General Firewall Configuration Instructions on Donyx

The firewall on Donyx routers is based on the **iptables** software. The configuration interface provides comprehensive access to **iptables** rule management.

Documentation regarding **iptables** configuration is available at the following link: *netfilter.org/documentation*

Core Concepts

- **Interfaces** — Logical network entities, such as the local network, wired service provider connection (**WAN**), cellular modem connection, and **Wi-Fi** client connection.
- **Zones** — Groups of interfaces designed to simplify management. For example, *zone-wan* aggregates "upstream" interfaces, while *zone-lan* includes the local network and equivalent connections (e.g., tunnels).
- **Chains** — Ordered lists of rules used to process packets. Each chain is associated with a specific stage of packet processing within the network stack.
- **Tables** — Logical groupings of chains used to organize related packet operations.

The **NAT** table is utilized for configuring port forwarding.

Port Forwarding for a Local Network Device

Objective: Establish port forwarding for port *80* (**HTTP**) to a local device assigned the IP address *192.168.1.100*.

Solution:

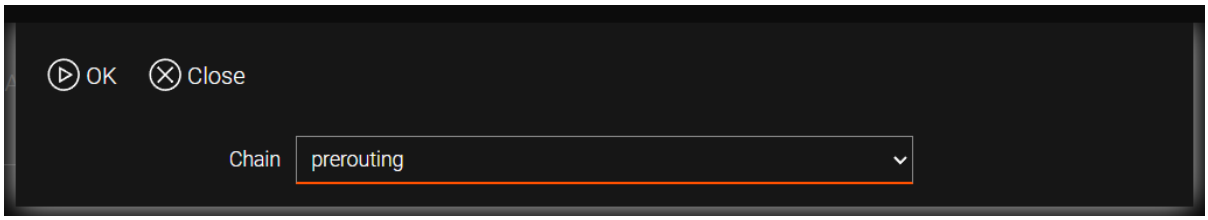
1. Navigate to the */firewall/nat* section. Click **Add**, select *prerouting* as the **Chain**, and click **OK**.
2. The general **iptables** rule configuration form will be displayed. The available fields depend on the selected table and the actions being configured.

Port Forwarding for a Local Network Device

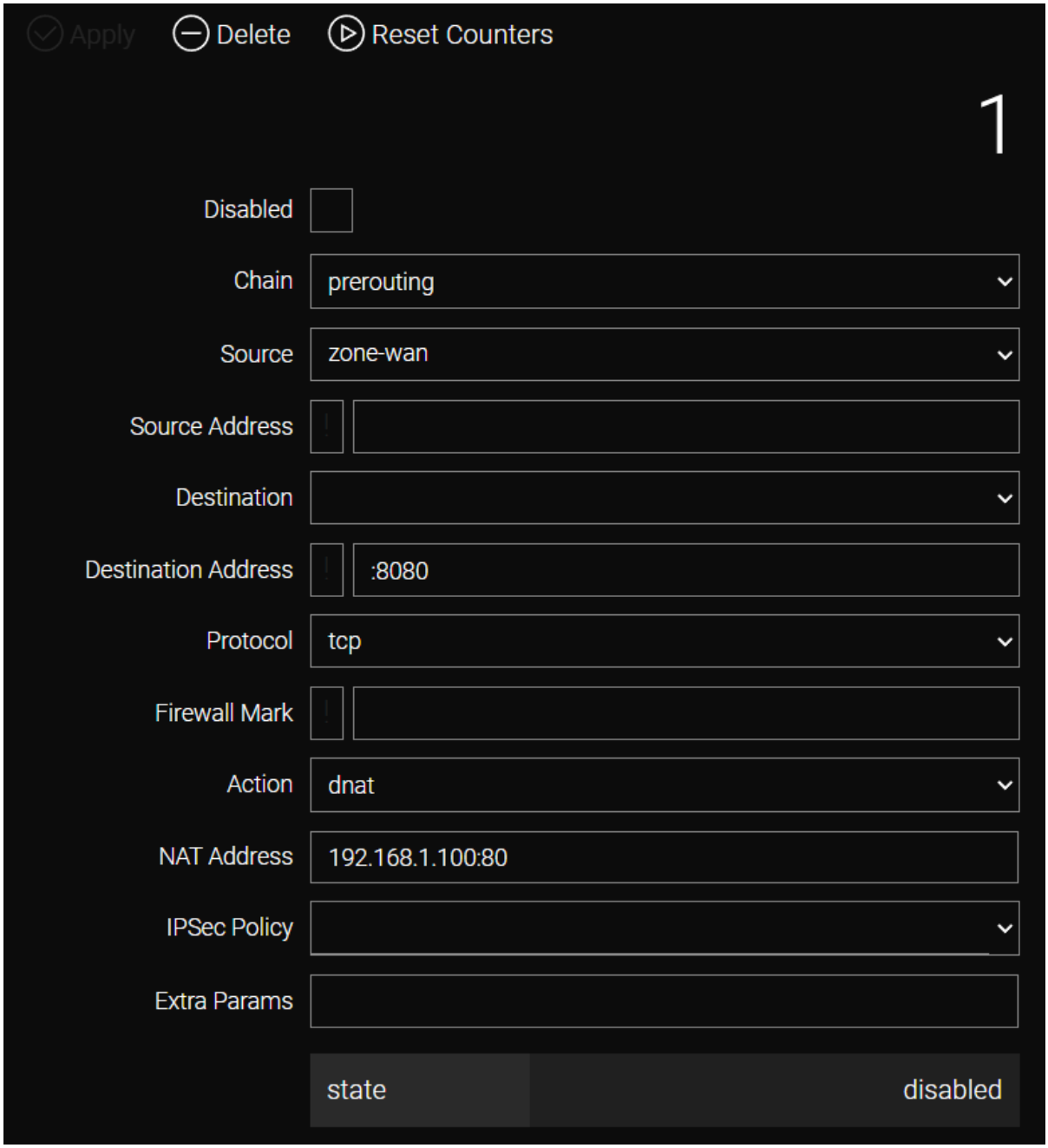
Objective: Configure port forwarding for port *80* (**HTTP**) to a local device with IP address *192.168.1.100*.

Procedure:

1. Navigate to the */firewall/nat* section, click **Add**, select *prerouting* as the **Chain**, and click **OK**.



2. The general **iptables** rule configuration form is displayed. Available fields depend on the selected table and configured actions.



3. Configure the rule parameters using the following table as a reference:

Table 1. Iptables Rule Parameters (Port Forwarding Example)

Field	Description	Example Value
Chain	The chain to which the rule is added.	*prerouting*
Source	Packet source (interface or zone).	*zone-wan*
Source Address	Source IP address (prefix *!* indicates logical NOT).	–
Destination	Packet destination (interface or zone).	–
Destination Address	Destination IP address or port (prefix *!* indicates logical NOT).	*:8080*
Protocol	Protocol to which the rule applies.	*tcp*
Firewall Mark	Firewall mark identifier (for advanced rules).	–
Action	Action performed on the packet (depends on the selected table).	*dnat*
NAT Address	The destination IP address and port for the forwarding operation.	*192.168.1.100:80*
Ipsec Policy	IPsec policy matching.	–
Extra Params	Additional technical parameters (for advanced rules).	–

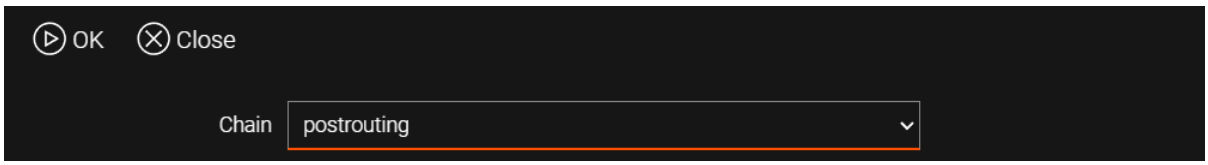
4. Click **Apply**.

With this configuration, port forwarding is established from router port *8080* to port *80* of the IP address *192.168.1.100*. This setup functions correctly provided the local network device is configured to use the Donyx router as its default gateway.

Port Forwarding for Devices without a Default Gateway

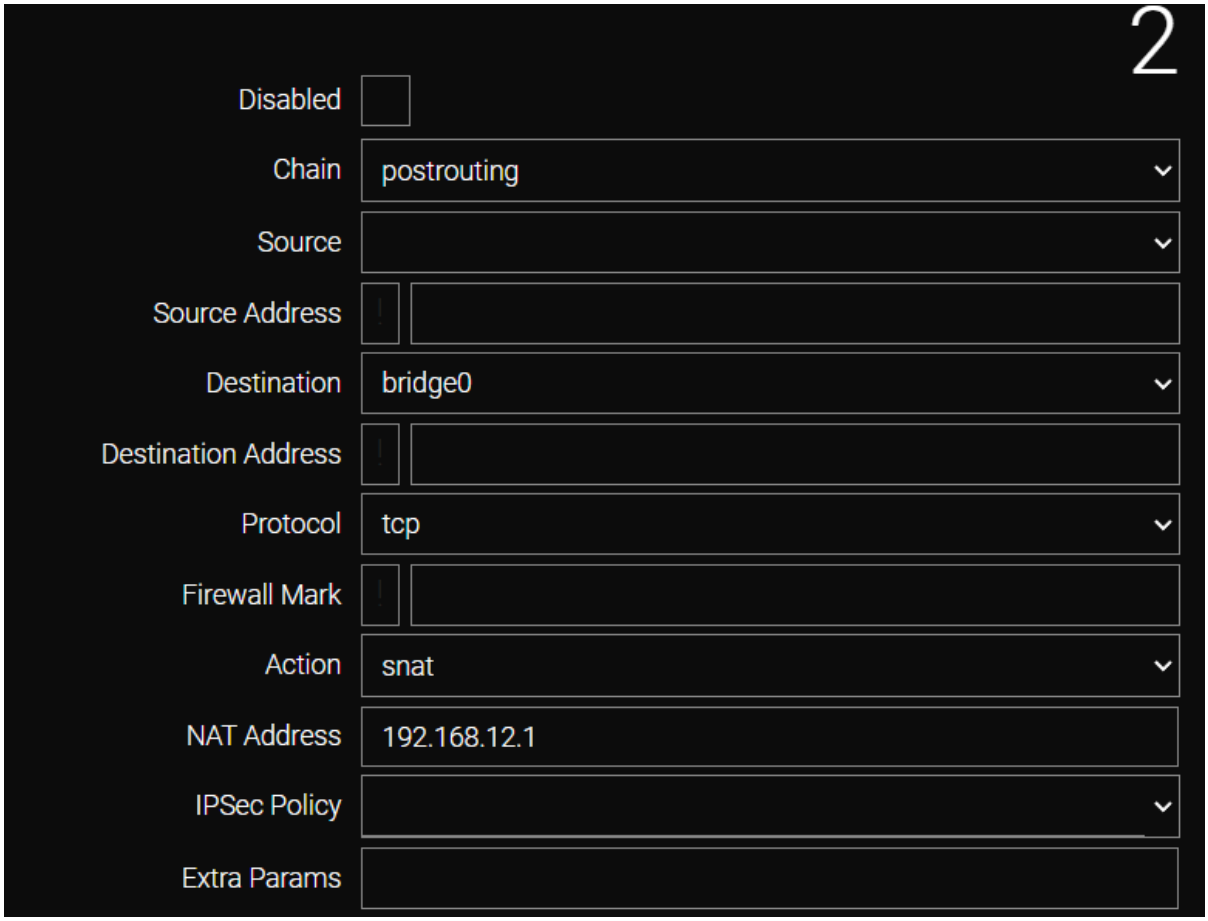
In scenarios where network devices are statically configured without a specified gateway address, or if the gateway cannot be defined, standard port forwarding will not function. In such cases, an additional **SNAT** rule is required.

To configure this, navigate to the */firewall/nat* section, click **Add**, select *postrouting* as the **Chain**, and click **OK**.



Configure the parameters according to the following example:

- **Chain:** *postrouting*
- **Destination:** *zone-lan* (if only one local network exists) or the specific bridge identifier (e.g., *bridge0*) to which the target device is connected.
- **Protocol:** *tcp*
- **Action:** *snat* (Source NAT)
- **NAT Address:** *192.168.12.1* (the local IP address of the router serving as the gateway)



The rule will be applied to all devices and addresses within the selected zone or bridge.

Alternatively, the specific IP address of the target device (e.g., *192.168.1.100*) may be entered in the **Destination Address** field. In this scenario, the rule applies exclusively to that device, and the **Destination** field remains optional.

CLI Configuration

Parameters with the value - can be omitted.

To add a **DNAT** rule:

```
/firewall nat add chain=prerouting
    action dnat
    disabled -
    dst -
    dst-addr :8080
    extra -
    mark -
    nat-addr 192.168.1.100:80
    policy -
    protocol tcp
    src zone-wan
    src-addr -
```

To add an **SNAT** rule (optional):

```
  /firewall nat add chain=postrouting
    action snat
    disabled -
    dst zone-lan
    dst-addr -
    extra -
    mark -
    nat-addr 192.168.12.1
    policy -
    protocol tcp
    src -
    src-addr -

  /firewall nat apply
```

Port Forwarding for All Protocols to an Internal Device

In scenarios where comprehensive external access to an internal network device is required and routing or tunneling cannot be established, **DNAT** can be configured for all protocols and ports simultaneously.

To implement this, select *all* in the **Protocol** field during rule creation. Specifying a port in the **NAT Address** field is not required in this mode.

Prior to this, additional **DNAT** rules must be created to forward ports for the router's own services (e.g., port *80* for the admin interface and port *22* for **SSH**) according to the provided template.

An incorrect rule order may result in the loss of external access to the router.

In this configuration, the target host is not protected by the router's internal firewall.

CLI Configuration

Assumes the internal IP address is *192.168.1.1*.

Configuring access to the administration panel:

```
/firewall nat add chain=prerouting
    action dnat
    disabled -
    dst -
    dst-addr :80
    extra -
    mark -
    nat-addr 192.168.1.1:80
    policy -
    protocol tcp
    src zone-wan
    src-addr -
    apply
```

Configuring **SSH** access:

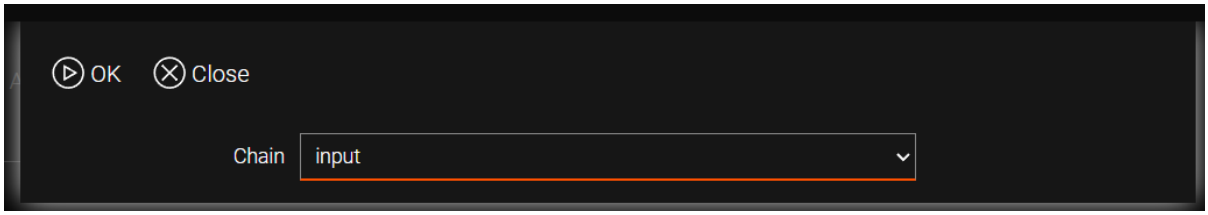
```
 /firewall nat add chain=prerouting
    action dnat
    disabled -
    dst -
    dst-addr :22
    extra -
    mark -
    nat-addr 192.168.1.1:22
    policy -
    protocol tcp
    src zone-wan
    src-addr -
    apply
```

Configuring Full **DNAT** for IP *192.168.1.100*:

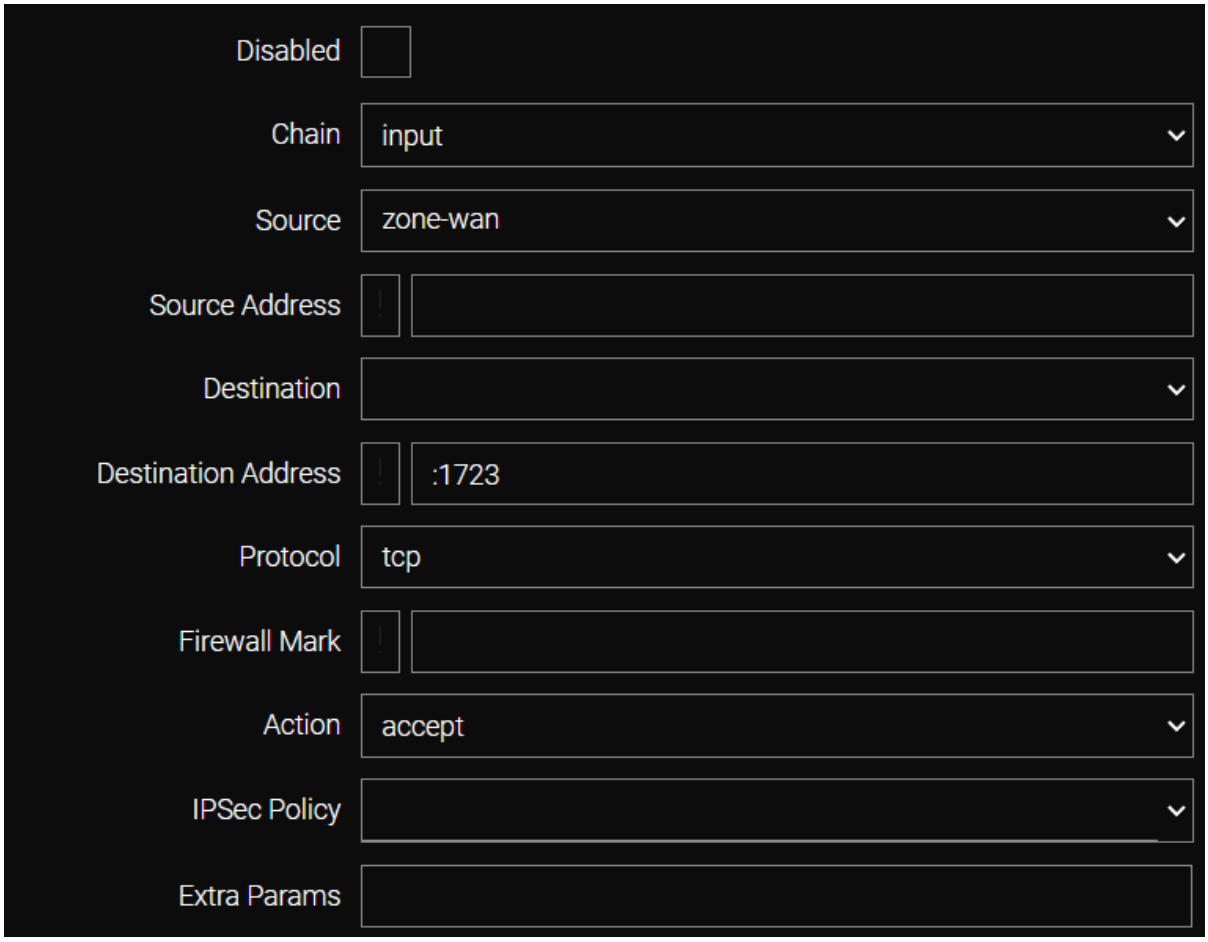
```
/firewall nat add chain=prerouting
  action dnat
  disabled -
  dst -
  dst-addr -
  extra -
  mark -
  nat-addr 192.168.1.100
  policy -
  protocol all
  src zone-wan
  src-addr -
  apply

/firewall nat apply
```

Opening Router Ports for Specific Services

To open a specific port (e.g., **TCP** *1723* for **PPTP**), a rule must be created in the */firewall/filter* section.



Complete the corresponding fields.



A newly created rule is placed at the end of the list, below the general deny rule, and will not take effect. It must be moved above the deny rule to function correctly.

CLI Configuration

```
/firewall filter add chain=input
    action accept
    disabled -
    dst -
    dst-addr :1723
    extra -
    mark -
    policy -
    protocol tcp
    src zone-wan
    src-addr -
    reorder position=-1
    apply
```

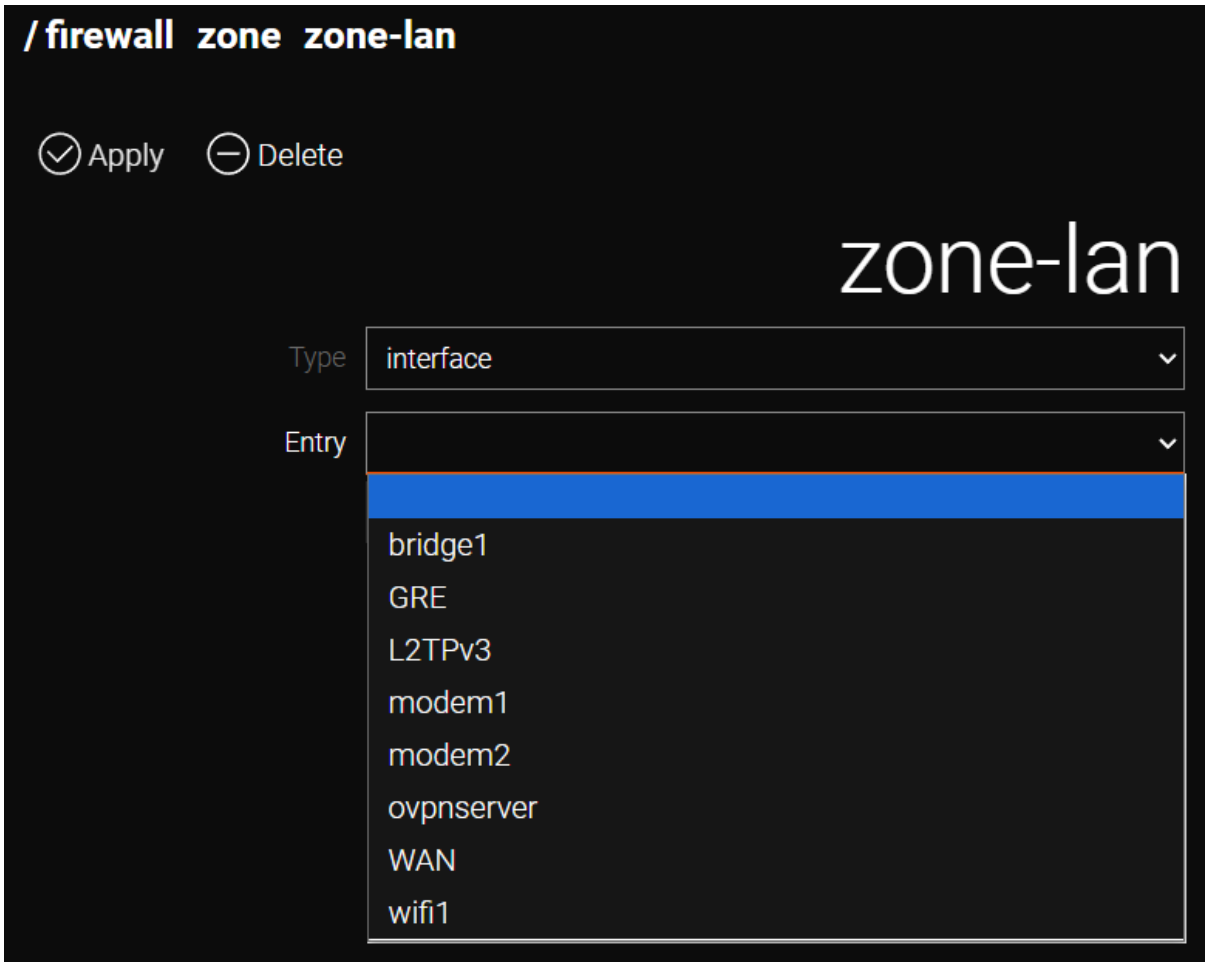
Zone Configuration

A fundamental concept in firewall management is the **Zone**. A zone is a logical grouping of interfaces or IP addresses that simplifies rule administration by eliminating the need for redundant rules across multiple interfaces.

The system includes two pre-configured zones: *zone-lan* (local network) and *zone-wan* (interfaces directed toward the service provider).

By default, interfaces that are not assigned to a zone (e.g., certain tunnels) are not processed by the firewall unless specific rules are explicitly configured for them.

To add an interface to a zone, click on the zone name and select the desired interface from the **Entry** list.



A zone may also consist of a specific set of **IP** addresses. To create such a zone, navigate to the */firewall/zone* section and click **Add**.

Configure the following parameters:

This zone can now be utilized during firewall rule creation; the rules will apply exclusively to packets with addresses belonging to this zone.

CLI Configuration

```
/firewall zone add name=newzone type=address
    entry 192.168.2.0/24,192.168.4.0/24
    apply
```

All modifications are permanently saved to the router configuration only after executing the */system config commit* command or clicking the **commit** button in the web interface.