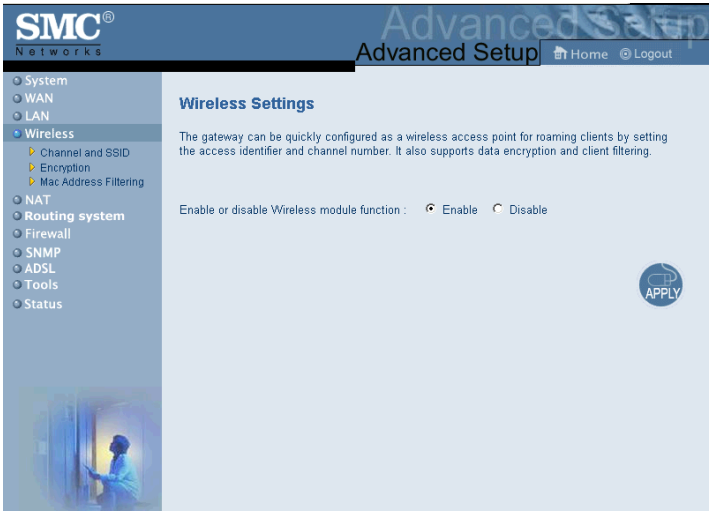
Wireless

The Barricade also operates as a wireless-to-wired bridge, allowing wireless computers to access resources available on the wired LAN, and to access the Internet. To configure the Barricade as a wireless access point for wireless clients (either stationary or roaming), all you need to do is enable the wireless function, define the radio channel, the domain identifier, and the encryption options. Check Enable and click APPLY.



Channel and SSID

You must specify a common radio channel and SSID (Service Set ID) to be used by the Barricade Wireless Router and all of your wireless clients. Be sure you configure all of your clients to the same values.

Parameter	Description
ESSID	Extended Service Set ID. The ESSID must be the same on the Barricade and all of its wireless clients.
Transmission Rate	The default is Fully Automatic. The transmission rate is automatically adjusted based on the receiving data error rate. Usually the connection quality will vary depending on the distance between the wireless router and wireless adapter. You can also select a lower transmission data rate to maximize the radio communication range.

Parameter	Description
Basic Rate	The highest rate specified will be the rate that the Barricade will use when transmitting broadcast/multicast and management frames. Available options are: All (1, 2, 5.5, and 11Mbps), and 1, 2Mbps (default is 1, 2Mbps).
Channel	The radio channel must be the same on the Barricade and all of your wireless clients. The Barricade will automatically assign itself a radio channel, or you may select one manually.

Encryption

If you are transmitting sensitive data across wireless channels, you should enable encryption. You must use the same set of encryption keys for the Barricade and all of the wireless clients. Choose between standard 64-bit WEP (Wired Equivalent Privacy) or the more robust 128-bit encryption.

You may automatically generate encryption keys or manually enter the keys. For automatic 64-bit security, enter a passphrase and click Generate, four keys will be generated. Choose a key from the drop-down list or accept the default key. Automatic 128-bit security generates a single key.

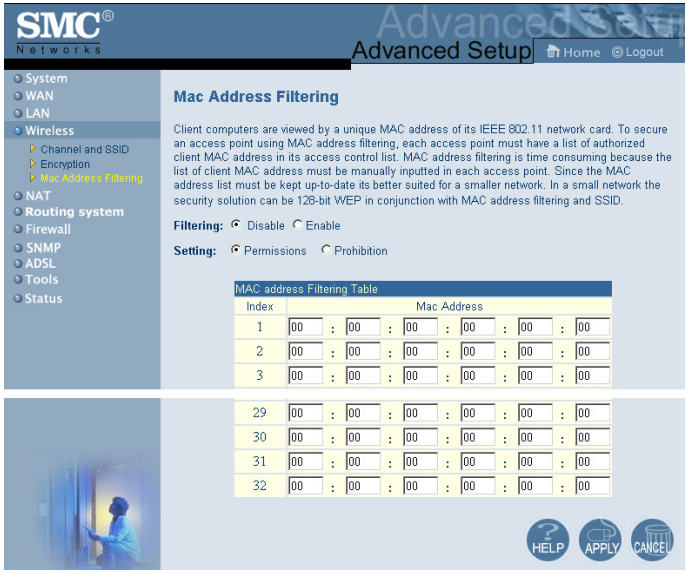
Note: The passphrase can consist of up to 32 alphanumeric characters.

To manually configure the keys, enter five hexadecimal pairs of digits for each 64-bit key, or enter 13 pairs for the single 128-bit key. (A hexadecimal digit is a number or letter in the range 0-9 or A-F.)

Note that WEP protects data transmitted between wireless nodes, but does not protect any transmissions over your wired network or over the Internet.

MAC Address Filtering

Client computers can be filtered using the unique MAC address of their IEEE 802.11 network card. To secure an access point using MAC address filtering, you must enter a list of allowed/denied client MAC addresses into the filtering table. (See "Finding the MAC address of a Network Card" on page 4-57.)



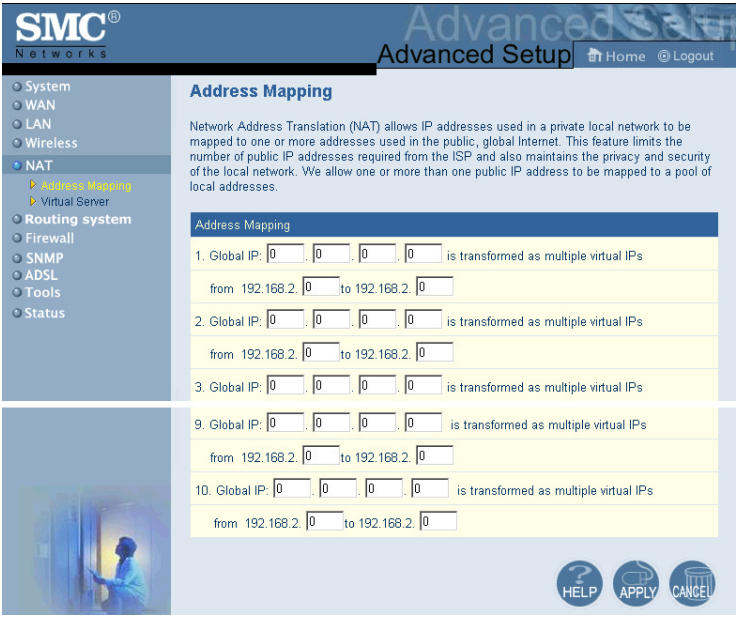
Parameter	Description
Filtering	
Disable	Disables MAC address filtering.
Enable	Enables MAC address filtering.
Setting	
Permissions	Allows only devices with their MAC address in the list to connect to the Barricade.
Prohibition	Denies access to the Barricade from devices with their MAC address in the list.

NAT

Some applications require multiple connections, such as Internet gaming, videoconferencing, and Internet telephony. These applications may not work when Network Address Translation (NAT) is enabled. If you need to run applications that require multiple connections, use these pages to specify the additional public ports to be opened for each application.

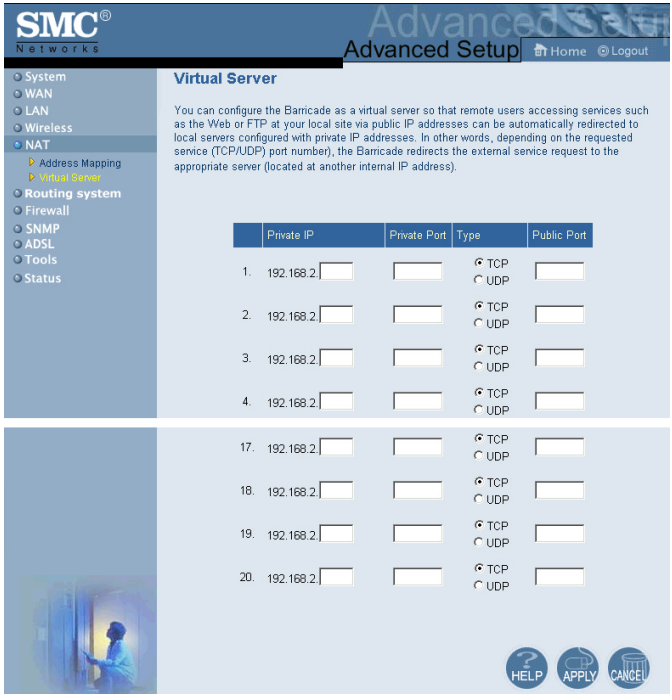
Address Mapping

Allows one or more public IP addresses to be shared by multiple internal users. This also hides the internal network for increased privacy and security. Enter the Public IP address you wish to share into the Global IP field. Enter a range of internal IPs that will share the global IP into the from field.



Virtual Server

If you configure the Barricade as a virtual server, remote users accessing services such as Web or FTP at your local site via public IP addresses can be automatically redirected to local servers configured with private IP addresses. In other words, depending on the requested service (TCP/UDP port number), the Barricade redirects the external service request to the appropriate server (located at another internal IP address).

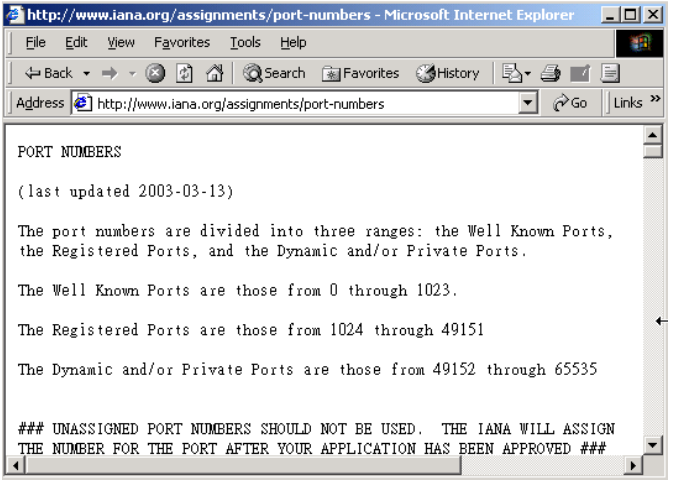


If you configure the Barricade as a virtual server, remote users accessing services such as Web or FTP at your local site via public IP addresses can be automatically redirected to local servers configured with private IP addresses. In other words, depending on the requested service (TCP/UDP port number), the Barricade redirects the external service request to the appropriate server (located at another internal IP address).

For example, if you set Type/Public Port to TCP/80 (HTTP or Web) and the Private IP/Port to 192.168.2.2/80, then all HTTP requests from outside users will be transferred to 192.168.2.2 on port 80. Therefore, by just entering the IP Address provided by the ISP, Internet users can access the service they need at the local address to which you redirect them.

The more common TCP service ports include:

HTTP: 80, FTP: 21, Telnet: 23, and POP3: 110. A list of ports is maintained at the following link:
http://www.iana.org/assignments/port-numbers.



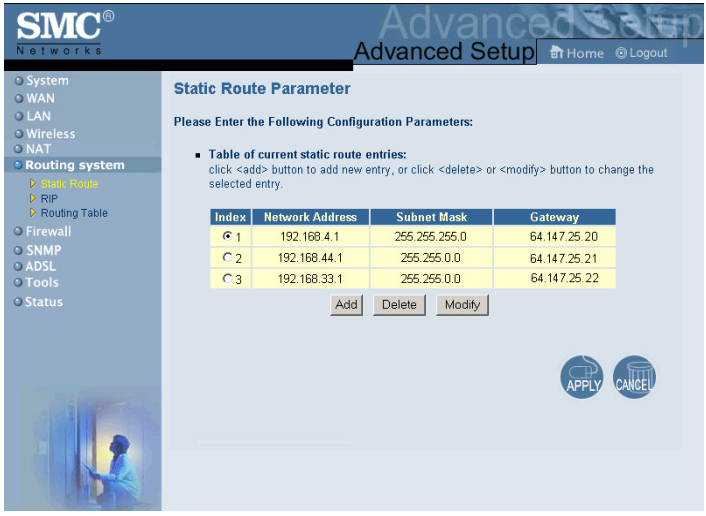
Note: The WAN interface should have a fixed IP address to best utilize this function. If your ISP only provides dynamic IP addresses, a search for "free dynamic IP" on any major search engine will turn up tools that will allow you to use the same domain name even though your IP address changes each time you log into the ISP.

Routing System

These pages define routing related parameters, including static routes and RIP (Routing Information Protocol) parameters.

Static Route

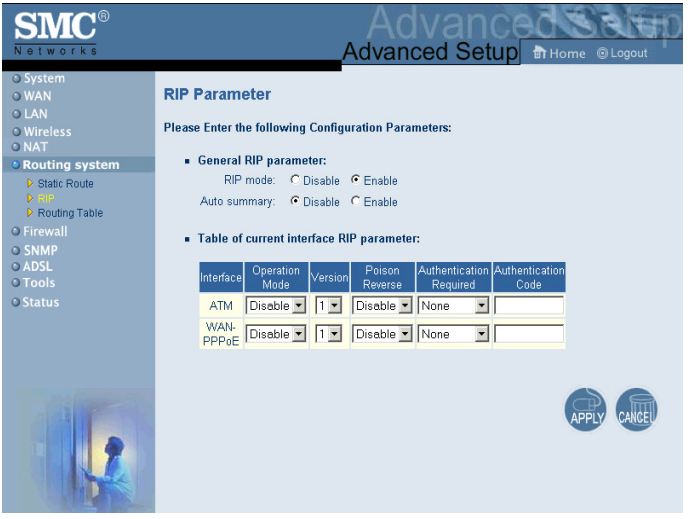
Click Add to add a new static route to the list, or check the box of an already entered route and click Modify. Click Delete to remove an entry from the list.



Parameter	Description
Index	Check the box of the route you wish to delete or modify.
Network Address	Enter the IP address of the remote computer for which to set a static route.
Subnet Mask	Enter the subnet mask of the remote network for which to set a static route.
Gateway	Enter the WAN IP address of the gateway to the remote network.

RIP

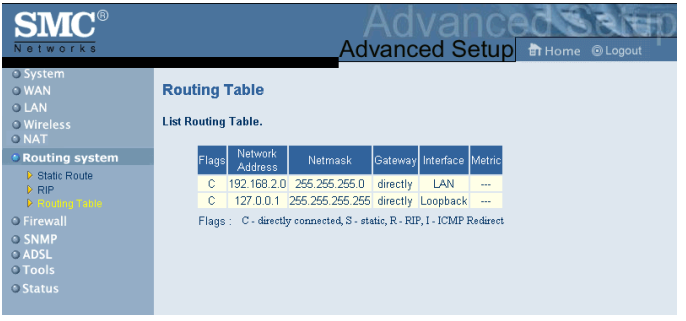
Routing Information Protocol (RIP) sends routing-update messages at regular intervals and when the network topology changes. When a router receives a routing update that includes changes to an entry, it updates its routing table to reflect the new route. RIP routers maintain only the best route to a destination. After updating its routing table, the router immediately begins transmitting routing updates to inform other network routers of the change.



Parameter	Description
Interface	The WAN interface to be configured.
Operation Mode	Disable: RIP disabled on this interface. Enable: RIP enabled on this interface. Silent: Listens for route broadcasts and updates its route table. It does not participate in sending route broadcasts.
Version	Sets the RIP (Routing Information Protocol) version to use on this interface.

Parameter	Description
Poison Reverse	A way in which a router tells its neighbor routers that one of the routers is no longer connected.
Authentication Required	• None: No authentication. • Password: A password authentication key is included in the packet. If this does not match what is expected, the packet will be discarded. This method provides very little security as it is possible to learn the authentication key by watching RIP packets. MD5: MD5 is an algorithm that is used to verify data integrity through the creation of a 128-bit message digest from data input (which may be a message of any length) that is claimed to be as unique to that specific data as a fingerprint is to a specific individual.
Authentication Code	Password or MD5 Authentication key.

Routing Table

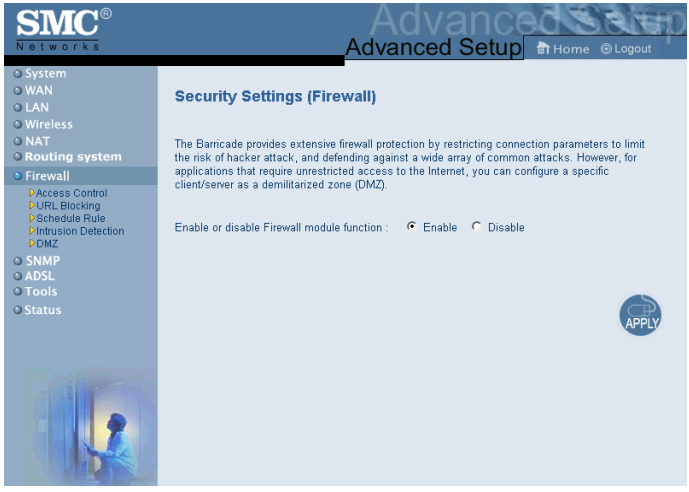


Parameter	Description
Flags	Indicates the route status: C = Direct connection on the same subnet. S = Static route. R = RIP (Routing Information Protocol) assigned route. I = ICMP (Internet Control Message Protocol) Redirect route.
Network Address	Destination IP address.
Netmask	The subnetwork associated with the destination. This is a template that identifies the address bits in the destination address used for routing to specific subnets. Each bit that corresponds to a "1" is part of the network/subnet number; each bit that corresponds to "0" is part of the host number.
Gateway	The IP address of the router at the next hop to which matching frames are forwarded.
Interface	The local interface through which the next hop of this route is reached.
Metric	When a router receives a routing update that contains a new or changed destination network entry, the router adds 1 to the metric value indicated in the update and enters the network in the routing table.

Note: Most modern routers support RIP-2 so there is usually no need for a static route table.

Firewall

The Barricade Router's firewall inspects packets at the application layer, maintains TCP and UDP session information including time-outs and number of active sessions, and provides the ability to detect and prevent certain types of network attacks.



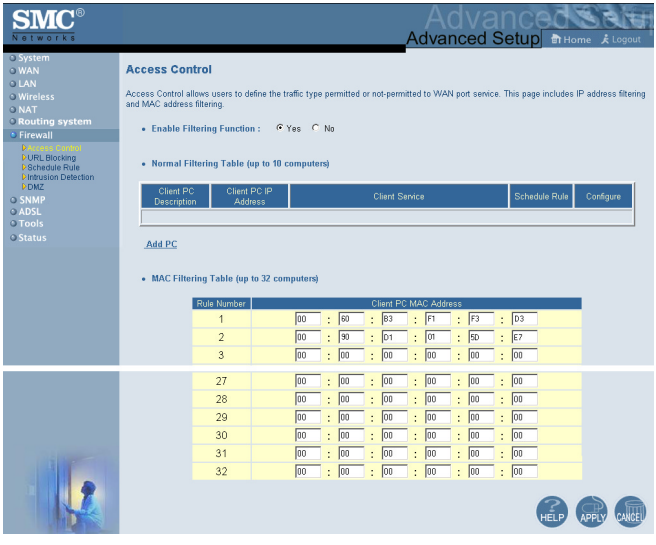
Network attacks that deny access to a network device are called Denial-of-Service (DoS) attacks. DoS attacks are aimed at devices and networks with a connection to the Internet. Their goal is not to steal information, but to disable a device or network so users no longer have access to network resources.

The Barricade protects against the following DoS attacks: IP Spoofing, Land Attack, Ping of Death, IP with zero length, Smurf Attack, UDP port loopback, Snork Attack, TCP null scan, and TCP SYN flooding. (See "Intrusion Detection" on page 4-42 for details.)

The firewall does not significantly affect system performance, so we advise leaving it enabled to protect your network. Select Enable and click the APPLY button to open the Firewall submenus.

Access Control

Access Control allows users to define the outgoing traffic permitted or not-permitted through the WAN interface. The default is to permit all outgoing traffic.

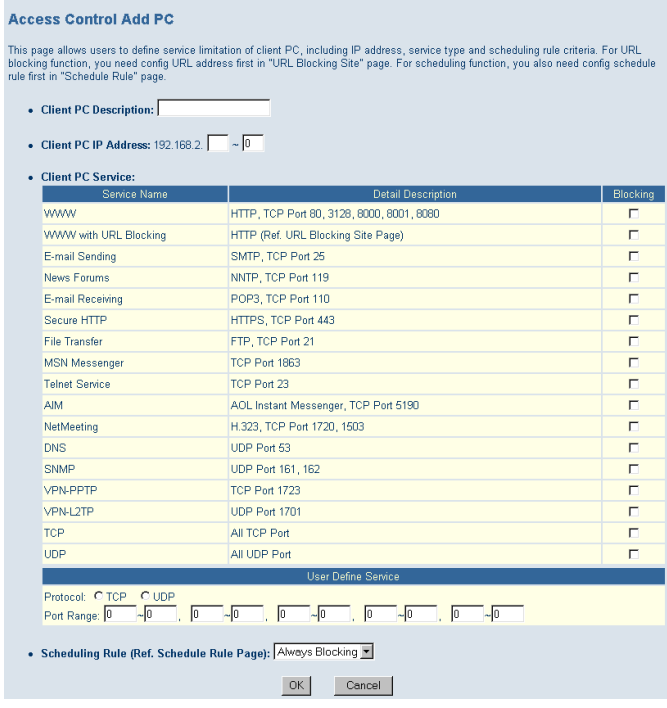


The Barricade can also limit the access of hosts within the local area network (LAN). The MAC Filtering Table allows the Barricade to enter up to 32 MAC addresses that are not allowed access to the WAN port.

The following items are on the Access Control screen:

Parameter	Description
Normal Filtering Table	Displays the IP address (or an IP address range) filtering table.
MAC Filtering Table	Displays the MAC (Media Access Control) address filtering table.

1. Click Add PC on the Access Control screen.
2. Define the appropriate settings for client PC services (as shown on the following screen).
3. Click OK and then click APPLY to save your settings.



URL Blocking

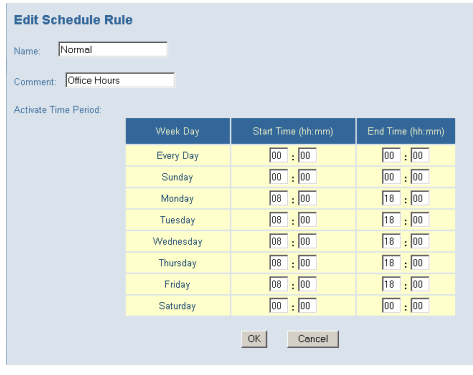
The Barricade allows the user to block access to Web sites from a particular PC by entering either a full URL address or just a keyword. This feature can be used to protect children from accessing violent or pornographic Web sites.

Schedule Rule

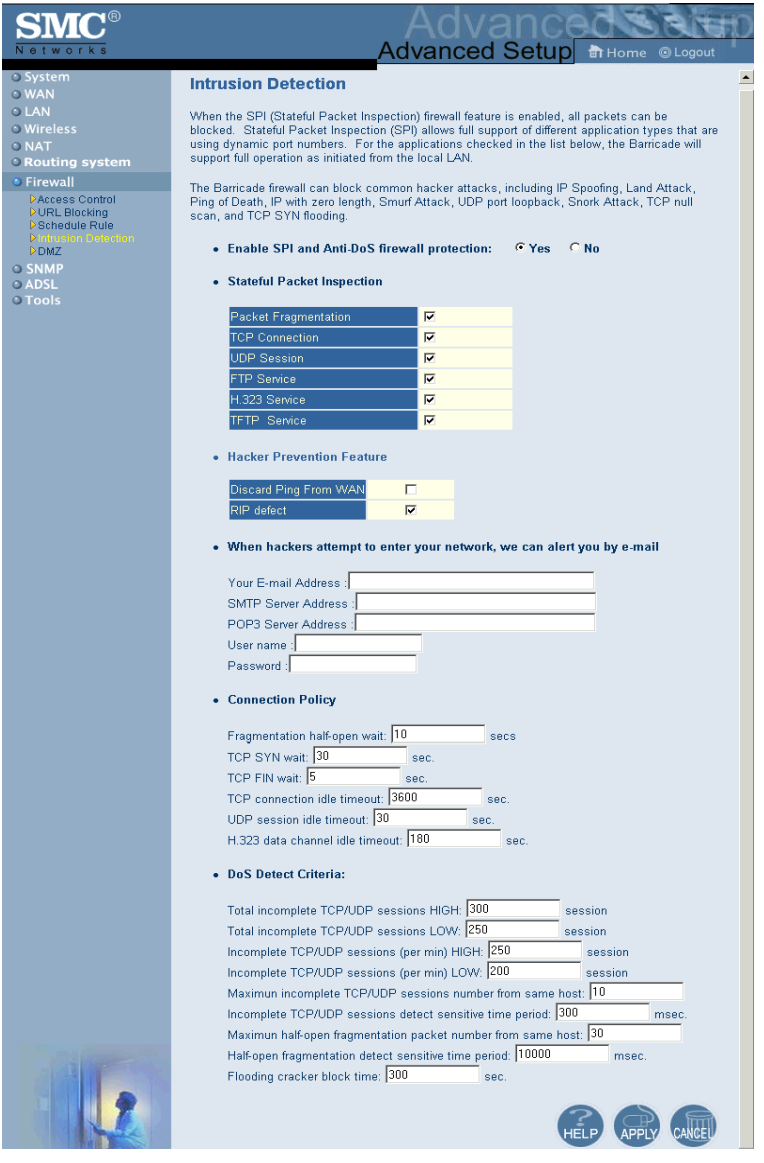
You may filter Internet access for local clients based on rules. Each access control rule may be activated at a scheduled time. Define the schedule on the Schedule Rule page, and apply the rule on the Access Control page.

Follow steps to add schedule rule:

1. Click Add Schedule Rule.
2. Define the appropriate settings for a schedule rule (as shown on the following screen).
3. Click OK and then click APPLY to save your settings.



Intrusion Detection



- **Intrusion Detection Feature**

SPI and Anti-DoS firewall protection (Default: Enabled) — The Intrusion Detection Feature of the Barricade Router limits access for incoming traffic at the WAN port. When the SPI feature is turned on, all incoming packets will be blocked except for those types marked with a check in the Stateful Packet Inspection section.

RIP Defect (Default: Enabled) — If an RIP request packet is not replied to by the router, it will stay in the input queue and not be released. Accumulated packets could cause the input queue to fill, causing severe problems for all protocols. Enabling this feature prevents the packets accumulating.

Discard Ping from WAN (Default: Disabled) — Prevent a PING on the Gateway's WAN port from being routed to the network.

- **Stateful Packet Inspection**

This is called a "stateful" packet inspection because it examines the contents of the packet to determine the state of the communications; i.e., it ensures that the stated destination computer has previously requested the current communication. This is a way of ensuring that all communications are initiated by the recipient computer and are taking place only with sources that are known and trusted from previous interactions. In addition to being more rigorous in their inspection of packets, stateful inspection firewalls also close off ports until connection to the specific port is requested.

When particular types of traffic are checked, only the particular type of traffic initiated from the internal LAN will be allowed. For example, if the user only checks "FTP Service" in the Stateful Packet Inspection section, all incoming traffic will be blocked except for FTP connections initiated from the local LAN.

Stateful Packet Inspection allows you to select different application types that are using dynamic port numbers. If you wish to use the Stateful Packet Inspection (SPI) to block packets, click on the Yes radio button in the "Enable SPI and Anti-DoS firewall protection" field and then check the inspection type that you need, such as Packet Fragmentation, TCP Connection, UDP Session, FTP Service, H.323 Service, and TFTP Service.

- **When hackers attempt to enter your network, we can alert you by e-mail**

Enter your E-mail address. Specify your SMTP and POP3 servers, user name, and password.

- **Connection Policy**

Enter the appropriate values for TCP/UDP sessions as described in the following table.

Parameter	Defaults	Description
Fragmentation half-open wait	10 sec	Configures the number of seconds that a packet state structure remains active. When the timeout value expires, the router drops the unassembled packet, freeing that structure for use by another packet.
TCP SYN wait	30 sec	Defines how long the software will wait for a TCP session to synchronize before dropping the session.
TCP FIN wait	5 sec	Specifies how long a TCP session will be maintained after the firewall detects a FIN packet.
TCP connection idle timeout	3600 seconds (1 hour)	The length of time for which a TCP session will be managed if there is no activity.
UDP session idle timeout	30 sec	The length of time for which a UDP session will be managed if there is no activity.
H.323 data channel idle timeout	180 sec	The length of time for which an H.323 session will be managed if there is no activity.

- **DoS Criteria and Port Scan Criteria**

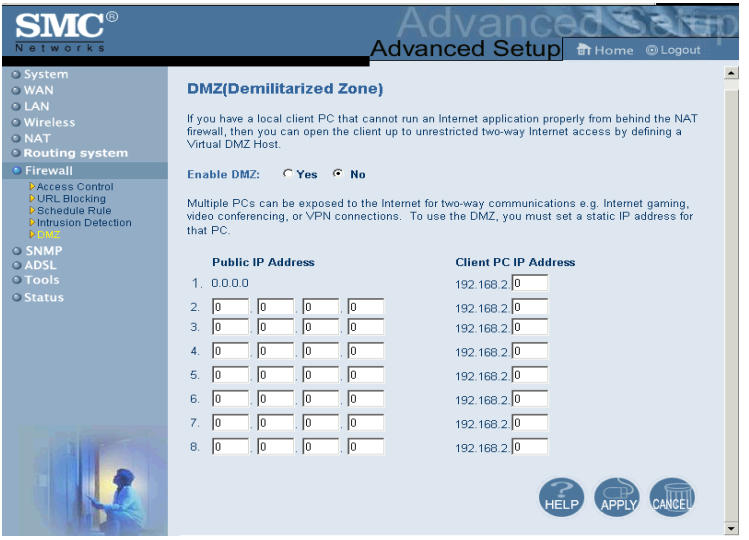
Set up DoS and port scan criteria in the spaces provided (as shown below).

Parameter	Defaults	Description
Total incomplete TCP/UDP sessions HIGH	300 sessions	Defines the rate of new unestablished sessions that will cause the software to start deleting half-open sessions.
Total incomplete TCP/UDP sessions LOW	250 sessions	Defines the rate of new unestablished sessions that will cause the software to stop deleting half-open sessions.
Incomplete TCP/UDP sessions (per min) HIGH	250 sessions	Maximum number of allowed incomplete TCP/UDP sessions per minute.
Incomplete TCP/UDP sessions (per min) LOW	200 sessions	Minimum number of allowed incomplete TCP/UDP sessions per minute.
Maximum incomplete TCP/UDP sessions number from same host	10	Maximum number of incomplete TCP/UDP sessions from the same host.
Incomplete TCP/UDP sessions detect sensitive time period	300 msec	Length of time before an incomplete TCP/UDP session is detected as incomplete.
Maximum half-open fragmentation packet number from same host	30	Maximum number of half-open fragmentation packets from the same host.
Half-open fragmentation detect sensitive time period	10000 msec	Length of time before a half-open fragmentation session is detected as half-open.
Flooding cracker block time	300 second	Length of time from detecting a flood attack to blocking the attack.

Note: The firewall does not significantly affect system performance, so we advise enabling the prevention features to protect your network.

DMZ

If you have a client PC that cannot run an Internet application properly from behind the firewall, you can open the client up to unrestricted two-way Internet access. Enter the IP address of a DMZ (Demilitarized Zone) host on this screen. Adding a client to the DMZ may expose your local network to a variety of security risks, so only use this option as a last resort.

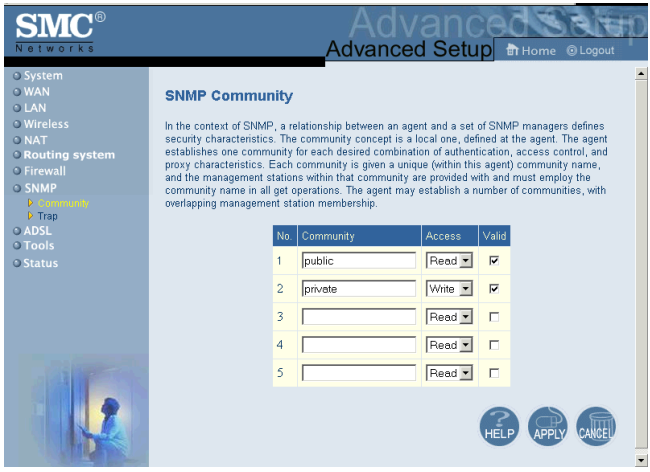


SNMP

Use the SNMP configuration screen to display and modify parameters for the Simple Network Management Protocol (SNMP).

Community

A computer attached to the network, called a Network Management Station (NMS), can be used to access this information. Access rights to the agent are controlled by community strings. To communicate with the Barricade, the NMS must first submit a valid community string for authentication.

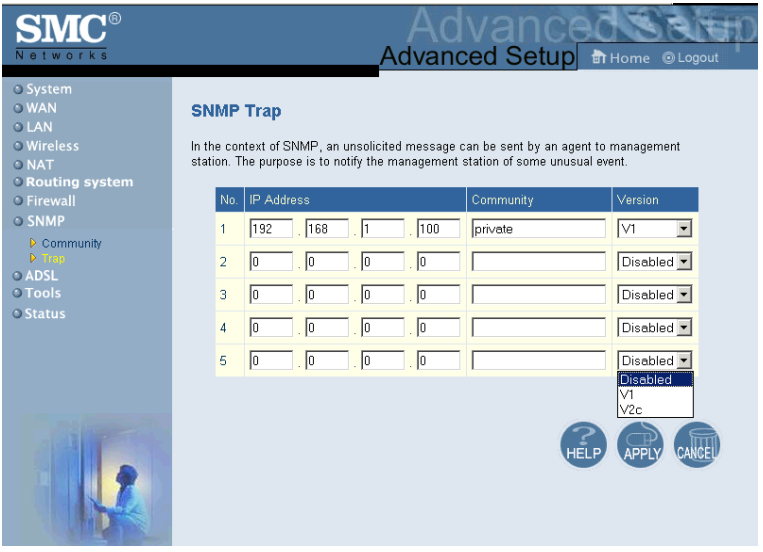


Parameter	Description
Community	A community name authorized for management access.
Access	Management access is restricted to Read Only (Read) or Read/Write (Write).
Valid	Enables/disables the entry.

Note: Up to 5 community names may be entered.

Trap

Specify the IP address to notify an NMS that a significant event has occurred at an agent. When a trap condition occurs, the SNMP agent sends an SNMP trap message to any NMSs specified as the trap receivers.

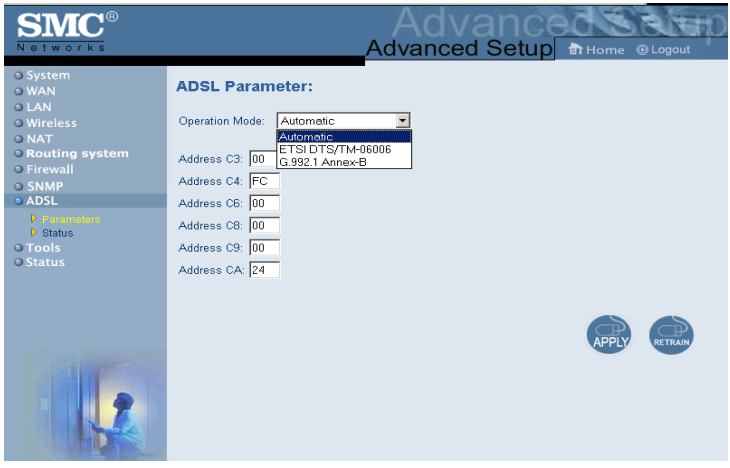


Parameter	Description
IP Address	Traps are sent to this address when errors or specific events occur on the network.
Community	A community string (password) specified for trap management. Enter a word, something other than public or private, to prevent unauthorized individuals from reading information on your system.
Version	Sets the trap status to disabled, or enabled with V1 or V2c. The v2c protocol was proposed in late 1995 and includes enhancements to v1 that are universally accepted. These include a get-bulk command to reduce network management traffic when retrieving a sequence of MIB variables, and a more elaborate set of error codes for improved reporting to a Network Management Station.

ADSL

ADSL (Asymmetric Digital Subscriber Line) is designed to deliver more bandwidth downstream (from the central office to the customer site) than upstream. This section is used to configure the ADSL operation type and shows the ADSL status.

Parameters



Parameter	Description
Operation Mode	• Automatic • ETSI DTS/TM-06006 standard • G.992.1 standard
Address 3C etc.	Reserved.