

RUT956 Firewall

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The information in this page is updated in accordance with firmware version [RUT9M_R_00.07.04.5](#).

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Summary

RUT956 devices use a standard Linux iptables package as its **firewall**, which uses routing chains and policies to facilitate control over inbound and outbound traffic.

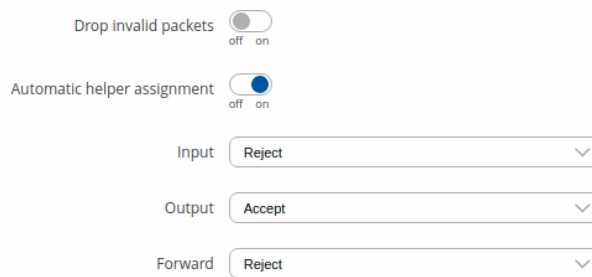
This chapter of the user manual provides an overview of the Firewall page for RUT956 devices.

If you're having trouble finding this page or some of the parameters described here on your device's WebUI, you should **turn on "Advanced WebUI" mode**. You can do that by clicking the "Basic" button under "Mode", which is located at the top-right corner of the WebUI.

General Settings

The **General Settings** section is used to configure the main policies of the device's firewall. The figure below is an example of the General Settings section and the table below provides information on the fields contained in that section:

▼ GENERAL SETTINGS



Field	Value	Description
Drop invalid packets	off on; default: off	If enabled, a "Drop" action will be performed on packets that are determined to be invalid.
Automatic helper assignment	off on; default: on	Automatically assigns conntrack helpers based on traffic protocol and port. If turned off, conntrack helpers can be selected for each zone.
Input	Reject Drop Accept; default: Reject	Default action* of the INPUT chain if a packet does not match any existing rule on that chain.
Output	Reject Drop Accept; default: Accept	Default action* of the OUTPUT chain if a packet does not match any existing rule on that chain.
Forward	Reject Drop Accept; default: Reject	Default action* of the FORWARD chain if a packet does not match any existing rule on that chain.

* When a packet goes through a firewall chain it is matched against all the rules of that specific chain. If no rule matches said packet, an according Action (Drop, Reject or Accept) is performed:

- **Accept** - packet gets to continue to the next chain.
- **Drop** - packet is stopped and deleted.
- **Reject** - packet is stopped, deleted and, differently from Drop, a message of rejection is sent to the source from which the packet came.

Routing/NAT Offloading

The **Routing/NAT Offloading** is used to turns software flow offloading on or off.

The device checks whether the flow (sequence of related packets) is of a received a packed is known. Packets of unknown flow are forwarded to the networking stack. Meanwhile, if the flow is known, NAT is applied (if matched) and the packet is forwarded to the correct destination port. This process is called **software flow offloading**.

ROUTING/NAT OFFLOADING

Software flow offloading

Field	Value	Description
Software flow offloading	off on; default: on	Turns software flow offloading on or off.

Zones

The **Zones** section is used to manage default traffic forwarding policies between different device zones. The figure below is an example of the Zones section and the table below provides information on the fields contained in that section:

ZONES

ZONE ⇒ FORWARDINGS	INPUT	OUTPUT	FORWARD	MASQUERADING	MSS CLAMPING	
lan ⇒ wan	Accept	Accept	Accept	<input type="checkbox"/>	<input type="checkbox"/>	
wan ⇒ REJECT	Reject	Accept	Reject	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

You can change a zone's settings from this page by interacting with entries in the zones table. For a more in-depth configuration click the button that looks like a pencil next to a zone:

ZONES

ZONE ⇒ FORWARDINGS	INPUT	OUTPUT	FORWARD	MASQUERADING	MSS CLAMPING	
lan ⇒ wan	Accept	Accept	Accept	<input type="checkbox"/>	<input type="checkbox"/>	

Zones: General Settings

^ ZONE "LAN"

GENERAL SETTINGS

ADVANCED SETTINGS

Name

Input

Output

Forward

Masquerading off on

MSS clamping off on

Covered networks

Field	Value	Description
Name	string; default: newzone	A custom name for the zone. Used for easier management purposes.
Input	Reject Drop Accept; default: Accept	Default policy for traffic entering the zone.
Output	Reject Drop Accept; default: Accept	Default policy for traffic originating from and leaving the zone.
Forward	Reject Drop Accept; default: Reject	Default policy for traffic forwarded between the networks belonging to the zone.
Masquerading	off on; default: off	Turns Masquerading off or on. MASQUERADE is an iptables target that can be used instead of the SNAT (source NAT) target when the external IP of the network interface is not known at the moment of writing the rule (when the interface gets the external IP dynamically).
MSS clamping	off on; default: off	Turns MSS clamping off or on. MSS clamping is a workaround used to change the maximum segment size (MSS) of all TCP connections passing through links with an MTU lower than the Ethernet default of 1500.
Covered networks	network interface(s); default: none	Network or networks that belong to the zone.

Zones: Advanced Settings

^ ZONE "LAN"

GENERAL SETTINGS

ADVANCED SETTINGS

Restrict to address family

Restrict Masquerading to given source subnets +

Restrict Masquerading to given destination subnets

Force connection tracking off on

Enable logging on this zone off on

Field	Value	Description
-------	-------	-------------

Restrict to address family	IPv4 and IPv6 IPv4 only IPv6 only; default: IPv4 and IPv6	IP address family to which to rule will apply.
Restrict Masquerading to given source subnets	network/subnet; default: none	Applies Masquerading only to the specified source network/subnet.
Restrict Masquerading to given destinations subnets	network/subnet; default: none	Applies Masquerading only to the specified destination network/subnet.
Force connection tracking	off on; default: off	Always maintains connection state (NEW, ESTABLISHED, RELATED) information.
Enable logging on this zone	off on ; default: off	Logs packets that hit this rule.
Limit log messages	integer/minute; default: none	Limit how many messages can be logged in the span of 1 minute. For example, to log 50 packets per minute use: <i>50/minute</i> .
Conntrack helpers	Amanda backup and archiving proto (AMANDA) FTP passive connection tracking (FTP) RAS proto tracking (RAS) Q.931 proto tracking (Q.931) IRC DCC connection tracking (IRC) NetBIOS name service broadcast tracking (NETBIOS-NS) PPTP VPN connection tracking (PPTP) SIP VoIP connection tracking (SIP) SNMP monitoring connection tracking (SNMP) TFTP connection tracking (TFTP); default: none	This option appears only when automatic helper assignment option in the firewall's general settings is disabled. Explicitly choses allowed connection tracking helpers for zone traffic.

Zones: Inter-zone Forwarding

The **Inter-zone forwarding** options control the forwarding policies between the currently edited zone and other zones.

^ INTER-ZONE FORWARDING

Allow forward to destination zones:

Allow forward from source zones:

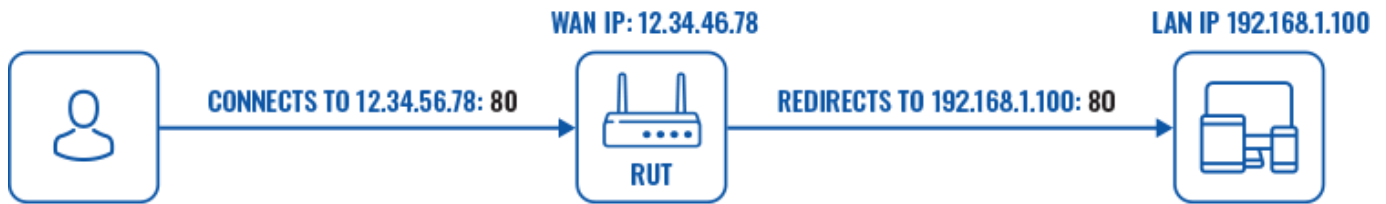
[< BACK](#)

[SAVE & APPLY](#)

Field	Value	Description
Allow forward to destination zones	zone(s); default: none	Allows forward traffic to specified destination zones. Destination zones cover forwarded traffic originating from this source zone.
Allow forward from source zones	zone(s); default: none	Allows forward traffic to specified source zones. Source zones match forwarded traffic originating from other zones that is targeted at this zone.

Port Forwards

Port forwarding is a way of redirecting an incoming connection to another IP address, port or the combination of both:



The Port forwards table displays configured port forwarding rules currently configured on the device.

^ PORT FORWARDS

NAME	MATCH	FORWARD TO
------	-------	------------

This section contains no values yet

Add New Port Forward


The **Add New Port Forward** section is used to quickly add additional port forwarding rules. The figure below is an example of the Add New Port Forward section and the table below provides information on the fields contained in that section:

^ ADD NEW INSTANCE

NAME	EXTERNAL PORT	INTERNAL IP ADDRESS	INTERNAL PORT	
<input type="text" value="New port forward"/>	<input type="text" value="-- Please choose --"/>	<input type="text" value="192.168.1.127 (00:00:00:00:00:00)"/>	<input type="text" value="No rewrite"/>	<input type="button" value="ADD"/>
				<input type="button" value="SAVE & APPLY"/>

Field	Value	Description
Name	string; default: none	Name of the rule. This is used for easier management purposes.
External port	integer [0..65535] range of integers [0..65534] - [1..65535] port inversion [!0..!65535]; default: none	The port number to which hosts will be connecting.
Internal IP address	ip; default: none	The IP address to which the incoming connection will be redirected.
Internal port	integer [0..65535] range of integers [0..65534] - [1..65535] port inversion [!0..!65535]; default: none	The port number to which the incoming connection will be redirected.

Port Forwards Configuration

While the New port forward section provides the possibility to add port forwarding rules fast, it does not contain all possible configuration options to customize a rule. In order to create a more complicated rule, add one using the New port forward section and click the button that looks like a pencil  next to it:

▼ PORT FORWARDS

NAME	MATCH	FORWARD TO		
 Custom_rule	IPv4 tcp, udp From any host in wan Via any router IP at port 80	IP 192.168.1.1, port 80 in lan	<input type="checkbox"/> off <input checked="" type="checkbox"/> on	 

You will be redirected to that rule's configuration general settings page:



▼ FIREWALL - PORT FORWARDS - CUSTOM_RULE

GENERAL SETTINGS

ADVANCED SETTINGS

Enable off on

Name

Protocol TCP  UDP  ▼

Source zone wan: wan wan6 mob1s1a1 mob1s2a1 ▼

External port ▼

Internal zone lan: lan ▼

Internal IP address ▼

Internal port ▼

[SAVE & APPLY](#)

Field	Value	Description
Enable	off on ; default: on	Turns the rule on or off
Name	string; default: none	Name of the rule. This is used for easier management purposes.
Protocol	TCP+UDP TCP UDP Other; default: TCP+UDP	Specifies to which protocols the rule should apply.
Source zone	firewall zone name; default: wan	The zone to which the third party will be connecting. (Same thing as "External zone" in the New port forward section.)
External port	integer [0..65535] range of integers [0..65534] - [1..65535] port inversion [!0..!65535]; default: none	Port number(s) to which hosts will be connecting. The rule will apply only to hosts that connect to the port number(s) specified in this field. Leave empty to make the rule skip external port matching.
Internal zone	firewall zone name; default: lan	The zone to which the incoming connection will be redirected.
Internal IP address	Device LAN IP; default: Device LAN IP	The IP address to which the incoming connection will be redirected.

Internal port integer [0..65535] | range of integers [0..65534] - [1..65535] | port inversion [!0..!65535]; default: **none** The port number to which the incoming connection will be redirected.

Advanced settings:

▼ FIREWALL - PORT FORWARDS - CUSTOM_RULE

GENERAL SETTINGS

ADVANCED SETTINGS

Source MAC address

Source IP address

Source port

External IP address

Enable NAT Loopback off on











Extra arguments

Field	Value	Description
Source MAC address	mac; default: none	MAC address of connecting hosts. The rule will apply only to hosts that match MAC addresses specified in this field. Leave empty to make the rule skip MAC address matching.
Source IP address	ip ip/netmask; default: any	IP address or network segment used by connecting hosts. The rule will apply only to hosts that connect from IP addresses specified in this field. To specify a network segment instead of one IP address, add a forward slash followed by the netmask length after the network indication (for example, <i>10.0.0.0/8</i>).
Source port	integer [0..65535] range of integers [0..65534] - [1..65535] port inversion [!0..!65535]; default: none	Port number(s) used by the connecting host. The rule will match the source port used by the connecting host with the port number(s) specified in this field. Leave empty to make the rule skip source port matching.
External IP address	ip ip/netmask; default: any	IP address or network segment to which hosts will be connecting. The rule will apply only to hosts that connect to IP addresses specified in this field. To specify a subnet instead of one IP, add a forward slash followed by the netmask length after the network indication (for example, <i>10.0.0.0/8</i>).
Enable NAT loopback	off on ; default: on	NAT loopback a.k.a. NAT reflection a.k.a. NAT hairpinning is a method of accessing an internal server using a public IP. NAT loopback enables your local network (i.e., behind your NAT device) to connect to a forward-facing IP address of a machine that it also on your local network.
Extra arguments	string; default: none	Adds extra iptables options to the rule.


Traffic Rules

The **Traffic rules** tab is used to set firewall rules that filter traffic moving through the device. The figure below is an example of the Traffic rules table:



^ TRAFFIC RULES

NAME	MATCH	ACTION	
Allow-DHCP-Renew	IPv4-udp From any host in wan To any router IP at port 68 on this device	Accept input	<input checked="" type="checkbox"/> off on  
Allow-Ping	IPv4-icmp with type echo-request From any host in wan To any router IP on this device	Accept input	<input checked="" type="checkbox"/> off on  
Allow-IGMP	IPv4-igmp From any host in wan To any router IP on this device	Accept input	<input checked="" type="checkbox"/> off on  
Allow-DHCPv6	IPv6-udp From IP range fc00::6 in wan To IP range fc00::6 at port 546 on this device	Accept input	<input checked="" type="checkbox"/> off on  
Allow-MLD	IPv6-icmp with types 130/0, 131/0, 132/0, 143/0 From IP range fe80::10 in wan To any router IP on this device	Accept input	<input checked="" type="checkbox"/> off on  

Traffic Rule Configuration

In order to begin editing a traffic rule, click the button that looks like a pencil  next to it:

^ TRAFFIC RULES

NAME	MATCH	ACTION	
Custom_rule	Any traffic From any host in wan To any host in lan	Accept forward	<input checked="" type="checkbox"/> off on  

You will be redirected to that rule's configuration page:

Enable off on

Name

Restrict to address family

Protocol

Source zone

Source MAC address

Source IP address

Source port

Destination zone

Destination address

Destination port

Action

Match

Extra arguments

Week Days

Month Days

Start Time (hh:mm:ss)

Stop Time (hh:mm:ss)

Start Date (yyyy-mm-dd)

Stop Date (yyyy-mm-dd)

Time in UTC off on

SAVE & APPLY

Field	Value	Description
Enable	off on; default on	Turns the rule on or off.
Name	string; default none	Name of the rule. This is used for easier management purposes.
Restrict to address family	IPv4 and IPv6 IPv4 only IPv6 only; default: IPv4 and IPv6	IP address family to which the rule will apply to.
Protocol	Any TCP+UDP TCP UDP ICMP ; default: TCP+UDP	Specifies to which protocols the rule should apply.
Match ICMP type	Any ICMP-type + Add new; default: none	Allows matching specific ICMP types.
Source zone	firewall zone name; default: wan	The zone to which the third party will be connecting.

Source MAC address	mac; default: none	MAC address(es) of connecting hosts. The rule will apply only to hosts that match MAC addresses specified in this field. Leave empty to make the rule skip MAC address matching.
Source address	ip ip/netmask; default: any	IP address or network segment used by connecting hosts. The rule will apply only to hosts that connect from IP addresses specified in this field. To specify a network segment instead of one IP address, add a forward slash followed by the netmask length after the network indication (for example, 10.0.0.0/8).
Source port	integer [0..65535] range of integers [0..65534] - [1..65535] port inversion [!0..!65535]; default: none	Port number(s) used by the connecting host. The rule will match the source port used by the connecting host with the port number(s) specified in this field. Leave empty to make the rule skip source port matching. Port negation using is also available, for ex. !1.
Destination zone	firewall zone; default: Device (input)	Target zone of the incoming connection.
Destination address	ip ip/netmask; default: any	Target IP address or network segment of the incoming connection.
Destination port	integer [0..65535] range of integers [0..65534] - [1..65535] port inversion [!0..!65535]; default: none	Target port or range of ports of the incoming connection. Port negation using is also available, for ex. !1.
Action	Drop Accept Reject Don't track DSCP Mark; default: Accept	Action that is to be taken when a packet matches the conditions of the rule. <ul style="list-style-type: none"> • Drop - packet is stopped and deleted. • Accept - packet gets to continue to the next chain. • Reject - packet is stopped, deleted and, differently from Drop, an ICMP packet containing a message of rejection is sent to the source from which the dropped packet came. • Don't track - packet is no longer tracked as it moves forward. • DSCP - packet is marked with specified DiffServ Code Point value. • Mark - packet is marked with specified firewall mark..
DSCP: Set Target value	Default DSCP values; default: Default	If specified, target traffic against the given firewall DSCP value.
Mark: Set Target value	hex; default: none	If specified, target traffic against the given firewall mark, e.g. 0xFF to target mark 255 or 0x0/0x1 to target any even mark value.
Action	DSCP Mark; default: none	Match traffic against the given DSCP value or firewall mark

DSCP: Set Match value	Default DSCP values; default: Default	Match traffic against the given firewall DSCP value.
Mark: Set Match value	hex; default: none	If specified, match traffic against the given firewall mark, e.g. 0xFF to match mark 255 or 0x0/0x1 to match any even mark value.
Extra arguments	string; default: none	Adds extra .iptables options to the rule.
Week days	days of the week [Monday..Sunday]; default: none	Specifies on which days of the week the rule is valid.
Month days	days of the month [1..31]; default: none	Specifies on which days of the month the rule is valid.
Start Time (hh:mm:ss)	time [0..23:0..59:0..59]; default: none	Indicates the beginning of the time period during which the rule is valid.
Stop Time (hh:mm:ss)	time [0..23:0..59:0..59]; default: none	Indicates the end of the time period during which the rule is valid.
Start Date (yyyy-mm-dd)	date [0000..9999:1..12:1..31]; default: none	Indicates the first day of the date of the period during which the rule is valid.
Stop Date (yyyy-mm-dd)	date [0000..9999:1..12:1..31]; default: none	Indicates the last day of the date of the period during which the rule is valid.
Time in UTC	off on; default: no	Specifies whether the device should use UTC time. If this is disabled, the time zone specified in the Services → NTP page will be used.

Open Ports on Router

In the **Add new instance** section, select **Open ports on router**. This provides a quick way to set simple rules that allow traffic on specified ports of the device. The figure below is an example of the Open ports on device section and the table below provides information on the fields contained in that section:

▼ ADD NEW INSTANCE

ADD TYPE	NAME	PROTOCOL	EXTERNAL PORT	
Open ports on router	New input rule	TCP+UDP	8000	ADD

Field	Value	Description
Name	string; default: none	The name of the rule. This is used for easier management purposes. The name field is filled automatically when port numbers are specified, unless the name was specified beforehand by the user.
Protocol	TCP+UDP TCP UDP Other; default: TCP+UDP	Specifies to which protocols the rule should apply.
External port	integer [0..65535] range of integers [!0..!65535]; default: none	Specifies which port(s) should be opened.

Add New Forward Rule

In the **Add new instance** section, select **Add new forward rule**. This is used to create firewall rules that control traffic on the FORWARD chain. The figure below is an example of the Add New Forward Rule section and the table below provides information on the fields contained in that section:

^ ADD NEW FORWARD RULE

NAME	SOURCE ZONE	DESTINATION ZONE	
<input type="text" value="New forward rule"/>	<input type="text" value="wan"/>	<input type="text" value="lan"/>	<input type="button" value="ADD"/>
<input type="button" value="SAVE & APPLY"/>			

Field	Value	Description
Name	string; default: none	The name of the rule. This is used for easier management purposes.
Source zone	firewall zone; default: wan	The zone from which traffic has originated.
Destination zone	firewall zone; default: lan	The zone to which traffic will be forwarded to.
Add	- (interactive button)	Creates the rule and redirects you to the rule's configuration page

NAT Rules

Network address translation (NAT) is method of modifying the source/destination address and/or port information in a packet's IP header.

Source NAT

Source NAT (SNAT) is a form of masquerading used to change a packet's source address and/or port number to a static, user-defined value. SNAT is performed in the POSTROUTING chain, just before a packet leaves the device.

The Source NAT section displays currently existing SNAT rules.

^ SOURCE NAT

NAME	MATCH	ACTION
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This section contains no values yet

Add New Source NAT


The **Add New Source NAT** section is used to create new source NAT rules.

ADD NEW SOURCE NAT



NAME	SOURCE ZONE	DESTINATION ZONE	TO SOURCE IP	TO SOURCE PORT	
<input type="text" value="New SNAT rule"/>	<input type="text" value="lan"/>	<input type="text" value="wan"/>	<input type="text" value="-- Please choose --"/>	<input type="text" value="Do not rewrite"/>	<input type="button" value="ADD"/>
<input type="button" value="SAVE & APPLY"/>					

Field	Value	Description
Name	string; default: none	The name of the rule. Used only for easier management purposes.
Source zone	firewall zone; default: lan	Matches traffic originated from the specified zone.
Destination Zone	firewall zone; default: wan	Matches traffic destined for the specified zone.
To source IP	ip do not rewrite; default: none	Changes the source IP address in the packet header to the value specified in this field.
To Source Port	integer [0..65535] port inversion [!0..!65535] do not rewrite; default: none	Changes the source port in the packet header to the value specified in this field.
Add	- (interactive button)	Creates the rule in accordance with the given parameter and redirects you to the rule's configuration page.

Source NAT Configuration

In order to begin editing a traffic rule, click the button that looks like a pencil  next to it:

SOURCE NAT

NAME	MATCH	ACTION		
Custom_rule	Any traffic From any host in lan To any host in wan	Rewrite to source IP 192.168.1.1	 	<input type="checkbox"/> off <input checked="" type="checkbox"/> on

You will be redirected to that rule's configuration page:

Enable off on

Name

Protocol

Source zone

Source IP address

Source port

Destination zone

Destination IP address

Destination port

SNAT IP address

SNAT port

Extra arguments

Week Days

Month Days

Start Time (hh:mm:ss)

Stop Time (hh:mm:ss)

Start Date (yyyy-mm-dd)

Stop Date (yyyy-mm-dd)

Time in UTC off on

< BACK

SAVE & APPLY

Field	Value	Description
Enable	off on; default on	Turns the rule on or off.
Name	string; default none	Name of the rule. This is used for easier management purposes.
Protocol	All protocols TCP+UDP TCP UDP ICMP -- custom --; default: All protocols	Specifies to which protocols the rule should apply.
Source zone	firewall zone; default: lan	Matches traffic originated from the specified zone.
Source IP address	ip ip/netmask; default: Any	Matches traffic originated from specified IP address or network segment.
Source port	integer [0..65535] range of integers [0..65534] - [1..65535] port inversion [!0..!65535]; default: none	Matches traffic originated from specified port number.
Destination zone	firewall zone; default: wan	Matches traffic destined for the specified zone.
Destination IP address	ip ip/netmask; default: any	Matches traffic destined for the specified IP address or network segment.

Destination port	integer [0..65535] range of integers [0..65534] - [1..65535] port inversion [!0..!65535]; default: none	Matches traffic destined for the specified port number.
SNAT address	ip; default: none	Changes matched traffic packet source IP address to the value specified in this field.
SNAT port	integer [0..65535] range of integers [0..65534] - [1..65535]; default: none	Changes matched traffic packet source port number to the value specified in this field.
Extra arguments	string; default: none	Adds extra .iptables options to the rule.
Week days	days of the week [Monday..Sunday]; default: none	Specifies on which days of the week the rule is valid.
Month days	days of the month [1..31]; default: none	Specifies on which days of the month the rule is valid.
Start Time (hh:mm:ss)	time [0..23:0..59:0..59]; default: none	Indicates the beginning of the time period during which the rule is valid.
Stop Time (hh:mm:ss)	time [0..23:0..59:0..59]; default: none	Indicates the end of the time period during which the rule is valid.
Start Date (yyyy-mm-dd)	date [0000..9999:1..12:1..31]; default: none	Indicates the first day of the date of the period during which the rule is valid.
Stop Date (yyyy-mm-dd)	date [0000..9999:1..12:1..31]; default: none	Indicates the last day of the date of the period during which the rule is valid.
Time in UTC	off on; default: no	Specifies whether the device should use UTC time. If this is disabled, the time zone specified in the Services → NTP page will be used.

Attack Prevention

The **Attack Prevention** menu tab provides the possibility to configure protections against certain types of online attacks.

SYN Flood Protection

SYN Flood Protection allows you to protect yourself from attacks that exploit part of the normal TCP three-way handshake to consume resources on the targeted server and render it unresponsive. Essentially, with SYN flood DDOS, the offender sends TCP connection requests faster than the targeted machine can process them, causing network over-saturation.

^ SYN FLOOD PROTECTION

Enable SYN flood protection off on

SYN flood rate

SYN flood burst

TCP SYN cookies off on

Field	Value	Description
Enable SYN flood protection	off on; default: on	Turns the rule on or off.
SYN flood rate	integer; default: 5	Set rate limit (packets per second) for SYN packets above which the traffic is considered flooded
SYN flood burst	integer; default: 10	Sets burst limit for SYN packets above which the traffic is considered flooded if it exceeds the allowed rate
TCP SYN cookies	off on; default: off	Enables the use of SYN cookies (particular choices of initial TCP sequence numbers by TCP servers)

Remote ICMP Requests

Some attackers use **ICMP echo request** packets directed to IP broadcast addresses from remote locations to generate denial-of-service attacks. You can set up some custom restrictions to help protect your router from ICMP bursts.

^ REMOTE ICMP REQUESTS

Enable ICMP requests off on

Enable ICMP limit off on

Limit period

Limit

Limit burst

Field	Value	Description
Enable ICMP requests	off on; default: on	Turns the rule on or off.
Enable ICMP limit	off on ; default: off	Turns ICMP echo-request limit in selected period on or off.
Limit period	Second Minute Hour Day; default: Second	Period length for matching the conditions of the rule.
Limit	integer; default: 5	Maximum ICMP echo-request number during the period.
Limit burst	integer; default: 10	Indicates the maximum burst before the above limit kicks in.

SSH Attack Prevention

This protection prevents **SSH attacks** by limiting connections in a defined period.

Enable SSH limit off on

Limit period

Limit

Limit burst

Field	Value	Description
Enable SSH limit	off on; default: off	Turns the rule on or off.
Limit period	Second Minute Hour Day; default: Second	Period length for matching the conditions of the rule.
Limit	integer; default: 5	Maximum SSH connections during the set period
Limit burst	integer; default: 10	Indicates the maximum burst before the above limit kicks in.

HTTP Attack Prevention

An **HTTP attack** sends a complete, legitimate HTTP header, which includes a 'Content-Length' field to specify the size of the message body to follow. However, the attacker then proceeds to send the actual message body at an extremely slow rate (e.g. 1 byte/100 seconds.) Due to the entire message being correct and complete, the target server will attempt to obey the 'Content-Length' field in the header, and wait for the entire body of the message to be transmitted, hence slowing it down.

Enable HTTP limit off on

Limit period

Limit

Limit burst

Field	Value	Description
Enable HTTP limit	off on; default: off	Turns the rule on or off.
Limit period	Second Minute Hour Day; default: Second	Period length for matching the conditions of the rule.
Limit	integer; default: 5	Maximum HTTP connections during the set period
Limit burst	integer; default: 10	Indicates the maximum burst before the above limit kicks in.

HTTPS Attack Prevention

This section allows you to enable protection against **HTTPS attacks**, also known as "man-in-the-middle" attacks (MITM).

In cryptography and computer security, a man-in-the-middle attack (MITM) is an attack where the perpetrator secretly relays and possibly alters the communication between two parties who believe they are directly communicating with each other. One example of man-in-the-middle attacks is active eavesdropping, in which the attacker makes independent connections with the victims and relays messages between them to make them believe they are talking directly to each other over a private connection, when in fact the entire conversation is controlled by the attacker.

^ HTTPS ATTACK PREVENTION

Enable HTTPS limit off on

Limit period

Limit

Limit burst

Field	Value	Description
Enable HTTPS limit	off on; default: off	Turns the rule on or off.
Limit period	Second Minute Hour Day; default: Second	Period length for matching the conditions of the rule.
Limit	integer; default: 5	Maximum HTTPS connections during the set period.
Limit burst	integer; default: 10	Indicates the maximum burst number before the above limit kicks in.

Port Scan

Port Scan attacks scan which of the targeted host's ports are open. Network ports are the entry points to a machine that is connected to the Internet. A service that listens on a port is able to receive data from a client application, process it and send a response back. Malicious clients can sometimes exploit vulnerabilities in the server code so they gain access to sensitive data or execute malicious code on the machine remotely. Port scanning is usually done in the initial phase of a penetration test in order to discover all network entry points into the target system. The Port Scan section provides you with the possibility to enable protection against port scanning software. The Defending Type section provides the possibility for the user to enable protections from certain types of online attacks. These include **SYN-FIN**, **SYN-RST**, **X-Mas**, **FIN scan** and **NULLflags** attacks.

Enable off on
 Scan count
 Interval
 SYN-FIN attack off on
 SYN-RST attack off on
 X-Mas attack off on
 FIN scan off on
 NULLflags attack off on

SAVE & APPLY

Field	Value	Description
Enable	off on; default: off	Turns the function on or off.
Scan count	integer [5..65534]; default: 5	How many port scans before blocked.
Interval	integer [10..60]; default: 10	Time interval in seconds in which port scans are counted.
SYN-FIN attack	off on; default: off	Turns protection from SYN-FIN attacks on or off.
SYN-RST attack	off on; default: off	Turns protection from SYN-RST attacks on or off.
X-Mas attack	off on; default: off	Turns protection from X-Mas attacks on or off.
FIN scan	off on; default: off	Turns protection from FIN scan attacks on or off.
NULLflags attack	off on; default: off	Turns protection from NULLflags attacks on or off.

Custom Rules

The **Custom rules** tab provides you with the possibility to execute **iptables** commands which are not otherwise covered by the device's firewall framework. The commands are executed after each firewall restart, right after the default rule set has been loaded.

Note: Custom rules are not recommended to be used with *hostnames*. The rules will not remain active after reboot due to security reasons.

The figure below is an example of the Custom rules tab:

```
# This file is interpreted as shell script.
# Put your custom iptables rules here, they will
# be executed with each firewall (re-)start.

# Internal uci firewall chains are flushed and recreated on reload, so
# put custom rules into the root chains e.g. INPUT or FORWARD or into the
# special user chains, e.g. input_wan_rule or postrouting_lan_rule.
```

RESET

SAVE

The rules added here are saved in the **/etc/firewall.user** file. Feel free to edit that file instead for the same effect in case you don't have access to the device's WebUI.

The **Save** button restarts the firewall service. Thus, adding the custom rules specified in this section to the device's list of firewall rules.

The **Reset** button resets the custom rules field to its default state.

DMZ

The **DMZ** is a security concept. It comprises the separation of the LAN-side network into at least two networks: the user LAN and the DMZ. Generally the DMZ is imprisoned: only access to certain ports from the Internet are allowed into the DMZ, while the DMZ is not allowed to establish new connections to the WAN-side or LAN-side networks. That way, if a server inside of the DMZ is hacked the potential damage that can be done remains restricted! The whole point of the DMZ is to cleanly create a unique firewall rule set that dramatically restricts access in to, and out of the, DMZ.

DMZ

Enable off on

Host IP

Protocol

SAVE & APPLY

Field	Value	Description
Enable	off on; default: off	Enables the DMZ configuration.
Host IP	ipv4; default: none	Specifies the IP address of the DMZ host.
Protocol	All TCP+UDP TCP UDP ICMP; default: None	Specifies for which protocols the DMZ will be used.
Ports	0..65535 port range port negation; default: none	Match incoming traffic directed at the given destination port or port range on DMZ host IP.