attribute:** The attribute that sets an alternative login name for the user in name@domain format.
  - **User Group Membership Attribute:** The membership attribute that contains information about the group to which the user object belongs. This option is only available for Microsoft Active Directory.
  - **Framed IP Address Attribute:** The attribute to retrieve a static IP address that is assigned to a user in the directory.
- **User Group Objects:** The selected predefined scheme will automatically populate below fields with their correct values.
  - **Object Class:** The name associated with the group of attributes.
  - **Member Attribute:** The attribute associated with a member.

STEP 6 In the **Directory** tab, enter the user direction information in the following fields:

- **Primary Domain:** Enter the user domain used by your LDAP implementation. The domain components all use “dc=”, the domain is formatted as “dc=ExampleCorporation,dc=com”.

- **User Tree for Login to Server:** If you choose **Give Login Name or Location in Tree** as the login method in the **Setting** tab, specify the user tree that is used to log into the LDAP server.
- **Trees Containing Users:** Specify the trees that contain the users commonly reside in the LDAP directory. To add an entry, click **Add**. To edit an entry, click **Edit**. To delete an entry, click **Remove**. To modify the location of an entry in the tree, click **Move Up** or **Move Down** buttons.
- **Trees Containing User Groups:** Specify the trees that contain the user groups commonly reside in the LDAP directory. These are only applicable when there is no user group membership attribute in the scheme's user object, and are not used with AD. To add an entry, click **Add**. To edit an entry, click **Edit**. To delete an entry, click **Remove**. To modify the location of an entry in the tree, click **Move Up** or **Move Down** buttons.

NOTE All the above trees are given in the format of disginguished names ("cn=users, dc=ExampleCorporation,dc=com").

STEP 7 In the **LDAP Users** tab, enter the following information:

- **Allow Only Users Listed Locally:** Click **On** to allow only the LDAP users also be present in the local database to login, or click **Off** to disable it.
- **Default LDAP User Group:** Choose a local user group as the default group to which the LDAP users belong. If the group of a LDAP user does not exist in the local database, the LDAP user is set to the specified default local group.

STEP 8 In the **Test** tab, enter the user and password credentials in the **User** and **Password** fields to test the configured LDAP settings. Click **Test** to verify whether the LDAP user is valid.

STEP 9 Click **OK** to save your settings.

STEP 10 Click **Save** to apply your settings.

Using Local Database and LDAP for Authentication

You can use both the local database and LDAP to authenticate the users who try to access to the network.

STEP 1 Click **Users -> Settings**.

The User Settings window opens.

STEP 2 In the **User Login Settings** area, choose **LDAP + Local Database** as the authentication method from the **Authentication Method** drop-down list.

STEP 3 Click **Configure** to configure the LDAP settings for user authentication.

The LDAP Settings window opens. For more information to configure the LDAP settings, see **Using LDAP for Authentication, page 283**.

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

Configuring the User Session Settings

The user session settings are used for the web login service, and are applicable for all authentication methods.

STEP 1 Click **Users -> Settings**.

The User Settings window opens.

STEP 2 In the **User Session Settings** area, enter the following information:

- **Inactivity Timeout:** Enter the time in minutes that the user can be logged out after a predefined inactivity time. The default value is 5 minutes.
- **Login Session Limit for Web Logins:** Click **On** to limit the time that the user is logged into your security appliance through the web browser, or click **Off** to disable it. If you enable this feature, enter the time in minutes in the **Login Session Limit** field. The default value is 10 minutes.

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

Viewing Active User Sessions

Use the Active Sessions page to view the status for all active user sessions, and manually terminate the active user sessions.

STEP 1 Click **Users -> Active Sessions**.

The Active Sessions window opens. All active user sessions are listed in the table. You can view the following user session information:

- **User Name:** The name of the logged user.
- **Address Information:** The host IP address from which the user accessed the security appliance.
- **Login Method:** How the user logs into the security appliance, such as web login, SSL VPN, or Cisco IPSec VPN.
- **Session Duration:** How long the user logged into the security appliance.

STEP 2 To terminate an active user session, click **Logout**.

10

Device Management

This chapter describes how to maintain the configurations and firmwares, manage the security license and digital certificates, and configure other features to help maintain the security appliance.

To access the Device Management pages, click **Device Management** in the left hand navigation pane.

Remote Management

You can access the Configuration Utility from the LAN side by using the security appliance's LAN IP address and HTTP, or from the WAN side by using the security appliance's WAN IP address and HTTPS (HTTP over SSL) or HTTP.

Use the Remote Management page to configure the remote management settings so that you can access the Configuration Utility from a remote WAN network. The security appliance allows remote management securely by using HTTPS or HTTP, i.e. https://xxx.xxx.xxx.xxx:8080.

IMPORTANT: When you enable the remote management, the security appliance is accessible to anyone who knows its IP address. Since a malicious WAN user can reconfigure the security appliance and misuse it in many ways, we highly recommend that you change the user name and password of the default administrator account (cisco) before continuing.

STEP 1 Click **Device Management -> Remote Management**.

The Remote Management window opens.

STEP 2 Enter the following information:

- **Remote Management:** Click **On** to enable remote management by using HTTPS, or click **Off** to disable it. We recommend that you use HTTPS for securely remote management.
- **HTTPS Listen Port Number:** If you enable remote management by using HTTPS, enter the port number to be listened on. By default, the listened port for HTTPs is 8080.
- **HTTP Enable:** Click **On** box to enable remote management by using HTTP, or click **Off** to disable it.
- **HTTP Listen Port Number:** If you enable remote management by using HTTP, enter the port number to be listened on. By default, the listened port for HTTP is 80.
- **Access Type:** Choose the level of permission for remote management:

- **All IP Addresses:** Any IP address from a remote WAN network can access the Configuration Utility.
- **Single Address:** Only the specified remote host can access the Configuration Utility. Enter the IP address of the remote host in the **IP Address** field.
- **Network Range:** Only the hosts in the specified remote network can access the Configuration Utility. Enter the starting IP address in the **From** field and the ending IP address in the **To** field.

- **Remote SNMP:** Click **On** to enable SNMP for the remote connection, or click **Off** to disable SNMP. Enabling SNMP allows remote users to use SNMP to manage the device from WAN side.

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

Administration

Use the Administration page to modify the user name and password of the default adminstrator account, and configure the user session settings. It includes the following topics:

- Changing the User Name and Password for the Default Administrator Account, page 290
- Configuring the User Session Settings, page 291

Changing the User Name and Password for the Default Administrator Account

To prevent unauthorized access, you are forced to immediately change the default user name and password of the default administrator account at its first login. This page provides another approach to modify its user name and password, but not for the first login.

STEP 1 Click **Device Management -> Administration**.

The Administration window opens.

STEP 2 In the **Administrator name & password** area, enter the following information:

- **User Name:** Enter a new user name that contains the letters, numbers, or underline for the default administrator account.
- **Current Password:** Enter the current password for the default administrator account. The default password is cicso.
- **New Password:** Enter a new password for the default administrator account. Passwords are case-sensitive.

NOTE **Restrictions for password:** The password should contain at least three types of these character classes: lower case letters, upper case letters, numbers, and special characters. Do not repeat any character more than three times consecutively. Do not set the password as the user name or the reversed user name. The password cannot be set as “cisco”, “ocsic”, or any variant obtained by changing the capitalization of letters.

- **Confirm New Password:** Enter the new password again for confirmation.

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

Configuring the User Session Settings

The user session settings are used for the web login service, and are applicable for all authentication methods.

STEP 1 Click **Device Management -> Administration**.

The Administration window opens.

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

- **Inactivity Timeout:** Enter the time in minutes that the user can be inactive before the session is disconnected. out after a predefined inactivity time. The default value is 5 minutes.
- **Enable Login Session Limit for Web Logins:** Click **On** to limit the time that the user is logged into your security appliance through the web browser. If you enable this feature, enter the time in minutes in the **Login session limit** field. The default value is 10 minutes.

- **Web Server SSL Certificate:** Choose the certificate to authenticate the users who try to access the Configuration Utility through the web browser by using HTTPS. By default, the web authentication server uses the default certificate for authentication. If you choose an imported certificate for authentication, the web authentication server restarts to load the selected certificate.

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

SNMP

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

STEP 1 Click **Device Management -> SNMP**.

The SNMP window opens.

STEP 2 Click **On** to enable SNMP, or click **Off** to disable SNMP. By default, SNMP is disabled.

STEP 3 If you enable SNMP, specify the SNMP version. By default, SNMP V1&V2 is selected.

- **SNMP V1&V2:** SNMP version 1 (SNMPv1) is the initial implementation of the SNMP protocol. SNMPv1 is widely used and is the network management protocol in the Internet community. SNMP version 2 (SNMPv2), revises version 1 and includes improvements in the areas of performance, security, confidentiality, and manager-to-manager communications.
- **SNMP V3:** SNMPv3 is defined by RFC 3411–RFC 3418. SNMPv3 primarily adds security and remote configuration enhancements to SNMP. SNMPv3 provides important security features:
  - **Confidentiality:** Encryption of packets to prevent snooping by an unauthorized source.
  - **Integrity:** Message integrity to ensure that a packet has not been tampered with in transit.

- **Authentication:** Verifies that the message is from a valid source.

STEP 4 After you enable SNMP and select the SNMP version, enter the following information:

- **System Contact:** Enter the name of the contact person for your security appliance.
- **Device:** Enter the device name for easy identification of your security appliance.
- **System Location:** Enter the physical location of your security appliance.
- **Security User Name:** 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 charactors). This is only available for SNMPV3.
- **Encrypted Password:** Enter the password for data encryption (the minimum length of password is 8 charactors). This is only available for SNMPV3.
- **SNMP Engine ID:** Displays the engine ID of the SNMP entity. The engine ID is used as an unique identification between two SNMP entities. This is only available for SNMPV3.

STEP 5 To enable the SNMP Trap, enter the following information:

- **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 host name of the host trusted by the SNMP entity. The trusted host can access the SNMP entity. Entering 0.0.0.0 in this filed allows any host to access the SNMP entity.
- **Trap Receiver Host:** Enter the IP address or the host name of the remote host that is used to receive the SNMP traps.

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

Configuration Management

You can perform the following tasks to maintain the configurations:

- Save the current settings used on your security appliance. See **Saving your Current Configurations, page 294**.
- Restore your settings from a saved configuration file. See **Restoring your Settings from a Saved Configuration File, page 295**.
- Revert to the factory default settings. See **Reverting to the Factory Default Settings, page 296**.

Saving your Current Configurations

You can save your current settings as a configuration file on the local PC or on a USB device if applicable.

NOTE When saving the configurations to a file, the security license and self-certificates will not be saved in the file.

STEP 1 Click **Device Management -> Firmware and Configuration -> Configuration**.

The Configuration window opens.

STEP 2 To save the current settings on your local PC, perform the following steps:

a. In **Backup/Restore Settings** area, click **Backup** after the **Save A Copy of Current Settings** option. The Encryption window opens.

b. You can optionally encrypt the configurations for security purposes. If you do not encrypt the configurations, click **OK**.

c. If you want to encrypt the configurations, check the **Encrypt** box and enter the password in the **Key** field, and then click **OK**.

d. Locate where to save the configuration file, and then click **Save**.

STEP 3 To backup the current settings on a USB device, perform the following steps:

a. Insert the USB device into the USB interface on the back panel of your security appliance. The USB device is automatically mounted once you insert it.

b. In the **USB -> Mount/Unmount** area, make sure that the USB Driver Status shows as “UP” when you use the USB device to manage the configurations.

c. In the **USB -> Backup/Restore Settings** area, click **Backup** after the **Save A Copy of Current Settings** option. The Encryption window opens.

d. You can optionally encrypt the configurations for security purposes. If you do not encrypt the configurations, click **OK**.

e. If you want to encrypt the configurations, check the **Encrypt** box and enter the password in the **Key** field, and then click **OK**.

f. After you click OK, your current settings are saved as a configuration file on the root folder of the USB device.

Restoring your Settings from a Saved Configuration File

You can restore the settings from a saved configuration file on your local PC or on a USB device if applicable.

STEP 1 Click **Device Management -> Firmware and Configuration -> Configuration**.

The Configuration window opens.

STEP 2 To restore the settings from a saved configuration file on your local PC, perform the following steps:

a. In **Backup/Restore Settings -> Restore Saved Settings From File** area, click **Browse** to select a saved configuration file from your local PC, and then click **Restore**.

b. If the selected configurantion file is encrpted, the Encryption window opens. Enter the password in the **Key** field, and then click **OK**.

c. The security appliance automatically reboots with the saved settings of the selected configuration file.

STEP 3 To restore the settings from a saved configuration file on a USB device, perform the following steps:

a. Insert the USB device into the USB interface on the back panel of your security appliance. The USB device is automatically mounted once you insert it.

b. In the **USB -> Mount/Unmount** area, make sure that the USB Driver Status shows as “UP” when you use the USB device to manage the configurations.

c. In the **USB -> Select the upgrade file from your dard dick** area, all saved configuration files located on the USB device appears in the list. Select a configuration file, and then click **Restore**.

d. If the configurantion file is encrpted, the Encryption window opens. Enter the password in the **Key** field, and then click **OK**.

e. The security appliance automatically reboots with the saved settings of the selected configuration file.

Reverting to the Factory Default Settings

To revert your security appliance to the factory default settings, you can press and hold the RESET button on the back panel for minimal three seconds, or use the Revert to Factory Default Settings feature.

⚠ **CAUTION** The Revert To Factory Default Settings operation will wipe out the current settings used on your security appliance (including the imported certificates). We recommmend that you save the current settings before reverting to the factory default settings.

STEP 1 Click **Device Management -> Firmware and Configuration -> Configuration**.

The Configuration window opens.

STEP 2 In the **Backup/Restore Settings -> Revert To Factory Default Settings** area, click **Default**.

STEP 3 The security appliance automatically reboots with the factory default settings.

Firmware Management

You can perform the following tasks to maintain the firmwares.

- View the firmware status. See **Viewing the Firmware Information, page 297**.
- Check periodically for new firmwares. See **Checking for New Firmwares, page 298**.
- Upgrade the firmware. See **Upgrading the Firmware, page 299**.
- Switch to the secondary firmware through the Configuration Utility. See **Using the Secondary Firmware, page 300**.
- Auto fall back to the secondary firmware. See **Firmware Auto Fall Back Mechanism, page 301**
- Use the Rescue mode to recover the system. See **Using the Rescue Mode to Recover the System, page 302**
- Reboot the security appliance. See **Rebooting the Security Appliance, page 302**.

CAUTION During a firmware upgrade, do NOT try to go online, turn off the device, shut down the PC, remove the cable, or interrupt the process in anyway until the operation is complete. This process should take several minutes or so 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 security appliance unusable.

Viewing the Firmware Information

STEP 1 Click **Device Management -> Firmware and Configuration -> Firmware**.

The Firmware window opens.

STEP 2 The **Network -> Status** area, the following firmare information is displayed:

- **Primary Firmware Version:** The version of the primary firmware that you are using.

- **Secondary Firmware Version:** The version of the secondary firmware that you used previously.
- **Link to Release Note:** Click the link to find the release notes for all available firmwares.
- **Time At Which Last Query was made:** The time at which last query for the new firmware was made.
- **Latest Image Available:** The latest version of the available firmware on the IDA server after your query. This option will not display anything if the firmware currently used on your security appliance is the lastest one.

STEP 3 If a newer version than your current one is available, you can perform one of the following actions:

- To upgrade the firmware and keep using the current settings, click **Upgrade**. When the operation is complete, the security appliance automatically reboots with the previous settings that were in use.
- To upgrade the firmware and revert to the factory default settings, click **Upgrade & Factory Reset**. When the operation is complete, the security appliance automatically reboots with the factory default settings.

Checking for New Firmwares

The security appliance uses a built-in IDA client to query and upgrade the firmware. The IDA client connects to Cisco's IDA sever through the Internet. This feature requires an active WAN connection.

STEP 1 Click **Device Management -> Firmware and Configuration -> Firmware**.

The Firmware window opens.

STEP 2 In the **Network -> Check For New Firmware & Download** area, enter the following information to check new firmware from the IDA server periodically.

- **Check Periodically:** Check this box to automatically check for new firmwares on a weekly basis.
- **User Name:** Displays the user name of your registered CCO account to log into the IDA server for downloading the new firmware. To configure the CCO account, go to the **Device Management -> CCO Account** page. See **Configuring the CCO Account, page 331**.

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

STEP 4 Click **Check Now** to immediately check whether new firmware is available on the IDA server.

If a new firmware is available, the version of the new firmware is displayed in the **Latest Image Available** area.

Upgrading the Firmware

You can manually upgrade the firmware from your local PC or a USB device.

STEP 1 Click **Device Management -> Firmware and Configuration -> Firmware**.

The Firmware window opens.

STEP 2 To manually upgrade the firmware from your local PC, perform the following steps:

a. In the **Network -> Firmware Upgrade** area, click **Browse** to locate and select the firmware image from your local PC.

b. To upgrade the firmware and keep using the current settings, click **Upgrade**. When the operation is complete, the security appliance automatically reboots with the previous settings that were in use.

c. To upgrade the firmware and revert to the factory default settings, click **Upgrade & Factory Reset**. When the operation is complete, the security appliance automatically reboots with the factory default settings.

STEP 3 To upgrade the firmware through a USB device, perform the following steps:

a. Insert the USB device with the firmware files into the USB interface on the back panel of your security appliance. The USB device is automatically mounted after you inserted it.

b. In the **USB -> Mount/Unmount** area, check the mounting status of the USB device. Make sure that the USB Driver Status shows as “UP” when you use the USB device to manage the firmware.

c. In the **USB -> Backup/Restore Settings** area, all firmware images located on the USB device appears in the list.

- To upgrade the firmware and keep using the current settings, select a firmware image from the list and then click **Upgrade**. When the operation is complete, the security appliance automatically reboots with the previous settings you used.
- To upgrade the firmware and revert to the factory default settings, select a firmware image from the list and then click **Upgrade & Factory Reset**. When the operation is complete, the security appliance automatically reboots with the factory default settings.

NOTE Wait while the firmware is upgrading.

1. Do NOT close the browser window.

2. Do NOT go online.

3. Do NOT turn off or power-cycle the security appliance.

4. Do NOT shutdown the computer.

5. Do NOT remove the cable.

Using the Secondary Firmware

If the primary firmware is not stable, you can manually set the secondary firmware that was in use as the primary firmware. The original primary firmware will then become the secondary firmware. After you switch to the secondary firmware, the security appliance reboots with the saved settings. At this time, we recommend that you revert your security appliance to the factory default settings.

CAUTION Do not try to swap the firmware if the secondary firmware is not present. Doing so can cause the security appliance to not boot up.

STEP 1 Click **Device Management -> Firmware and Configuration -> Firmware**.

The Firmware window opens.

STEP 2 In the **Swap Image** area, click **Switch** to switch the secondary firmware to the primary firmware.

After you switch to the secondary firmware, the security appliance automatically reboots with the saved settings.

Firmware Auto Fall Back Mechanism

The security appliance includes two firmware images in the same NAND flash to provide an Auto Fall Back mechanism so that the security appliance can automatically switch to the secondary firmware when the primary firmware occurs a CRC (Cyclic Redundancy Check) Error or cannot boot up successfully for five times.

The Auto Fall Back mechanism operates as follows:

1. When the security appliance tries to boot up with the primary firmware, the Bootloader checks the CRC of the primary firmware.
2. If the primary firmware occurs a CRC Error or a Boot Failure, the Bootloader will switch to the secondary firmware and check the CRC for the secondary firmware.
   - **CRC Error:** An error that the firmware cannot pass the CRC validation. Downloading an incomplete firmware or incompletely writing the firmware to the flash may cause the CRC error.
   - **Boot Failure:** A failure that the firmware cannot boot up successfully for five times. Booting up successfully means that the system boots to the login shell.
3. If the secondary firmware occurs a CRC Error or a Boot Failure, the Rescue mode starts up. In the Rescue mode, the security appliance works as a TFTP server. You can use a TFTP client to upload a firmware image to upgrade. The IP address of the TFTP server is 192.168.1.1. For more information about the Rescue mode, see **Using the Rescue Mode to Recover the System, page 302**.

Using the Rescue Mode to Recover the System

When the system booting problem or device error occurs, or the system has a problem, the POWER/SYS LED lights amber color. Follow these procedures to start up the Rescue mode directly and then recover the system.

STEP 1 Press and hold the RESET button on the back panel of your security appliance for minimal three seconds and turn on the power switch simutaneously, the Rescue mode starts up.

STEP 2 In the Rescue mode, the security appliance works as a TFTP server. You can use a TFTP client to upload the firmware image to upgrade. The IP address of the TFTP server is 192.168.1.1.

STEP 3 The security appliance will upgrade the firmware after you uploaded the image. This process should take several minutes or so including the reboot process. During firmware upgrade, do NOT try to go online, turn off the device, shut down the PC, interrupt the process, or remove the cable in anyway until the operation is complete.

When the POWER/SYS lights green color, the system operates normally.

Rebooting the Security Appliance

STEP 1 Click **Device Management -> Firmware and Configuration -> Firmware**.

The Firmware window opens.

STEP 2 In the **Reboot** area, click **Reboot** to reboot the security appliance.

Log Management

The security appliance maintains the event logs for tracking potential security threats. Use the Loggings pages to view the event logs, configure the log settings and log facilities. It includes the following sections:

- **Configuring the Log Settings, page 303**
- **Configuring the Log Facilities, page 305**

- **Viewing the Logs, page 306**

Configuring the Log Settings

STEP 1 Click **Device Management -> Loggings -> Log Settings**.

The Log Settings window opens.

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

- **Log:** Click **On** to enable the Log feature, or click **Off** to disable it.
- **Log Buffer Size:** If you enable the Log feature, specify the size of the local log buffer. The default value is 409600 bytes.

STEP 3 In the **System Logs** area, specify the types of system events to be logged.

- **All Unicast Traffic:** Click **On** to log all unicast packets directed to the security appliance. By default, all unicast packets are not logged.
- **All Broadcast/Multicast Traffic:** Click **On** to log all broadcast or multicast packets directed to the security appliance. By default, all broadcast or multicast packets are not logged.

STEP 4 In the **Email Alert** area, specify the syslogs to be sent on schedule.

- **Email Alert:** Shows if the Syslog Email is enabled or disabled.
- **From Email Address:** The email address of the SMTP email account to send the logs.
- **Send to Email Address:** The email address of the SMTP email account to receive the logs.
- **SMTP Server:** The IP address or Internet name of the SMTP server.
- **SMTP Authentication:** Shows if the SMTP authentication is enabled or disabled.

NOTE The above email account settings for Syslog Email are read only. To enable the Syslog Email feature and configure the email account settings, click the link or go to the **Device Management -> Email Alert Settings** page. See **Configuring the Email Alert Settings, page 316**.

- **Mail Subtitle:** Enter the subtitle that is displayed in the email. For example, if you set the device name as the subtitle, the receiver of the alert email can recognize quickly what device the logs or alerts are coming from.
- **Severity:** Choose the severity level of the syslogs that you want to send.

Severity Levels	Description
Emergency (level 0, highest severity)	System unusable. Syslog definition is LOG_EMERG.
Alert (level 1)	Immediate action needed. Syslog definition is LOG_ALERT.
Critical (level 2)	Critical conditions. Syslog definition is LOG_CRIT.
Error (level 3)	Error conditions. Syslog definition is LOG_ERR.
Warning (level 4)	Warning conditions. Syslog definition is LOG_WARNING.
Notification (level 5)	Normal but significant conditions. Syslog definition is LOG_NOTICE.
Information (level 6)	Informational messages only. Syslog definition is LOG_INFO.
Debug (level 7, lowest severity)	Debugging messages. Syslog definition is LOG_DEBUG.

For example: If you select Critical, all log messages listed under the Critical, Emergency, and Alert categories are sent.

- **Send Email Logs on Schedule:** Specify the schedule to send the syslogs.
  - **Unit:** Choose the period of time that you want to send the syslogs.

    Hourly: Sends the syslogs on an hourly basis.

    Daily: Sends the syslogs at specific time of every day. If you choose this option, specify the time to send the syslogs in the **Time** field.

    Weekly: Sends the syslogs on a weekly basis. If you choose this option, specify the day of the week in the **Day** field and the time in the **Time** field.
  - **Day:** If syslogs are sent on a weekly basis, choose the day of the week
  - **Time:** Choose the time of day when syslogs should be sent.

STEP 5 In the **Remote Logs** area, specify the logs to be saved to a remote syslog server.

- **Remote Logs:** Click **On** to save the syslogs to the specified remote syslog server, or click **Off** to disable it.
- **Syslog Server:** Enter the IP address of the remote syslog server that runs a syslog daemon.
- **Severity:** Choose the severity level of the logs that you want to save to the remote syslog server.

  For example: If you select Critical, the log messages listed under the Critical, Emergency, and Alert categories are saved to the remote syslog server.

STEP 6 In the **Local Log** area, specify the logs to be saved to the local syslog daemon.

- **Severity:** Choose the severity level of the logs that you want to save to the local syslog daemon.

  For example: If you select Critical, all log messages listed under the Critical, Emergency, and Alert categories are saved to the local syslog daemon.

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

Configuring the Log Facilities

A variety of events can be captured and logged for review. These logs can be saved to the local syslog daemon or to a specified remote syslog server, or be emailed to a specified email address.

To save the logs that are generated by the log facilities, you first need to enable the Log feature, set the log buffer size, and specify the Email Alert, Remote Log, and Local Log settings.

STEP 1 Click **Device Management -> Loggings -> Logs Facility**.

The Log Facility window opens. The supported log facilities are listed in the table.

STEP 2 Specify the actions for the logs generated by the log facilities:

- **Email Alert:** Check the box at the left side of the Email Alert heading to enable the email alert setting for all log facilities, or check the box for a log facility to enable the email alert settings for the selected log facility.

If you enable this feature, the logs that belong to the selected facilities and match up with the specified severity level for Email Alert can be sent to the specified email address.

- **Remote Log:** Check the box at the left side of the Remote Log heading to enable the remote log settings for all log facilities, or check the box of a log facility to enable the remote log settings for the selected log facility.

  If you enable this feature, the logs that belong to the selected facilities and match up with the specified severity level for Remote Log can be saved to the specified remote syslog server.

- **Local Log:** Check the box at the left side of the Local Log heading to enable the local log settings for all log facilities, or check the box of a log facility to enable the local log settings for the selected log facility.

  If you enable this feature, the logs that belong to the selected facilities and match up with the specified severity level for Local Log can be saved to the local syslog daemon.

NOTE For more information about the Email Alert, Remote Log, and Local Log settings, see **Configuring the Log Settings, page 303**.

NOTE The logs that belong to the unselected log facilities, or the logs that belong to the selected log facilities but cannot match up with the specified severity settings will be dropped.

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

Viewing the Logs

Use the View Logs page to view the syslogs for the specified severity level, the log facility, or the source and destination IP address.

STEP 1 Click **Device Management -> Loggings -> View Logs**.

The View Logs window opens.

STEP 2 Specify the logs to be viewed:

- **Log Severity:** Choose the log severity level to filter the logs.

  For example: If you select Critical, all logs listed under the Critical, Emergency, and Alert categories can be viewed.

- **Log Facility:** Choose the log facility to filter the logs. All logs that belong to the selected facility and match up with the specified severity settings can be viewed.

- **Source IP:** Enter the source IP address to filter the logs. All logs that match up with this source IP address can be viewed.

- **Destination IP:** Enter the destination IP address to filter the logs. All logs that match up with this destination IP address can be viewed.

STEP 3 Click **Query**.

STEP 4 The query outputs are displayed in the Logs table. The logs can be sorted by clicking the cellheading in the table. By default, the logs are sorted by the time.

For example, if you click **Severity**, the logs are sorted by the severity level in ascending sequence. Double click **Severity**, the logs are sorted by the severity level in descending sequence.

STEP 5 You can specify how many logs are displayed in the table per page. If one page cannot show all logs, use the navigation buttons to switch among the pages.

STEP 6 Click the **>>** button and then click **Clear All Local Logs** to clean up all logs saved in the local syslog daemon.

Managing the Security License

Use the License Management page to manage the security license. The security license is valid for one year or three years depending on the bundle type. The security services that provide protection against worms, attacks, and malware are activated by the security license. It includes the following sections:

- **Checking the License Status, page 308**
- **Renewing the Security License, page 309**

Checking the License Status

STEP 1 Click **Device Management -> License Manaagement**.

The License Management window opens. The following information of the security license is displayed.

- **Feature:** The security license name.
- **Status:** The security license status. The security license cannot be transferred or revoked once it is licensed.
- **Seats Available:** The number of SSL VPN users supported by the security license. The ISA550 and ISA550W supports 25 SSL VPN users. The ISA570 and ISA570W supports 50 SSL VPN users.
- **Expiration:** The date on which the security license expires, in MM/DD/YYYY format. For example: 12/31/2012.

STEP 2 To check the device credential information, click **Device Credentials**.

The Device Credentials window opens. The device credential information is requested by Cisco sales or support for licensing purpose.

STEP 3 Click **Email Alert Settings**, the Email Alert Settings window opens.

You can see the following settings of the License Expiration Alert. We recommend that you enable the License Expiration Alert feature so that the system can send an alert email to remind the user to renew the security license before it expires.

- **Email Alert:** Shows if the License Expiration Alert feature is enabled or disabled.
- **From Email Address:** The email address to send the compressed file.
- **Send to Email Address:** The email address to receive the compressed file.
- **SMTP Server:** The IP address of the SMTP server.
- **SMTP Authentication:** Shows if the SMTP authentication is enabled or disabled. If you enable SMTP authentication, the user name and password are required to login the SMTP server.
- **Alert When it is:** The number of days before the license expires to send the alert message.

NOTE To send the alert email for license expiration events, you first need to enable the License Expiration Alert feature and configure the email account settings in the **Email Alert Setting** page. Click the link or go to the **Device Management -> Email Alert Settings** page to do this. See **Configuring the Email Alert Settings, page 316**.

Renewing the Security License

Perform the following steps to renew the security license before it expires.

STEP 1 Contact your Cisco reseller to purchase a new license.

STEP 2 Launch the the Configuration Utility and login, go to the **Device Management -> License Manaagement** page.

STEP 3 Click **Renew**.

The Install License window opens.

STEP 4 The license can be a license code (PAK) or a license file downloaded from cisco.com. Choose the license type from the **License Type** drop-down list:

- **License Code (PAK) from cisco.com:** Automatically retrieves and installs the license on the security appliance from the Cisco server. If you choose this option, enter the following credential information. These credentials are required to authenticate to the Cisco server.
  - **License Code:** Enter the license code (PAK).
  - **Cisco.com Login:** Enter the user name of your CCO account to log into Cisco.com.
  - **Cisco.com Password:** Enter the password of your CCO account to log into Cisco.com.
  - **Email Address:** Enter the registered email address to receive the PAK.
- **License File Download from cisco.com:** Installs the security license that was previously downloaded to your PC. If you choose this option, click **Browse** to locate and select the license file from your PC.

NOTE Make sure that the security appliance is set to the current time, or the license will not install properly.

STEP 5 After you finish entering the information in the required fields, click **Validate License**.

After the license is renewed, the expiration date of the security license is updated immediately.

Managing the Certificates for Authentication

Use the Certificate Management page to manage the certificates for authentication. It includes the following sections:

- **Viewing the Certificate Status, page 310**
- **Managing the Certificates, page 311**

Viewing the Certificate Status

STEP 1 Click **Device Management -> Certificate Management**.

The Certificate Management window opens. All existing certificates are listed in the table. The following certificate information is displayed:

- **Certificate:** The certificate name.
- **Type:** The certificate type. The security appliance supports three types of certificates: Certificate Signing Request (CSR), Local Certificate, and CA Certificate.
    - **Certificate Signing Request (CSR):** A certificate request generated by your security appliance that needs to be sent to the Certificate Authority (CA) for signing. CSR contains all the information required to create your digital certificate.

- **Local Certificate:** The local certificate is issued by a trusted CA, and is involved in the applications like remote management and SSL VPN. To use a local certificate, you must first request a certificate from the CA and then import the certificate on your security appliance.
- **CA Certificate:** The CA certificate is issed by intermediate CAs, such as GoDaddy or VeriSign. The CA certificate is used to verify the validity of certificates generated and signed by the CA.

STEP 2 Click the **Detail** button to view the detailed certificate information.

Certificate Types	Details
CA Certificate or Local Certificate	▪ **Name:** Name used to identify this certificate. ▪ **Issuer:** Name of the CA that issued the certificate. ▪ **Subject:** Name which other organizations will see as the holder (owner) of this certificate. ▪ **Serial Number:** Serial number maintained by the CA and used for identification purposes. ▪ **Valid From:** Date from which the certificate is valid. ▪ **Expires On:** Date on which the certificate expires. It is advisable to renew the certificate before it expires.
Certification Signing Request (CSR)	▪ **Name:** Name used to identify this CSR. ▪ **Subject:** Name which other organizations will see as the holder (owner) of this certificate.

Managing the Certificates

Perform the following tasks to manage different types of certificates:

- To export a local certificate or a CSR to your PC, check the box and click **Download**. See **Exporting the Certificates to Local PC, page 312**.

- To export a local certificate or a CSR to a mounted USB device, check the box and click **Export to USB**. See **Exporting the Certificates to a USB Device, page 313**.
- To import a CA certificate or a local certificate from your PC, click **Import**. See **Importing the Certificates from Your Local PC, page 313**.
- To import a CA certificate or a local certificate from a mounted USB device, click **Import from USB**. See **Importing the Certificates from a Mounted USB Device, page 314**.
- To import a signed certificate for a CSR from your PC, click **Upload**. See **Importing the Signed Certificate for CSR from Your Local PC, page 314**.
- To generate a CSR, click **New Signing Request**. See **Generating New Certificate Signing Requests, page 315**.
- To delete a certificate or a CSR, check the box and click **Delete**.
- To delete multiple entries, check the boxes of multiple entires and click **Delete Selection**.

Exporting the Certificates to Local PC

You can export a local certificate or a CSR to your local PC. The CA certificate is not allowed to export.

STEP 1 Click **Device Management -> Certificate Management**.

The Certificate Management window opens.

STEP 2 To export a local certificate or a CSR to your local PC, click **Download**.

- If you are downloading a CSR, the Download Certificate Signing Request window opens. Click **Download**, the certificate file will be saved in .PEM format.
- If you are downloading a local certificate, the Download Certificate window opens. Enter the certificate management password in the **Enter Export Password** field, and then click **Download**. The certificate file will be saved in .p12 format.

Exporting the Certificates to a USB Device

To export a local certificate or a CSR to a USB device, you first need to insert the USB device into the USB interface on the back panel of your security appliance. The USB device is automatically mounted once you insert it. The CA certificate is not allowed to export.

STEP 1 Click **Device Management -> Certificate Management**.

The Certificate window opens.

STEP 2 To export a local certificate or a CSR to the USB device, click **Export to USB**.

- If you are downloading a CSR, the Export Certificate Signing Request to USB window opens. Click **Export**. The CSR file will be saved on the mounted USB device in .PEM format.
- If you are downloading a local certificate, the Export Certificate to USB window opens. Enter a password in the **Enter Export Password** field to protect the certificate file and then click **Export**. The certificate file will be saved on the mounted USB device in .p12 format.

Importing the Certificates from Your Local PC

You can import a local or CA certificate from your local PC.

STEP 1 Click **Device Management -> Certificate Management**.

The Certificate window opens.

STEP 2 To import a local or CA certificate from your local PC, click **Import**.

The Import Certificates window opens.

STEP 3 Enter the following information:

- **Import a local end-user certificate with private key from a PKCS#12 (.p12) encoded file:** If you choose this option, enter the certificate name in the **Certificate Name** field and the protection password in the **Import Password** field, click **Browse** to locate and select a local certificate file from your local PC, and then click **Import**.

- **Import a CA certificate from a PEM (.pem or .crt) encoded file:** If you choose this option, click **Browse** to locate and select a CA certificate file from your local PC, and then click **Import**.

Importing the Certificates from a Mounted USB Device

To import local or CA certificates from a USB device, you first need to insert the USB device into the USB interface on the back panel of your security appliance. The USB device is automatically mounted once you insert it.

STEP 1 Click **Device Management -> Certificate Management.**

The Certificate window opens.

STEP 2 To import a local or CA certificate from the USB device, click **Import from USB**.

The Import Certificates window opens. All available local certificates and CA certificates appear in the list.

STEP 3 Check the box of the certificate file, enter the certificate name in the **Certificate Name** field and the protection password in the **Import Password** field, and then click **Import**.

Importing the Signed Certificate for CSR from Your Local PC

You can upload a signed certificate for a CSR from your local PC.

STEP 1 Click **Device Management -> Certificate Management.**

The Certificate window opens.

STEP 2 To import a signed certificate for CSR from your local PC, click **Upload**.

The Upload Certificate window opens.

STEP 3 Click **Browse** to locate and select the signed certificate file for the CSR from your local PC, and then click **Upload**.

NOTE The signed certificate file should be PEM(.pem or .crt) encoded.

Generating New Certificate Signing Requests

STEP 1 Click **Device Management -> Certificate Management**.

The Certificate Management window opens.

STEP 2 Click **New Signing Request** to generate a new certificate signing request.

The Generate Certificate Signing Request window opens.

STEP 3 Enter the following information:

- **Certificate Alias:** Enter an alias name for the certificate.
- **Country Name:** Choose the country from the drop-down list.
- **State or Province Name:** Enter the state or province name of your location.
- **Locality Name:** Enter the address of your location.
- **Organization Name:** Enter your organization name.
- **Organization Unit Name:** Enter your department name.
- **Common Name:** Enter the common name for the certificate.
- **E-mail Address:** Enter your email address.
- **Subject Distinguished Name:** After you enter the above information, the Distinguished Name (DN) is created in this field.
- **Subject Key Type:** Displays the signature algorithm (RSA) used to sign the certificate. RSA is a public key cryptographic algorithm used for encrypting data.
- **Subject Key Size:** Choose the length of the signature: 502 bits, 1024 bits, or 2048 bits.

STEP 4 Click **Generate** to create a certificate signing request file.

After you generate a certificate signing request file, you need to export the CSR file to your local PC for submission to a Registration or CA. The CSR file will be saved in .PEM format. You can change the file name that you download as needed.

Configuring the Email Alert Settings

Use the Email Alert Settings page to centrally configure how to send the alert messages to the operator or administrator for specific events or behaviors that may impact the performance, operation, and security of your security appliance, or for debugging purposes.

STEP 1 Click **Device Management -> Email Alert Settings**.

The Email Alert Settings window opens.

STEP 2 Enter the following information:

- **SMTP Server:** Enter the IP address or Internet name of the SMTP server.
- **SMTP Authentication:** If the SMTP server requires authentication before accepting the connections, click **On** to enable SMTP authentication. Users need to provide the SMTP account information for authentication.
- **Account:** Enter the user name of the SMTP email account.
- **Password:** Enter the password of the SMTP email account.
- **From Email Address:** Enter the email address to send the alert messages.
- **To Email Address:** Enter the email address to receive the alert messages. This email address is used to receive all alert emails for all categories. If you want the alert emails for different categories to be sent to different email accounts, uncheck the box of **Use this address for all alert**, and then separately specify the email address to receive the alert messages for each category in the **To Email Address** column.
- **Category:** The security appliance sends the alert messages if events or behaviors for the specific category are detected. To enable the email alert settings for a category, check the **Enable** box and then configure the corresponding settings.

Alert Category	Description	Configurations
WAN UP/ DOWN Alert	Sends an alert email if the WAN interface link is UP or DOWN.	**To Email Address:** Enter the email address to receive the alert messages. **Alert Interval:** Specify how often in minutes the security appliance sends the alert messages for WAN down or up events.
IPSec Alert	Sends an alert email if the IPSec VPN tunnel negotiation fails.	**To Email Address:** Enter the email address to receive the alert messages.
IPS Alert	Sends an alert email if an attack is detected over the specified email alert threshold for IPS categories or IM and P2P applications. You first need to enable the IPS service and specify the email alert thresholds for the IM and P2P Blocking feature and/or the IPS Policy and Protocol Inspection feature. See **Intrusion Prevention Service, page 214**.	**To Email Address:** Enter the email address to receive the alert messages.
Firmware Upgrade Alert	Sends an alert email if a new firmware is found after automatically checking the firmware.	**To Email Address:** Enter the email address to receive the alert messages.

Alert Category	Description	Configurations
License Expiration Alert	Sends an alert email at x days before the security license expires. x is configurable.	**To Email Address:** Enter the email address to receive the alert messages. **Alert When it is:** Enter the number of days before the license expires to send the alert message.
CPU Overload Alert	Sends an alert email if the CPU utilization is higher than the threshold.	**To Email Address:** Enter the email address to receive the alert messages. **CPU Threshold Setting:** Enter the threshold value of CPU utilization.
Debug Support	Sends the debug support package (*.zip) that is generated by the System Diagnostics settings for debugging purposes. To specify the contents to be compressed in a file in the zip format, see **System Diagnostics, page 327**.	**To Email Address:** Enter the email address to receive the alert messages.
Anti-Virus Alert	Sends an alert email if virus is detected. You first need to enable the Anti-Virus service and specify the protocols to scan for viruses. For more information, see **Anti-Virus, page 220**.	**To Email Address:** Enter the email address to receive the alert messages. **Alert Interval:** Specify how often, in minutes, the security appliance sends the alert messages for virus events.

Alert Category	Description	Configurations
Syslog Email	Send the syslog messages on schedule to the specified email receiver. To specify the syslogs to be sent, see **Configuring the Log Settings, page 303**.	**To Email Address:** Enter the email address to receive the alert messages.

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

Configuring the RADIUS Servers

Use the RADIUS Servers page to configure the RADIUS servers that are used to authenticate the users who try to access your network resources. A RADIUS group includes a primary RADIUS server and a backup RADIUS server. The security appliance predefines three RADIUS groups.

STEP 1 Click **Device Management -> RADIUS Servers**.

The RADIUS Servers window opens. All predefined RADIUS groups are listed in the table.

STEP 2 To edit the settings of the predefined RADIUS group, click **Edit** in the **Configuration** column.

After you click Edit, the RADIUS Group - Edit window opens.

STEP 3 Enter the following information:

- **Primay RADIUS Server IP:** Enter the IP address of the primary RADIUS server.
- **Primay RADIUS Server Port:** Enter the port number on the primary RADIUS server that is used to send the RADIUS traffic. The default is 1812.
- **Primay RADIUS Server Pre-shared Key:** Enter the pre-shared key that is configured on the primary RADIUS server.

- **Secondary RADIUS Server IP:** Enter the IP address of the secondary RADIUS server.
- **Secondary RADIUS Server Port:** Enter the port number on the secondary RADIUS server that is used to send the RADIUS traffic. The default is 1812.
- **Secondary RADIUS Server Pre-shared Key:** Enter the pre-shared key that is configured on the secondary RADIUS server.

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

STEP 5 Repeat the above steps to edit the settings for other RADIUS groups if needed.

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

Configuring the Time Zone

Use the Time Zone / Clock Settings page to manually configure the time zone and clock settings, or to dynamically synchronize the time zone and clock settings with the Network Time Protocol (NTP) server.

STEP 1 Click **Device Management -> TimeZone / Clock Settings**.

The Time Zone and Clock Settings window opens.

STEP 2 Click **Manual** to manually set the date and time. Enter the values in the **Date** and **Time** fields.

STEP 3 Click **Dynamic** to automatically synchronize the date and time with the NTP server:

- **Date/Time:** Choose the time zone relative to Greenwich Mean Time (GMT).
- **Automatically Adjust for Daylight Savings Time:** Click **On** to automatically adjust the time for Daylight Savings Time, or click **Off** to disable it.
- **Use Default NTP Servers:** Click this option to use the default Network Time Protocol (NTP) server.

- **Use Custom NTP Servers:** Click this option to use a custom NTP server. Enter the IP addresses or domain names of up to two custom NTP servers in the **Server 1 Name/IP Address** and **Server 2 Name/IP Address** fields. The Server 1 is the primary NTP server and the Server 2 is the secondary NTP server.
- **Current Time:** The current date and time sychronized with the configured NTP server.

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

Device Discovery

The security appliance supports the following tools to discover the devices:

- **UPnP, page 321**
- **Bonjour, page 322**
- **CDP, page 323**
- **LLDP, page 324**

UPnP

UPnP (Universal Plug and Play) allows for automatic discovery of devices that can communicate with your security appliance. The UPnP Portmap table displays the port mapping entries of the UPnP-enabled devices that accessed your security appliance.

STEP 1 Click **Device Management -> Discovery -> UPnP**.

The UPnP window opens.

STEP 2 Enter the following information:

- **UPnP:** Click **On** to enable UPnP, or click **Off** to disable UPnP. If UPnP is disabled, the security appliance will not allow for automatic device configuration.
- **LAN:** Choose an existing VLAN to which the UPnP information is broadcasted and listened on.

- **Advertisement Period:** Enter the value in seconds of how often the security appliance broadcasts its UPnP information to all devices within range. The default value is 1800 seconds.
- **Advertisement Time to Live:** Enter the value expressed in hops for each UPnP packet. This is the number of steps a packet is allowed to propagate before being discarded. Small values will limit the UPnP broadcast range. The default value is 4.

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

STEP 4 After you enable UPnP, the information in the UPnP Portmap table will be refreshed immediately. Or click **Refresh** to manually refresh the UPnP records in the table.

Bonjour

Bonjour is a service advertisement and discovery protocol. Bonjour only advertises the default services configured on the security appliance when Bonjour is enabled.

STEP 1 Click **Device Management -> Discovery -> Bonjour**.

The Bonjour window opens.

STEP 2 In the **Bonjour Configuration** area, click **On** to enable Bonjour, or click **Off** to disable it. If you enable Bonjour, all default services are enabled.

STEP 3 In the **Enabled Default Service** area, the default enabled services are displayed. The default services include CSCO-SB, HTTP, and HTTPS.

STEP 4 In the **VLAN Association** area, you can associate the VLANs for the default services. The default services will only be visible to the hosts that belong to the associated VLANs.

- Choose a VLAN from the **Available VLANs** drop-down list and then click **Apply**. The VLANs associated to the default services are listed in the table.
- To dissociate the VLANs from the default services, check the boxes next to the appropriate VLANs and click **Delete**.
- Click **Reset** to revert to the default settings.

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

CDP

Cisco Discovery Protocol (CDP) is a device discovery protocol that runs on all Cisco manufactured equipment. Each CDP enabled device sends periodic messages to a multicast address and also listens to the periodic messages sent by others in order to learn about neighboring devices and determine the status of these devices. Use the CDP page to configure the settings to control CDP.

NOTE Enabling CDP is not recommended on the dedicated WAN port and the configurable ports because they are connected to insecure networks.

STEP 1 Click **Device Management -> Discovery -> CDP**.

The CDP window opens.

STEP 2 In the **CDP Configuration** area, enter the following information:

- **CDP:** Choose one of the following options:
  - **Enable All:** Enables CDP on all ports supported by the security appliance.
  - **Disable All:** Disables CDP on all ports supported by the security appliance.
  - **Per Port:** Configures CDP on selective ports.
- **CDP Timer:** Enter the value of the time interval between two successive CDP packets sent by the security appliance.
- **CDP Hold Timer:** The hold timer is the amount of time the information sent in the CDP packet should be cached by the device which receives the CDP packet, after which the information is expires.

STEP 3 In the **Enable CDP** area, click **On** to enable CDP on each interface, or click **Off** to disable CDP. This is required if you choose **Per Port** from the **CDP** drop-down list.

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

LLDP

The Link Layer Discovery Protocol (LLDP) enables network managers to troubleshoot and enhance network management by discovering and maintaining network topologies over multi-vendor environments. LLDP discovers network neighbors by standardizing methods for network devices to advertise themselves to other systems, and to store discovered information.

LLDP enables a device to advertise its identification, configuration, and capabilities to neighboring devices that store the data in a Management Information Base (MIB). The network management system models the topology of the network by querying these MIB databases.

STEP 1 Click **Device Management -> Discovery -> LLDP**.

The LLDP window opens.

STEP 2 Click **On** to enable LLDP, or click **Off** to disable it. If you enable LLDP, the LLDP neighbors are listed in the LLDP Neighbor table.

STEP 3 To view the detail of a LLDP neighbor, check the box and click **Details**.

STEP 4 To refresh the information in the LLDP Neighbor table, click **Refresh**.

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

Diagnosing the Device

Use the Diagnostics pages to access the configurations of the security appliance and to monitor the overall network health. The following tools are supported to diagnose your network.

- **Ping, page 325**
- **Tracert, page 325**
- **DNS Lookup, page 326**
- **Packet Capture, page 326**
- **System Diagnostics, page 327**

NOTE These features require an active WAN connection.

Ping

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

STEP 1 Click **Device Management -> Diagnostics -> Ping**.

The Ping window opens.

STEP 2 Enter the following information:

- **IP or URL Address:** Enter the IP address or URL to ping.
- **Packet Size:** Enter the packet size in the range of 32 to 65500 bytes to ping. The security appliance will send the packet with the specified size to the destination.
- **Ping Time:** Enter the times to ping. The security appliance will send the packet for specific times to check the connectivity with the destination IP address.

STEP 3 Click **Start Ping** to ping the IP address or the URL, or click **Stop Ping** to stop pinging.

Tracert

Use the Tracert page to view the route between the security appliance and a destination.

STEP 1 Click **Device Management -> Diagnostics -> Tracert**.

The Tracert window opens.

STEP 2 Enter the following inforamtion:

- **IP or URL Address:** Enter the IP address or URL of the destination.
- **Max Hops:** Choose the maximum hop number.

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

DNS Lookup

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

STEP 1 Click **Device Management -> Diagnostics -> DNS Lookup**.

The DNS Lookup window opens.

STEP 2 Enter the IP address or domain name that you want to look up in the **IP Address or Domain Name** field.

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

STEP 4 Click **Cleanup Result** to clean up the querying result.

Packet Capture

Use the Packet Capture page to capture all packets that pass through a selected interface.

STEP 1 Click **Device Management -> Diagnostics -> Packet Capture**.

The Packet Capture window opens.

STEP 2 Choose the network that you want to capture the packets from the **Select Network** drop-down list.

STEP 3 Click **Start** to start capturing the packets, click **Stop** to stop capturing, or click **Download** to download the captured packets.

System Diagnostics

Use the Collect Diagnostics page to compress the contents like configuration files, syslog files, and system status data into one file in the zip format, and send the compressed file to the specified email account for system diagnosis. You can set a password to protect the compressed file for security purposes.

STEP 1 Click **Device Management -> Diagnostics -> Collect Diagnostics**.

The Collect Diagnostics window opens.

STEP 2 In the **Content** area, choose the contents that you want to use for diagnosing the system. The selected files are compressed into one file in the zip format.

- **Configuration File:** Click **On** to compress the configuration files for system diagnosis.
- **Syslog File:** Click **On** to compress the syslog files for system diagnosis.
- **System Status:** Click **On** to compress the system status data for system diagnosis.

STEP 3 In the **Password Protection** area, you can set a password to secure the compressed file.

- **Password Protection:** Click **On** to enable password protection, or click **Off** to disable it.
- **Password:** If you enable the password protection, enter the password in this field.

STEP 4 In the **Email** area, the email account settings for sending the compressed file are displayed.

- **Email Alert:** Shows if the Debug Support Alert feature is enabled or disabled.
- **From Email Address:** The email address to send the compressed file.
- **Send to Email Address:** The email address to receive the compressed file.
- **SMTP Server:** The IP address of the SMTP server.
- **SMTP Authentication:** Shows if the SMTP authentication is enabled or disabled. If you enable SMTP authentication, the user name and password are required to log into the SMTP server.

NOTE To send the compressed file for system diagnosis, you first need to enable the Debug Support Alert feature and configure the email account settings in the **Email Alert Setting** page. Click the link or go to the **Device Management -> Email Alert Settings** page to do this. See **Configuring the Email Alert Settings, page 316**.

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

STEP 6 Click **Send Now** to send the compressed file to the specified email address immediately.

Measuring and Limiting Traffic with the Traffic Meter

Traffic Meter allows you to measure and limit the traffic routed by the security appliance. You can enable the traffic meter settings for both primary WAN and secondary WAN (if applicable).

STEP 1 Click **Device Management -> Traffic Meter -> Primary WAN Settings**.

The Primary WAN Settings window opens.

NOTE To configure the traffic meter settings for the secondary WAN if applicable, click **Device Management -> Traffic Meter -> Secondary WAN Settings**.

STEP 2 In the **Enable Traffic Meter** area, enter the following information:

- **Enable Traffic Metering:** Click **On** to enable the traffic metering on the primary WAN port, or click **Off** to disable it. Enabling this feature on the primary port will keep a record of the volume of traffic going from this interface.
- **Traffic Limit Type:** Specify the restriction on the volume of data being transferred through the primary WAN port.
  - **No Limit:** The default option, where no limits on data transfer are imposed.

  - **Download Only:** Limits the amount of download traffic. Enter the maximum allowed data in Megabytes that can be downloaded for a given month in the **Monthly Limit** field. Once the limit is reached, no traffic is allowed from the WAN side.
  - **Both Directions:** Calculates the traffic for both upload and download directions. The traffic limit entered into the **Monthly Limit** field is shared by both upload and download traffic. For example, for a 1 GB limit, if a 700 MB file is downloaded then the remaining 300 MB must be shared between both upload and download traffic. The amount of traffic downloaded will reduce the amount of traffic that can be uploaded and vice-versa.
- **Monthly Limit:** Enter the volume limit that is applicable for this month. This limit will apply to the type of direction (Download Only or Both Direction) selected above.
- **Increase this month limit by:** Click **On** to temporarily increase the limit if the monthly traffic limit has been reached, or click **Off** to disable it. If you enable this feature, enter the amount of the increase in this field.
- **This Month Limit:** The data transfer limit applicable for this month that is the sum of the values in the **Monthly Limit** field and the **Increase this month limit by** field.

STEP 3 In the **Traffic Counter** area, enter the following information:

- **Traffic Counter:** Specify the action to be taken on the traffic counter.
  - **Restart Now:** Choose this option and then click **Save** to reset the counter immediately.
  - **Specific Time:** Choose this option if you want the counter to restart at a specified date and time, then enter the time in hours (HH) and minutes (MM) and select the day of the month in the **Reset Time** field.
- **Send email report before restarting counter:** Click **On** to send an email report before the traffic counter is reset, or click **Off** to disable it. This feature requires that you enable the Email Alert feature in the Log Settings page. See **Log Management, page 302**.

STEP 4 In the **When Limit is Reached** area, specify the action when the traffic limit is reached.

- **Traffic Block Status:** Choose one of the following options:
  - **Block All Traffic:** Blocks all traffic through the WAN interface when the traffic limit is reached.

- **Block All Traffic Except Email:** Blocks all traffic except email through the WAN interface when the traffic limit is reached.

- **Send email alert:** Click **On** to send an alert email to the specific email account when the traffic limit is reached, or click **Off** to disable it. This feature requires that you enable the Email Alert feature in the Log Settings page. See **Log Management, page 302**.

STEP 5 In the **Internet Traffic Statistics** area, the following information is displayed if you enable the traffic metering:

Start Date/Time	The date on which the traffic meter was started or the last time when the traffic counter was reset.
Outgoing Traffic Volume	The volume of traffic in Megabytes that was uploaded through this interface.
Incoming Traffic Volume	The volume of traffic in Megabytes that was downloaded through this interface.
Average per day	The average volume of traffic that passed through this interface.
% of Standard Limit	The amount of traffic in percent that passed through this interface against the monthly limit.
% of this Month's Limit	The amount of traffic in percent that passed through this interface against this month's limit (if the month's limit has been increased).

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

Configuring the ViewMaster

ViewMaster is a network monitoring and management protocol. If you enable ViewMaster, the devices accept the HTTP or HTTPS connections with the Local Management Agent that is embodied in the security appliance.

STEP 1 Click **Device Management -> ViewMaster**.

The ViewMaster window opens.

STEP 2 Click **On** to enable ViewMaster, or click **Off** to disable it. By default, ViewMaster is enabled.

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

Configuring the CCO Account

Use the CCO Account page to configure your registered CCO account. The CCO account is used to log into Cisco.com for specific services. For example, if you want to download the IPS signatures or automatically update the IPS signatures, you are required to provide the CCO account information.

To register a CCO account on the Cisco.com, go to https:// tools.cisco.com/RPF/register/register.do.

STEP 1 Click **Device Management -> CCO Account**.

The CCO Account window opens.

STEP 2 Enter the following information:

- **User Name:** Enter the name of your registered CCO account.
- **Current Password:** Enter the current password of your registered CCO account.
- **New Password:** Enter a new password for the CCO account.
- **Confirm New Password:** Enter the new password again for confirmation.

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

Configuring the Device Properties

Use the Device Properties page to configure the host name and domain name to identify your security appliance on the network.

STEP 1 Click **Device Management -> Device Properties**.

The Device Properties window opens.

STEP 2 Enter the following information:

- **Host Name:** Enter the host name of your security appliance, which is displayed on the network to identify your device.
- **Domain Name:** Enter an unique domain name to identify your network.

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

Configuring the Debug Settings

Use the Debug Setting page to enable the SSH version 2 server for debugging purposes.

STEP 1 Click **Device Management -> Debug Setting**.

The Debug Setting window opens.

STEP 2 Click **On** to enable the SSH version 2 server for debugging, or click **Off** to disable it.

This feature allows the engineers to use an unique console root password to log into the security appliance for debugging operation. The root password expires in 24 hours, so you need to ask for a new password once it expires.

STEP 3 To set the root password for remote support, enter the password in the **Remote Support Password** field.

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

A

Troubleshooting

This chapter describes how to fix some common issues when you are using the security appliance. It includes the following sections:

Internet Connection

Symptom: You cannot access the Configuration Utility from a PC on your LAN.

Recommended Actions:

STEP 1 Check the Ethernet connection between the PC and the security appliance.

STEP 2 Ensure that the IP address of your PC is on the same subnet as the security appliance. If you are using the recommended addressing scheme, your PC's address should be in the range 192.168.1.100 to 192.168.1.200.

STEP 3 Check the IP address of your PC. If the PC cannot reach a DHCP server, some versions of Windows and MacOS generate and assign an IP address. These auto-generated addresses are in the range of 169.254.x.x. If your IP address is in this range, check the connection from the PC to the security appliance and reboot your PC.

STEP 4 If your IP address has changed and you don't know what it is, reset the security appliance to the factory default settings.

If you do not want to reset to factory default settings and lose your configuration, reboot the security appliance and use a packet sniffer (such as Ethereal™) to capture packets sent during the reboot. Look at the ARP packets to locate the LAN interface address.

STEP 5 Launch your web browser and ensure that Java, JavaScript, or ActiveX is enabled. If you are using Internet Explorer, click **Refresh** to ensure that the Java applet is loaded. Close the browser and launch it again.

STEP 6 Ensure that you are using the correct login information. The factory default login name is cisco and the password is cisco. Ensure that CAPS LOCK is off when entering this information.

Symptom: The security appliance does not save my configuration changes.

Recommended Actions:

STEP 1 When entering configuration settings, click **OK** or **Save** before moving to another page or tab; otherwise your changes are lost.

STEP 2 Click **Refresh** or **Reload** in the browser, which will clear a cached copy of the old configuration.

Symptom: The security appliance cannot access the Internet.

Possible Cause: If you use dynamic IP addresses, your security appliance is not requesting an IP address from the ISP.

Recommended Actions:

STEP 1 Launch your browser and determine if you can connect to an external site such as www.cisco.com.

STEP 2 Launch the Configuration Utility.

STEP 3 Click **Status -> Dashboard** in the left hand navigation pane.

STEP 4 In the **WAN Interface** area, find the **WAN1 Address**. If 0.0.0.0 is shown, your security appliance has not obtained an IP address from your ISP. See the next symptom.

Symptom: The security appliance cannot obtain an IP address from the ISP.

Recommended Actions:

STEP 1 Turn off power to the cable or DSL modem.

STEP 2 Turn off the security appliance.

STEP 3 Wait 5 minutes, and then reapply power to the cable or DSL modem.

STEP 4 When the modem LEDs indicate that it has resynchronized with the ISP, reapply power to the security appliance. If the security appliance still cannot obtain an ISP address, see the next symptom.

Symptom: The security appliance still cannot obtain an IP address from the ISP.

Recommended Actions:

STEP 1 Click **Networking -> WAN** in the left hand navigation pane.

STEP 2 Click **Edit**.

The WAN - Add/Edit window opens.

STEP 3 Ask your ISP the following questions:

- What type of network addressing mode is required for your Internet connection? In the **IPv4** tab, choose the correct ISP connection type in the **IP Address Assignment** drop-down list, and then enter the account information as specified by the ISP.
- Is your ISP expecting you to login from a particular Ethernet MAC address? If yes, in the **IPv4** tab, choose **Use the following MAC address** from the **MAC Address Source** drop-down list, and then enter the required MAC address in the **MAC Address** field.

Symptom: The security appliance can obtain an IP address, but PC is unable to load Internet pages.

Recommended Actions:

STEP 1 Ask your ISP for the addresses of its designated DNS servers. Configure your PC to recognize those addresses. For details, see your operating system documentation.

STEP 2 On your PC, configure the security appliance to be its TCP/IP gateway.

Date and Time

Symptom: Date shown is January 1, 2000.

Possible Cause: The security appliance has not yet successfully reached a network Time Server (NTS).

Recommended Actions:

STEP 1 If you have just configured the security appliance, wait at least 5 minutes, click **Device Management -> Time Zone / Clock Settings** in the left hand navigation pane.

STEP 2 Review the settings for the date and time.

STEP 3 Verify your Internet access settings.

Symptom: The time is off by one hour.

Possible Cause: The security appliance does not automatically adjust for Daylight Savings Time.

Recommended Actions:

STEP 1 Click **Device Management -> Time Zone / Clock Settings** in the left hand navigation pane.

STEP 2 Click **On** to enable the **Automatically adjust for Daylight Savings Time** feature.

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

Pinging to Test LAN Connectivity

Most TCP/IP terminal devices and security appliances contain a ping utility that sends an ICMP echo-request packet to the designated device. The device responds with an echo reply. Troubleshooting a TCP/IP network is made very easy by using the ping utility in your PC or workstation.

This section includes the following topics:

- **Testing the LAN Path from Your PC to Your Security Appliance, page 337**
- **Testing the LAN Path from Your PC to a Remote Device, page 338**

Testing the LAN Path from Your PC to Your Security Appliance

STEP 1 On your PC, click the Windows **Start** button, and then click **Run**.

STEP 2 Type ping <IP_address-> where <IP_address-> is the IP address of the security appliance. Example: ping 192.168.1.1.

STEP 3 Click **OK**.

STEP 4 Observe the display:

- If the path is working, you see this message sequence:

```
Pinging <IP address-> with 32 bytes of data
Reply from <IP address->: bytes=32 time=NN ms TTL=xxx
```

- If the path is not working, you see this message sequence:

```
Pinging <IP address-> with 32 bytes of data
Request timed out
```

STEP 5 If the path is not working, test the physical connections between the PC and the security appliance:

- If the LAN port LED is off, verify that the corresponding link LEDs are lit for your network interface card and for any hub ports that are connected to your workstation and security appliance.

STEP 6 If the path is still not up, test the network configuration:

- Verify that the Ethernet card driver software and TCP/IP software are installed and configured on the PC.
- Verify that the IP addresses for the security appliance and PC are correct and on the same subnet.

Testing the LAN Path from Your PC to a Remote Device

STEP 1 On your PC, click the Windows **Start** button, and then click **Run**.

STEP 2 Type ping -n 10 <IP_address-> where -n 10 specifies a maximum of 10 tries and <IP address-> is the IP address of a remote device such as your ISP's DNS server. Example: ping -n 10 10.1.1.1.

STEP 3 Click **OK** and then observe the display (see the previous procedure).

STEP 4 If the path is not working, do the following:

- Check that the PC has the IP address of your security appliance is listed as the default gateway. (If the IP configuration of your PC is assigned by DHCP, this information is not visible in your PC's Network Control Panel.)
- Verify that the network (subnet) address of your PC is different from the network address of the remote device.
- Verify that the cable or DSL modem is connected and functioning.
- Call your ISP and go through the questions listed in **The security appliance cannot obtain an IP address from the ISP.**
- Ask your ISP if it rejects the Ethernet MAC addresses of all but one of your PCs. Many broadband ISPs restrict access by allowing traffic from the MAC address of only your broadband modem. Some ISPs additionally restrict access to the MAC address of just a single PC connected to that modem. If this is the case, configure your security appliance to clone or spoof the MAC address from the authorized PC. See **Configuring the WAN, page 101**.

Restoring Factory Default Settings

To restore the factory default settings, take one of the following actions:

- Launch the Configuration Utility and login. Click **Device Management -> Firmware and Configuration -> Configuration** in the left hand navigation pane. In the **Backup/Restore Settings** area, click **Default**.
- Or press and hold the **RESET** button on the back panel of your security appliance for about 3 seconds, until the LED lights and then blinks. Release the button and wait for the security appliance to reboot. If the security appliance does not restart automatically; manually restart it to make the default settings effective.

After a restore to factory defaults, the following settings apply:

- LAN IP address: 192.168.1.1
- Username: cisco
- Password: cisco

B

Technical Specifications and Environmental Requirements

Feature	ISA550	ISA550W	ISA570	ISA570W
Standards-Safety	UL 60950-1 CAN/CSA-C22.2 No. 60950-1 EN 60950-1 IEC 60950-1 AS/NZS 60950-1	UL 60950-1 CAN/CSA-C22.2 No. 60950-1 EN 60950-1 IEC 60950-1 AS/NZS 60950-1	UL 60950-1 CAN/CSA-C22.2 No. 60950-1 EN 60950-1 IEC 60950-1 AS/NZS 60950-1	UL 60950-1 CAN/CSA-C22.2 No. 60950-1 EN 60950-1 IEC 60950-1 AS/NZS 60950-1
Standards-EMC	47CFR FCC Part 15B Industry Canada ICES-003 EN55022 EN55024 EN61000-3-2 EN61000-3-3 CISPR22 CISPR24 AS/NZS CISPR22	47CFR FCC Part 15B Industry Canada ICES-003 EN 301 489-01 EN 301 489-17 EN55024 EN61000-3-2 EN61000-3-3 CISPR22 CISPR24 AS/NZS CISPR22	47CFR FCC Part 15B Industry Canada ICES-003 EN55022 EN55024 EN61000-3-2 EN61000-3-3 CISPR22 CISPR24 AS/NZS CISPR22	47CFR FCC Part 15B Industry Canada ICES-003 EN 301 489-01 EN 301 489-17 EN55024 EN61000-3-2 EN61000-3-3 CISPR22 CISPR24 AS/NZS CISPR22

Feature	ISA550	ISA550W	ISA570	ISA570W
Standards-Radio	47 CFR Part 15C Industry Canada RSS-210 EN 300.328	47 CFR Part 15C Industry Canada RSS-210 EN 300.328	47 CFR Part 15C Industry Canada RSS-210 EN 300.328	47 CFR Part 15C Industry Canada RSS-210 EN 300.328
Standards-RF Exposure	FCC OET-65, Supplement C RSS-102 EN50385	FCC OET-65, Supplement C RSS-102 EN50385	FCC OET-65, Supplement C RSS-102 EN50385	FCC OET-65, Supplement C RSS-102 EN50385
Physical Interfaces	2X RJ-45 connectors for LAN port 1 X RJ-45 connector for WAN port 4 X RJ-45 connector for LAN, WAN or DMZ port 1 X USB connector for USB 2.0 1 X Power switch	2 X RJ-45 connectors for LAN port 1 X RJ-45 connector for WAN port 4 X RJ-45 connector for LAN, WAN or DMZ port 1 X USB connector for USB 2.0 1 X Power switch 2 X external antennas	4 X RJ-45 connectors for LAN port 1 X RJ-45 connector for WAN port 5 X RJ-45 connector for LAN, WAN or DMZ port 1 X USB connector for USB 2.0 1 X Power switch	4 X RJ-45 connectors for LAN port 1 X RJ-45 connector for WAN port 5 X RJ-45 connector for LAN, WAN or DMZ port 1 X USB connector for USB 2.0 1 X Power switch 2 X external antennas
Operating Temperature	32 to 104°F (0 to 40°C)	32 to 104°F (0 to 40°C)	32 to 104°F (0 to 40°C)	32 to 104°F (0 to 40°C)
Storage Temperature	-4 to 158°F (-20 to 70°C)	-4 to 158°F (-20 to 70°C)	-4 to 158°F (-20 to 70°C)	-4 to 158°F (-20 to 70°C)
Operating Humidity	10 to 90 percent relative humidity, non-condensing	10 to 90 percent relative humidity, non-condensing	10 to 90 percent relative humidity, non-condensing	10 to 90 percent relative humidity, non-condensing

Feature	ISA550	ISA550W	ISA570	ISA570W
Storage Humidity	5 to 95 percent relative humidity, non-condensing	5 to 95 percent relative humidity, non-condensing	5 to 95 percent relative humidity, non-condensing	5 to 95 percent relative humidity, non-condensing
Internal Power Supply				
Voltage Range	Normal Voltagess: 100 to 240 VAC Voltage Variation Range: 90 to 264 VAC	Normal Voltagess: 100 to 240 VAC Voltage Variation Range: 90 to 264 VAC	Normal Voltagess: 100 to 240 VAC Voltage Variation Range: 90 to 264 VAC	Normal Voltagess: 100 to 240 VAC Voltage Variation Range: 90 to 264 VAC
Input Frequency Range	Normal Frequency: 50 to 60 Hz Frequency Variation Range: 47 Hz to 63 Hz	Normal Frequency: 50 to 60 Hz Frequency Variation Range: 47 Hz to 63 Hz	Normal Frequency: 50 to 60 Hz Frequency Variation Range: 47 Hz to 63 Hz	Normal Frequency: 50 to 60 Hz Frequency Variation Range: 47 Hz to 63 Hz
Output Voltage Regulation	11.4 V to 12.6 V	11.4 V to 12.6 V	11.4 V to 12.6 V	11.4 V to 12.6 V
Output Current	MAX 2.5 A	MAX 2.5 A	MAX 1.667 A	MAX 1.667 A
Physical Specifications				
Form Factor	1 RU, 19-inch rack-mountable	1 RU, 19-inch rack-mountable	1 RU, 19-inch rack-mountable	1 RU, 19-inch rack-mountable
Dimensions (H x W x D)	1.73 x 12.1 x 7.30 inches (44 x 308 x 185.5 mm)	1.73 x 12.1 x 7.30 inches (44 x 308 x 185.5 mm) Antennas add approximately 1.24 inches (31.6 mm) to depth.	1.73 x 12.1 x 7.30 inches (44 x 308 x 185.5 mm)	1.73 x 12.1 x 7.30 inches (44 x 308 x 185.5 mm) Antennas add approximately 1.24 inches (31.6 mm) to depth.
Weight (with Power Supply)	1.20 kg (3.22 lb)	1.26 kg (3.38 lb)	1.3 kg (3.48 lb)	1.36 kg (3.64 lb)

C

Factory Default Settings

This chapter provides the factory default settings for the primary features available on your security appliance and the predefined service and address objects. It includes the following setions:

Device Management

Features	Settings
Remote Management	enable
Remote Managaement by using HTTPS	enable
Access Type	All IP Address

Features	Settings
Listened Port Numer for HTTPS	8080
Remote Managaement by using HTTP	enable
Listened Port Numer for HTTP	80
Remote SNMP	enable
Firmware Check Periodically	disable
Ping Time	5
Maximum Hops for Tracert	5
System Diagnostics	disable
Password Protection	disable
Syslog Settings	disable
Logs Facility	
Email Alert	Kernel, System
Remote Log	Kernel, System
Local Log	Kernel, System
Time Zone and Clock Settings	Dynamic
Date/Time	GMT+00:00) Edinburgh, London
Automatically Adjust for Daylight Savings Time	disable
Use Default NTP Servers	enable
Maximum Certificate Number	128
SNMP	disable
SNMP Versions	SNMP V1 & V2, SNMP V3
Default SNMP Version	SNMP V1 & V2
UPnP	disable

Features	Settings
Bonjour	disable
CDP	disable
CDP Timer	60 (5 to 900)
CDP Hold Timer	180 (10 to 255)
LLDP	disable
Traffic Meter-Primary WAN Settings	disable
Traffic Meter-Secondary WAN Settings	disable
ViewMaster	enable
RADIUS Groups	3
RADIUS Server Port	1812
SMTP Authentication	disable
Email Alert Settings	disable
WAN UP/DOWN Alert	disable
IPSec Alert	disable
Firmware Upgrade Alert	disable
License Expiration Alert	disable
CPU Overload Alert	disable
Debug Support	disable
Anti-Virus Alert	disable
Syslog Email	disable
Debug Support	disable
Host Name	Router

User Management

Feature	Settings
Default User Group	admin
Services for Default Group	Web Login: Administrator SSLVPN: SSLVPNDefaultPolicy EzVPN: enable Captive Portal: enable
Default Administrator Account	User Name: cisco Password: cisco
Available User Login Authentication Methods	Local Database RADIUS RADIUS+Local Database LDAP LDAP+Local Database
Default User Login Authentication Method	Local Database
RADIUS Settings for Authentication	
RADIUS Server Index	1
RADIUS Server Timeout	10 seconds
Retries	3
RADIUS Users Settings	
Allow Only Users Listed Locally	disable
Mechanism for setting user group memberships for RADIUS users	Use RADIUS Filter-ID

Feature	Settings
Default User Group to which all RADIUS Users Belong	None
LDAP Settings for Authentication	
Port number	389
Login Method	Anonymous login
Protocol Version	LDAP version3
LDAP Schemas	Microsoft Active Directory RFC2789 InetOrgPerson RFC2307 Network Information Service
LDAP Users, Allow Only Users Listed Locally	disable
LDAP Users, Default LDAP User Group	None
User Session Settings	
Inactivity timeout	5 minutes
Login Session Limit for Web Logins	disable

Networking

Feature	Settings
IPv4/IPv6 Routing Mode	IPv4 only
Physical Interface Number for ISA550 and ISA550W	7
Dedicated WAN Port	1
Dedicated LAN Ports	2

Feature	Settings
Configurable Ports	4
Physical Interface Number for ISA570 and ISA570W	10
Dedicated WAN Port	1
Dedicated LAN Ports	4
Configurable Ports	5
WAN Interfaces	
WAN1-IP Address Assignment	DHCPC
WAN1-MTU	Auto
WAN1-MTU Value	1500
WAN1-Zone Mapping	WAN
Port-Based Access Control	disable
Default Setting for WAN Redundancy	Equal load balancing (Round robin)
Default Settings for Weighted Loading Balancing	
Weighted By Percentage-WAN1	50%
Weighted By Percentage-WAN2	50%
Weighted By Link Bandwidth-WAN1	1 (1 to 1000)
Weighted By Link Bandwidth-WAN2	1 (1 to 1000)
Default Settings for WAN Failover	
Auto Failover To	WAN1
Preempt Delay Timer	5 (3 to 30)

Feature	Settings
VLANs	
Maximum number of VLANs	32
DEFAULT VLAN	VID=1 IP Address=192.168.1.1 Subnet=255.255.255.0 Mapped Zone=LAN Spanning Tree=disable DHCP Pool Settings=DHCP Server DHCP Pool-Start IP =192.168.1.100 DHCP Pool-End IP:1=192.168.1.200 Lease Time=1 day Default Gateway=192.168.1.1
GUEST VLAN	VID=2 IP Address=192.168.2.1 Subnet=255.255.255.0 Mapped Zone=GUEST Spanning Tree=disable DHCP Pool Settings=DHCP Server DHCP Pool-Start IP =192.168.2.100 DHCP Pool-End IP:1=192.168.2.200 Lease Time=1 day Default Gateway=192.168.2.1
Zones	
Maximum number of Zones	32
Predefined Zones	WAN, LAN, DMZ, VPN, GUEST, SSLVPN, VOICE

Feature	Settings
Routing	
Routing Mode	disable
Static Routing	disable
Dynamic Routing (RIP)	disable
RIP Version	Default
Policy-based Routing	disable
WAN QoS	disable
WAN Bandwidth Uptream Settings	WAN1 Upstream limit=0 (0 to 1000000) WAN2 Upstream limit=0 (0 to 1000000)
WAN QoS Queue Settings	WAN1 Queueing Method=SP WAN2 Queueing Method=SP
Maximum number of Traffic Selectors	256
Maximum number of Traffic Selectors associated with one WAN QoS Policy Profile	64
LAN QOS	disable
LAN Queueing Method	SP
Classification Method	DSCP for all ports
Mapping Cos to Queue	Mapping all CoS values to Queue4
Mapping DSCP to Queue	Mapping all DSCP values to Queue4
Default CoS	All Port Defaut CoS=0 All Port Trust mode=Trust
WLAN QoS	disable

Feature	Settings
Mapping CoS to Queue	CoS 0=Queue3 CoS 1=Queue4 CoS 2=Queue4 CoS 3=Queue3 CoS 4=Queue2 CoS 5=Queue2 CoS 6=Queue1 CoS 7=Queue1
Mapping DSCP to Queue	DSCP 000xxx=Queue3 DSCP 001xxx=Queue4 DSCP 010xxx=Queue4 DSCP 011xxx=Queue3 DSCP 100xxx=Queue2 DSCP 101xxx=Queue2 DSCP 110xxx=Queue1 DSCP 111xxx=Queue1
Service Management	
Maximum number of Group Service Objects	64
Maximum number of Service Objects	256
Address Management	
Maximum number of Group Address Objects	64
Maximum number of Address Objects	512
VRRP	disable

Feature	Settings
IGMP Proxy	disable
IGMP Snooping	enable
IGMP Version (Default)	IGMP V3

Wireless

Feature	Settings
Basic Radio	enable
Wireless Network Mode	802.11b/g/n mixed
Wireless Channel	Auto
Bandwidth Channel	Lower
U-APSD	disable
SSID Isolation (between SSIDs)	disable
Default SSIDs	enable
Default SSIDs	cisco-data, cisco-guest, cisco3, cisco4
SSID Broadcast for All SSIDs	enable
Station Isolation (between clients)	disable
Security Mode for All SSIDs	Open
WMM for All SSIDs	disable
Connection Control (MAC Address Filtering)	disable
Advanced Radio Settings	

Feature	Settings
Guart Interval	Long (800ns)
CTS Protection Mode	disabled
Beacon Interval	100 ms
DTIM Interval	2 ms
RTS Threshold	2347
Fragmentation Threshold	2346
Power Output	100%
Wi-Fi Protected Setup (WPS)	disable
Rogue AP Detection	disable
Captive Portal	disable

VPN

Feature	Settings
Site-to-Site VPN	disable
Site-to-Site VPN policies	
Maxinum number of Site-to-Site VPN policies	100 for ISA570 and ISA570W, and 50 for ISA550 and ISA550W
PFS	enable
DPD	enable
DPD Delay Time	30 (10 to 300)
DPD Detection Timeout	120 (120 to 1800)
DPD Action	Hold
Authentication Method	Pre-shared Key
Remote Type	Static IP

Feature	Settings
Net BIOS Broadcast	disable
WAN Failover	disable
Redundant Gateway	disable
Security time	1 hour
IKE policies	
Maximum number of IKE policies	16
Hash	SHA1
Authenication	Pre-shared Key
D-H Group	group_5
Encryption	AES256
Lifetime	24 hours
Transform policies	
Maximum number of Transform policies	16
Integrity	ESP_MD5_HMAC
Encryption	ESP_3DES
Cisco IPSec VPN Server	disable
Maximum number of group policies	16
WAN Failover	disable
Authentication Method	Pre-shared Key
Network Mode	Client mode
Zone-based Access Control	Permit
Split Tunnel	disable
Cisco IPSec VPN Client	disable

Feature	Settings
Maximum number of group policies	16
Auto Initiation Retry	disable
Retry Interval	120 (120 to 1800)
Retry Limit	0 (0 to 16)
Connection on Startup	disable
Authentication Method	Pre-shared Key
Network Mode	Client mode
Zone-based Access Control	Permit
SSL VPN	disable
Gateway Interface	WAN1
Gateway Port	443
Certificate File	default
Idle Timeout	2100
Session Timeout	43200
Client DPD Timeout	300
Gateway DPD Timeout	300
Keep Alive	30
Lease Duration	43200
Max MTU	1406
Rekey Method	SSL
Rekey Interval	3600
Maximum number of SSL VPN group policies	32
L2TP Server	enable
Listen WAN Interface	WAN1

Feature	Settings
User Name	cisco
Password	cisco
MTU	1400 (128 to 1400)
CHAP	enable
PAP	enable
Enable over IPSec	disable
IPSec Passthrough	enable
PPTP Passthrough	enable
L2TP Passthrough	enable

Security Services

Feature	Settings
Intrusion Prevention Service	disable
Automatically Update Signatures	disable
Select which zone to block intrusion	WAN zone
Anti-Virus	disable
Select which zone to scan for viruses	WAN zone
Maximum Scan Compression File Size	0
Web URL Filter	disable
Policy to zone mapping for all predefined zones and new zones	Default_Profile

Feature	Settings
Block or permit web components (Proxy, Java, ActiveX, and Cookies)	permit
HTTP Port for Filtering	80
Web Reputation Filter	disable
Reputation Threshold	Conservative
Custom Threshold	-5
Action when Web Repuation Filter services are unavailable	All all web traffic until Web Repuation Filter services are restored
Email Reputation Filter	disable
Reputation Threshold	Conservative
Custom Spam Threshold	-5
Custom Suspect Spam Threshold	-3
Action for SPAM	BLOCK
Action for SUPECT SPAM	TAG
Action when Email Reputation Filter services are unavailable	All all web traffic until Email Reputation Filter services are restored
Network Reputation	disable

Firewall

Features	Settings
Default firewall rules	Prevent all inbound traffic and allow all outbound traffic

Features	Settings
Maximum number of custom firewall rules	100
NAT	
Dynamic PAT	enable
Maximum number of Static NAT rules	128
Maximum number of Port Forwarding rules	15
Maximum number of Port Triggering rules	15
Maximum number of Advanced NAT rules	16
Session Settings	
Maximum number of Connections	60000 (1000 to 60000)
TCP Timeout	1200 (5 to 3600)
UDP Timeout	180 (5 to 3600)
Attack Protection	
Block Ping WAN interface	enable
Enable Stealth Mode	disable
Block TCP Flood (Threshold: 200 per seconds)	disable
Block UDP Flood (Threshold: 200 per seconds)	disable
Block ICMP Notification	enable
Block Fragmented Packets	disable
Block Muticast Packets	disable
SYN Flood Detect Rate [max/sec]	0 (0 to 65535)

Features	Settings
Echo Storm [ping pkts./sec]	0 (0 to 65535)
ICMP Flood [ICMP pkts./sec]	0 (0 to 65535)
Application Level Gateway	enable
SIP ALG	enable
H.323 ALG	enable
Content Filtering	disable
HTTP port for content filtering	80
Permit or block web components (Proxy, Java, ActiveX, Cookies)	permit
MAC Filtering	disable
Maximum number of MAC Filtering rules	100
Maximum number of IP&MAC Binding rules	100

Reports

Feature	Settings
IP Bandwidth Report	disable
Service Bandwidth Report	disable
TopN Web Report	disable
WAN Bandwidth Report	disable
Security Service Reports	
Network Reputation Report	enable

Feature	Settings
IM and P2P Blocking Report	disable
IPS Policy Protocol and Inspection Report	disable
Web Security Blocked Report	disable
Email Security Blocked Report	disable
Anti-Virus Report	disable

Default Service Objects

Service Name	Protocol	Port Start	Port End	Remarks
AIM-CONNECT	TCP	4443	4443	Direct connect
AIM-CHAT	TCP	5190	5190	File transfer and chat
BGP	TCP	179	179	
BOOTP_client	UDP	68	68	
BOOTP_server	UDP	67	67	
CU-SEEME	TCP/UDP	7648	7652	Server control port:7648 Client contact port:7649 Data stream over UDP port: 7648 to 7652, 24032, and more.
DNS	TCP/UDP	53	53	
FINGER	TCP	79	79	

Service Name	Protocol	Port Start	Port End	Remarks
FTP-DATA	TCP	20	20	Data transfer
FTP-CONTROL	TCP	21	21	Control command, keep using the port 21 for FTP server when you public it on the Internet or use the active mode for ????21??? public?????????21? ??????active mode ?not passive?
HTTP	TCP	80	80	
HTTPS	TCP	443	443	
ICMP-TYPE-0	ICMP			
ICMP-TYPE-3	ICMP			
ICMP-TYPE-4	ICMP			
ICMP-TYPE-5	ICMP			
ICMP-TYPE-6	ICMP			Alternate host address
ICMP-TYPE-7	ICMP			
ICMP-TYPE-8	ICMP			
ICMP-TYPE-9	ICMP			
ICMP-TYPE-10	ICMP			
ICMP-TYPE-11	ICMP			
ICMP-TYPE-13	ICMP			
ICQ	TCP	5190	5190	
IMAP	TCP	143	143	
IMAP2	TCP	143	143	

Service Name	Protocol	Port Start	Port End	Remarks
IMAP3	TCP	220	220	
IRC	TCP	6660	6660	De facto port: 6660 to 6669
NEWS	TCP	144	144	
NFS	UDP	2049	2049	
NNTP	TCP	119	119	NNTP over SSL uses the port 563.
POP3	TCP	110	110	
PPTP	TCP	1723	1723	
L2TP	UDP	1701	1701	
RCMD	TCP	512	512	
REAL-AUDIO	TCP	7070	7070	
REXEC	TCP	512	512	
RLOGIN	TCP	513	513	
RTELNET	TCP	107	107	
RTSP	TCP/UDP	554	554	
SFTP	TCP	115	115	
SMTP	TCP	25	25	
SNMP	TCP/UDP	161	161	
SNMP-TRAPS	TCP/UDP	162	162	
SQL-NET	TCP	1521	1521	
SSH	TCP/UDP	22	22	
STRMWORKS	UDP	1558	1558	
TACACS	TCP	49	49	
TELNET	TCP	23	23	

Service Name	Protocol	Port Start	Port End	Remarks
TELNET Secondary	TCP	8023	8023	
TELNET SSL	TCP	992	992	
TFTP	UDP	69	69	
RIP	UDP	520	520	
IKE	UDP	500	500	
ISAKMP	UDP	500	500	
SHTTPD	TCP	8080	8080	
SHTTPDS	TCP	443	443	
IDENT	TCP	113	113	
VDOLIVE	TCP	7000	7000	
SSH	TCP/UDP	22	22	
SIP	TCP/UDP	5060	5060	
DHCP	UDP	67	67	
ESP	IP (Protocol 50)			
IPSEC-UDP-ENCAP	UDP	4500	4500	

Default Address Objects

Address Name	Type	Start IP	End IP
WAN1_IP	Host	192.168.100.100	192.168.100.100
WAN1_GW	Host	192.168.100.1	192.168.100.1

Address Name	Type	Start IP	End IP
WAN1_DNS1	Host	192.168.100.1	192.168.100.1
WAN1_DNS2	Host	0.0.0.0	0.0.0.0
WAN1_NETWORK	Host	0.0.0.0	0.0.0.0
DEFAULT_IP	Host	192.168.1.1	192.168.1.1
DEFAULT_GW	Host	192.168.1.1	192.168.1.1
DEFAULT_DNS1	Host	192.168.1.1	192.168.1.1
DEFAULT_DNS2	Host	192.168.1.1	192.168.1.1
DEFAULT_WINS1	Host	192.168.1.1	192.168.1.1
DEFAULT_WINS2	Host	192.168.1.1	192.168.1.1
DEFAULT_NETWORK	Network	192.168.1.0	192.168.1.255
GUEST_IP	Host	192.168.2.1	192.168.2.1
GUEST_GW	Host	192.168.2.1	192.168.2.1
GUEST_DNS1	Host	192.168.2.1	192.168.2.1
GUEST_DNS2	Host	192.168.2.1	192.168.2.1
GUEST_WINS1	Host	192.168.2.1	192.168.2.1
GUEST_WINS2	Host	192.168.2.1	192.168.2.1
GUEST_NETWORK	Network	192.168.2.0	192.168.2.255
DEFAULT_DHCP_POOL	Range	192.168.1.100	192.168.1.200
GUEST_DHCP_POOL	Range	192.168.2.100	192.168.2.200

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Where to Go From Here

Cisco provides a wide range of resources to help you and your customers obtain the full benefits of the Cisco ISA500 Series Integrated Security Appliance.

Where to Go From Here	
Support	
Cisco Small Business Support Community	www.cisco.com/go/smallbizsupport
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Phone Support Contacts	www.cisco.com/go/sbsc
Firmware Download	www.cisco.com/go/isa500software
Product Documentation	
Cisco ISA500 Series Integrated Security Appliance Technical Documentation	www.cisco.com/go/isa500resources
Cisco Small Business	
Cisco Partner Central for Small Business (Partner Login Required)	www.cisco.com/web/partners/sell/smb
Cisco Small Business Home	www.cisco.com/smb