

# **D-Link NetDefend firewall**

## **Security VPN Firewall**

### **NetDefend secured by Check Point**

## **User Guide**

**Version 1.0**

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#### SAFETY PRECAUTIONS

Carefully read the Safety Instructions the Installation and Operating Procedures provided in this User's Guide before attempting to install or operate the appliance. Failure to follow these instructions may result in damage to equipment and/or personal injuries.

- Before cleaning the appliance, unplug the power cord. Use only a soft cloth dampened with water for cleaning.

- When installing the appliance, ensure that the vents are not blocked.
- Do not place this product on an unstable surface or support. The product may fall, causing serious injury to a child or adult, as well as serious damage to the product.
- Do not use the appliance outdoors.
- Do not expose the appliance to liquid or moisture.
- Do not expose the appliance to extreme high or low temperatures.
- Do not disassemble or open the appliance. Failure to comply will void the warranty.
- Do not use any accessories other than those approved by Check Point. Failure to do so may result in loss of performance, damage to the product, fire, electric shock or injury, and will void the warranty.
- Route power supply cords where they are not likely to be walked on or pinched by items placed on or against them. Pay particular attention to cords where they are attached to plugs and convenience receptacles, and examine the point where they exit the unit.
- Do not connect or disconnect power supply cables and data transmission lines during thunderstorms.
- Do not overload wall outlets or extension cords, as this can result in a risk of fire or electric shock. Overloaded AC outlets, extension cords, frayed power cords, damaged or cracked wire insulation, and broken plugs are dangerous. They may result in a shock or fire hazard. Periodically examine the cord, and if its appearance indicates damage or deteriorated insulation, have it replaced by your service technician.
- If the unit or any part of it is damaged, disconnect the power plug and inform the responsible service personnel. Non-observance may result in damage to the router.

#### POWER ADAPTER

- Operate this product only from the type of power source indicated on the product's marking label. If you are not sure of the type of power supplied to your home, consult your dealer or local power company.
- Use only the power supply provided with your product. Check whether the device's set supply voltage is the same as the local supply voltage.
- To reduce risk of damage to the unit, remove it from the outlet by holding the power adapter rather than the cord.

#### SECURITY DISCLAIMER

The appliance provides your office network with the highest level of security. However, no single security product can provide you with absolute protection against a determined effort to break into your system. We recommend using additional security measures to secure highly valuable or sensitive information.



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## About This Guide

To make finding information in this manual easier, some types of information are marked with special symbols or formatting.

**Boldface type** is used for command and button names.



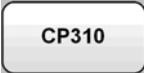
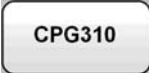

Note: Notes are denoted by indented text and preceded by the Note icon.



Warning: Warnings are denoted by indented text and preceded by the Warning icon.

Each task is marked with an icon indicating the NetDefend product required to perform the task, as follows:

---

If this icon appears...	You can perform the task using these products...
	DFL-CP310 or DFL-CPG310, with or without the Power Pack
	DFL-CPG310 <i>only</i> , with or without the Power Pack
	DFL-CP310 or DFL-CPG310, with the Power Pack <i>only</i>

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## Chapter 1

# Introduction

This chapter introduces the D-Link NetDefend firewall and this guide.

This chapter includes the following topics:

About Your D-Link NetDefend firewall .....	1
NetDefend Secured by Check Point Product Family .....	2
NetDefend Features and Compatibility .....	2
Getting to Know Your NetDefend firewall .....	8
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## About Your D-Link NetDefend firewall

The D-Link NetDefend firewall is a unified threat management (UTM) appliance that enables secure high-speed Internet access from the office. Incorporating software by SofaWare Technologies, an affiliate of Check Point Software Technologies, the worldwide leader in securing the Internet, the NetDefend Secured by Check Point Product Family includes both wired and wireless models. The D-Link firewall, based on the world-leading Check Point Embedded NGX Stateful Inspection technology, inspects and filters all incoming and outgoing traffic, blocking all unauthorized traffic.

The NetDefend firewall also allows sharing your Internet connection among several PCs or other network devices, enabling advanced office networking and saving the cost of purchasing static IP addresses.

With the NetDefend firewall, you can subscribe to additional security services available from select service providers, including firewall security and software updates, Antivirus, Web Filtering, reporting, and VPN management. By supporting integrated VPN capabilities, the NetDefend firewall allows teleworkers and road warriors to securely connect to the office network, and enables secure interconnection of branch offices.



## NetDefend Secured by Check Point Product Family

The NetDefend series includes the following hardware models:

- DFL-CP310 Security VPN Firewall
- DFL-CPG310 Wireless Security VPN Firewall

You can upgrade your NetDefend firewall to include additional features without replacing the hardware by installing the DFL-CP310 Power Pack, and you can increase the number of licensed users by installing node upgrades. Contact your reseller for more details.

## NetDefend Features and Compatibility

### *Connectivity*

The NetDefend series includes the following features:

- LAN ports: 4-ports 10/100 Mbps Fast Ethernet switch
- WAN port: 10/100 Mbps Fast Ethernet
- DMZ/WAN2 Port: 10/100 Mbps Fast Ethernet
- Serial (RS232) port for console access and dialup modem connection
- Supported Internet connection methods: Static IP, DHCP Client, Cable Modem, PPTP Client, PPPoE Client, Telstra BPA login, Dialup
- Concurrent firewall connections: 8,000
- DHCP server, client, and relay
- MAC cloning

- Static NAT
- Static routes and source routes
- Ethernet cable type recognition
- Backup Internet connection
- Dead Internet Connection Detection (DCD)
- Traffic Monitoring
- Traffic Shaping
- VLAN Support (requires Power Pack)
- Dynamic Routing (requires Power Pack)

The NetDefend DFL-CPG310 firewall includes the following additional features:

- Wireless LAN interface with dual diversity antennas supporting up to 108 Mbps (Super G) and Extended Range (XR)
- Integrated USB print server
- Wireless QoS (WMM)

## ***Firewall***

The NetDefend series includes the following features:

- Check Point Firewall-1 Embedded NGX firewall with Application Intelligence
- Intrusion Detection and Prevention using Check Point SmartDefense
- Network Address Translation (NAT)
- Three preset security policies
- Anti-spoofing
- Voice over IP (H.323) support
- Instant messenger blocking/monitoring



- P2P file sharing blocking/monitoring

## **VPN**

The NetDefend series includes the following features:

- Remote Access VPN Server with OfficeMode and RADIUS support
- Remote Access VPN Client
- Site to Site VPN Gateway
- IPSEC VPN pass-through
- Algorithms: AES/3DES/DES, SHA1/MD5
- Hardware Based Secure RNG (Random Number Generator)
- IPSec NAT traversal (NAT-T)
- Route-based VPN
- Backup VPN gateways

## **Management**

The NetDefend series includes the following features:

- Management via HTTP, HTTPS, SSH, SNMP, Serial CLI
- Central Management: SMP
- NTP automatic time setting
- TFTP Rapid Deployment
- Local diagnostics tools: Ping, WHOIS, Packet Sniffer, VPN Tunnel Monitor, Connection Table Monitor, Wireless Monitor, Active Computers Display, Local Logs



## Optional Security Services

The following subscription security services are available to NetDefend owners by connecting to a Service Center:

- Firewall Security and Software Updates
- Web Filtering
- Email Antivirus and Antispam Protection
- VStream Embedded Antivirus Updates
- VPN Management
- Security Reporting
- Vulnerability Scanning Service

## Power Pack Features

The table below describes the differences between the standard DFL-CP310 and DFL-CPG310 with the Power Pack installed.

Feature	DFL-CP310/CPG310	DFL-CP310/CPG310 with Power Pack
High Availability	—	✓
Traffic Shaper	Basic	Advanced
DiffServ Tagging	—	✓
Dynamic Routing	—	✓
Firewall/VPN Throughput (Mbps)	100/20	150/30
Secure Hotspot	—	✓



Feature	DFL-CP310/CPG310	DFL-CP310/CPG310 with Power Pack
VLAN (Port/Tag-based)	—	✓
VPN Throughput	20 Mbps	30 Mbps
Site-to-Site VPN	2 tunnels	15 tunnels
Site-to-Site VPN (Managed) *	10 tunnels	100 tunnels
Included VPN-1 SecuRemote client Licenses	5 users	25 users

\* When managed by SofaWare Security Management Portal (SMP).

## Package Contents

The NetDefend series package includes the following:

- D-Link NetDefend firewall VPN Firewall
- Power adapter
- CAT5 Straight-through Ethernet cable
- Getting Started Guide
- This User Guide

The DFL-CPG310 also includes:

- Two antennas
- Wall mounting kit, including two plastic conical anchors and two cross-head screws
- USB extension cable

## ***Network Requirements***

- A broadband Internet connection via cable or DSL modem with Ethernet interface (RJ-45)
- 10BaseT or 100BaseT Network Interface Card installed on each computer
- TCP/IP network protocol installed on each computer
- Internet Explorer 5.0 or higher, or Netscape Navigator 4.7 and higher
- CAT 5 STP (Category 5 Shielded Twisted Pair) Straight Through Ethernet cable for each attached device



Note: The NetDefend firewall automatically detects cable types, so you can use either a straight-through or crossed cable, when cascading an additional hub or switch to the NetDefend firewall.



Note: For optimal results, it is highly recommended to use either Microsoft Internet Explorer 5.5 or higher, or Mozilla Firefox 1.0 or higher.

- When using the DFL-CPG310, an 802.11b, 802.11g or 802.11 Super G wireless card installed on each wireless station



# Getting to Know Your NetDefend firewall



## Rear Panel

All physical connections (network and power) to the NetDefend firewall are made via the rear panel of your NetDefend firewall.

Figure 1: NetDefend firewall Rear Panel Items

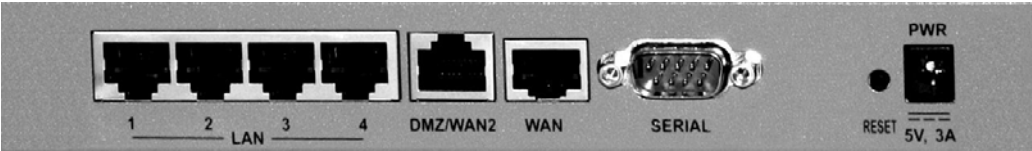


Figure 2: NetDefend firewall Rear Panel Items

The following table lists the NetDefend firewall 's rear panel elements.

Table 1: NetDefend firewall Rear Panel Elements

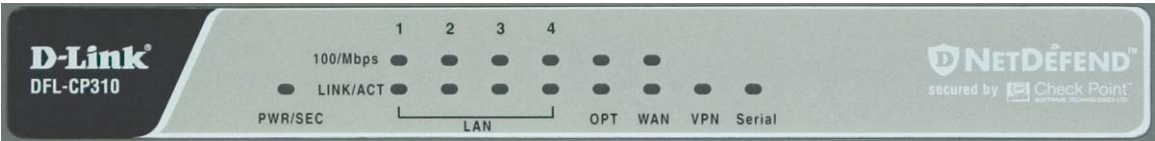
Label	Description
PWR	A power jack used for supplying power to the unit. Connect the supplied power adapter to this jack.

Label	Description
RESET	<p>A button used for rebooting the NetDefend firewall or resetting the NetDefend firewall to its factory defaults. You need to use a pointed object to press this button.</p> <ul style="list-style-type: none"><li>• Short press. Reboots the NetDefend firewall</li><li>• Long press (7 seconds). Resets the NetDefend firewall to its factory defaults, and resets your firmware to the version that shipped with the NetDefend firewall. This results in the loss of all security services and passwords and reverting to the factory default firmware. You will have to re-configure your NetDefend firewall.</li></ul> <p>Do not reset the unit without consulting your system administrator.</p>
RS-232 / Serial	A serial port used for connecting computers in order to access the NetDefend CLI (Command Line Interface), or for connecting an external dialup modem
WAN	Wide Area Network: An Ethernet port (RJ-45) used for connecting your cable or xDSL modem, or for connecting a hub when setting up more than one Internet connection
DMZ/ WAN2	A dedicated Ethernet port (RJ-45) used to connect a DMZ (Demilitarized Zone) computer or network. Alternatively, can serve as a secondary WAN port, or as a VLAN trunk.
LAN 1-4	Local Area Network switch: Four Ethernet ports (RJ-45) used for connecting computers or other network devices



## Front Panel

The NetDefend firewall includes several status LEDs that enable you to monitor the appliance’s operation.



**Figure 3: NetDefend firewall Front Panel**

For an explanation of the NetDefend firewall’s status LEDs, see the table below.

**Table 2: NetDefend firewall Status LEDs**

LED	State	Explanation
PWR/SEC	Off	Power off
	Flashing quickly (Green)	System boot-up
	Flashing slowly (Green)	Establishing Internet connection
	On (Green)	Normal operation
	Flashing (Red)	Hacker attack blocked
	On (Red)	Error
LAN 1-4/ WAN/ DMZ/WAN2	LINK/ACT Off, 100 Off	Link is down
	LINK/ACT On, 100 Off	10 Mbps link established for the corresponding port

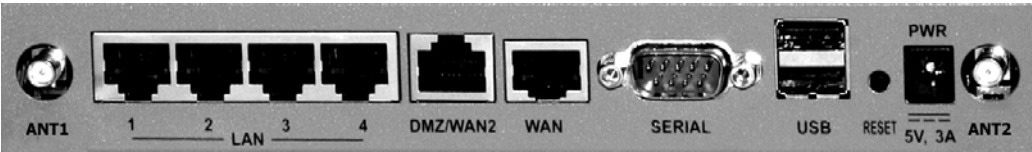
LED	State	Explanation
	LINK/ACT On, 100 On	100 Mbps link established for the corresponding port
	LNK/ACT Flashing	Data is being transmitted/received
	Flashing (Green)	VPN port in use
VPN	Flashing (Green)	VPN port in use
Serial	Flashing (Green)	Serial port in use

## Getting to Know Your NetDefend firewall



### Rear Panel

All physical connections (network and power) to the NetDefend firewall are made via the rear panel of your NetDefend firewall.



**Figure 4: NetDefend firewall Rear Panel Items**

The following table lists the NetDefend firewall appliance's rear panel elements.

**Table 3: NetDefend firewall Rear Panel Elements**

Label	Description
PWR	A power jack used for supplying power to the unit. Connect the supplied power adapter to this jack.

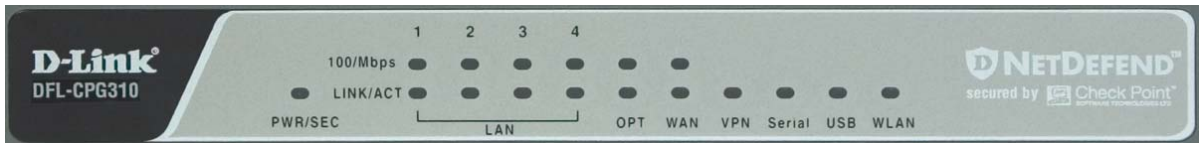


Label	Description
RESET	<p>A button used for rebooting the NetDefend firewall or resetting the NetDefend firewall to its factory defaults. You need to use a pointed object to press this button.</p> <ul style="list-style-type: none"><li>• Short press. Reboots the NetDefend firewall</li><li>• Long press (7 seconds). Resets the NetDefend firewall to its factory default, and resets your firmware to the version that shipped with the NetDefend firewall. This results in the loss of all security services and passwords and reverting to the factory default firmware. You will have to re-configure your NetDefend firewall.</li></ul> <p>Do not reset the unit without consulting your system administrator.</p>
USB	Two USB 2.0 ports used for connecting USB-based printers
RS232	A serial (RS-232) port used for connecting computers in order to access the NetDefend CLI (Command Line Interface), or for connecting an external dialup modem
WAN	Wide Area Network: An Ethernet port (RJ-45) used for connecting your cable or xDSL modem, or for connecting a hub when setting up more than one Internet connection
DMZ/ WAN2	A dedicated Ethernet port (RJ-45) used to connect a DMZ (Demilitarized Zone) computer or network. Alternatively, can serve as a secondary WAN port , or as a VLAN trunk.
LAN 1-4	Local Area Network switch: Four Ethernet ports (RJ-45) used for connecting computers or other network devices
ANT 1/ ANT 2	Antenna connectors, used to connect the supplied wireless antennas



## Front Panel

The NetDefend firewall appliance includes several status LEDs that enable you to monitor the appliance's operation.



**Figure 5: NetDefend firewall Front Panel**

For an explanation of the NetDefend firewall appliance's status LEDs, see the table below.

**Table 4: NetDefend firewall Status LEDs**

LED	State	Explanation
PWR/SEC	Off	Power off
	Flashing quickly (Green)	System boot-up
	Flashing slowly (Green)	Establishing Internet connection
	On (Green)	Normal operation
	Flashing (Red)	Hacker attack blocked
	On (Red)	Error
	Flashing (Orange)	Software update in progress
LAN 1-4/ WAN/ DMZ/WAN2	LINK/ACT Off, 100 Off	Link is down
	LINK/ACT On, 100 Off	10 Mbps link established for the corresponding port



LED	State	Explanation
	LINK/ACT On, 100 On	100 Mbps link established for the corresponding port
	LNK/ACT Flashing	Data is being transmitted/received
VPN	Flashing (Green)	VPN port in use
Serial	Flashing (Green)	Serial port in use
USB	Flashing (Green)	USB port in use
WLAN	Flashing (Green)	WLAN in use

## Contacting Technical Support

If there is a problem with your NetDefend firewall, see <http://support.dlink.com/>.

You can also download the latest version of this guide from the site.



## Chapter 2

# Installing and Setting up the NetDefend firewall

This chapter describes how to properly set up and install your NetDefend firewall in your networking environment.

This chapter includes the following topics:

Before You Install the NetDefend firewall.....	15
Wall Mounting the Appliance .....	30
Securing the Appliance against Theft.....	32
Network Installation .....	35
Setting Up the NetDefend firewall .....	36

## Before You Install the NetDefend firewall

Prior to connecting and setting up your NetDefend firewall for operation, you must do the following:

- Check if TCP/IP Protocol is installed on your computer.
- Check your computer's TCP/IP settings to make sure it obtains its IP address automatically.

Refer to the relevant section in this guide in accordance with the operating system that runs on your computer. The sections below will guide you through the TCP/IP setup and installation process.



## Windows 2000/XP

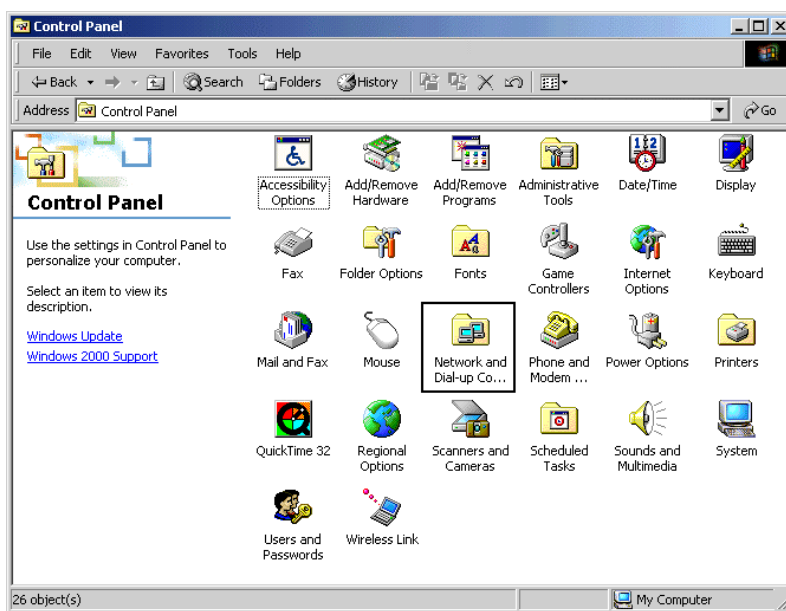


Note: While Windows XP has an "Internet Connection Firewall" option, it is recommended to disable it if you are using a NetDefend firewall, since the NetDefend firewall offers better protection.

### Checking the TCP/IP Installation

1. Click Start > Settings > Control Panel.

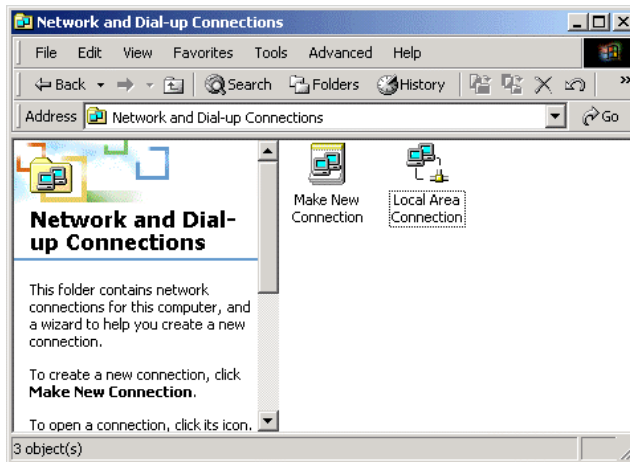
The Control Panel window appears.



2. Double-click the Network and Dial-up Connections icon.



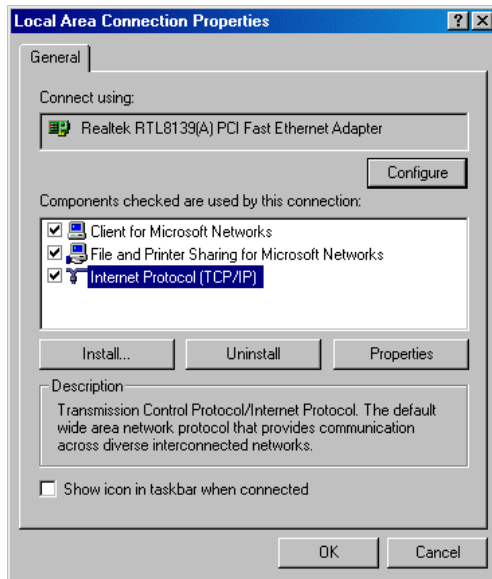
The Network and Dial-up Connections window appears.



3. Right-click the  icon and select **Properties** from the pop-up menu that opens.



The Local Area Connection Properties window appears.

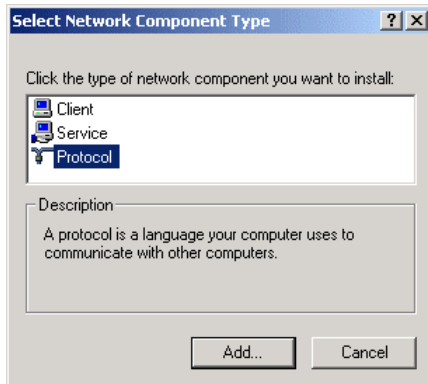


4. In the above window, check if **TCP/IP** appears in the components list and if it is properly configured with the Ethernet card, installed on your computer. If **TCP/IP** does not appear in the **Components** list, you must install it as described in the next section.

## Installing TCP/IP Protocol

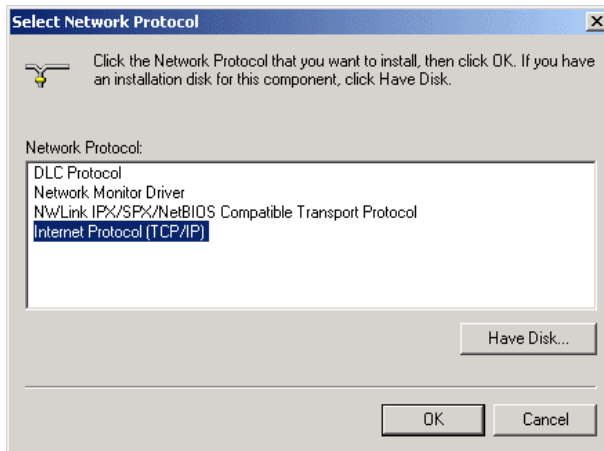
1. In the Local Area Connection Properties window click Install....

The Select Network Component Type window appears.



2. Choose Protocol and click Add.

The Select Network Protocol window appears.



3. Choose Internet Protocol (TCP/IP) and click OK.

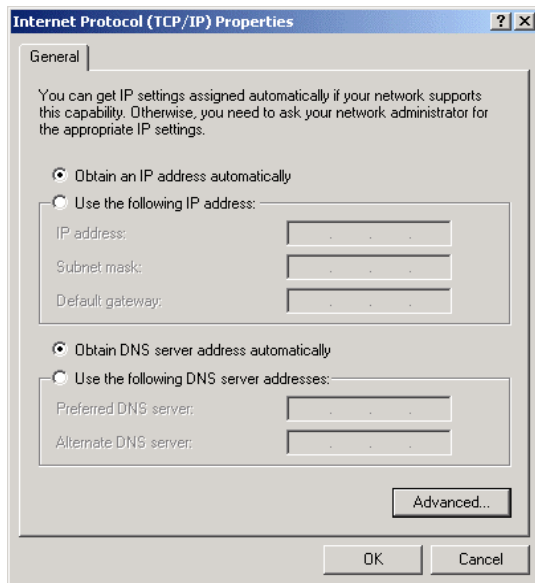
TCP/IP protocol is installed on your computer.



## TCP/IP Settings

1. In the Local Area Connection Properties window double-click the Internet Protocol (TCP/IP) component, or select it and click Properties.

The Internet Protocol (TCP/IP) Properties window opens.



2. Click the Obtain an IP address automatically radio button.



Note: Normally, it is not recommended to assign a static IP address to your PC but rather to obtain an IP address automatically. If for some reason you need to assign a static IP address, select Specify an IP address, type in an IP address in the range of 192.168.10.129-254, enter 255.255.255.0 in the Subnet Mask field, and click OK to save the new settings.

(Note that 192.168.10 is the default value, and it may vary if you changed it in the My Network page.)

3. Click the Obtain DNS server address automatically radio button.
4. Click OK to save the new settings.

Your computer is now ready to access your NetDefend firewall.



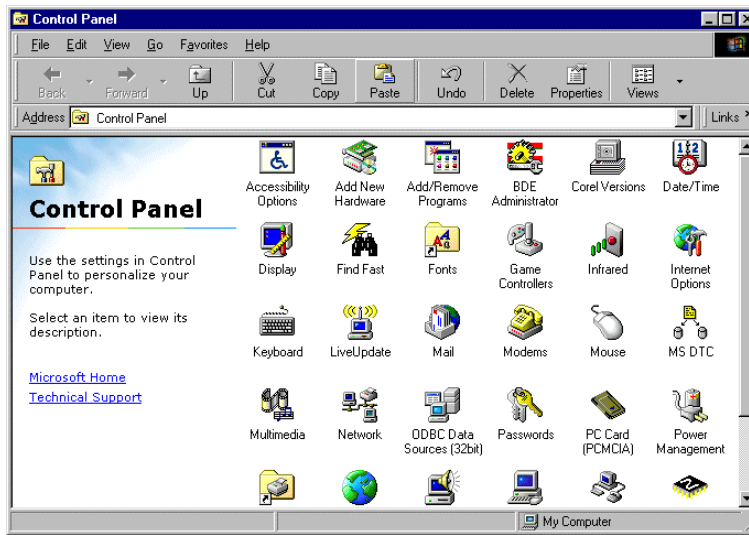


## Windows 98/Millennium

### Checking the TCP/IP Installation

1. Click Start > Settings > Control Panel.

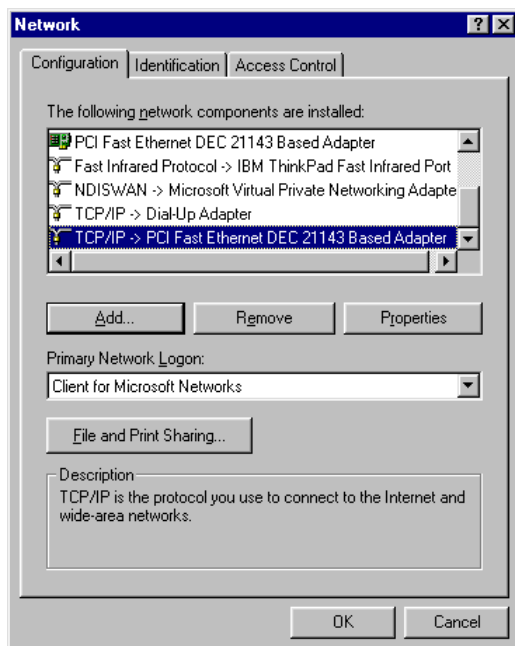
The Control Panel window appears.



2. Double-click the Network icon.



The Network window appears.



3. In the **Network** window, check if TCP/IP appears in the network components list and if it is already configured with the Ethernet card, installed on your computer.

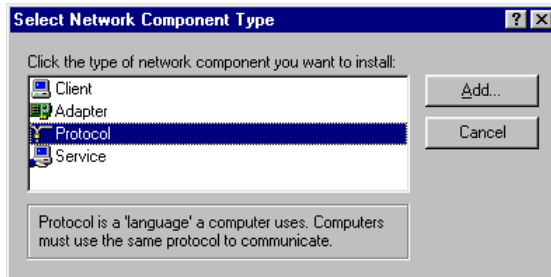
## Installing TCP/IP Protocol



Note: If TCP/IP is already installed and configured on your computer skip this section and move directly to TCP/IP Settings.

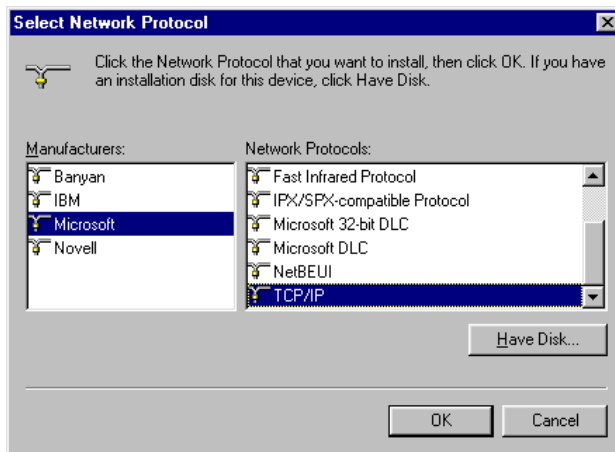
1. In the **Network** window, click **Add**.

The **Select Network Component Type** window appears.



2. Choose **Protocol** and click **Add**.

The **Select Network Protocol** window appears.



3. In the **Manufacturers** list choose **Microsoft**, and in the **Network Protocols** list choose **TCP/IP**.
4. Click **OK**.

If Windows asks for original Windows installation files, provide the installation CD and relevant path when required (e.g. D:\win98)

5. Restart your computer if prompted.

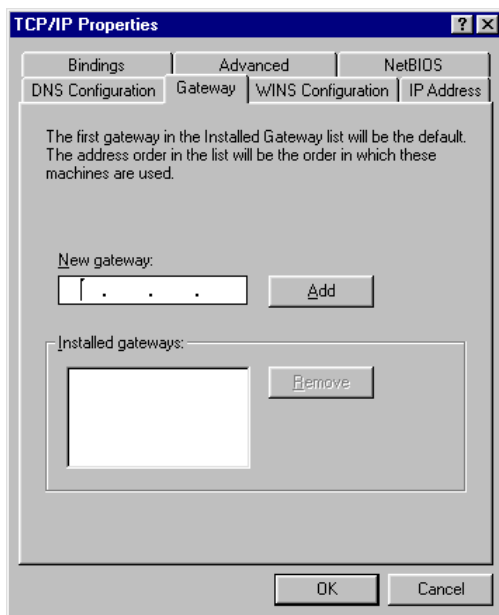


## TCP/IP Settings



Note: If you are connecting your NetDefend firewall to an existing LAN, consult your network manager for the correct configurations.

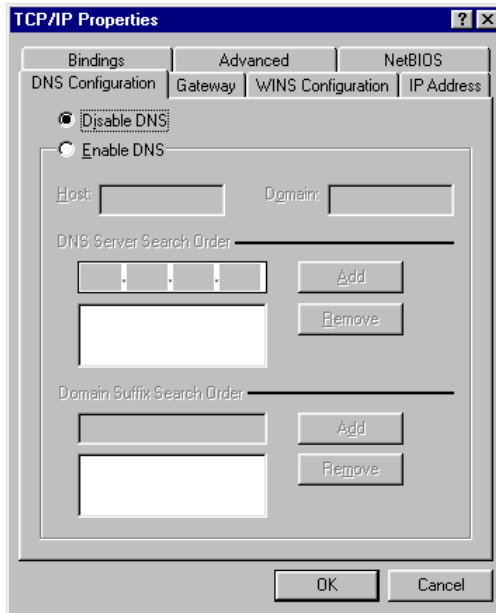
1. In the **Network** window, double-click the TCP/IP service for the Ethernet card, which has been installed on your computer (e.g. **TCP/IP -> PCI Fast Ethernet DEC 21143 Based Adapter**). The TCP/IP Properties window opens.



2. Click the **Gateway** tab, and remove any installed gateways.

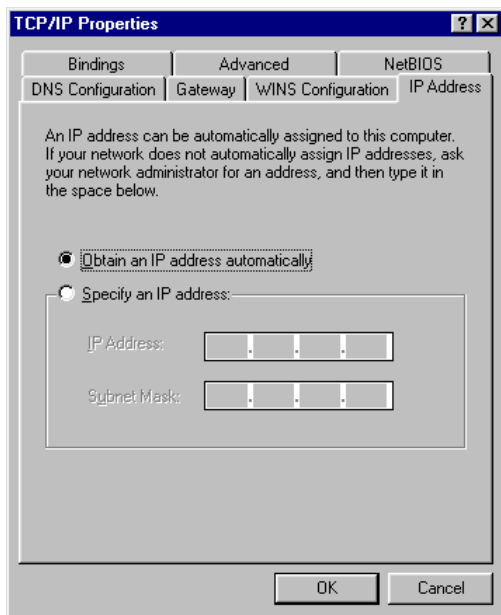


3. Click the DNS Configuration tab, and click the Disable DNS radio button.





4. Click the **IP Address** tab, and click the **Obtain an IP address automatically** radio button.



**Note:** Normally, it is not recommended to assign a static IP address to your PC but rather to obtain an IP address automatically. If for some reason you need to assign a static IP address, select **Specify an IP address**, type in an IP address in the range of 192.168.10.129-254, enter 255.255.255.0 in the Subnet Mask field, and click **OK** to save the new settings.

(Note that 192.168.10 is the default value, and it may vary if you changed it in the My Network page.)

5. Click **Yes** when prompted for “Do you want to restart your computer?”.

Your computer restarts, and the new settings take effect.

Your computer is now ready to access your NetDefend firewall.

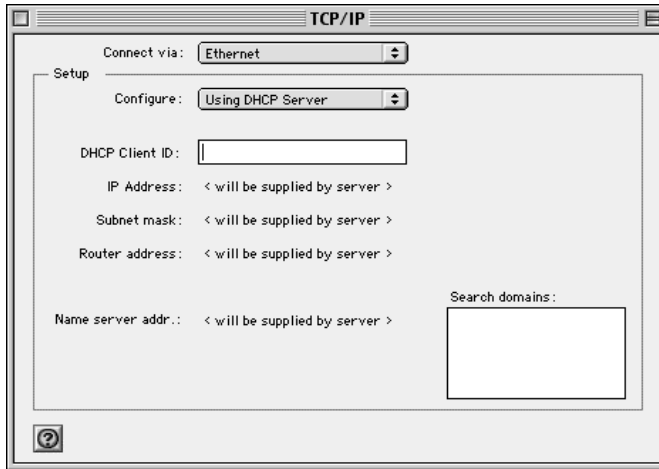
## Mac OS

Use the following procedure for setting up the TCP/IP Protocol.



1. Choose **Apple Menus -> Control Panels -> TCP/IP**.

The TCP/IP window appears.



2. Click the **Connect via** drop-down list, and select **Ethernet**.
3. Click the **Configure** drop-down list, and select **Using DHCP Server**.
4. Close the window and save the setup.



## Mac OS-X

Use the following procedure for setting up the TCP/IP Protocol.

1. Choose Apple -> System Preferences.

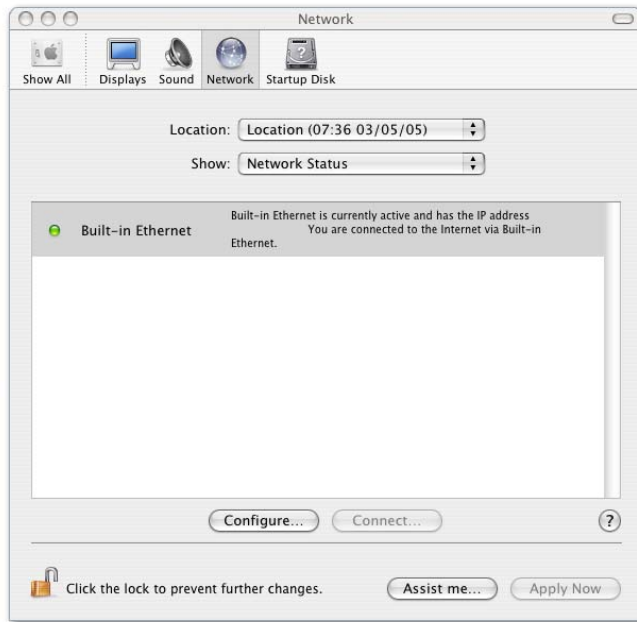
The System Preferences window appears.



2. Click Network.

The Network window appears.

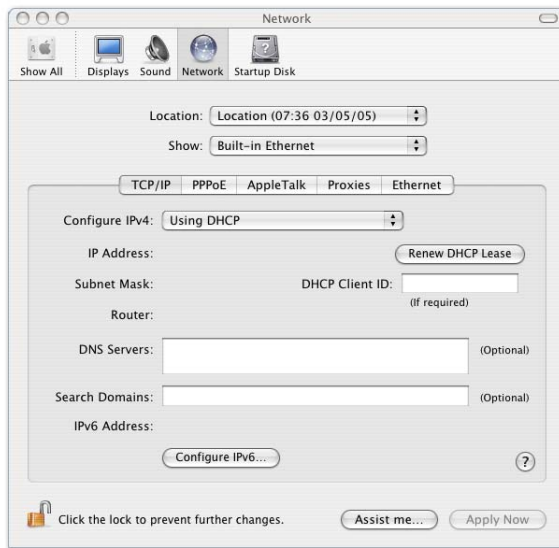




3. Click **Configure**.



TCP/IP configuration fields appear.



4. Click the Configure IPv4 drop-down list, and select Using DHCP.
5. Click Apply Now.

## Wall Mounting the Appliance

CPG310

If desired, you can mount your NetDefend firewall on the wall.

### To mount the NetDefend firewall on the wall

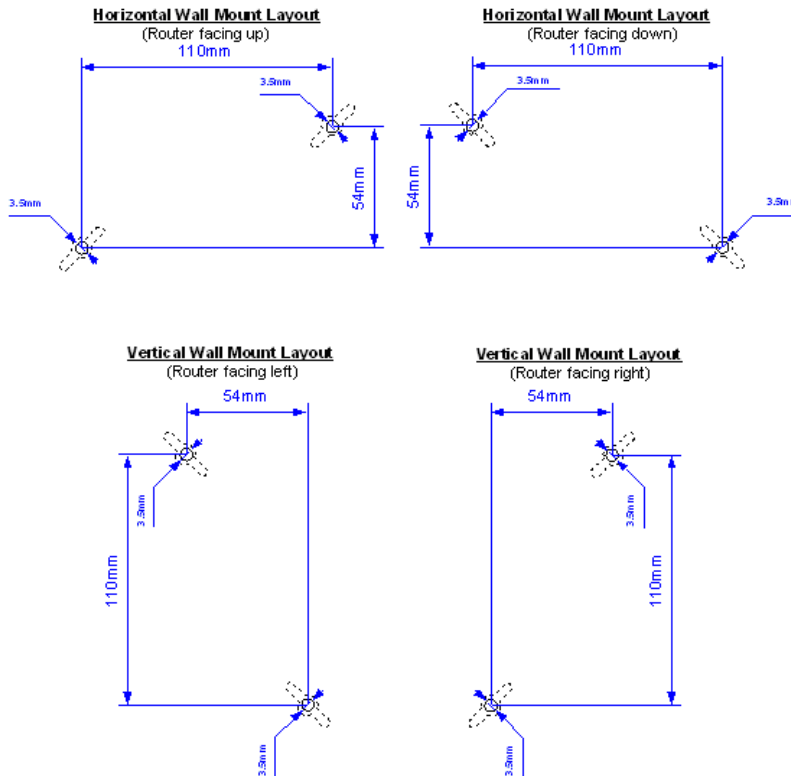
1. Decide where you want to mount your NetDefend firewall.
2. Decide on the mounting orientation.

You can mount the appliance on the wall facing up, down, left, or right.



Note: Mounting the appliance facing downwards is not recommended, as dust might accumulate in unused ports.

3. Mark two drill holes on the wall, in accordance with the following sketch:



4. Drill two 3.5 mm diameter holes, approximately 25 mm deep.
5. Insert two plastic conical anchors into the holes.



Note: The conical anchors you received with your NetDefend firewall are suitable for concrete walls. If you want to mount the appliance on a plaster wall, you must use anchors that are suitable for plaster walls.

6. Insert the two screws you received with your NetDefend firewall into the plastic conical anchors, and turn them until they protrude approximately 5 mm from the wall.



7. Align the holes on the NetDefend firewall's underside with the screws on the wall, then push the appliance in and down.

Your NetDefend firewall is wall mounted. You can now connect it to your computer. See *Network Installation* on page 35.

## Securing the Appliance against Theft

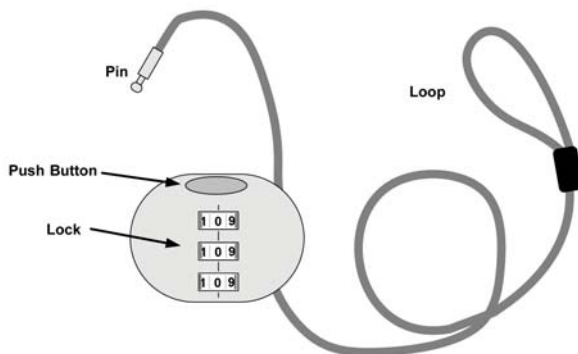
CPG310

The NetDefend firewall features a security slot to the rear of the right panel, which enables you to secure your appliance against theft, using an anti-theft security device.



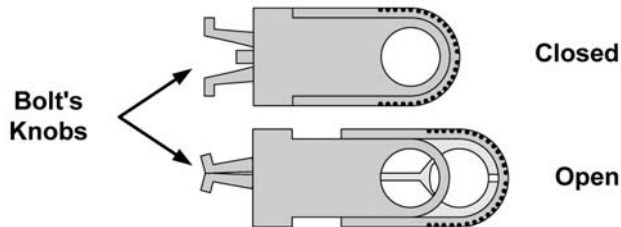
Note: Anti-theft security devices are available at most computer hardware stores.

This procedure explains how to install a looped security cable on your appliance. A looped security cable typically includes the parts shown in the diagram below.



**Figure 6: Looped Security Cable**

While these parts may differ between devices, all looped security cables include a bolt with knobs, as shown in the diagram below:



**Figure 7: Looped Security Cable Bolt**

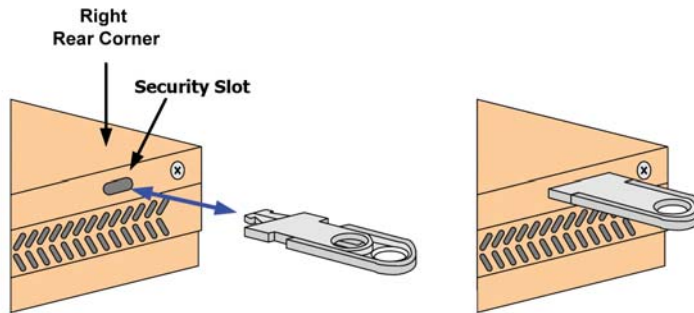
The bolt has two states, Open and Closed, and is used to connect the looped security cable to the appliance's security slot.

**To install an anti-theft device on the NetDefend firewall**

1. If your anti-theft device has a combination lock, set the desired code, as described in the documentation that came with your device.
2. Connect the anti-theft device's loop to any sturdy mounting point, as described in the documentation that came with your device.
3. Slide the anti-theft device's bolt to the **Open** position.



4. Insert the bolt into the NetDefend firewall's security slot, and then slide the bolt to the **Closed** position until the bolt holes are aligned.



5. Thread the anti-theft device's pin through the bolt's holes, and insert the pin into the main body of the anti-theft device, as described in the documentation that came with your device.

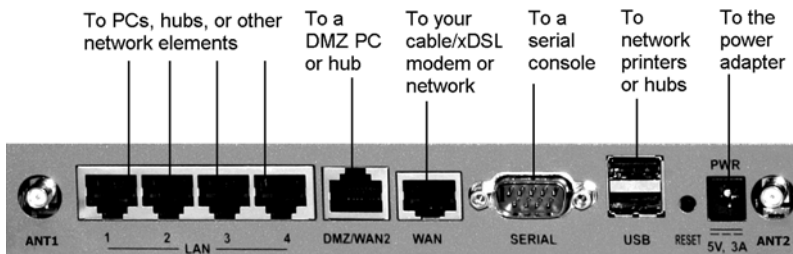


## Network Installation

1. Verify that you have the correct cable type.  
For information, see Network Requirements.
2. Connect the LAN cable:
  - Connect one end of the Ethernet cable to one of the **LAN** ports at the back of the unit.
  - Connect the other end to PCs, hubs, or other network devices.
3. Connect the WAN cable:
  - Connect one end of the Ethernet cable to the **WAN** port at the back of the unit.
  - Connect the other end of the cable to a Cable Modem, xDSL modem or office network.
4. Connect the power adapter to the power socket, labeled **PWR**, at the back of the NetDefend firewall.
5. Plug the power adapter into the wall electrical outlet.



Warning: The NetDefend firewall power adapter is compatible with either 100, 120 or 230 VAC input power. Verify that the wall outlet voltage is compatible with the voltage specified on your power adapter. Failure to observe this warning may result in injuries or damage to equipment.



**Figure 8: Typical Connection Diagram**



6. In wireless models, prepare the NetDefend firewall for a wireless connection:
  - a. Connect the antennas that came with your NetDefend firewall to the **ANT1** and **ANT2** antenna connectors in the appliance's rear panel.
  - b. Bend the antennas at the hinges, so that they point upwards.
7. In models with a print server, you can connect network printers as follows:
  - a. Connect one end of a USB cable to a **USB** port at the back of the unit.  
If needed, you can use the provided USB extension cord.
  - b. Connect the other end to a printer or a USB 2.0 hub.



Warning: Verify that the USB devices' power requirement does not exceed the appliance's USB power supply capabilities. Failure to observe this warning may cause damage to the appliance and void the warranty.

For information on setting up network printers, see *Setting up Network Printers* on page 424.

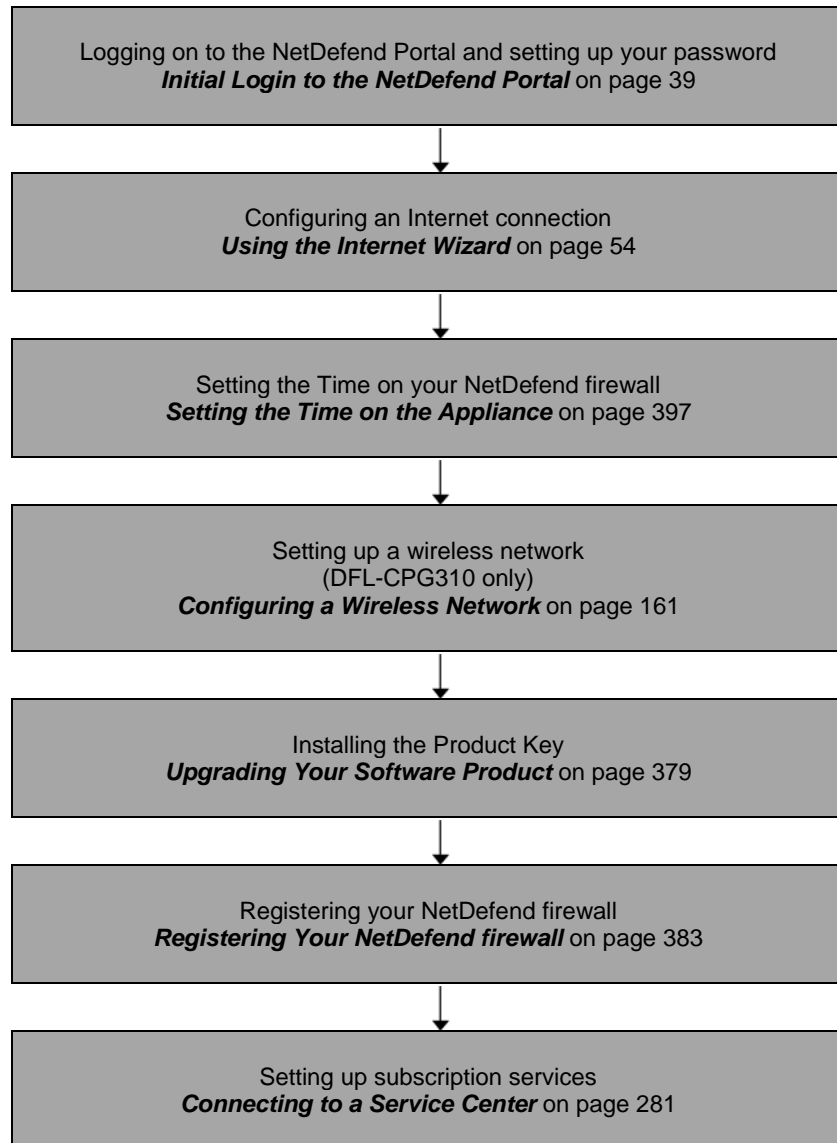
## Setting Up the NetDefend firewall

CP310

After you have installed the NetDefend firewall, you must set it up using the steps shown below.

When setting up your NetDefend firewall for the first time after installation, these steps follow each other automatically. After you have logged on and set up your password, the Setup Wizard automatically opens and displays the dialog boxes for configuring your Internet connection. After you have configured your Internet connection, the Setup Wizard automatically displays the dialog boxes for registering your NetDefend firewall. If desired, you can exit the Setup Wizard and perform each of these steps separately.





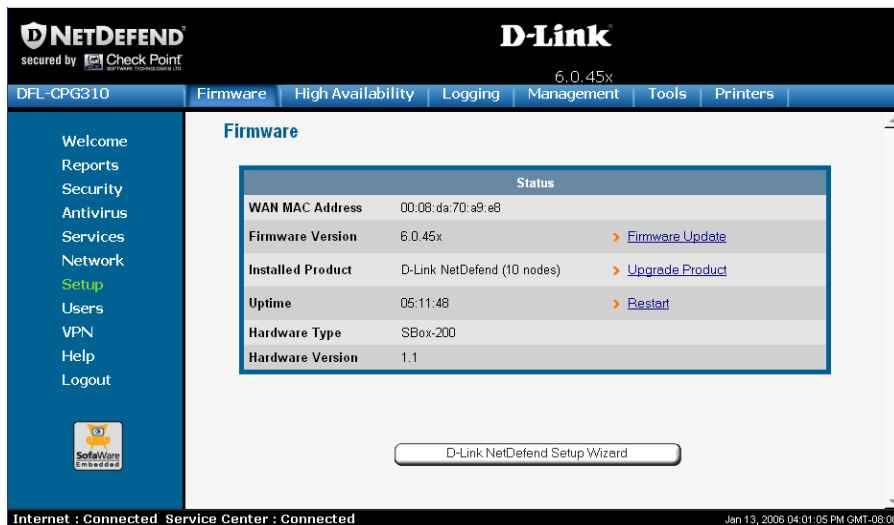
You can access the Setup Wizard at any time after initial setup, using the procedure below.



## To access the Setup Wizard

1. Click **Setup** in the main menu, and click the **Firmware** tab.

The **Firmware** page appears.



2. Click **NetDefend Setup Wizard**.

The **NetDefend Setup Wizard** opens with the **Welcome** page displayed.





## Chapter 3

# Getting Started

This chapter contains all the information you need in order to get started using your NetDefend firewall.

This chapter includes the following topics:

Initial Login to the NetDefend Portal .....	39
Logging on to the NetDefend Portal.....	42
Accessing the NetDefend Portal Remotely Using HTTPS .....	44
Using the NetDefend Portal.....	46
Logging off.....	51

## Initial Login to the NetDefend Portal

CP310

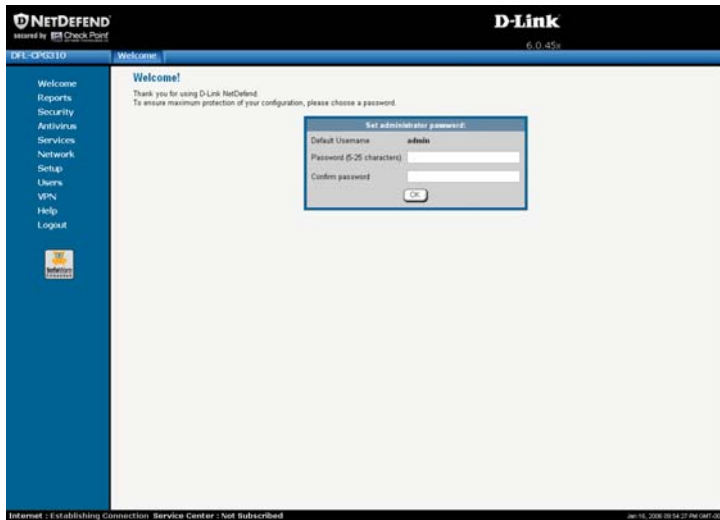
The first time you log on to the NetDefend Portal, you must set up your password.

### To log on to the NetDefend Portal for the first time

1. Browse to <http://my.firewall>.



The initial login page appears.



2. Type a password both in the **Password** and the **Confirm Password** fields.



Note: The password must be five to 25 characters (letters or numbers).



Note: You can change your password at any time. For further information, see [Changing Your Password](#).

3. Click **OK**.

The NetDefend Setup Wizard opens, with the Welcome page displayed.



4. Configure your Internet connection using one of the following ways:

- Internet Wizard

The Internet Wizard is the first part of the Setup Wizard, and it takes you through basic Internet connection setup, step by step. For information on using the Internet Wizard, see *Using the Internet Wizard* on page 54.

After you have completed the Internet Wizard, the Setup Wizard continues to guide you through appliance setup. For more information, see Setting Up the NetDefend firewall.

- Internet Setup

Internet Setup offers advanced setup options, such as configuring two Internet connections. To use Internet Setup, click **Cancel** and refer to *Using Internet Setup* on page 63.



## Logging on to the NetDefend Portal

CP310



Note: By default, HTTP and HTTPS access to the NetDefend Portal is not allowed from the WLAN, unless you do one of the following:

- Configure a specific firewall rule to allow access from the WLAN. See **Using Rules** on page 209.

*Or*

- Enable HTTPS access from the Internet. See **Configuring HTTPS** on page 390.

### To log on to the NetDefend Portal

1. Do one of the following:

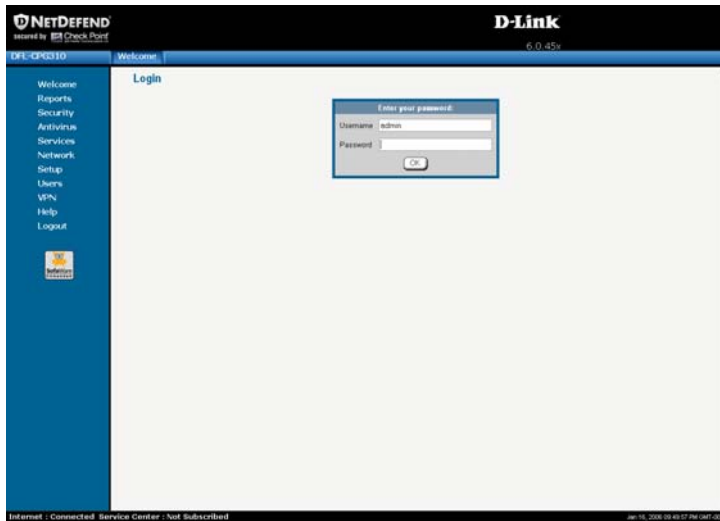
- Browse to `http://my.firewall`.

*Or*

- To log on through HTTPS (locally or remotely), follow the procedure **Accessing the NetDefend Portal Remotely** on page 44.



The login page appears.



2. Type your username and password.
3. Click OK.



The Welcome page appears.



## Accessing the NetDefend Portal Remotely Using HTTPS

CP310

You can access the NetDefend Portal remotely (from the Internet) through HTTPS. HTTPS is a protocol for accessing a secure Web server. It is used to transfer confidential user information. If desired, you can also use HTTPS to access the NetDefend Portal from your internal network.



Note: In order to access the NetDefend Portal remotely using HTTPS, you must first do both of the following:

- Configure your password, using HTTP. See **Initial Login to the NetDefend Portal** on page 39.
- Configure HTTPS Remote Access. See **Configuring HTTPS** on page 390.





Note: Your browser must support 128-bit cipher strength. To check your browser's cipher strength, open Internet Explorer and click Help > About Internet Explorer.

### **To access the NetDefend Portal from your internal network**

- Browse to `https://my.firewall`.  
(Note that the URL starts with “https”, not “http”.)  
The NetDefend Portal appears.

### **To access the NetDefend Portal from the Internet**

- Browse to `https://<firewall_IP_address>:981`.  
(Note that the URL starts with “https”, not “http”.)

The following things happen in the order below:

If this is your first attempt to access the NetDefend Portal through HTTPS, the certificate in the NetDefend firewall is not yet known to the browser, so the **Security Alert** dialog box appears.

To avoid seeing this dialog box again, install the certificate of the destination NetDefend firewall. If you are using Internet Explorer 5, do the following:

- a. Click **View Certificate**.

The Certificate dialog box appears, with the General tab displayed.

- b. Click **Install Certificate**.

The Certificate Import Wizard opens.

- c. Click **Next**.
- d. Click **Next**.
- e. Click **Finish**.
- f. Click **Yes**.
- g. Click **OK**.



The **Security Alert** dialog box reappears.

h. Click **Yes**.

The NetDefend Portal appears.

## Using the NetDefend Portal

The NetDefend Portal is a Web-based management interface, which enables you to manage and configure the NetDefend firewall operation and options.

The NetDefend Portal consists of three major elements.

**Table 5: NetDefend Portal Elements**

Element	Description
Main menu	Used for navigating between the various topics (such as Reports, Security, and Setup).
Main frame	Displays information and controls related to the selected topic. The main frame may also contain tabs that allow you to view different pages related to the selected topic.
Status bar	Shows your Internet connection and managed services status.

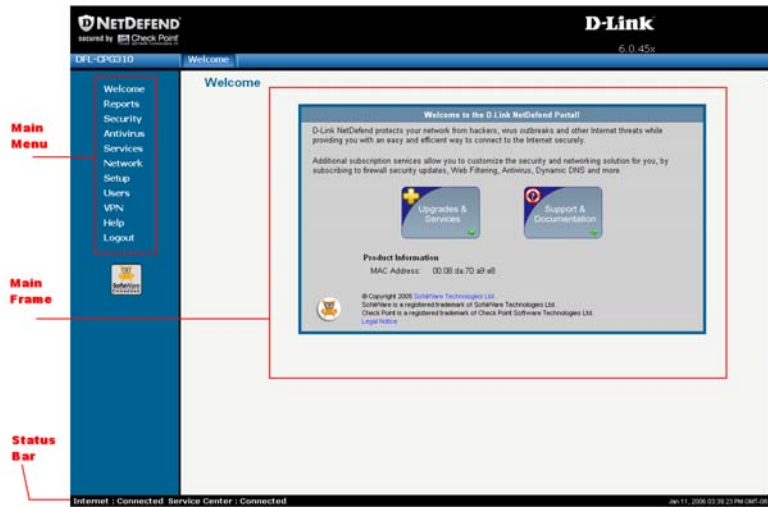


Figure 9: NetDefend Portal

## Main Menu

The main menu includes the following submenus.

Table 6: Main Menu Submenus

This submenu...	Does this...
Welcome	Displays general welcome information.
Reports	Provides reporting capabilities in terms of event logging, traffic monitoring, active computers, and established connections.
Security	Provides controls and options for setting the security of any computer in the network.
Antivirus	Allows you to configure VStream Antivirus settings.
Services	Allows you to control your subscription to subscription services.



This submenu...	Does this...
Network	Allows you to manage and configure your network settings and Internet connections.
Setup	Provides a set of tools for managing your NetDefend firewall. Allows you to upgrade your license and firmware and to configure HTTPS access to your NetDefend firewall.
Users	Allows you to manage NetDefend users.
VPN	Allows you to manage, configure, and log on to VPN sites.
Help	Provides context-sensitive help.
Logout	Allows you to log off of the NetDefend Portal.

## ***Main Frame***

The main frame displays the relevant data and controls pertaining to the menu and tab you select. These elements sometimes differ depending on what model you are using. The differences are described throughout this guide.

## ***Status Bar***

The status bar is located at the bottom of each page. It displays the fields below, as well as the date and time.

**Table 7: Status Bar Fields**

This field...	Displays this...
Internet	<p>Your Internet connection status.</p> <p>The connection status may be one of the following:</p> <ul style="list-style-type: none"><li>• Connected. The NetDefend firewall is connected to the Internet.</li><li>• Connected – Probing OK. Connection probing is enabled and has detected that the Internet connectivity is OK.</li><li>• Connected – Probing Failed. Connection probing is enabled and has detected problems with the Internet connectivity.</li><li>• Not Connected. The Internet connection is down.</li><li>• Establishing Connection. The NetDefend firewall is connecting to the Internet.</li><li>• Contacting Gateway. The NetDefend firewall is trying to contact the Internet default gateway.</li><li>• Disabled. The Internet connection has been manually disabled.</li></ul> <p>Note: You can configure both a primary and a secondary Internet connection. When both connections are configured, the Status bar displays both statuses. For example “Internet [Primary]: Connected”. For information on configuring a secondary Internet connection, see <b><i>Configuring the Internet Connection</i></b> on page 53.</p>



---

This field...	Displays this...
---------------	------------------

---

Service Center	
----------------	--

	Displays your subscription services status.
--	---

Your Service Center may offer various subscription services. These include the firewall service and optional services such as Web Filtering and Email Antivirus.

Your subscription services status may be one of the following:

- Not Subscribed. You are not subscribed to security services.
  - Connection Failed. The NetDefend firewall failed to connect to the Service Center.
  - Connecting. The NetDefend firewall is connecting to the Service Center.
  - Connected. You are connected to the Service Center, and security services are active.
-



## Logging off

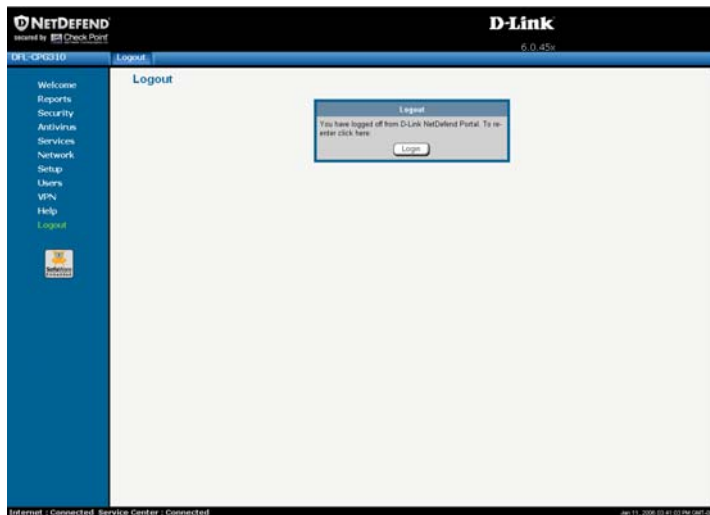
CP310

Logging off terminates your administration session. Any subsequent attempt to connect to the NetDefend Portal will require re-entering of the administration password.

### To log off of the NetDefend Portal

- Do one of the following:
  - If you are connected through HTTP, click **Logout** in the main menu.

The Logout page appears.



- If you are connected through HTTPS, the **Logout** option does not appear in the main menu. Close the browser window.







## Chapter 4

# Configuring the Internet Connection

This chapter describes how to configure and work with an Internet connection.

This chapter includes the following topics:

Overview .....	53
Using the Internet Wizard .....	54
Using Internet Setup .....	63
Setting Up a Dialup Modem .....	84
Viewing Internet Connection Information .....	87
Enabling/Disabling the Internet Connection .....	88
Using Quick Internet Connection/Disconnection .....	90
Configuring a Backup Internet Connection .....	90

## Overview

You must configure your Internet connection before you can access the Internet through the NetDefend firewall. You can configure your Internet connection using any of the following setup tools:

- **Setup Wizard.** Guides you through the NetDefend firewall setup step by step. The first part of the Setup Wizard is the Internet Wizard. For further information on the Setup Wizard, see *Setting Up the NetDefend firewall*.
- **Internet Wizard.** Guides you through the Internet connection configuration process step by step.
- **Internet Setup.** Offers the following advanced setup options:

- Configure two Internet connections.

For information, see *Configuring a Backup Internet Connection* on page 90.

- Enable Traffic Shaper for traffic flowing through the connection.



For information on Traffic Shaper, see *Using Traffic Shaper* on page 151.

- Configure a dialup Internet connection.

Before configuring the connection, you must first set up the modem. For information, see *Setting Up a Dialup Modem* on page 84.

## Using the Internet Wizard

CP310

The Internet Wizard allows you to configure your NetDefend firewall for Internet connection quickly and easily through its user-friendly interface. It lets you to choose between the following three types of broadband connection methods:

- Direct LAN Connection
- Cable Modem
- PPTP or PPPoE dialer



Note: The first time you log on to the NetDefend Portal, the Internet Wizard starts automatically as part of the Setup Wizard. In this case, you should skip to step 3 in the procedure below.

### To set up the Internet connection using the Internet Wizard

1. Click **Network** in the main menu, and click the **Internet** tab.

The **Internet** page appears.

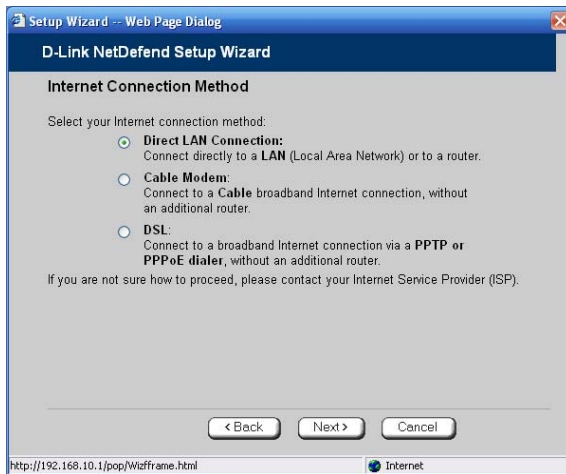
2. Click **Internet Wizard**.

The Internet Wizard opens with the Welcome page displayed.



3. Click **Next**.

The Internet Connection Method dialog box appears.



4. Select the Internet connection method you want to use for connecting to the Internet.



Note: If you selected PPTP or PPPoE dialer, do not use your dial-up software to connect to the Internet.

5. Click **Next**.

## ***Using a Direct LAN Connection***

No further settings are required for a direct LAN (Local Area Network) connection. The **Confirmation** screen appears.



1. Click **Next**.

The system attempts to connect to the Internet via the selected connection.

The **Connecting...** screen appears.



At the end of the connection process the **Connected** screen appears.

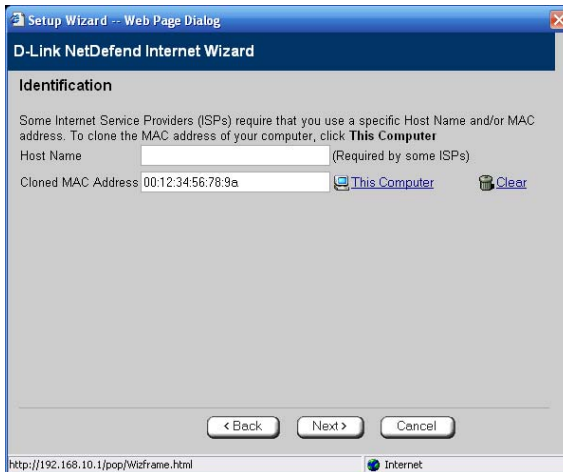


2. Click **Finish**.



## Using a Cable Modem Connection

If you selected the Cable Modem connection method, the **Identification** dialog box appears.



1. If your ISP requires a specific hostname for authentication, type it in the **Host Name** field.

The ISP will supply you with the proper hostname, if required. Most ISPs do not require a specific hostname.

2. A MAC address is a 12-digit identifier assigned to every network device. If your ISP restricts connections to specific, recognized MAC addresses, they will instruct you to enter the MAC address. Otherwise, you may leave this field blank.

If your ISP requires the MAC address, do either of the following:

- Click **This Computer** to automatically "clone" the MAC address of your computer to the NetDefend firewall.

*Or*

- If the ISP requires authentication using the MAC address of a different computer, enter the MAC address in the **MAC cloning** field.



3. Click **Next**.

The **Confirmation** screen appears.

4. Click **Next**.

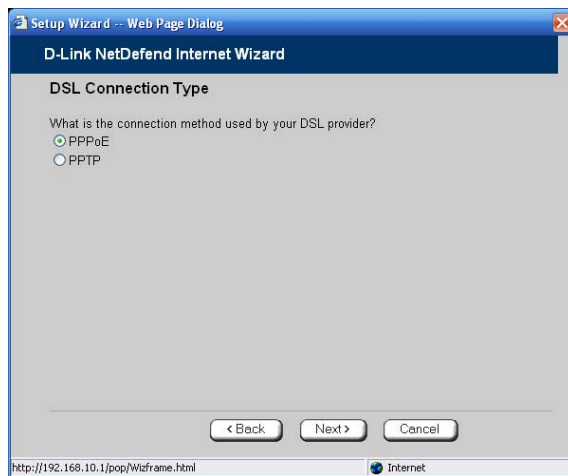
The system attempts to connect to the Internet.

The **Connecting...** screen appears. At the end of the connection process the **Connected** screen appears.

5. Click **Finish**.

## ***Using a PPTP or PPPoE Dialer Connection***

If you selected the PPTP or PPPoE dialer connection method, the **DSL Connection Type** dialog box appears.



1. Select the connection method used by your DSL provider.



**Note:** Most xDSL providers use PPPoE. If you are uncertain regarding which connection method to use contact your xDSL provider.

2. Click **Next**.



## Using PPPoE

If you selected the PPPoE connection method, the DSL Configuration dialog box appears.

The screenshot shows a web browser window titled "Setup Wizard - Web Page Dialog" displaying the "D-Link NetDefend Internet Wizard" interface. The "DSL Configuration" section is active, showing instructions: "To establish an Internet connection, you will need to enter the following details. If you are not sure, please contact your ISP for the details." Below the instructions are four input fields: "Username", "Password", "Confirm password", and "Service". The "Service" field contains the text "sbcglobal.net". At the bottom of the dialog are three buttons: "< Back", "Next >", and "Cancel". The browser's address bar shows "http://192.168.10.1/pop/Wizard.html" and the status bar shows "Internet".

1. Complete the fields using the information in the table below.
2. Click **Next**.

The **Confirmation** screen appears.

3. Click **Next**.

The system attempts to connect to the Internet via the DSL connection.

The **Connecting...** screen appears.

At the end of the connection process the **Connected** screen appears.

4. Click **Finish**.



**Table 8: PPPoE Connection Fields**

In this field...	Do this...
Username	Type your user name.
Password	Type your password.
Confirm password	Type your password again.
Service	Type your service name.
	This field can be left blank.

## Using PPTP

If you selected the PPTP connection method, the DSL Configuration dialog box appears.

1. Complete the fields using the information in the table below.
2. Click Next.

The Confirmation screen appears.



3. Click **Next**.

The system attempts to connect to the Internet via the DSL connection.

The **Connecting...** screen appears.

At the end of the connection process the **Connected** screen appears.

4. Click **Finish**.

**Table 9: PPTP Connection Fields**

In this field...	Do this...
Username	Type your user name.
Password	Type your password.
Confirm password	Type your password again.
Service	Type your service name.
Server IP	Type the IP address of the PPTP modem.
Internal IP	Type the local IP address required for accessing the PPTP modem.
Subnet Mask	Type the subnet mask of the PPTP modem.



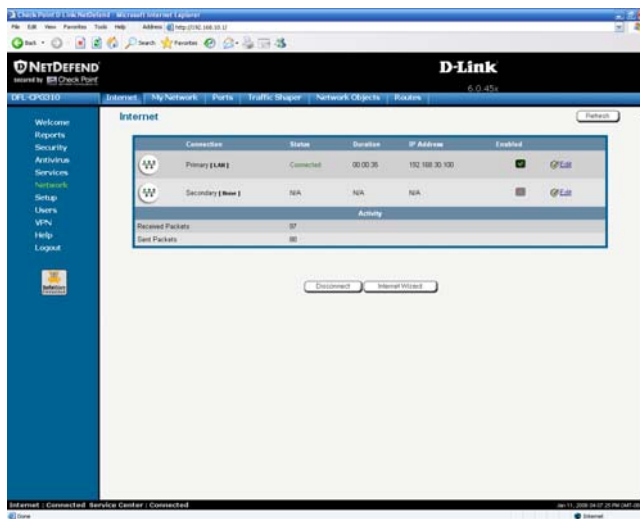
## Using Internet Setup

CP310

Internet Setup allows you to manually configure your Internet connection.

### To configure the Internet connection using Internet Setup

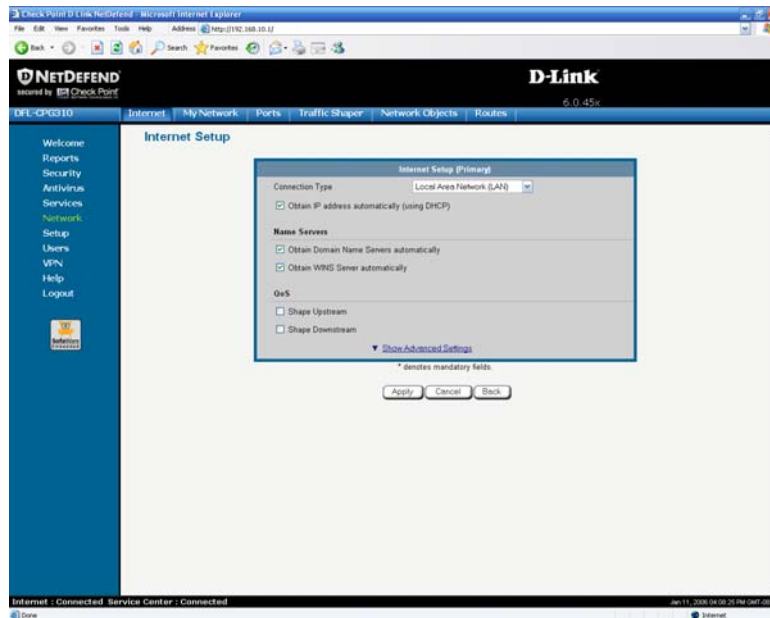
1. Click Network in the main menu, and click the Internet tab.



2. Next to the desired Internet connection, click Edit.



The Internet Setup page appears.



3. From the **Connection Type** drop-down list, select the Internet connection type you are using/intend to use.

The display changes according to the connection type you selected.

The following steps should be performed in accordance with the connection type you have chosen.



## Using a LAN Connection

The screenshot shows the 'Internet Setup (Primary)' window. It has a title bar with the text 'Internet Setup (Primary)'. Inside, there's a 'Connection Type' dropdown menu set to 'Local Area Network (LAN)'. Below that is a checked checkbox for 'Obtain IP address automatically (using DHCP)'. The next section is 'Name Servers', with two checked checkboxes: 'Obtain Domain Name Servers automatically' and 'Obtain WINS Server automatically'. The final section is 'QoS', with two unchecked checkboxes: 'Shape Upstream' and 'Shape Downstream'. At the bottom right, there's a link that says 'Show Advanced Settings' with a small downward arrow icon.

1. Complete the fields using the relevant information in *Internet Setup Fields* on page 77.



New fields appear, depending on the check boxes you selected.

**Internet Setup (Primary)**

Connection Type: Local Area Network (LAN) ▼

☐ Obtain IP address automatically (using DHCP)

Use the following configuration:

IP Address: 192.168.30.100 \*

Subnet Mask: 255.255.255.0 [/24] ▼ \*

Default Gateway: 192.168.30.1 \*

**Name Servers**

☐ Obtain Domain Name Servers automatically

Primary DNS Server: 192.152.81.1 \*

Secondary DNS Server: 67.130.140.2

☐ Obtain WINS Server automatically

WINS Server:

**QoS**

☐ Shape Upstream

☐ Shape Downstream

[▲ Hide Advanced Settings](#)

**Advanced**

MTU:

Host Name: (Required by some ISPs) ?

☐ MAC Cloning

**High Availability**

☐ Do not connect if this gateway is in passive state

**Dead Connection Detection**

Probe Next Hop: ☒ ?

Connection Probing Method: None ▼ ?

## 2. Click **Apply**.

The NetDefend firewall attempts to connect to the Internet, and the Status Bar displays the Internet status “Connecting”. This may take several seconds.

Once the connection is made, the Status Bar displays the Internet status “Connected”.



## Using a Cable Modem Connection

The screenshot shows the 'Internet Setup (Primary)' window. At the top, the title bar reads 'Internet Setup (Primary)'. Below it, the 'Connection Type' is set to 'Cable Modem' in a dropdown menu. Under the 'Name Servers' section, there are two checked options: 'Obtain Domain Name Servers automatically' and 'Obtain WINS Server automatically'. Under the 'QoS' section, there are two unchecked options: 'Shape Upstream' and 'Shape Downstream'. At the bottom of the window, there is a link that says 'Show Advanced Settings' with a small downward arrow icon. Below the link, a note states '\* denotes mandatory fields.'

1. Complete the fields using the relevant information in *Internet Setup Fields* on page 77.



New fields appear, depending on the check boxes you selected.

Internet Setup (Primary)	
Connection Type	Cable Modem
<b>Name Servers</b>	
<input type="checkbox"/> Obtain Domain Name Servers automatically	
Primary DNS Server	<input type="text"/> *
Secondary DNS Server	<input type="text"/>
<input type="checkbox"/> Obtain WINS Server automatically	
WINS Server	<input type="text"/>
<b>QoS</b>	
<input checked="" type="checkbox"/> Shape Upstream	
Link Rate	<input type="text"/> Kbit/Second
<input checked="" type="checkbox"/> Shape Downstream	
Link Rate	<input type="text"/> Kbit/Second
<a href="#">▲ Hide Advanced Settings</a>	
<b>Advanced</b>	
MTU	<input type="text"/>
Host Name	<input type="text"/> (Required by some ISPs)
<input checked="" type="checkbox"/> MAC Cloning	
Hardware MAC Address	00:08:da:77:70:70
Cloned MAC Address	<input type="text"/> <a href="#">This Computer</a>
<b>High Availability</b>	
<input type="checkbox"/> Do not connect if this gateway is in passive state	
<b>Dead Connection Detection</b>	
Probe Next Hop	<input checked="" type="checkbox"/>
Connection Probing Method	None

\* denotes mandatory fields.

## 2. Click Apply.

The NetDefend firewall attempts to connect to the Internet, and the Status Bar displays the Internet status “Connecting”. This may take several seconds.

Once the connection is made, the Status Bar displays the Internet status “Connected”.





## Using a PPPoE Connection

The screenshot shows the 'Internet Setup (Primary)' window. It contains the following fields and sections:

- Connection Type:** A dropdown menu with 'PPPoE' selected.
- Username:** A text input field with an asterisk (\*) to its right.
- Password:** A text input field with an asterisk (\*) to its right.
- Confirm password:** A text input field with an asterisk (\*) to its right.
- Service:** A text input field with a help icon (?) to its right.
- Name Servers:**
  - ☒ Obtain Domain Name Servers automatically
  - WINS Server:** A text input field.
- QoS:**
  - ☐ Shape Upstream
  - ☐ Shape Downstream
- Show Advanced Settings:** A link with a downward arrow icon.

1. Complete the fields using the relevant information in *Internet Setup Fields* on page 77.



New fields appear, depending on the check boxes you selected.

Internet Setup (Primary)

Connection Type
PPPoE

Username

Password

Confirm password

Service

Name Servers

☐ Obtain Domain Name Servers automatically

Primary DNS Server
192.152.81.1

Secondary DNS Server
67.130.140.2

WINS Server

QoS

☒ Shape Upstream

Link Rate

Kbit/Second

☒ Shape Downstream

Link Rate

Kbit/Second

[▲ Hide Advanced Settings](#)

Advanced

External IP

MTU

High Availability

☐ Do not connect if this gateway is in passive state

Dead Connection Detection

Probe Next Hop
☒

Connection Probing Method
None

## 2. Click Apply.

The NetDefend firewall attempts to connect to the Internet, and the Status Bar displays the Internet status “Connecting”. This may take several seconds.

Once the connection is made, the Status Bar displays the Internet status “Connected”.



## Using a PPTP Connection

**Internet Setup (Primary)**

Connection Type: PPTP \*

Username: \*

Password: \*

Confirm password: \*

Service: RELAY\_PPP1 \*

Server IP: 10.0.0.138 \*

☒ Obtain IP address automatically (using DHCP)

**Name Servers**

☒ Obtain Domain Name Servers automatically

WINS Server:

**QoS**

☐ Shape Upstream

☐ Shape Downstream

[Show Advanced Settings](#)

1. Complete the fields using the relevant information in *Internet Setup Fields* on page 77.



New fields appear, depending on the check boxes you selected.

**Internet Setup (Primary)**

Connection Type	PPTP	
Username		*
Password		*
Confirm password		*
Service	RELAY_PPP1	*
Server IP	10.0.0.138	*
<input type="checkbox"/> Obtain IP address automatically (using DHCP)		
Use the following configuration:		
IP Address	10.200.1.1	*
Subnet Mask	255.0.0.0 [/8]	*
Default Gateway		?

**Name Servers**

☐ Obtain Domain Name Servers automatically

Primary DNS Server	192.152.81.1	*
Secondary DNS Server	67.130.140.2	
WINS Server		

**QoS**

☐ Shape Upstream

☐ Shape Downstream

[▲ Hide Advanced Settings](#)

**Advanced**

External IP		
MTU		

**High Availability**

☐ Do not connect if this gateway is in passive state

**Dead Connection Detection**

Probe Next Hop	✓	?
Connection Probing Method	None	?

## 2. Click **Apply**.

The NetDefend firewall attempts to connect to the Internet, and the Status Bar displays the Internet status “Connecting”. This may take several seconds.



Once the connection is made, the Status Bar displays the Internet status “Connected”.

## Using a Telstra (BPA) Connection

Use this Internet connection type only if you are subscribed to Telstra® BigPond™ Internet. Telstra BigPond is a trademark of Telstra Corporation Limited.

The screenshot shows the 'Internet Setup (Primary)' window. It contains the following fields and options:

- Connection Type:** A dropdown menu with 'Telstra (BPA)' selected.
- Username:** A text input field with an asterisk (\*) indicating it is required.
- Password:** A text input field with an asterisk (\*) indicating it is required.
- Confirm password:** A text input field with an asterisk (\*) indicating it is required.
- Server IP:** A text input field containing '10.0.0.138' with an asterisk (\*) indicating it is required.
- Name Servers:** A section with two checked checkboxes:
  - ☒ Obtain Domain Name Servers automatically
  - ☒ Obtain WINS Server automatically
- QoS:** A section with two unchecked checkboxes:
  - ☐ Shape Upstream
  - ☐ Shape Downstream

At the bottom right of the window, there is a link: [▼ Show Advanced Settings](#).

1. Complete the fields using the relevant information in *Internet Setup Fields* on page 77.



New fields appear, depending on the check boxes you selected.

**Internet Setup (Primary)**

Connection Type: Telstra (BPA)

Username:  \*

Password:  \*

Confirm password:  \*

Server IP:  \*

**Name Servers**

☐ Obtain Domain Name Servers automatically

Primary DNS Server:  \*

Secondary DNS Server:

☐ Obtain WINS Server automatically

WINS Server:

**QoS**

☒ Shape Upstream

Link Rate:  Kbit/Second

☒ Shape Downstream

Link Rate:  Kbit/Second

[▲ Hide Advanced Settings](#)

MTU:

**High Availability**

☐ Do not connect if this gateway is in passive state

**Dead Connection Detection**

Probe Next Hop: ☒

Connection Probing Method: None

## 2. Click **Apply**.

The NetDefend firewall attempts to connect to the Internet, and the Status Bar displays the Internet status “Connecting”. This may take several seconds.

Once the connection is made, the Status Bar displays the Internet status “Connected”.



## Using a Dialup Connection

To use this connection type, you must first set up the dialup modem. For information, see *Setting Up a Dialup Modem* on page 84.

The screenshot shows the 'Internet Setup (Primary)' window. It has a blue header bar with the title 'Internet Setup (Primary)'. Below the header, there are several sections:

- Connection Type:** A dropdown menu with 'Dialup' selected.
- Username:** A text input field with an asterisk (\*) to its right.
- Password:** A text input field with an asterisk (\*) to its right.
- Confirm password:** A text input field with an asterisk (\*) to its right.
- Phone number:** A text input field with an asterisk (\*) to its right.
- Connect on demand:** A checkbox.
- Name Servers:** A section with a checked checkbox 'Obtain Domain Name Servers automatically' and a 'WINS Server' text input field.
- QoS:** A section with two checkboxes: 'Shape Upstream' and 'Shape Downstream'.

At the bottom right of the window, there is a link that says '▼ Show Advanced Settings'.

1. Complete the fields using the relevant information in *Internet Setup Fields* on page 77.



New fields appear, depending on the check boxes you selected.

Internet Setup (Primary)

Connection Type ▼  
Dialup

Username \*

Password \*

Confirm password \*

Phone number \*

☐ Connect on demand

**Name Servers**

☐ Obtain Domain Name Servers automatically

Primary DNS Server \*  
192.152.81.1

Secondary DNS Server  
67.130.140.2

WINS Server

**QoS**

☒ Shape Upstream

Link Rate Kbit/Second

☒ Shape Downstream

Link Rate Kbit/Second

[▲ Hide Advanced Settings](#)

**Advanced**

External IP \*

MTU

**High Availability**

☐ Do not connect if this gateway is in passive state

**Dead Connection Detection**

Probe Next Hop ?  
☒

Connection Probing Method ?  
None

## 2. Click **Apply**.

The NetDefend firewall attempts to connect to the Internet, and the Status Bar displays the Internet status “Connecting”. This may take several seconds.

Once the connection is made, the Status Bar displays the Internet status “Connected”.





## Using No Connection

If you do not have an Internet connection, set the connection type to **None**.

The screenshot shows a window titled "Internet Setup (Primary)". Inside the window, there is a section labeled "Connection Type" with a dropdown menu. The dropdown menu is currently set to "None".

- Click Apply.

**Table 10: Internet Setup Fields**

In this field...	Do this...
Username	Type your user name.
Password	Type your password.
Confirm password	Type your password.
Service	Type your service name.  If your ISP has not provided you with a service name, leave this field empty.
Server IP	If you selected PPTP, type the IP address of the PPTP server as given by your ISP.  If you selected Telstra (BPA), type the IP address of the Telstra authentication server as given by Telstra.
Phone Number	If you selected Dialup, type the phone number that the modem should dial, as given by your ISP.



In this field...	Do this...
Connect on demand	<p>Select this option if you do not want the dialup modem to be constantly connected to the Internet. The modem will dial a connection only under certain conditions.</p> <p>This option is useful when configuring a dialup backup connection. For information, see <b><i>Setting Up a Dialup Backup Connection</i></b> on page 92.</p>
When no higher priority connection is available	<p>Select this option to specify that the dialup modem should only dial a connection if no other connection exists, and the NetDefend firewall is not acting as a Backup appliance.</p> <p>If another connection opens, the dialup modem will disconnect.</p> <p>For information on configuring the appliance as a Backup or Master, see <b><i>Configuring High Availability</i></b> on page 119.</p>
On outgoing activity	<p>Select this option to specify that the dialup modem should only dial a connection if no other connection exists, and there is outgoing activity (that is, packets need to be transmitted to the Internet).</p> <p>If another connection opens, or if the connection times out, the dialup modem will disconnect.</p>
Idle timeout	<p>Type the amount of time (in minutes) that the connection can remain idle. Once this period of time has elapsed, the dialup modem will disconnect.</p>
Obtain IP address automatically (using DHCP)	<p>Clear this option if you do not want the NetDefend firewall to obtain an IP address automatically using DHCP.</p>
IP Address	<p>Type the static IP address of your NetDefend firewall.</p>
Subnet Mask	<p>Select the subnet mask that applies to the static IP address of your NetDefend firewall.</p>



In this field...	Do this...
Default Gateway	Type the IP address of your ISP's default gateway.
Name Servers	
Obtain Domain Name Servers automatically	Clear this option if you want the NetDefend firewall to obtain an IP address automatically using DHCP, but not to automatically configure DNS servers.
Obtain WINS Server automatically	Clear this option if you want the NetDefend firewall to obtain an IP address automatically using DHCP, but not to automatically configure the WINS server.
Primary DNS Server	Type the Primary DNS server IP address.
Secondary DNS Server	Type the Secondary DNS server IP address.
WINS Server	Type the WINS server IP address.
QoS	
Shape Upstream: Link Rate	<p>Select this option to enable Traffic Shaper for outgoing traffic. Then type a rate (in kilobits/second) slightly lower than your Internet connection's maximum measured upstream speed in the field provided.</p> <p>It is recommended to try different rates in order to determine which one provides the best results.</p> <p>For information on using Traffic Shaper, see <b>Using Traffic Shaper</b> on page 151.</p>



In this field...	Do this...
Shape Downstream: Link Rate	<p>Select this option to enable Traffic Shaper for incoming traffic. Then type a rate (in kilobits/second) slightly lower than your Internet connection's maximum measured downstream speed in the field provided.</p> <p>It is recommended to try different rates in order to determine which one provides the best results.</p> <p>Note: Traffic Shaper cannot control the number or type of packets it receives from the Internet; it can only affect the rate of incoming traffic by dropping received packets. This makes the shaping of inbound traffic less accurate than the shaping of outbound traffic. It is therefore recommended to enable traffic shaping for incoming traffic only if necessary.</p> <p>For information on using Traffic Shaper, see <b><i>Using Traffic Shaper</i></b> on page 151.</p>
Advanced	
External IP	<p>If you selected PPTP, type the IP address of the PPTP client as given by your ISP.</p> <p>If you selected PPPoE, this field is optional, and you do not have to fill it in unless your ISP has instructed you to do so.</p>
MTU	<p>This field allows you to control the maximum transmission unit size.</p> <p>As a general recommendation you should leave this field empty. If however you wish to modify the default MTU, it is recommended that you consult with your ISP first and use MTU values between 1300 and 1500.</p>



In this field...	Do this...
MAC Cloning	<p>A MAC address is a 12-digit identifier assigned to every network device. If your ISP restricts connections to specific, recognized MAC addresses, you must select this option to clone a MAC address.</p> <p>Note: When configuring MAC cloning for the secondary Internet connection, the DMZ/WAN2 port must be configured as WAN2; otherwise this field is disabled. For information on configuring ports, see <b>Managing Ports</b> on page 145.</p>
Hardware MAC Address	<p>This field displays the NetDefend firewall's MAC address.</p> <p>This field is read-only.</p>
Cloned MAC Address	<p>Do one of the following:</p> <ul style="list-style-type: none"><li>• Click This Computer to automatically "clone" the MAC address of your computer to the NetDefend firewall.</li><li>• If the ISP requires authentication using the MAC address of a different computer, type the MAC address in this field.</li></ul> <p>Note: In the secondary Internet connection, this field is enabled only if the DMZ/WAN2 port is set to WAN2.</p>
High Availability	<p>The High Availability area only appears in NetDefend with Power Pack.</p>
Do not connect if this gateway is in passive state	<p>If you are using High Availability (HA), select this option to specify that the gateway should connect to the Internet only if it is the Active Gateway in the HA cluster.</p> <p>This field is only enabled if HA is configured.</p> <p>For information on HA, see <b>Configuring High Availability</b> on page 119.</p>
Dead Connection Detection	



---

In this field...	Do this...
Probe Next Hop	<p data-bbox="425 296 1212 444">Select this option to automatically detect loss of connectivity to the default gateway. If you selected LAN, this is done by sending ARP requests to the default gateway. If you selected PPTP, PPPoE, or Dialup, this is done by sending PPP echo reply (LCP) messages to the PPP peer.</p> <p data-bbox="425 479 1212 548">By default, if the default gateway does not respond, the Internet connection is considered to be down.</p> <p data-bbox="425 583 1212 687">If it is determined that the Internet connection is down, and two Internet connections are defined, a failover will be performed to the second Internet connection, ensuring continuous Internet connectivity.</p> <p data-bbox="425 722 1212 751">This option is selected by default.</p>



---

**In this field...****Do this...**

---

**Connection Probing  
Method**

While the Probe Next Hop option checks the availability of the next hop router, which is usually at your ISP, connectivity to the next hop router does not always indicate that the Internet is accessible. For example, if there is a problem with a different router at the ISP, the next hop will be reachable, but the Internet might be inaccessible. Connection probing is a way to detect Internet failures that are more than one hop away.

Specify what method to use for probing the connection, by selecting one of the following:

- **None.** Do not perform Internet connection probing. Next hop probing will still be used, if the Probe Next Hop check box is selected. This is the default value.
- **Ping Addresses.** Ping anywhere from one to three servers specified by IP address or DNS name in the 1, 2, and 3 fields. If for 45 seconds none of the defined servers respond to pinging, the Internet connection is considered to be down. Use this method if you have reliable servers that can be pinged, that are a good indicator of Internet connectivity, and that are not likely to fail simultaneously (that is, they are not at the same location).
- **Probe DNS Servers.** Probe the primary and secondary DNS servers. If for 45 seconds neither gateway responds, the Internet connection is considered to be down. Use this method if the availability of your DNS servers is a good indicator for the availability of Internet connectivity.
- **Probe VPN Gateway (RDP).** Send RDP echo requests to up to three Check Point VPN gateways specified by IP address or DNS name in the 1, 2, and 3 fields. If for 45 seconds none of the defined gateways respond, the Internet connection is considered to be down. Use this option if you have Check Point VPN gateways, and you want loss of connectivity to these gateways to trigger ISP failover to an Internet connection from which these gateways are reachable.



---

**In this field...****Do this...**

---

1, 2, 3

If you chose the Ping Addresses connection probing method, type the IP addresses or DNS names of the desired servers.

If you chose the Probe VPN Gateway (RDP) connection probing method, type the IP addresses or DNS names of the desired VPN gateways.

You can clear a field by clicking Clear.

---

## Setting Up a Dialup Modem



You can use a dialup modem as a primary or secondary Internet connection method. This is useful in locations where broadband Internet access is unavailable.

When used as a backup Internet connection, the modem can be automatically disconnected when not in use. For information on setting up a dialup backup connection, see *Setting Up a Dialup Backup Connection* on page 92.

### To set up a dialup modem

1. Connect a regular or ISDN dialup modem to your NetDefend firewall's serial port.

For information on locating the serial port, see Rear Panel.

2. Click **Network** in the main menu, and click the **Ports** tab.





The Ports page appears.



3. In the RS232 drop-down list, select **Dialup**.
4. Click **Apply**.
5. Next to the RS232 drop-down list, click **Setup**.



The Dialup page appears.



6. Complete the fields using the information in the table below.
7. Click **Apply**.
8. To check that the values you entered are correct, click **Test**.

The **Dialup** page displays a message indicating whether the test succeeded.

9. Configure a Dialup Internet connection using the information in *Using Internet Setup* on page 63.

**Table 11: Dialup Fields**

In this field...	Do this...
Modem Type	<p>Select the modem type.</p> <p>If you selected Custom, the Installation String field is enabled. Otherwise, it is filled in with the correct installation string for the modem type.</p>
Initialization String	<p>Type the installation string for the custom modem type.</p> <p>If you selected a standard modem type, this field is read-only.</p>

**In this field...****Do this...**

Dial Mode

Select the dial mode the modem uses.

Port Speed

Select the modem's port speed (in bits per second).

## Viewing Internet Connection Information

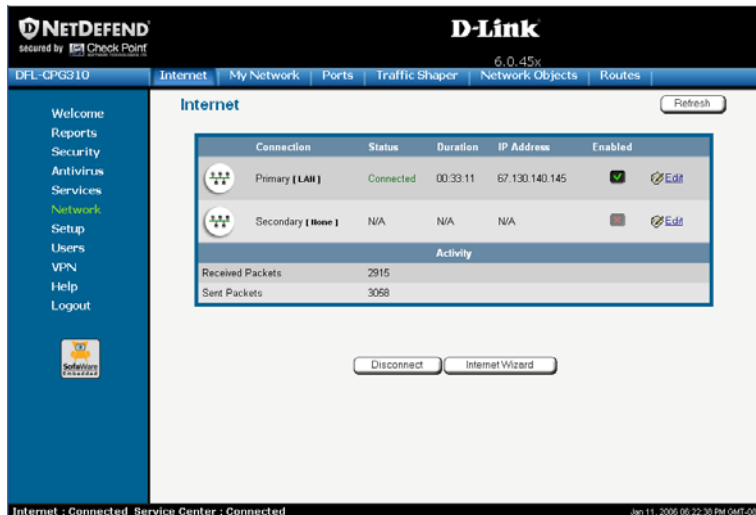
CP310

You can view information on your Internet connection(s) in terms of status, duration, and activity.

### To view Internet connection information

1. Click **Network** in the main menu, and click the **Internet** tab.

The Internet page appears.



For an explanation of the fields on this page, see the table below.

2. To refresh the information on this page, click **Refresh**.



**Table 12: Internet Page Fields**

Field	Description
Status	Indicates the connection's status.
Duration	Indicates the connection duration, if active. The duration is given in the format hh:mm:ss, where:  hh=hours  mm=minutes  ss=seconds
IP Address	Your IP address.
Enabled	Indicates whether or not the connection is enabled.  For further information, see <i><b>Enabling/Disabling the Internet Connection</b></i> on page 88
Received Packets	The number of data packets received in the active connection.
Sent Packets	The number of data packets sent in the active connection.

# Enabling/Disabling the Internet Connection





CP310

You can temporarily disable an Internet connection. This is useful if, for example, you are going on vacation and do not want to leave your computer connected to the Internet. If you have two Internet connections, you can force the NetDefend firewall to use a particular connection, by disabling the other connection.

The Internet connection's Enabled/Disabled status is persistent through reboots.



### **To enable/disable an Internet connection**

1. Click **Network** in the main menu, and click the **Internet** tab.  
The **Internet** page appears.
2. Next to the Internet connection, do one of the following:
  - To enable the connection, click .  
The button changes to  and the connection is enabled.
  - To disable the connection, click .  
The button changes to  and the connection is disabled.



## Using Quick Internet Connection/Disconnection

CP310

By clicking the **Connect** or **Disconnect** button (depending on the connection status) on the **Internet** page, you can establish a quick Internet connection using the currently selected connection type. In the same manner, you can terminate the active connection.

The Internet connection retains its **Connected/Not Connected** status until the NetDefend firewall is rebooted. The NetDefend firewall then connects to the Internet if the connection is enabled. For information on enabling an Internet connection, see *Enabling/Disabling the Internet Connection* on page 88.

## Configuring a Backup Internet Connection

You can configure both a primary and a secondary Internet connection. The secondary connection acts as a backup, so that if the primary connection fails, the NetDefend firewall remains connected to the Internet.



**Note:** You can configure different DNS servers for the primary and secondary connections. The NetDefend firewall acts as a DNS relay and routes requests from computers within the network to the appropriate DNS server for the active Internet connection.

## Setting Up a LAN or Broadband Backup Connection

### Using the NetDefend firewall's WAN Port

CP310

#### To set up a LAN or broadband backup Internet connection

1. Connect a hub or switch to the WAN port on your appliance's rear panel.
2. Connect your two modems or routers to the hub/switch.
3. Configure two Internet connections.

For instructions, see *Using Internet Setup* on page 63.



Important: The two connections can be of different types. However, they cannot both be LAN DHCP connections.

### Using the NetDefend firewall's DMZ/WAN2 Port

CP310

#### To set up a LAN or broadband backup Internet connection

1. Connect a modem to the DMZ/WAN2 port on your appliance's rear panel.
2. Click **Network** in the main menu, and click the **Ports** tab.

The **Ports** page appears.

3. In the **DMZ/WAN2** drop-down list, select **WAN2**.
4. Click **Apply**.
5. Configure two Internet connections.

For instructions, see *Using Internet Setup* on page 63.



## Setting Up a Dialup Backup Connection

CP310

If desired, you can use a dialup modem as the secondary Internet connection method. The NetDefend firewall automatically dials the modem if the primary Internet connection fails.

### To set up a dialup backup Internet connection

1. Setup a dialup modem.

For instructions, see *Setting Up a Dialup Modem* on page 84.

2. Configure a LAN or broadband primary Internet connection.

For instructions, see *Using Internet Setup* on page 63.

3. Configure a Dialup secondary Internet connection.

For instructions, see *Using Internet Setup* on page 63.





## Chapter 5

# Managing Your Network

This chapter describes how to manage and configure your network connection and settings.

This chapter includes the following topics:

Configuring Network Settings.....	93
Configuring High Availability.....	119
Using Static Routes .....	139
Managing Ports.....	145

## Configuring Network Settings



**Warning:** These are advanced settings. Do not change them unless it is necessary and you are qualified to do so.



**Note:** If you change the network settings to incorrect values and are unable to correct the error, you can reset the NetDefend firewall to its default settings. See ***Resetting the NetDefend firewall to Defaults*** on page 418.



## Configuring a DHCP Server

CP310

By default, the NetDefend firewall operates as a DHCP (Dynamic Host Configuration Protocol) server. This allows the NetDefend firewall to automatically configure all the devices on your network with their network configuration details.



Note: The DHCP server only serves computers that are configured to obtain an IP address automatically. If a computer is not configured to obtain an IP address automatically, it is recommended to assign it an IP address outside of the DHCP address range. If you do assign it an IP address within the DHCP address range, the DHCP server will not assign this IP address to another computer.

If you already have a DHCP server in your internal network, and you want to use it instead of the NetDefend DHCP server, you must disable the NetDefend DHCP server, since you cannot have two DHCP servers or relays on the same network segment.

If you want to use a DHCP server on the Internet or via a VPN, instead of the NetDefend DHCP server, you can configure DHCP relay. When in DHCP relay mode, the NetDefend firewall relays information from the desired DHCP server to the devices on your network.



Note: You can perform DHCP reservation using network objects. For information, see **Using Network Objects** on page 129.



## Enabling/Disabling the NetDefend DHCP Server

CP310

You can enable and disable the NetDefend DHCP Server for internal networks.



Note: Enabling and disabling the DHCP Server is not available for the OfficeMode network.

### To enable/disable the NetDefend DHCP server

1. Click **Network** in the main menu, and click the **My Network** tab.

The **My Network** page appears.

The screenshot shows the D-Link NetDefend web interface. The top navigation bar includes tabs for Internet, My Network, Ports, Traffic Shaper, Network Objects, and Routes. The left sidebar contains a menu with options like Welcome, Reports, Security, Antivirus, Services, Network (highlighted), Setup, Users, VPN, Help, and Logout. The main content area is titled 'My Network' and displays a table with the following data:

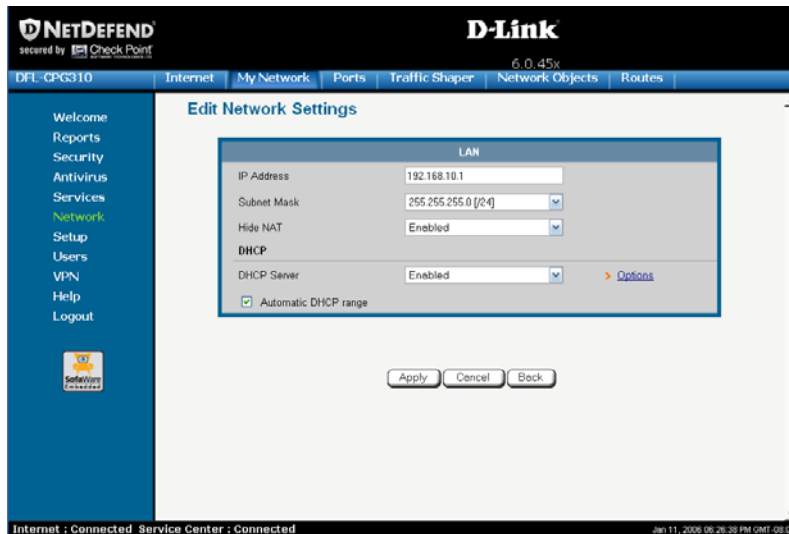
Network Name	Hide NAT	DHCP Server	IP Address	Subnet Mask	
LAN	Enabled	Enabled	192.168.10.1	255.255.255.0	<a href="#">Edit</a>
DMZ	Enabled	Enabled	192.168.253.1	255.255.255.0	<a href="#">Edit</a>
WLAN	Enabled	Enabled	192.168.252.1	255.255.255.0	<a href="#">Edit</a>
OfficeMode [Disabled]					<a href="#">Edit</a>

Below the table is an 'Add VLAN' button. At the bottom of the page, status indicators show 'Internet : Connected' and 'Service Center : Connected', along with a timestamp: 'Jan 11, 2006 06:24:49 PM GMT-08:00'.

2. In the desired network's row, click **Edit**.



The Edit Network Settings page appears.



3. From the DHCP Server list, select Enabled or Disabled.
4. Click **Apply**.

A warning message appears.

5. Click **OK**.

A success message appears

6. If your computer is configured to obtain its IP address automatically (using DHCP), and either the NetDefend DHCP server or another DHCP server is enabled, restart your computer.

If you enabled the DHCP server, your computer obtains an IP address in the DHCP address range.



## Configuring the DHCP Address Range

CP310

By default, the NetDefend DHCP server automatically sets the DHCP address range. The DHCP address range is the range of IP addresses that the DHCP server can assign to network devices. IP addresses outside of the DHCP address range are reserved for statically addressed computers.

If desired, you can set the NetDefend DHCP range manually.



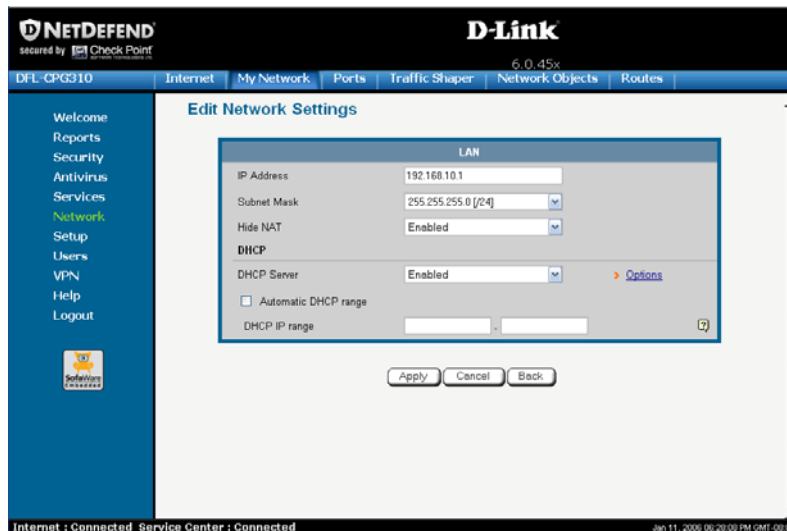
Note: Setting the DHCP range manually is not available for the OfficeMode network.

### To configure the DHCP address range

1. Click **Network** in the main menu, and click the **My Network** tab.  
The **My Network** page appears.
2. In the desired network's row, click **Edit**.  
The **Edit Network Settings** page appears.
3. To set the DHCP range manually:
  - a. Clear the **Automatic DHCP range** check box.



The DHCP IP range fields appear.



- b. In the DHCP IP range fields type the desired DHCP range.
4. To allow the DHCP server to set the IP address range, select the **Automatic DHCP range** check box.
5. Click **Apply**.

A warning message appears.

6. Click **OK**.

A success message appears

7. If your computer is configured to obtain its IP address automatically (using DHCP), and either the NetDefend DHCP server or another DHCP server is enabled, restart your computer.

Your computer obtains an IP address in the new DHCP address range.



## Configuring DHCP Relay

CP310

You can configure DHCP relay for internal networks.



Note: DHCP relay will not work if the appliance is located behind a NAT device.



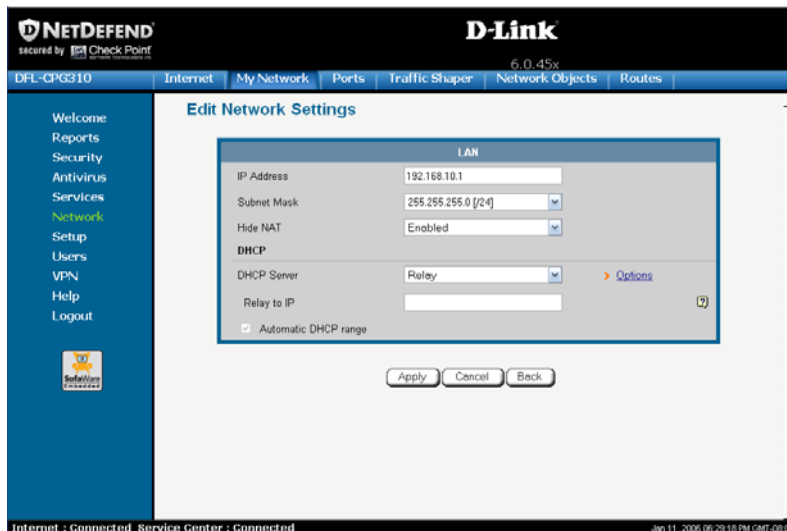
Note: Configuring DHCP options are not available for the OfficeMode network.

### To configure DHCP relay

1. Click **Network** in the main menu, and click the **My Network** tab.  
The **My Network** page appears.
2. In the desired network's row, click **Edit**.  
The **Edit Network Settings** page appears.
3. In the **DHCP Server** list, select **Relay**.



The Automatic DHCP range check box is disabled, and the Relay to IP field appears.



4. In the Relay to IP field, type the IP address of the desired DHCP server.
5. Click **Apply**.

A warning message appears.

6. Click **OK**.

A success message appears

7. If your computer is configured to obtain its IP address automatically (using DHCP), and either the NetDefend DHCP server or another DHCP server is enabled, restart your computer.

Your computer obtains an IP address in the DHCP address range.





## Configuring DHCP Server Options

CP310

If desired, you can configure the following custom DHCP options for an internal network:

- Domain suffix
- DNS servers
- WINS servers
- NTP servers
- VoIP call managers
- TFTP server and boot filename



Note: Configuring DHCP options are not available for the DMZ or VLANs.

### To configure DHCP options

1. Click **Network** in the main menu, and click the **My Network** tab.  
The **My Network** page appears.
2. In the desired network's row, click **Edit**.  
The **Edit Network Settings** page appears.
3. In the **DHCP** area, click **Options**.



The DHCP Server Options page appears.

NetDefend  
secured by Check Point

D-Link

6.0.45x

DFL-GPG310 | Internet | My Network | Ports | Traffic Shaper | Network Objects | Routes

Welcome  
Reports  
Security  
Antivirus  
Services  
Network  
Setup  
Users  
VPN  
Help  
Logout

**DHCP Server Options**

DHCP options for network LAN

Domain Name

**Name Servers**

☒ Automatically assign DNS server (recommended)

☒ Automatically assign WINS server

**Other Services**

Time Server	1	<input type="text"/>	2	<input type="text"/>
Call Manager	1	<input type="text"/>	2	<input type="text"/>
TFTP Server	<input type="text"/>			
TFTP Boot File	<input type="text"/>			
X-Windows Display Manager	<input type="text"/>			

Apply Cancel Back

Internet : Connected Service Center : Connected Jan 11, 2006 06:30:39 PM GMT-08:00

4. Complete the fields using the relevant information in the table below.



New fields appear, depending on the check boxes you selected.

5. Click **Apply**.
6. If your computer is configured to obtain its IP address automatically (using DHCP), restart your computer.

Your computer obtains an IP address in the DHCP address range.

**Table 13: DHCP Server Options Fields**

In this field...	Do this...
Domain Name	Type a default domain suffix that should be passed to DHCP clients.  The DHCP client will automatically append the domain suffix for the resolving of non-fully qualified names. For example, if the domain suffix is set to "mydomain.com", and the client tries to resolve the name "mail", the suffix will be automatically appended to the name, resulting in "mail.mydomain.com".



In this field...	Do this...
Name Servers	
Automatically assign DNS server (recommended)	<p>Clear this option if you do not want the gateway to act as a DNS relay server and pass its own IP address to DHCP clients.</p> <p>Normally, it is recommended to leave this option selected.</p> <p>The DNS Server 1 and DNS Server 2 fields appear.</p>
DNS Server 1, 2	<p>Type the IP addresses of the Primary and Secondary DNS servers to pass to DHCP clients instead of the gateway.</p>
Automatically assign WINS server	<p>Clear this option if you do not want DHCP clients to be assigned the same WINS servers as specified by the Internet connection configuration (in the Internet Setup page).</p> <p>The WINS Server 1 and WINS Server 2 fields appear.</p>
WINS Server 1, 2	<p>Type the IP addresses of the Primary and Secondary WINS servers to use instead of the gateway.</p>
Other Services	<p>These fields are not available for the OfficeMode network.</p>
Time Server 1, 2	<p>To use Network Time Protocol (NTP) servers to synchronize the time on the DHCP clients, type the IP address of the Primary and Secondary NTP servers.</p>
Call Manager 1, 2	<p>To assign Voice over Internet Protocol (VoIP) call managers to the DHCP clients, type the IP address of the Primary and Secondary VoIP servers.</p>



In this field...	Do this...
TFTP Server	<p>Trivial File Transfer Protocol (TFTP) enables booting diskless computers over the network.</p> <p>To assign a TFTP server to the DHCP clients, type the IP address of the TFTP server.</p>
TFTP Boot File	Type the boot file to use for booting DHCP clients via TFTP.

## Changing IP Addresses

CP310

If desired, you can change your NetDefend firewall's internal IP address, or the entire range of IP addresses in your internal network. You may want to perform these tasks if, for example, you are adding the NetDefend firewall to a large existing network and don't want to change that network's IP address range, or if you are using a DHCP server other than the NetDefend firewall, that assigns addresses within a different range.

### To change IP addresses

1. Click **Network** in the main menu, and click the **My Network** tab.  
The **My Network** page appears.
2. In the LAN network's row, click **Edit**.  
The **Edit Network Settings** page appears.
3. To change the NetDefend firewall's internal IP address, enter the new IP address in the **IP Address** field.
4. To change the internal network range, enter a new value in the **Subnet Mask** field.



Note: The internal network range is defined both by the NetDefend firewall's internal IP address and by the subnet mask.

For example, if the NetDefend firewall's internal IP address is 192.168.100.7, and you set the subnet mask to 255.255.255.0, the network's IP address range will be 192.168.100.1 – 192.168.100.254.

The default internal network range is 192.168.10.\*.

5. Click **Apply**.

A warning message appears.

6. Click **OK**.

- The NetDefend firewall's internal IP address and/or the internal network range are changed.
- A success message appears.

7. Do one of the following:

- If your computer is configured to obtain its IP address automatically (using DHCP), and the NetDefend DHCP server is enabled, restart your computer.

Your computer obtains an IP address in the new range.

- Otherwise, manually reconfigure your computer to use the new address range using the TCP/IP settings. For information on configuring TCP/IP, see ***TCP/IP Settings*** on page 24, on page 20.

## Enabling/Disabling Hide NAT

CP310

Hide Network Address Translation (Hide NAT) enables you to share a single public Internet IP address among several computers, by “hiding” the private IP addresses of the internal computers behind the NetDefend firewall’s single Internet IP address.



Note: If Hide NAT is disabled, you must obtain a range of Internet IP addresses from your ISP. Hide NAT is enabled by default.



Note: Static NAT and Hide NAT can be used together.

### To enable/disable Hide NAT

1. Click **Network** in the main menu, and click the **My Network** tab.

The **My Network** page appears.

2. In the desired network's row, click **Edit**.

The **Edit Network Settings** page appears.

3. From the **Hide NAT** list, select **Enabled** or **Disabled**.
4. Click **Apply**.

A warning message appears.

5. Click **OK**.
  - If you chose to disable Hide NAT, it is disabled.
  - If you chose to enable Hide NAT, it is enabled.



## Configuring a DMZ Network

CP310

In addition to the LAN network, you can define a second internal network called a DMZ (demilitarized zone) network.

For information on default security policy rules controlling traffic to and from the DMZ, see *Default Security Policy* on page 203.

### To configure a DMZ network

1. Connect the DMZ computer to the DMZ port.

If you have more than one computer in the DMZ network, connect a hub or switch to the DMZ port, and connect the DMZ computers to the hub.

2. Click Network in the main menu, and click the Ports tab.

The Ports page appears.







3. In the DMZ drop-down list, select **DMZ**.
4. Click **Apply**.
5. Click **Network** in the main menu, and click the **My Network** tab.  
The **My Network** page appears.
6. In the DMZ network's row, click **Edit**.  
The **Edit Network Settings** page appears.
7. In the **Mode** drop-down list, select **Enabled**.  
The fields are enabled.
8. If desired, enable or disable **Hide NAT**.  
See *Enabling/Disabling Hide NAT* on page 107.
9. If desired, configure a DHCP server.  
See *Configuring a DHCP Server* on page 94.
10. In the **IP Address** field, type the IP address of the DMZ network's default gateway.



Note: The DMZ network must not overlap other networks.

11. In the **Subnet Mask** text box, type the DMZ's internal network range.
12. Click **Apply**.  
A warning message appears.
13. Click **OK**.  
A success message appears.



## Configuring the OfficeMode Network

CP310

By default, VPN Clients connect to the VPN Server using an Internet IP address locally assigned by an ISP. This may lead to the following problems:

- VPN Clients on the same network will be unable to communicate with each other via the NetDefend Internal VPN Server. This is because their IP addresses are on the same subnet, and they therefore attempt to communicate directly over the local network, instead of through the secure VPN link.
- Some networking protocols or resources may require the client's IP address to be an internal one.

OfficeMode solves these problems by enabling the NetDefend DHCP Server to automatically assign a unique local IP address to the VPN client, when the client connects and authenticates. The IP addresses are allocated from a pool called the *OfficeMode network*.



Note: OfficeMode requires Check Point SecureClient to be installed on the VPN clients. It is not supported by Check Point SecuRemote.

When OfficeMode is not supported by the VPN client, traditional mode will be selected used instead.

### To configure the OfficeMode network

1. Click **Network** in the main menu, and click the **My Network** tab.

The **My Network** page appears.

2. In the **OfficeMode** network's row, click **Edit**.

The **Edit Network Settings** page appears.

3. In the **Mode** drop-down list, select **Enabled**.

The fields are enabled.



4. In the **IP Address** field, type the IP address to use as the OfficeMode network's default gateway.



Note: The OfficeMode network must not overlap other networks.

5. In the **Subnet Mask** text box, type the OfficeMode internal network range.
6. If desired, enable or disable Hide NAT.

See *Enabling/Disabling Hide NAT* on page 107.

7. If desired, configure DHCP options.

See *Configuring DHCP Server Options* on page 101.

8. Click **Apply**.

A warning message appears.

9. Click **OK**.

A success message appears.

## Configuring VLANs

### Power Pack

Your NetDefend firewall allows you partition your network into several virtual LAN networks (VLANs). A VLAN is a logical network behind the NetDefend firewall. Computers in the same VLAN behave as if they were on the same physical network: traffic flows freely between them, without passing through a firewall. In contrast, traffic between a VLAN and other networks passes through the firewall and is subject to the security policy. By default, traffic from a VLAN to any other internal network (including other VLANs) is blocked. In this way, defining VLANs can increase security and reduce network congestion.

For example, you can assign each division within your organization to a different VLAN, regardless of their physical location. The members of a division will be able to communicate with each other and share resources, and only members who need to communicate with other divisions will be allowed to do so. Furthermore,

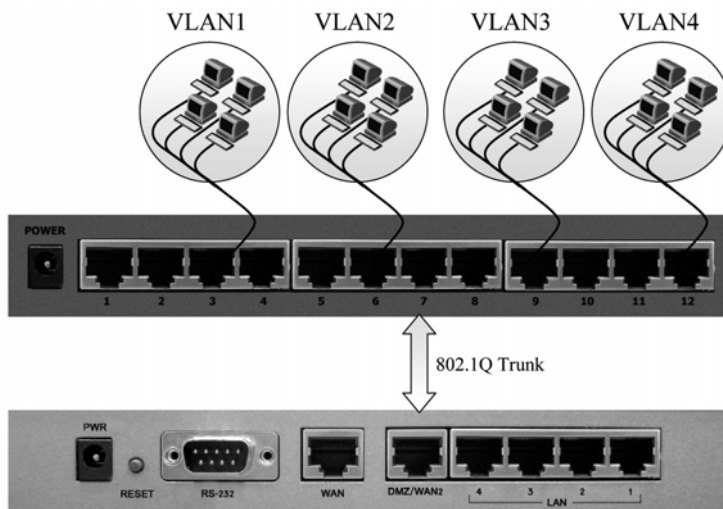


you can easily transfer a member of one division to another division without rewiring your network, by simply reassigning them to the desired VLAN.

The NetDefend firewall supports the following VLAN types:

- **Tag-based**

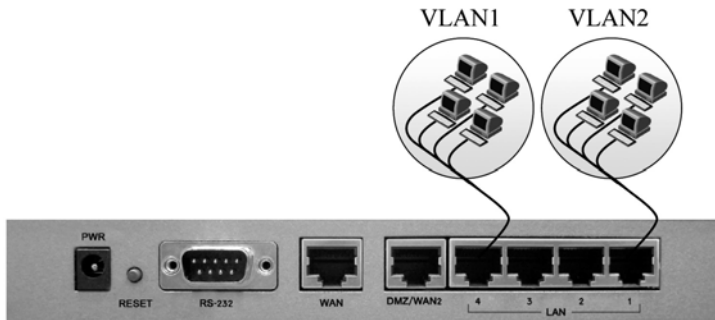
In tag-based VLAN you use one of the gateway's ports as a 802.1Q VLAN trunk, connecting the appliance to a VLAN-aware switch. Each VLAN behind the trunk is assigned an identifying number called a "VLAN ID", also referred to as a "VLAN tag". All outgoing traffic from a tag-based VLAN contains the VLAN's tag in the packet headers. Incoming traffic to the VLAN must contain the VLAN's tag as well, or the packets are dropped. Tagging ensures that traffic is directed to the correct VLAN.



**Figure 10: Tag-based VLAN**

- **Port-based**

Port-based VLAN allows assigning the appliance's LAN ports to VLANs, effectively transforming the appliance's four-port switch into up to four firewall-isolated security zones. You can assign multiple ports to the same VLAN, or each port to a separate VLAN.



**Figure 11: Port-based VLAN**

Port-based VLAN does not require an external VLAN-capable switch, and is therefore simpler to use than tag-based VLAN. However, port-based VLAN is limited, because the appliance's internal switch has only four ports.

You can define up to ten VLAN networks (port-based and tag-based combined).

For information on the default security policy for VLANs, see *Default Security Policy* on page 203.



## Adding and Editing Port-Based VLANs

Power Pack

### To add or edit a port-based VLAN

1. Click **Network** in the main menu, and click the **My Network** tab.

The **My Network** page appears.

2. Do one of the following:

- To add a VLAN site, click **Add VLAN**.
- To edit a VLAN site, click **Edit** in the desired VLAN's row.

The **Edit Network Settings** page for VLAN networks appears.

The screenshot shows the 'Edit Network Settings' page for a 'VLAN Network'. The left sidebar contains a navigation menu with options: Welcome, Reports, Security, Antivirus, Services, Network (highlighted), Setup, Users, VPN, Help, and Logout. Below the menu is a 'SelfView' icon. The main content area is titled 'Edit Network Settings' and contains a form with the following fields:

- Network Name:** A text input field.
- Type:** A drop-down menu set to 'Tag Based VLAN'.
- VLAN Tag:** A text input field containing '1'.
- IP Address:** A text input field containing '192.168.200.1'.
- Subnet Mask:** A text input field containing '255.255.255.0 [24]'.
- Hide NAT:** A drop-down menu set to 'Enabled'.
- DHCP:** A section containing a 'DHCP Server' drop-down menu set to 'Enabled' and a checked checkbox for 'Automatic DHCP range'.

At the bottom of the form are three buttons: 'Apply', 'Cancel', and 'Back'. The top of the page shows the 'NETDEFEND' logo, 'D-Link' logo, and version '6.0.45x'. The top navigation bar includes 'Internet', 'My Network' (selected), 'Ports', 'Traffic Shaper', 'Network Objects', and 'Routes'. The bottom status bar shows 'Internet : Connected Service Center : Connected' and a timestamp 'Jan 11, 2008 06:35:10 PM GMT-08:00'.

3. In the **Network Name** field, type a name for the VLAN.
4. In the **Type** drop-down list, select **Port Based VLAN**.

The **VLAN Tag** field disappears.

5. In the **IP Address** field, type the IP address of the VLAN network's default gateway.



Note: The VLAN network must not overlap other networks.

6. In the **Subnet Mask** field, type the VLAN's internal network range.
7. If desired, enable or disable **Hide NAT**.

See *Enabling/Disabling Hide NAT* on page 107.

8. If desired, configure a DHCP server.

See *Configuring a DHCP Server* on page 94.

9. Click **Apply**.

A warning message appears.

10. Click **OK**.

A success message appears.

11. Click **Network** in the main menu, and click the **Ports** tab.

The **Ports** page appears.

12. In the drop-down list next to the LAN port you want to assign, select the VLAN network's name.

You can assign more than one port to the VLAN.

13. Click **Apply**.



## Adding and Editing Tag-Based VLANs

Power Pack

### To add or edit a tag-based VLAN

1. Click **Network** in the main menu, and click the **My Network** tab.  
The **My Network** page appears.
2. Do one of the following:
  - To add a VLAN site, click **Add VLAN**.
  - To edit a VLAN site, click **Edit** in the desired VLAN's row.  
The **Edit Network Settings** page for VLAN networks appears.
3. In the **Network Name** field, type a name for the VLAN.
4. In the **Type** drop-down list, select **Tag Based VLAN**.  
The **VLAN Tag** field appears.
5. In the **VLAN Tag** field, type a tag for the VLAN.  
This must be an integer between 1 and 4095.
6. In the **IP Address** field, type the IP address of the VLAN network's default gateway.



Note: The VLAN network must not overlap other networks.

7. In the **Subnet Mask** field, type the VLAN's internal network range.
8. If desired, enable or disable **Hide NAT**.  
See *Enabling/Disabling Hide NAT* on page 107.
9. If desired, configure a DHCP server.  
See *Configuring a DHCP Server* on page 94.





10. Click **Apply**.

A warning message appears.

11. Click **OK**.

A success message appears.

12. Click **Network** in the main menu, and click the **Ports** tab.

The **Ports** page appears.

13. In the **DMZ/WAN2** drop-down list, select **VLAN Trunk**.

14. Click **Apply**.

The DMZ/WAN2 port now operates as a VLAN Trunk port. In this mode, it will not accept untagged packets.

15. Configure a VLAN trunk (802.1Q) port on the VLAN-aware switch, according to the vendor instructions. Define the same VLAN IDs on the switch.


16. Connect the NetDefend firewall's DMZ/WAN2 port to the VLAN-aware switch's VLAN trunk port.



## Deleting VLANs

Power Pack

### To delete a VLAN

1. If the VLAN is port-based, do the following:
  - a. Click **Network** in the main menu, and click the **Ports** tab.  
The **Ports** page appears.
  - b. Remove all port assignments to the VLAN, by selecting other networks in the drop-down lists.
  - c. Click **Apply**.
2. Click **Network** in the main menu, and click the **My Network** tab.  
The **My Network** page appears.
3. In the desired VLAN's row, click the Erase  icon.  
A confirmation message appears.
4. Click **OK**.  
The VLAN is deleted.

## Configuring High Availability

### Power Pack

You can create a High Availability (HA) cluster consisting of two or more NetDefend firewalls. For example, you can install two NetDefend firewalls on your network, one acting as the “Master”, the default gateway through which all network traffic is routed, and one acting as the “Backup”. If the Master fails, the Backup automatically and transparently takes over all the roles of the Master. This ensures that your network is consistently protected by a NetDefend firewall and connected to the Internet.

The gateways in a HA cluster each have a separate IP address within the local network. In addition, the gateways share a single virtual IP address, which is the default gateway address for the local network. Control of the virtual IP address is passed as follows:

1. Each gateway is assigned a priority, which determines the gateway's role: the gateway with the highest priority is the Active Gateway and uses the virtual IP address, and the rest of the gateways are Passive Gateways.
2. The Active Gateway sends periodic signals, or “heartbeats”, to the network via a synchronization interface.

The synchronization interface can be any internal network existing on both gateways except the WLAN.

3. If the heartbeat from the Active Gateway stops (indicating that the Active gateway has failed), the gateway with the highest priority becomes the new Active Gateway and takes over the virtual IP address.
4. When a gateway that was offline comes back online, or a gateway's priority changes, the gateway sends a heartbeat notifying the other gateways in the cluster.

If the gateway's priority is now the highest, it becomes the Active Gateway.

The NetDefend firewall supports Internet connection tracking, which means that each firewall tracks its Internet connection's status and reduces its own priority by a



user-specified amount, if its Internet connection goes down. If the Active Gateway's priority drops below another gateway's priority, then the other gateway becomes the Active Gateway.



**Note:** You can force a fail-over to a passive NetDefend firewall. You may want to do this in order to verify that HA is working properly, or if the active NetDefend firewall needs repairs. To force a fail-over, switch off the primary box or disconnect it from the LAN network.

The NetDefend firewall supports configuring multiple HA clusters on the same network segment. To this end, each cluster must be assigned a unique ID number.

When HA is configured, you can specify that only the Active Gateway in the cluster should connect to the Internet. This is called WAN HA, and it is useful in the following situations:

- Your Internet subscription cost is based on connection time, and therefore having the Passive appliance needlessly connected to the Internet costs you money.
- You want multiple appliances to share the same static IP address without creating an IP address conflict.

WAN HA avoids an IP address change, and thereby ensures virtually uninterrupted access from the Internet to internal servers at your network.

Before configuring HA, the following requirements must be met:

- You must have at least two identical NetDefend firewalls.
- The appliances must have identical firmware versions and firewall rules.
- The appliances' internal networks must be the same.
- The appliances must have *different* real internal IP addresses, but share *the same* virtual IP address.
- The appliances' synchronization interface ports must be connected either directly, or via a hub or a switch. For example, if the DMZ is the synchronization interface, then the DMZ/WAN2 ports on the appliances must be connected to each other.

The synchronization interface need not be dedicated for synchronization only. It may be shared with an active internal network.

You can configure HA for any internal network, except the OfficeMode network.



Note: You can enable the DHCP server in all NetDefend firewalls. A Passive Gateway's DHCP server will start answering DHCP requests only if the Active Gateway fails.



Note: If you configure HA for the WLAN network:

- A passive appliance's wireless transmitter will be disabled until the gateway becomes active.
- The two WLAN networks can share the same SSID and wireless frequency.
- The WLAN interface cannot serve as the synchronization interface.



## Configuring High Availability on a Gateway

### Power Pack

The following procedure explains how to configure HA on a single gateway. You must perform this procedure on each NetDefend firewall that you want to include in the HA cluster.

#### To configure HA on a NetDefend firewall

1. Set the appliance's internal IP addresses and network range.  
Each appliance must have a different internal IP address.  
See *Changing IP Addresses* on page 105.
2. Click **Setup** in the main menu, and click the **High Availability** tab.  
The **High Availability** page appears.
3. Select the **Gateway High Availability** check box.



The fields are enabled.

**NETDEFEND**  
secured by **Check Point**  
SOFTWARE TECHNOLOGIES LTD.

**D-Link**  
6.0.45x

DFL-CPG310 | Firmware | **High Availability** | Logging | Management | Tools | Printers

Welcome  
Reports  
Security  
Antivirus  
Services  
Network  
**Setup**  
Users  
VPN  
Help  
Logout

**High Availability**

☒ Gateway High Availability

Interface	HA	Synchronization	Virtual IP
LAN	<input checked="" type="checkbox"/>	<input checked="" type="radio"/>	
DMZ	<input type="checkbox"/>	<input type="radio"/>	
WLAN	<input type="checkbox"/>	<input type="radio"/>	

**Priority**

My Priority: 0

**Interface Tracking**

Interface	On Link Failure, Reduce Priority By
Internet - Primary	0
Internet - Secondary	0
LAN1	0
LAN2	0
LAN3	0
LAN4	0
DMZ	0

**Advanced**

Group ID: 55

Apply Cancel

Internet : Connected Service Center : Connected Jan 12, 2006 11:37:09 AM GMT-08:00

- Next to each network for which you want to enable HA, select the HA check box.

- In the Virtual IP field, type the default gateway IP address.

This can be any unused IP address in the network, and must be the same for all gateways.

- Click the Synchronization radio button next to the network you want to use as the synchronization interface.

You can choose any network listed except the WLAN.



Note: The synchronization interface must be the same for all gateways, and must always be connected and enabled on all gateways. Otherwise, multiple appliances may become active, causing unpredictable problems.

7. Complete the fields using the information the table below.

8. Click **Apply**.

A success message appears.

9. If desired, configure WAN HA for both the primary and secondary Internet connection.

This setting should be the same for all gateways. For further information, see *Using Internet Setup* on page 63.

**Table 14: High Availability Page Fields**

In this field...	Do this...
Priority	
My Priority	Type the gateway's priority.  This must be an integer between 1 and 255.
Interface Tracking	
Internet - Primary	Type the amount to reduce the gateway's priority if the primary Internet connection goes down.  This must be an integer between 0 and 255.





In this field...	Do this...
Internet - Secondary	<p>Type the amount to reduce the gateway's priority if the secondary Internet connection goes down.</p> <p>This must be an integer between 0 and 255.</p> <p>Note: This value is only relevant if you configured a backup connection. For information on configuring a backup connection, see <b><i>Configuring a Backup Internet Connection</i></b> on page 90.</p>
LAN1/2/3/4	<p>Type the amount to reduce the gateway's priority if the LAN port's Ethernet link is lost.</p>
DMZ	<p>Type the amount to reduce the gateway's priority if the DMZ / WAN2 port's Ethernet link is lost.</p>
Advanced	
Group ID	<p>If multiple HA clusters exist on the same network segment, type the ID number of the cluster to which the gateway should belong.</p> <p>This must be an integer between 1 and 255.</p> <p>The default value is 55. If only one HA cluster exists, there is no need to change this value.</p>



## Sample Implementation on Two Gateways

### Power Pack

The following procedure illustrates how to configure HA for the following two NetDefend gateways, Gateway A and Gateway B:

**Table 15: Gateway Details**

	Gateway A	Gateway B
Internal Networks	LAN, DMZ	LAN, DMZ
Internet Connections	Primary and secondary	Primary only
LAN Network IP Address	192.169.100.1	192.169.100.2
LAN Network Subnet Mask	255.255.255.0	255.255.255.0
DMZ Network IP Address	192.169.101.1	192.169.101.2
DMZ Network Subnet Mask	255.255.255.0	255.255.255.0

The gateways have two internal networks in common, LAN and DMZ. This means that you can configure HA for the LAN network, the DMZ network, or both. You can use either of the networks as the synchronization interface.

The procedure below shows how to configure HA for both the LAN and DMZ networks. The synchronization interface is the DMZ network, the LAN virtual IP address is 192.168.100.3, and the DMZ virtual IP address is 192.168.101.3. Gateway A is the Active Gateway.

### To configure HA for Gateway A and Gateway B

1. Connect the LAN port of Gateways A and B to hub 1.



2. Connect the DMZ port of Gateways A and B to hub 2.
3. Connect the LAN network computers of Gateways A and B to hub 1.
4. Connect the DMZ network computers of Gateways A and B to hub 2.
5. Do the following on Gateway A:
  - a. Set the gateway's internal IP addresses and network range to the values specified in the table above.

See *Changing IP Addresses* on page 105.
  - b. Click **Setup** in the main menu, and click the **High Availability** tab.

The **High Availability** page appears.
  - c. Select the **Gateway High Availability** check box.

The **Gateway High Availability** area is enabled. The LAN and DMZ networks are listed.
  - d. Next to **LAN**, select the **HA** check box.
  - e. In the LAN network's **Virtual IP** field, type the default gateway IP address 192.168.100.3.
  - f. Next to **DMZ**, select the **HA** check box.
  - g. In the DMZ network's **Virtual IP** field, type the default gateway IP address 192.168.101.3.
  - h. Click the **Synchronization** radio button next to **DMZ**.
  - i. In the **My Priority** field, type "100".

The high priority means that Gateway A will be the Active Gateway.
  - j. In the **Internet - Primary** field, type "20".

Gateway A will reduce its priority by 20, if its primary Internet connection goes down.
  - k. In the **Internet - Secondary** field, type "30".



Gateway A will reduce its priority by 30, if its secondary Internet connection goes down.

1. Click **Apply**.

A success message appears.

6. Do the following on Gateway B:

- a. Set the gateway's internal IP addresses and network range to the values specified in the table above.

See *Changing IP Addresses* on page 105.

- b. Click **Setup** in the main menu, and click the **High Availability** tab.

The **High Availability** page appears.

- c. Select the **Gateway High Availability** check box.

The **Gateway High Availability** area is enabled. The LAN and DMZ networks are listed.

- d. Next to **LAN**, select the **HA** check box.

- e. In the LAN network's **Virtual IP** field, type the default gateway IP address 192.168.100.3.

- f. Next to **DMZ**, select the **HA** check box.

- g. In the DMZ network's **Virtual IP** field, type the default gateway IP address 192.168.101.3.

- h. Click the **Synchronization** radio button next to **DMZ**.

- i. In the **My Priority** field, type "60".

The low priority means that Gateway B will be the Passive Gateway.

- j. In the **Internet - Primary** field, type "20".

Gateway B will reduce its priority by 20, if its Internet connection goes down.

- k. Click **Apply**.

A success message appears.

Gateway A's priority is 100, and Gateway B's priority is 60. So long as one of Gateway A's Internet connections is up, Gateway A is the Active Gateway, because its priority is higher than that of Gateway B.

If both of Gateway A's Internet connections are down, it deducts from its priority 20 (for the primary connection) and 30 (for the secondary connection), reducing its priority to 50. In this case, Gateway B's priority is the higher priority, and it becomes the Active Gateway.

**CP310**

You can add individual computers or networks as network objects. This enables you to configure various settings for the computer or network represented by the network object.

You can configure the following settings for a network object:

- Static NAT (or One-to-One NAT)

Static NAT allows the mapping of Internet IP addresses or address ranges to hosts inside the internal network. This is useful if you want a computer in your private network to have its own Internet IP address. For example, if you have both a mail server and a Web server in your network, you can map each one to a separate Internet IP address.

Static NAT rules do not imply any security rules. To allow incoming traffic to a host for which you defined Static NAT, you must create an Allow rule. When specifying firewall rules for such hosts, use the host's internal IP address, and not the Internet IP address to which the internal IP address is mapped. For further information, see *Using Rules* on page 209.



Note: Static NAT and Hide NAT can be used together.



Note: The NetDefend firewall supports Proxy ARP (Address Resolution Protocol). When an external source attempts to communicate with such a computer, the NetDefend firewall automatically replies to ARP queries with its own MAC address, thereby enabling communication. As a result, the Static NAT Internet IP addresses appear to external sources to be real computers connected to the WAN interface.



- Assign the network object's IP address to a MAC address

Normally, the NetDefend DHCP server consistently assigns the same IP address to a specific computer. However, if the NetDefend DHCP server runs out of IP addresses and the computer is down, then the DHCP server may reassign the IP address to a different computer.

If you want to guarantee that a particular computer's IP address remains constant, you can reserve the IP address for use by the computer's MAC address only. This is called *DHCP reservation*, and it is useful if you are hosting a public Internet server on your network.

- Secure HotSpot enforcement

In NetDefend with Power Pack, you can specify whether or not to exclude the network object from HotSpot enforcement. Excluded network objects will be able to access the network without viewing the My HotSpot page. For further information on Secure HotSpot, see *Configuring Secure HotSpot* on page 256.

## Adding and Editing Network Objects

CP310

You can add or edit network objects via:

- The Network Objects page

This page enables you to add both individual computers and networks.

- The Active Computers page

This page enables you to add only individual computers as network objects. The computer's details are filled in automatically in the wizard.

### To add or edit a network object via the Network Objects page

1. Click **Network** in the main menu, and click the **Network Objects** tab.



The Network Objects page appears with a list of network objects.

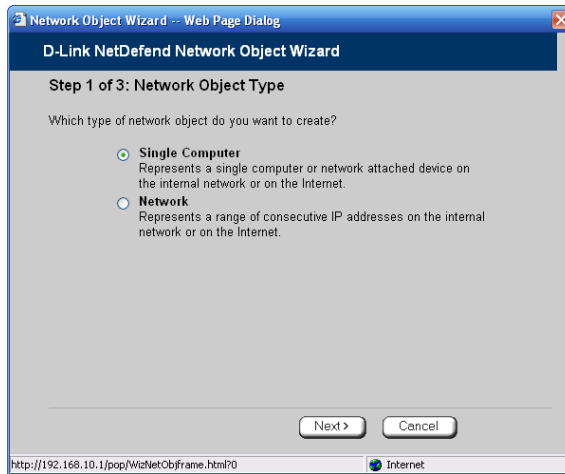


2. Do one of the following:

- To add a network object, click **New**.
- To edit an existing network object, click **Edit** next to the desired computer in the list.



The NetDefend Network Object Wizard opens, with the Step 1: Network Object Type dialog box displayed.



3. Do one of the following:

- To specify that the network object should represent a single computer or device, click **Single Computer**.
- To specify that the network object should represent a network, click **Network**.

4. Click **Next**.





The Step 2: Computer Details dialog box appears. If you chose Single Computer, the dialog box includes the Perform Static NAT option.

Network Object Wizard -- Web Page Dialog

**D-Link NetDefend Network Object Wizard**

**Step 2 of 3: Computer Details**

Please specify the details of the computer:

IP Address  [This Computer](#)

**Advanced**

☒ Reserve a fixed IP address for this computer and **Allow** this computer to connect when MAC Filtering is enabled

MAC Address  [This Computer](#)

☐ Perform Static NAT (Network Address Translation)

External IP

☐ Exclude this computer from HotSpot enforcement

< Back   Next >   Cancel

http://192.168.10.1/pop/WizNetObjframe.html?0   Internet

If you chose Network, the dialog box does not include this option.

Network Object Wizard -- Web Page Dialog

**D-Link NetDefend Network Object Wizard**

**Step 2 of 3: Network Details**

Please specify the details of the network:

IP Range  -

**Advanced**

☐ Perform Static NAT (Network Address Translation)

External IP Range  -

☐ Exclude this network from HotSpot enforcement

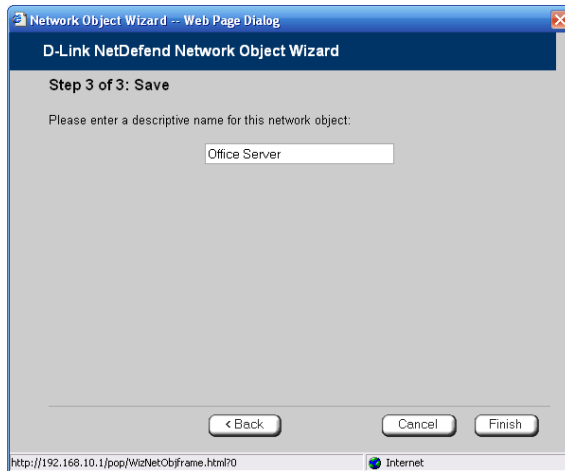
< Back   Next >   Cancel

http://192.168.10.1/pop/WizNetObjframe.html?0   Internet

5. Complete the fields using the information in the tables below.
6. Click Next.



The Step 3: Save dialog box appears.

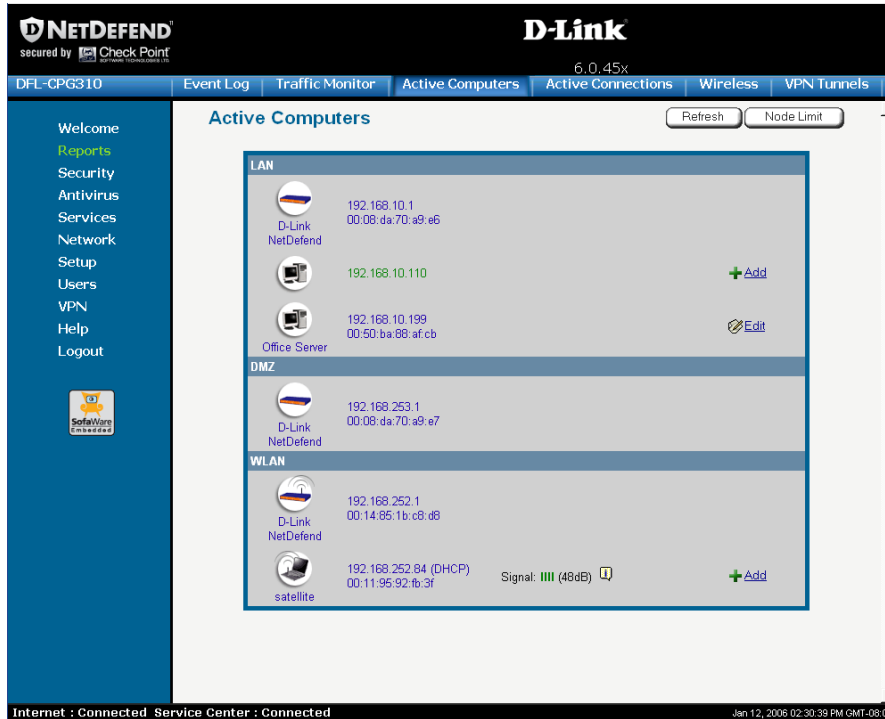


7. Type a name for the network object in the field.
8. Click Finish.

**To add or edit a network object via the Active Computers page**

1. Click Reports in the main menu, and click the Active Computers tab.

The Active Computers page appears.



If a computer has not yet been added as a network object, the **Add** button appears next to it. If a computer has already been added as a network object, the **Edit** button appears next to it.

2. Do one of the following:

- To add a network object, click **Add** next to the desired computer.
- To edit a network object, click **Edit** next to the desired computer.

The NetDefend Network Object Wizard opens, with the **Step 1: Network Object Type** dialog box displayed.

3. Do one of the following:

- To specify that the network object should represent a single computer or device, click **Single Computer**.



- To specify that the network object should represent a network, click **Network**.
4. Click **Next**.

The **Step 2: Computer Details** dialog box appears.

The computer's IP address and MAC address are automatically filled in.
  5. Complete the fields using the information in the tables below.
  6. Click **Next**.

The **Step 3: Save** dialog box appears with the network object's name. If you are adding a new network object, this name is the computer's name.
  7. To change the network object name, type the desired name in the field.
  8. Click **Finish**.

The new object appears in the **Network Objects** page.

**Table 16: Network Object Fields for a Single Computer**

In this field...	Do this...
IP Address	Type the IP address of the local computer, or click This Computer to specify your computer.
Reserve a fixed IP address for this computer	Select this option to assign the network object's IP address to a MAC address, and to allow the network object to connect to the WLAN when MAC Filtering is used. For information about MAC Filtering, see <b><i>Configuring a Wireless Network</i></b> on page 161.
MAC Address	Type the MAC address you want to assign to the network object's IP address, or click This Computer to specify your computer's MAC address.
Perform Static NAT (Network Address Translation)	Select this option to map the local computer's IP address to an Internet IP address.  You must then fill in the External IP field.
External IP	Type the Internet IP address to which you want to map the local computer's IP address.
Exclude this computer from HotSpot enforcement	Select this option to exclude the network object from HotSpot enforcement.

**Table 17: Network Object Fields for a Network**

In this field...	Do this...
IP Range	Type the range of local computer IP addresses in the network.
Perform Static NAT (Network Address Translation)	Select this option to map the network's IP address range to a range of Internet IP addresses of the same size.  You must then fill in the External IP Range field.
External IP Range	Type the Internet IP address range to which you want to map the network's IP address range.
Exclude this network from HotSpot enforcement	Select this option to exclude this network from HotSpot enforcement.

## Viewing and Deleting Network Objects


CP310

### To view or delete a network object

1. Click **Network** in the main menu, and click the **Network Objects** tab.

The **Network Objects** page appears with a list of network objects.

2. To delete a network object, do the following:

- a. In the desired network object's row, click the Erase  icon.

A confirmation message appears.

- b. Click **OK**.

The network object is deleted.

## Using Static Routes

CP310

A static route is a setting that explicitly specifies the route for packets originating in a certain subnet and/or destined for a certain subnet. Packets with a source and destination that does not match any defined static route will be routed to the default gateway. To modify the default gateway, see *Using a LAN Connection* on page 65.

A static route can be based on the packet's destination IP address, or based on the source IP address, in which case it is a source route.

Source routing can be used, for example, for load balancing between two Internet connections. For example, if you have an Accounting department and a Marketing department, and you want each to use a different Internet connection for outgoing traffic, you can add a static route specifying that traffic originating from the Accounting department should be sent via WAN1, and another static route specifying that traffic originating from the Marketing department should be sent via WAN2.

The Static Routes page lists all existing routes, including the default, and indicates whether each route is currently "Up" (reachable) or not.

### *Adding and Editing Static Routes*

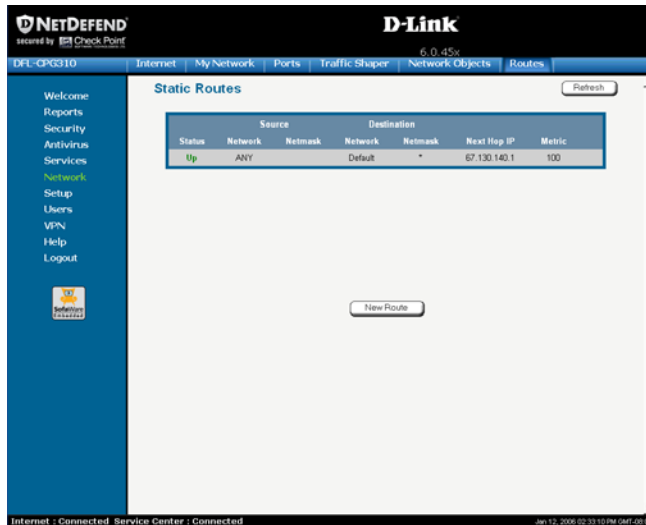
CP310

#### **To add a static route**

1. Click **Network** in the main menu, and click the **Routes** tab.



The Static Routes page appears, with a list of existing static routes.

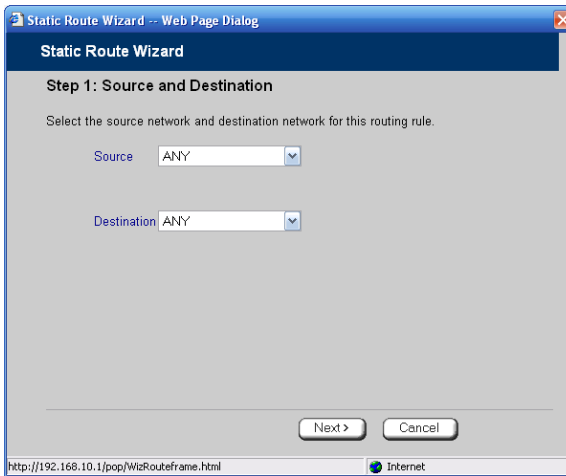


2. Do one of the following:

- To add a static route, click **New Route**.
- To edit an existing static route, click **Edit** next to the desired route in the list.



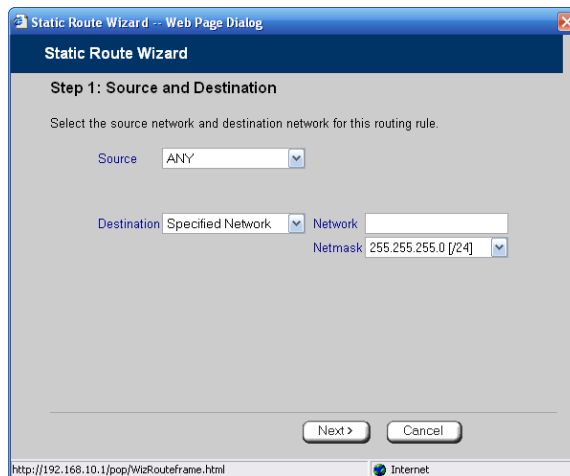
The Static Route Wizard opens displaying the Step 1: Source and Destination dialog box.



3. To select a specific source network (source routing), do the following:

- a) In the **Source** drop-down list, select **Specified Network**.

New fields appear.



- b) In the **Network** field, type the IP address of the source network.



- c) In the **Netmask** drop-down list, select the subnet mask.
- 4. To select a specific destination network, do the following:
  - a) In the **Destination** drop-down list, select **Specified Network**.

New fields appear.

- b) In the **Network** field, type the IP address of the destination network.
  - c) In the **Netmask** drop-down list, select the subnet mask.
- 5. Click **Next**.

The Step 2: Next Hop and Metric dialog box appears.

6. In the **Next Hop IP** field, type the IP address of the gateway (next hop router) to which to route the packets destined for this network.
7. In the **Metric** field, type the static route's metric.

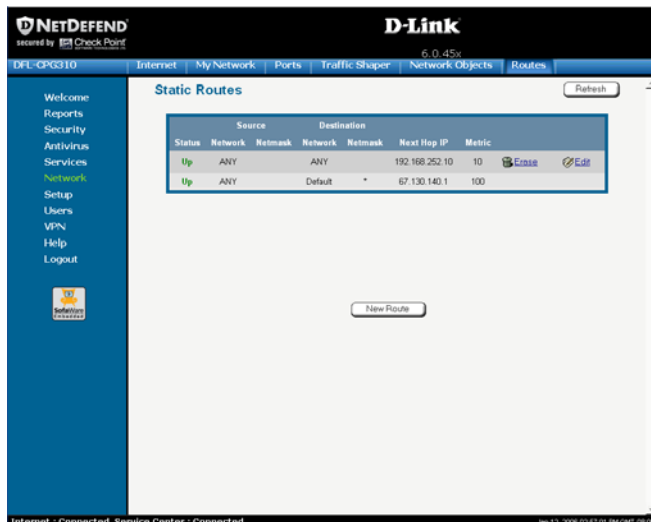
The gateway sends a packet to the route that matches the packet's destination and has the lowest metric.

The default value is 10.

8. Click **Next**.



The new static route is saved.



## Viewing and Deleting Static Routes



Note: The “default” route cannot be deleted.

### To delete a static route

1. Click **Network** in the main menu, and click the **Routes** tab.

The **Static Routes** page appears, with a list of existing static routes.

2. In the desired route row, click the **Erase** icon.

A confirmation message appears.

3. Click **OK**.

The route is deleted.



# Managing Ports

CP310

The NetDefend firewall enables you to quickly and easily assign its ports to different uses, as shown in the table below. Furthermore, you can restrict each port to a specific link speed and duplex setting.

**Table 18: Ports and Assignments**

You can assign this port...	To these uses...
LAN	LAN network
	VLAN network
DMZ/WAN2	DMZ network
	Second WAN connection
	VLAN trunk
RS232	Dialup modem
	Serial console



## Viewing Port Statuses

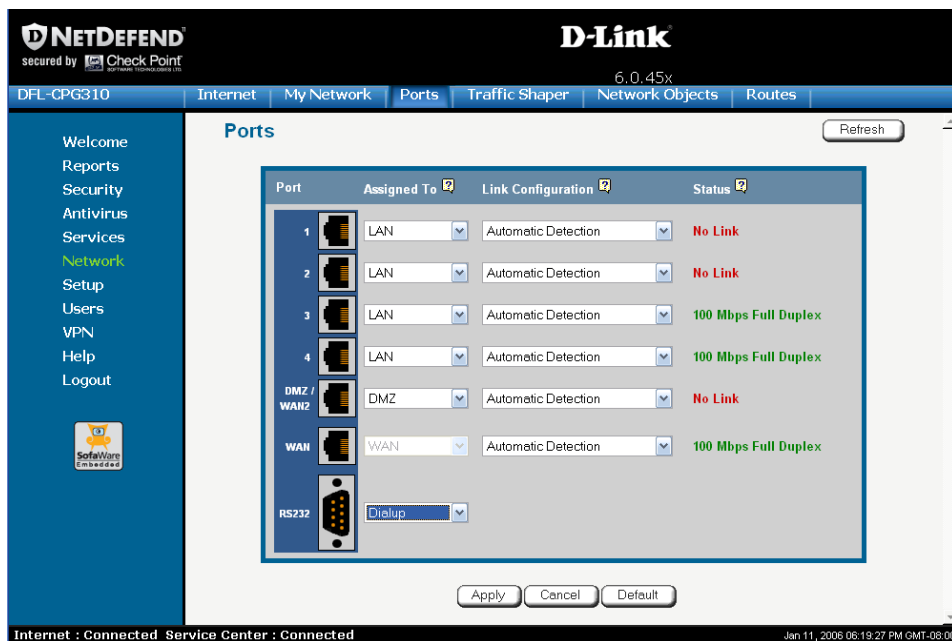
CP310

You can view the status of the NetDefend firewall's ports on the **Ports** page, including each Ethernet connection's duplex state. This is useful if you need to check whether the appliance's physical connections are working, and you can't see the LEDs on front of the appliance.

### To view port statuses

1. Click **Network** in the main menu, and click the **Ports** tab.

The **Ports** page appears.



The following information is displayed for each enabled port:



- **Assign To.** The port's current assignment. For example, if the DMZ/WAN2 port is currently used for the DMZ, the drop-down list displays "DMZ".
- **Link Configuration.** The configured link speed (10 Mbps or 100 Mbps) and duplex (Full Duplex or Half Duplex) configured for the port.

**Automatic Detection** indicates that the port is configured to automatically detect the link speed and duplex.

- **Status.** The detected link speed and duplex.

**No Link** indicates that the appliance does not detect anything connected to the port.

**Disabled** indicates that the port is disabled. For example, if the DMZ/WAN2 port is currently assigned to the DMZ, but the DMZ is disabled, the port is marked as such.

2. To refresh the display, click Refresh.

## Modifying Port Assignments

CP310

You can assign ports to different networks or purposes. Since modifying port assignments often requires additional configurations, use the table below to determine which procedure you should use:

**Table 19: Modifying Port Assignments**

To assign a port to...	See...
LAN	The procedure below
VLAN or VLAN Trunk	<b>Configuring VLANs</b> on page 111



---

**To assign a port to...**

---

WAN2	<b><i>Setting Up a LAN or Broadband Backup Connection</i></b> on page 91
DMZ	Configuring a DMZ Network
Console	<b><i>Using a Console</i></b> on page 388
Modem	<b><i>Setting Up a Dialup Modem</i></b> on page 84

---

**To modify a port assignment**

1. Click **Network** in the main menu, and click the **Ports** tab.

The **Ports** page appears.

In the **Assigned To** drop-down list to the right of the port, select the desired port assignment.

2. Click **Apply**.

The port is reassigned to the specified network or purpose.





## Modifying Link Configurations

CP310

By default, the NetDefend automatically detects the link speed and duplex. If desired, you can manually restrict the NetDefend firewall's ports to a specific link speed.

### To modify a port's link configuration

1. Click **Network** in the main menu, and click the **Ports** tab.

The **Ports** page appears.

2. In the **Link Configuration** drop-down list to the right of the port, do one of the following:
  - Select the desired link speed and duplex.
  - Select **Automatic Detection** to configure the port to automatically detect the link speed and duplex.

This is the default.

3. Click **Apply**.

The port uses the specified link speed and duplex.



## Resetting Ports to Defaults

CP310

You can reset the NetDefend firewall's ports to their default link configurations ("Automatic Detection") and default assignments (shown in the table below).

**Table 20: Default Port Assignments**

Port	Default Assignment
1-4	LAN
DMZ / WAN2	DMZ
WAN	This port is always assigned to the WAN.
RS232	Modem

### To reset ports to defaults

1. Click **Network** in the main menu, and click the **Ports** tab.

The **Ports** page appears.

2. Click **Default**.

A confirmation message appears.

3. Click **OK**.

The ports are reset to their default assignments and to "Automatic Detection" link configuration.

All currently established connections that are not supported by the default settings may be broken. For example, if you were using the DMZ/WAN2 port as WAN2, the port reverts to its DMZ assignment, and the secondary Internet connection moves to the WAN port.



## Chapter 6

# Using Traffic Shaper

This chapter describes how to use Traffic Shaper to control the flow of communication to and from your network.

This chapter includes the following topics:

Overview .....	151
Setting Up Traffic Shaper.....	153
Predefined QoS Classes.....	154
Adding and Editing Classes.....	155
Deleting Classes .....	159
Restoring Traffic Shaper Defaults .....	160

## Overview

Traffic Shaper is a bandwidth management solution that allows you to set bandwidth policies to control the flow of communication. Traffic Shaper ensures that important traffic takes precedence over less important traffic, so that your business can continue to function with minimum disruption, despite network congestion.

Traffic Shaper uses Stateful Inspection technology to access and analyze data derived from all communication layers. This data is used to classify traffic in Quality of Service (QoS) classes. Traffic Shaper divides available bandwidth among the classes according to weight. For example, suppose Web traffic is deemed three times as important as FTP traffic, and these services are assigned weights of 30 and 10 respectively. If the lines are congested, Traffic Shaper will maintain the ratio of bandwidth allocated to Web traffic and FTP traffic at 3:1.

If a specific class is not using all of its bandwidth, the leftover bandwidth is divided among the remaining classes, in accordance with their relative weights. In the example above, if only one Web and one FTP connection are active and they are competing, the Web connection will receive 75% (30/40) of the leftover



bandwidth, and the FTP connection will receive 25% (10/40) of the leftover bandwidth. If the Web connection closes, the FTP connection will receive 100% of the bandwidth.

Each class has a bandwidth limit, which is the maximum amount of bandwidth that connections belonging to that class may use together. Once a class has reached its bandwidth limit, connections belonging to that class will not be allocated further bandwidth, even if there is unused bandwidth available. For example, traffic used by Peer-To-Peer file-sharing applications may be limited to a specific rate, such as 512 kilobit per second. Each class also has a “Delay Sensitivity” value, indicating whether connections belonging to the class should be given precedence over connections belonging to other classes.

Your NetDefend firewall offers different degrees of traffic shaping, depending on its model:

- **Simplified Traffic Shaper.** Includes a fixed set of four predefined classes. You can assign network traffic to each class, but you cannot modify the classes, delete them, or create new classes.
- **Advanced Traffic Shaper.** Includes a set of four predefined classes, but enables you to modify the classes, delete them, and create new classes. You can define up to eight classes, including weight, bandwidth limits, and DiffServ (Differentiated Services) Packet Marking parameters. DiffServ marks packets as belonging to a certain Quality of Service class. These packets are then granted priority on the public network according to their class. Available in NetDefend with Power Pack.



Note: You can prioritize wireless traffic from WMM-compliant multimedia applications, by enabling Wireless Multimedia (WMM) for the WLAN network. See ***Manually Configuring a WLAN*** on page 165.

## Setting Up Traffic Shaper

500

### To set up Traffic Shaper

1. Enable Traffic Shaper for the Internet connection, using the procedure *Using Internet Setup* on page 63.

You can enable Traffic Shaper for incoming or outgoing connections.

- When enabling Traffic Shaper for outgoing traffic:

Specify a rate (in kilobits/second) slightly lower than your Internet connection's maximum measured upstream speed.

- When enabling Traffic Shaper for incoming traffic:

Specify a rate (in kilobits/second) slightly lower than your Internet connection's maximum measured downstream speed.

It is recommended to try different rates in order to determine which ones provide the best results.



Note: Traffic Shaper cannot control the number or type of packets it receives from the Internet; it can only affect the rate of incoming traffic by dropping received packets. This makes the shaping of inbound traffic less accurate than the shaping of outbound traffic. It is therefore recommended to enable traffic shaping for incoming traffic only if necessary.

2. If you are using NetDefend with Power Pack, you can add QoS classes that reflect your communication needs, or modify the four predefined QoS classes.

See *Adding and Editing Classes* on page 155.



Note: If you are using DFL-CP310, you have Simplified Traffic Shaper, and you cannot add or modify the classes. To add or modify classes, upgrade to DFL-CP310 with Power Pack, which supports Advanced Traffic Shaper.

3. Use Allow or Allow and Forward rules to assign different types of connections to QoS classes.



For example, if Traffic Shaper is enabled for outgoing traffic, and you create an Allow rule associating all outgoing VPN traffic with the Urgent QoS class, then Traffic Shaper will handle outgoing VPN traffic as specified in the bandwidth policy for the Urgent class.

See *Adding and Editing Rules* on page 213.



Note: Traffic Shaper must be enabled for the direction of traffic specified in the rule.



Note: If you do not assign a connection type to a class, Traffic Shaper automatically assigns the connection type to the predefined "Default" class.

## Predefined QoS Classes

CP310

Traffic Shaper provides the following predefined QoS classes.

To assign traffic to these classes, define firewall rules as described in *Using Rules* on page 209.

**Table 21: Predefined QoS Classes**

Class	Weight	Delay Sensitivity	Useful for
Default	10	Medium (Normal Traffic)	Normal traffic.  All traffic is assigned to this class by default.
Urgent	15	High (Interactive Traffic)	Traffic that is highly sensitive to delay. For example, IP telephony, videoconferencing, and interactive protocols that require quick user response, such as telnet.



Class	Weight	Delay Sensitivity	Useful for
Important	20	Medium (Normal Traffic)	Normal traffic
Low Priority	5	Low (Bulk Traffic)	Traffic that is not sensitive to long delays. For example, SMTP traffic (outgoing email).

In Simplified Traffic Shaper, these classes cannot be changed.

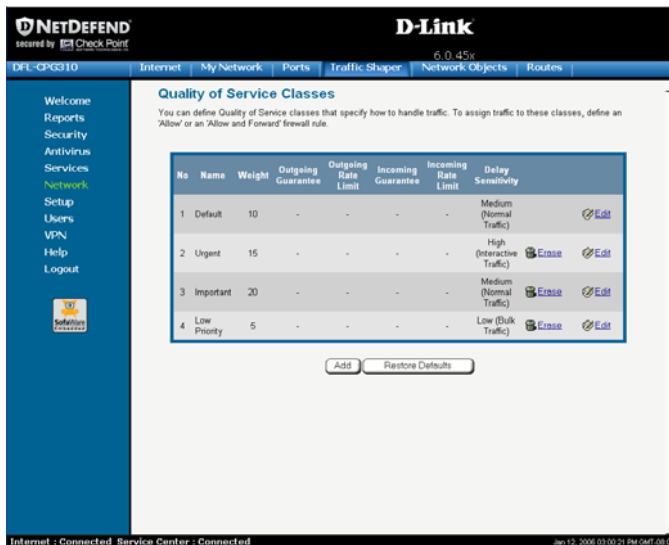
## Adding and Editing Classes

Power Pack

### To add or edit a QoS class

1. Click **Network** in the main menu, and click the **Traffic Shaper** tab.

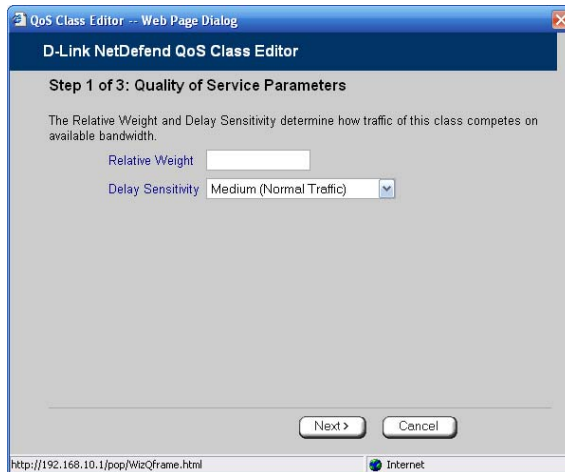
The Quality of Service Classes page appears.



2. Click **Add**.

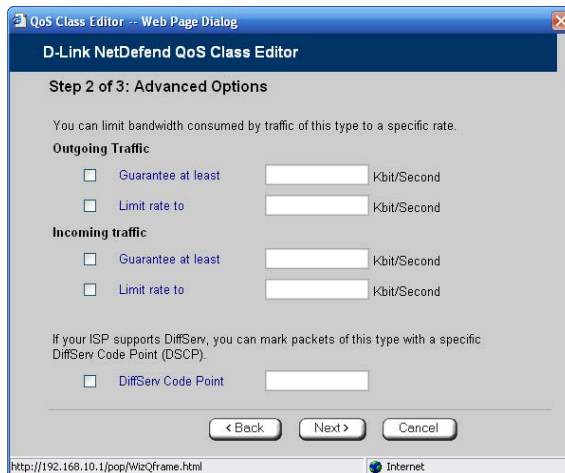


The NetDefend QoS Class Editor wizard opens, with the Step 1 of 3: Quality of Service Parameters dialog box displayed.



3. Complete the fields using the relevant information in the table below.
4. Click Next.

The Step 2 of 3: Advanced Options dialog box appears.



5. Complete the fields using the relevant information in the table below.

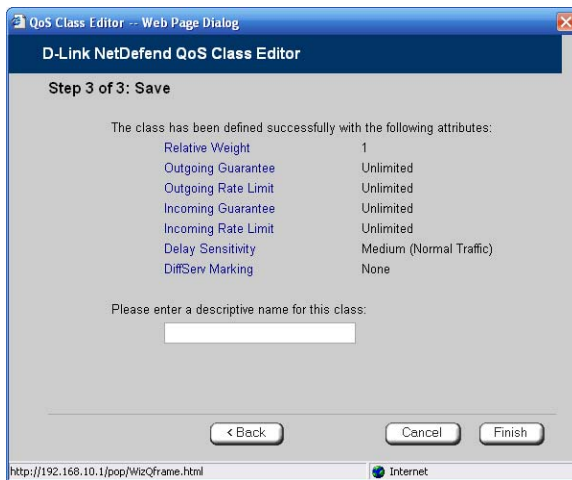




Note: Traffic Shaper may not enforce guaranteed rates and relative weights for incoming traffic as accurately as for outgoing traffic. This is because Traffic Shaper cannot control the number or type of packets it receives from the Internet; it can only affect the rate of incoming traffic by dropping received packets. It is therefore recommended to enable traffic shaping for incoming traffic only if necessary. For information on enabling Traffic Shaper for incoming and outgoing traffic, see **Using Internet Setup** on page 63.

6. Click Next.

The Step 3 of 3: Save dialog box appears with a summary of the class.



7. Type a name for the class.

For example, if you are creating a class for high priority Web connections, you can name the class "High Priority Web".

8. Click Finish.

The new class appears in the Quality of Service Classes page.

**Table 22: QoS Class Fields**

In this field...	Do this...
Relative Weight	<p>Type a value indicating the class's importance relative to the other defined classes.</p> <p>For example, if you assign one class a weight of 100, and you assign another class a weight of 50, the first class will be allocated twice the amount of bandwidth as the second when the lines are congested.</p>
Delay Sensitivity	<p>Select the degree of precedence to give this class in the transmission queue:</p> <ul style="list-style-type: none"> <li>• Low (Bulk Traffic) - Traffic that is not sensitive to long delays. For example, SMTP traffic (outgoing email).</li> <li>• Medium (Normal Traffic) - Normal traffic</li> <li>• High (Interactive Traffic) - Traffic that is highly sensitive to delay. For example, IP telephony, videoconferencing, and interactive protocols that require quick user response, such as telnet.</li> </ul> <p>Traffic Shaper serves delay-sensitive traffic with a lower latency. That is, Traffic Shaper attempts to send packets with a "High (Interactive Traffic)" level before packets with a "Medium (Normal Traffic)" or "Low (Bulk Traffic)" level.</p>
Outgoing Traffic: Guarantee At Least	Select this option to guarantee a minimum bandwidth for outgoing traffic belonging to this class. Then type the minimum bandwidth (in kilobits/second) in the field provided.
Outgoing Traffic: Limit rate to	Select this option to limit the rate of outgoing traffic belonging to this class. Then type the maximum rate (in kilobits/second) in the field provided.
Incoming Traffic: Guarantee At Least	Select this option to guarantee a minimum bandwidth for incoming traffic belonging to this class. Then type the minimum bandwidth (in kilobits/second) in the field provided.



In this field...	Do this...
Incoming Traffic: Limit rate to	Select this option to limit the rate of incoming traffic belonging to this class. Then type the maximum rate (in kilobits/second) in the field provided.
DiffServ Code Point	<p>Select this option to mark packets belonging to this class with a DiffServ Code Point (DSCP), which is an integer between 0 and 63. Then type the DSCP in the field provided.</p> <p>The marked packets will be given priority on the public network according to their DSCP.</p> <p>To use this option, your ISP or private WAN must support DiffServ. You can obtain the correct DSCP value from your ISP or private WAN administrator.</p>

## Deleting Classes


### Power Pack

You cannot delete a class that is currently used by a rule. You can determine whether a class is in use or not, by viewing the **Rules** page.

### To delete an existing QoS class

1. Click **Network** in the main menu, and click the **Traffic Shaper** tab.

The **Quality of Service Classes** page appears.

2. Click the Erase icon  of the class you wish to delete.

A confirmation message appears.

3. Click **OK**.

The class is deleted.



## Restoring Traffic Shaper Defaults

### Power Pack

If desired, you can reset the Traffic Shaper bandwidth policy to use the four predefined classes, and restore these classes to their default settings. For information on these classes and their defaults, see *Predefined QoS Classes* on page 154.



**Note:** This will delete any additional classes you defined in Traffic Shaper and reset all rules to use the Default class.

If one of the additional classes is currently used by a rule, you cannot reset Traffic Shaper to defaults. You can determine whether a class is in use or not, by viewing the **Rules** page.

### To restore Traffic Shaper defaults

1. Click **Network** in the main menu, and click the **Traffic Shaper** tab.  
The **Quality of Service Classes** page appears.
2. Click **Restore Defaults**.  
A confirmation message appears.
3. Click **OK**.

## Chapter 7

# Configuring a Wireless Network

This chapter describes how to set up a wireless internal network.

This chapter includes the following topics:

Overview .....	161
About the Wireless Hardware in Your NetDefend firewall.....	162
Wireless Security Protocols.....	163
Manually Configuring a WLAN.....	165
Using the Wireless Configuration Wizard.....	176
Preparing the Wireless Stations.....	182
Troubleshooting Wireless Connectivity .....	183

## Overview

In addition to the LAN and DMZ networks, you can define a wireless internal network called a WLAN (wireless LAN) network, when using the DFL-CPG310.

For information on default security policy rules controlling traffic to and from the WLAN, see *Default Security Policy* on page 203.

You can configure a WLAN network in either of the following ways:

- **Wireless Configuration Wizard.** Guides you through the WLAN setup step by step.

See *Using the Wireless Configuration Wizard* on page 176.

- **Manual configuration.** Offers advanced setup options.

See *Manually Configuring a WLAN* on page 165.



**Note:** It is recommended to configure the WLAN via Ethernet and not via a wireless connection, because the wireless connection could be broken after making a change to the configuration.



## About the Wireless Hardware in Your NetDefend firewall

Your NetDefend firewall features a built-in 802.11b/g access point that is tightly integrated with the firewall and hardware-accelerated VPN.

The DFL-CPG310 supports the latest 802.11g standard (up to 54Mbps) and is backwards compatible with the older 802.11b standard (up to 11Mbps), so that both new and old adapters of these standards are interoperable. The DFL-CPG310 also supports a special Super G mode that allows reaching a throughput of up to 108Mbps with Super G compatible stations. For more information on the Super G mode refer to: <http://www.super-ag.com>.

The DFL-CPG310 transmits in 2.4GHz range, using dual diversity antennas to increase the range. In addition, the NetDefend firewall supports a special extended range (XR) mode that allows up to three times the range of a regular 802.11g access point. XR dramatically stretches the performance of a wireless LAN, by enabling long-range connections. The architecture delivers receive sensitivities of up to 105dBm, over 20 dB more than the 802.11 specification. This allows ranges of up to 300 meters indoors, and up to 1 km (3200 ft) outdoors, with XR-enabled wireless stations (actual range depends on environment).



## Wireless Security Protocols

The NetDefend wireless security appliance supports the following security protocols:

**Table 23: Wireless Security Protocols**

Security Protocol	Description
None	No security method is used. This option is not recommended, because it allows unauthorized users to access your WLAN network, although you can still limit access from the WLAN by creating firewall rules. This method is suitable for creating public access points.
WEP encryption	<p>In the WEP (Wired Equivalent Privacy) encryption security method, wireless stations must use a pre-shared key to connect to your network. This method is not recommended, due to known security flaws in the WEP protocol. It is provided for compatibility with existing wireless deployments.</p> <p>Note: The appliance and the wireless stations must be configured with the same WEP key.</p>
802.1X: RADIUS authentication, no encryption	<p>In the 802.1x security method, wireless stations (suplicants) attempting to connect to the access point (authenticator) must first be authenticated by a RADIUS server (authentication server) which supports 802.1x . All messages are passed in EAP (Extensible Authentication Protocol).</p> <p>This method is recommended for situations in which you want to authenticate wireless users, but do not need to encrypt the data.</p> <p>Note: To use this security method, you must first configure a RADIUS server. See <b>Using RADIUS Authentication</b> on page 368</p>



Security Protocol	Description
WPA: RADIUS authentication, encryption	<p>The WPA (Wi-Fi Protected Access) security method uses MIC (message integrity check) to ensure the integrity of messages, and TKIP (Temporal Key Integrity Protocol) to enhance data encryption.</p> <p>Furthermore, WPA includes 802.1x and EAP authentication, based on a central RADIUS authentication server. This method is recommended for situations where you want to authenticate wireless stations using a RADIUS server, and to encrypt the transmitted data.</p> <p>Note: To use this security method, you must first configure a RADIUS server which supports 802.1x. See <b><i>Using RADIUS Authentication</i></b> on page 368</p>
WPA-PSK: password authentication, encryption	<p>The WPA-PSK security method is a variation of WPA that does not require an authentication server. WPA-PSK periodically changes and authenticates encryption keys. This is called <i>rekeying</i>.</p> <p>This option is recommended for small networks, which want to authenticate and encrypt wireless data, but do not want to install a RADIUS server.</p> <p>Note: The appliance and the wireless stations must be configured with the same passphrase.</p>
WPA2 (802.11i)	<p>The WPA2 security method uses the more secure Advanced Encryption Standard (AES) cipher, instead of the RC4 cipher used by WPA and WEP.</p> <p>When using WPA or WPA-PSK security methods, the NetDefend enables you to restrict access to the WLAN network to wireless stations that support the WPA2 security method. If this setting is not selected, the NetDefend firewall allows clients to connect using both WPA and WPA2.</p>





Note: For increased security, it is recommended to enable the NetDefend internal VPN Server for users connecting from your internal networks, and to install SecuRemote on each computer in the WLAN. This ensures that all connections from the WLAN to the LAN are encrypted and authenticated. For information, see **Internal VPN Server** on page 302 and **Setting Up Your NetDefend firewall as a VPN Server** on page 303.

## Manually Configuring a WLAN

CPG310

### To manually configure a WLAN network

1. Prepare the appliance for a wireless connection as described in **Network Installation** on page 35.
2. If you want to use 802.1X or WPA security mode for the WLAN, configure a RADIUS server.

For information on security modes, see **Basic WLAN Settings Fields** on page 168.

For information on configuring RADIUS servers, see **Using RADIUS Authentication** on page 368.

3. Click **Network** in the main menu, and click the **My Network** tab.  
The **My Network** page appears.
4. In the WLAN network's row, click **Edit**.



The Edit Network Settings page appears.

**NETDEFEND**  
secured by **Check Point**

**D-Link**  
6.0.45x

DFL-CPG310 | Internet | **My Network** | Ports | Traffic Shaper | Network Objects | Routes

Welcome  
Reports  
Security  
Antivirus  
Services  
**Network**  
Setup  
Users  
VPN  
Help  
Logout

**SafeWare**  
Embedded

### Edit Network Settings

**WLAN**

Mode: Enabled

IP Address: 192.168.252.1

Subnet Mask: 255.255.255.0 [24]

Hide NAT: Enabled

**DHCP**

DHCP Server: Enabled [Options](#)

☒ Automatic DHCP range

**Wireless Settings**

Network Name (SSID): NetDefend

Country: United States

Operation Mode: 802.11b/g (11/54 Mbps)

Channel: Automatic

Security: WEP encryption [Not Recommended]

**WEP Keys**

Key 1: ☒ 64 Bits: 10x[0-9,A-F]  [Random](#)

Key 2: ☐ 64 Bits: 10x[0-9,A-F]  [Random](#)

Key 3: ☐ 64 Bits: 10x[0-9,A-F]  [Random](#)

Key 4: ☐ 64 Bits: 10x[0-9,A-F]  [Random](#)

[Show Advanced Settings](#)

[Wireless Wizard](#) [Apply](#) [Cancel](#) [Back](#)

Internet : Connected Service Center : Connected Jan 12, 2006 03:17:49 PM GMT-08:00

5. In the Mode drop-down list, select Enabled.

The fields are enabled.

6. If desired, enable or disable Hide NAT.

See *Enabling/Disabling Hide NAT* on page 107.

7. If desired, configure a DHCP server.

See *Configuring a DHCP Server* on page 94.



8. Complete the fields using the information in **Basic WLAN Settings Fields** on page 168.
9. To configure advanced settings, click **Show Advanced Settings** and complete the fields using the information in **Advanced WLAN Settings Fields** on page 172.

New fields appear.

The screenshot displays the WLAN configuration page. At the top, the title 'WLAN' is centered. Below it, the 'Mode' is set to 'Enabled'. The 'IP Address' is '192.168.252.1' and the 'Subnet Mask' is '255.255.255.0 [24]'. 'Hide NAT' is 'Enabled'. Under the 'DHCP' section, the 'DHCP Server' is 'Enabled' with an 'Options' link. A checkbox for 'Automatic DHCP range' is checked. The 'Wireless Settings' section includes 'Network Name (SSID)' as 'NetDefend', 'Country' as 'United States', 'Operation Mode' as '802.11b/g (11/54 Mbps)', 'Channel' as 'Automatic', 'Security' as 'WPA: RADIUS authentication, encryption', and 'Require WPA2 (802.11)' as 'Disabled'. A link 'Hide Advanced Settings' is present. The 'Advanced Security' section has 'Hide the Network Name (SSID)' and 'MAC Address Filtering' both set to 'No'. The 'Wireless Transmitter' section includes 'Transmission Rate' as 'Automatic', 'Transmitter Power' as 'Full (100%)', 'Antenna Selection' as 'Automatic', 'Fragmentation Threshold' as '2346', 'RTS Threshold' as '2346', 'Extended Range Mode (XR)' as 'Enabled', and 'Multimedia QoS (WMM)' as 'Enabled'. Each setting has a help icon (question mark) to its right.

10. Click **Apply**.

A warning message appears, telling you that you are about to change your network settings.



11. Click OK.

A success message appears.

12. Prepare the wireless stations.

See *Preparing the Wireless Stations* on page 182.

**Table 24: WLAN Settings Fields**

In this field...	Do this...
IP Address	Type the IP address of the WLAN network's default gateway.  Note: The WLAN network must not overlap other networks.
Subnet Mask	Type the WLAN's internal network range.
Wireless Settings	
Network Name (SSID)	Type the network name (SSID) that identifies your wireless network. This name will be visible to wireless stations passing near your access point, unless you enable the Hide the Network Name (SSID) option.  It can be up to 32 alphanumeric characters long and is case-sensitive.
Country	Select the country where you are located.  Warning: Choosing an incorrect country may result in the violation of government regulations.



---

**In this field...****Do this...**

---

**Operation Mode**

Select an operation mode:

- 802.11b (11Mbps). Operates in the 2.4 GHz range and offers a maximum theoretical rate of 11 Mbps. When using this mode, only 802.11b stations will be able to connect.
- 802.11g (54 Mbps). Operates in the 2.4 GHz range, and offers a maximum theoretical rate of 54 Mbps. When using this mode, only 802.11g stations will be able to connect.
- 802.11b/g (11/54 Mbps). Operates in the 2.4 GHz range, and offers a maximum theoretical rate of 54 Mbps. When using this mode, both 802.11b stations and 802.11g stations will be able to connect.
- 802.11g Super (108 Mbps). Operates in the 2.4 GHz range, and offers a maximum theoretical rate of 108 Mbps. When using this mode, only 802.11g Super stations will be able to connect.
- 802.11g Super (11/54/108). Operates in the 2.4 GHz range, and offers a maximum theoretical rate of 108 Mbps. When using this mode, 802.11b stations, 802.11g stations, and 802.11g Super stations will all be able to connect.

Each operation mode indicates a wireless protocol (such as 802.11g Super), followed by the maximum bandwidth (such as 108 Mbps).

The list of modes is dependent on the selected country.

You can prevent older wireless stations from slowing down your network, by choosing an operation mode that restricts access to newer wireless stations.

**Note:** The actual data transfer speed is usually significantly lower than the maximum theoretical bandwidth and degrades with distance.

**Important:** The station wireless cards must support the selected operation mode. For a list of cards supporting 802.11g Super, refer to <http://www.super-ag.com>.



In this field...	Do this...
Channel	<p>Select the radio frequency to use for the wireless connection:</p> <ul style="list-style-type: none"><li>• Automatic. The NetDefend firewall automatically selects a channel. This is the default.</li><li>• A specific channel. The list of channels is dependent on the selected country and operation mode.</li></ul> <p>Note: If there is another wireless network in the vicinity, the two networks may interfere with one another. To avoid this problem, the networks should be assigned channels that are at least 25 MHz (5 channels) apart. Alternatively, you can reduce the transmission power.</p>
Security	<p>Select the security protocol to use. For information on the supported security protocols, see <b>Wireless Security Protocols</b> on page 163.</p> <p>If you select WEP encryption, the WEP Keys area opens.</p> <p>If you select WPA, the Require WPA2 (802.11i) field appears.</p> <p>If you select WPA-PSK, the Passphrase and Require WPA2 (802.11i) fields appear.</p>
Passphrase	<p>Type the passphrase for accessing the network, or click Random to randomly generate a passphrase.</p> <p>This must be between 8 and 63 characters. It can contain spaces and special characters, and is case-sensitive.</p> <p>For the highest security, choose a long passphrase that is hard to guess, or use the Random button.</p> <p>Note: The wireless stations must be configured with this passphrase as well.</p>



In this field...	Do this...
Require WPA2 (802.11i)	<p>Specify whether you want to require wireless stations to connect using WPA2, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• Enable. Only wireless stations using WPA2 can access the WLAN network.</li><li>• Disable. Wireless stations using either WPA or WPA2 can access the WLAN network. This is the default.</li></ul>
WEP Keys	<p>If you selected WEP encryption, you must configure at least one WEP key. The wireless stations must be configured with the same key, as well.</p>
Key 1, 2, 3, 4 radio button	<p>Click the radio button next to the WEP key that this gateway should use for transmission.</p> <p>The selected key must be entered in the same key slot (1-4) on the station devices, but the key need not be selected as the transmit key on the stations.</p> <p>Note: You can use all four keys to receive data.</p>
Key 1, 2, 3, 4 length	<p>Select the WEP key length from the drop-down list.</p> <p>The possible key lengths are:</p> <ul style="list-style-type: none"><li>• 64 Bits. The key length is 10 characters.</li><li>• 128 Bits. The key length is 26 characters.</li><li>• 152 Bits. The key length is 32 characters.</li></ul> <p>Note: Some wireless card vendors call these lengths 40/104/128, respectively.</p> <p>Note: WEP is generally considered to be insecure, regardless of the selected key length.</p>



---

In this field...	Do this...
------------------	------------

---

Key 1, 2, 3, 4 text box	Type the WEP key, or click Random to randomly generate a key matching the selected length. The key is composed of hexadecimal characters 0-9 and A-F, and is not case-sensitive.
-------------------------	--

---

**Table 25: Advanced WLAN Settings Fields**

---

In this field...	Do this...
------------------	------------

---

**Advanced Security**

Hide the Network Name (SSID)	Specify whether you want to hide your network's SSID, by selecting one of the following:
------------------------------	--

- Yes. Hide the SSID.  
Only devices to which your SSID is known can connect to your network.
- No. Do not hide the SSID.  
Any device within range can detect your network name using the wireless network discovery features of some products, such as Microsoft Windows XP, and attempt to connect to your network. This is the default.

Note: Hiding the SSID does not provide strong security, because by a determined attacker can still discover your SSID. Therefore, it is not recommended to rely on this setting alone for security.





In this field...	Do this...
MAC Address Filtering	<p>Specify whether you want to enable MAC address filtering, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• Yes. Enable MAC address filtering. Only MAC addresses that you added as network objects can connect to your network. For information on network objects, see <b>Using Network Objects</b> on page 129.</li><li>• No. Disable MAC address filtering. This is the default.</li></ul> <p>Note: MAC address filtering does not provide strong security, since MAC addresses can be spoofed by a determined attacker. Therefore, it is not recommended to rely on this setting alone for security.</p>
Wireless Transmitter	
Transmission Rate	<p>Select the transmission rate:</p> <ul style="list-style-type: none"><li>• Automatic. The NetDefend firewall automatically selects a rate. This is the default.</li><li>• A specific rate</li></ul>
Transmitter Power	<p>Select the transmitter power.</p> <p>Setting a higher transmitter power increases the access point's range. A lower power reduces interference with other access points in the vicinity.</p> <p>The default value is Full. It is not necessary to change this value, unless there are other access points in the vicinity.</p>



---

In this field...	Do this...
------------------	------------

---

Antenna Selection	Multipath distortion is caused by the reflection of Radio Frequency (RF) signals traveling from the transmitter to the receiver along more than one path. Signals that were reflected by some surface reach the receiver after non-reflected signals and distort them.
-------------------	--

NetDefend firewalls avoid the problems of multipath distortion by using an antenna diversity system. To provide antenna diversity, each wireless security appliance has two antennas.

Specify which antenna to use for communicating with wireless stations:

- Automatic. The NetDefend firewall receives signals through both antennas and automatically selects the antenna with the lowest distortion signal to use for communicating. The selection is made on a per-station basis. This is the default.
- ANT 1. The ANT 1 antenna is always used for communicating.
- ANT 2. The ANT 2 antenna is always used for communicating.

Use manual diversity control (ANT 1 or ANT 2), if there is only one antenna connected to the appliance.

Fragmentation Threshold	Type the smallest IP packet size (in bytes) that requires that the IP packet be split into smaller fragments.
-------------------------	---

If you are experiencing significant radio interference, set the threshold to a low value (around 1000), to reduce error penalty and increase overall throughput.

Otherwise, set the threshold to a high value (around 2000), to reduce overhead.

The default value is 2346.



---

In this field...	Do this...
RTS Threshold	<p>Type the smallest IP packet size for which a station must send an RTS (Request To Send) before sending the IP packet.</p> <p>If multiple wireless stations are in range of the access point, but not in range of each other, they might send data to the access point simultaneously, thereby causing data collisions and failures. RTS ensures that the channel is clear before the each packet is sent.</p> <p>If your network is congested, and the users are distant from one another, set the RTS threshold to a low value (around 500).</p> <p>Setting a value equal to the fragmentation threshold effectively disables RTS.</p> <p>The default value is 2346.</p>
Extended Range Mode (XR)	<p>Specify whether to use Extended Range (XR) mode:</p> <ul style="list-style-type: none"><li>• Disabled. XR mode is disabled.</li><li>• Enabled. XR mode is enabled. XR will be automatically negotiated with XR-enabled wireless stations and used as needed. This is the default.</li></ul> <p>For more information on XR mode, see <b>About the Wireless Hardware in Your NetDefend firewall</b> on page 162.</p>
Multimedia QoS (WMM)	<p>Specify whether to use the Wireless Multimedia (WMM) standard to prioritize traffic from WMM-compliant multimedia applications:</p> <ul style="list-style-type: none"><li>• Disabled. WMM is disabled. This is the default.</li><li>• Enabled. WMM is enabled. The NetDefend firewall will prioritize multimedia traffic according to four access categories (Voice, Video, Best Effort, and Background). This allows for smoother streaming of voice and video when using WMM aware applications.</li></ul>

---



## Using the Wireless Configuration Wizard

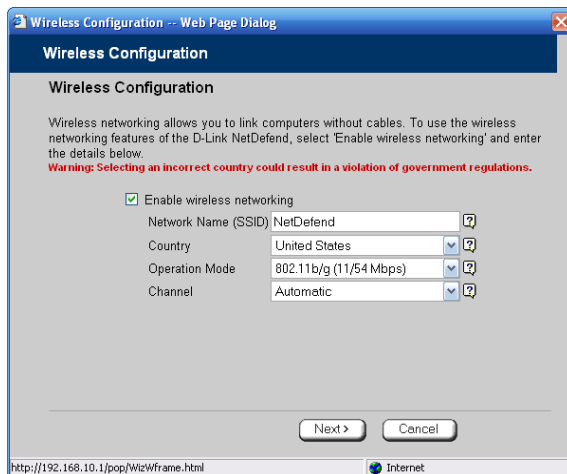
CPG310

The Wireless Configuration Wizard provides a quick and simple way of setting up your basic WLAN parameters for the first time.

### To configure a WLAN using the Wireless Configuration Wizard

1. Prepare the appliance for a wireless connection as described in *Network Installation* on page 35.
2. Click **Network** in the main menu, and click the **My Network** tab.  
The **My Network** page appears.
3. In the WLAN network's row, click **Edit**.  
The **Edit Network Settings** page appears.
4. Click **Wireless Wizard**.

The **Wireless Configuration Wizard** opens, with the **Wireless Configuration** dialog box displayed.



5. Select the **Enable wireless networking** check box to enable the WLAN.

The fields are enabled.

6. Complete the fields using the information in *Basic WLAN Settings Fields* on page 168.
7. Click **Next**.
8. The **Wireless Security** dialog box appears.



9. Do one of the following:

- Click **WPA-PSK** to use the WPA-PSK security mode.

WPA-PSK periodically changes and authenticates encryption keys. This is a recommended security mode for small, private wireless networks, which want to authenticate and encrypt wireless data but do not want to install a RADIUS server. Both WPA and the newer, more secure WPA2 (802.11i) will be accepted.

- Click **WEP** to use the WEP security mode.

Using WEP, wireless stations must use a pre-shared key to connect to your network. WEP is widely known to be insecure, and is supported mainly for compatibility with existing networks and stations that do not support other methods.



- Click **No Security** to use no security to create a public, unsecured access point.



Note: You cannot configure WPA and 802.1x using this wizard. For information on configuring these modes, see **Manually Configuring a WLAN** on page 165.

10. Click **Next**.

## WPA-PSK

If you chose WPA-PSK, the Wireless Configuration-WPA-PSK dialog box appears.



Do the following:

1. In the text box, type the passphrase for accessing the network, or click **Random** to randomly generate a passphrase.

This must be between 8 and 63 characters. It can contain spaces and special characters, and is case-sensitive.

2. Click **Next**.



The Wireless Security Confirmation dialog box appears.



3. Click Next.
4. The Wireless Security Complete dialog box appears.



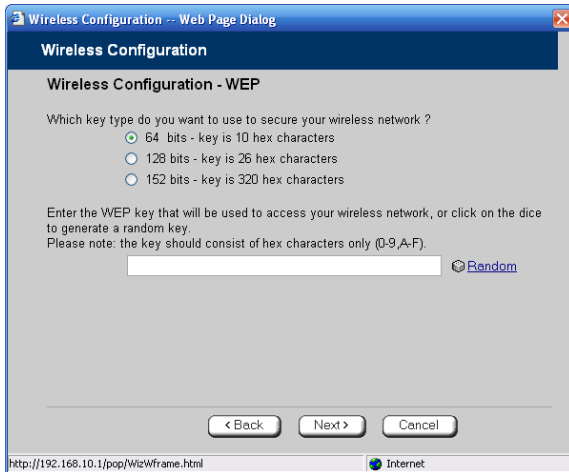
5. Click Finish.  
The wizard closes.
6. Prepare the wireless stations.



See *Preparing the Wireless Stations* on page 182.

## WEP

If you chose WEP, the Wireless Configuration-WEP dialog box appears.



Do the following:

1. Choose a WEP key length.

The possible key lengths are:

- 64 Bits - The key length is 10 hexadecimal characters.
- 128 Bits - The key length is 26 hexadecimal characters.
- 152 Bits - The key length is 32 hexadecimal characters.

Some wireless card vendors call these lengths 40/104/128, respectively.

Note that WEP is generally considered to be insecure, regardless of the selected key length.

2. In the text box, type the WEP key, or click **Random** to randomly generate a key matching the selected length.

The key is composed of characters 0-9 and A-F, and is not case-sensitive. The wireless stations must be configured with this same key.





3. Click Next.

The **Wireless Security Confirmation** dialog box appears.

4. Click Next.

The **Wireless Security Complete** dialog box appears.

5. Click Finish.

The wizard closes.

6. Prepare the wireless stations.

See *Preparing the Wireless Stations* on page 182.

## **No Security**

The **Wireless Security Complete** dialog box appears.

- Click Finish.

The wizard closes.



## Preparing the Wireless Stations

CPG310

After you have configured a WLAN, the wireless stations must be prepared for connection to the WLAN.

### To prepare the wireless stations

1. If you selected the WEP security mode, give the WEP key to the wireless stations' administrators.
2. If you selected the WPA-PSK security mode, give the passphrase to the wireless stations' administrator.
3. The wireless stations' administrators should configure the wireless stations and connect them to the WLAN.

Refer to the wireless cards' documentation for details.



Note: Some wireless cards have "Infrastructure" and "Ad-hoc" modes. These modes are also called "Access Point" and "Peer to Peer". Choose the "Infrastructure" or "Access Point" mode.

You can set the wireless cards to either "Long Preamble" or "Short Preamble".



Note: The wireless cards' region and the NetDefend firewall's region must both match the region of the world where you are located. If you purchased your NetDefend firewall in a different region, contact technical support.

## Troubleshooting Wireless Connectivity

I cannot connect to the WLAN from a wireless station. What should I do?

- Check that the SSID configured on the station matches the NetDefend firewall's SSID. The SSID is case-sensitive.
- Check that the encryption settings configured on the station (encryption mode and keys) match the NetDefend firewall's encryption settings.
- If MAC filtering is enabled, verify that the MAC address of all stations is listed in the Network Objects page (see *Viewing and Deleting Network Objects* on page 138).

How do I test wireless reception?

- Look at the **Wireless** page, and check for excessive errors or dropped packets.
- Look at the **Active Computers** page, to see information for specific wireless stations, such as the number of transmission errors, and the current reception power of each station.
- On the wireless station, open a command window and type **ping my.firewall**. If you see a large number of dropped packets, you are experiencing poor reception.

Wireless reception is poor. What should I do?

- Adjust the angle of the antennas, until the reception improves. The antennas radiate horizontally in all directions.
- If both antennas are connected to the NetDefend firewall, check that the **Antenna Selection** parameter in the WLAN's advanced settings is set to **Automatic** (see *Manually Configuring a WLAN* on page 165).
- Relocate the NetDefend firewall to a place with better reception, and avoid obstructions, such as walls and electrical equipment. For example, try mounting the appliance in a high place with a direct line of sight to the wireless stations.
- Check for interference with nearby electrical equipment, such as microwave ovens and cordless or cellular phones.



- Check the **Transmission Power** parameter in the WLAN's advanced settings (see *Manually Configuring a WLAN* on page 165).
- Make sure that you are not using two access points in close proximity and on the same frequency. For minimum interference, channel separation between nearby access points must be at least 25 MHz (5 channels).
- The NetDefend firewall supports XR (Extended Range) technology. For best range, enable XR mode in the WLAN's advanced settings (see *Manually Configuring a WLAN* on page 165), and use XR-enabled stations.
- Range outdoors is normally much higher than indoors, depending on environmental conditions.



Note: You can observe any changes in the wireless reception in the Active Computers page. Make sure to refresh the page after making a change.



Note: Professional companies are available for help in setting up reliable wireless networks, with access to specialized testing equipment and procedures.

There are excessive collisions between wireless stations. What should I do?

If you have many concurrently active wireless stations, there may be collisions between them. Such collisions may be the result of a "hidden node" problem: not all of the stations are within range of each other, and therefore are "hidden" from one another. For example, if station A and station C do not detect each other, but both stations detect and are detected by station B, then both station A and C may attempt to send packets to station B simultaneously. In this case, the packets will collide, and Station B will receive corrupted data.

The solution to this problem lies in the use of the RTS protocol. Before sending a certain size IP packet, a station sends an RTS (Request To Send) packet. If the recipient is not currently receiving packets from another source, it sends back a CTS (Clear To Send) packet, indicating that the station can send the IP packet. Try setting the **RTS Threshold** parameter in the WLAN's advanced settings (see *Manually Configuring a WLAN* on page 165) to a lower value. This will cause stations to use RTS for smaller IP packets, thus decreasing the likeliness of collisions.

In addition, try setting the Fragmentation Threshold parameter in the WLAN's advanced settings (see *Manually Configuring a WLAN* on page 165) to a lower value. This will cause stations to fragment IP packets of a certain size into smaller packets, thereby reducing the likeliness of collisions and increasing network speed.



Note: Reducing the RTS Threshold and the Fragmentation Threshold too much can have a negative impact on performance.



Note: Setting an RTS Threshold value equal to the Fragmentation Threshold value effectively disables RTS.

I am not getting the full speed. What should I do?

- The actual speed is always less than the theoretical speed, and degrades with distance.
- Read the section about reception problems. Better reception means better speed.
- Check that all your wireless stations support the wireless standard you are using (802.11g or 802.11g Super), and that this standard is enabled in the station software. Transmission speed is determined by the slowest station associated with the access point. For a list of wireless stations that support 802.11g Super, see [www.super-ag.com](http://www.super-ag.com).





## Chapter 8

# Viewing Reports

This chapter describes the NetDefend Portal reports.

This chapter includes the following topics:

Viewing the Event Log.....	187
Using the Traffic Monitor .....	191
Viewing Computers.....	194
Viewing Connections .....	197
Viewing Wireless Statistics .....	198

## Viewing the Event Log

CP310

You can track network activity using the Event Log. The Event Log displays the most recent events and color-codes them.

**Table 26: Event Log Color Coding**

An event marked in this color...	Indicates...
----------------------------------	--------------

Blue	Changes in your setup that you have made yourself or as a result of a security update implemented by your Service Center.
Red	Connection attempts that were blocked by your firewall.
Orange	Connection attempts that were blocked by your custom security rules.



---

## An event marked in this color... Indicates...

---

Green

Traffic accepted by the firewall.

By default, accepted traffic is not logged.

However, such traffic may be logged if specified by a security policy downloaded from your Service Center, or if specified in user-defined rules.

---

You can create firewall rules specifying that certain types of connections should be logged, whether the connections are incoming or outgoing, blocked or accepted. For information, see *Using Rules* on page 209.

The logs detail the date and the time the event occurred, and its type. If the event is a communication attempt that was rejected by the firewall, the event details include the source and destination IP address, the destination port, and the protocol used for the communication attempt (for example, TCP or UDP). If the event is a connection made or attempted over a VPN tunnel, the event is marked by a lock icon in the VPN column.

This information is useful for troubleshooting. You can export the logs to an \*.xls (Microsoft Excel) file, and then store it for analysis purposes or send it to technical support.



Note: You can configure the NetDefend firewall to send event logs to a Syslog server. For information, see *Configuring Syslog Logging* on page 384.





## To view the event log

1. Click Reports in the main menu, and click the Event Log tab.

The Event Log page appears.

**NETDEFEND**  
secured by **Check Point**

**D-Link**  
6.0.45r

Event Log | Traffic Monitor | Active Computers | Active Connections | Wireless | VPN Tunnels

Save | Refresh | Clear

No.	VPN	Date	Time	Protocol	Source IP Address	Port	Destination IP Address	Port
00018		11Jan2006	15:41:10	TCP	67.130.255.218	3576	67.130.140.145 (D-Link NetDefend)	445 (NetBOS)
00017		11Jan2006	15:36:18	TCP	67.130.255.218	1546	67.130.140.145 (D-Link NetDefend)	445 (NetBOS)
00016		11Jan2006	15:34:11		User admin logged in (Source IP: 192.168.10.199)			
00015		11Jan2006	15:23:59		User admin logged in (Source IP: 192.168.10.199)			
00014		11Jan2006	15:23:56		User admin failed to login (wrong authentication) (Source IP: 192.168.10.199)			
00013		11Jan2006	15:21:46	TCP	67.130.131.95	3428	67.130.140.145 (D-Link NetDefend)	445 (NetBOS)
00012		11Jan2006	15:20:39	TCP	67.130.131.95	2104	67.130.140.145 (D-Link NetDefend)	445 (NetBOS)
00011		11Jan2006	15:18:29	TCP	67.130.131.95	3392	67.130.140.145 (D-Link NetDefend)	445 (NetBOS)
00010		11Jan2006	15:13:08	UDP	211.100.29.187	29400	67.130.140.145 (D-Link NetDefend)	1026
00009		11Jan2006	15:07:26	TCP	67.130.255.218	2336	67.130.140.145 (D-Link NetDefend)	445 (NetBOS)
00008		11Jan2006	15:06:46	TCP	67.130.255.218	4988	67.130.140.145 (D-Link NetDefend)	445 (NetBOS)
00007		11Jan2006	15:06:26	TCP	67.130.87.145	3078	67.130.140.145 (D-Link NetDefend)	445 (NetBOS)
00006		11Jan2006	15:04:27	TCP	67.130.255.218	4195	67.130.140.145 (D-Link NetDefend)	445 (NetBOS)
00005		11Jan2006	15:04:05	TCP	67.130.255.218	3492	67.130.140.145 (D-Link NetDefend)	445 (NetBOS)
00004		11Jan2006	14:58:23	Primary Local Area Network (LAN) connection established, IP 67.130.140.145 was assigned.				
00003		11Jan2006	14:58:23	D-Link NetDefend started up				
00002		11Jan2006	14:50:13	Error: Could not resolve name for time server clock.tsc.org				
00001		11Jan2006	14:50:13	Error: Could not resolve name for time server clock.usno.navy.mil				

Legend:  
- Traffic accepted by firewall.  
- Suspicious activity blocked by firewall.  
- Traffic blocked by a user defined rule.  
- Other.

Internet : Connected Service Center : Connected Jan 12, 2006 03:46:03 PM GMT-08:00

2. If an event is highlighted in red, indicating a blocked attack on your network, you can display the attacker's details, by clicking on the IP address of the attacking machine.

The NetDefend firewall queries the Internet WHOIS server, and a window displays the name of the entity to whom the IP address is registered and their contact information. This information is useful in tracking down hackers.

3. To refresh the display, click **Refresh**.
4. To save the displayed events to an \*.xls file:
  - a. Click **Save**.



A standard **File Download** dialog box appears.

- b. Click **Save**.

The **Save As** dialog box appears.

- c. Browse to a destination directory of your choice.
- d. Type a name for the configuration file and click **Save**.

The \*.xls file is created and saved to the specified directory.

- 5. To clear all displayed events:

- a. Click **Clear**.

A confirmation message appears.

- b. Click **OK**.

All events are cleared.

## Using the Traffic Monitor

CP310

You can view incoming and outgoing traffic for selected network interfaces and QoS classes using the Traffic Monitor. This enables you to identify network traffic trends and anomalies, and to fine-tune Traffic Shaper QoS class assignments.

The Traffic Monitor displays separate bar charts for incoming traffic and outgoing traffic, and displays traffic rates in kilobits/second. If desired, you can change the number of seconds represented by the bars in the charts, using the procedure *Configuring Traffic Monitor Settings* on page 193.

In network traffic reports, the traffic is color-coded as described in the table below. In the All QoS Classes report, the traffic is color-coded by QoS class.

**Table 27: Traffic Monitor Color Coding for Networks**

Traffic marked in this color...	Indicates...
Blue	VPN-encrypted traffic
Red	Traffic blocked by the firewall
Green	Traffic accepted by the firewall

You can export a detailed traffic report for all enabled networks and all defined QoS classes, using the procedure *Exporting General Traffic Reports* on page 194.

## Viewing Traffic Reports

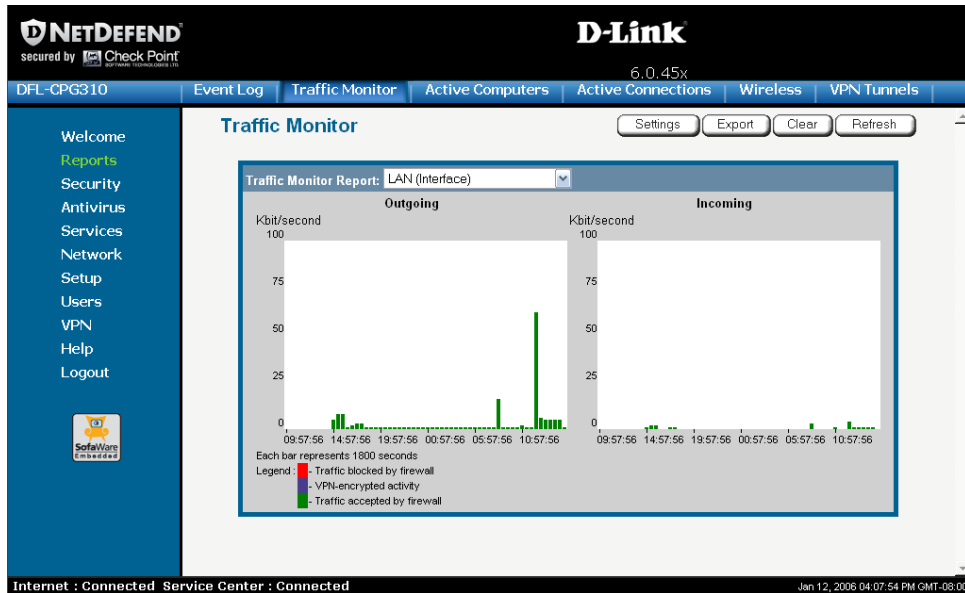
CP310

### To view a traffic report

1. Click Reports in the main menu, and click the Traffic Monitor tab.



The Traffic Monitor page appears.



2. In the Traffic Monitor Report drop-down list, select the network interface for which you want to view a report.

The list includes all currently enabled networks. For example, if the DMZ network is enabled, it will appear in the list.

If Traffic Shaper is enabled, the list also includes the defined QoS classes. Choose **All QoS Classes** to display a report including all QoS classes. For information on enabling Traffic Shaper see *Using Internet Setup* on page 63.

The selected report appears in the Traffic Monitor page.

3. To refresh all traffic reports, click **Refresh**.
4. To clear all traffic reports, click **Clear**.



**Note:** The firewall blocks broadcast packets used during the normal operation of your network. This may lead to a certain amount of traffic of the type "Traffic blocked by firewall" that appears under normal circumstances and usually does not indicate an attack.



## Configuring Traffic Monitor Settings

CP310

You can configure the interval at which the NetDefend firewall should collect traffic data for network traffic reports.

### To configure Traffic Monitor settings

1. Click Reports in the main menu, and click the Traffic Monitor tab.

The Traffic Monitor page appears.

2. Click Settings.

The Traffic Monitor Settings page appears.



3. In the Sample monitoring data every field, type the interval (in seconds) at which the NetDefend firewall should collect traffic data.

The default value is one sample every 1800 seconds (30 minutes).

4. Click Apply.



## Exporting General Traffic Reports

CP310

You can export a general traffic report that includes information for all enabled networks and all defined QoS classes to a \*.csv (Comma Separated Values) file. You can open and view the file in Microsoft Excel.

### To export a general traffic report

1. Click **Reports** in the main menu, and click the **Traffic Monitor** tab.

The Traffic Monitor page appears.

2. Click **Export**.

A standard **File Download** dialog box appears.

3. Click **Save**.

The **Save As** dialog box appears.

4. Browse to a destination directory of your choice.

5. Type a name for the configuration file and click **Save**.

A \*.csv file is created and saved to the specified directory.

## Viewing Computers

CP310

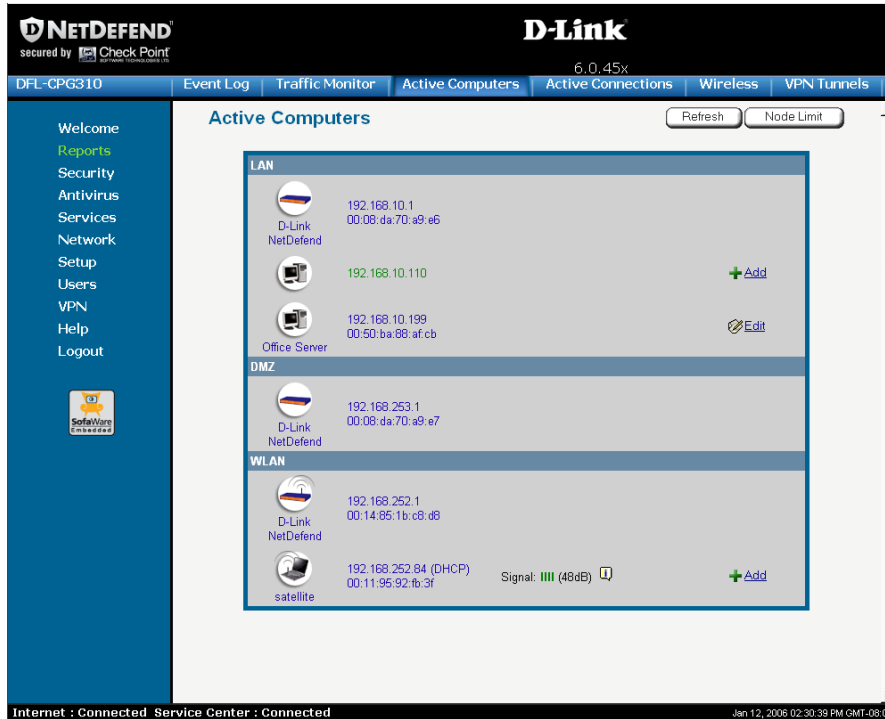
This option allows you to view the currently active computers on your network. The active computers are graphically displayed, each with its name, IP address, and settings (DHCP, Static, etc.). You can also view node limit information.

### To view the active computers

1. Click **Reports** in the main menu, and click the **Active Computers** tab.



The Active Computers page appears.



If you configured High Availability, both the master and backup appliances are shown. If you configured OfficeMode, the OfficeMode network is shown.

If you are using the DFL-CPG310, the wireless stations are shown. For information on viewing statistics for these computers, see **Viewing Wireless Statistics** on page 198. If a wireless station has been blocked from accessing the Internet through the NetDefend firewall, the reason why it was blocked is shown in red.

If you are exceeding the maximum number of computers allowed by your license, a warning message appears, and the computers over the node limit are marked in red. These computers are still protected, but they are blocked from accessing the Internet through the NetDefend firewall.

If HotSpot mode is enabled for some networks, each computer's HotSpot status is displayed next to it. The possible statuses include:



- **Authenticated.** The computer is logged on to My HotSpot.
- **Not Authenticated.** The computer is not logged on to My HotSpot.
- **Excluded from HotSpot.** The computer is in an IP address range excluded from HotSpot enforcement. To enforce HotSpot, you must edit the network object. See ***Adding and Editing Network Objects*** on page 130.



Note: Computers that did not communicate through the firewall are not counted for node limit purposes, even though they are protected by the firewall.



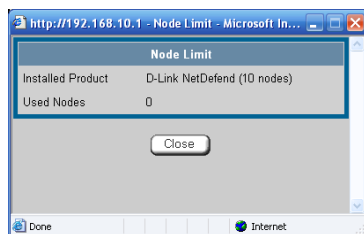
Note: To increase the number of computers allowed by your license, you can upgrade your product. For further information, see ***Upgrading Your Software Product*** on page 379.

Next to each computer, an **Add** button enables you to add a network object for the computer, or an **Edit** button enables you to edit an existing network object for the computer. For information on adding and editing network objects, see ***Adding and Editing Network Objects*** on page 130.

2. To refresh the display, click **Refresh**.
3. To view node limit information, do the following:

- a. Click **Node Limit**.

The **Node Limit** window appears with installed software product and the number of nodes used.



- b. Click **Close** to close the window.





## Viewing Connections

CP310

This option allows you to view the currently active connections between your network and the external world.

### To view the active connections

1. Click Reports in the main menu, and click the Active Connections tab.

The Active Connections page appears.

The screenshot shows the NetDefend D-Link Active Connections page. The page has a blue header with the NetDefend logo and D-Link logo. Below the header is a navigation bar with tabs: Event Log, Traffic Monitor, Active Computers, Active Connections (selected), Wireless, and VPN Tunnels. On the left is a sidebar with a menu: Welcome, Reports (selected), Security, Antivirus, Services, Network, Setup, Users, VPN, Help, and Logout. The main content area is titled 'Active Connections' and contains a table of active connections. The table has columns: Protocol, Source IP Address, Port, Destination IP Address, Port, QoS Class, and Options. The table lists several active connections, including UDP and TCP connections to various destinations.

Protocol	Source		Destination		QoS Class	Options
	IP Address	Port	IP Address	Port		
UDP	192.168.252.84 (satellite)	1040	192.168.252.1	53 (DNS)	Default	
UDP	192.168.252.84 (satellite)	1036	192.168.252.1	53 (DNS)	Default	
TCP	192.168.252.84 (satellite)	2586	65.54.194.118	80 (HTTP)	Default	
TCP	192.168.252.84 (satellite)	2582	209.3.40.190	80 (HTTP)	Default	
TCP	192.168.252.84 (satellite)	2581	207.68.173.254	80 (HTTP)	Default	
TCP	192.168.252.84 (satellite)	2584	206.24.222.158	80 (HTTP)	Default	
TCP	192.168.252.84 (satellite)	2583	206.24.222.158	80 (HTTP)	Default	
TCP	192.168.252.84 (satellite)	2579	207.46.19.30	80 (HTTP)	Default	
TCP	192.168.252.84 (satellite)	2591	63.236.28.30	80 (HTTP)	Default	
TCP	192.168.252.84 (satellite)	2590	63.236.28.30	80 (HTTP)	Default	
TCP	192.168.252.84 (satellite)	2590	63.236.28.30	80 (HTTP)	Default	
TCP	192.168.252.84 (satellite)	2597	63.236.28.30	80 (HTTP)	Default	

The page displays the information in the table below.

2. To refresh the display, click Refresh.
3. To view information on the destination machine, click its IP address.

The NetDefend firewall queries the Internet WHOIS server, and a window displays the name of the entity to which the IP address is registered and their contact information.



4. To view information about a port, click the port.

A window opens displaying information about the port.

**Table 28: Active Connections Fields**

This field...	Displays...
Protocol	The protocol used (TCP, UDP, etc.)
Source - IP Address	The source IP address
Source - Port	The source port
Destination - IP Address	The destination IP address
Destination -Port	The destination port
QoS Class	The QoS class to which the connection belongs
Options	<p>An icon indicating further details:</p> <ul style="list-style-type: none"> <li>•  - The connection is encrypted.</li> <li>•  - The connection is being scanned by VStream Antivirus.</li> </ul>

## Viewing Wireless Statistics

CPG310

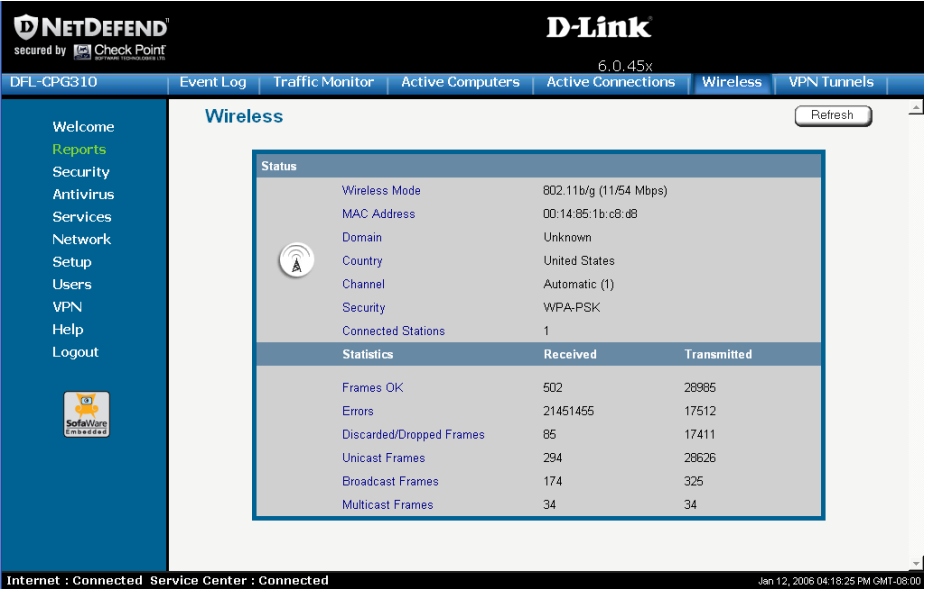
If your WLAN is enabled, you can view wireless statistics for the WLAN or for individual wireless stations.

### To view statistics for the WLAN

1. Click **Reports** in the main menu, and click the **Wireless** tab.



The Wireless page appears.



The page displays the information in the table below.

- 2. To refresh the display, click Refresh.

**Table 29: WLAN Statistics**

This field...	Displays...
Wireless Mode	The operation mode used by the WLAN, followed by the transmission rate in Mbps
MAC Address	The MAC address of the NetDefend firewall's WLAN interface
Domain	The NetDefend access point's region
Country	The country configured for the WLAN
Channel	The radio frequency used by the WLAN



This field...	Displays...
Security	The security mode used by the WLAN
Connected Stations	The number of wireless stations currently connected to the WLAN
Frames OK	The total number of frames that were successfully transmitted and received
Errors	The total number of transmitted and received frames for which an error occurred
Discarded/ Dropped Frames	The total number of discarded or dropped frames transmitted and received
Unicast Frames	The number of unicast frames transmitted and received
Broadcast Frames	The number of broadcast frames transmitted and received
Multicast Frames	The number of multicast frames transmitted and received

### To view statistics for a wireless station

1. Click **Reports** in the main menu, and click the **Active Computers** tab.

The **Active Computers** page appears.

The following information appears next to each wireless station:

- The signal strength in dB
  - A bar chart representing the signal strength
2. Mouse-over the information icon next to the wireless station.

A tooltip displays statistics for the wireless station, as described in the table below.



3. To refresh the display, click **Refresh**.

**Table 30: Wireless Station Statistics**

This field...	Displays...
Current Rate	The current reception and transmission rate in Mbps
Frames OK	The total number of frames that were successfully transmitted and received
Errors	The total number of transmitted and received frames for which an error occurred
Discarded/ Dropped Frames	The total number of discarded or dropped frames transmitted and received
Unicast Frames	The number of unicast frames transmitted and received
Broadcast Frames	The number of broadcast frames transmitted and received
Multicast Frames	The number of multicast frames transmitted and received
WLAN Mode	<p>The wireless client's operation mode, indicating the client's maximum speed. Possible values are B, G, and 108G.</p> <p>For more information, see <b>Basic WLAN Settings Fields</b> on page 168.</p>
XR	<p>Indicates whether the wireless client supports Extended Range (XR) mode. Possible values are:</p> <ul style="list-style-type: none"><li>• yes. The wireless client supports XR mode.</li><li>• no. The wireless client does not support XR mode.</li></ul>



---

This field...	Displays...
---------------	-------------

---

Cipher	The security protocol used for the connection with the wireless client.  For more information, see <b><i>Wireless Security Protocols</i></b> on page 163.
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## Chapter 9

# Setting Your Security Policy

This chapter describes how to set up your NetDefend firewall security policy.

You can enhance your security policy by subscribing to services such as Web Filtering and Email Filtering. For information on subscribing to services, see *Using Subscription Services* on page 281.

This chapter includes the following topics:

Default Security Policy.....	203
Setting the Firewall Security Level .....	204
Configuring Servers.....	207
Using Rules .....	209
Using SmartDefense.....	220
Using Secure HotSpot .....	256
Defining an Exposed Host.....	261

## Default Security Policy

The default security policy includes the following rules:



- Access is blocked from the WAN (Internet) to all internal networks (LAN, DMZ, WLAN, VLANs, and OfficeMode).
- Access is allowed from the internal networks to the WAN, according to the firewall security level (Low/Medium/High).
- Access is allowed from the LAN network to the other internal networks (DMZ, WLAN, VLANs, and OfficeMode).
- Access is blocked from the DMZ, WLAN, VLAN, and OfficeMode networks to the other internal networks, (including between different VLANs).
- HTTP access to the NetDefend Portal (my.firewall and my.vpn) is allowed from all internal networks except the WLAN. The WLAN can only access the NetDefend Portal using HTTPS, unless a specific user-defined rule allows this.
- When using the print server function (see *Using Network Printers* on page 423), access from internal networks to connected network printers is allowed.
- Access from the WAN to network printers is blocked.

These rules are independent of the firewall security level.

You can easily override the default security policy, by creating user-defined firewall rules. For further information, see *Using Rules* on page 209.

## Setting the Firewall Security Level



CP310

The firewall security level can be controlled using a simple lever available on the Firewall page. You can set the lever to three states.



**Table 31: Firewall Security Levels**

<b>This level...</b>	<b>Does this...</b>	<b>Further Details</b>
Low	Enforces basic control on incoming connections, while permitting all outgoing connections.	All inbound traffic is blocked to the external NetDefend firewall IP address, except for ICMP echoes ("pings").  All outbound connections are allowed.
Medium	Enforces strict control on all incoming connections, while permitting safe outgoing connections.  This is the default level and is recommended for most cases. Leave it unchanged unless you have a specific need for a higher or lower security level.	All inbound traffic is blocked.  All outbound traffic is allowed to the Internet except for Windows file sharing (NBT ports 137, 138, 139 and 445).
High	Enforces strict control on all incoming and outgoing connections.	All inbound traffic is blocked.  Restricts all outbound traffic except for the following: Web traffic (HTTP, HTTPS), email (IMAP, POP3, SMTP), ftp, newsgroups, Telnet, DNS, IPSEC IKE and VPN traffic.



Note: If the security policy is remotely managed, this lever might be disabled.



Note: The definitions of firewall security levels provided in this table represent the NetDefend firewall's default security policy. Security updates downloaded from a Service Center may alter this policy and change these definitions.

### To change the firewall security level

1. Click **Security** in the main menu, and click the **Firewall** tab.

The Firewall page appears.



2. Drag the security lever to the desired level.

The NetDefend firewall security level changes accordingly.



# Configuring Servers

**CP310**

Note: If you do not intend to host any public Internet servers (Web Server, Mail Server etc.) in your network, you can skip this section.

Using the NetDefend Portal, you can selectively allow incoming network connections into your network. For example, you can set up your own Web server, Mail server or FTP server.



Note: Configuring servers allows you to create simple Allow and Forward rules for common services, and it is equivalent to creating Allow and Forward rules in the Rules page. For information on creating rules, see **Using Rules** on page 209.

## To allow a service to be run on a specific host

1. Click **Security** in the main menu, and click the **Servers** tab.

The Servers page appears, displaying a list of services and a host IP address for each allowed service.

The screenshot shows the NetDefend D-Link web interface. The top navigation bar includes links for Firewall, Servers, Rules, SmartDefense, HotSpot, and Exposed Host. The 'Servers' tab is selected. The main content area is titled 'Servers' and contains a table with columns for No, Allow, Application Name, Host IP, and VPN Only. The table lists various services like Web Server, FTP Server, Telnet Server, Mail Server (POP3), Mail Server (SMTP), PPTP Server, VPN Server (IPSEC), Microsoft Networking (NBT), and IP Telephony (H.323). Each row has a checkbox in the 'Allow' column, a text input for 'Host IP' (all set to 'This Computer'), and a 'Clear' button in the 'VPN Only' column. At the bottom of the table are 'Apply' and 'Cancel' buttons. The status bar at the very bottom shows 'Internet : Connected', 'Service Center : Connected', and the date/time 'Jan 12, 2006 04:21:05 PM GMT-08:00'.

No	Allow	Application Name	Host IP	VPN Only
1	<input type="checkbox"/>	Web Server	<a href="#">This Computer</a>	<input type="checkbox"/> <a href="#">Clear</a>
2	<input type="checkbox"/>	FTP Server	<a href="#">This Computer</a>	<input type="checkbox"/> <a href="#">Clear</a>
3	<input type="checkbox"/>	Telnet Server	<a href="#">This Computer</a>	<input type="checkbox"/> <a href="#">Clear</a>
4	<input type="checkbox"/>	Mail Server (POP3)	<a href="#">This Computer</a>	<input type="checkbox"/> <a href="#">Clear</a>
5	<input type="checkbox"/>	Mail Server (SMTP)	<a href="#">This Computer</a>	<input type="checkbox"/> <a href="#">Clear</a>
6	<input type="checkbox"/>	PPTP Server	<a href="#">This Computer</a>	<input type="checkbox"/> <a href="#">Clear</a>
7	<input type="checkbox"/>	VPN Server (IPSEC)	<a href="#">This Computer</a>	<input type="checkbox"/> <a href="#">Clear</a>
8	<input type="checkbox"/>	Microsoft Networking (NBT)	<a href="#">This Computer</a>	<input type="checkbox"/> <a href="#">Clear</a>
9	<input type="checkbox"/>	IP Telephony (H.323)	<a href="#">This Computer</a>	<input type="checkbox"/> <a href="#">Clear</a>



2. Complete the fields using the information in the table below.
3. Click **Apply**.

A success message appears, and the selected computer is allowed to run the desired service or application.

**Table 32: Servers Page Fields**

In this column...	Do this...
Allow	Select the desired service or application.
VPN Only	Select this option to allow only connections made through a VPN.
Host IP	Type the IP address of the computer that will run the service (one of your network computers) or click the corresponding This Computer button to allow your computer to host the service.

**To stop the forwarding of a service to a specific host**

1. Click **Security** in the main menu, and click the **Servers** tab.  
The **Servers** page appears, displaying a list of services and a host IP address for each allowed service.
2. In the desired service or application's row, click **Clear**.  
The **Host IP** field of the desired service is cleared.
3. Click **Apply**.  
The service or application is not allowed on the specific host.



## Using Rules

CP310

The NetDefend firewall checks the protocol used, the ports range, and the destination IP address, when deciding whether to allow or block traffic.

User-defined rules have priority over the default security policy rules and provide you with greater flexibility in defining and customizing your security policy.

For example, if you assign your company's accounting department to the LAN network and the rest of the company to the DMZ network, then as a result of the default security policy rules, the accounting department will be able to connect to all company computers, while the rest of the employees will not be able to access any sensitive information on the accounting department computers. You can override the default security policy rules, by creating firewall rules that allow specific DMZ computers (such a manager's computer) to connect to the LAN network and the accounting department.

The NetDefend firewall processes user-defined rules in the order they appear in the Rules table, so that rule 1 is applied before rule 2, and so on. This enables you to define exceptions to rules, by placing the exceptions higher up in the Rules table.



For example, if you want to block all outgoing FTP traffic, except traffic from a specific IP address, you can create a rule blocking all outgoing FTP traffic and move the rule down in the **Rules** table. Then create a rule allowing FTP traffic from the desired IP address and move this rule to a higher location in the Rules table than the first rule. In the figure below, the general rule is rule number 2, and the exception is rule number 1.



The NetDefend firewall will process rule 1 first, allowing outgoing FTP traffic from the specified IP address, and only then it will process rule 2, blocking all outgoing FTP traffic.

The following rule types exist:

**Table 33: Firewall Rule Types**

Rule	Description
Allow and Forward	<p>This rule type enables you to do the following:</p> <ul style="list-style-type: none"><li>• Permit incoming access from the Internet to a specific service in your internal network.</li><li>• Forward all such connections to a specific computer in your network.</li><li>• Redirect the specified connections to a specific port. This option is called Port Address Translation (PAT).</li><li>• Assign traffic to a QoS class.</li></ul> <p>If Traffic Shaper is enabled for incoming traffic, then Traffic Shaper will handle relevant connections as specified in the bandwidth policy for the selected QoS class. For example, if Traffic Shaper is enabled for incoming traffic, and you create an Allow and Forward rule associating all incoming Web traffic with the Urgent QoS class, then Traffic Shaper will handle incoming Web traffic as specified in the bandwidth policy for the Urgent class.</p> <p>For information on Traffic Shaper and QoS classes, see <b><i>Using Traffic Shaper</i></b> on page 151.</p> <p>Creating an Allow and Forward rule is equivalent to defining a server in the Servers page.</p> <p>Note: You must use this type of rule to allow incoming connections if your network uses Hide NAT.</p> <p>Note: You cannot specify two Allow and Forward rules that forward the same service to two different destinations.</p>



Rule	Description
Allow	<p>This rule type enables you to do the following:</p> <ul style="list-style-type: none"><li>• Permit outgoing access from your internal network to a specific service on the Internet. Note: You can allow outgoing connections for services that are not permitted by the default security policy.</li><li>• Permit incoming access from the Internet to a specific service in your internal network.</li><li>• Assign traffic to a QoS class. If Traffic Shaper is enabled for the direction of traffic specified in the rule (incoming or outgoing), then Traffic Shaper will handle relevant connections as specified in the bandwidth policy for the selected QoS class. For example, if Traffic Shaper is enabled for outgoing traffic, and you create an Allow rule associating all outgoing Web traffic with the Urgent QoS class, then Traffic Shaper will handle outgoing Web traffic as specified in the bandwidth policy for the Urgent class. For information on Traffic Shaper and QoS classes, see <b>Using Traffic Shaper</b> on page 151.</li></ul> <p>Note: You cannot use an Allow rule to permit incoming traffic, if the network or VPN uses Hide NAT. However, you can use Allow rules for static NAT IP addresses.</p>
Block	<p>This rule type enables you to do the following:</p> <ul style="list-style-type: none"><li>• Block outgoing access from your internal network to a specific service on the Internet.</li><li>• Block incoming access from the Internet to a specific service in your internal network.</li></ul>





## Adding and Editing Rules

CP310

### To add or edit a rule

1. Click **Security** in the main menu, and click the **Rules** tab.

The Rules page appears.

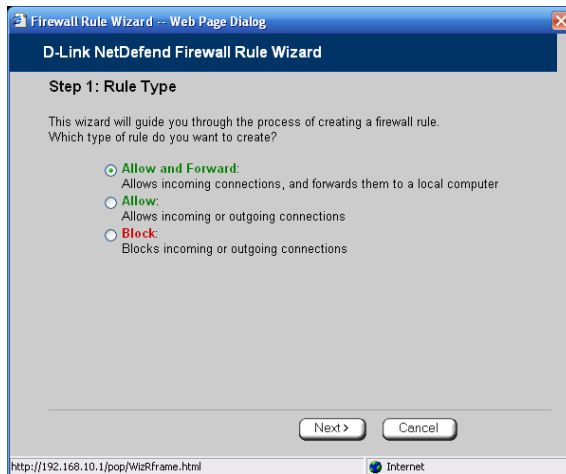


2. Do one of the following:

- To add a new rule, click **Add Rule**.
- To edit an existing rule, click the **Edit** icon next to the desired rule.



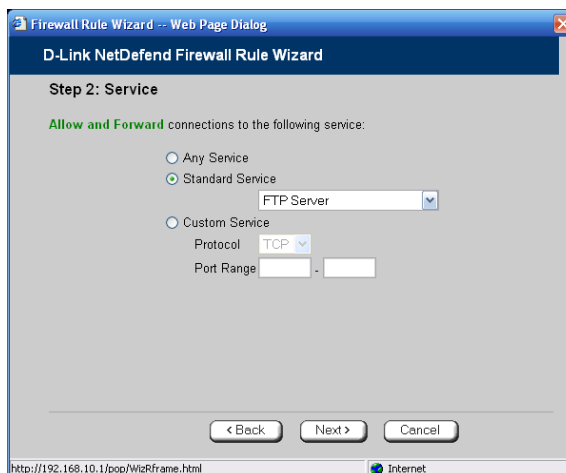
The NetDefend Firewall Rule wizard opens, with the Step 1: Rule Type dialog box displayed.



3. Select the type of rule you want to create.
4. Click Next.

The Step 2: Service dialog box appears.

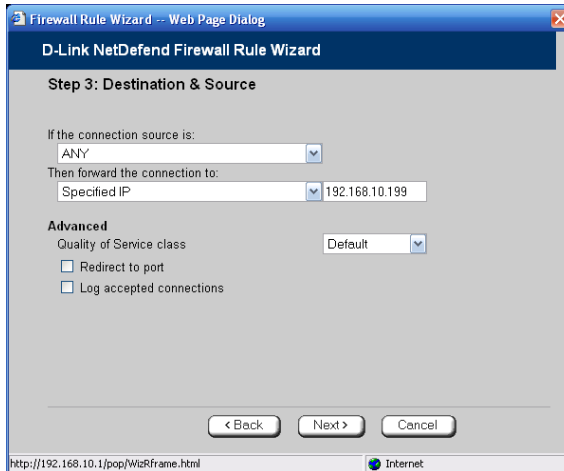
The example below shows an Allow rule.



5. Complete the fields using the relevant information in the table below.

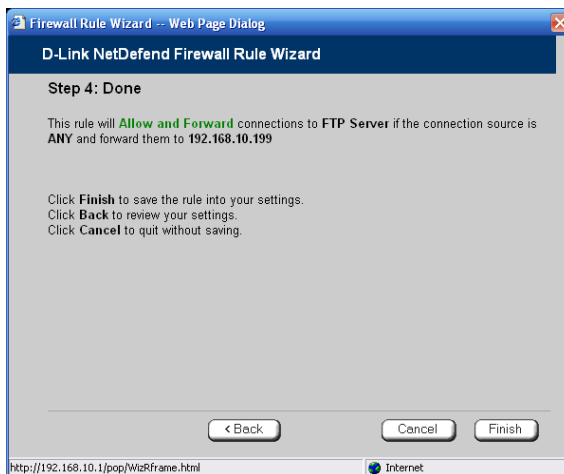
6. Click Next.

The Step 3: Destination & Source dialog box appears.



7. Complete the fields using the relevant information in the table below.

The Step 4: Done dialog box appears.



8. Click Finish.

The new rule appears in the Firewall Rules page.

**Table 34: Firewall Rule Fields**

In this field...	Do this...
Any Service	Click this option to specify that the rule should apply to any service.
Standard Service	<p>Click this option to specify that the rule should apply to a specific standard service.</p> <p>You must then select the desired service from the drop-down list.</p>
Custom Service	<p>Click this option to specify that the rule should apply to a specific non-standard service.</p> <p>The Protocol and Port Range fields are enabled. You must fill them in.</p>
Protocol	Select the protocol (ESP, GRE, TCP, UDP or ANY) for which the rule should apply.
Ports	<p>To specify the port range to which the rule applies, type the start port number in the left text box, and the end port number in the right text box.</p> <p>Note: If you do not enter a port range, the rule will apply to all ports. If you enter only one port number, the range will include only that port.</p>
Source	<p>Select the source of the connections you want to allow/block.</p> <p>To specify an IP address, select Specified IP and type the desired IP address in the field provided.</p> <p>To specify an IP address range, select Specified Range and type the desired IP address range in the fields provided.</p>



In this field...	Do this...
Destination	<p>Select the destination of the connections you want to allow or block.</p> <p>To specify an IP address, select Specified IP and type the desired IP address in the text box.</p> <p>To specify an IP address range, select Specified Range and type the desired IP address range in the fields provided. This option is not available in Allow and Forward rules.</p> <p>To specify the IP address, select This Gateway. This option is not available in Allow and Forward rules.</p> <p>To specify any destination <i>except</i> the NetDefend Portal and network printers, select ANY.</p>
Quality of Service class	<p>Select the QoS class to which you want to assign the specified connections.</p> <p>If Traffic Shaper is enabled, Traffic Shaper will handle these connections as specified in the bandwidth policy for the selected QoS class. If Traffic Shaper is not enabled, this setting is ignored. For information on Traffic Shaper and QoS classes, see <b><i>Using Traffic Shaper</i></b> on page 151.</p> <p>This drop-down list only appears when defining an Allow rule or an Allow and Forward rule.</p>
Log accepted connections / Log blocked connections	<p>Select this option to log the specified blocked or allowed connections.</p> <p>By default, accepted connections are not logged, and blocked connections are logged. You can modify this behavior by changing the check box's state.</p>



---

In this field...	Do this...
------------------	------------

---

Redirect to port	Select this option to redirect the connections to a specific port.
------------------	--

You must then type the desired port in the field provided.

This option is called Port Address Translation (PAT), and is only available when defining an Allow and Forward rule.

---

## ***Enabling/Disabling Rules***



You can temporarily disable a user-defined rule.

### **To enable/disable a rule**

1. Click **Security** in the main menu, and click the **Rules** tab.

The **Rules** page appears.

2. Next to the desired rule, do one of the following:

- To enable the rule, click .

The button changes to  and the rule is enabled.



- To disable the rule, click .

The button changes to  and the rule is disabled.

## Changing Rules' Priority

CP310


### To change a rule's priority

1. Click **Security** in the main menu, and click the **Rules** tab.  
The Rules page appears.
2. Do one of the following:
  - Click  next to the desired rule, to move the rule up in the table.
  - Click  next to the desired rule, to move the rule down in the table.The rule's priority changes accordingly.

## Deleting Rules

CP310

### To delete an existing rule

1. Click **Security** in the main menu, and click the **Rules** tab.  
The Rules page appears.
2. Click the Erase  icon of the rule you wish to delete.  
A confirmation message appears.
3. Click **OK**.  
The rule is deleted.



## Using SmartDefense

CP310

The NetDefend firewall includes Check Point SmartDefense Services, based on Check Point Application Intelligence. SmartDefense provides a combination of attack safeguards and attack-blocking tools that protect your network in the following ways:

- Validating compliance to standards
- Validating expected usage of protocols (Protocol Anomaly Detection)
- Limiting application ability to carry malicious data
- Controlling application-layer operations

In addition, SmartDefense aids proper usage of Internet resources, such as FTP, instant messaging, Peer-to-Peer (P2P) file sharing, file-sharing operations, and File Transfer Protocol (FTP) uploading, among others.

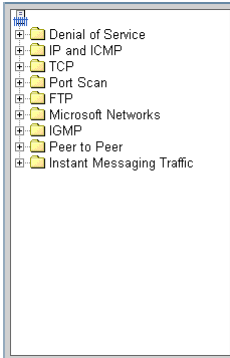




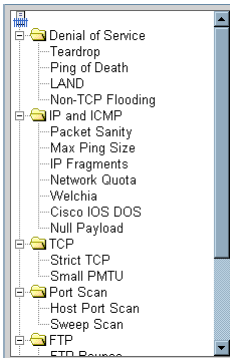
## Configuring SmartDefense

CP310

For convenience, SmartDefense is organized as a tree, in which each branch represents a category of settings.



When a category is expanded, the settings it contains appear as nodes. For information on each category and the nodes it contains, see *SmartDefense Categories* on page 224.



Each node represents an attack type, a sanity check, or a protocol or service that is vulnerable to attacks. To control how SmartDefense handles an attack, you must configure the relevant node's settings.





## To configure a SmartDefense node

1. Click **Security** in the main menu, and click the **SmartDefense** tab.

The SmartDefense page appears.

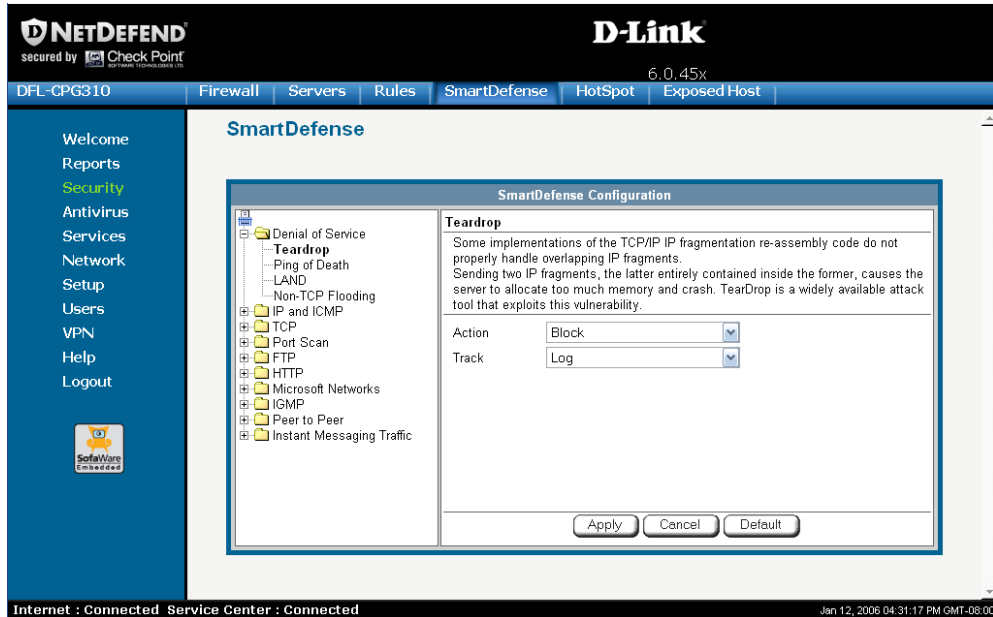


The left pane displays a tree containing SmartDefense categories.

- To expand a category, click the  icon next to it.
  - To collapse a category, click the  icon next to it.
2. Expand the relevant category, and click on the desired node.



The right pane displays a description of the node, followed by fields.



3. To modify the node's current settings, do the following:
  - a) Complete the fields using the relevant information in *SmartDefense Categories* on page 224.
  - b) Click **Apply**.
4. To reset the node to its default values:
  - a) Click **Default**.

A confirmation message appears.
  - b) Click **OK**.

The fields are reset to their default values, and your changes are saved.



## SmartDefense Categories

SmartDefense includes the following categories:

- ***Denial of Service*** on page 224
- ***IP and ICMP*** on page 229
- ***TCP*** on page 239
- ***Port Scan*** on page 242
- ***FTP*** on page 245
- ***Microsoft Networks*** on page 249
- ***IGMP*** on page 251
- ***Peer to Peer*** on page 252
- ***Instant Messengers*** on page 254

### Denial of Service

Denial of Service (DoS) attacks are aimed at overwhelming the target with spurious data, to the point where it is no longer able to respond to legitimate service requests.

This category includes the following attacks:

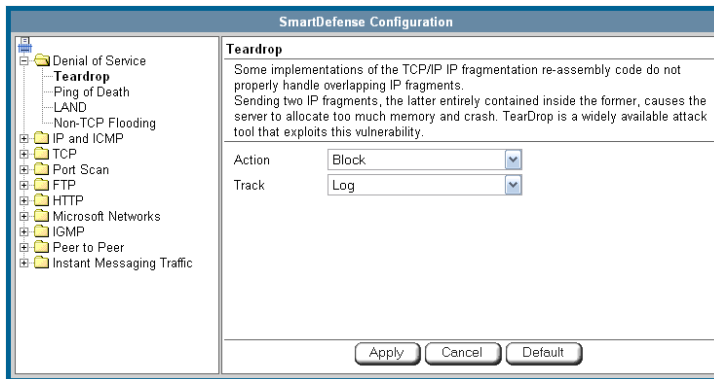
- ***Teardrop*** on page 224
- ***Ping of Death*** on page 225
- ***LAND*** on page 226
- ***Non-TCP Flooding*** on page 227

#### Teardrop

In a Teardrop attack, the attacker sends two IP fragments, the latter entirely contained within the former. This causes some computers to allocate too much memory and crash.



You can configure how Teardrop attacks should be handled.



**Table 35: Teardrop Fields**

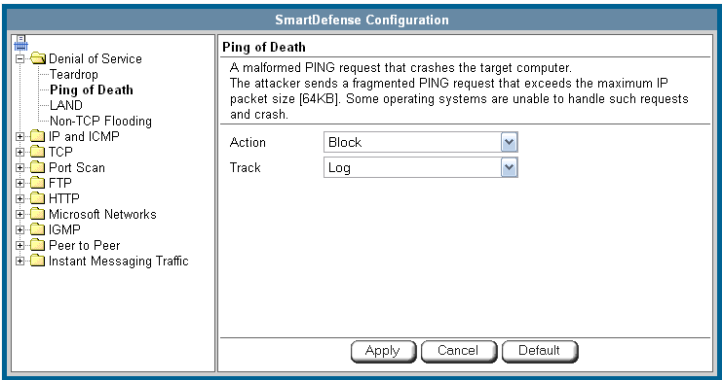
In this field...	Do this...
Action	Specify what action to take when a Teardrop attack occurs, by selecting one of the following: <ul style="list-style-type: none"><li>• Block. Block the attack. This is the default.</li><li>• None. No action.</li></ul>
Track	Specify whether to log Teardrop attacks, by selecting one of the following: <ul style="list-style-type: none"><li>• Log. Log the attack. This is the default.</li><li>• None. Do not log the attack.</li></ul>

### Ping of Death

In a Ping of Death attack, the attacker sends a fragmented PING request that exceeds the maximum IP packet size (64KB). Some operating systems are unable to handle such requests and crash.



You can configure how Ping of Death attacks should be handled.



**Table 36: Ping of Death Fields**

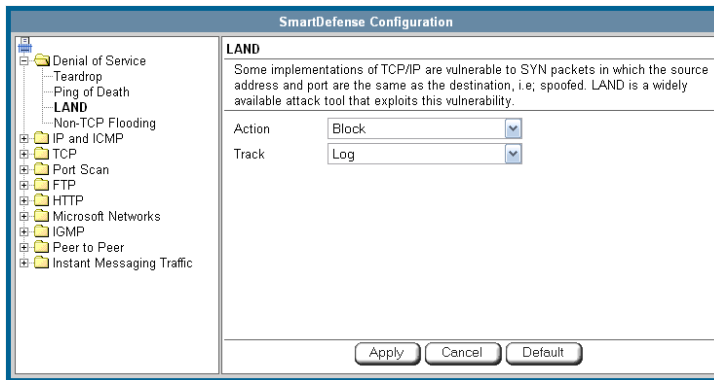
In this field...	Do this...
Action	<p>Specify what action to take when a Ping of Death attack occurs, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• Block. Block the attack. This is the default.</li><li>• None. No action.</li></ul>
Track	<p>Specify whether to log Ping of Death attacks, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• Log. Log the attack. This is the default.</li><li>• None. Do not log the attack.</li></ul>

**LAND**

In a LAND attack, the attacker sends a SYN packet, in which the source address and port are the same as the destination (the victim computer). The victim computer then tries to reply to itself and either reboots or crashes.



You can configure how LAND attacks should be handled.



**Table 37: LAND Fields**

In this field...	Do this...
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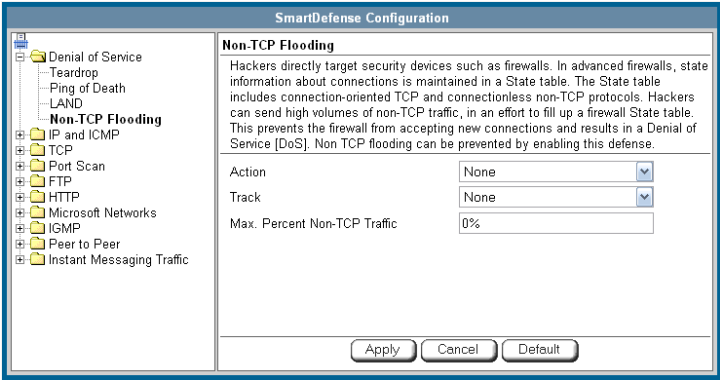
Action	Specify what action to take when a LAND attack occurs, by selecting one of the following: <ul style="list-style-type: none"><li>• Block. Block the attack. This is the default.</li><li>• None. No action.</li></ul>
Track	Specify whether to log LAND attacks, by selecting one of the following: <ul style="list-style-type: none"><li>• Log. Log the attack. This is the default.</li><li>• None. Do not log the attack.</li></ul>

### Non-TCP Flooding

Advanced firewalls maintain state information about connections in a State table. In non-TCP Flooding attacks, the attacker sends high volumes of non-TCP traffic. Since such traffic is connectionless, the related state information cannot be cleared or reset, and the firewall State table is quickly filled up. This prevents the firewall from accepting new connections and results in a Denial of Service (DoS).



You can protect against Non-TCP Flooding attacks by limiting the percentage of state table capacity used for non-TCP connections.



**Table 38: Non-TCP Flooding Fields**

In this field...	Do this...
Action	<p>Specify what action to take when the percentage of state table capacity used for non-TCP connections reaches the Max. Percent non-TCP traffic threshold.</p> <p>Select one of the following:</p> <ul style="list-style-type: none"><li>• Block. Block any additional non-TCP connections.</li><li>• None. No action. This is the default.</li></ul>
Track	<p>Specify whether to log non-TCP connections that exceed the Max. Percent Non-TCP Traffic threshold, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• Log. Log the connections.</li><li>• None. Do not log the connections. This is the default.</li></ul>
Max. Percent Non-TCP Traffic	<p>Type the maximum percentage of state table capacity allowed for non-TCP connections.</p> <p>The default value is 0%.</p>



## IP and ICMP

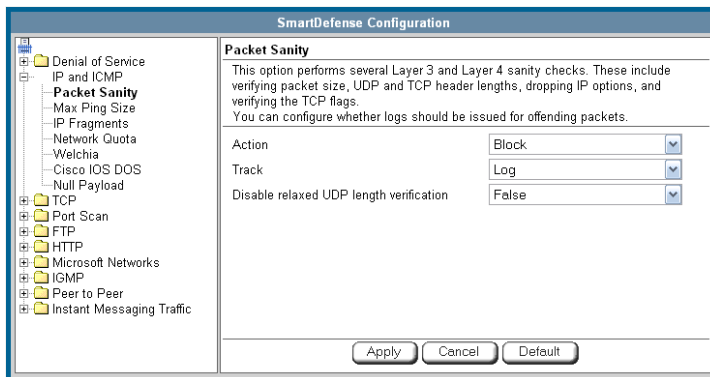
This category allows you to enable various IP and ICMP protocol tests, and to configure various protections against IP and ICMP-related attacks. It includes the following:

- ***Packet Sanity*** on page 229
- ***Max Ping Size*** on page 231
- ***IP Fragments*** on page 232
- ***Network Quota*** on page 234
- ***Welchia*** on page 235
- ***Cisco IOS DOS*** on page 236
- ***Null Payload*** on page 238

### Packet Sanity

Packet Sanity performs several Layer 3 and Layer 4 sanity checks. These include verifying packet size, UDP and TCP header lengths, dropping IP options, and verifying the TCP flags.

You can configure whether logs should be issued for offending packets.



**Table 39: Packet Sanity Fields**

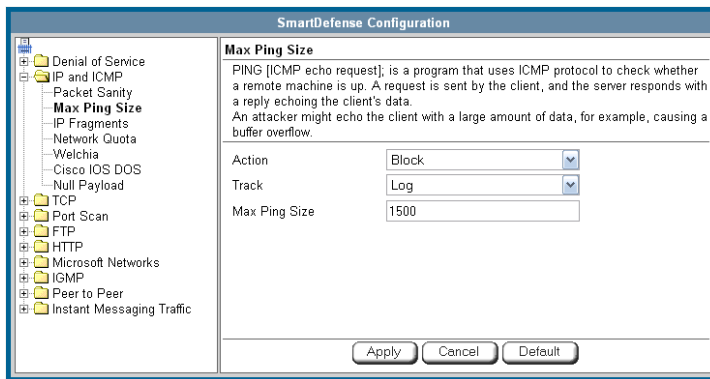
In this field...	Do this...
Action	<p>Specify what action to take when a packet fails a sanity test, by selecting one of the following:</p> <ul style="list-style-type: none"> <li>• Block. Block the packet. This is the default.</li> <li>• None. No action.</li> </ul>
Track	<p>Specify whether to issue logs for packets that fail the packet sanity tests, by selecting one of the following:</p> <ul style="list-style-type: none"> <li>• Log. Issue logs. This is the default.</li> <li>• None. Do not issue logs.</li> </ul>
Disable relaxed UDP length verification	<p>The UDP length verification sanity check measures the UDP header length and compares it to the UDP header length specified in the UDP header. If the two values differ, the packet may be corrupted.</p> <p>However, since different applications may measure UDP header length differently, the NetDefend firewall relaxes the UDP length verification sanity check by default, performing the check but not dropping offending packets. This is called relaxed UDP length verification.</p> <p>Specify whether the NetDefend firewall should relax the UDP length verification sanity check or not, by selecting one of the following:</p> <ul style="list-style-type: none"> <li>• True. Disable relaxed UDP length verification. The NetDefend firewall will drop packets that fail the UDP length verification check.</li> <li>• False. Do not disable relaxed UDP length verification. The NetDefend firewall will not drop packets that fail the UDP length verification check. This is the default.</li> </ul>



## Max Ping Size

PING (ICMP echo request) is a program that uses ICMP protocol to check whether a remote machine is up. The client sends a request, and the server responds with a reply echoing the client's data.

An attacker can echo the client with a large amount of data, causing a buffer overflow. You can protect against such attacks by limiting the allowed size for ICMP echo requests.



**Table 40: Max Ping Size Fields**

In this field...	Do this...
Action	Specify what action to take when an ICMP echo response exceeds the Max Ping Size threshold, by selecting one of the following: <ul style="list-style-type: none"><li>• Block. Block the request. This is the default.</li><li>• None. No action.</li></ul>
Track	Specify whether to log ICMP echo responses that exceed the Max Ping Size threshold, by selecting one of the following: <ul style="list-style-type: none"><li>• Log. Log the responses. This is the default.</li><li>• None. Do not log the responses.</li></ul>



---

**In this field...    Do this...**

---

Max Ping Size      Specify the maximum data size for ICMP echo response.

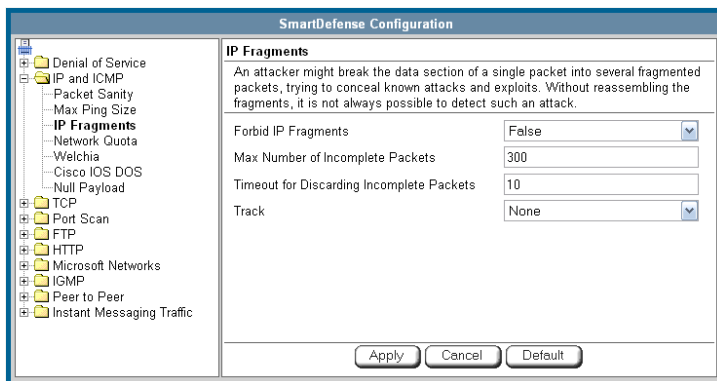
The default value is 1500.

---

### IP Fragments

When an IP packet is too big to be transported by a network link, it is split into several smaller IP packets and transmitted in fragments. To conceal a known attack or exploit, an attacker might imitate this common behavior and break the data section of a single packet into several fragmented packets. Without reassembling the fragments, it is not always possible to detect such an attack. Therefore, the NetDefend firewall always reassembles all the fragments of a given IP packet, before inspecting it to make sure there are no attacks or exploits in the packet.

You can configure how fragmented packets should be handled.



**Table 41: IP Fragments Fields**

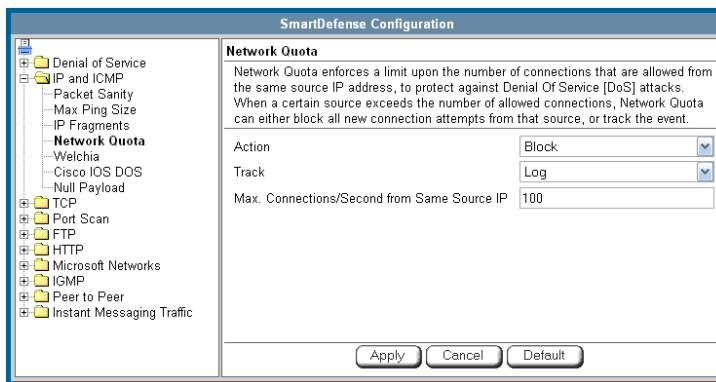
In this field...	Do this...
Forbid IP Fragments	<p>Specify whether all fragmented packets should be dropped, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• True. Drop all fragmented packets.</li><li>• False. No action. This is the default.</li></ul> <p>Under normal circumstances, it is recommended to leave this field set to False. Setting this field to True may disrupt Internet connectivity, because it does not allow any fragmented packets.</p>
Max Number of Incomplete Packets	<p>Type the maximum number of fragmented packets allowed. Packets exceeding this threshold will be dropped.</p> <p>The default value is 300.</p>
Timeout for Discarding Incomplete Packets	<p>When the NetDefend firewall receives packet fragments, it waits for additional fragments to arrive, so that it can reassemble the packet.</p> <p>Type the number of seconds to wait before discarding incomplete packets.</p> <p>The default value is 10.</p>
Track	<p>Specify whether to log fragmented packets, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• Log. Log all fragmented packets.</li><li>• None. Do not log the fragmented packets. This is the default.</li></ul>



## Network Quota

An attacker may try to overload a server in your network by establishing a very large number of connections per second. To protect against Denial Of Service (DoS) attacks, Network Quota enforces a limit upon the number of connections per second that are allowed from the same source IP address.

You can configure how connections that exceed that limit should be handled.



**Table 42: Network Quota Fields**

In this field...	Do this...
Action	<p>Specify what action to take when the number of network connections from the same source reaches the Max. Connections/Second per Source IP threshold. Select one of the following:</p> <ul style="list-style-type: none"> <li>Block. Block all new IP connections from the source. Existing connections will not be blocked. This is the default.</li> <li>None. No action.</li> </ul>
Track	<p>Specify whether to log connections from a specific source that exceed the Max. Connections/Second per Source IP threshold, by selecting one of the following:</p> <ul style="list-style-type: none"> <li>Log. Log the connections. This is the default.</li> <li>None. Do not log the connections.</li> </ul>

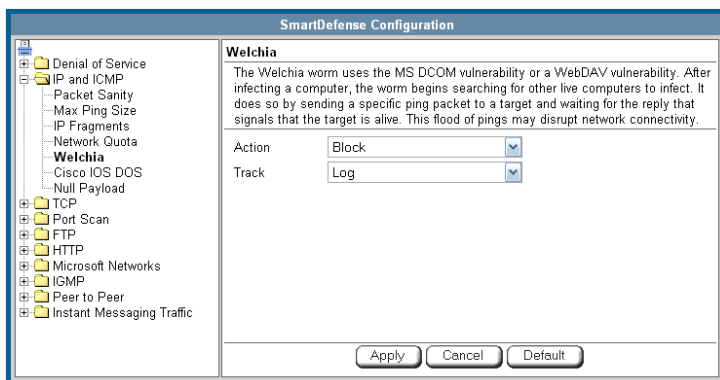


In this field...	Do this...
Max. Connections/Second from Same Source IP	Type the maximum number of network connections allowed per second from the same source IP address.  The default value is 100.  Set a lower threshold for stronger protection against DoS attacks.  Note: Setting this value too low can lead to false alarms.

## Welchia

The Welchia worm uses the MS DCOM vulnerability or a WebDAV vulnerability. After infecting a computer, the worm begins searching for other live computers to infect. It does so by sending a specific ping packet to a target and waiting for the reply that signals that the target is alive. This flood of pings may disrupt network connectivity.

You can configure how the Welchia worm should be handled.



**Table 43: Welchia Fields**

In this field...	Do this...
Action	<p>Specify what action to take when the Welchia worm is detected, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• Block. Block the attack. This is the default.</li><li>• None. No action.</li></ul>
Track	<p>Specify whether to log Welchia worm attacks, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• Log. Log the attack. This is the default.</li><li>• None. Do not log the attack.</li></ul>

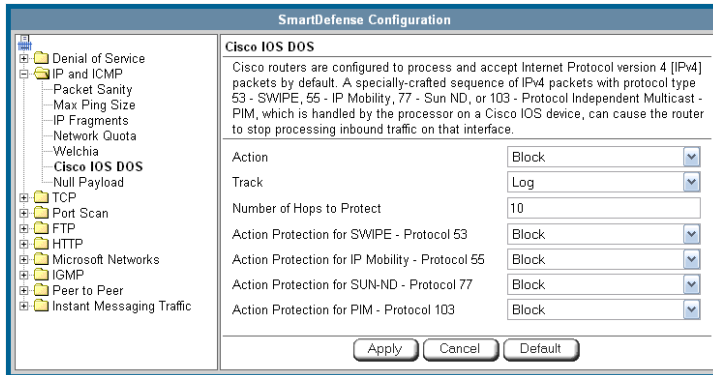
### Cisco IOS DOS

Cisco routers are configured to process and accept Internet Protocol version 4 (IPv4) packets by default. When a Cisco IOS device is sent a specially crafted sequence of IPv4 packets (with protocol type 53 - SWIPE, 55 - IP Mobility, 77 - Sun ND, or 103 - Protocol Independent Multicast - PIM), the router will stop processing inbound traffic on that interface.





You can configure how Cisco IOS DOS attacks should be handled.



**Table 44: Cisco IOS DOS**

In this field...	Do this...
Action	<p>Specify what action to take when a Cisco IOS DOS attack occurs, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• Block. Block the attack. This is the default.</li><li>• None. No action.</li></ul>
Track	<p>Specify whether to log Cisco IOS DOS attacks, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• Log. Log the attack. This is the default.</li><li>• None. Do not log the attack.</li></ul>
Number of Hops to Protect	<p>Type the number of hops from the enforcement module that Cisco routers should be protected.</p> <p>The default value is 10.</p>



In this field...	Do this...
Action Protection for SWIPE - Protocol 53 / IP Mobility - Protocol 55 / SUN-ND - Protocol 77 / PIM - Protocol 103	Specify what action to take when an IPv4 packet of the specific protocol type is received, by selecting one of the following: <ul style="list-style-type: none"><li>Block. Drop the packet. This is the default.</li><li>None. No action.</li></ul>

Null Payload

Some worms, such as Sasser, use ICMP echo request packets with null payload to detect potentially vulnerable hosts.

You can configure how null payload ping packets should be handled.

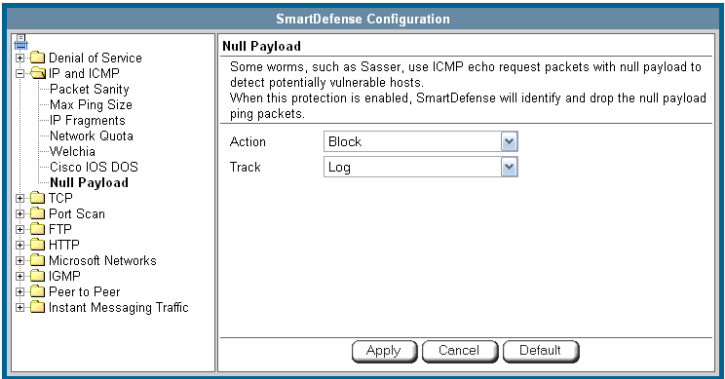


Table 45: Null Payload Fields

In this field...	Do this...
Action	Specify what action to take when null payload ping packets are detected, by selecting one of the following: <ul style="list-style-type: none"><li>Block. Block the packets. This is the default.</li><li>None. No action.</li></ul>



---

In this field...	Do this...
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---

Track	Specify whether to log null payload ping packets, by selecting one of the following: <ul style="list-style-type: none"><li>• Log. Log the packets. This is the default.</li><li>• None. Do not log the packets.</li></ul>
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## TCP

This category allows you to configure various protections related to the TCP protocol. It includes the following:

- *Strict TCP* on page 239
- *Small PMTU* on page 241

### Strict TCP

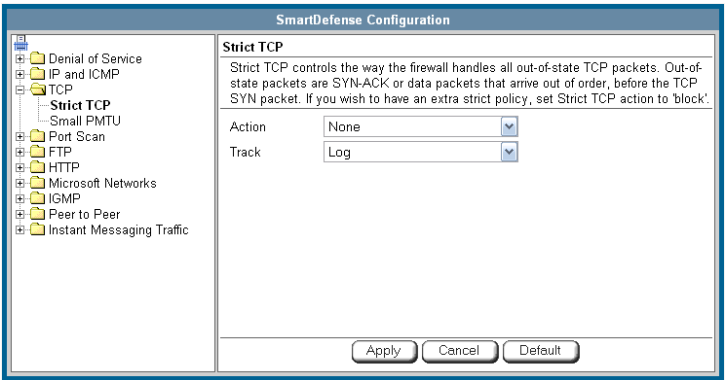
Out-of-state TCP packets are SYN-ACK or data packets that arrive out of order, before the TCP SYN packet.



Note: In normal conditions, out-of-state TCP packets can occur after the firewall restarts, since connections which were established prior to the reboot are unknown. This is normal and does not indicate an attack.



You can configure how out-of-state TCP packets should be handled.



**Table 46: Strict TCP**

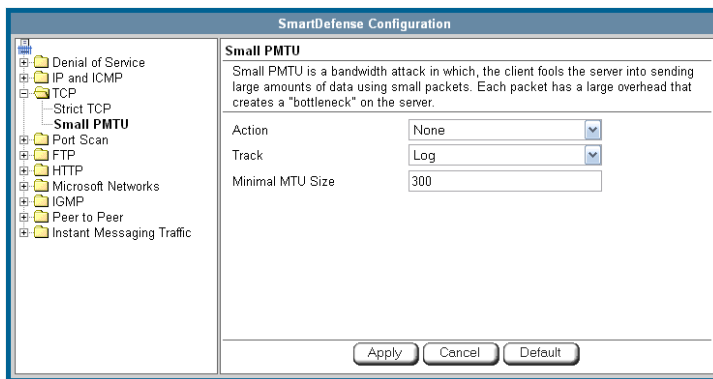
In this field...	Do this...
Action	Specify what action to take when an out-of-state TCP packet arrives, by selecting one of the following: <ul style="list-style-type: none"><li>Block. Block the packets.</li><li>None. No action. This is the default.</li></ul>
Track	Specify whether to log null payload ping packets, by selecting one of the following: <ul style="list-style-type: none"><li>Log. Log the packets. This is the default.</li><li>None. Do not log the packets.</li></ul>



## Small PMTU

Small PMTU (Packet MTU) is a bandwidth attack in which the client fools the server into sending large amounts of data using small packets. Each packet has a large overhead that creates a "bottleneck" on the server.

You can protect against this attack by specifying a minimum packet size for data sent over the Internet.



**Table 47: Small PMTU Fields**

In this field...	Do this...
Action	<p>Specify what action to take when a packet is smaller than the Minimal MTU Size threshold, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• Block. Block the packet.</li><li>• None. No action. This is the default.</li></ul>
Track	<p>Specify whether to issue logs for packets are smaller than the Minimal MTU Size threshold, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• Log. Issue logs. This is the default.</li><li>• None. Do not issue logs.</li></ul>




---

## In this field... Do this...

---

Minimal MTU  
Size

Type the minimum value allowed for the MTU field in IP packets sent by a client.

An overly small value will not prevent an attack, while an overly large value might degrade performance and cause legitimate requests to be dropped.

The default value is 300.

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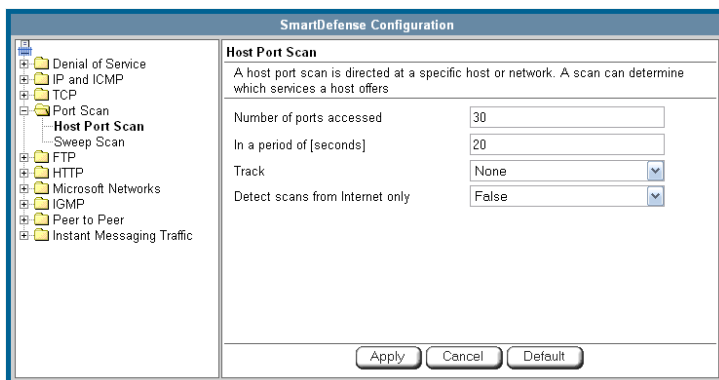
## Port Scan

An attacker can perform a port scan to determine whether ports are open and vulnerable to an attack. This is most commonly done by attempting to access a port and waiting for a response. The response indicates whether or not the port is open.

This category includes the following types of port scans:

- **Host Port Scan.** The attacker scans a specific host's ports to determine which of the ports are open.
- **Sweep Scan.** The attacker scans various hosts to determine where a specific port is open.

You can configure how the NetDefend firewall should react when a port scan is detected.



**Table 48: Port Scan Fields**

In this field...	Do this...
Number of ports accessed	<p>SmartDefense detects ports scans by measuring the number of ports accessed over a period of time. The number of ports accessed must exceed the Number of ports accessed value, within the number of seconds specified by the In a period of [seconds] value, in order for SmartDefense to consider the activity a scan.</p> <p>Type the minimum number of ports that must be accessed within the In a period of [seconds] period, in order for SmartDefense to detect the activity as a port scan.</p> <p>For example, if this value is 30, and 40 ports are accessed within a specified period of time, SmartDefense will detect the activity as a port scan.</p> <p>For Host Port Scan, the default value is 30. For Sweep Scan, the default value is 50.</p>



---

In this field...	Do this...
In a period of [seconds]	<p>SmartDefense detects ports scans by measuring the number of ports accessed over a period of time. The number of ports accessed must exceed the Number of ports accessed value, within the number of seconds specified by the In a period of [seconds] value, in order for SmartDefense to consider the activity a scan.</p> <p>Type the maximum number of seconds that can elapse, during which the Number of ports accessed threshold is exceeded, in order for SmartDefense to detect the activity as a port scan.</p> <p>For example, if this value is 20, and the Number of ports accessed threshold is exceeded for 15 seconds, SmartDefense will detect the activity as a port scan. If the threshold is exceeded for 30 seconds, SmartDefense will not detect the activity as a port scan.</p> <p>The default value is 20 seconds.</p>
Track	<p>Specify whether to issue logs for scans, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• Log. Issue logs. This is the default.</li><li>• None. Do not issue logs. This is the default.</li></ul>
Detect scans from Internet only	<p>Specify whether to detect only scans originating from the Internet, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• False. Do not detect only scans from the Internet. This is the default.</li><li>• True. Detect only scans from the Internet.</li></ul>

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## FTP

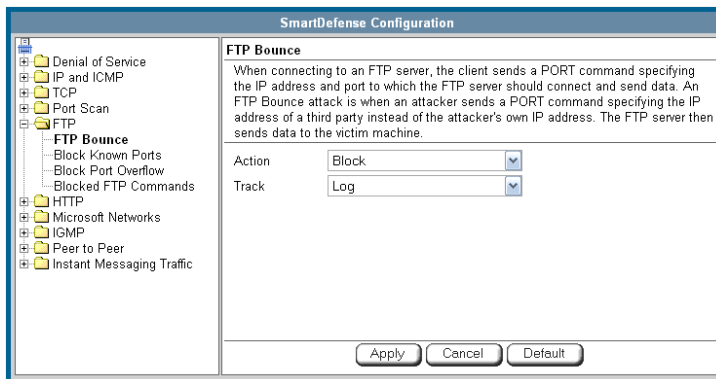
This category allows you to configure various protections related to the FTP protocol. It includes the following:

- **FTP Bounce** on page 245
- **Block Known Ports** on page 246
- **Block Port Overflow** on page 247
- **Blocked FTP Commands** on page 248

### FTP Bounce

When connecting to an FTP server, the client sends a PORT command specifying the IP address and port to which the FTP server should connect and send data. An FTP Bounce attack is when an attacker sends a PORT command specifying the IP address of a third party instead of the attacker's own IP address. The FTP server then sends data to the victim machine.

You can configure how FTP bounce attacks should be handled.



**Table 49: FTP Bounce Fields**

In this field...	Do this...
Action	Specify what action to take when an FTP Bounce attack occurs, by selecting one of the following: <ul style="list-style-type: none"> <li>Block. Block the attack. This is the default.</li> <li>None. No action.</li> </ul>
Track	Specify whether to log FTP Bounce attacks, by selecting one of the following: <ul style="list-style-type: none"> <li>Log. Log the attack. This is the default.</li> <li>None. Do not log the attack.</li> </ul>

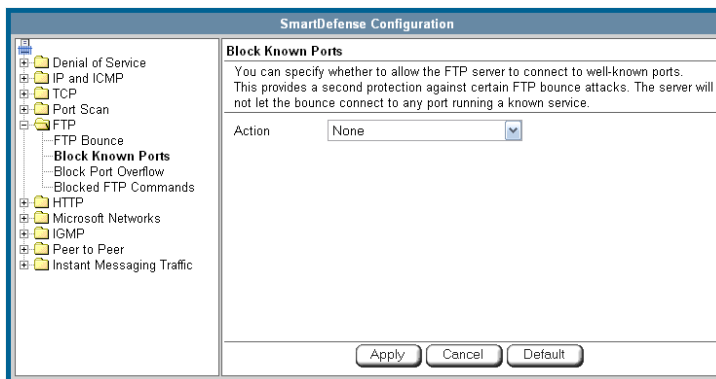
### Block Known Ports

You can choose to block the FTP server from connecting to well-known ports.



Note: Known ports are published ports associated with services (for example, SMTP is port 25).

This provides a second layer of protection against FTP bounce attacks, by preventing such attacks from reaching well-known ports.



**Table 50: Block Known Ports Fields**

---

**In this field...    Do this...**

---

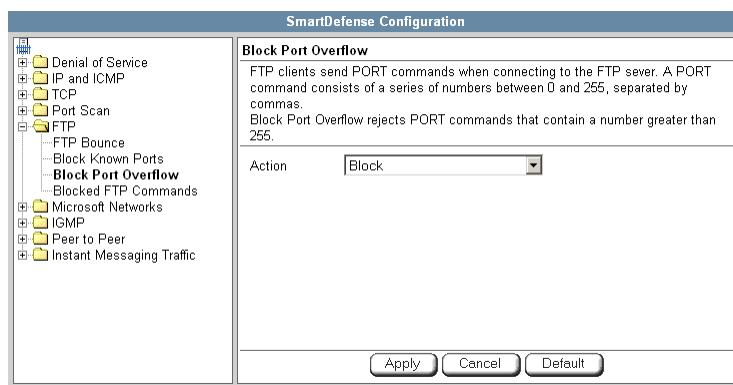
Action                      Specify what action to take when the FTP server attempts to connect to a well-known port, by selecting one of the following:

- **Block.** Block the connection.
  - **None.** No action. This is the default.
- 

**Block Port Overflow**

FTP clients send PORT commands when connecting to the FTP sever. A PORT command consists of a series of numbers between 0 and 255, separated by commas.

To enforce compliance to the FTP standard and prevent potential attacks against the FTP server, you can block PORT commands that contain a number greater than 255.



**Table 51: Block Port Overflow**

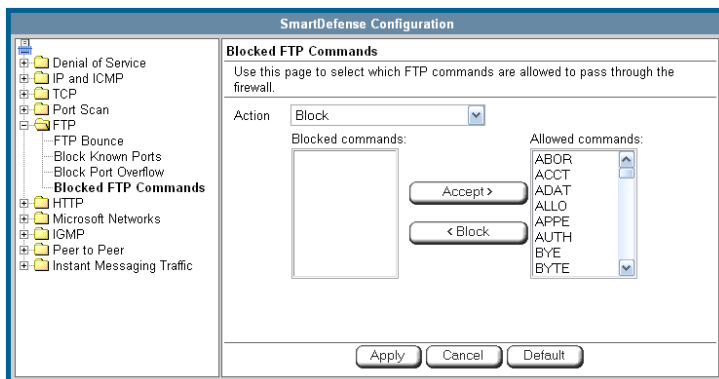
In this field...	Do this...
------------------	------------

Action	Specify what action to take for PORT commands containing a number greater than 255, by selecting one of the following:
--------	--

- |   |
|---|
| <ul style="list-style-type: none"> <li>• <b>Block.</b> Block the PORT command. This is the default.</li> <li>• <b>None.</b> No action.</li> </ul> |
|---|

**Blocked FTP Commands**

Some seldom-used FTP commands may compromise FTP server security and integrity. You can specify which FTP commands should be allowed to pass through the security server, and which should be blocked.

**To enable FTP command blocking**

- In the **Action** drop-down list, select **Block**.

The FTP commands listed in the **Blocked commands** box will be blocked.

FTP command blocking is enabled by default.

**To disable FTP command blocking**

- In the Action drop-down list, select **None**.

All FTP commands are allowed, including those in the **Blocked commands** box.

**To block a specific FTP command**

1. In the **Allowed commands** box, select the desired FTP command.
2. Click **Block**.

The FTP command appears in the **Blocked commands** box.

3. Click **Apply**.

When FTP command blocking is enabled, the FTP command will be blocked.

**To allow a specific FTP command**

1. In the **Blocked commands** box, select the desired FTP command.
2. Click **Accept**.

The FTP command appears in the **Allowed commands** box.

3. Click **Apply**.

The FTP command will be allowed, regardless of whether FTP command blocking is enabled or disabled.

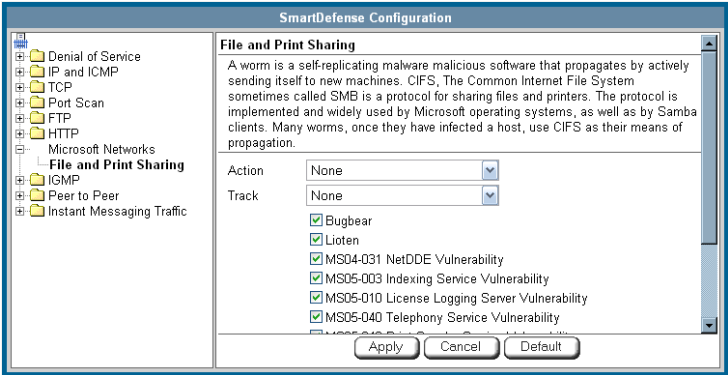
**Microsoft Networks**

This category includes **File and Print Sharing**.

Microsoft operating systems and Samba clients rely on Common Internet File System (CIFS), a protocol for sharing files and printers. However, this protocol is also widely used by worms as a means of propagation.



You can configure how CIFS worms should be handled.



**Table 52: File Print and Sharing Fields**

In this field...	Do this...
Action	Specify what action to take when a CIFS worm attack is detected, by selecting one of the following: <ul style="list-style-type: none"><li>• Block. Block the attack.</li><li>• None. No action. This is the default.</li></ul>
Track	Specify whether to log CIFS worm attacks, by selecting one of the following: <ul style="list-style-type: none"><li>• Log. Log the attack.</li><li>• None. Do not log the attack. This is the default.</li></ul>
CIFS worm patterns list	Select the worm patterns to detect.  Patterns are matched against file names (including file paths but excluding the disk share name) that the client is trying to read or write from the server.

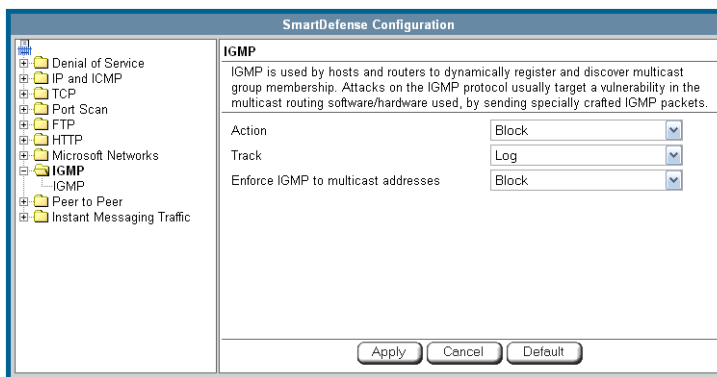


## IGMP

This category includes the IGMP protocol.

IGMP is used by hosts and routers to dynamically register and discover multicast group membership. Attacks on the IGMP protocol usually target a vulnerability in the multicast routing software/hardware used, by sending specially crafted IGMP packets.

You can configure how IGMP attacks should be handled.



**Table 53: IGMP Fields**

In this field...	Do this...
Action	<p>Specify what action to take when an IGMP attack occurs, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• Block. Block the attack. This is the default.</li><li>• None. No action.</li></ul>
Track	<p>Specify whether to log IGMP attacks, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• Log. Log the attack. This is the default.</li><li>• None. Do not log the attack.</li></ul>



---

**In this field...****Do this...**

---

Enforce IGMP to multicast addresses

According to the IGMP specification, IGMP packets must be sent to multicast addresses. Sending IGMP packets to a unicast or broadcast address might constitute an attack; therefore the NetDefend firewall blocks such packets.

Specify whether to allow or block IGMP packets that are sent to non-multicast addresses, by selecting one of the following:

- Block. Block IGMP packets that are sent to non-multicast addresses. This is the default.
  - None. No action.
- 

## Peer to Peer

SmartDefense can block peer-to-peer traffic, by identifying the proprietary protocols and preventing the initial connection to the peer-to-peer networks. This prevents not only downloads, but also search operations.

This category includes the following nodes:

- KaZaA
- Gnutella
- eMule
- BitTorrent

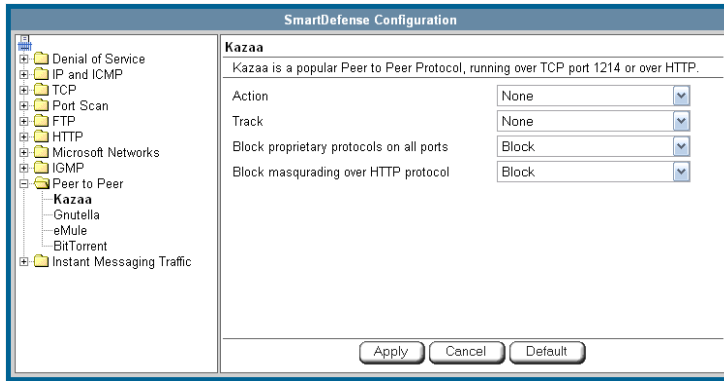


Note: SmartDefense can detect peer-to-peer traffic regardless of the TCP port being used to initiate the session.





In each node, you can configure how peer-to-peer connections of the selected type should be handled, using the table below.



**Table 54: Peer-to-Peer Fields**

In this field...	Do this...
Action	<p>Specify what action to take when a connection is attempted, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• <b>Block.</b> Block the connection.</li><li>• <b>None.</b> No action. This is the default.</li></ul>
Track	<p>Specify whether to log peer-to-peer connections, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• <b>Log.</b> Log the connection.</li><li>• <b>None.</b> Do not log the connection. This is the default.</li></ul>
Block proprietary protocols on all ports	<p>Specify whether proprietary protocols should be blocked on all ports, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• <b>Block.</b> Block the proprietary protocol on all ports. This in effect prevents all communication using this peer-to-peer application. This is the default.</li><li>• <b>None.</b> Do not block the proprietary protocol on all ports.</li></ul>



## Instant Messengers

SmartDefense can block instant messaging applications that use VoIP protocols, by identifying the messaging application's fingerprints and HTTP headers.

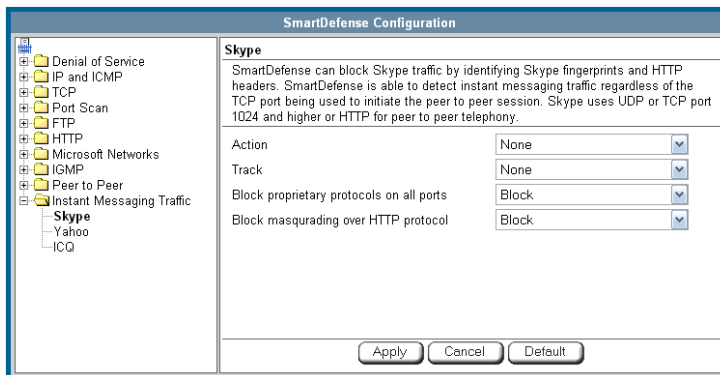
This category includes the following nodes:

- Skype
- Yahoo
- ICQ



**Note:** SmartDefense can detect instant messaging traffic regardless of the TCP port being used to initiate the session.

In each node, you can configure how instant messaging connections of the selected type should be handled, using the table below.



**Table 55: Instant Messengers Fields**

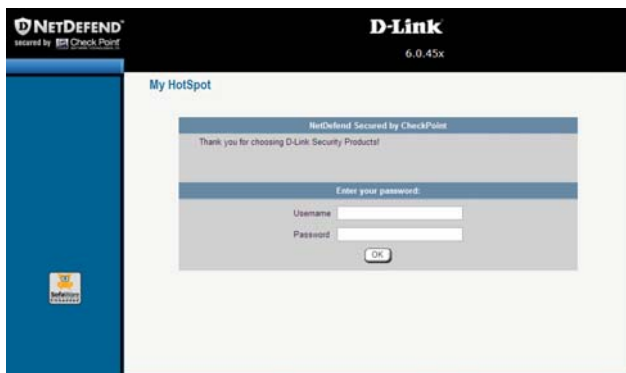
In this field...	Do this...
Action	<p>Specify what action to take when a connection is attempted, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• Block. Block the connection.</li><li>• None. No action. This is the default.</li></ul>
Track	<p>Specify whether to log instant messenger connections, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• Log. Log the connection.</li><li>• None. Do not log the connection. This is the default.</li></ul>
Block proprietary protocols on all ports	<p>Specify whether proprietary protocols should be blocked on all ports, by selecting one of the following:</p> <ul style="list-style-type: none"><li>• Block. Block the proprietary protocol on all ports. This in effect prevents all communication using this instant messenger application. This is the default.</li><li>• None. Do not block the proprietary protocol on all ports.</li></ul>



## Using Secure HotSpot

### Power Pack

You can enable your NetDefend firewall as a public Internet access hotspot for specific networks. When users on those networks attempt to access the Internet, they are automatically re-directed to the My HotSpot page <http://my.hotspot>. On this page, they must read and accept the My HotSpot terms of use, and if My HotSpot is configured to be password-protected, they must log on using their username and password. The users may then access the Internet.



Users can also log out in the My HotSpot page.



Note: HotSpot users are automatically logged out after one hour of inactivity.

Secure HotSpot is useful in any wired or wireless environment where Web-based user authentication or terms-of-use approval is required prior to gaining access to the network. For example, Secure HotSpot can be used in public computer labs, educational institutions, libraries, Internet cafés, and so on.

The NetDefend firewall allows you to add guest users quickly and easily. By default, guest users are given a username and password that expire in 24 hours and granted HotSpot Access permissions only. For information on adding quick guest users, see *Adding Quick Guest Users* on page 365.

You can choose to exclude specific network objects from HotSpot enforcement. For information, see *Using Network Objects* on page 129.



**Important:** SecuRemote VPN software users who are authenticated by the Internal VPN Server are automatically exempt from HotSpot enforcement. This allows, for example, authenticated employees to gain full access to the corporate LAN, while guest users are permitted to access the Internet only.



**Note:** HotSpot enforcement can block traffic passing through the firewall; however, it does not block local traffic on the same network segment (traffic that does not pass through the firewall).

## Setting Up Secure HotSpot

### Power Pack

#### To set up Secure HotSpot

1. Enable Secure HotSpot for the desired networks.  
See *Enabling/Disabling Secure HotSpot* on page 258.
2. Customize Secure HotSpot as desired.  
See *Customizing Secure HotSpot* on page 259.
3. Grant HotSpot Access permissions to users on the selected networks.  
See *Adding and Editing Users* on page 361.
4. To exclude specific computers from HotSpot enforcement, by adding or editing their network objects.  
See *Adding and Editing Network Objects* on page 130.  
You must select **Exclude this computer/network from HotSpot enforcement** option.
5. Add quick guest users as needed.  
See *Adding Quick Guest Users* on page 365.



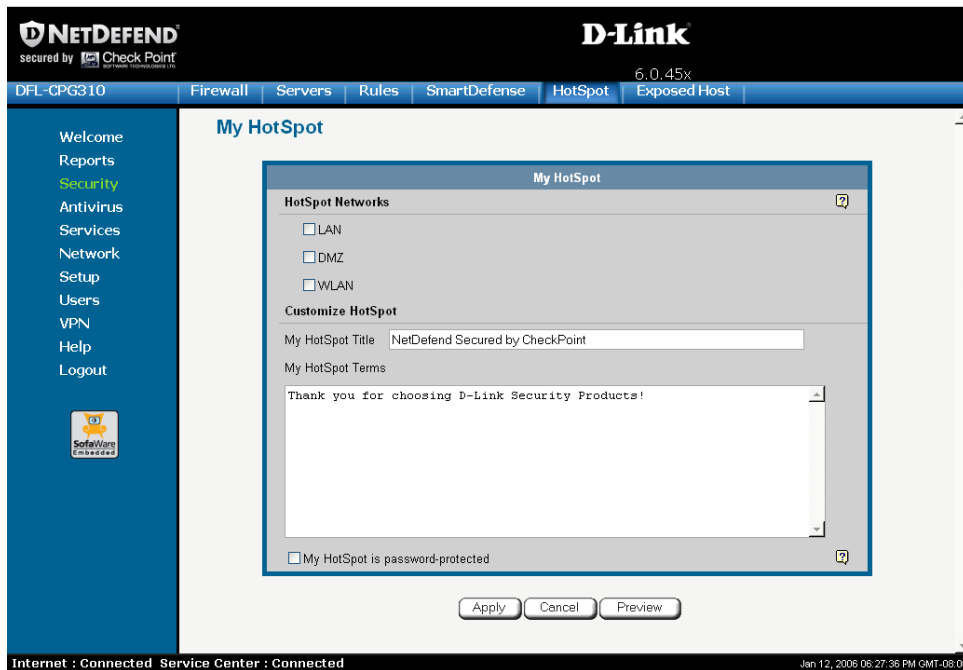
## Enabling/Disabling Secure HotSpot

Power Pack

### To enable/disable Secure HotSpot

1. Click Security in the main menu, and click the My HotSpot tab.

The My HotSpot page appears.



2. In the HotSpot Networks area, do one of the following:
  - To enable Secure HotSpot for a specific network, select the check box next to the network.
  - To disable Secure HotSpot for a specific network, clear the check box next to the network.
3. Click **Apply**.



## Customizing Secure HotSpot

### Power Pack

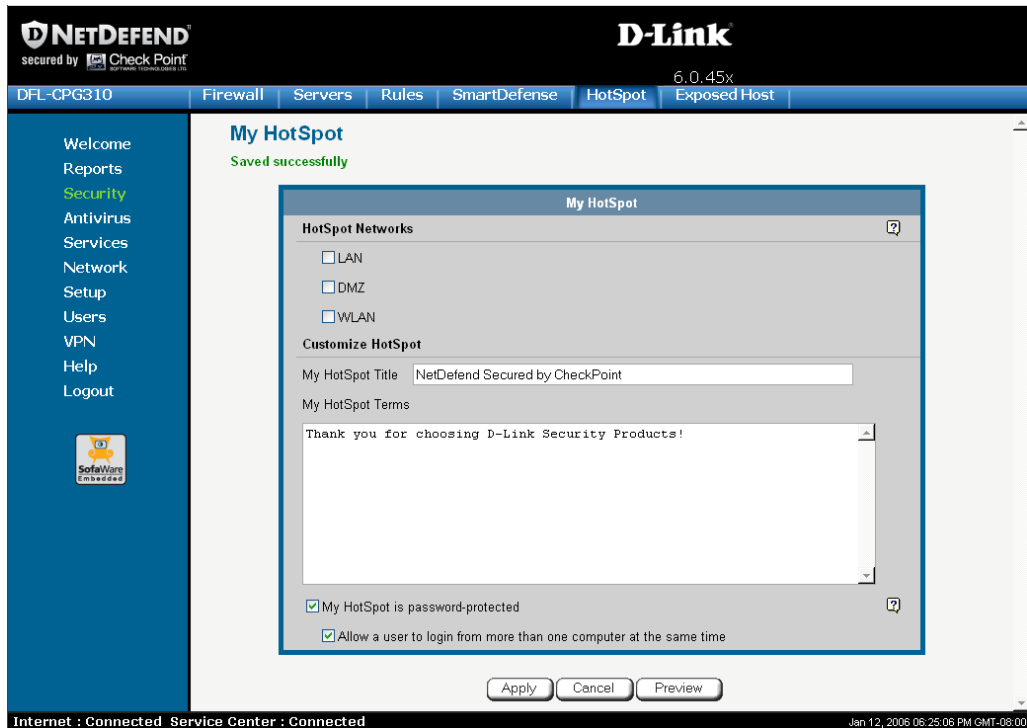
#### To customize Secure HotSpot

1. Click Security in the main menu, and click the My HotSpot tab.

The My HotSpot page appears.

2. Complete the fields using the information in the table below.

Additional fields may appear.



3. To preview the My HotSpot page, click Preview.

A browser window opens displaying the My HotSpot page.



#### 4. Click **Apply**.

Your changes are saved.

**Table 56: My HotSpot Fields**

In this field...	Do this...
My HotSpot Title	Type the title that should appear on the My HotSpot page.  The default title is "Welcome to My HotSpot".
My HotSpot Terms	Type the terms to which the user must agree before accessing the Internet.  You can use HTML tags as needed.
My HotSpot is password protected	Select this option to require users to enter their username and password before accessing the Internet.  If this option is not selected, users will be required only to accept the terms of use before accessing the network.  The Allow a user to login from more than one computer at the same time check box appears.
Allow a user to login from more than one computer at the same time	Select this option to allow a single user to log on to My HotSpot from multiple computers at the same time.



## Defining an Exposed Host

CP310

The NetDefend firewall allows you to define an exposed host, which is a computer that is not protected by the firewall. This is useful for setting up a public server. It allows **unlimited** incoming and outgoing connections between the Internet and the exposed host computer.

The exposed host receives all traffic that was not forwarded to another computer by use of Allow and Forward rules.



Warning: Entering an IP address may make the designated computer vulnerable to hacker attacks. Defining an exposed host is not recommended unless you are fully aware of the security risks.

### To define a computer as an exposed host

1. Click Security in the main menu, and click the Exposed Host tab.

The Exposed Host page appears.





2. In the **Exposed Host** field, type the IP address of the computer you wish to define as an exposed host.

Alternatively, you can click **This Computer** to define your computer as the exposed host.

3. Click **Apply**.

The selected computer is now defined as an exposed host.

#### **To clear the exposed host**

1. Click **Security** in the main menu, and click the **Exposed Host** tab.

The **Exposed Host** page appears.

2. Click **Clear**.

3. Click **Apply**.

No exposed host is defined.



## Chapter 10

# Using VStream Antivirus

This chapter explains how to use the VStream Antivirus engine to block security threats before they reach your network.

This chapter includes the following topics:

Overview .....	263
Enabling/Disabling VStream Antivirus .....	265
Viewing VStream Signature Database Information .....	266
Configuring VStream Antivirus .....	267
Updating VStream Antivirus .....	279

## Overview

The NetDefend firewall includes VStream Antivirus, an embedded stream-based antivirus engine based on Check Point Stateful Inspection and Application Intelligence technologies, which performs virus scanning at the kernel level.

VStream Antivirus scans files for malicious content on the fly, without downloading the files into intermediate storage. This means minimal added latency and support for unlimited file sizes; and since VStream Antivirus stores only minimal state information per connection; it can scan thousands of connections concurrently. In order to scan archive files on the fly, VStream Antivirus performs real-time decompression and scanning of ZIP, TAR, and GZ archive files, with support for nested archive files.

When VStream Antivirus detects malicious content, the action it takes depends on the protocol in which the virus was found. See the table below. In each case, VStream Antivirus blocks the file and writes a log to the Event Log.

**Table 57: VStream Antivirus Actions**

If a virus is found in this protocol...	VStream Antivirus does this...	The protocol is detected on this port...
HTTP	<ul style="list-style-type: none"> <li>Terminates the connection</li> </ul>	All ports on which VStream is enabled by the policy, not only port 80
POP3	<ul style="list-style-type: none"> <li>Terminates the connection</li> <li>Deletes the virus-infected email from the server</li> </ul>	The standard TCP port 110.
IMAP	<ul style="list-style-type: none"> <li>Terminates the connection</li> <li>Replaces the virus-infected email with a message notifying the user that a virus was found</li> </ul>	The standard TCP port 143
SMTP	<ul style="list-style-type: none"> <li>Rejects the virus-infected email with error code 554</li> <li>Sends a "Virus detected" message to the sender</li> </ul>	The standard TCP port 25
FTP	<ul style="list-style-type: none"> <li>Terminates the data connection</li> <li>Sends a "Virus detected" message to the FTP client</li> </ul>	The standard TCP port 21
TCP and UDP	<ul style="list-style-type: none"> <li>Terminates the connection</li> </ul>	Generic TCP and UDP ports, other than those listed above



Note: In protocols that are not listed in this table, VStream Antivirus uses a "best effort" approach to detect viruses. In such cases, detection of viruses is not guaranteed and depends on the specific encoding used by the protocol.



If you are subscribed to the VStream Antivirus subscription service, VStream Antivirus virus signatures are automatically updated, so that security is always up-to-date, and your network is always protected.



Note: VStream Antivirus differs from the Email Antivirus subscription service (part of the Email Filtering service) in the following ways:

- Email Antivirus is centralized, redirecting traffic through the Service Center for scanning, while VStream Antivirus scans for viruses in the gateway itself.
- Email Antivirus is specific to email, scanning incoming POP3 and outgoing SMTP connections only, while VStream Antivirus supports additional protocols, including incoming SMTP and outgoing POP3 connections.

You can use either antivirus solution or both in conjunction. For information on Email Antivirus, see **Email Filtering** on page **Error! Bookmark not defined..**

## Enabling/Disabling VStream Antivirus

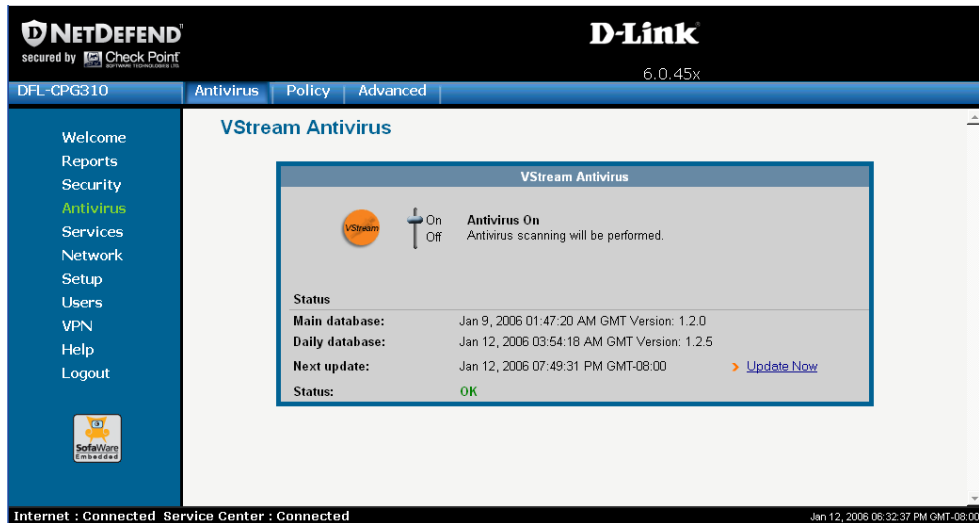
CP310

### To enable/disable VStream Antivirus

1. Click **Antivirus** in the main menu, and click the **Antivirus** tab.



The VStream Antivirus page appears.



2. Drag the On/Off lever upwards or downwards.

VStream Antivirus is enabled/disabled for all internal network computers.

## Viewing VStream Signature Database Information



VStream Antivirus maintains two databases: a daily database and a main database. The daily database is updated frequently with the newest virus signatures. Periodically, the contents of the daily database are moved to the main database, leaving the daily database empty. This system of incremental updates to the main database allows for quicker updates and saves on network bandwidth.

You can view information about the VStream signature databases currently in use, in the VStream Antivirus page.

**Table 58: Account Page Fields**

This field...	Displays...
Main database	The date and time at which the main database was last updated, followed by the version number.
Daily database	The date and time at which the daily database was last updated, followed by the version number.
Next update	The next date and time at which the NetDefend firewall will check for updates.
Status	The current status of the database. This includes the following statuses: <ul style="list-style-type: none"><li>• Database Not Installed</li><li>• OK</li></ul>

## Configuring VStream Antivirus

You can configure VStream Antivirus in the following ways:

- *Configuring the VStream Antivirus Policy* on page 267
- *Configuring VStream Advanced Settings* on page 275

### Configuring the VStream Antivirus Policy

CP310

VStream Antivirus includes a flexible mechanism that allows the user to define exactly which traffic should be scanned, by specifying the protocol, ports, and source and destination IP addresses.

VStream Antivirus processes policy rules in the order they appear in the **Antivirus Policy** table, so that rule 1 is applied before rule 2, and so on. This enables you to define exceptions to rules, by placing the exceptions higher up in the **Rules** table.



For example, if you want to scan all outgoing SMTP traffic, except traffic from a specific IP address, you can create a rule scanning all outgoing SMTP traffic and move the rule down in the **Antivirus Policy** table. Then create a rule passing SMTP traffic from the desired IP address and move this rule to a higher location in the **Antivirus Policy** table than the first rule. In the figure below, the general rule is rule number 2, and the exception is rule number 1.



The NetDefend firewall will process rule 1 first, passing outgoing SMTP traffic from the specified IP address, and only then it will process rule 2, scanning all outgoing SMTP traffic.

The following rule types exist:

### VStream Antivirus Rule Types

**Table 59: VStream Antivirus Rule Types**

Rule	Description
Pass	This rule type enables you to specify that VStream Antivirus should not scan traffic matching the rule.





Rule	Description
Scan	This rule type enables you to specify that VStream Antivirus should scan traffic matching the rule.  If a virus is found, it is blocked and logged.

## Adding and Editing Rules

CP310

### To add or edit a rule

1. Click Antivirus in the main menu, and click the Policy tab.

The Antivirus Policy page appears.

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secured by **Check Point**

**D-Link**  
6.0.45x

DFL-CPG310 | Antivirus | **Policy** | Advanced

### Antivirus Policy

No	Rule Type	Source	Destination	Direction	Enabled		
1	Scan	LAN	WAN (Internet):Web Server	→	✗	Erase	Edit
2	Scan	ANY	ANY:Mail Server (SMTP)	→	✓	Erase	Edit
3	Scan	ANY	ANY:Mail Server (POP3)	→	✓	Erase	Edit
4	Scan	ANY	ANY:IMAP Server	→	✓	Erase	Edit

Add Rule

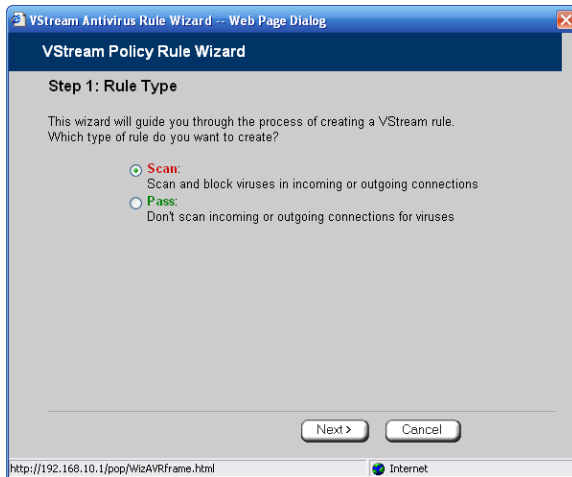
Internet : Connected Service Center : Connected

Jan 13, 2006 09:15:34 AM GMT-08:00

2. Do one of the following:
  - To add a new rule, click **Add Rule**.
  - To edit an existing rule, click the Edit icon next to the desired rule.



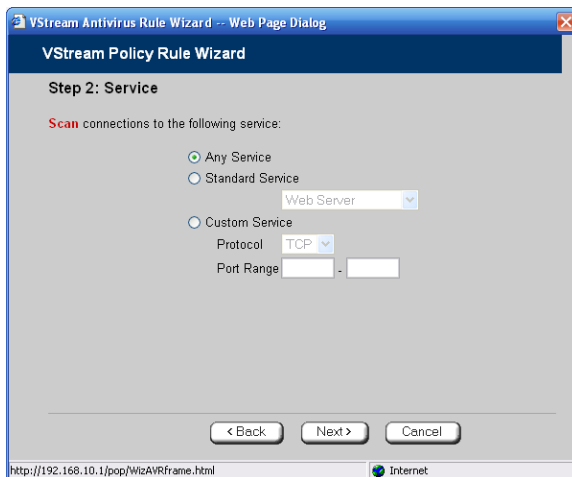
The VStream Policy Rule Wizard opens, with the Step 1: Rule Type dialog box displayed.



3. Select the type of rule you want to create.
4. Click Next.

The Step 2: Service dialog box appears.

The example below shows a Scan rule.



5. Complete the fields using the relevant information in the table below.

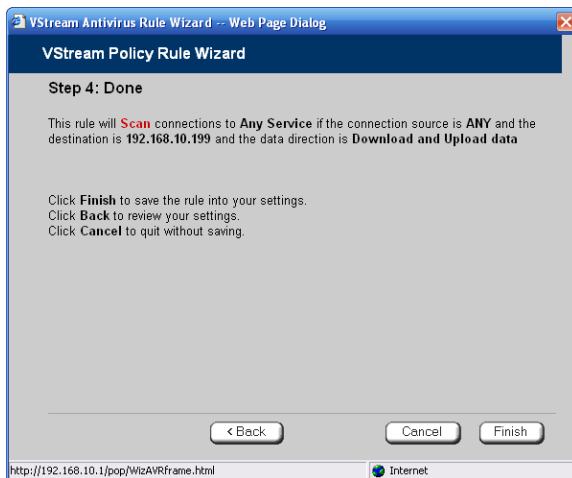
6. Click Next.

The Step 3: Destination & Source dialog box appears.



7. Complete the fields using the relevant information in the table below.

The Step 4: Done dialog box appears.



8. Click Finish.

The new rule appears in the Firewall Rules page.

**Table 60: VStream Rule Fields**

In this field...	Do this...
Any Service	Click this option to specify that the rule should apply to any service.
Standard Service	Click this option to specify that the rule should apply to a specific standard service.  You must then select the desired service from the drop-down list.
Custom Service	Click this option to specify that the rule should apply to a specific non-standard service.  The Protocol and Port Range fields are enabled. You must fill them in.
Protocol	Select the protocol (TCP, UDP, or ANY) for which the rule should apply.
Ports	To specify the port range to which the rule applies, type the start port number in the left text box, and the end port number in the right text box.  Note: If you do not enter a port range, the rule will apply to all ports. If you enter only one port number, the range will include only that port.
If the connection source is	Select the source of the connections you want to allow/block.  To specify an IP address, select Specified IP and type the desired IP address in the field provided.  To specify an IP address range, select Specified Range and type the desired IP address range in the fields provided.



---

**In this field...    Do this...**

---

And the destination is

Select the destination of the connections you want to allow or block.

To specify an IP address, select Specified IP and type the desired IP address in the text box.

To specify an IP address range, select Specified Range and type the desired IP address range in the fields provided. This option is not available in Allow and Forward rules.

To specify the NetDefend Portal and network printers, select This Gateway. This option is not available in Allow and Forward rules.

To specify any destination *except* the NetDefend Portal and network printers, select ANY.

Data Direction

Select the direction of connections to which the rule should apply:

- Download and Upload data. The rule applies to downloaded and uploaded data. This is the default.
  - Download data. The rule applies to downloaded data, that is, data flowing from the destination of the connection to the source of the connection.
  - Upload data. The rule applies to uploaded data, that is, data flowing from the source of the connection to the destination of the connection.
- 

## Enabling/Disabling Rules

A rectangular button with rounded corners and a thin border, containing the text "CP310". It is positioned on a light gray background bar.

You can temporarily disable a VStream Antivirus rule.

### To enable/disable a rule

1. Click **Antivirus** in the main menu, and click the **Policy** tab.

The Antivirus Policy page appears.



2. Next to the desired rule, do one of the following:

- To enable the rule, click .

The button changes to  and the rule is enabled.

- To disable the rule, click .

The button changes to  and the rule is disabled.

## Changing Rules' Priority





### To change a rule's priority

1. Click **Antivirus** in the main menu, and click the **Policy** tab.

The **Antivirus Policy** page appears.

2. Do one of the following:

- Click  next to the desired rule, to move the rule up in the table.
- Click  next to the desired rule, to move the rule down in the table.

The rule's priority changes accordingly.


## Deleting Rules



### To delete an existing rule

1. Click **Antivirus** in the main menu, and click the **Policy** tab.

The **Antivirus Policy** page appears.

2. Click the Erase  icon of the rule you wish to delete.

A confirmation message appears.



3. Click OK.

The rule is deleted.

## Configuring VStream Advanced Settings

CP310

### To configure VStream Antivirus advanced settings

1. Click Antivirus in the main menu, and click the Advanced tab.

The Advanced Antivirus Settings page appears.



2. Complete the fields using the table below.
3. Click Apply.
4. To restore the default VStream Antivirus settings, do the following:
  - a) Click Default.

A confirmation message appears.
  - b) Click OK.



The VStream Antivirus settings are reset to their defaults. For information on the default values, refer to the table below.

**Table 61: Advanced Antivirus Settings Fields**

In this field...	Do this...
File Types	
Block potentially unsafe file types in email messages	<p>Select this option to block all emails containing potentially unsafe attachments.</p> <p>Unsafe file types are:</p> <ul style="list-style-type: none"><li>• DOS/Windows executables, libraries and drivers</li><li>• Compiled HTML Help files</li><li>• VBScript files</li><li>• Files with {CLSID} in their name</li><li>• The following file extensions: ade, adp, bas, bat, chm, cmd,com, cpl, crt, exe, hlp, hta, inf, ins, isp, js, jse, lnk, mdb, mde, msc, msi, msp, mst, pcd, pif, reg, scr, sct, shs,shb, url, vb, vbe, vbs, wsc, wsf, wsh.</li></ul>





In this field...	Do this...
Pass safe file types without scanning	<p>Select this option to accept common file types that are known to be safe, without scanning them.</p> <p>Safe files types are:</p> <ul style="list-style-type: none"><li>• MPEG streams</li><li>• RIFF Ogg Stream</li><li>• MP3</li><li>• PDF</li><li>• PostScript</li><li>• WMA/WMV/ASF</li><li>• RealMedia</li><li>• JPEG - only the header is scanned, and the rest of the file is skipped</li></ul> <p>Selecting this option reduces the load on the gateway by skipping safe file types. This option is selected by default.</p>
Status	
Maximum nesting level	<p>Type the maximum number of nested content levels that VStream Antivirus should scan.</p> <p>Setting a higher number increases security. Setting a lower number prevents attackers from overloading the gateway by sending extremely nested archive files.</p> <p>The default value is 5 levels.</p>



In this field...	Do this...
Maximum compression ratio 1:x	<p>Fill in the field to complete the maximum compression ratio of files that VStream Antivirus should scan.</p> <p>For example, to specify a 1:150 maximum compression ratio, type 150.</p> <p>Setting a higher number allows the scanning of highly compressed files, but creates a potential for highly compressible files to create a heavy load on the appliance. Setting a lower number prevents attackers from overloading the gateway by sending extremely compressible files.</p> <p>The default value is 100.</p>
When archived file exceeds limit or extraction fails	<p>Specify how VStream Antivirus should handle files that exceed the Maximum nesting level or the Maximum compression ratio, and files for which scanning fails. Select one of the following:</p> <ul style="list-style-type: none"> <li>• Pass file without scanning. Scan only the number of levels specified, and skip the scanning of more deeply nested archives. Furthermore, skip scanning highly compressible files, and skip scanning archives that cannot be extracted because they are corrupt. This is the default.</li> <li>• Block file. Block the file.</li> </ul>
When a password-protected file is found in archive	<p>VStream Antivirus cannot extract and scan password-protected files inside archive. Specify how VStream Antivirus should handle such files, by selecting one of the following:</p> <ul style="list-style-type: none"> <li>• Pass file without scanning. Accept the file without scanning it. This is the default.</li> <li>• Block file. Block the file.</li> </ul>

## Updating VStream Antivirus

CP310

When you are subscribed to the VStream Antivirus updates service, VStream Antivirus virus signatures are automatically updated, keeping security up-to-date with no need for user intervention. However, you can still check for updates manually, if needed.

### To update the VStream Antivirus virus signature database

1. Click **Antivirus** in the main menu, and click the **Antivirus** tab.

The VStream Antivirus page appears.

2. Click **Update Now**.

The VStream Antivirus database is updated with the latest virus signatures.





## Chapter 11

# Using Subscription Services

This chapter explains how to start subscription services, and how to use Software Updates, Web Filtering, and Email Filtering services.



**Note:** Check with your reseller regarding availability of subscription services, or surf to [www.sofaware.com/servicecenters](http://www.sofaware.com/servicecenters) to locate a Service Center in your area.

This chapter includes the following topics:

Connecting to a Service Center .....	281
Viewing Services Information .....	287
Refreshing Your Service Center Connection.....	288
Configuring Your Account .....	288
Disconnecting from Your Service Center.....	289
Web Filtering.....	290
Automatic and Manual Updates .....	294

## Connecting to a Service Center

CP310

### To connect to a Service Center

1. Click **Services** in the main menu, and click the **Account** tab.



The Account page appears.

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Account

Welcome

Reports

Security

Antivirus

Services

Network

Setup

Users

VPN

Help

Logout

SafeView Embedded

Account

Service Account

Buy Product Upgrades and Subscription Services > Buy

Connect to a Service Center > Connect

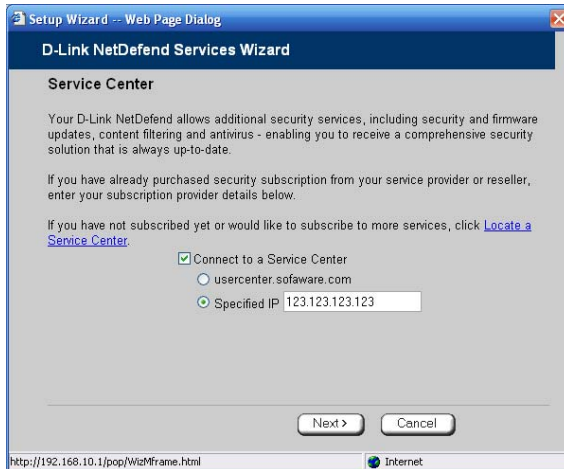
Service	Subscription	Status	Information
Software Updates	Not Subscribed	N/A	
Remote Management	Not Subscribed	N/A	
Web Filtering	Not Subscribed	N/A	
Email Antivirus	Not Subscribed	N/A	
Email Antispam	Not Subscribed	N/A	
VStream Antivirus Signature Updates	Not Subscribed	N/A	
Dynamic DNS	Not Subscribed	N/A	
Dynamic VPN	Not Subscribed	N/A	
Logging & Reporting	Not Subscribed	N/A	

Internet : Connected Service Center : Connected

Jan 13, 2006 10:07:03 AM GMT-08:00

2. In the Service Account area, click Connect.

The NetDefend Services Wizard opens, with the Service Center dialog box displayed.



3. Make sure the **Connect to a different Service Center** check box is selected.
4. Do one of the following:
  - To connect to the SofaWare Service Center, choose **usercenter.sofaware.com**.
  - To specify a Service Center, choose **Specified IP** and then in the **Specified IP** field, enter the desired Service Center's IP address, as given to you by your system administrator.
5. Click **Next**.
  - The **Connecting...** screen appears.



- If the Service Center requires authentication, the Service Center Login dialog box appears.

The screenshot shows a web-based dialog box titled "Setup Wizard -- Web Page Dialog" with a sub-header "D-Link NetDefend Services Wizard". The main heading is "Service Center Login". Below this, a message states: "This Service Center requires authentication. Please enter your subscription details as given to you by your Service Provider or system administrator." There are two input fields: "Gateway ID" with the placeholder text "xxxxxxx" and "Registration Key" with a masked field of dots. At the bottom, there are three buttons: "< Back", "Next >", and "Cancel". The status bar at the bottom shows the URL "http://192.168.10.1/pop/WizMframe.html" and an "Internet" icon.

Enter your gateway ID and registration key in the appropriate fields, as given to you by your service provider, then click **Next**.

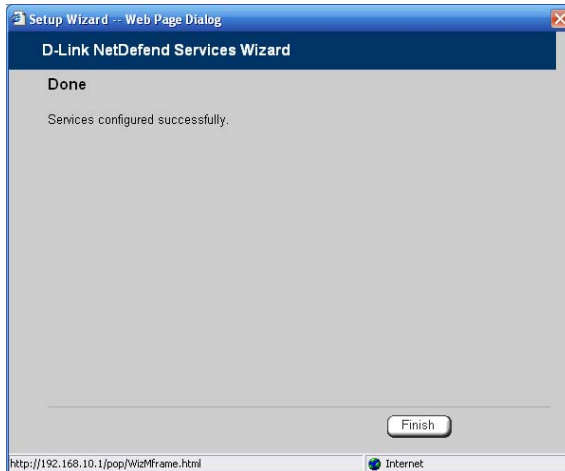
- The **Connecting...** screen appears.
- The **Confirmation** dialog box appears with a list of services to which you are subscribed.

The screenshot shows a web-based dialog box titled "Setup Wizard -- Web Page Dialog" with a sub-header "D-Link NetDefend Services Wizard". The main heading is "Confirmation". Below this, a message states: "Welcome to the **SofaWare** Service Center". It then lists the subscribed services: "You are now subscribed to the following services: Software Updates, Web Filtering, Logging & Reporting, Dynamic DNS, VStream Antivirus Signature Updates". It also shows "Subscription Expires : Dec 31, 2006". At the bottom, it says "To confirm, click **Next**". There are three buttons: "< Back", "Next >", and "Cancel". The status bar at the bottom shows the URL "http://192.168.10.1/pop/WizMframe.html" and an "Internet" icon.



6. Click **Next**.

The **Done** screen appears with a success message.



7. Click **Finish**.

The following things happen:

- If a new firmware is available, the NetDefend firewall may start downloading it. This may take several minutes. Once the download is complete, the NetDefend firewall restarts using the new firmware.
- The **Welcome** page appears.



- The services to which you are subscribed are now available on your NetDefend firewall and listed as such on the **Account** page. See *Viewing Services Information* on page 287 for further information.

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**D-Link**

DFL-CPG310 Account Web Filtering Software Updates 6.0.45x

Welcome  
Reports  
Security  
Antivirus  
**Services**  
Network  
Setup  
Users  
VPN  
Help  
Logout

**Account**

**Service Account**

Buy Product Upgrades and Subscription Services	> <a href="#">Buy</a>
Connect to a Service Center	> <a href="#">Connect</a>
Refresh your Service Center connection	> <a href="#">Refresh</a>
Service Center Name	SofaWare
Gateway ID	gw367e
Subscription will end on	Dec 31, 2006

Service	Subscription	Status	Information
Software Updates	Subscribed	Connected	Automatic
Web Filtering	Subscribed	Connected	Off
Email Antivirus	Not Subscribed	N/A	
VStream Antivirus Signature Updates	Subscribed	Connected	
Dynamic DNS	Subscribed	Connected	
Logging & Reporting	Subscribed	Connected	

Internet : Connected Service Center : Connected Jan 13, 2006 10:57:42 AM GMT-08:00

- The **Services** submenu includes the services to which you are subscribed.



## Viewing Services Information

A screenshot of a web interface showing a grey header bar. On the left side of the bar is a white rounded rectangle containing the text "CP310".

The **Account** page displays the following information about your subscription.

**Table 62: Account Page Fields**

This field...	Displays...
Service Center Name	The name of the Service Center to which you are connected (if known).
Gateway ID	Your gateway ID.
Subscription will end on	The date on which your subscription to services will end.
Service	The services available in your service plan.
Subscription	The status of your subscription to each service: <ul style="list-style-type: none"><li>• Subscribed</li><li>• Not Subscribed</li></ul>
Status	The status of each service: <ul style="list-style-type: none"><li>• Connected. You are connected to the service through the Service Center.</li><li>• Connecting. Connecting to the Service Center.</li><li>• N/A. The service is not available.</li></ul>



This field...	Displays...
Information	<p>The mode to which each service is set.</p> <p>If you are subscribed to Dynamic DNS, this field displays your gateway's domain name.</p> <p>For further information, see <b>Web Filtering</b> on page 290, <b>Virus Scanning</b> on page <b>Error! Bookmark not defined.</b>, and <b>Automatic and Manual Updates</b> on page 294.</p>

## Refreshing Your Service Center Connection

CP310

This option restarts your NetDefend firewall's connection to the Service Center and refreshes your NetDefend firewall's service settings.

### To refresh your Service Center connection

1. Click **Services** in the main menu, and click the **Account** tab.  
The **Account** page appears.
2. In the **Service Account** area, click **Refresh**.  
The NetDefend firewall reconnects to the Service Center.  
Your service settings are refreshed.

## Configuring Your Account

CP310

This option allows you to access your Service Center's Web site, which may offer additional configuration options for your account. Contact your Service Center for a user ID and password.

**To configure your account**

1. Click **Services** in the main menu, and click the **Account** tab.

The **Account** page appears.

2. In the **Service Account** area, click **Configure**.



Note: If no additional settings are available from your Service Center, this button will not appear.

Your Service Center's Web site opens.

3. Follow the on-screen instructions.

## Disconnecting from Your Service Center



If desired, you can disconnect from your Service Center.

**To disconnect from your Service Center**

1. Click **Services** in the main menu, and click the **Account** tab.

The **Account** page appears.

2. In the **Service Account** area, click **Connect**.

The **NetDefend Services Wizard** opens, with the first **Subscription Services** dialog box displayed.

3. Clear the **Connect to a different Service Center** check box.
4. Click **Next**.

The **Done** screen appears with a success message.

5. Click **Finish**.

The following things happen:

- You are disconnected from the Service Center.



- The services to which you were subscribed are no longer available on your NetDefend firewall.

## Web Filtering

When the Web Filtering service is enabled, access to Web content is restricted according to the categories specified under **Allow Categories**. Authorized users will be able to view Web pages with no restrictions, only after they have provided the administrator password via the **Web Filtering** pop-up window.



Note: Web Filtering is only available if you are connected to a Service Center and subscribed to this service.

## Enabling/Disabling Web Filtering

CP310



Note: If you are remotely managed, contact your Service Center to change these settings.

### To enable/disable Web Filtering

1. Click **Services** in the main menu, and click the **Web Filtering** tab.



The Web Filtering page appears.





2. Drag the On/Off lever upwards or downwards.

Web Filtering is enabled/disabled.

## Selecting Categories for Blocking



You can define which types of Web sites should be considered appropriate for your family or office members, by selecting the categories. Categories marked with  will remain visible, while categories marked with  will be blocked and will require the administrator password for viewing.



Note: If you are remotely managed, contact your Service Center to change these settings.

**To allow/block a category**

- In the Allow Categories area, click  or  next to the desired category.

***Temporarily Disabling Web Filtering***

If desired, you can temporarily disable the Web Filtering service.

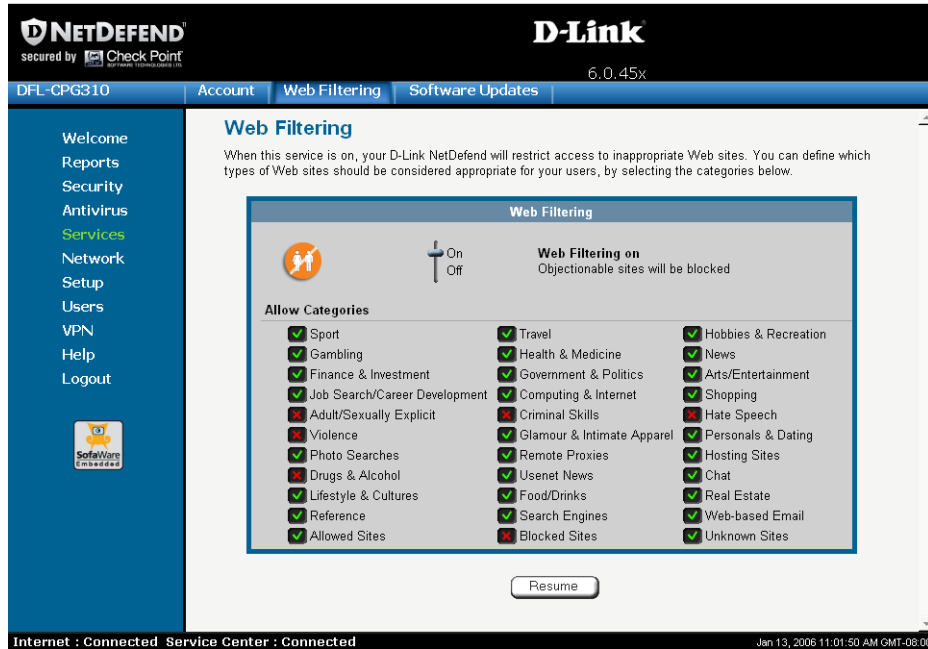
**To temporarily disable Web Filtering**

1. Click **Services** in the main menu, and click the **Web Filtering** tab.  
The **Web Filtering** page appears.
2. Click **Snooze**.
  - Web Filtering is temporarily disabled for all internal network computers.





- The Snooze button changes to Resume.



- The Web Filtering Off popup window opens.



3. To re-enable the service, click **Resume**, either in the popup window, or on the **Web Filtering** page.
  - The service is re-enabled for all internal network computers.
  - If you clicked **Resume** in the **Web Filtering** page, the button changes to **Snooze**.



- If you clicked **Resume** in the **Web Filtering Off** popup window, the popup window closes.

## Automatic and Manual Updates

The Software Updates service enables you to check for new security and software updates.



Note: Software Updates are only available if you are connected to a Service Center and subscribed to this service.

### *Checking for Software Updates when Remotely Managed*

CP310

If your NetDefend firewall is remotely managed, it automatically checks for software updates and installs them without user intervention. However, you can still check for updates manually, if needed.

#### **To manually check for security and software updates**

1. Click **Services** in the main menu, and click the **Software Updates** tab.



The Software Updates page appears.



2. Click Update Now.

The system checks for new updates and installs them.

## ***Checking for Software Updates when Locally Managed***



If your NetDefend firewall is locally managed, you can set it to automatically check for software updates, or you can set it so that software updates must be checked for manually.

### **To configure software updates when locally managed**

1. Click Services in the main menu, and click the Software Updates tab.



The Software Updates page appears.



2. To set the NetDefend firewall to automatically check for and install new software updates, drag the **Automatic/Manual** lever upwards.

The NetDefend firewall checks for new updates and installs them according to its schedule.



Note: When the Software Updates service is set to Automatic, you can still manually check for updates.

3. To set the NetDefend firewall so that software updates must be checked for manually, drag the **Automatic/Manual** lever downwards.

The NetDefend firewall does not check for software updates automatically.

4. To manually check for software updates, click **Update Now**.

The system checks for new updates and installs them.



## Chapter 12

# Working With VPNs

This chapter describes how to use your NetDefend firewall as a Remote Access VPN Client, server, or gateway.

This chapter includes the following topics:

Overview .....	297
Setting Up Your NetDefend firewall as a VPN Server.....	303
Adding and Editing VPN Sites .....	308
Deleting a VPN Site .....	340
Enabling/Disabling a VPN Site .....	340
Logging on to a Remote Access VPN Site .....	341
Logging off a Remote Access VPN Site .....	345
Installing a Certificate .....	345
Uninstalling a Certificate.....	352
Viewing VPN Tunnels .....	353
Viewing IKE Traces for VPN Connections.....	356

## Overview

You can configure your NetDefend firewall as part of a virtual private network (VPN). A VPN is a private data network consisting of a group of gateways that can securely connect to each other. Each member of the VPN is called a *VPN site*, and a connection between two VPN sites is called a *VPN tunnel*. VPN tunnels encrypt and authenticate all traffic passing through them. Through these tunnels, employees can safely use their company's network resources when working at home. For example, they can securely read email, use the company's intranet, or access the company's database from home.

There are four types of VPN sites:

- **Remote Access VPN Server.** Makes a network remotely available to authorized users, who connect to the Remote Access VPN Server using the



Check Point SecuRemote VPN Client, provided for free with your NetDefend firewall.

- **Internal VPN Server.** SecuRemote can also be used from your internal networks, allowing you to secure your wired or wireless network with strong encryption and authentication.
- **Site-to-Site VPN Gateway.** Can connect with another Site-to-Site VPN Gateway in a permanent, bi-directional relationship.
- **Remote Access VPN Client.** Can connect to a Remote Access VPN Server, but other VPN sites cannot initiate a connection to the Remote Access VPN Client. Defining a Remote Access VPN Client is a hardware alternative to using SecuRemote software.

Both NetDefend firewalls provide full VPN functionality. They can act as a Remote Access VPN Client, a Remote Access VPN Server for multiple users, or a Site-to-Site VPN Gateway.

A virtual private network (VPN) must include at least one Remote Access VPN Server or gateway. The type of VPN sites you include in a VPN depends on the type of VPN you want to create, Site-to-Site or Remote Access.



**Note:** A locally managed Remote Access VPN Server or gateway must have a static IP address. If you need a Remote Access VPN Server or gateway with a dynamic IP address, you must use SofaWare Security Management Portal (SMP) management.

A SecuRemote or NetDefend Remote Access VPN Client can have a dynamic IP address, regardless of whether it is locally or remotely managed.

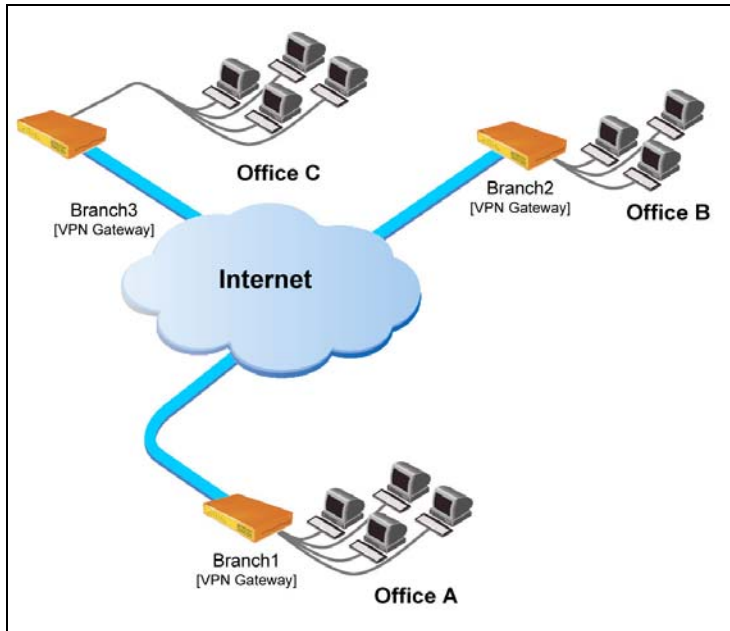


**Note:** This chapter explains how to define a VPN locally. However, if your appliance is centrally managed by a Service Center, then the Service Center can automatically deploy VPN configuration for your appliance.

## **Site-to-Site VPNs**

A Site-to-Site VPN consists of two or more Site-to-Site VPN Gateways that can communicate with each other in a bi-directional relationship. The connected

networks function as a single network. You can use this type of VPN to mesh office branches into one corporate network.



**Figure 12: Site-to-Site VPN**



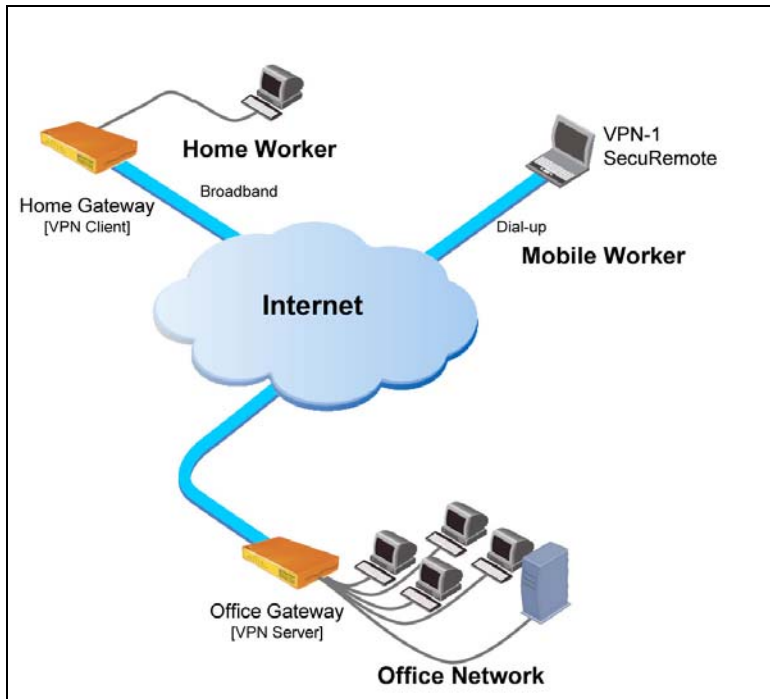
### To create a Site-to-Site VPN with two VPN sites

1. On the first VPN site's NetDefend firewall, do the following:
  - a. Define the second VPN site as a Site-to-Site VPN Gateway, or create a PPPoE tunnel to the second VPN site, using the procedure ***Adding and Editing VPN Sites*** on page 308.
  - b. Enable the Remote Access VPN Server using the procedure ***Setting Up Your NetDefend firewall as a Remote Access VPN Server*** on page 303.
2. On the second VPN site's NetDefend firewall, do the following:
  - a. Define the first VPN site as a Site-to-Site VPN Gateway, or create a PPPoE tunnel to the first VPN site, using the procedure ***Adding and Editing VPN Sites*** on page 308.
  - b. Then enable the Remote Access VPN Server using the procedure ***Setting Up Your NetDefend firewall as a Remote Access VPN Server*** on page 303.



## Remote Access VPNs

A Remote Access VPN consists of one Remote Access VPN Server or Site-to-Site VPN Gateway, and one or more Remote Access VPN Clients. You can use this type of VPN to make an office network remotely available to authorized users, such as employees working from home, who connect to the office Remote Access VPN Server with their Remote Access VPN Clients.



**Figure 13: Remote Access VPN**



### To create a Remote Access VPN with two VPN sites

1. On the remote user VPN site's firewall, add the office Remote Access VPN Server as a Remote Access VPN site.

See *Adding and Editing VPN Sites* on page 308.

The remote user's firewall appliance will act as a Remote Access VPN Client.

2. On the office VPN site's firewall, enable the Remote Access VPN Server.

See *Setting Up Your NetDefend firewall as a Remote Access VPN Server* on page 303.

## Internal VPN Server

You can use your NetDefend firewall as an internal VPN Server, for enhanced wired and wireless security. When the internal VPN Server is enabled, internal network PCs and PDAs with SecuRemote VPN Client software installed can establish a Remote Access VPN session to the gateway. This means that connections from internal network users to the gateway can be encrypted and authenticated.

The benefits of using the internal VPN Server are two-fold:

- Accessibility

Using SecuRemote, you can enjoy a secure connection from anywhere—in your wireless network or on the road—without changing any settings. The standard is completely transparent and allows you to access company resources the same way, whether you are sitting at your desk or anywhere else.

- Security

Many of today's attacks are increasingly introduced from inside the network. Internal security threats cause outages, downtime, and lost revenue. Wired networks that deal with highly sensitive information—especially networks in public places, such as classrooms—are vulnerable to users trying to hack the internal network.



Using the internal VPN Server, along with a strict security policy for non-VPN users, can enhance security both for wired networks and for wireless networks, which are particularly vulnerable to security breaches.

The internal VPN Server can be used in the NetDefend firewall wireless appliance, regardless of the wireless security settings. It also can be used in wired appliances, both for wired stations and for wireless stations.



**Note:** You can enable wireless connections to a wired NetDefend firewall, by connecting a wireless access point in bridge mode to one of the appliance's internal interfaces. Do not connect computers to the same interface as a wireless access point, since allowing direct access from the wireless network may pose a significant security risk.

For information on setting up your NetDefend firewall as an internal VPN Server, see *Setting Up Your NetDefend firewall as a VPN Server* on page 303.

## Setting Up Your NetDefend firewall as a VPN Server

CP310

You can make your network available to authorized users connecting from the Internet or from your internal networks, by setting up your NetDefend firewall as a VPN Server. Users can connect to the VPN Server via Check Point SecuRemote or via a NetDefend firewall in Remote Access VPN mode.

Enabling the VPN Server for users connecting from your internal networks adds a layer of security to such connections. For example, while you could create a firewall rule allowing a specific user on the DMZ or WLAN to access the LAN, enabling VPN access for the user means that such connections can be encrypted and authenticated. For more information, see *Internal VPN Server* on page 302.



### To set up your NetDefend firewall as a VPN Server

1. Configure the VPN Server in one or more of the following ways:
  - To accept remote access connections from the Internet.  
See *Configuring the Remote Access VPN Server* on page 305.
  - To accept connections from your internal networks.  
See *Configuring the Internal VPN Server* on page 306.
2. If you configured the internal VPN Server, install SecuRemote on the desired internal network computers.  
See *Installing SecuRemote* on page 307.
3. Set up remote VPN access for users.  
See *Setting Up Remote VPN Access for Users* on page 367.



Note: Disabling the VPN Server for a specific type of connection (from the Internet or from internal networks) will cause all existing VPN tunnels of that type to disconnect.



## Configuring the Remote Access VPN Server

CP310

To configure the Remote Access VPN Server

1. Click **VPN** in the main menu, and click the **VPN Server** tab.

The SecuRemote VPN Server page appears.



2. Select the **Allow SecuRemote users to connect from the Internet** check box.



New check boxes appear.



3. To allow authenticated users connecting from the Internet to bypass NAT when connecting to your internal network, select the **Bypass NAT** check box.
4. To allow authenticated users connecting from the Internet to bypass the firewall and access your internal network without restriction, select the **Bypass the firewall** check box.
5. Click **Apply**.

The Remote Access VPN Server is enabled for the specified connection types.

## Configuring the Internal VPN Server



### To configure the internal VPN Server

1. Click **VPN** in the main menu, and click the **VPN Server** tab.

The SecuRemote VPN Server page appears.



2. Select the Allow SecuRemote users to connect from my internal networks check box.

New check boxes appear.



3. To allow authenticated users connecting from internal networks to bypass the firewall and access your internal network without restriction, select the **Bypass the firewall** check box.

Bypass NAT is always enabled for the internal VPN server, and cannot be disabled.

4. Click **Apply**.

The internal VPN Server is enabled for the specified connection types.

## Installing SecuRemote

CP310

If you configured the Remote Access VPN Server to accept connections from your internal networks, you must install the SecuRemote VPN Client on internal network computers that should be allowed to remotely access your network.

**To install SecuRemote**

1. Click **VPN** in the main menu, and click the **VPN Server** tab.

The **SecuRemote VPN Server** page appears.

2. Click the **Download SecuRemote VPN client** link.

The **VPN-1 SecuRemote for NetDefend** page opens in a new window.

3. Follow the online instructions to complete installation.

SecuRemote is installed.

For information on using SecuRemote, see the User Help. To access SecuRemote User Help, right-click on the SecuRemote VPN Client icon in the taskbar, select **Settings**, and then click **Help**.

## Adding and Editing VPN Sites



CP310

**To add or edit VPN sites**

1. Click **VPN** in the main menu, and click the **VPN Sites** tab.





The VPN Sites page appears with a list of VPN sites.



2. Do one of the following:

- To add a VPN site, click **New Site**.
- To edit a VPN site, click **Edit** in the desired VPN site's row.



The NetDefend VPN Site Wizard opens, with the Welcome to the VPN Site Wizard dialog box displayed.



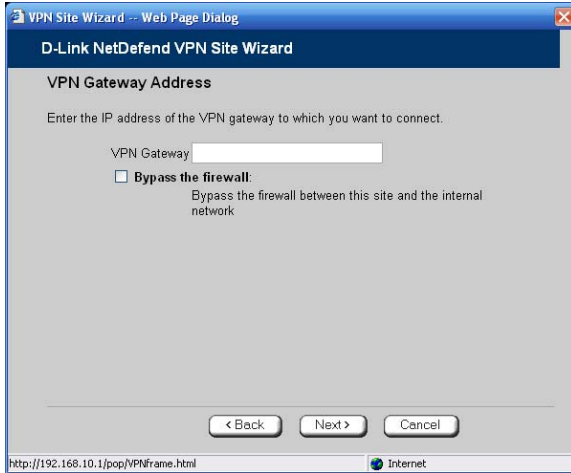
3. Do one of the following:

- Select **Remote Access VPN** to establish remote access from your Remote Access VPN Client to a Remote Access VPN Server.
- Select **Site-to-Site VPN** to create a permanent bi-directional connection to another Site-to-Site VPN Gateway.

4. Click **Next**.

## Configuring a Remote Access VPN Site

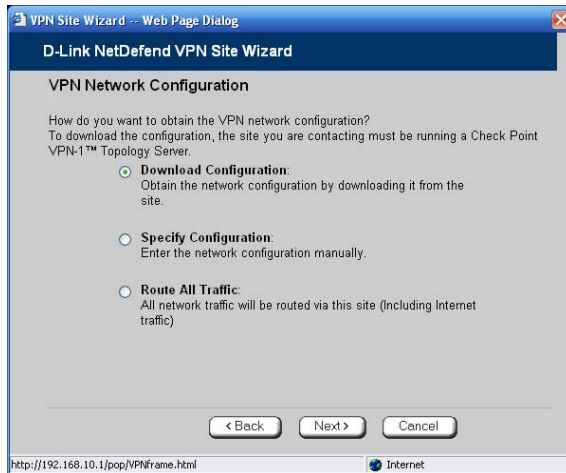
If you selected Remote Access VPN, the VPN Gateway Address dialog box appears.



1. Enter the IP address of the Remote Access VPN Server to which you want to connect, as given to you by the network administrator.
2. To allow the VPN site to bypass the firewall and access your internal network without restriction, select the **Bypass the firewall** check box.
3. Click **Next**.



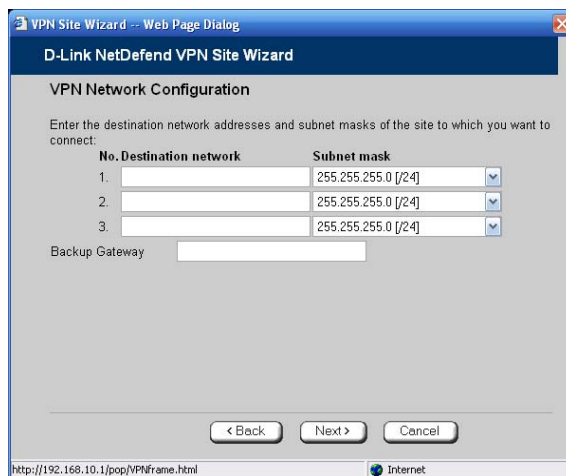
The VPN Network Configuration dialog box appears.



4. Specify how you want to obtain the VPN network configuration. Refer to **VPN Network Configuration Fields** on page 320.
5. Click Next.

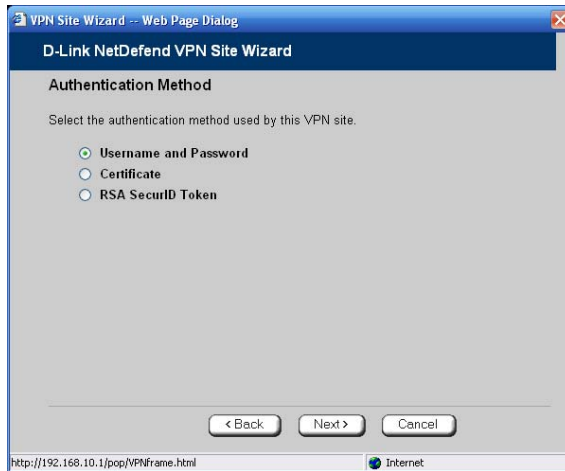
The following things happen in the order below:

- If you chose **Specify Configuration**, a second VPN Network Configuration dialog box appears.



Complete the fields using the information in *VPN Network Configuration Fields* on page 320 and click Next.

- The **Authentication Method** dialog box appears.

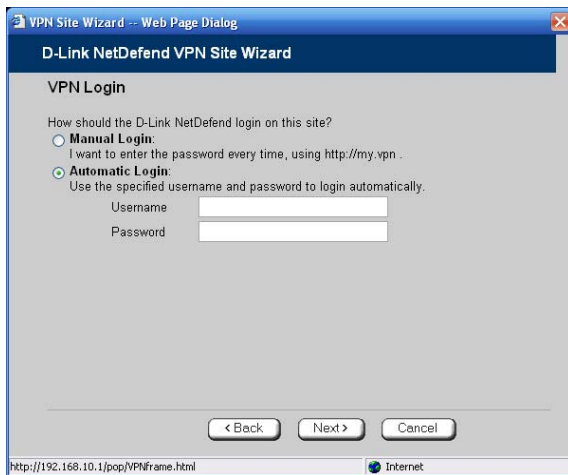


6. Complete the fields using the information in *Authentication Methods Fields* on page 322.
7. Click Next.



## Username and Password Authentication Method

If you selected Username and Password, the VPN Login dialog box appears.



1. Complete the fields using the information in *VPN Login Fields* on page 322.
  2. Click Next.
- If you selected Automatic Login, the Connect dialog box appears.





Do the following:

- 1) To try to connect to the Remote Access VPN Server, select the **Try to Connect to the VPN Gateway** check box.

This allows you to test the VPN connection.

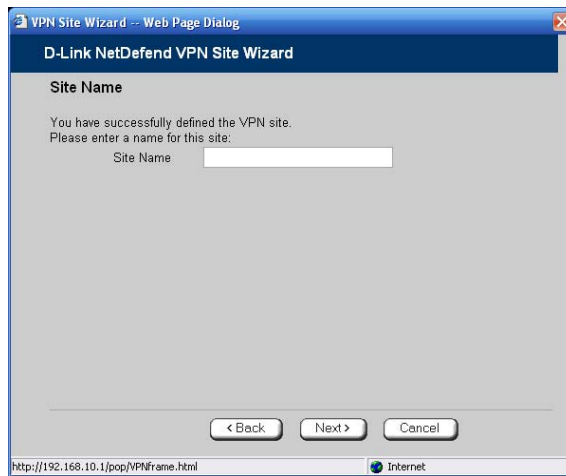


Warning: If you try to connect to the VPN site before completing the wizard, all existing tunnels will be terminated.

- 2) Click **Next**.

If you selected **Try to Connect to the VPN Gateway**, the **Connecting...** screen appears, and then the **Contacting VPN Site** screen appears.

- The **Site Name** dialog box appears.



3. Enter a name for the VPN site.

You may choose any name.

4. Click **Next**.



The VPN Site Created screen appears.



##### 5. Click Finish.

The VPN Sites page reappears. If you added a VPN site, the new site appears in the VPN Sites list. If you edited a VPN site, the modifications are reflected in the VPN Sites list.

## Certificate Authentication Method

If you selected Certificate, the Connect dialog box appears.







1. To try to connect to the Remote Access VPN Server, select the **Try to Connect to the VPN Gateway** check box.

This allows you to test the VPN connection.



Warning: If you try to connect to the VPN site before completing the wizard, all existing tunnels will be terminated.

2. Click **Next**.

If you selected **Try to Connect to the VPN Gateway**, the **Connecting...** screen appears, and then the **Contacting VPN Site** screen appears.

The **Site Name** dialog box appears.



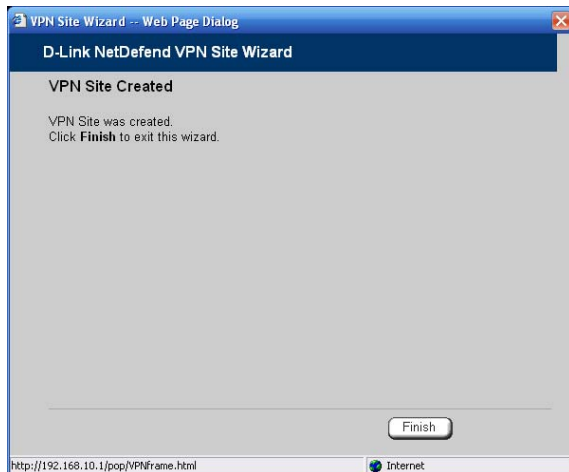
3. Enter a name for the VPN site.

You may choose any name.

4. Click **Next**.



The VPN Site Created screen appears.

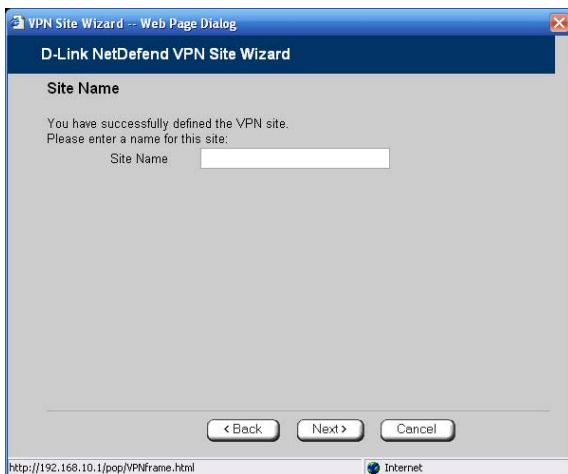


##### 5. Click Finish.

The VPN Sites page reappears. If you added a VPN site, the new site appears in the VPN Sites list. If you edited a VPN site, the modifications are reflected in the VPN Sites list.

## RSA SecurID Authentication Method

If you selected RSA SecurID, the Site Name dialog box appears.



1. Enter a name for the VPN site.

You may choose any name.

2. Click **Next**.

The **VPN Site Created** screen appears.



3. Click **Finish**.

The **VPN Sites** page reappears. If you added a VPN site, the new site appears in the **VPN Sites** list. If you edited a VPN site, the modifications are reflected in the **VPN Sites** list.

**Table 63: VPN Network Configuration Fields**

In this field...	Do this...
Download Configuration	<p>Click this option to obtain the network configuration by downloading it from the VPN site.</p> <p>This option will automatically configure your VPN settings, by downloading the network topology definition from the Remote Access VPN Server.</p> <p>Note: Downloading the network configuration is only possible if you are connecting to a Check Point VPN-1 or NetDefend Site-to-Site VPN Gateway.</p>
Specify Configuration	<p>Click this option to provide the network configuration manually.</p>
Route All Traffic	<p>Click this option to route all network traffic through the VPN site.</p> <p>For example, if your VPN consists of a central office and a number of remote offices, and the remote offices are only allowed to access Internet resources through the central office, you can choose to route all traffic from the remote offices through the central office.</p> <p>Note: You can only configure one VPN site to route all traffic.</p>



In this field...	Do this...
Route Based VPN	<p>Click this option to create a virtual tunnel interface (VTI) for this site, so that it can participate in a route-based VPN.</p> <p>Route-based VPNs allow routing connections over VPN tunnels, so that remote VPN sites can participate in dynamic or static routing schemes. This improves network and VPN management efficiency for large networks.</p> <p>For constantly changing networks, it is recommended to use a route-based VPN combined with OSPF dynamic routing. This enables you to make frequent changes to the network topology, such as adding an internal network, without having to reconfigure static routes.</p> <p>OSPF is enabled using CLI. For information on using CLI, see <b><i>Controlling the Appliance via the Command Line</i></b> on page 386. For information on the relevant commands for OSPF, refer to the <i>NetDefend CLI Reference Guide</i>.</p> <p>This option is only available for when configuring a Site-to-Site VPN gateway.</p>
Destination network	Type up to three destination network addresses at the VPN site to which you want to connect.
Subnet mask	<p>Select the subnet masks for the destination network addresses.</p> <p>Note: Obtain the destination networks and subnet masks from the VPN site's system administrator.</p>
Backup Gateway	Type the name of the VPN site to use if the primary VPN site fails.

**Table 64: Authentication Methods Fields**

In this field...	Do this...
Username and Password	<p>Select this option to use a user name and password for VPN authentication.</p> <p>In the next step, you can specify whether you want to log on to the VPN site automatically or manually.</p>
Certificate	<p>Select this option to use a certificate for VPN authentication.</p> <p>If you select this option, a certificate must have been installed. (Refer to <b><i>Installing a Certificate</i></b> on page 345 for more information about certificates and instructions on how to install a certificate.)</p>
RSA SecurID Token	<p>Select this option to use an RSA SecurID token for VPN authentication.</p> <p>When authenticating to the VPN site, you must enter a four-digit PIN code and the SecurID passcode shown in your SecurID token's display. The RSA SecurID token generates a new passcode every minute.</p> <p>SecurID is only supported in Remote Access manual login mode.</p>

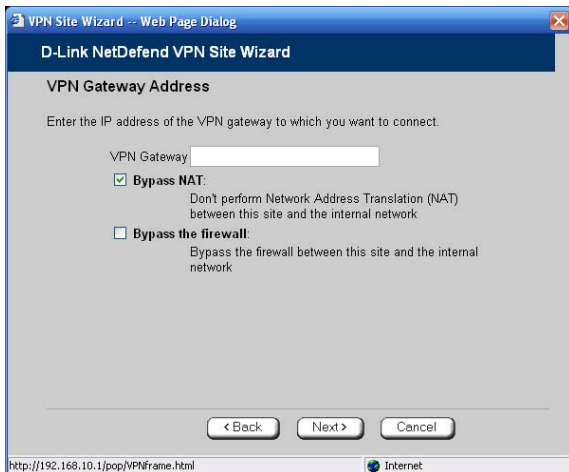
**Table 65: VPN Login Fields**

In this field...	Do this...
Manual Login	<p>Click this option to configure the site for Manual Login.</p> <p>Manual Login connects only the computer you are currently logged onto to the VPN site, and only when the appropriate user name and password have been entered. For further information on Automatic and Manual Login, see, <b>Logging on to a VPN Site</b> on page 341.</p>
Automatic Login	<p>Click this option to enable the NetDefend firewall to log on to the VPN site automatically.</p> <p>You must then fill in the Username and Password fields.</p> <p>Automatic Login provides all the computers on your internal network with constant access to the VPN site. For further information on Automatic and Manual Login, see <b>Logging on to a VPN Site</b> on page 341.</p>
Username	Type the user name to be used for logging on to the VPN site.
Password	Type the password to be used for logging on to the VPN site.



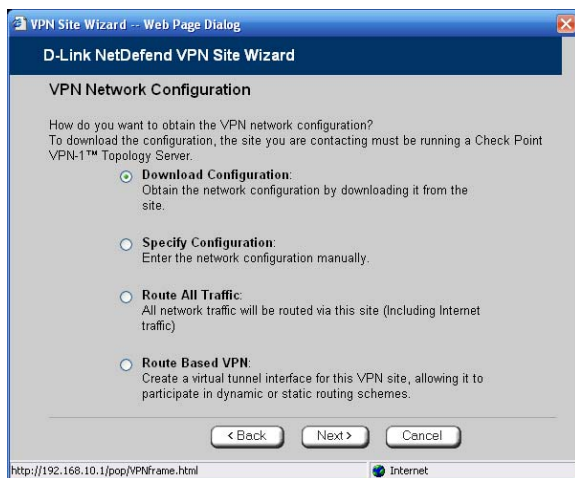
## Configuring a Site-to-Site VPN Gateway

If you selected Site-to-Site VPN, the VPN Gateway Address dialog box appears.



1. Complete the fields using the information in *VPN Gateway Address Fields* on page 335.
2. Click Next.

The VPN Network Configuration dialog box appears.





3. Specify how you want to obtain the VPN network configuration. Refer to ***VPN Network Configuration Fields*** on page 320.
4. Click Next.
  - If you chose **Specify Configuration**, a second VPN Network Configuration dialog box appears.

VPN Site Wizard -- Web Page Dialog

**D-Link NetDefend VPN Site Wizard**

**VPN Network Configuration**

Enter the destination network addresses and subnet masks of the site to which you want to connect:

No.	Destination network	Subnet mask
1.	<input type="text"/>	255.255.255.0 [24]
2.	<input type="text"/>	255.255.255.0 [24]
3.	<input type="text"/>	255.255.255.0 [24]

Backup Gateway

< Back   Next >   Cancel

http://192.168.10.1/pop/VPNFrame.html   Internet

Complete the fields using the information in ***VPN Network Configuration Fields*** on page 320, and then click Next.



- If you chose **Route Based VPN**, the **Route Based VPN** dialog box appears.

The screenshot shows the 'Route Based VPN' dialog box within the 'D-Link NetDefend VPN Site Wizard'. The title bar reads 'VPN Site Wizard -- Web Page Dialog'. The main heading is 'Route Based VPN'. Below it, a text label says 'Use these fields to configure the Virtual Tunnel Interface (VTI):'. There are three input fields: 'Tunnel Local IP' (empty), 'Tunnel Remote IP' (empty), and 'OSPF Cost' (containing the value '10'). Each field has a small help icon to its right. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. The status bar at the very bottom shows the URL 'http://192.168.10.1/pop/VPNFrame.html' and an 'Internet' icon.

Complete the fields using the information in ***Route Based VPN Fields*** on page 336, and then click **Next**.

- The **Authentication Method** dialog box appears.

The screenshot shows the 'Authentication Method' dialog box within the 'D-Link NetDefend VPN Site Wizard'. The title bar reads 'VPN Site Wizard -- Web Page Dialog'. The main heading is 'Authentication Method'. Below it, a text label says 'Select the authentication method used by this VPN site.'. There are two radio button options: 'Shared Secret' (which is selected) and 'Certificate'. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. The status bar at the very bottom shows the URL 'http://192.168.10.1/pop/VPNFrame.html' and an 'Internet' icon.

5. Complete the fields using the information in ***Authentication Methods Fields*** on page 337.
6. Click **Next**.

## Shared Secret Authentication Method

If you selected Shared Secret, the Authentication dialog box appears.

If you chose Download Configuration, the dialog box contains additional fields.

1. Complete the fields using the information in *VPN Authentication Fields* on page 337 and click **Next**.



The Security Methods dialog box appears.

**VPN Site Wizard -- Web Page Dialog**

**D-Link NetDefend VPN Site Wizard**

**Security Methods**

Select the security and integrity methods for this site, or select "Automatic" to automatically select the best security methods supported by the site.

▼ [Show Advanced Settings](#)

**Phase 1**

Security Methods: Automatic [?]

**Phase 2**

Security Methods: Automatic [?]

< Back   Next >   Cancel

http://192.168.10.1/pop/VPNFrame.html   Internet

- To configure advanced security settings, click **Show Advanced Settings**.

New fields appear.

**VPN Site Wizard -- Web Page Dialog**

**D-Link NetDefend VPN Site Wizard**

**Security Methods**

Select the security and integrity methods for this site, or select "Automatic" to automatically select the best security methods supported by the site.

▲ [Hide Advanced Settings](#)

**Phase 1**

Security Methods: Automatic [?]

Diffie-Hellman group: Automatic [?]

Renegotiate every: 1440 minutes [?]

**Phase 2**

Security Methods: Automatic [?]

Perfect Forward Secrecy: Disabled [?]

Diffie-Hellman group: Automatic [?]

Renegotiate every: 3600 seconds [?]

< Back   Next >   Cancel

http://192.168.10.1/pop/VPNFrame.html   Internet

- Complete the fields using the information in *Security Methods Fields* on page 337 and click **Next**.



The Connect dialog box appears.



4. To try to connect to the Remote Access VPN Server, select the **Try to Connect to the VPN Gateway** check box.

This allows you to test the VPN connection.

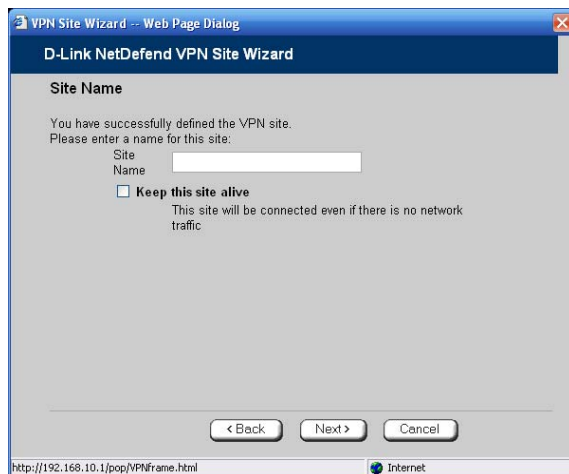


Warning: If you try to connect to the VPN site before completing the wizard, all existing tunnels will be terminated.

5. Click **Next**.
  - If you selected **Try to Connect to the VPN Gateway**, the **Connecting...** screen appears, and then the **Contacting VPN Site** screen appears.



- The Site Name dialog box appears.

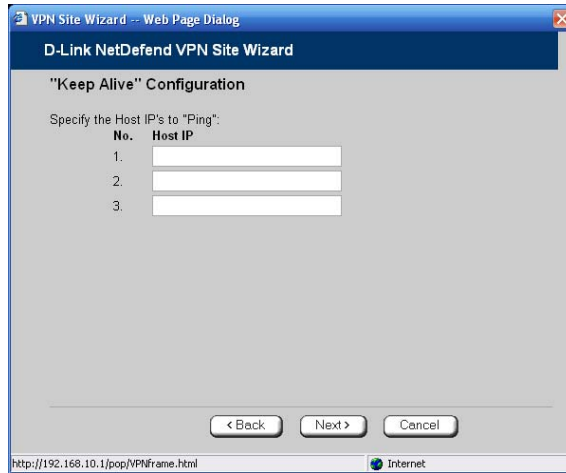


6. Enter a name for the VPN site.

You may choose any name.

7. To keep the tunnel to the VPN site alive even if there is no network traffic between the NetDefend firewall and the VPN site, select **Keep this site alive**.
8. Click **Next**.

- If you selected **Keep this site alive**, and previously you chose **Download Configuration**, the "Keep Alive" Configuration dialog box appears.



Do the following:

- 1) Type up to three IP addresses which the NetDefend firewall should ping in order to keep the tunnel to the VPN site alive.
- 2) Click **Next**.

- The **VPN Site Created** screen appears.

9. Click **Finish**.

The **VPN Sites** page reappears. If you added a VPN site, the new site appears in the **VPN Sites** list. If you edited a VPN site, the modifications are reflected in the **VPN Sites** list.

## Certificate Authentication Method

If you selected **Certificate**, the following things happen:



- If you chose **Download Configuration**, the **Authentication** dialog box appears.

The screenshot shows the 'Authentication' step of the 'D-Link NetDefend VPN Site Wizard'. The window title is 'VPN Site Wizard -- Web Page Dialog'. The main heading is 'Authentication'. Below it, the text says 'Please enter your credentials :'. There are two input fields: 'Topology User' and 'Topology Password'. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. The status bar at the bottom shows the URL 'http://192.168.10.1/pop/VPNFrame.html' and an 'Internet' icon.

Complete the fields using the information in *VPN Authentication Fields* on page 337 and click **Next**.

- The **Security Methods** dialog box appears.

The screenshot shows the 'Security Methods' step of the 'D-Link NetDefend VPN Site Wizard'. The window title is 'VPN Site Wizard -- Web Page Dialog'. The main heading is 'Security Methods'. Below it, the text says 'Select the security and integrity methods for this site, or select "Automatic" to automatically select the best security methods supported by the site.' There is a link 'Show Advanced Settings' with a downward arrow. Below this, there are two sections: 'Phase 1' and 'Phase 2'. Each section has a 'Security Methods' label and a dropdown menu set to 'Automatic'. There are also help icons (question marks) next to each dropdown. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. The status bar at the bottom shows the URL 'http://192.168.10.1/pop/VPNFrame.html' and an 'Internet' icon.

1. To configure advanced security settings, click **Show Advanced Settings**.



New fields appear.

The screenshot shows the 'Security Methods' dialog box in the D-Link NetDefend VPN Site Wizard. The title bar reads 'VPN Site Wizard -- Web Page Dialog'. The main title is 'D-Link NetDefend VPN Site Wizard'. The section is 'Security Methods'. Below the title, it says: 'Select the security and integrity methods for this site, or select "Automatic" to automatically select the best security methods supported by the site.' There is a link 'Hide Advanced Settings'. The dialog is divided into two phases. Phase 1 has three fields: 'Security Methods' (Automatic), 'Diffie-Hellman group' (Automatic), and 'Renegotiate every' (1440 minutes). Phase 2 has three fields: 'Security Methods' (Automatic), 'Perfect Forward Secrecy' (Disabled), and 'Diffie-Hellman group' (Automatic). At the bottom are buttons '< Back', 'Next >', and 'Cancel'. The status bar at the bottom shows the URL 'http://192.168.10.1/pop/VPNFrame.html' and an 'Internet' icon.

2. Complete the fields using the information in *Security Methods Fields* on page 337 and click **Next**.

The Connect dialog box appears.

The screenshot shows the 'Connect' dialog box in the D-Link NetDefend VPN Site Wizard. The title bar reads 'VPN Site Wizard -- Web Page Dialog'. The main title is 'D-Link NetDefend VPN Site Wizard'. The section is 'Connect'. There is a checked checkbox 'Try to Connect to the VPN Gateway' with the text 'Using the credentials you provided. Any existing tunnels will be terminated.' Below the checkbox are buttons '< Back', 'Next >', and 'Cancel'. The status bar at the bottom shows the URL 'http://192.168.10.1/pop/VPNFrame.html' and an 'Internet' icon.

3. To try to connect to the Remote Access VPN Server, select the **Try to Connect to the VPN Gateway** check box.

This allows you to test the VPN connection.



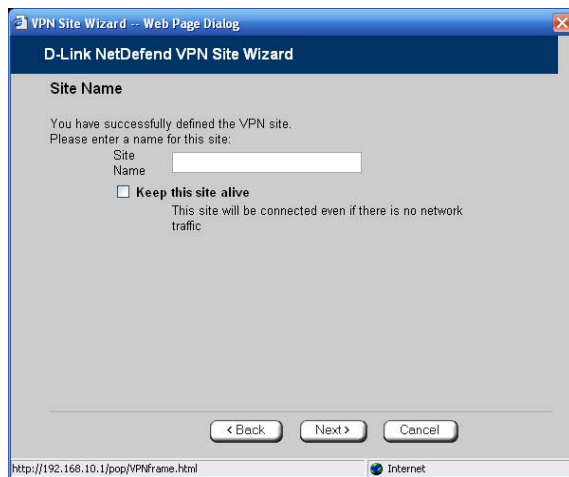
Warning: If you try to connect to the VPN site before completing the wizard, all existing tunnels will be terminated.

4. Click **Next**.

- If you selected **Try to Connect to the VPN Gateway**, the following things happen:

The **Connecting...** screen appears.

- The **Contacting VPN Site** screen appears.
- The **Site Name** dialog box appears.

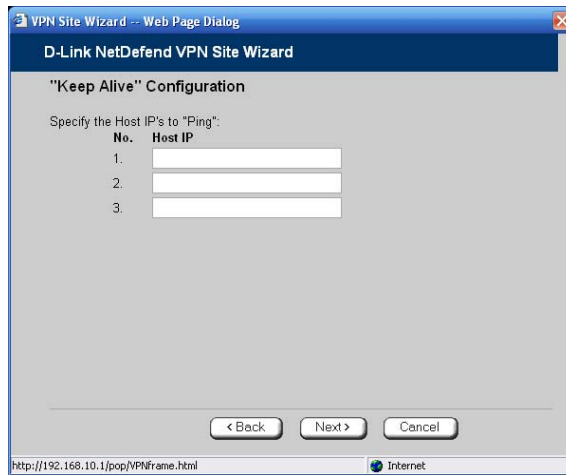


5. Enter a name for the VPN site.

You may choose any name.

6. To keep the tunnel to the VPN site alive even if there is no network traffic between the NetDefend firewall and the VPN site, select **Keep this site alive**.
7. Click **Next**.

- If you selected **Keep this site alive**, and previously you chose **Download Configuration**, the "Keep Alive" Configuration dialog box appears.



Do the following:

- 1) Type up to three IP addresses which the NetDefend firewall should ping in order to keep the tunnel to the VPN site alive.
- 2) Click **Next**.

- The **VPN Site Created** screen appears.

8. Click **Finish**.

The **VPN Sites** page reappears. If you added a VPN site, the new site appears in the **VPN Sites** list. If you edited a VPN site, the modifications are reflected in the **VPN Sites** list.

**Table 66: VPN Gateway Address Fields**

In this field...	Do this...
Gateway Address	Type the IP address of the Site-to-Site VPN Gateway to which you want to connect, as given to you by the network administrator.
Bypass NAT	Select this option to allow the VPN site to bypass NAT when connecting to your internal network.  This option is selected by default.
Bypass the firewall	Select this option to allow the VPN site to bypass the firewall and access your internal network without restriction.

**Table 67: Route Based VPN Fields**

In this field...	Do this...
Tunnel Local IP	Type a local IP address for this end of the VPN tunnel.
Tunnel Remote IP	Type the IP address of the remote end of the VPN tunnel.
OSPF Cost	Type the cost of this link for dynamic routing purposes.  The default value is 10.  If OSPF is not enabled, this setting is not used. OSPF is enabled using the NetDefend command line interface (CLI). For information on using CLI, see <b>Controlling the Appliance via the Command Line</b> on page 386. For information on the relevant commands for OSPF, refer to the <i>NetDefend CLI Reference Guide</i> .

**Table 68: Authentication Methods Fields**

In this field...	Do this...
Shared Secret	Select this option to use a shared secret for VPN authentication.  A shared secret is a string used to identify VPN sites to each other.
Certificate	Select this option to use a certificate for VPN authentication.  If you select this option, a certificate must have been installed. (Refer to <b><i>Installing a Certificate</i></b> on page 345 for more information about certificates and instructions on how to install a certificate.)

**Table 69: VPN Authentication Fields**

In this field...	Do this...
Topology User	Type the topology user's user name.
Topology Password	Type the topology user's password.
Use Shared Secret	Type the shared secret to use for secure communications with the VPN site.  This shared secret is a string used to identify the VPN sites to each other. The secret can contain spaces and special characters.

**Table 70: Security Methods Fields**

In this field...	Do this...
Phase 1	
Security Methods	<p>Select the encryption and integrity algorithm to use for IKE negotiations:</p> <ul style="list-style-type: none"> <li>• Automatic. The NetDefend firewall automatically selects the best security methods supported by the site. This is the default.</li> <li>• A specific algorithm</li> </ul>
Diffie-Hellman group	<p>Select the Diffie-Hellman group to use:</p> <ul style="list-style-type: none"> <li>• Automatic. The NetDefend firewall automatically selects a group. This is the default.</li> <li>• A specific group</li> </ul> <p>A group with more bits ensures a stronger key but lowers performance.</p>
Renegotiate every	<p>Type the interval in minutes between IKE Phase-1 key negotiations. This is the <i>IKE Phase-1 SA lifetime</i>.</p> <p>A shorter interval ensures higher security, but impacts heavily on performance. Therefore, it is recommended to keep the SA lifetime around its default value.</p> <p>The default value is 1440 minutes (one day).</p>
Phase 2	
Security Methods	<p>Select the encryption and integrity algorithm to use for VPN traffic:</p> <ul style="list-style-type: none"> <li>• Automatic. The NetDefend firewall automatically selects the best security methods supported by the site. This is the default.</li> <li>• A specific algorithm</li> </ul>




In this field...	Do this...
Perfect Forward Secrecy	<p>Specify whether to enable Perfect Forward Secrecy (PFS), by selecting one of the following:</p> <ul style="list-style-type: none"><li>• Enabled. PFS is enabled. The Diffie-Hellman group field is enabled.</li><li>• Disabled. PFS is disabled. This is the default.</li></ul> <p>Enabling PFS will generate a new Diffie-Hellman key during IKE Phase 2 and renew the key for each key exchange.</p> <p>PFS increases security but lowers performance. It is recommended to enable PFS only in situations where extreme security is required.</p>
Diffie-Hellman group	<p>Select the Diffie-Hellman group to use:</p> <ul style="list-style-type: none"><li>• Automatic. The NetDefend firewall automatically selects a group. This is the default.</li><li>• A specific group</li></ul> <p>A group with more bits ensures a stronger key but lowers performance.</p>
Renegotiate every	<p>Type the interval in seconds between IPSec SA key negotiations. This is the <i>IKE Phase-2 SA lifetime</i>.</p> <p>A shorter interval ensures higher security.</p> <p>The default value is 3600 seconds (one hour).</p>



## Deleting a VPN Site

CP310

### To delete a VPN site



1. Click **VPN** in the main menu, and click the **VPN Sites** tab.  
The **VPN Sites** page appears, with a list of VPN sites.
2. In the desired VPN site's row, click the Erase  icon.  
A confirmation message appears.
3. Click **OK**.  
The VPN site is deleted.

## Enabling/Disabling a VPN Site

CP310

You can only connect to VPN sites that are enabled.

### To enable/disable a VPN site

1. Click **VPN** in the main menu, and click the **VPN Sites** tab.  
The **VPN Sites** page appears, with a list of VPN sites.
2. To enable a VPN site, do the following:
  - a. Click the  icon in the desired VPN site's row.  
A confirmation message appears.
  - b. Click **OK**.  
The icon changes to , and the VPN site is enabled.






3. To disable a VPN site, do the following:




Note: Disabling a VPN site eliminates the tunnel and erases the network topology.

a. Click the  icon in the desired VPN site's row.

A confirmation message appears.

b. Click OK.

The icon changes to , and the VPN site is disabled.

## Logging on to a Remote Access VPN Site

CP310

You need to manually log on to Remote Access VPN Servers configured for Manual Login. You do not need to manually log on to a Remote Access VPN Server configured for Automatic Login or a Site-to-Site VPN Gateway: all the computers on your network have constant access to it.

Manual Login can be done through either the NetDefend Portal or the my.vpn page. When you log on and traffic is sent to the VPN site, a VPN tunnel is established. Only the computer from which you logged on can use the tunnel. To share the tunnel with other computers in your home network, you must log on to the VPN site from those computers, using the same user name and password.



Note: You must use a single user name and password for each VPN destination gateway.



## Logging on through the NetDefend Portal

CP310



Note: You can only login to sites that are configured for Manual Login.

### To manually log on to a VPN site through the NetDefend Portal

1. Click **VPN** in the main menu, and click the **VPN Login** tab.

The VPN Login page appears.

2. From the **Site Name** list, select the site to which you want to log on.



Note: Disabled VPN sites will not appear in the Site Name list.

3. Type your user name and password in the appropriate fields.
4. Click **Login**.



- If the NetDefend firewall is configured to automatically download the network configuration, the NetDefend firewall downloads the network configuration.
- If when adding the VPN site you specified a network configuration, the NetDefend firewall attempts to create a tunnel to the VPN site.
- Once the NetDefend firewall has finished connecting, the **VPN Login Status** box appears. The **Status** field displays “Connected”.



- The VPN Login Status box remains open until you manually log off the VPN site.

## ***Logging on through the my.vpn page***

CP310



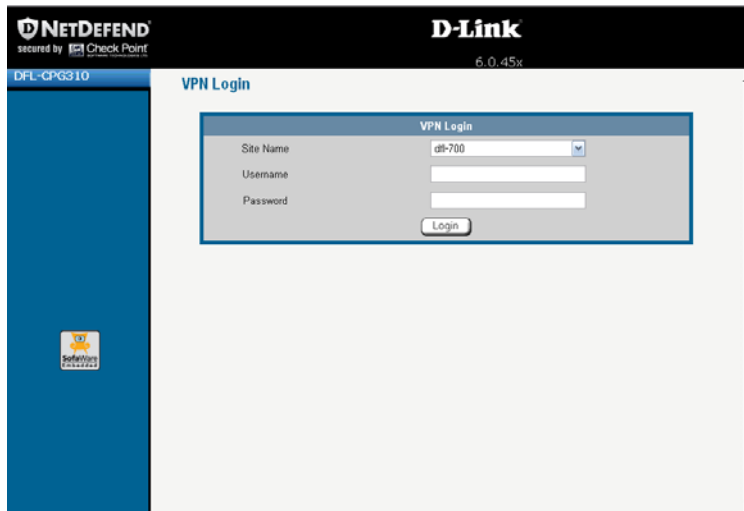
Note: You don't need to know the my.firewall page administrator's password in order to use the my.vpn page.

### **To manually log on to a VPN site through the my.vpn page**

1. Direct your Web browser to <http://my.vpn>



The VPN Login screen appears.



2. In the **Site Name** list, select the site to which you want to log on.
3. Enter your user name and password in the appropriate fields.
4. Click **Login**.
  - If the NetDefend firewall is configured to automatically download the network configuration, the NetDefend firewall downloads the network configuration.
  - If when adding the VPN site you specified a network configuration, the NetDefend firewall attempts to create a tunnel to the VPN site.
  - The **VPN Login Status** box appears. The **Status** field tracks the connection's progress.
  - Once the NetDefend firewall has finished connecting, the **Status** field changes to "Connected".
  - The **VPN Login Status** box remains open until you manually log off of the VPN site.

## Logging off a Remote Access VPN Site

CP310

You need to manually log off a VPN site, if it is a Remote Access VPN site configured for Manual Login.

### To log off a VPN site

- In the VPN Login Status box, click Logout.

All open tunnels from the NetDefend firewall to the VPN site are closed, and the VPN Login Status box closes.



Note: Closing the browser or dismissing the VPN Login Status box will also terminate the VPN session within a short time.

## Installing a Certificate

CP310

A digital certificate is a secure means of authenticating the NetDefend firewall to other Site-to-Site VPN Gateways. The certificate is issued by the Certificate Authority (CA) to entities such as gateways, users, or computers. The entity then uses the certificate to identify itself and provide verifiable information.

For instance, the certificate includes the Distinguished Name (DN) (identifying information) of the entity, as well as the public key (information about itself). After two entities exchange and validate each other's certificates, they can begin encrypting information between themselves using the public keys in the certificates.

The certificate also includes a fingerprint, a unique text used to identify the certificate. You can email your certificate's fingerprint to the remote user. Upon connecting to the NetDefend VPN Server for the first time, the entity should check that the VPN peer's fingerprint displayed in the SecuRemote VPN Client is identical to the fingerprint received.



The NetDefend firewall supports certificates encoded in the PKCS#12 (Personal Information Exchange Syntax Standard) format, and enables you to install such certificates in the following ways:

- By generating a self-signed certificate.

See *Generating a Self-Signed Certificate* on page 346.

- By importing a certificate.

The PKCS#12 file you import must have a ".p12" file extension. If you do not have such a PKCS#12 file, obtain one from your network security administrator.

See *Importing a Certificate* on page 350.



Note: To use certificates authentication, each NetDefend firewall should have a unique certificate. Do not use the same certificate for more than one gateway.



Note: If your NetDefend firewall is centrally managed, a certificate is automatically generated and downloaded to your appliance. In this case, there is no need to generate a self-signed certificate.

## Generating a Self-Signed Certificate

CP310

### To generate a self-signed certificate

1. Click VPN in the main menu, and click the Certificate tab.

The Certificate page appears.



2. Click Install Certificate.

The NetDefend Certificate Wizard opens, with the Certificate Wizard dialog box displayed.



3. Click Generate a self-signed security certificate for this gateway.



The Create Self-Signed Certificate dialog box appears.

4. Complete the fields using the information in the table below.
5. Click Next.

The NetDefend firewall generates the certificate. This may take a few seconds.

The Done dialog box appears, displaying the certificate's details.

6. Click Finish.





The NetDefend firewall installs the certificate. If a certificate is already installed, it is overwritten.

The Certificate Wizard closes.

The Certificates page displays the following information:

- The gateway's certificate
- The gateway's name
- The gateway certificate's fingerprint
- The CA's certificate
- The name of the CA that issued the certificate (in this case, the NetDefend gateway)
- The CA certificate's fingerprint
- The starting and ending dates between which the gateway's certificate and the CA's certificate are valid



**Table 71: Certificate Fields**

In this field...	Do this...
Country	Select your country from the drop-down list.
Organization Name	Type the name of your organization.
Organizational Unit	Type the name of your division.
Gateway Name	<p>Type the gateway's name. This name will appear on the certificate, and will be visible to remote users inspecting the certificate.</p> <p>This field is filled in automatically with the gateway's MAC address. If desired, you can change this to a more descriptive name.</p>
Valid Until	<p>Use the drop-down lists to specify the month, day, and year when this certificate should expire.</p> <p>Note: You must renew the certificate when it expires.</p>

## ***Importing a Certificate***



### **To install a certificate**

1. Click **VPN** in the main menu, and click the **Certificate** tab.

The **Certificate** page appears.

2. Click **Install Certificate**.

The **NetDefend Certificate Wizard** opens, with the **Certificate Wizard** dialog box displayed.

3. Click **Import a security certificate in PKCS#12 format**.

The Import Certificate dialog box appears.

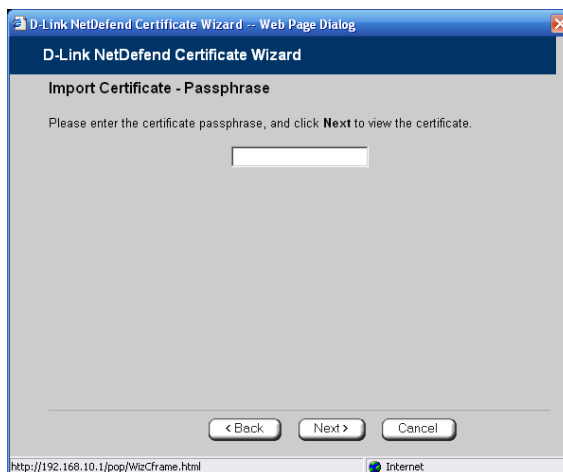


4. Click **Browse** to open a file browser from which to locate and select the file.

The filename that you selected is displayed.

5. Click **Next**.

The Import-Certificate Passphrase dialog box appears. This may take a few moments.



6. Type the pass-phrase you received from the network security administrator.



7. Click **Next**.

The **Done** dialog box appears, displaying the certificate's details.

8. Click **Finish**.

The NetDefend firewall installs the certificate. If a certificate is already installed, it is overwritten.

The Certificate Wizard closes.

The **Certificates** page displays the following information:

- The gateway's certificate
- The gateway's name
- The gateway certificate's fingerprint
- The CA's certificate
- The name of the CA that issued the certificate
- The CA certificate's fingerprint
- The starting and ending dates between which the gateway's certificate and the CA's certificate are valid

## Uninstalling a Certificate

CP310

If you uninstall the certificate, no certificate will exist on the NetDefend firewall, and you will not be able to connect to the VPN if a certificate is required.

You cannot uninstall the certificate if there is a VPN site currently defined to use certificate authentication.



**Note:** If you want to replace a currently installed certificate, there is no need to uninstall the certificate first. When you install the new certificate, the old certificate will be overwritten.

**To uninstall a certificate**

1. Click **VPN** in the main menu, and click the **Certificate** tab.

The **Certificate** page appears with the name of the currently installed certificate.

2. Click **Uninstall**.

A confirmation message appears.

3. Click **OK**.

The certificate is uninstalled.

A success message appears.

4. Click **OK**.

## Viewing VPN Tunnels

CP310

You can view a list of currently established VPN tunnels. VPN tunnels are created and closed as follows:

- **Remote Access VPN sites configured for Automatic Login and Site-to-Site VPN Gateways**

A tunnel is created whenever your computer attempts any kind of communication with a computer at the VPN site. The tunnel is closed when not in use for a period of time.



Note: Although the VPN tunnel is automatically closed, the site remains open, and if you attempt to communicate with the site, the tunnel will be reestablished.

- **Remote Access VPN sites configured for Manual Login**

A tunnel is created whenever your computer attempts any kind of communication with a computer at the VPN site, *after you have manually logged on to the site*. All open tunnels connecting to the site are closed when you manually log off.



To view VPN tunnels

- 1. Click Reports in the main menu, and click the VPN Tunnels tab.

The VPN Tunnels page appears with a table of open tunnels to VPN sites.



The VPN Tunnels page includes the information described in the table below.

- 2. To refresh the table, click Refresh.


Table 72: VPN Tunnels Page Fields

This field...	Displays...
Type	The currently active security protocol (IPSEC).
Source	The IP address or address range of the entity from which the tunnel originates.  The entity's type is indicated by an icon. See <i>VPN Tunnel Icons</i> on page 355.







This field...	Displays...
Destination	<p>The IP address or address range of the entity to which the tunnel is connected.</p> <p>The entity's type is indicated by an icon. See <b>VPN Tunnel Icons</b> on page 355.</p>
Security	<p>The type of encryption used to secure the connection, and the type of Message Authentication Code (MAC) used to verify the integrity of the message. This information is presented in the following format: Encryption type/Authentication type</p> <p>Note: All VPN settings are automatically negotiated between the two sites. The encryption and authentication schemes used for the connection are the strongest of those used at the two sites.</p> <p>Your NetDefend firewall supports AES, 3DES, and DES encryption schemes, and MD5 and SHA authentication schemes.</p>
Established	<p>The time at which the tunnel was established.</p> <p>This information is presented in the format hh:mm:ss, where:</p> <p>hh=hours</p> <p>mm=minutes</p> <p>ss=seconds</p>

**Table 73: VPN Tunnels Icons**

This icon...	Represents...
	This gateway



This icon...	Represents...
	A network for which an IKE Phase-2 tunnel was negotiated
	A Remote Access VPN Server
	A Site-to-Site VPN Gateway
	A remote access VPN user

## Viewing IKE Traces for VPN Connections

CP310

If you are experiencing VPN connection problems, you can save a trace of IKE (Internet Key Exchange) negotiations to a file, and then use the free IKE View tool to view the file.

The IKE View tool is available for the Windows platform.



Note: Before viewing IKE traces, it is recommended to do the following:

- The NetDefend firewall stores traces for all recent IKE negotiations. If you want to view only new IKE trace data, clear all IKE trace data currently stored on the NetDefend firewall.
- Close all existing VPN tunnels except for the problematic tunnel, so as to make it easier to locate the problematic tunnel's IKE negotiation trace in the exported file.

### To clear all currently stored IKE traces

1. Click **Reports** in the main menu, and click the **VPN Tunnels** tab.

The **VPN Tunnels** page appears with a table of open tunnels to VPN sites.

2. Click **Clear IKE Trace**.

All IKE trace data currently stored on the NetDefend firewall is cleared.



**To view the IKE trace for a connection**

1. Establish a VPN tunnel to the VPN site with which you are experiencing connection problems.

For information on when and how VPN tunnels are established, see *Viewing VPN Tunnels* on page 353.

2. Click **Reports** in the main menu, and click the **VPN Tunnels** tab.

The **VPN Tunnels** page appears with a table of open tunnels to VPN sites.

3. Click **Save IKE Trace**.

A standard **File Download** dialog box appears.

4. Click **Save**.

The **Save As** dialog box appears.

5. Browse to a destination directory of your choice.

6. Type a name for the \*.elg file and click **Save**.

The \*.elg file is created and saved to the specified directory. This file contains the IKE traces of all currently established VPN tunnels.

7. Use the **IKE View** tool to open and view the \*.elg file, or send the file to technical support.





## Chapter 13

# Managing Users

This chapter describes how to manage NetDefend firewall users. You can define multiple users, set their passwords, and assign them various permissions.

This chapter includes the following topics:

Changing Your Password .....	359
Adding and Editing Users .....	361
Adding Quick Guest HotSpot Users.....	365
Viewing and Deleting Users.....	367
Setting Up Remote VPN Access for Users.....	367
Using RADIUS Authentication .....	368
Configuring the RADIUS Vendor-Specific Attribute .....	372

## Changing Your Password

CP310

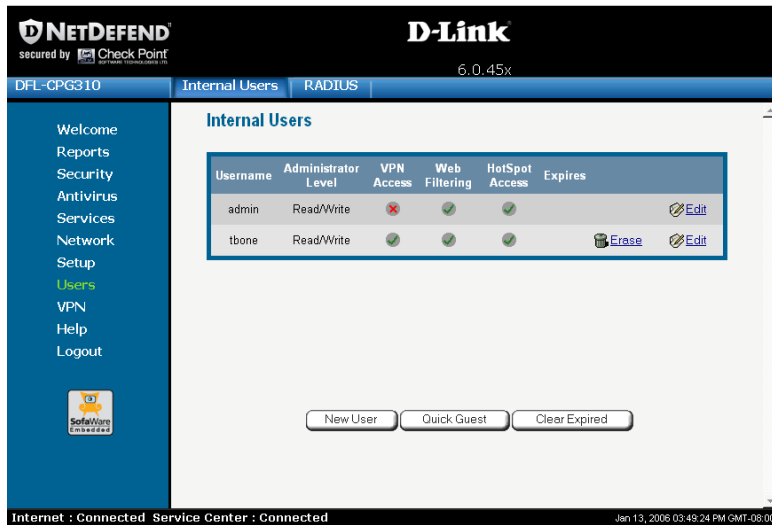
You can change your password at any time.

### To change your password

1. Click **Users** in the main menu, and click the **Internal Users** tab.

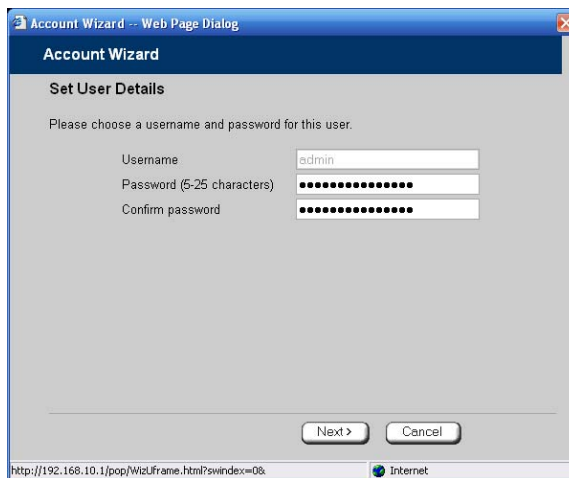


The Internal Users page appears.



2. In the row of your username, click Edit.

The Account Wizard opens displaying the Set User Details dialog box.



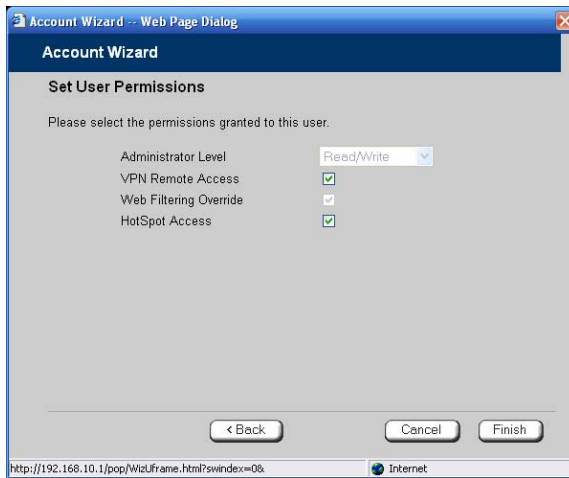
3. Edit the Password and Confirm password fields.



Note: Use 5 to 25 characters (letters or numbers) for the new password.

4. Click **Next**.

The **Set User Permissions** dialog box appears.



5. Click **Finish**.

Your changes are saved.

## Adding and Editing Users

CP310

This procedure explains how to add and edit users.

For information on quickly adding guest HotSpot users via a shortcut that the NetDefend firewall provides, see *Adding Quick Guest HotSpot Users* on page 365.

### To add or edit a user

1. Click **Users** in the main menu, and click the **Internal Users** tab.

The **Internal Users** page appears.



2. Do one of the following:

- To create a new user, click **New User**.
- To edit an existing user, click **Edit** next to the desire user.

The **Account Wizard** opens displaying the **Set User Details** dialog box.

The screenshot shows a web browser window titled "Account Wizard -- Web Page Dialog". The main content area is titled "Account Wizard" and "Set User Details". Below the title, it says "Please choose a username and password for this user." There are three text input fields for "Username", "Password (6-25 characters)", and "Confirm password". Below these is a checkbox labeled "Expires On". To the right of the checkbox are three dropdown menus for "Jan", "13", and "2007", followed by a time selection area with "03", "55", and "PM" dropdowns. At the bottom of the dialog are "Next >" and "Cancel" buttons. The browser's address bar shows "http://192.168.10.1/pop/WizUFrame.html?swindex=-1&". The status bar at the bottom indicates "Internet".

3. Complete the fields using the information in *Set User Details Fields* on page 363.
4. Click **Next**.

The Set User Permissions dialog box appears.



The options that appear on the page are dependant on the software and services you are using.

5. Complete the fields using the information in *Set User Permissions Fields* on page 364.
6. Click Finish.

The user is saved.

**Table 74: Set User Details Fields**

In this field...	Do this...
Username	Enter a username for the user.
Password	Enter a password for the user. Use five to 25 characters (letters or numbers) for the new password.
Confirm Password	Re-enter the user's password.

**In this field...****Do this...**

Expires On

To specify an expiration time for the user, select this option and specify the expiration date and time in the fields provided.

When the user account expires, it is locked, and the user can no longer log on to the NetDefend firewall.

If you do not select this option, the user will not expire.

**Table 75: Set User Permissions Fields****In this field...****Do this...**

Administrator Level

Select the user's level of access to the NetDefend Portal.

The levels are:

- **No Access:** The user cannot access the NetDefend Portal.
- **Read/Write:** The user can log on to the NetDefend Portal and modify system settings.
- **Read Only:** The user can log on to the NetDefend Portal, but cannot modify system settings or export the appliance configuration via the Setup>Tools page. For example, you could assign this administrator level to technical support personnel who need to view the Event Log.

The default level is No Access.

The "admin" user's Administrator Level (Read/Write) cannot be changed.

VPN Remote  
Access

Select this option to allow the user to connect to this NetDefend firewall using their VPN client.

For further information on setting up VPN remote access, see **Setting Up Remote VPN Access for Users** on page 367.





Web Filtering	Select this option to allow the user to override Web Filtering.
Override	<p>This option only appears if the Web Filtering service is defined.</p> <p>This option cannot be changed for the “admin” user.</p>
HotSpot Access	<p>Select this option to allow the user to log on to the My HotSpot page.</p> <p>For information on Secure HotSpot, see <b><i>Configuring Secure HotSpot</i></b> on page 256.</p> <p>This option only appears in DFL-CP310 with Power Pack.</p>

---

## Adding Quick Guest HotSpot Users



### Power Pack

The NetDefend firewall provides a shortcut for quickly adding a guest HotSpot user. This is useful in situations where you want to grant temporary network access to guests, for example in an Internet café. The shortcut also enables printing the guest user's details in one click.

By default, the quick guest user has the following characteristics:

- Username in the format `guest<number>`, where `<number>` is a unique three-digit number.

For example: `guest123`

- Randomly generated password
- Expires in 24 hours
- Administration Level: No Access
- Permissions: HotSpot Access only

For information on configuring Secure HotSpot, see ***Using Secure HotSpot*** on page 256.

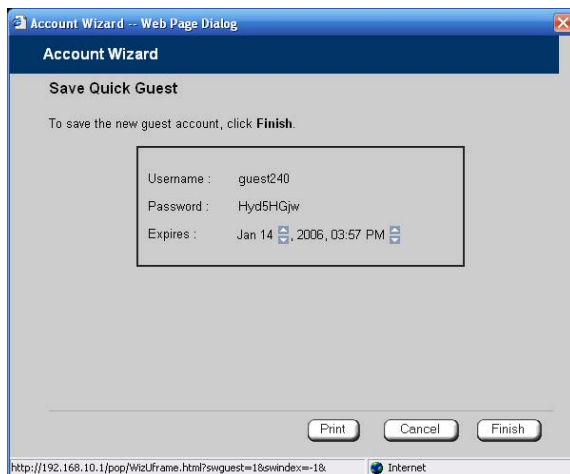
**To quickly create a guest user**

1. Click **Users** in the main menu, and click the **Internal Users** tab.

The **Internal Users** page appears.

2. Click **Quick Guest**.

The **Account Wizard** opens displaying the **Save Quick Guest** dialog box.



3. In the **Expires** field, click on the arrows to specify the expiration date and time.
4. To print the user details, click **Print**.
5. Click **Finish**.

The guest user is saved.

You can edit the guest user's details and permissions using the procedure ***Adding and Editing Users*** on page 361.




## Viewing and Deleting Users

CP310



Note: The “admin” user cannot be deleted.

### To view or delete users

1. Click **Users** in the main menu, and click the **Internal Users** tab.  
The **Internal Users** page appears with a list of all users and their permissions.  
The expiration time of expired users appears in red.
2. To delete a user, do the following:
  - a) In the desired user’s row, click the Erase  icon.  
A confirmation message appears.
  - b) Click **OK**.  
The user is deleted.
3. To delete all expired users, do the following:
  - a) Click **Clear Expired**.  
A confirmation message appears.
  - b) Click **OK**.  
The expired users are deleted.

## Setting Up Remote VPN Access for Users

CP310

If you are using your NetDefend firewall as a Remote Access VPN Server or as an internal VPN Server, you can allow users to access it remotely through their



Remote Access VPN Clients (a Check Point SecureClient, Check Point SecuRemote, or another Embedded NGX appliance).

#### To set up remote VPN access for a user

1. Enable your VPN Server, using the procedure *Setting Up Your NetDefend firewall as a VPN Server* on page 303.
2. Add or edit the user, using the procedure *Adding and Editing Users* on page 361.

You must select the VPN Remote Access option.

## Using RADIUS Authentication

CP310

You can use Remote Authentication Dial-In User Service (RADIUS) to authenticate both NetDefend users and Remote Access VPN Clients trying to connect to the NetDefend firewall.



Note: When RADIUS authentication is in use, Remote Access VPN Clients must have a certificate.

When a user tries to log on to the NetDefend Portal, the NetDefend firewall sends the entered user name and password to the RADIUS server. The server then checks whether the RADIUS database contains a matching user name and password pair. If so, then the user is logged on.

By default, all RADIUS-authenticated users are assigned the set of permissions specified in the NetDefend Portal's **RADIUS** page. However, you can configure the RADIUS server to pass the NetDefend firewall a specific set of permissions to grant the authenticated user, instead of these default permissions. This is done by configuring the RADIUS Vendor-Specific Attribute (VSA) with a set of attributes containing permission information for specific users. If the VSA is configured for a user, then the RADIUS server passes the VSA to the NetDefend gateway as part of the response to the authentication request, and the gateway assigns the user permissions as specified in the VSA. If the VSA is not returned by the RADIUS



server for a specific user, the gateway will use the default permission set for this user.

### To use RADIUS authentication

1. Click Users in the main menu, and click the RADIUS tab.

The RADIUS page appears.

The screenshot displays the RADIUS configuration page in the D-Link NetDefend web interface. The page is titled 'RADIUS' and features a sidebar menu on the left with options: Welcome, Reports, Security, Antivirus, Services, Network, Setup, Users (highlighted), VPN, Help, and Logout. The main content area is divided into sections for Primary RADIUS Server, Secondary RADIUS Server, and RADIUS User Permissions. The Primary RADIUS Server section includes fields for Address, Port (1812), Shared Secret, Realm (Optional), and Timeout (3 seconds). The Secondary RADIUS Server section has identical fields. The RADIUS User Permissions section includes a dropdown for Administrator Level (set to No Access) and checkboxes for VPN Remote Access, Web Filtering Override, and HotSpot Access. At the bottom of the form are buttons for Apply, Cancel, and Default. The status bar at the bottom indicates 'Internet : Connected' and 'Service Center : Connected'.

2. Complete the fields using the table below.
3. Click Apply.
4. To restore the default RADIUS settings, do the following:
  - a) Click Default.



A confirmation message appears.

b) Click OK.

The RADIUS settings are reset to their defaults. For information on the default values, refer to the table below.

5. To use the RADIUS VSA to assign permissions to users, configure the VSA.

See *Configuring the RADIUS Vendor-Specific Attribute* on page 372.

**Table 76: RADIUS Page Fields**

In this field...	Do this...
Primary/Secondary RADIUS Server	<p>Configure the primary and secondary RADIUS servers.</p> <p>By default, the NetDefend firewall sends a request to the primary RADIUS server first. If the primary RADIUS server does not respond after three attempts, the NetDefend firewall will send the request to the secondary RADIUS server.</p>
Address	<p>Type the IP address of the computer that will run the RADIUS service (one of your network computers) or click the corresponding This Computer button to allow your computer to host the service.</p> <p>To clear the text box, click Clear.</p>
Port	<p>Type the port number on the RADIUS server's host computer.</p> <p>The default port number is 1812.</p>
Shared Secret	<p>Type the shared secret to use for secure communication with the RADIUS server.</p>



In this field...	Do this...
Realm	<p>If your organization uses RADIUS realms, type the realm to append to RADIUS requests. The realm will be appended to the username as follows: &lt;username&gt;@&lt;realm&gt;</p> <p>For example, if you set the realm to “myrealm”, and the user “JohnS” attempts to log on to the NetDefend Portal, the NetDefend firewall will send the RADIUS server an authentication request with the username “JohnS@myrealm”.</p> <p>This field is optional.</p>
Timeout	<p>Type the interval of time in seconds between attempts to communicate with the RADIUS server.</p> <p>The default value is 3 seconds.</p>
RADIUS User Permissions	<p>If the RADIUS VSA (Vendor-Specific Attribute) is configured for a user, the fields in this area will have no effect, and the user will be granted the permissions specified in the VSA.</p> <p>If the VSA is not configured for the user, the permissions configured in this area will be used.</p>
Administrator Level	<p>Select the level of access to the NetDefend Portal to assign to all users authenticated by the RADIUS server.</p> <p>The levels are:</p> <ul style="list-style-type: none"><li>• No Access: The user cannot access the NetDefend Portal</li><li>• Read/Write: The user can log on to the NetDefend Portal and modify system settings.</li><li>• Read Only: The user can log on to the NetDefend Portal, but cannot modify system settings.</li></ul> <p>The default level is No Access.</p>



In this field...	Do this...
Web Filtering Override	Select this option to allow all users authenticated by the RADIUS server to override Web Filtering.  This option only appears if the Web Filtering service is defined.
HotSpot Access	Select this option to allow the user to access the My HotSpot page.  This option only appears in DFL-CP310 with Power Pack.

## Configuring the RADIUS Vendor-Specific Attribute

CP310

For detailed instructions and examples, refer to the "Configuring the RADIUS Vendor-Specific Attribute" white paper.

### To assign permissions to specific RADIUS-authenticated users

1. Create a remote access policy as follows:
  - a) Assign the policy's VSA (attribute 26) the SofaWare vendor code (6983).
  - b) For each permission you want to grant, configure the relevant attribute of the VSA with the desired value, as described in the table below.  
For example, to assign the user VPN access permissions, set attribute number 2 to "true".
2. Assign the policy to the desired user or user group.



**Table 77: VSA Syntax**

Permission	Description	Attribute Number	Attribute Format	Attribute Values	Notes
Admin	Indicates the administrator's level of access to the NetDefend Portal	1	String	none. The user cannot access the NetDefend Portal.  readonly. The user can log on to the NetDefend Portal, but cannot modify system settings.  readwrite. The user can log on to the NetDefend Portal and modify system settings.	
VPN	Indicates whether the user can access the network from a Remote Access VPN Client.	2	String	true. The user can remotely access the network via VPN.  false. The user cannot remotely access the network via VPN.	This permission is only relevant if the NetDefend Remote Access VPN Server is enabled. The gateway must have a certificate.



Permission	Description	Attribute Number	Attribute Format	Attribute Values	Notes
Hotspot	Indicates whether the user can log on via the My HotSpot page.	3	String	true. The user can access the Internet via My HotSpot.  false. The user cannot access the Internet via My HotSpot.	This permission is only relevant if the Secure HotSpot feature is enabled.
UFP	Indicates whether the user can override Web Filtering.	4	String	true. The user can override Web Filtering.  false. The user cannot override Web Filtering.	This permission is only relevant if the Web Filtering service is enabled.



## Chapter 14

# Maintenance

This chapter describes the tasks required for maintenance and diagnosis of your NetDefend firewall.

This chapter includes the following topics:

Viewing Firmware Status .....	375
Updating the Firmware .....	377
Upgrading Your Software Product .....	379
Registering Your NetDefend firewall.....	383
Configuring Syslog Logging .....	384
Controlling the Appliance via the Command Line .....	386
Configuring HTTPS .....	390
Configuring SSH .....	392
Configuring SNMP.....	394
Setting the Time on the Appliance .....	397
Using Diagnostic Tools .....	401
Backing Up the NetDefend firewall Configuration .....	415
Resetting the NetDefend firewall to Defaults.....	418
Running Diagnostics .....	421
Rebooting the NetDefend firewall.....	422

## Viewing Firmware Status

CP310

The firmware is the software program embedded in the NetDefend firewall.

You can view your current firmware version and additional details.



**To view the firmware status**

- Click **Setup** in the main menu, and click the **Firmware** tab.

The Firmware page appears.



The Firmware page displays the following information:

**Table 78: Firmware Status Fields**

This field...	Displays...	For example...
WAN MAC Address	The MAC address used for the Internet connection	00:80:11:22:33:44
Firmware Version	The current version of the firmware	6.0
Installed Product	The licensed software and the number of allowed nodes	NetDefend unlimited nodes



This field...	Displays...	For example...
Uptime	The time that elapsed from the moment the unit was turned on	01:21:15
Hardware Type	The type of the current NetDefend firewall hardware	Sbox-500
Hardware Version	The current hardware version of the NetDefend firewall	1.0

## Updating the Firmware

CP310

If you are subscribed to Software Updates, firmware updates are performed automatically. These updates include new product features and protection against new security threats. Check with your reseller for the availability of Software Updates and other services. For information on subscribing to services, see *Connecting to a Service Center* on page 281.

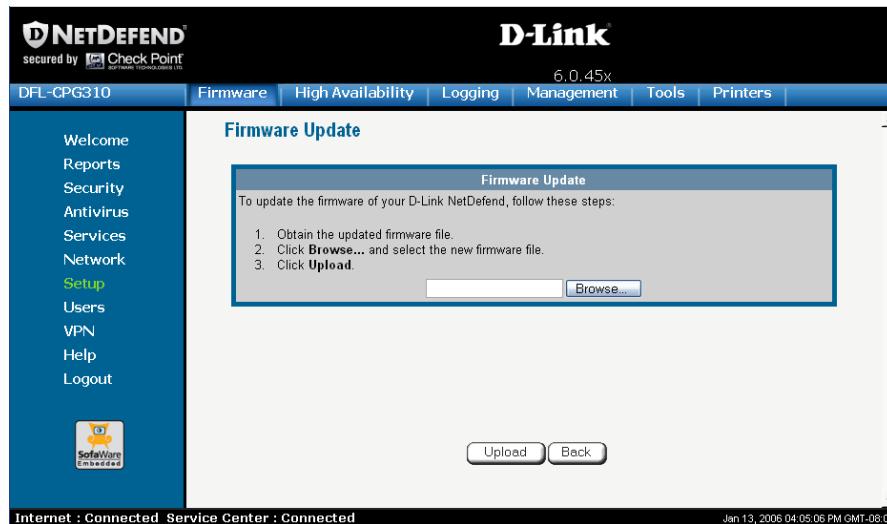
If you are not subscribed to the Software Updates service, you must update your firmware manually.

### To update your NetDefend firmware manually

1. Click **Setup** in the main menu, and click the **Firmware** tab.  
The **Firmware** page appears.
2. Click **Firmware Update**.



The Firmware Update page appears.



3. Click **Browse**.

A browse window appears.

4. Select the image file and click **Open**.

The **Firmware Update** page reappears. The path to the firmware update image file appears in the **Browse** text box.

5. Click **Upload**.

Your NetDefend firewall firmware is updated.

Updating may take a few minutes, during which time the PWR/SEC LED may start flashing red or orange. Do not power off the appliance.

At the end of the process the NetDefend firewall restarts automatically.



## Upgrading Your Software Product

CP310

You can upgrade your NetDefend firewall by adding the DFL-CP310 Power Pack. After purchasing the Power Pack, you will receive a new Product Key that enables you to use the Power Pack on the same NetDefend firewall you have today. There is no need to replace your hardware. You can also purchase node upgrades, as needed.



Note: To purchase the Power Pack or node upgrades, contact your NetDefend firewall provider.

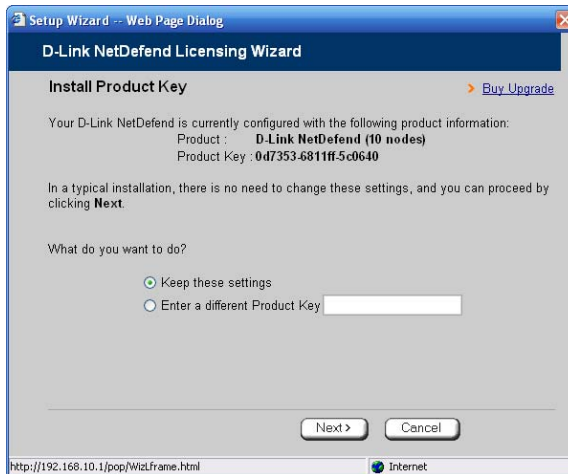
To upgrade your product, you must install the new Product Key.

### To install a Product Key

1. Click **Setup** in the main menu, and click the **Firmware** tab.  
The **Firmware** page appears.
2. Click **Upgrade Product**.



The NetDefend Licensing Wizard opens, with the Install Product Key dialog box displayed.



3. Click Enter a different Product Key.
4. In the Product Key field, enter the new Product Key.
5. Click Next.

The Installed New Product Key dialog box appears.



6. Click Next.



The first Registration dialog box appears.



7. Do one of the following:

- To register your NetDefend firewall later on, clear the I want to register my product check box and then click Next.



- To register your NetDefend firewall now, do the following:
  - 1) Click Next.



A second Registration dialog box appears.

The screenshot shows a web browser window titled "Setup Wizard -- Web Page Dialog" displaying the "D-Link NetDefend Licensing Wizard" registration screen. The "Registration" section contains the following text and fields:

To complete your registration, please enter your contact information :

MAC Address 00:08:da:70:a9:e8

Product D-Link NetDefend (10 nodes)

\* First Name

\* Last Name

\* Email

Company

Country

ZIP Code

☐ Send me email notifications regarding new firmware versions and services.

At the bottom are buttons for "< Back", "Next >", and "Cancel". The status bar at the bottom shows the URL "http://192.168.10.1/pop/Wizard/frame.html" and "Internet".

- 2) Enter your contact information in the appropriate fields.
- 3) To receive email notifications regarding new firmware versions and services, select the check box.
- 4) Click Next.

The Registration... screen appears.

The third Registration dialog box appears.

The screenshot shows the same web browser window, but the registration screen now displays a completion message:

Thank you for registering your product!

At the bottom are buttons for "< Back" and "Finish". The status bar at the bottom shows the same URL "http://192.168.10.1/pop/Wizard/frame.html" and "Internet".



8. Click **Finish**.

Your NetDefend firewall is restarted and the **Welcome** page appears.

## Registering Your NetDefend firewall

CP310

If you want to activate your warranty and optionally receive notifications of new firmware versions and services, you must register your NetDefend firewall.

**Privacy Statement:** D-Link is committed to protecting your privacy. We use the information we collect about you to process orders and to improve our ability to serve your needs. We will under no circumstances sell, lease, or otherwise disclose any of your personal or contact details without your explicit permission.

### To register your NetDefend firewall

1. Click **Setup** in the main menu, and click the **Firmware** tab.

The **Firmware** page appears.

2. Click **Upgrade Product**.

The **NetDefend Licensing Wizard** opens, with the **Install Product Key** dialog box displayed.

3. Select **Keep these settings**.

4. Click **Next**.

The first **Registration** dialog box appears.

5. Verify that the **I want to register my product** check box is selected.

6. Click **Next**.

A second **Registration** dialog box appears.

7. Enter your contact information in the appropriate fields.

8. To receive email notifications regarding new firmware versions and services, select the check box.



9. Click Next.

The Registration... screen appears.

The third Registration dialog box appears.

10. Click Finish.

Your NetDefend firewall is restarted and the Welcome page appears.

## Configuring Syslog Logging

CP310

You can configure the NetDefend firewall to send event logs to a Syslog server residing in your internal network or on the Internet. The logs detail the date and the time each event occurred. If the event is a communication attempt that was rejected by the firewall, the event details include the source and destination IP address, the destination port, and the protocol used for the communication attempt (for example, TCP or UDP).

This same information is also available in the Event Log page (see *Viewing the Event Log* on page 187). However, while the Event Log can display hundreds of logs, a Syslog server can store an unlimited number of logs. Furthermore, Syslog servers can provide useful tools for managing your logs.



Note: Kiwi Syslog Daemon is freeware and can be downloaded from <http://www.kiwisyslog.com>. For technical support, contact Kiwi Enterprises.

### To configure Syslog logging

1. Click Setup in the main menu, and click the Logging tab.



The Logging page appears.

The screenshot shows the D-Link NETDEFEND 6.0.45x web interface. The top navigation bar includes links for Firmware, High Availability, Logging, Management, Tools, and Printers. The left sidebar contains a list of navigation options: Welcome, Reports, Security, Antivirus, Services, Network, Setup (highlighted), Users, VPN, Help, and Logout. The main content area is titled 'Logging' and contains a 'Syslog' configuration box. Inside this box, there are two input fields: 'Syslog Server' with the value '192.168.10.99' and 'Syslog Port' with the value '514'. To the right of the 'Syslog Server' field is a link labeled 'This Computer' and a 'Clear' button. To the right of the 'Syslog Port' field is a link labeled 'Default'. Below the configuration box are 'Apply' and 'Cancel' buttons. The status bar at the bottom indicates 'Internet : Connected' and 'Service Center : Connected'.

2. Complete the fields using the information in the table below.
3. Click Apply.

**Table 79: Logging Page Fields**

In this field...	Do this...
Syslog Server	Type the IP address of the computer that will run the Syslog service (one of your network computers), or click This Computer to allow your computer to host the service.
Clear	Click to clear the Syslog Server field.
Syslog Port	Type the port number of the Syslog server.
Default	Click to reset the Syslog Port field to the default (port 514 UDP).



## Controlling the Appliance via the Command Line

CP310

Depending on your NetDefend model, you can control your appliance via the command line in the following ways:

- Using the NetDefend Portal's command line interface.  
See *Using the NetDefend Portal* on page 386.
- Using a console connected to the NetDefend firewall.  
For information, see *Using the Serial Console* on page 388.
- Using an SSH client.  
See *Configuring SSH* on page 392.

### Using the NetDefend Portal

CP310

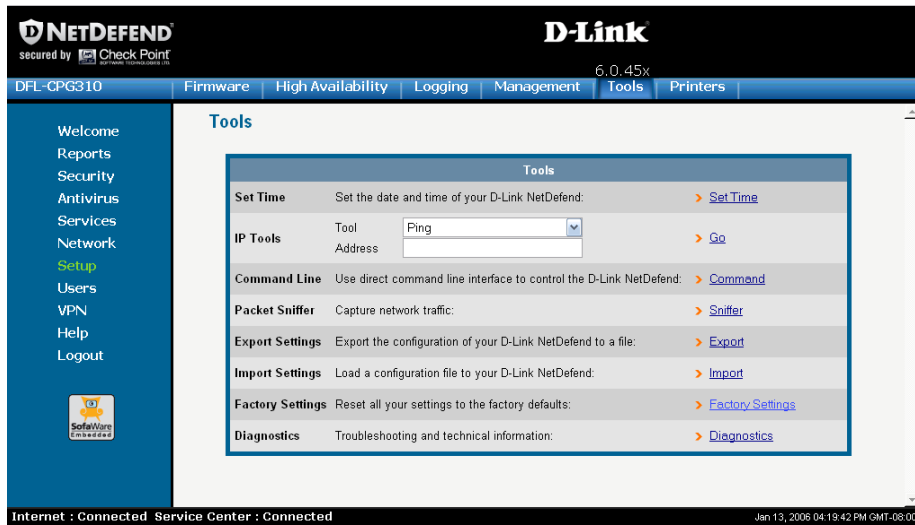
You can control your appliance via the NetDefend Portal's command line interface.

#### To control the appliance via the NetDefend Portal

1. Click **Setup** in the main menu, and click the **Tools** tab.

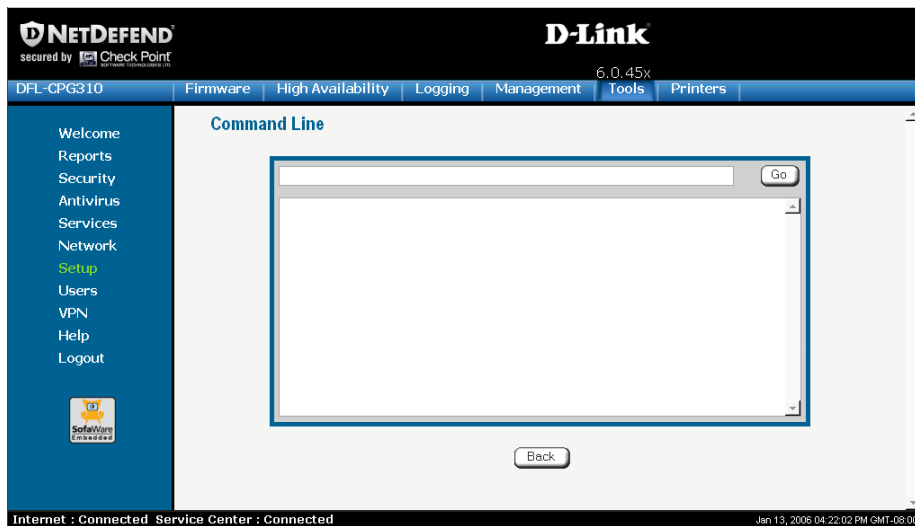


The Tools page appears.



## 2. Click Command.

The Command Line page appears.



## 3. In the upper field, type a command.



You can view a list of supported commands using the command **help**.

For information on all commands, refer to the *NetDefend CLI Reference Guide*.

4. Click **Go**.

The command is implemented.

## Using the Serial Console

CP310

You can connect a console to the NetDefend firewall, and use the console to control the appliance via the command line.



Note: Your terminal emulation software must be set to 57600 bps, N-8-1.

### To control the appliance via a console

1. Connect the serial console to your NetDefend firewall's serial port, using an RS-232 Null modem cable.

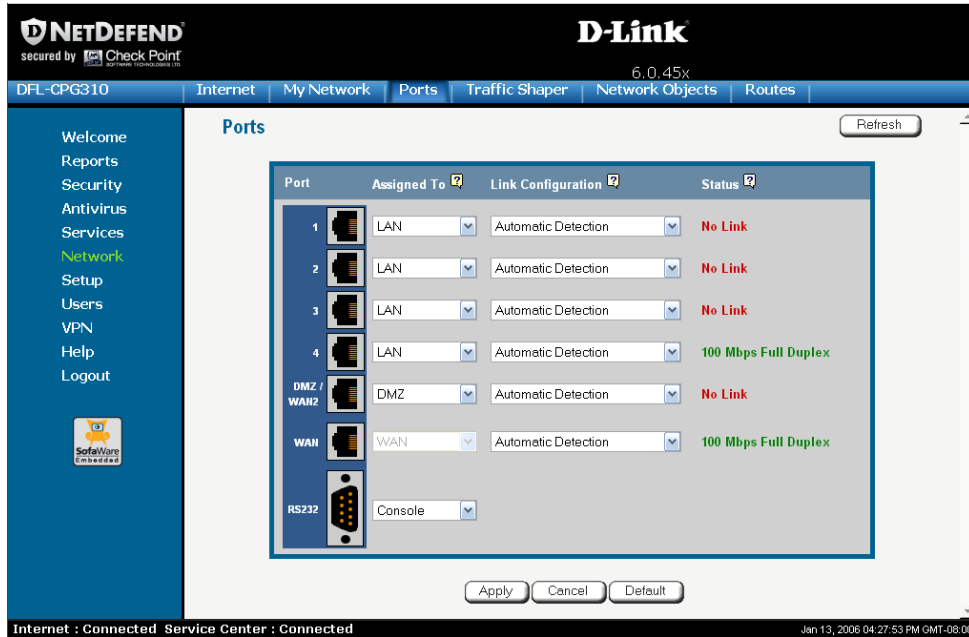
For information on locating the serial port, see **Rear Panel**.

2. Click **Network** in the main menu, and click the **Ports** tab.





The Ports page appears.



3. In the RS232 drop-down list, select Console.
4. Click Apply.

You can now control the NetDefend firewall from the serial console.

For information on all supported commands, refer to the *NetDefend CLI Reference Guide*.



## Configuring HTTPS

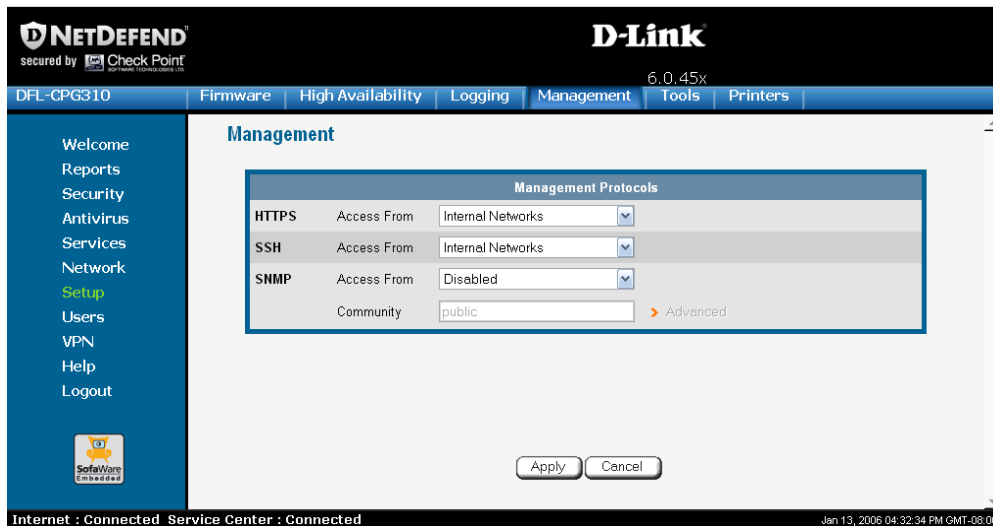
CP310

You can enable NetDefend firewall users to access the NetDefend Portal from the Internet. To do so, you must first configure HTTPS.

### To configure HTTPS

1. Click **Setup** in the main menu, and click the **Management** tab.

The Management page appears.



2. Specify from where HTTPS access to the NetDefend Portal should be granted.

See *Access Options* on page 391 for information.



**Warning:** If remote HTTPS is enabled, your NetDefend firewall settings can be changed remotely, so it is especially important to make sure all NetDefend firewall users' passwords are difficult to guess.



Note: You can use HTTPS to access the NetDefend Portal from your internal network, by surfing to `https://my.firewall`.

If you selected IP Address Range, additional fields appear.

3. If you selected IP Address Range, enter the desired IP address range in the fields provided.
4. Click **Apply**.

The HTTPS configuration is saved. If you configured remote HTTPS, you can now access the NetDefend Portal through the Internet, using the procedure *Accessing the NetDefend Portal Remotely* on page 44.

**Table 80: Access Options**

Select this  
option...

To allow access from...

Internal Network

The internal network only.

This disables remote access capability.



Select this option...	To allow access from...
Internal Network and VPN	The internal network and your VPN.
IP Address Range	A particular range of IP addresses.  Additional fields appear, in which you can enter the desired IP address range.
ANY	Any IP address.
Disabled	Nowhere.  This completely disables access. This option is only available for SNMP.

## Configuring SSH

CP310

NetDefend firewall users can control the unit via the command line, using the SSH (Secure Shell) management protocol. You can enable users to do so via the Internet, by configuring remote SSH access. You can also integrate the NetDefend firewall with SSH-based management systems.



Note: The NetDefend firewall supports SSHv2 clients only. The SSHv1 protocol contains security vulnerabilities and is not supported.

### To configure SSH

1. Click **Setup** in the main menu, and click the **Management** tab.  
The **Management** page appears.
2. Specify from where SSH access should be granted.



See *Access Options* on page 391 for information.



Warning: If remote SSH is enabled, your NetDefend firewall settings can be changed remotely, so it is especially important to make sure all NetDefend firewall users' passwords are difficult to guess.

If you selected IP Address Range, additional fields appear.

The screenshot displays the 'Management Protocols' configuration window in the NetDefend interface. It lists three protocols: HTTPS, SSH, and SNMP. For each, there is an 'Access From' dropdown menu. The SSH dropdown is currently open, showing 'Internal Networks + IP Range' selected, which has triggered the appearance of two empty text boxes for specifying an IP address range. The SNMP 'Access From' is set to 'Disabled'. Below the protocols, there is a 'Community' field for SNMP set to 'public' and an 'Advanced' link. At the bottom of the window are 'Apply' and 'Cancel' buttons. The background shows the main NetDefend interface with a sidebar and a top navigation bar.

3. If you selected IP Address Range, enter the desired IP address range in the fields provided.
4. Click **Apply**.

The SSH configuration is saved. If you configured remote SSH access, you can now control the NetDefend firewall from the Internet, using an SSHv2 client.

For information on all supported commands, refer to the *NetDefend CLI Reference Guide*.



## Configuring SNMP

CP310

The NetDefend firewall users can monitor the NetDefend firewall, using tools that support SNMP (Simple Network Management Protocol). You can enable users can do so via the Internet, by configuring remote SNMP access.

The NetDefend firewall supports the following SNMP MIBs:

- SNMPv2-MIB
- RFC1213-MIB
- IF-MIB
- IP-MIB

All SNMP access is read-only.

### To configure SNMP

1. Click **Setup** in the main menu, and click the **Management** tab.

The **Management** page appears.

2. Specify from where SNMP access should be granted.

See *Access Options* on page 391 for information.

If you selected **IP Address Range**, additional fields appear.



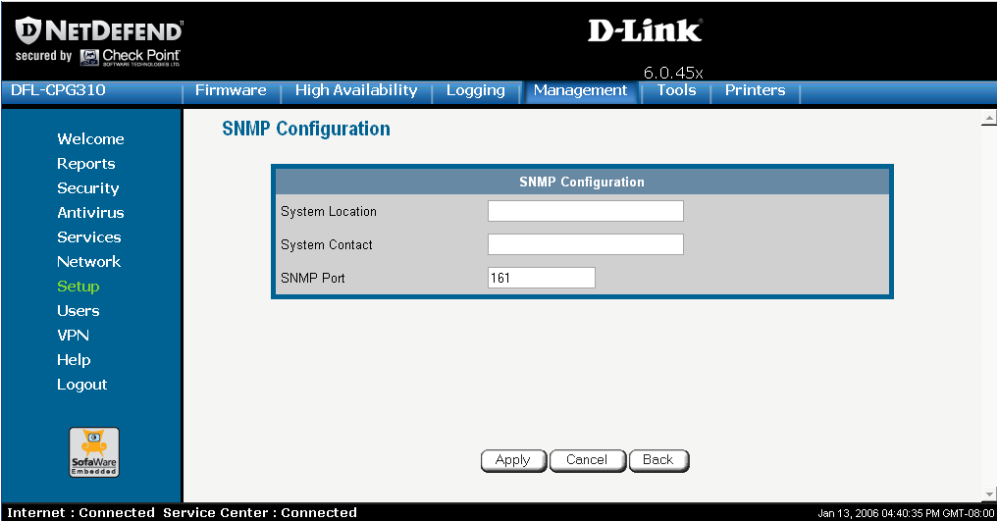
The Community field and the Advanced link are enabled.



3. If you selected IP Address Range, enter the desired IP address range in the fields provided.
4. In the Community field, type the name of the SNMP community string.  
SNMP clients use the SNMP community string as a password, when connecting to the NetDefend firewall.  
The default value is "public". It is recommended to change this string.
5. To configure advanced SNMP settings, click **Advanced**.



The SNMP Configuration page appears.



- 6. Complete the fields using the table below.
- 7. Click **Apply**.  
The SNMP configuration is saved.
- 8. Configure the SNMP clients with the SNMP community string.

**Table 81: Advanced SNMP Settings**

In this field...	Do this...
System Location	Type a description of the appliance's location.  This information will be visible to SNMP clients, and is useful for administrative purposes.
System Contact	Type the name of the contact person.  This information will be visible to SNMP clients, and is useful for administrative purposes.





In this field...	Do this...
SNMP Port	Type the port to use for SNMP.
	The default port is 161.

## Setting the Time on the Appliance

CP310

You set the time displayed in the NetDefend Portal during initial appliance setup. If desired, you can change the date and time using the procedure below.

### To set the time

1. Click **Setup** in the main menu, and click the **Tools** tab.

The **Tools** page appears.

2. Click **Set Time**.

The NetDefend Set Time Wizard opens displaying the Set the NetDefend Time dialog box.





3. Complete the fields using the information in *Set Time Wizard Fields* on page 400.
4. Click **Next**.

The following things happen in the order below:

- If you selected **Specify date and time**, the **Specify Date and Time** dialog box appears.

Set the date, time, and time zone in the fields provided, then click **Next**.



- If you selected **Use a Time Server**, the **Time Servers** dialog box appears.

The screenshot shows a web browser window titled "Set Time Wizard - Web Page Dialog". The main heading is "D-Link NetDefend Set Time Wizard". Below this, the section is titled "Time Servers". The text reads: "You can use a time server to adjust date and time automatically. Enter the IP addresses of up to two NTP time servers:". There are two input fields: "Primary Server:" and "Secondary Server:". Each field has a "Clear" button next to it. Below these fields is a label "Select your time zone:" followed by a dropdown menu showing "GMT-08:00". At the bottom of the dialog, there are three buttons: "< Back", "Next >", and "Cancel". The browser's address bar shows "http://192.168.10.1/pop/WizTframe.html" and the status bar shows "Internet".

Complete the fields using the information in *Time Servers Fields* on page 400, then click **Next**.

- The **Date and Time Updated** screen appears.

The screenshot shows a web browser window titled "Set Time Wizard - Web Page Dialog". The main heading is "D-Link NetDefend Set Time Wizard". Below this, the section is titled "Date and Time Updated". The text reads: "Your D-Link NetDefend clock setting has been changed successfully." At the bottom of the dialog, there is a single button labeled "Finish". The browser's address bar shows "http://192.168.10.1/pop/WizTframe.html" and the status bar shows "Internet".

5. Click **Finish**.



**Table 82: Set Time Wizard Fields**

Select this option...	To do the following...
Your computer's clock	Set the appliance time to your computer's system time.  Your computer's system time is displayed to the right of this option.
Keep the current time	Do not change the appliance's time.  The current appliance time is displayed to the right of this option.
Use a Time Server	Synchronize the appliance time with a Network Time Protocol (NTP) server.
Specify date and time	Set the appliance to a specific date and time.

**Table 83: Time Servers Fields**

In this field...	Do this...
Primary Server	Type the IP address of the Primary NTP server.
Secondary Server	Type the IP address of the Secondary NTP server.  This field is optional.
Clear	Clear the field.
Select your time zone	Select the time zone in which you are located.



## Using Diagnostic Tools

**CP310**

The NetDefend firewall is equipped with a set of diagnostic tools that are useful for troubleshooting Internet connectivity.

**Table 84: Diagnostic Tools**

Use this tool...	To do this...	For information, see...
Ping	Check that a specific IP address or DNS name can be reached via the Internet.	<b>Using IP Tools</b> on page 402
Traceroute	Display a list of all routers used to connect from the NetDefend firewall to a specific IP address or DNS name.	<b>Using IP Tools</b> on page 402
WHOIS	Display the name and contact information of the entity to which a specific IP address or DNS name is registered. This information is useful in tracking down hackers.	<b>Using IP Tools</b> on page 402
Packet Sniffer	Capture network traffic. This information is useful troubleshooting network problems.	<b>Using Packet Sniffer</b> on page 404



## Using IP Tools

CP310

### To use an IP tool

1. Click **Setup** in the main menu, and click the **Tools** tab.

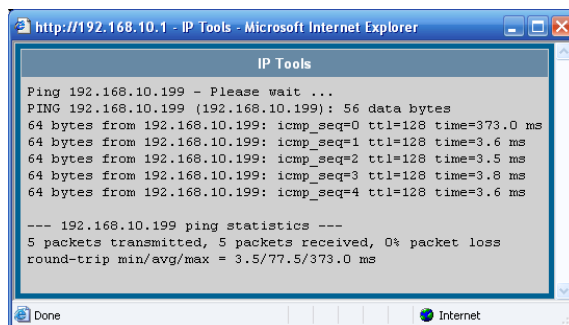
The Tools page appears.

2. In the IP Tools drop-down list, select the desired tool.
3. In the **Address** field, type the IP address or DNS name for which to run the tool.
4. Click **Go**.

- If you selected **Ping**, the following things happen:

The NetDefend firewall sends packets to the specified the IP address or DNS name.

The IP Tools window opens and displays the percentage of packet loss and the amount of time it each packet took to reach the specified host and return (round-trip) in milliseconds.

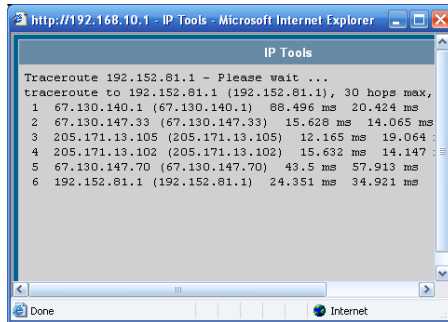


- If you selected **Traceroute**, the following things happen:

The NetDefend firewall connects to the specified IP address or DNS name.



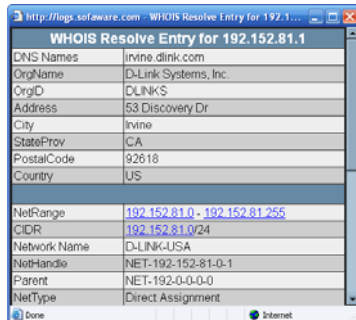
The IP Tools window opens and displays a list of routers used to make the connection.



- If you selected WHOIS, the following things happen:

The NetDefend firewall queries the Internet WHOIS server.

A window displays the name of the entity to which the IP address or DNS name is registered and their contact information.





## Using Packet Sniffer

CP310

The NetDefend firewall includes the Packet Sniffer tool, which enables you to capture packets from any internal network or NetDefend port. This is useful for troubleshooting network problems and for collecting data about network behavior.

The NetDefend firewall saves the captured packets to a file on your computer. You can use a free protocol analyzer, such as Ethereal, to analyze the file, or you can send it to technical support. Ethereal runs on all popular computing platforms and can be downloaded from <http://www.ethereal.com>.

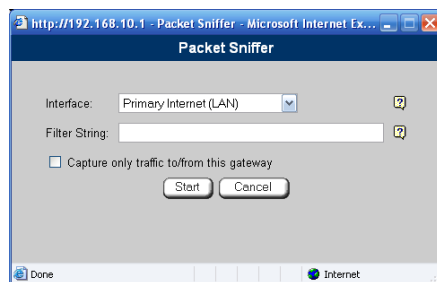
### To use Packet Sniffer

1. Click **Setup** in the main menu, and click the **Tools** tab.

The Tools page appears.

2. Click **Sniffer**.

The Packet Sniffer window opens.

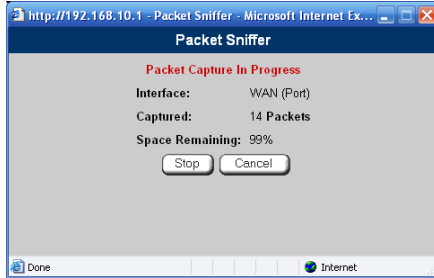


3. Complete the fields using the information in the table below.
4. Click **Start**.





The **Packet Sniffer** window displays the name of the interface, the number of packets collected, and the percentage of storage space remaining on the appliance for storing the packets.



5. Click **Stop** to stop collecting packets.

A standard **File Download** dialog box appears.

6. Click **Save**.

The **Save As** dialog box appears.

7. Browse to a destination directory of your choice.
8. Type a name for the configuration file and click **Save**.

The \*.cap file is created and saved to the specified directory.

9. Click **Cancel** to close the **Packet Sniffer** window.

**Table 85: Packet Sniffer Fields**

In this field...	Do this...
Interface	<p>Select the interface from which to collect packets.</p> <p>The list includes the primary Internet connection, the NetDefend firewall ports, and all defined networks.</p>
Filter String	<p>Type the filter string to use for filtering the captured packets. Only packets that match the filter condition will be saved.</p> <p>For a list of basic filter strings elements, see <b><i>Filter String Syntax</i></b> on page 407.</p> <p>For detailed information on filter syntax, go to <a href="http://www.tcpdump.org/tcpdump_man.html">http://www.tcpdump.org/tcpdump_man.html</a>.</p> <p>Note: Do not enclose the filter string in quotation marks.</p> <p>If you do not specify a filter string, Packet Sniffer will save all packets on the selected interface.</p>
Capture only traffic to/from this gateway	<p>Select this option to capture incoming and outgoing packets for this gateway only.</p> <p>If this option is not selected, Packet Sniffer will collect packets for all traffic on the interface.</p>

## ***Filter String Syntax***

The following represents a list of basic filter string elements:

- ***and*** on page 407
- ***dst*** on page 408
- ***dst port*** on page 408
- ***ether proto*** on page 409
- ***host*** on page 410
- ***not*** on page 410
- ***or*** on page 411
- ***port*** on page 411
- ***src*** on page 412
- ***src port*** on page 412
- ***tcp*** on page 413
- ***udp*** on page 414

For detailed information on filter syntax, refer to <http://www.tcpdump.org>.

### **and**

#### **PURPOSE**

The **and** element is used to concatenate filter string elements. The filtered packets must match *all* concatenated filter string elements.

#### **SYNTAX**

element **and** element [**and** element...]

element **&&** element [**&&** element...]



## PARAMETERS

`element` String. A filter string element.

## EXAMPLE

The following filter string saves packets that both originate from IP address is 192.168.10.1 and are destined for port 80:

```
src 192.168.10.1 and dst port 80
```

## **dst**

### PURPOSE

The `dst` element captures all packets with a specific destination.

### SYNTAX

`dst destination`

### PARAMETERS

`destination` IP Address or String. The computer to which the packet is sent. This can be the following:

- An IP address
- A host name

## EXAMPLE

The following filter string saves packets that are destined for the IP address 192.168.10.1:

```
dst 192.168.10.1
```

## **dst port**

### PURPOSE

The `dst port` element captures all packets destined for a specific port.

### SYNTAX

`dst port port`



Note: This element can be prepended by `tcp` or `udp`. For information, see ***tcp*** on page 413 and ***udp*** on page 414.

## PARAMETERS

`port` Integer. The port to which the packet is sent.

## EXAMPLE

The following filter string saves packets that are destined for port 80:

```
dst port 80
```

## ether proto

### PURPOSE

The `ether proto` element is used to capture packets of a specific ether protocol type.

### SYNTAX

`ether proto \protocol`

### PARAMETERS

`protocol` String. The protocol type of the packet.

This can be the following: `ip`, `ip6`, `arp`, `rarp`, `atalk`, `aarp`, `dec net`, `sca`, `lat`, `mopdl`, `moprc`, `iso`, `stp`, `ipx`, or `netbeui`.

## EXAMPLE

The following filter string saves ARP packets:

```
ether proto arp
```



## host

### PURPOSE

The `host` element captures all incoming and outgoing packets for a specific computer.

### SYNTAX

`host` *host*

### PARAMETERS

<code>host</code>	IP Address or String. The computer to/from which the packet is sent. This can be the following:
-------------------	---

- An IP address
- A host name

### EXAMPLE

The following filter string saves all packets that either originated from IP address 192.168.10.1, or are destined for that same IP address:

```
host 192.168.10.1
```

## not

### PURPOSE

The `not` element is used to negate filter string elements.

### SYNTAX

`not` element

`!` element

### PARAMETERS

<code>element</code>	String. A filter string element.
----------------------	----------------------------------



## EXAMPLE

The following filter string saves packets that are *not* destined for port 80:

```
not dst port 80
```

## or

### PURPOSE

The `or` element is used to alternate between string elements. The filtered packets must match at least one of the filter string elements.

### SYNTAX

element **or** element [**or** element...]

element **||** element [**||** element...]

### PARAMETERS

element	String. A filter string element.
---------	----------------------------------

## EXAMPLE

The following filter string saves packets that either originate from IP address 192.168.10.1 or IP address 192.168.10.10:

```
src 192.168.10.1 or src 192.168.10.10
```

## port

### PURPOSE

The `port` element captures all packets originating from or destined for a specific port.

### SYNTAX

port *port*



Note: This element can be prepended by `tcp` or `udp`. For information, see ***tcp*** on page 413 and ***udp*** on page 414.



## PARAMETERS

`port`

Integer. The port from/to which the packet is sent.

## EXAMPLE

The following filter string saves all packets that either originated from port 80, or are destined for port 80:

```
port 80
```

## **src**

### PURPOSE

The `src` element captures all packets with a specific source.

### SYNTAX

`src source`

## PARAMETERS

`source`

IP Address or String. The computer from which the packet is sent. This can be the following:

- An IP address
- A host name

## EXAMPLE

The following filter string saves packets that originated from IP address 192.168.10.1:

```
src 192.168.10.1
```

## **src port**

### PURPOSE

The `src port` element captures all packets originating from a specific port.

### SYNTAX

`src port port`





Note: This element can be prepended by `tcp` or `udp`. For information, see ***tcp*** on page 413 and ***udp*** on page 414.

## PARAMETERS

`port` Integer. The port to which the packet is sent.

## EXAMPLE

The following filter string saves packets that originated from port 80:

```
src port 80
```

## tcp

### PURPOSE

The `tcp` element captures all TCP packets. This element can be prepended to port-related elements.



Note: When not prepended to other elements, the `tcp` element is the equivalent of `ip proto tcp`.

### SYNTAX

`tcp`

`tcp element`

### PARAMETERS

`element` String. A port-related filter string element that should be restricted to saving only TCP packets. This can be the following:

- `dst port` - Capture all TCP packets destined for a specific port.
- `port` - Captures all TCP packets originating from or destined for a specific port.
- `src port` - Capture all TCP packets originating from a specific port.



### EXAMPLE 1

The following filter string captures all TCP packets:

```
tcp
```

### EXAMPLE 2

The following filter string captures all TCP packets destined for port 80:

```
tcp dst port 80
```

## udp

### PURPOSE

The `udp` element captures all UDP packets. This element can be prepended to port-related elements.



Note: When not prepended to other elements, the `udp` element is the equivalent of `ip proto udp`.

### SYNTAX

`udp`

`udp element`

### PARAMETERS

`element`

String. A port-related filter string element that should be restricted to saving only UDP packets. This can be the following:

- `dst port` - Capture all UDP packets destined for a specific port.
- `port` - Captures all UDP packets originating from or destined for a specific port.
- `src port` - Capture all UDP packets originating from a specific port.

### EXAMPLE 1

The following filter string captures all UDP packets:



```
udp
```

### EXAMPLE 2

The following filter string captures all UDP packets destined for port 80:

```
udp dst port 80
```

## Backing Up the NetDefend firewall Configuration

CP310

You can export the NetDefend firewall configuration to a \*.cfg file, and use this file to backup and restore NetDefend firewall settings, as needed. The file includes all your settings.

The configuration file is saved as a textual CLI script. If desired, you can edit the file. For a full explanation of the CLI script format and the supported CLI commands, see the *NetDefend CLI Reference Guide*.

## Exporting the NetDefend firewall Configuration

CP310

Exporting the NetDefend firewall configuration creates a configuration file.

### To export the NetDefend firewall configuration

1. Click **Setup** in the main menu, and click the **Tools** tab.

The Tools page appears.

2. Click **Export**.

A standard File Download dialog box appears.

3. Click **Save**.

The Save As dialog box appears.

4. Browse to a destination directory of your choice.



5. Type a name for the configuration file and click **Save**.

The \*.cfg configuration file is created and saved to the specified directory.

## ***Importing the NetDefend firewall Configuration***

CP310

In order to restore your NetDefend firewall's configuration from a configuration file, you must import the file.

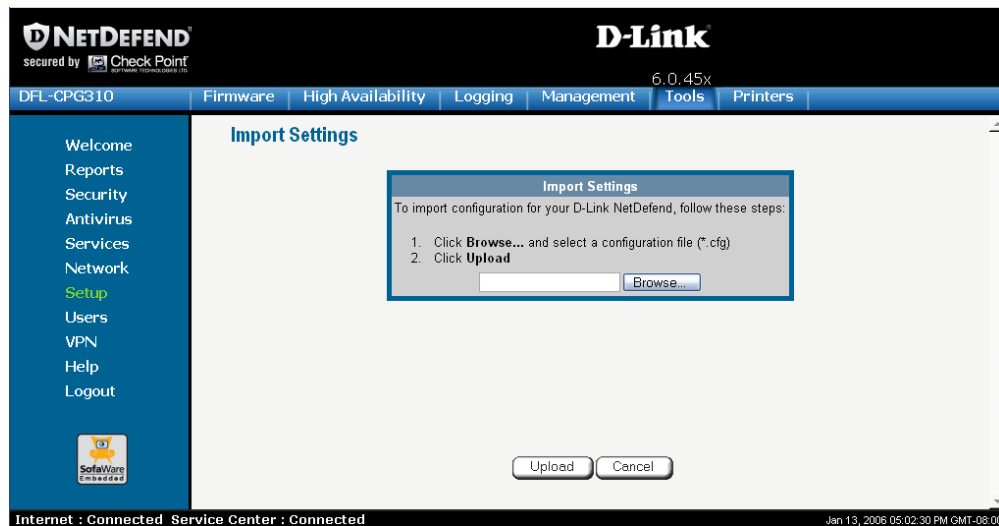
### **To import the NetDefend firewall configuration**

1. Click **Setup** in the main menu, and click the **Tools** tab.

The **Tools** page appears.

2. Click **Import**.

The **Import Settings** page appears.



3. Do one of the following:

- In the **Import Settings** field, type the full path to the configuration file.

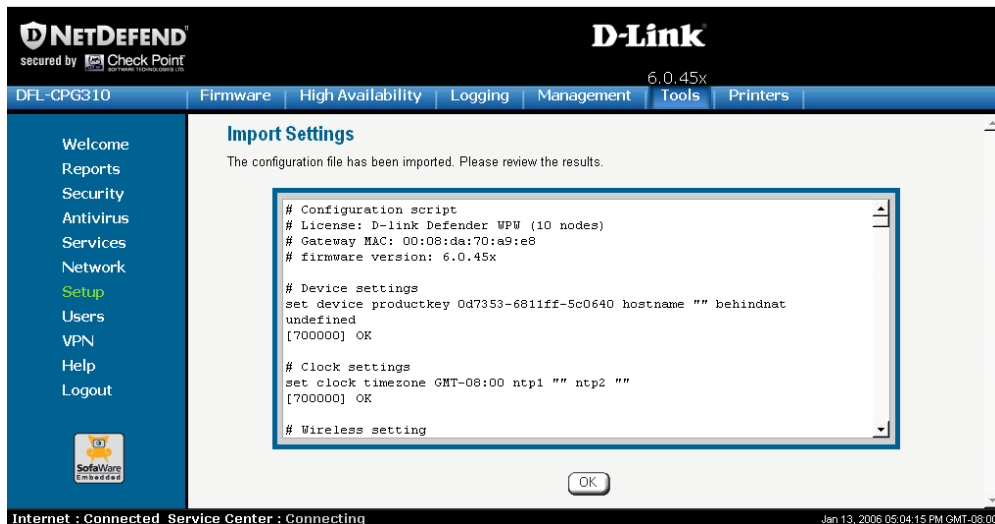


*Or*

- Click **Browse**, and browse to the configuration file.
4. Click **Upload**.  
A confirmation message appears.
  5. Click **OK**.

The NetDefend firewall settings are imported.

The **Import Settings** page displays the configuration file's content and the result of implementing each configuration command.



**Note:** If the appliance's IP address changed as a result of the configuration import, your computer may be disconnected from the network; therefore you may not be able to see the results.



## Resetting the NetDefend firewall to Defaults

CP310

You can reset the NetDefend firewall to its default settings. When you reset your NetDefend firewall, it reverts to the state it was originally in when you purchased it. You can choose to keep the current firmware or to revert to the firmware version that shipped with the NetDefend firewall.



**Warning:** This operation erases all your settings and password information. You will have to set a new password and reconfigure your NetDefend firewall for Internet connection. For information on performing these tasks, see *Setting Up the NetDefend firewall*.

You can reset the NetDefend firewall to defaults via the Web management interface (software) or by manually pressing the Reset button (hardware) located at the back of the NetDefend firewall.

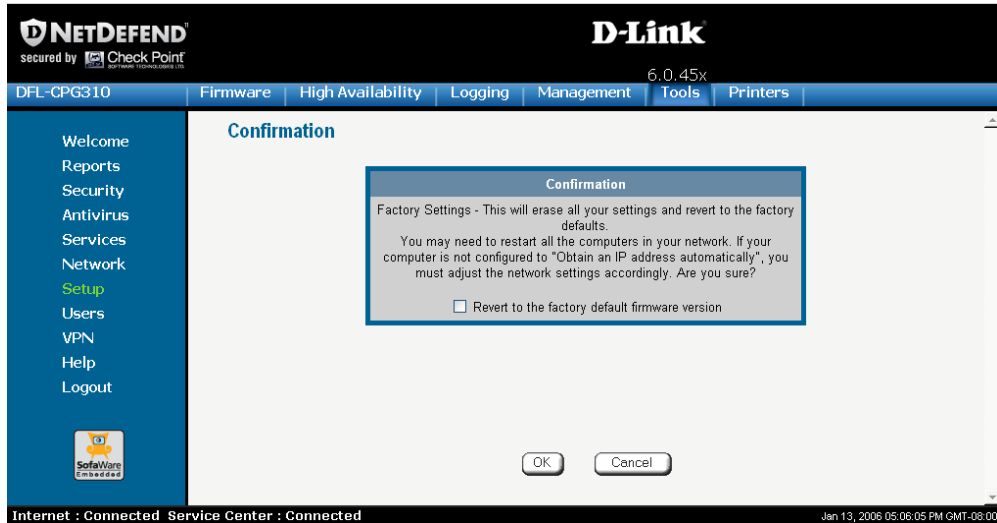
### To reset the NetDefend firewall to factory defaults via the Web interface

1. Click **Setup** in the main menu, and click the **Tools** tab.

The **Tools** page appears.

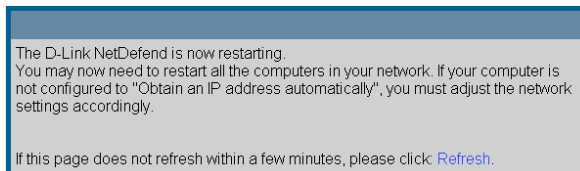
2. Click **Factory Settings**.

A confirmation message appears.



3. To revert to the firmware version that shipped with the appliance, select the check box.
4. Click OK.

- The Please Wait screen appears.



- The NetDefend firewall returns to its factory defaults.
- The NetDefend firewall is restarted (the PWR/SEC LED flashes quickly). This may take a few minutes.
- The Login page appears.

**To reset the NetDefend firewall to factory defaults using the Reset button**

1. Make sure the NetDefend firewall is powered on.
2. Using a pointed object, press the RESET button on the back of the NetDefend firewall steadily for seven seconds and then release it.
3. Allow the NetDefend firewall to boot-up until the system is ready (PWR/SEC LED flashes slowly or illuminates steadily in green light).

For information on the appliance's front and rear panels, see the relevant *Getting to Know Your Appliance* section in **Introduction** on page 1.



Warning: If you choose to reset the NetDefend firewall by disconnecting the power cable and then reconnecting it, be sure to leave the NetDefend firewall disconnected for at least three seconds, or the NetDefend firewall might not function properly until you reboot it as described below.





## Running Diagnostics

CP310

You can view technical information about your NetDefend firewall's hardware, firmware, license, network status, and Service Center.

This information is useful for troubleshooting. You can export it to an \*.html file and send it to technical support.

### To view diagnostic information

1. Click **Setup** in the main menu, and click the **Tools** tab.

The **Tools** page appears.

2. Click **Diagnostics**.

Technical information about your NetDefend firewall appears in a new window.

3. To save the displayed information to an \*.html file:

- a. Click **Save**.

A standard **File Download** dialog box appears.

- b. Click **Save**.

The **Save As** dialog box appears.

- c. Browse to a destination directory of your choice.
- d. Type a name for the configuration file and click **Save**.

The \*.html file is created and saved to the specified directory.

4. To refresh the contents of the window, click **Refresh**.

The contents are refreshed.

5. To close the window, click **Close**.



## Rebooting the NetDefend firewall

CP310

If your NetDefend firewall is not functioning properly, rebooting it may solve the problem.

### To reboot the NetDefend firewall

1. Click **Setup** in the main menu, and click the **Firmware** tab.

The **Firmware** page appears.

2. Click **Restart**.

A confirmation message appears.

3. Click **OK**.

- The **Please Wait** screen appears.

The D-Link NetDefend is now restarting.

If this page does not refresh within a few minutes, please click: [Refresh](#).

- The NetDefend firewall is restarted (the PWR/SEC LED flashes quickly).  
This may take a few minutes.
- The **Login** page appears.



## Chapter 15

# Using Network Printers

This chapter describes how to set up and use network printers.

This chapter includes the following topics:

Overview .....	423
Setting Up Network Printers.....	424
Configuring Computers to Use Network Printers.....	425
Viewing Network Printers .....	435
Changing Network Printer Ports.....	435
Resetting Network Printers.....	436

## Overview

The NetDefend firewall includes a built-in print server, enabling you to connect USB-based printers to the appliance and share them across the network.



**Note:** When using computers with a Windows 2000/XP operating system, the NetDefend firewall supports connecting up to four USB-based printers to the appliance. When using computers with a MAC OS-X operating system, the NetDefend firewall supports connecting one printer.

The appliance automatically detects printers as they are plugged in, and they immediately become available for printing. Usually, no special configuration is required on the NetDefend firewall.



**Note:** The NetDefend print server supports printing via "all-in-one" printers. Copying and scanning functions are not supported.



## Setting Up Network Printers

CPG310

### To set up a network printer

1. Connect the network printer to the NetDefend firewall.  
See *Network Installation* on page 35.
2. Turn the printer on.
3. In the NetDefend Portal, click **Setup** in the main menu, and click the **Printers** tab.

The Printers page appears. If the NetDefend firewall detected the printer, the printer is listed on the page.



4. If the printer is not listed, check that you connected the printer correctly, then click **Refresh** to refresh the page.
5. Write down the port number allocated to the printer.



The port number appears in the **Printer Server TCP Port** field. You will need this number later, when configuring computers to use the network printer.

6. To change the port number, do the following:
  - a. Type the desired port number in the **Printer Server TCP Port** field.



Note: Printer port numbers may not overlap, and must be high ports.

- b. Click **Apply**.

You may want to change the port number if, for example, the printer you are setting up is intended to replace another printer. In this case, you should change the replacement printer's port number to the old printer's port number, and you can skip the next step.

7. Configure each computer from which you want to enable printing to the network printer.

See *Configuring Computers to Use Network Printers* on page 425.

## Configuring Computers to Use Network Printers

CPG310

Perform the relevant procedure on each computer from which you want to enable printing via the NetDefend print server to a network printer.

### **Windows 2000/XP**

This procedure is relevant for computers with a Windows 2000/XP operating system.

#### **To configure a computer to use a network printer**

1. If the computer for which you want to enable printing is located on the WAN, create an Allow rule for connections from the computer to **This Gateway**.

See *Adding and Editing Rules* on page 213.



2. Click **Start > Settings > Control Panel**.

The **Control Panel** window opens.

3. Click **Printers and Faxes**.

The **Printers and Faxes** window opens.

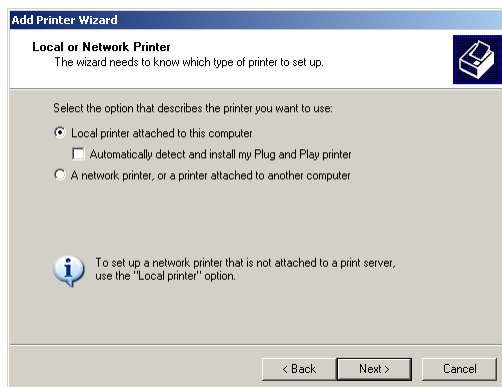
4. Right-click in the window, and click **Add Printer** in the popup menu.

The **Add Printer Wizard** opens with the **Welcome** dialog box displayed.



5. Click **Next**.

The **Local or Network Printer** dialog box appears.



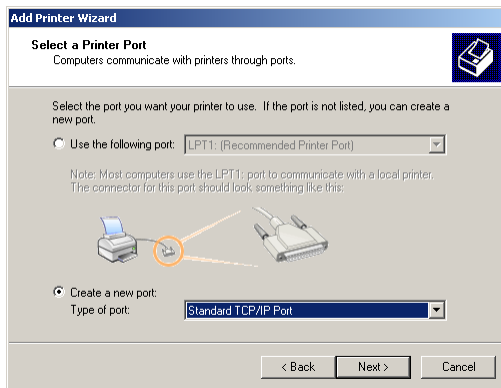
6. Click **Local printer attached to this computer**.



Note: Do not select the Automatically detect and install my Plug and Play printer check box.

7. Click Next.

The Select a Printer Port dialog box appears.



8. Click Create a new port.

9. In the Type of port drop-down list, select Standard TCP/IP Port.

10. Click Next.

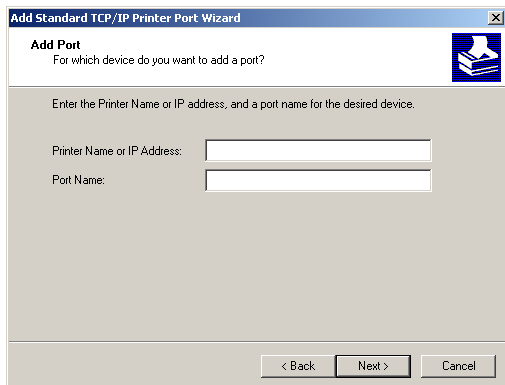
The Add Standard TCP/IP Port Wizard opens with the Welcome dialog box displayed.



11. Click Next.



The Add Port dialog box appears.



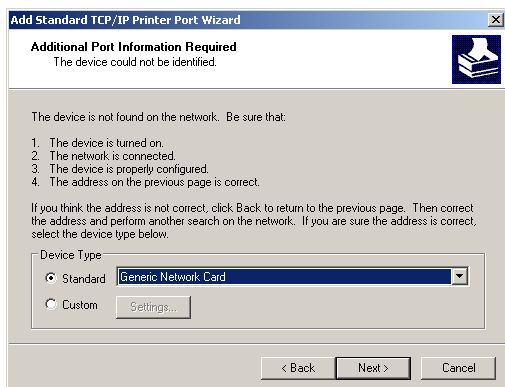
12. In the Printer Name or IP Address field, type the NetDefend firewall's LAN IP address, or "my.firewall".

You can find the LAN IP address in the NetDefend Portal, under **Network > My Network**.

The Port Name field is filled in automatically.

13. Click Next.

The Add Standard TCP/IP Printer Port Wizard opens, with the Additional Port Information Required dialog box displayed.

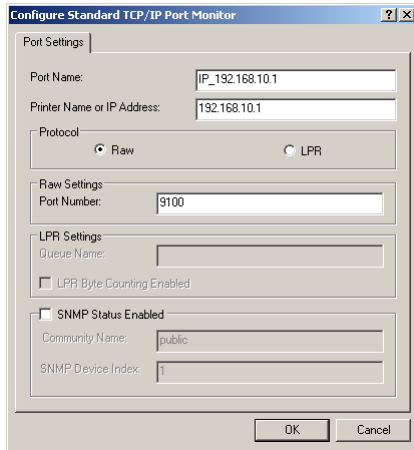


14. Click Custom.
15. Click Settings.





The **Configure Standard TCP/IP Port Monitor** dialog box opens.

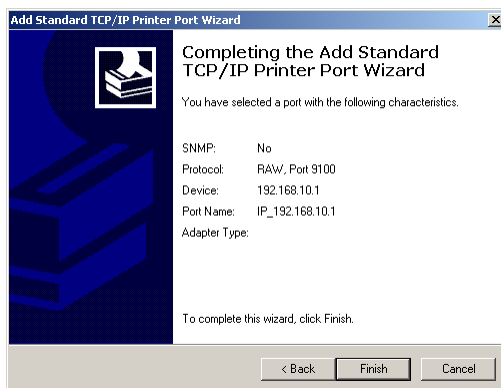


16. In the **Port Number** field, type the printer's port number, as shown in the **Printers** page.
17. In the **Protocol** area, make sure that **Raw** is selected.
18. Click **OK**.

The **Add Standard TCP/IP Printer Port Wizard** reappears.

19. Click **Next**.

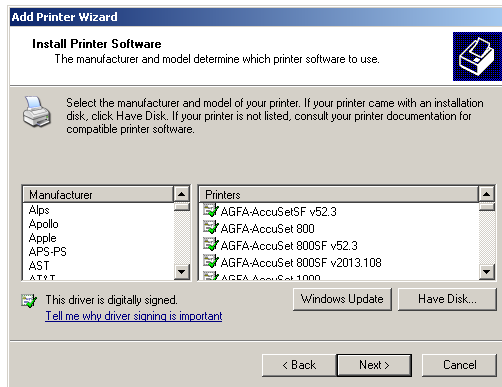
The **Completing the Add Standard TCP/IP Printer Port Wizard** dialog box appears.



20. Click **Finish**.



The **Add Printer Wizard** reappears, with the **Install Printer Software** dialog box displayed.



21. Do one of the following:

- Use the lists to select the printer's manufacturer and model.
- If your printer does not appear in the lists, insert the CD that came with your printer in the computer's CD-ROM drive, and click **Have Disk**.

22. Click **Next**.

23. Complete the remaining dialog boxes in the wizard as desired, and click **Finish**.

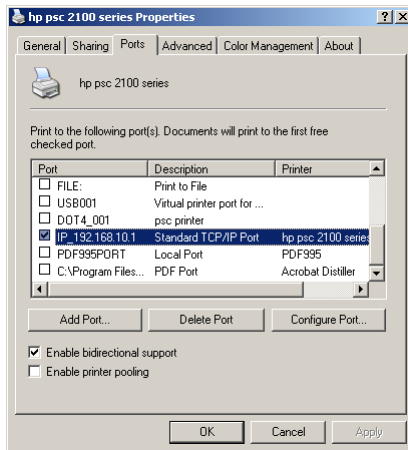
The printer appears in the **Printers and Faxes** window.

24. Right-click the printer and click **Properties** in the popup menu.

The printer's **Properties** dialog box opens.

25. In the **Ports** tab, in the list box, select the port you added.

The port's name is IP\_<LAN IP address>.



26. Click OK.

## MAC OS-X

This procedure is relevant for computers with the latest version of the MAC OS-X operating system.



Note: This procedure may not apply to earlier MAC OS-X versions.

### To configure a computer to use a network printer

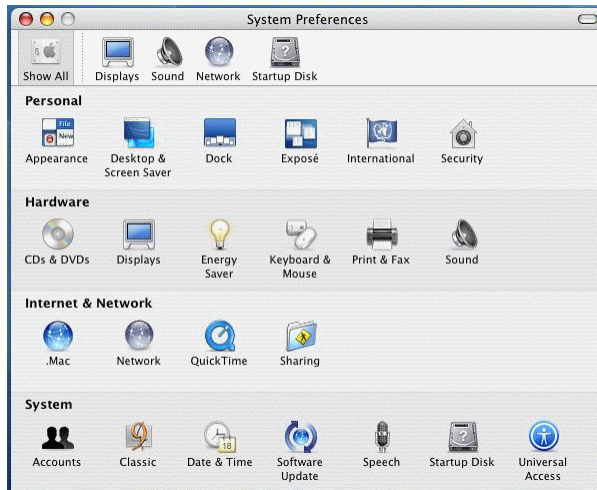
1. If the computer for which you want to enable printing is located on the WAN, create an Allow rule for connections from the computer to **This Gateway**.

See *Adding and Editing Rules* on page 213.

2. Choose Apple -> System Preferences.

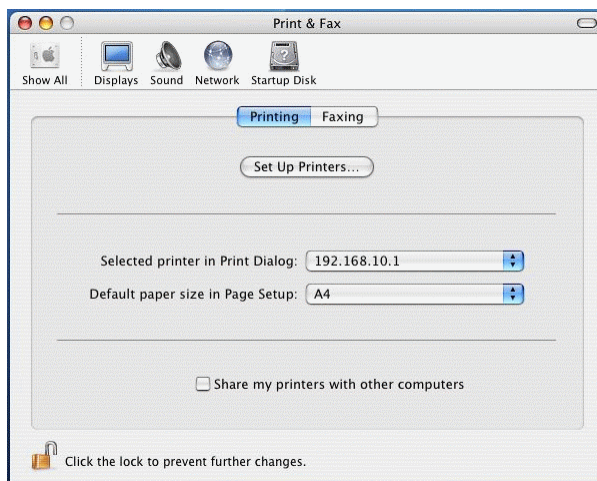


The System Preferences window appears.



3. Click **Show All** to display all categories.
4. In the **Hardware** area, click **Print & Fax**.

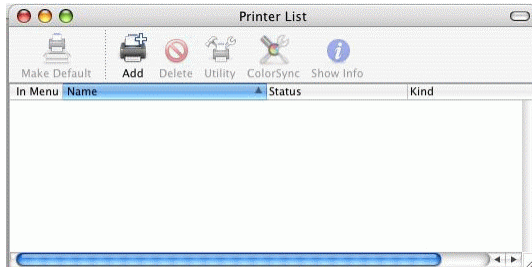
The Print & Fax window appears.



5. In the **Printing** tab, click **Set Up Printers**.

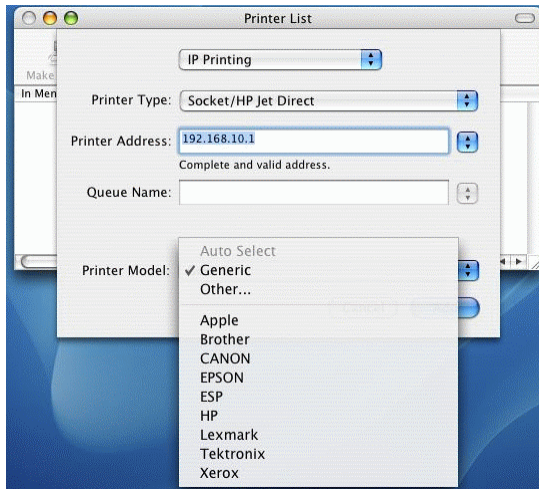


The Printer List window appears.



6. Click **Add**.

New fields appear.



7. In the first drop-down list, select **IP Printing**.
8. In the **Printer Type** drop-down list, select **Socket/HP Jet Direct**.
9. In the **Printer Address** field, type the NetDefend firewall's LAN IP address, or "my.firewall".

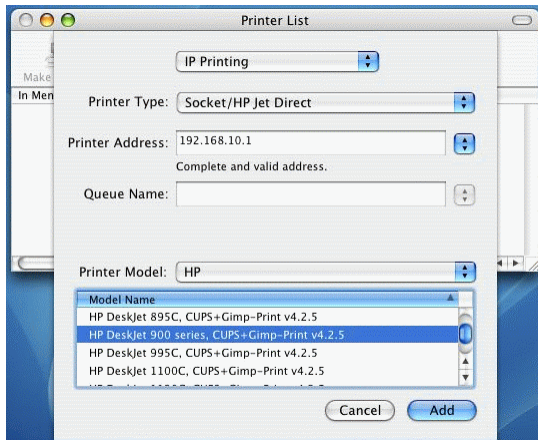
You can find the LAN IP address in the NetDefend Portal, under **Network > My Network**.

10. In the **Queue Name** field, type the name of the required printer queue.  
For example, the printer queue name for HP printers is RAW.



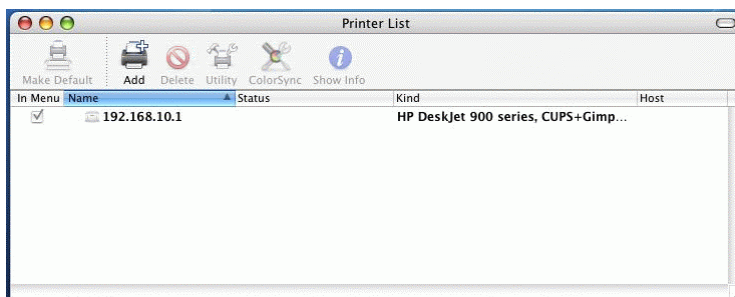
11. In the **Printer Model** list, select the desired printer type.

A list of models appears.



12. In the **Model Name** list, select the desired model.
13. Click **Add**.

The new printer appears in the **Printer List** window.



14. In the **Printer List** window, select the newly added printer, and click **Make Default**.



## Viewing Network Printers

CPG310

### To view network printers

1. Click **Setup** in the main menu, and click the **Printers** tab.

The **Printers** page appears, displaying a list of connected printers.

For each printer, the model, serial number, port, and status is displayed.

A printer can have the following statuses:

- **Initialize.** The printer is initializing.
- **Ready.** The printer is ready.
- **Not Ready.** The printer is not ready. For example, it may be out of paper.
- **Printing.** The printer is processing a print job.
- **Restarting.** The printer server is restarting.
- **Fail.** An error occurred. See the Event Log for details (*Viewing the Event Log* on page 187).

2. To refresh the display, click **Refresh**.

## Changing Network Printer Ports

CPG310

When you set up a new network printer, the NetDefend firewall automatically assigns a port number to the printer. If you want to use a different port number, you can easily change it, as described in *Setting up Network Printers* on page 424.

However, you may sometimes need to change the port number after completing printer setup. For example, you may want to replace a malfunctioning network printer, with another existing network printer, without reconfiguring the client



computers. To do this, you must change the replacement printer's port number to the malfunctioning printer's port number, as described below.



Note: Each printer port number must be different, and must be a high port.

### To change a printer's port

1. Click **Setup** in the main menu, and click the **Printers** tab.  
The **Printers** page appears.
2. In the printer's **Printer Server TCP Port** field, type the desired port number.
3. Click **Apply**.

## Resetting Network Printers



CPG310

You can cause a network printer to restart the current print job, by resetting the network printer. You may want to do this if the print job has stalled.

### To reset a network printer

1. Click **Setup** in the main menu, and click the **Printers** tab.  
The **Printers** page appears.
2. Next to the desired printer, click **Reset**.  
The network printer's current print job is restarted.





## Chapter 16

# Troubleshooting

This chapter provides solutions to common problems you may encounter while using the NetDefend firewall.



Note: For information on troubleshooting wireless connectivity, see ***Troubleshooting Wireless Connectivity*** on page 183.

This chapter includes the following topics:

Connectivity .....	438
Service Center and Upgrades.....	442
Other Problems .....	443



## Connectivity

I cannot access the Internet. What should I do?

- Check if the PWR/SEC LED is green. If not, check the power connection to the NetDefend firewall.
- Check if the WAN LINK/ACT LED is green. If not, check the network cable to the modem and make sure the modem is turned on.
- Check if the LAN LINK/ACT LED for the port used by your computer is green. If not, check if the network cable linking your computer to the NetDefend firewall is connected properly. Try replacing the cable or connecting it to a different LAN port.
- Using your Web browser, go to <http://my.firewall> and see whether "Connected" appears on the Status Bar. Make sure that your NetDefend firewall network settings are configured as per your ISP directions.
- Check your TCP/IP configuration according to *Installing and Setting up the NetDefend firewall* on page 15.
- If Web Filtering or Email Filtering are on, try turning them off.
- Check if you have defined firewall rules which block your Internet connectivity.
- Check with your ISP for possible service outage.
- Check whether you are exceeding the maximum number of computers allowed by your license, by viewing the **Active Computers** page.

I cannot access my DSL broadband connection. What should I do?

DSL equipment comes in two flavors: bridges (commonly known as DSL modems) and routers. Some DSL equipment can be configured to work both ways.

- If you connect to your ISP using a PPPoE or PPTP dialer defined in your operating system, your equipment is most likely configured as a DSL bridge. Configure a PPPoE or PPTP type DSL connection.
- If you were not instructed to configure a dialer in your operating system, your equipment is most likely configured as a DSL router. Configure a LAN connection, even if you are using a DSL connection.

For instructions, see *Configuring the Internet Connection* on page 53.

I cannot access my Cable broadband connection. What should I do?

- Some cable ISPs require you to register the MAC address of the device behind the cable modem. You may need to clone your Ethernet adapter MAC address onto the NetDefend firewall. For instructions, see *Configuring the Internet Connection* on page 53.
- Some cable ISPs require using a hostname for the connection. Try reconfiguring your Internet connection and specifying a hostname. For further information, see *Configuring the Internet Connection* on page 53.

I cannot access <http://my.firewall> or <http://my.vpn>. What should I do?

- Verify that the NetDefend firewall is operating (PWR/SEC LED is active)
- Check if the LAN LINK/ACT LED for the port used by your computer is on. If not, check if the network cable linking your computer to the NetDefend firewall is connected properly.



Note: You may need to use a crossed cable when connecting the NetDefend firewall to another hub/switch.

- Try surfing to 192.168.10.1 instead of to my.firewall.



Note: 192.168.10 is the default value, and it may vary if you changed it in the My Network page.



- Check your TCP/IP configuration according to ***Installing and Setting up the NetDefend firewall*** on page 15.
- Restart your NetDefend firewall and your broadband modem by disconnecting the power and reconnecting after 5 seconds.
- If your Web browser is configured to use an HTTP proxy to access the Internet, add "my.firewall" or "my.vpn" to your proxy exceptions list.

My network seems extremely slow. What should I do?

- The Ethernet cables may be faulty. For proper operation, the NetDefend firewall requires STP CAT5 (Shielded Twisted Pair Category 5) Ethernet cables. Make sure that this specification is printed on your cables.
- Your Ethernet card may be faulty or incorrectly configured. Try replacing your Ethernet card.
- There may be an IP address conflict in your network. Check that the TCP/IP settings of all your computers are configured to obtain an IP address automatically.

I changed the network settings to incorrect values and am unable to correct my error. What should I do?

Reset the network to its default settings using the button on the back of the NetDefend firewall unit. See ***Resetting the NetDefend firewall to Defaults*** on page 418.

I am using the NetDefend firewall behind another NAT device, and I am having problems with some applications. What should I do?

By default, the NetDefend firewall performs Network Address Translation (NAT). It is possible to use the NetDefend firewall behind another device that performs NAT, such as a DSL router or Wireless router, but the device will block all incoming connections from reaching your NetDefend firewall.

To fix this problem, do ONE of the following. (The solutions are listed in order of preference.)

- Consider whether you really need the router. The NetDefend firewall can be used as a replacement for your router, unless you need it for some additional functionality that it provides, such as Wireless access.
- If possible, disable NAT in the router. Refer to the router's documentation for instructions on how to do this.
- If the router has a "DMZ Computer" or "Exposed Host" option, set it to the NetDefend firewall's external IP address.
- Open the following ports in the NAT device:
  - UDP 9281/9282
  - UDP 500
  - TCP 256
  - TCP 264
  - ESP IP protocol 50
  - TCP 981

I cannot receive audio or video calls through the NetDefend firewall. What should I do?

To enable audio/video, you must configure an IP Telephony (H.323) virtual server. For instructions, see *Configuring Servers* on page 207.

I run a public Web server at home but it cannot be accessed from the Internet. What should I do?

Configure a virtual Web Server. For instructions, see *Configuring Servers* on page 207.

I cannot connect to the LAN network from the DMZ or WLAN network. What should I do?

By default, connections from the DMZ or WLAN network to the LAN network are blocked. To allow traffic from the DMZ or WLAN to the LAN, configure appropriate firewall rules. For instructions, see *Using Rules* on page 209.



## Service Center and Upgrades

I purchased an advanced NetDefend model, but I only have the functionality of a simpler NetDefend model. What should I do?

You have not installed your product key. For further information, see *Upgrading Your Software Product* on page 379.

I have exceeded my node limit. What does this mean? What should I do?

Your Product Key specifies a maximum number of nodes that you may connect to the NetDefend firewall.

The NetDefend firewall tracks the cumulative number of nodes on the internal network that have communicated through the firewall. When the NetDefend firewall encounters an IP address that exceeds the licensed node limit, the Active Computers page displays a warning message and marks nodes over the node limit in red. These nodes will not be able to access the Internet through the NetDefend firewall, but will be protected. The Event Log page also warns you that you have exceeded the node limit.

To upgrade your NetDefend firewall to support more nodes, purchase a new Product Key. Contact your reseller for upgrade information.

While trying to connect to a Service Center, I received the message "The Service Center did not respond". What should I do?

- If you are using a Service Center other than the Check Point Service Center, check that the Service Center IP address is typed correctly.
- The NetDefend firewall connects to the Service Center using UDP ports 9281/9282. If the NetDefend firewall is installed behind another firewall, make sure that these ports are open.



## Other Problems

I have forgotten my password. What should I do?

Reset your NetDefend firewall to factory defaults using the Reset button as detailed in *Resetting the NetDefend firewall to Defaults* on page 418.

Why are the date and time displayed incorrectly?

You can adjust the time on the Setup page's Tools tab. For information, see *Setting the Time on the Appliance* on page 397.

I cannot use a certain network application. What should I do?

Look at the Event Log page. If it lists blocked attacks, do the following:

- Set the NetDefend firewall's firewall level to **Low** and try again.
- If the application still does not work, set the computer on which you want to use the application to be the exposed host.

For instructions, see *Defining an Exposed Host* on page 261.

When you have finished using the application, make sure to clear the exposed host setting, otherwise your security might be compromised.







## Chapter 17

# Specifications

This chapter includes the following topics:

Technical Specifications ..... 445

CE Declaration of Conformity..... 449

Federal Communications Commission Radio Frequency Interference  
Statement ..... 451

## Technical Specifications

Table 86: NetDefend Appliance Attributes

Attribute	DFL-CP310	DFL-CPG310
General		
Dimensions (width x height x depth)	20 x 3.1 x 15.5 cm (7.9 x 1.2 x 6.1 inches)	20 x 3.1 x 15.5 cm (7.9 x 1.2 x 6.1 inches)
Weight	0.69 kg (1.55 lbs)	0.69 kg (1.55 lbs)
Power supply nominal input voltage, frequency	All Models: 100~240VAC, 50~60Hz	All Models: 100~240VAC, 50~60Hz
Power supply nominal output voltage	All Models: 5VDC, 3A	All Models: 5VDC, 3A



Attribute	DFL-CP310	DFL-CPG310
Max. Power Consumption	8W (1.6A)	8W (1.6A w/o external USB devices) 13W (2.6A w USB devices)
Retail box dimensions (width x height x depth)	29 x 25 x 7.6 cm (11.4 x 9.8 x 3 inches))	29 x 25 x 7.6 cm (11.4 x 9.8 x 3 inches)
Retail box weight	1.35 kg (3 lbs)	1.35 kg (3 lbs)
Environmental Conditions		
Temperature: Storage/Transport	- 5°C to +70°C	- 5°C to +70°C
Temperature: Operation	- 5°C ~ 50°C	- 5°C ~ 50°C
Humidity: Storage/Operation	5%~90% at 25°C/ None condensed	5%~90% at 25°C/ None condensed
Applicable Standards		
Shock & Vibration	CNS1219 C6343	CNS1219 C6343
Safety	EN60950/ IEC60950/ cTUVus 60950	EN60950/ IEC60950/ cTUVus 60950



Attribute	DFL-CP310	DFL-CPG310
Quality	ISO9001:2000	ISO9001:2000
	TL9000-HW R3.0	TL9000-HW R3.0
	ISO14001	ISO14001
	Ohsas18001: 1999	Ohsas18001: 1999
Mean Time Between Failures (MTBF)	68,000 Hours at 30 °C	68,000 Hours at 30 °C

**Table 87: NetDefend Wireless Attributes**

Attribute	DFL-CPG310 series
Operation Frequency	2.412-2.484 MHz
Transmission Power	79.4 mW
Modulation	OFDM, DSSS, 64QAM, 16QAM, QPSK, BPSK, CCK, DQPSK, DBPSK
WPA Authentication Modes	EAP-TLS, EAP-TTLS, PEAP (EAP-GTC), PEAP (EAP-MSCHAP V2)



## CE Declaration of Conformity

SofaWare Technologies Ltd., 3 Hilazon St., Ramat-Gan Israel, hereby declares that this equipment is in conformity with the essential requirements specified in Article 3.1 (a) and 3.1 (b) of:

- Directive 89/336/EEC (EMC Directive)
- Directive 73/23/EEC (Low Voltage Directive – LVD)
- Directive 99/05/EEC (Radio Equipment and Telecommunications Terminal Equipment Directive)

In accordance with the following standards:

**Table 88: NetDefend Appliance Standards**

Attribute	DFL-CP310	DFL-CPG310
EMC	EN 55022:1998	EN 50081-1:1992
	EN 61000-3-2: 1995	EN 50082-1:1997
	EN 61000-3-3: 1995	EN 61000-6-1:2001
	EN 61000-4-2:1995	EN 61000-6-3:2001
	EN 61000-4-3:1995	EN 55022:1998
	EN 61000-4-4:1995	EN 55024:1998
	EN 61000-4-5:1995	EN 61000-3-2: 1995
	EN 61000-4-6:1996	EN 61000-3-3: 1995



Attribute	DFL-CP310	DFL-CPG310
	EN 61000-4-8:1993	EN 61000-4-2:1995
	EN 61000-4-11:1994	EN 61000-4-3:1996/A2:2001
	ENV50204:1995	EN 61000-4-4:1995
		EN 61000-4-5:1995
		EN 61000-4-6:1996
		EN 61000-4-7:1993
		EN 61000-4-8:1993
		EN 61000-4-9:1993
		EN 61000-4-10:1993
		EN 61000-4-11:1994
		EN 61000-4-12:1995
Safety	EN 60950: 2000	EN 60950: 2000
	IEC 60950:1999	IEC 60950:1999

The "CE" mark is affixed to this product to demonstrate conformance to the R&TTE Directive 99/05/EEC (Radio Equipment and Telecommunications Terminal Equipment Directive) and FCC Part 15 Class B.

The product has been tested in a typical configuration. For a copy of the Original Signed Declaration (in full conformance with EN45014), please contact SofaWare at the above address.



## **Federal Communications Commission Radio Frequency Interference Statement**

This equipment complies 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 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.

Shielded cables must be used with this equipment to maintain compliance with FCC regulations.

Any changes or modifications to this product not explicitly approved by the manufacturer could void the user's authority to operate the equipment and any assurances of Safety or Performance, and could result in violation of Part 15 of the FCC Rules.

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

This Class B digital apparatus complies with Canadian ICES-003.

### **FCC Radiation Exposure Statement for Wireless Models**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. The antenna(s) used for this equipment must be installed to provide a separation distance of at least eight inches (20 cm) from all persons. This equipment must not be operated in conjunction with any other antenna.







---

## Glossary of Terms

### A

#### ADSL Modem

A device connecting a computer to the Internet via an existing phone line. ADSL (Asymmetric Digital Subscriber Line) modems offer a high-speed 'always-on' connection.

### C

#### CA

The Certificate Authority (CA) issues certificates to entities such as gateways, users, or computers. The entity later uses the certificate to identify itself and provide verifiable information. For instance, the certificate includes the Distinguished Name (DN) (identifying information) of the entity, as well as the public key (information about itself), and possibly the IP address.

After two entities exchange and validate each other's certificates, they can begin encrypting information between themselves using the public keys in the certificates.

#### Cable Modem

A device connecting a computer to the Internet via the cable television

network. Cable modems offer a high-speed 'always-on' connection.

#### Certificate Authority

The Certificate Authority (CA) issues certificates to entities such as gateways, users, or computers. The entity later uses the certificate to identify itself and provide verifiable information. For instance, the certificate includes the Distinguished Name (DN) (identifying information) of the entity, as well as the public key (information about itself), and possibly the IP address.

After two entities exchange and validate each other's certificates, they can begin encrypting information between themselves using the public keys in the certificates.

#### Cracking

An activity in which someone breaks into someone else's computer system, bypasses passwords or licenses in computer programs; or in other ways intentionally breaches computer security. The end result is that whatever resides on the computer can be viewed and sensitive data can be stolen without



anyone knowing about it.  
Sometimes, tiny programs are 'planted' on the computer that are designed to watch out for, seize and then transmit to another computer, specific types of data.

## D

### DHCP

Any machine requires a unique IP address to connect to the Internet using Internet Protocol. Dynamic Host Configuration Protocol (DHCP) is a communications protocol that assigns Internet Protocol (IP) addresses to computers on the network.

DHCP uses the concept of a "lease" or amount of time that a given IP address will be valid for a computer.

### DMZ

A DMZ (demilitarized zone) is an internal network defined in addition to the LAN network and protected by the NetDefend firewall.

### DNS

The Domain Name System (DNS) refers to the Internet domain names, or easy-to-remember "handles", that are translated into IP addresses.

An example of a Domain Name is 'www.sofaware.com'.

### Domain Name System

Domain Name System. The Domain Name System (DNS) refers to the Internet domain names, or easy-to-remember "handles", that are translated into IP addresses.

An example of a Domain Name is 'www.sofaware.com'.

## E

### Exposed Host

An exposed host allows one computer to be exposed to the Internet. An example of using an exposed host would be exposing a public server, while preventing outside users from getting direct access from this server back to the private network.

## F

### Firmware

Software embedded in a device.

## G

### Gateway

A network point that acts as an entrance to another network.

## H

### Hacking

An activity in which someone breaks into someone else's computer system, bypasses passwords or licenses in computer programs; or in



other ways intentionally breaches computer security. The end result is that whatever resides on the computer can be viewed and sensitive data can be stolen without anyone knowing about it. Sometimes, tiny programs are 'planted' on the computer that are designed to watch out for, seize and then transmit to another computer, specific types of data.

### HTTPS

Hypertext Transfer Protocol over Secure Socket Layer, or HTTP over SSL.

A protocol for accessing a secure Web server. It uses SSL as a sublayer under the regular HTTP application. This directs messages to a secure port number rather than the default Web port number, and uses a public key to encrypt data

HTTPS is used to transfer confidential user information.

### Hub

A device with multiple ports, connecting several PCs or network devices on a network.

### I

### IP Address

An IP address is a 32-bit number that identifies each computer sending or

receiving data packets across the Internet. When you request an HTML page or send e-mail, the Internet Protocol part of TCP/IP includes your IP address in the message and sends it to the IP address that is obtained by looking up the domain name in the Uniform Resource Locator you requested or in the e-mail address you're sending a note to. At the other end, the recipient can see the IP address of the Web page requestor or the e-mail sender and can respond by sending another message using the IP address it received.

### IP Spoofing

A technique where an attacker attempts to gain unauthorized access through a false source address to make it appear as though communications have originated in a part of the network with higher access privileges. For example, a packet originating on the Internet may be masquerading as a local packet with the source IP address of an internal host. The firewall can protect against IP spoofing attacks by limiting network access based on the gateway interface from which data is being received.

**IPSEC**

IPSEC is the leading Virtual Private Networking (VPN) standard. IPSEC enables individuals or offices to establish secure communication channels ('tunnels') over the Internet.

**ISP**

An ISP (Internet service provider) is a company that provides access to the Internet and other related services.

**L****LAN**

A local area network (LAN) is a group of computers and associated devices that share a common communications line and typically share the resources of a single server within a small geographic area.

**M****MAC Address**

The MAC (Media Access Control) address is a computer's unique hardware number. When connected to the Internet from your computer, a mapping relates your IP address to your computer's physical (MAC) address on the LAN.

**Mbps**

Megabits per second. Measurement unit for the rate of data transmission.

**MTU**

The Maximum Transmission Unit (MTU) is a parameter that determines the largest datagram that can be transmitted by an IP interface (without it needing to be broken down into smaller units). The MTU should be larger than the largest datagram you wish to transmit unfragmented. Note: This only prevents fragmentation locally. Some other link in the path may have a smaller MTU - the datagram will be fragmented at that point. Typical values are 1500 bytes for an Ethernet interface or 1452 for a PPP interface.

**N****NAT**

Network Address Translation (NAT) is the translation or mapping of an IP address to a different IP address. NAT can be used to map several internal IP addresses to a single IP address, thereby sharing a single IP address assigned by the ISP among several PCs.

Check Point FireWall-1's Stateful Inspection Network Address Translation (NAT) implementation supports hundreds of pre-defined applications, services, and protocols, more than any other firewall vendor.

**NetBIOS**

NetBIOS is the networking protocol used by DOS and Windows machines.

**P****Packet**

A packet is the basic unit of data that flows from one source on the Internet to another destination on the Internet. When any file (e-mail message, HTML file, GIF file etc.) is sent from one place to another on the Internet, the file is divided into "chunks" of an efficient size for routing. Each of these packets is separately numbered and includes the Internet address of the destination. The individual packets for a given file may travel different routes through the Internet. When they have all arrived, they are reassembled into the original file at the receiving end.

**PPPoE**

PPPoE (Point-to-Point Protocol over Ethernet) enables connecting multiple computer users on an Ethernet local area network to a remote site or ISP, through common customer premises equipment (e.g. modem).

**PPTP**

The Point-to-Point Tunneling Protocol (PPTP) allows extending a local network by establishing private "tunnels" over the Internet. This protocol it is also used by some DSL providers as an alternative for PPPoE.

**R****RJ-45**

The RJ-45 is a connector for digital transmission over ordinary phone wire.

**Router**

A router is a device that determines the next network point to which a packet should be forwarded toward its destination. The router is connected to at least two networks.

**S****Server**

A server is a program (or host) that awaits and requests from client programs across the network. For example, a Web server is the computer program, running on a specific host, that serves requested HTML pages or files. Your browser is the client program, in this case.

**Stateful Inspection**

Stateful Inspection was invented by Check Point to provide the highest



level of security by examining every layer within a packet, unlike other systems of inspection. Stateful Inspection extracts information required for security decisions from all application layers and retains this information in dynamic state tables for evaluating subsequent connection attempts. In other words, it learns!

#### Subnet Mask

A 32-bit identifier indicating how the network is split into subnets. The subnet mask indicates which part of the IP address is the host ID and which indicates the subnet.

## T

### TCP

TCP (Transmission Control Protocol) is a set of rules (protocol) used along with the Internet Protocol (IP) to send data in the form of message units between computers over the Internet. While IP takes care of handling the actual delivery of the data, TCP takes care of keeping track of the individual units of data (called packets) that a message is divided into for efficient routing through the Internet.

For example, when an HTML file is sent to you from a Web server, the Transmission Control Protocol (TCP) program layer in that server

divides the file into one or more packets, numbers the packets, and then forwards them individually to the IP program layer. Although each packet has the same destination IP address, it may get routed differently through the network.

At the other end (the client program in your computer), TCP reassembles the individual packets and waits until they have arrived to forward them to you as a single file.

### TCP/IP

TCP/IP (Transmission Control Protocol/Internet Protocol) is the underlying communication protocol of the Internet.

## U

### UDP

UDP (User Datagram Protocol) is a communications protocol that offers a limited amount of service when messages are exchanged between computers in a network that uses the Internet Protocol (IP). UDP is an alternative to the Transmission Control Protocol (TCP) and, together with IP, is sometimes referred to as UDP/IP. Like the Transmission Control Protocol, UDP uses the Internet Protocol to actually get a data unit (called a datagram) from one computer to another. Unlike



TCP, however, UDP does not provide the service of dividing a message into packets (datagrams) and reassembling it at the other end.

UDP is often used for applications such as streaming data.

## URL

A URL (Uniform Resource Locator) is the address of a file (resource) accessible on the Internet. The type of resource depends on the Internet application protocol. On the Web (which uses the Hypertext Transfer Protocol), an example of a URL is 'http://www.sofaware.com'.

## V

### VPN

A virtual private network (VPN) is a private data network that makes use of the public telecommunication infrastructure, maintaining privacy through the use of a tunneling protocol and security procedures.

### VPN tunnel

A secure connection between a Remote Access VPN Client and a Remote Access VPN Server.

## W

### WLAN

A WLAN is a wireless local area network protected by the NetDefend firewall.







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