DONYX

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Quick Start Guide

Web Interface
CLI

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1. Firmware Version

This guide corresponds to firmware version: **v1.0.0**.

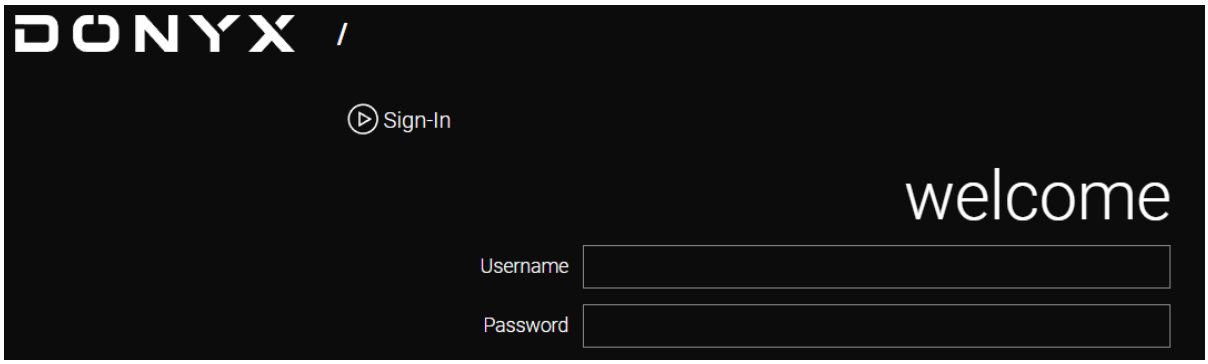
2. Accessing the Donyx Router Web Interface

To use the web interface of your Donyx router with dnxOS installed, requires only a standard web browser (Opera, Firefox, Chrome, Safari, etc., excluding Internet Explorer).

To connect, enter the IP address of your router into the browser's address bar.

The default IP address for accessing the router's settings is located on the device's label (e.g., *http://192.168.12.1/*).

A login page will appear, requesting your credentials (by default: username *admin*; password *admin*).



3. Command Line Interface (CLI) Access

Access to the Command Line Interface (CLI) is established via the SSH protocol. After successful authentication, the user gains access to the CLI with privileges corresponding to the account.

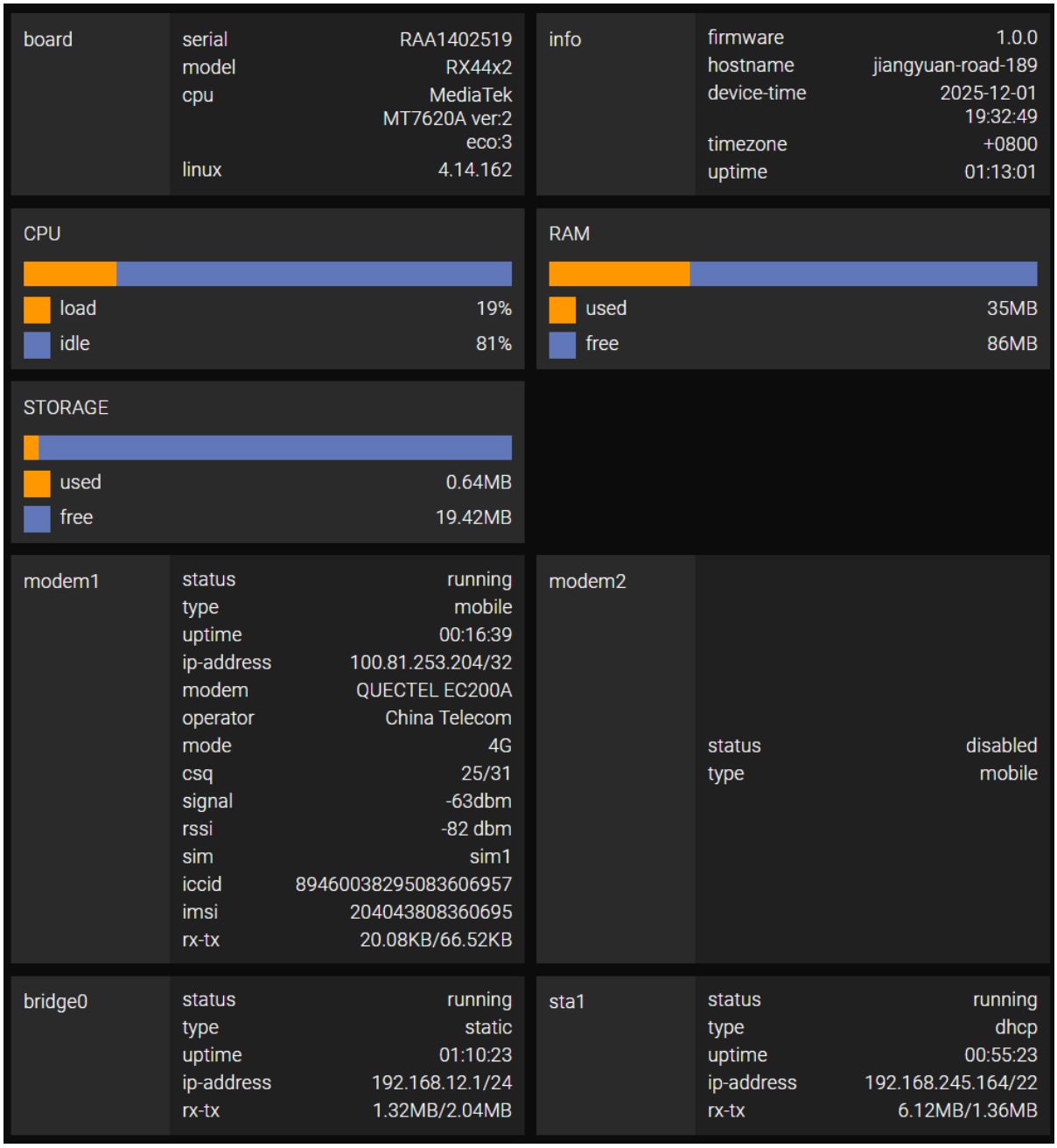
Access Process:

1. Establish an SSH connection to the router's IP address (the default address is indicated on the device label).
2. Authenticate (provide password).
3. Upon completion, the device automatically displays the command line interface (CLI).

```
user@desktop:~$ ssh admin@192.168.12.1
admin@192.168.12.1's password:
admin@Router[/]>
```

4. Dashboard Sections

When you first connect to the router's web interface, you are presented with the **Common Information** dashboard. This page provides a real-time snapshot of the router's operational status and system health, organized into logical blocks.



board - **Hardware and Kernel**

serial	Serial Number	RAA1402519
model	Router Model	RX44x2
cpu	CPU Module	MediaTek MT7620A
linux	Linux Kernel Version	4.14.162

info - **System Information**

firmware	Firmware Version	1.0.0
hostname	Hostname	jiangyuan-road-189
device-time	Device Time	2025-12-01 19:33:00
timezone	Time Zone	+0000
uptime	Uptime	01:13:12

Graphs and Metrics

- *CPU* - CPU load in percent (load/idle)
- *RAM* - RAM usage in MB (used/free)
- *Storage* - Device storage usage in MB (used/free)

Network Interfaces

- *Bridge…N*, *Wifi…N* — Displays information about IP interfaces configured on the router.
- *Port1…N* - Status and statistics for physical Ethernet ports.
- *Gre…N*, *L2tp…N*, *Wg…N* - Virtual interfaces for VPN tunnels configured in their respective sections (e.g., */tunnel/gre*, */tunnel/wireguard*). These interfaces appear only when the corresponding tunnels are created and enabled.
- *Modem1…N* — Provides cellular connection details for each installed modem module (corresponds to the */mobile modem modem1…N* section). The number of sections matches the number of cellular modules. The availability of certain fields depends on the router model.

Cellular connection details

status	Cellular connection status: *disabled*, *pending* (connection in progress), *running* (connection is active), *unreachable* (network connection is unavailable), *error* (a connection error has occurred).
type	*Mobile* - cellular network.
uptime	Session uptime since the connection was established.

ip-address	The IP address of the interface.
modem	Name of the cellular module installed in the router.
operator	Name of the cellular network operator.
mode	Cellular network type: 2G, 3G, 4G.
csq	Cellular Signal Quality.
signal	Signal strength in dBm. This is a negative value; the closer to 0, the stronger the signal.
rssi	Received Signal Strength Indicator. This is a negative value; the closer to 0, the stronger the signal.
sim	Identifier for the active SIM card slot (e.g., sim1, sim2).
iccid	Integrated Circuit Card Identifier (ICCID), the unique 19-20 digit serial number of the SIM card.
imsi	International Mobile Subscriber Identity (IMSI), a unique number that identifies the subscriber on the network.
rx-tx	Volume of data received (rx) and transmitted (tx).

4.1. Device Status via CLI

In the command line interface (CLI), basic router information can be retrieved using the *dashboard* command.

```
admin@Router[/]> dashboard
device:
  board:
    serial                  RAA1402519
    model                   RX44x2
    cpu                     MediaTek MT7620A ver:2 eco:6
    linux                   4.14.162
  info:
    firmware                1.0.0
    hostname                jianguan-road-189
    device-time             2025-12-01 19:32:49
    timezone                +0000
    uptime                  01:13:01
```

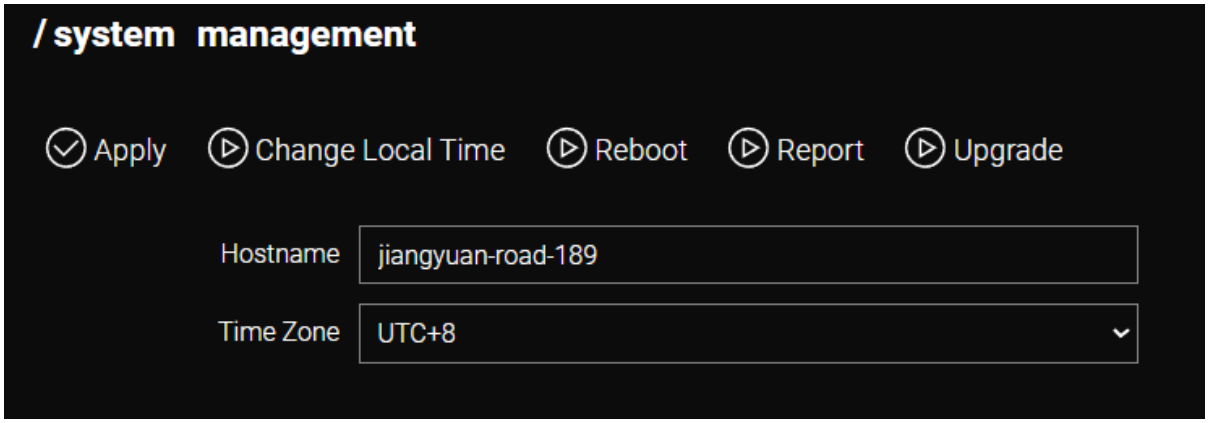
```
hardware:
  CPU:
    load                    19%
    idle                    81%
  RAM:
    used                    35MB
    free                    86MB
  Storage:
    used                    0.64MB
    free                    19.42MB

mobile:
  modem1:
    status                  running
    type                    mobile
    uptime                  00:16:39
    ip-address              100.81.253.204/32
    modem                   QUECTEL EC25
    operator                China Telecom
    mode                    4G
    csq                     25/31
    signal                  -63dbm
    rssi                    -82 dbm
    sim                     sim1
    iccid                   89460038295083606957
    imsi                    204043808360695
    rx-tx                   20.08KB/66.52KB
  modem2:
    status                  disabled
    type                    mobile

interface:
  bridge0:
    status                  running
    type                    static
    uptime                  01:10:23
    ip-address              192.168.12.1/24
    rx-tx                   1.32MB/2.04MB
  sta1:
    status                  running
    type                    dhcp
    uptime                  00:55:23
    ip-address              192.168.245.164/22
    rx-tx                   6.12MB/1.36KB
admin@Router[/]>
```

5. System Management

Basic system settings are configured in the */system/management* section.



- **Hostname** - The name of the device. Permitted characters are letters (a-z, A-Z), numbers (0-9), and periods (.).
- **Time Zone** - The system's time zone, specified in standard UTC format.
- **Change Local Time** - Allows manual setting of the device's local date and time.
- **Reboot** - Reboots the device.
- **Report** - Generates a diagnostic report for submission to technical support.
- **Upgrade** - Starts the firmware upgrade process.

5.1. Generating a Report

This action generates and downloads a *.gz* archive containing the router's current configuration and operational logs.

The generated file may contain sensitive data, such as passwords, certificates, and keys. Review the file and remove all confidential information before sending it.

The report file contains the following information:

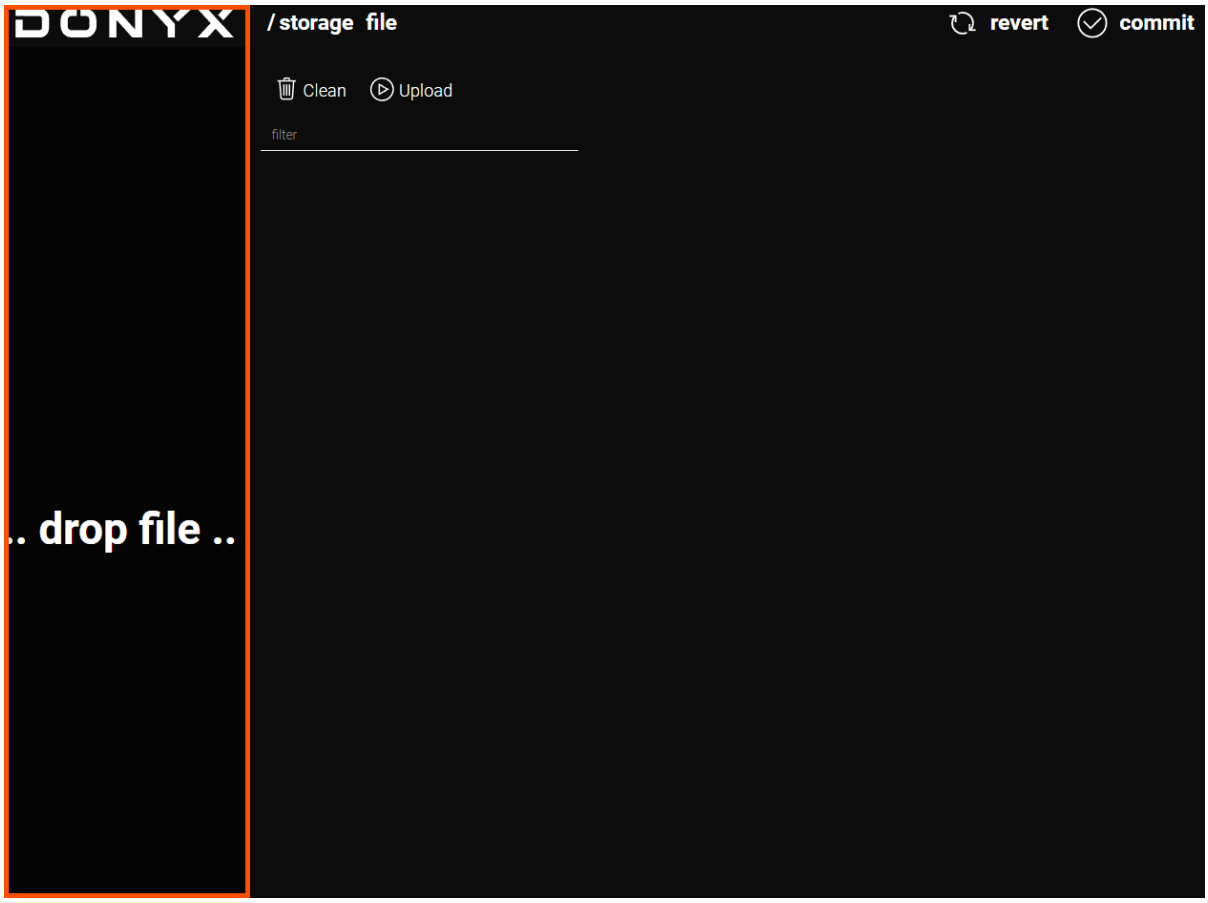
- Firmware version
- Hardware specifications (number of SIM cards, cellular modules, SIM switch presence, etc.)
- System log
- List of running processes
- Resource usage data (CPU, Memory)
- Available storage space
- Filesystem information
- Status of interfaces
- Network interface configuration details
- DNS and DHCP settings
- Routing table and firewall configuration
- The current running router configuration (including tunnel settings, etc.)
- Certificate information

5.2. Firmware Upgrade

Power interruption during the firmware upgrade process can render the device permanently inoperable.

The firmware upgrade process consists of two stages:

1. Upload the firmware to the router's memory
   - Navigate to the */storage/file* section.
   - Upload the firmware file using the **Upload** button or by dragging and dropping the file into the left side of the page.



2. Start the upgrade process
   - Navigate to the */system/management* section.
   - Click the **Upgrade** button and select the firmware file from the drop-down list.
   - If necessary, check the **Reset Configuration** option. This will remove all installed packages and reset all settings during the upgrade process.
   - Confirm by clicking the **OK** button.

After a successful upgrade, the updated firmware version will be displayed on the router's main page.

5.3. System Management via CLI

Change Hostname

```
admin@Router[/]> system management
admin@Router[/system management]>
admin@Router[/system management]>hostname
  Router
admin@Router[/system management]>hostname jianguan-road-189
admin@Router[/system management]>hostname
  jianguan-road-189
```

Change Timezone

```
admin@Router[/system management]>timezone
  UTC
admin@Router[/system management]>timezone [TAB]

  UTC                           UTC+1                         UTC+2
  UTC+3                         UTC+4                         UTC+5
  UTC+6                         UTC+7                         UTC+8
  UTC+9                         UTC+10                        UTC+11
  UTC+12                        UTC+13                        UTC+14
  UTC-1                         UTC-2                         UTC-3
  UTC-4                         UTC-5                         UTC-6
  UTC-7                         UTC-8                         UTC-9
  UTC-10                        UTC-11                        UTC-12

admin@Router[/system management]>timezone UTC+3
admin@Router[/system management]>timezone
  UTC+3
```

Change Device Date and Time

Format: isotime=HH:MM:SS isodate=yyyy-mm-dd

```
admin@Router[/system management]> change
  isotime=
  isodate=
admin@Router[/system management]> change isotime=14:09:15 isodate=2025-11-17
admin@Router[/system management]>
```

Reboot Router

```
admin@Router[/system management]>reboot
admin@Router[/system management]>Connection to 192.168.12.1 closed
by remote host.
```

Generate Report

```
admin@Router[/system management]>report
exported to /storage/temp/RX44x2_RAA1402519_report_2025_07_30_12_32_04.gz
```

Firmware Upgrade

First, the firmware image must be uploaded to the router's memory using the **scp** utility.

```
scp /.../dnxOS-1.0.0-RX.bin  admin@192.168.12.1:/
```

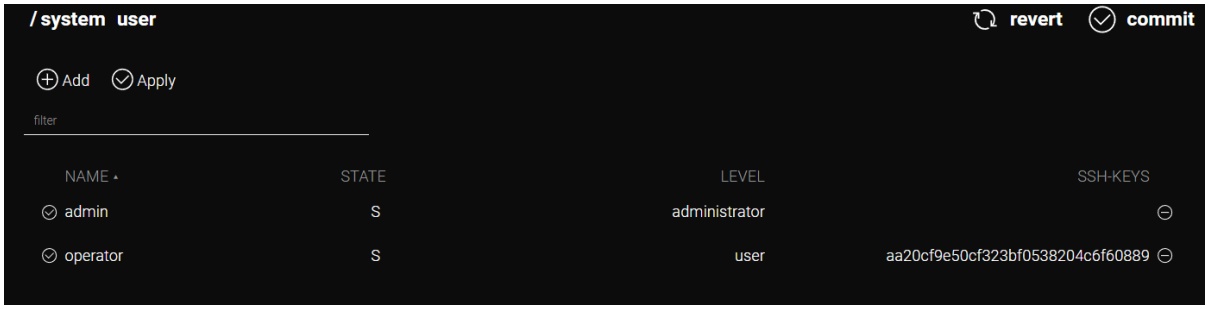
- ***</.../>*** - path to the firmware file on the local computer.
- ***dnxOS-1.0.0-RX.bin*** - firmware file name.
- ***192.168.12.1*** - router IP address (the default value is used in the example).
- ***/*** - only the root directory is available for upload.

```
admin@Router[/system management]>upgrade
  file=
  reset=
admin@Router[/system management]>upgrade file=[TAB] dnxOS-1.0.0-RX.bin
reset=false
```

- ***file=*** - name of the uploaded firmware file (start typing the first letters and press *[TAB]* for autocomplete).
- ***reset=*** - specifies whether a settings reset is required (*true* - yes, *false* - no).

5.4. User Management and Access Control

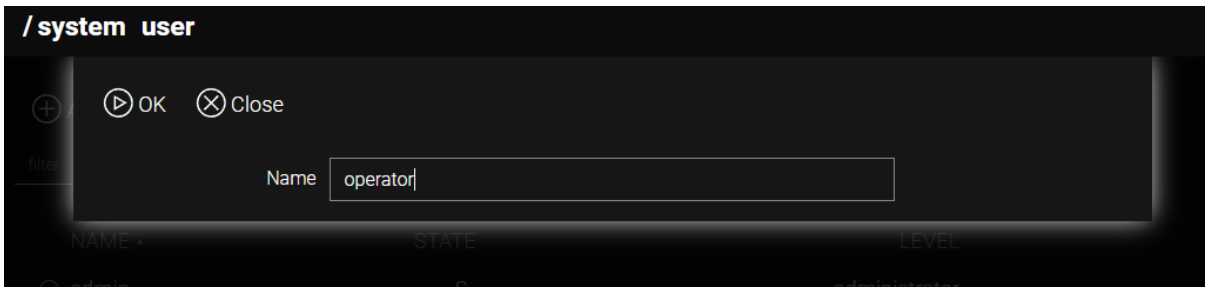
User accounts and access rights are configured in the */system/user* section.



5.5. Creating a New User

Only an **Administrator** can create new users. This functionality is not available for regular users.

- In the */system/user* section, click the **Add** button.
- Enter a username. Permitted characters are letters (a-z, A-Z), numbers (0-9), and the symbols (-, _, @).



5.6. Password

Users can set or change their own password, regardless of their assigned access level.

- In the */system/user* section, click the row corresponding to the user's name.
- In the settings window, click the **Password** button.
- Enter the new password and click **OK**.

5.7. Access Control

Levels / Roles

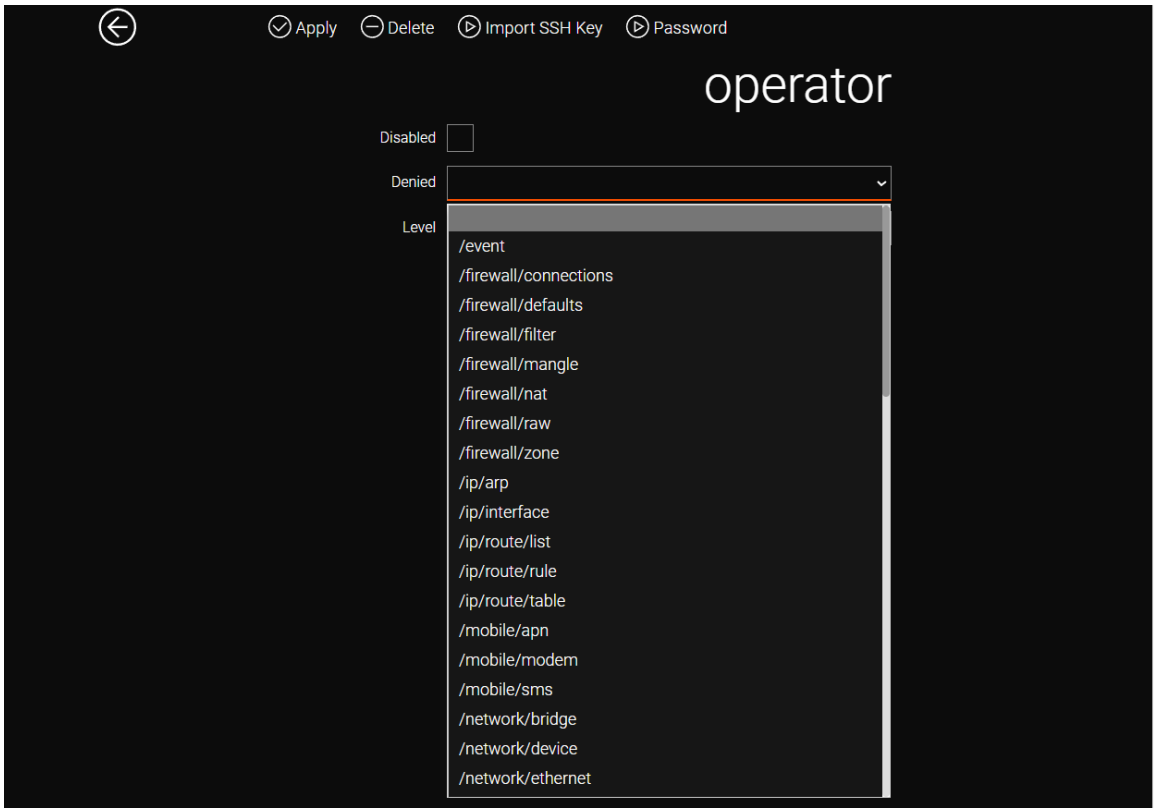
Only an **Administrator** can manage access rights in the */system/user/* section.

Regular users can only view their own profile within the */system/user/* section.

Access to Sections

An administrator can deny access to any section of the web interface.

- In the */system/user* section, click the row corresponding to the user's name.
- In the settings window, select the relevant sections from the **Denied** drop-down menu.



If a user attempts to manually open a section to which their access is denied, the system will redirect them to the root section (the main page).

5.8. User Management and Access Control via CLI

Creating a New User

```
admin@Router[/]>system user
admin@Router[/system user]>add name=operator
```

Password

In the CLI, navigate to the */system/user/username* section and set a new password using the ***password new=*** command.

```
admin@Router[/]>system user operator
admin@Router[/system user operator]>password new=magicpass
```

Access Control

In the CLI, navigate to the */system/user/username* section and restrict access to specific sections using the ***denied*** command.

```
admin@Router[/system user operator]>denied /tools,/storage/file,/service/vrrp
```

Pay attention to the syntax: sections are specified starting with the **/** character, separated by commas, without spaces.

The list of restricted sections, along with other user settings, is displayed by pressing *[TAB]*.

```
admin@Router[/system user operator]>

  denied                        /storage/file,/service/vrrp,/tools
  disabled                      false
  level                         user
  apply
  delete
  export
  password
```

6. Wired Network Configuration

Local network configuration is primarily handled in the */network/bridge* section.

A **Bridge** is a virtual Layer 2 (L2) device that functions as a software-based switch. It groups multiple physical (*/network ethernet*) and logical (*/network device*, */wireless network*, */tunnel*) interfaces into a single network segment.

By default, all device ports are grouped into the *bridge0* interface.

6.1. Core Parameters

Disabled — Controls the administrative state of the bridge interface.

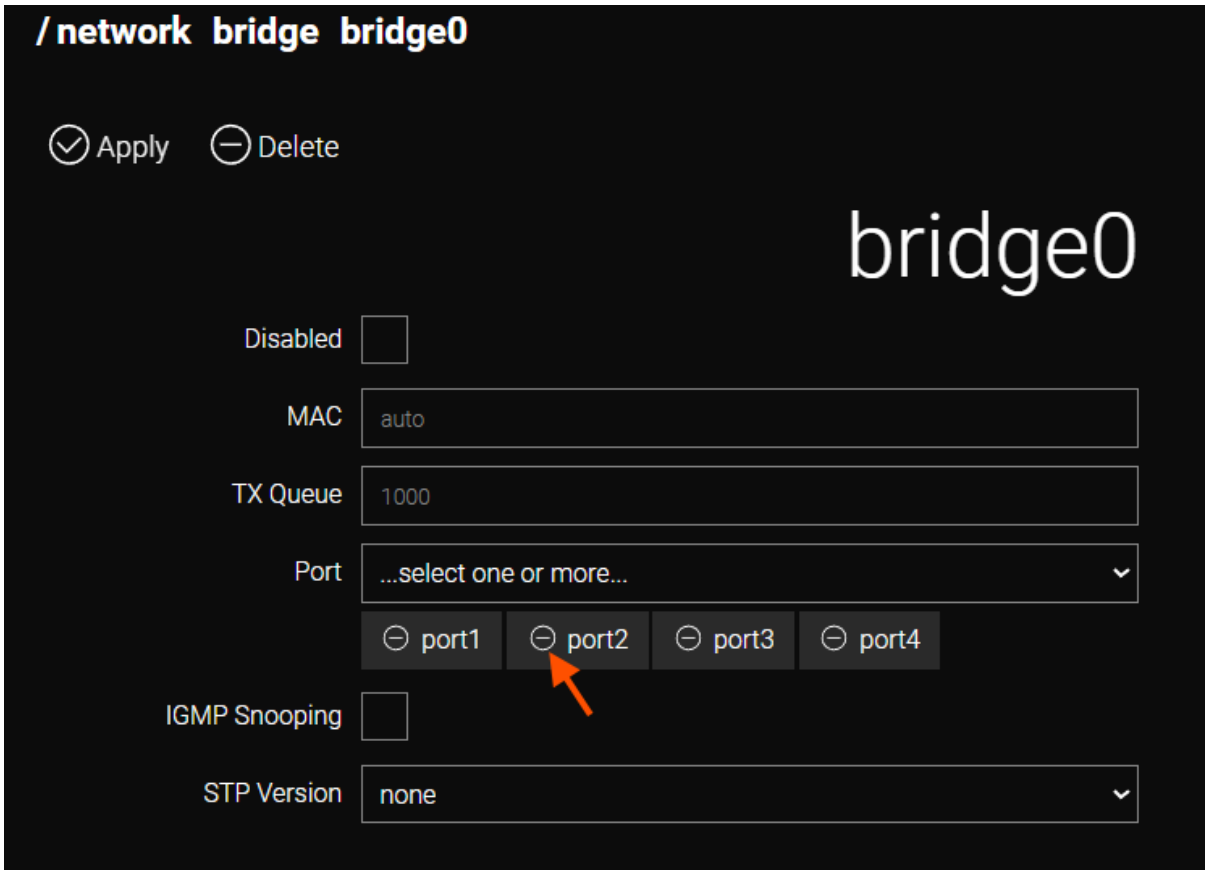
MAC — Assigns a specific MAC address. If left blank, an address will be generated automatically.

Port — Defines the list of member interfaces to be grouped into this bridge.

6.2. Configuration Example

Task: To bridge *port2* and *port4* into a new, separate network segment.

1. **Remove the Ports from the Default Bridge**
   - Navigate to */network/bridge/bridge0*.
   - Remove *port2* and *port4* from the port list by clicking the minus icon ⊖.
   - Click **Apply** to save the changes.

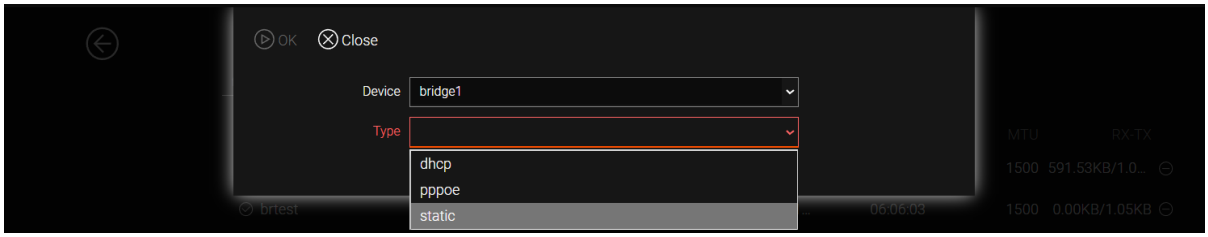


⚠ Do not remove the port that is currently being used for management access to the router. This action will cause an immediate loss of connectivity to the device.

2. **Create a New Bridge**
   - Navigate to */network/bridge*.
   - Click the **Add** button and specify a name for the new bridge (e.g., *bridge1*). Permitted characters are letters (a-z, A-Z), numbers (0-9), and underscore (_).
   - From the *Port* dropdown menu, add the required member interfaces (*port2* and *port4* in this example).
   - Click **Apply** to save the configuration.

The */network/bridge* page now displays both logical network interfaces and their respective parameters.

3. **Assign an IP Address**
   - Navigate to */ip/interface*.
   - Click the **Add** button and select the *bridge1* interface (created in step 2) from the list.
   - Set the type to *static*.
   - Navigate to the newly created */ip/interface/bridge1* interface.
   - Specify an IP address (e.g., *192.168.192.168/24*).
   - Click **Apply** to save the configuration.



The */ip/interface* page now displays both logical IP interfaces and their respective parameters.

6.3. Wired Network Configuration via CLI

Remove *port2* and *port4* from the member port list of *bridge0*.

```
admin@Router[/]>network bridge bridge0
admin@Router[/network bridge bridge0]>port -port2 -port4
admin@Router[/network bridge bridge0]>..
admin@Router[/network bridge bridge0]>apply
```

Create a new bridge (*bridge1*) and add *port2* and *port4* to it.

```
admin@Router[/network bridge]>add name=bridge1
admin@Router[/network bridge bridge1]>port port2 port4
admin@Router[/network bridge bridge1]>apply
```

Create a new interface in */ip interface* and assign an IP address.

```
admin@Router[/]>/ip interface add device=bridge1 type=static
admin@Router[/ip interface bridge1]>ip-address 192.168.192.168/24
admin@Router[/ip interface bridge1]>apply
```

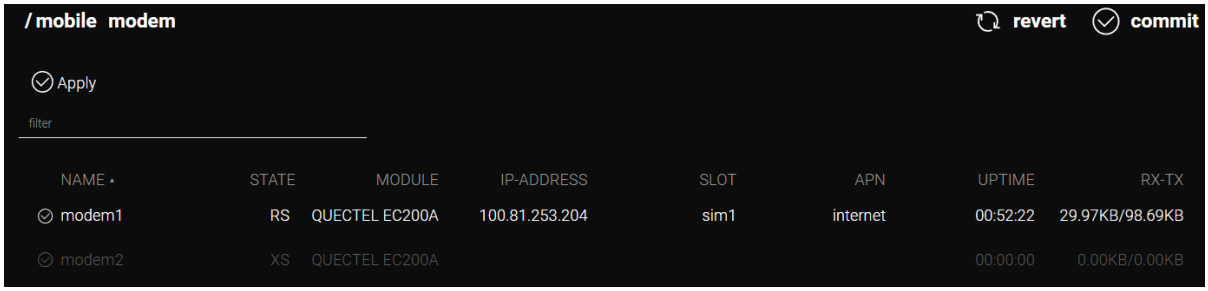
7. Cellular Network Configuration

Cellular network configuration is handled in the */mobile/modem* section.

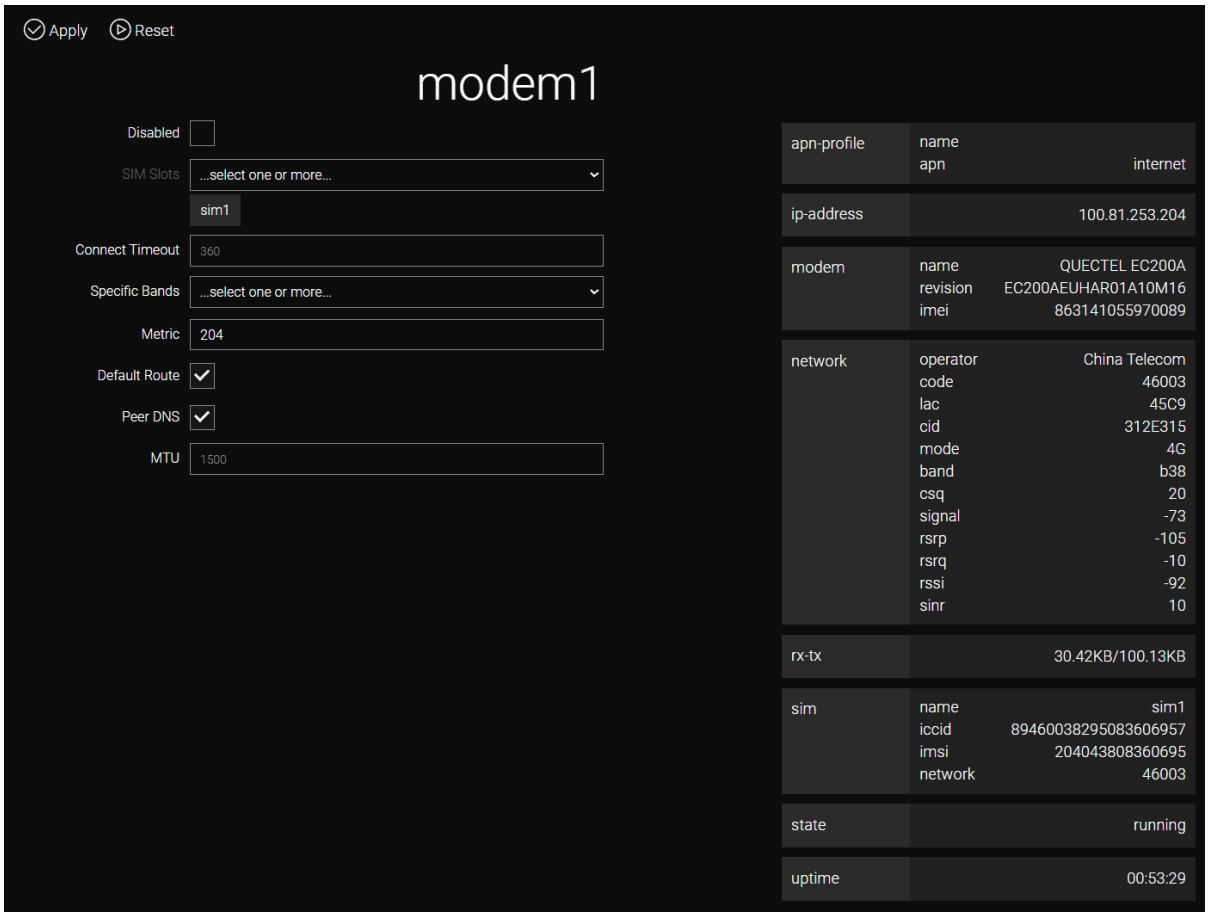
Key terms in this section

Modem1…N — Represents an individual cellular module. The number of available modules is dependent on the router model.

SIM1…N — Refers to the SIM card installed in the correspondingly numbered SIM slot.



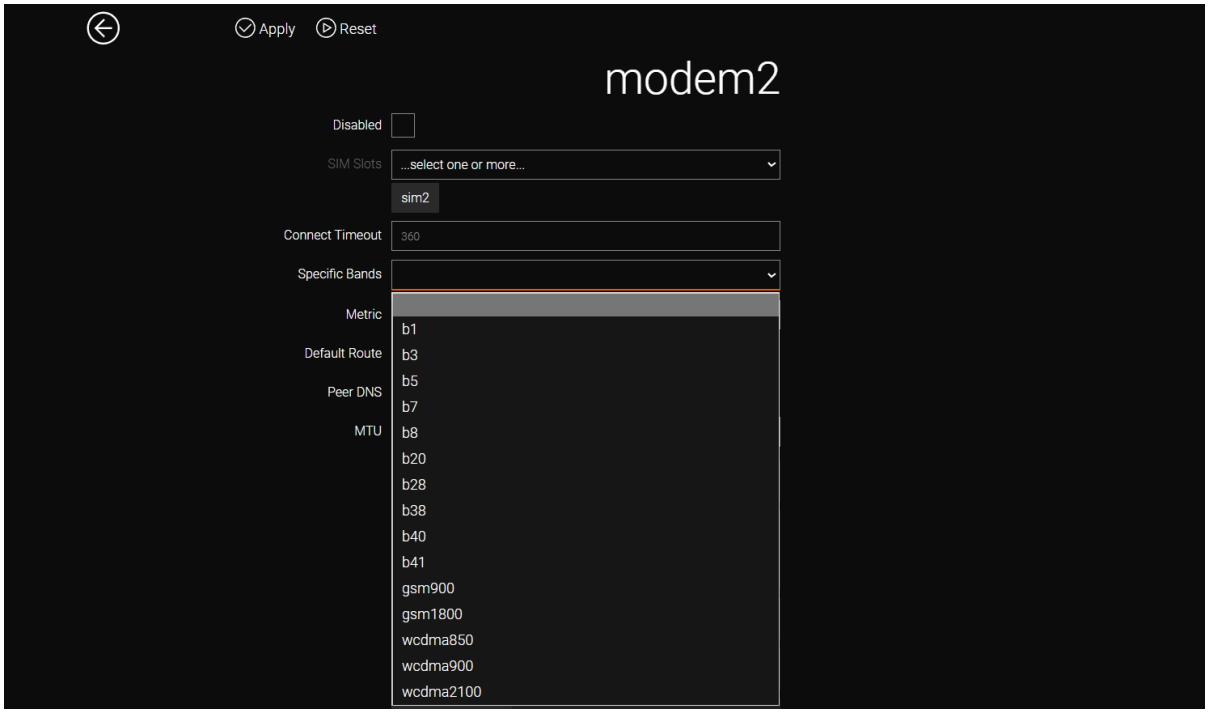
After SIM card installation, the cellular connection is automatically established using default settings.



The current connection status is displayed both on the device's Dashboard and in the status blocks on the specific modem configuration page.

7.1. Main Modem Parameters

- *Disabled* — Administratively enables or disables the modem.
- *Default Route* — Designates the cellular connection as the default route (gateway of last resort).
- *Metric* — A numerical value that determines the route's priority; a lower value indicates a higher priority. This field is mandatory when the *Default Route* option is enabled. To prevent routing conflicts, the metric value should be unique for each interface.
- *Specific Bands* — Allows manual selection of frequency bands. If the cellular module supports this feature, the *Specific Bands* field will be displayed along with a list of available bands.



The band prefixes correspond to the network technology:

- *b<x>* - 4G
- *wcdma<x>* - 3G
- *gsm<x>* - 2G (not supported by all modules)

7.2. Cellular Network Configuration via CLI

Default Modem Settings

```
admin@Router[/]>mobile modem modem2
admin@Router[/mobile modem modem2]>[TAB] - default values will be displayed
  defaultroute                  true
  disabled                      false
  metric                        205
  modem-band
  modem-connect-timeout         360
  modem-sim-slot                sim2
  mtu                           1500
  peerdns                       true
  protocol                      auto
```

Band Selection

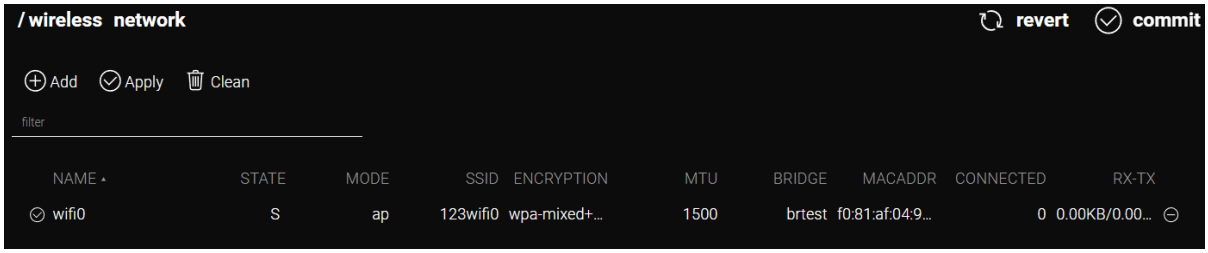
```
admin@Router[/mobile modem modem2]>modem-band
b1
b3
b7
b8
b20
b28
b38
b40
b41
gsm850
gsm900
gsm1800
gsm1900
wcdma900
wcdma2100
admin@Router[/mobile modem modem1]> modem-band b1 b20 b28 b3 b8
```

8. Wi-Fi Configuration

Wireless network settings are configured in the */wireless* section.

8.1. Basic Wi-Fi Network Settings

Wireless configuration is performed in the */wireless/network* section.



Disabled — Disables the wireless network.

Adapter — Selects the physical Wi-Fi adapter (for routers with a single Wi-Fi adapter - *radio0*).

Mode — Operating mode:

- *ap* (access point) — the router functions as an access point, accepting client connections to its network.
- *sta* — the router does not create a wireless network but connects to a specified Wi-Fi network.

Encryption — Security protocol (encryption).

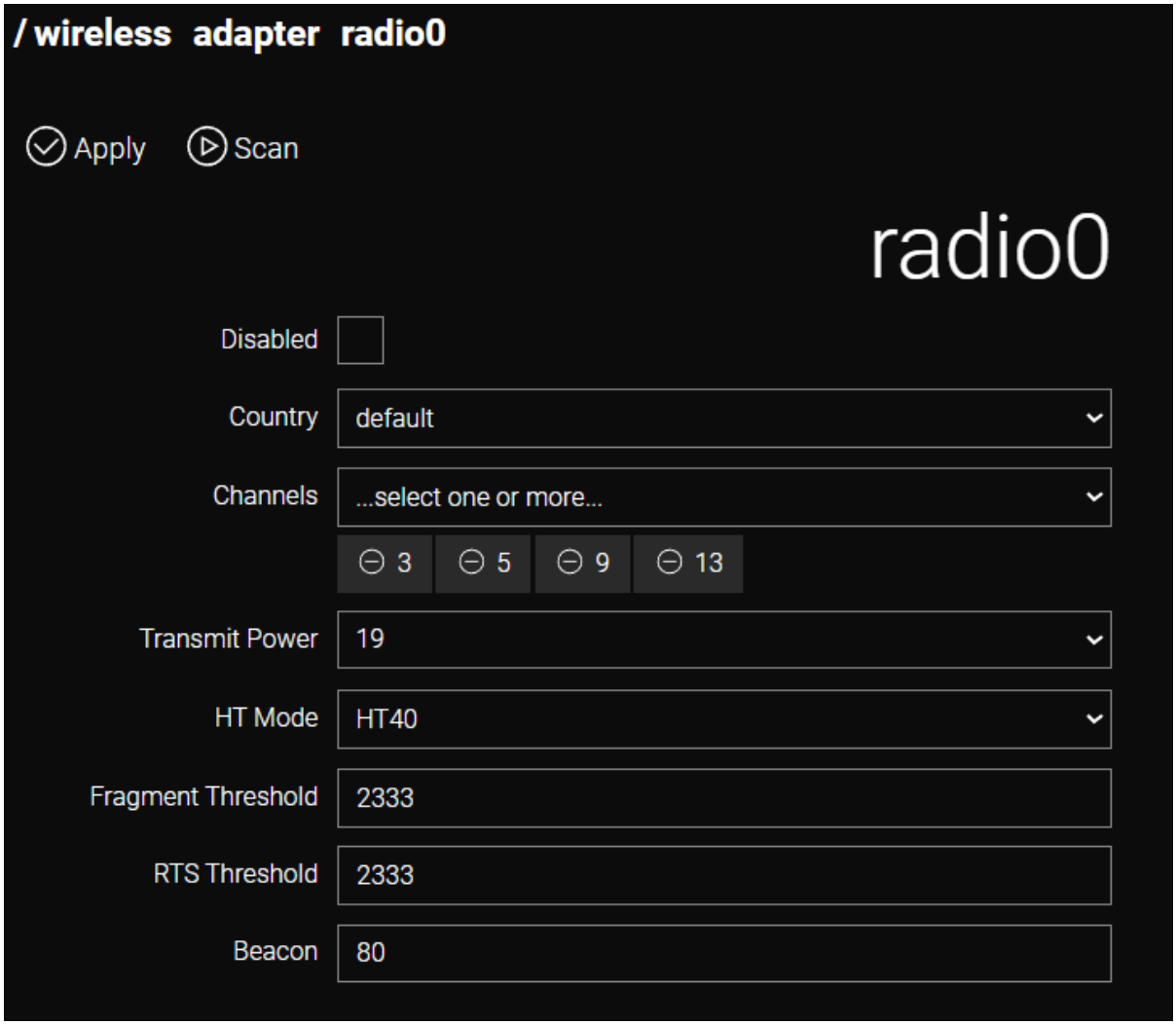
SSID — Wireless network name.

Key — Password.

The default SSID and Key values are indicated on the label on the bottom of the device.

8.2. Basic Adapter Settings

Wi-Fi adapter configuration is performed in the */wireless/adapter* section.



Disabled — Disables the adapter.

Country — Region defining the list of permitted channels.

Channels — Channel selection:

- none selected — search across all available channels;
- single value selected — no search occurs, the specified channel is used;
- multiple values selected — search occurs only among these.

8.3. Configuration Example

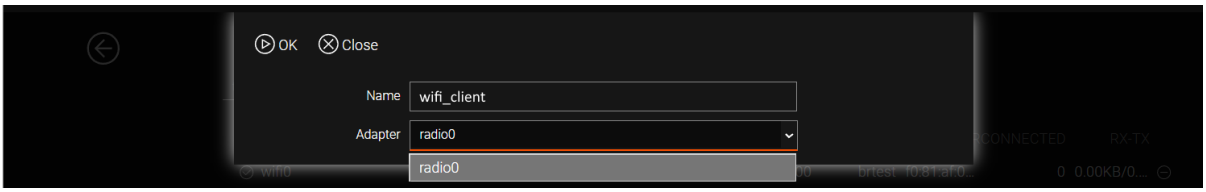
Task: Configure a wireless network on a router with a single Wi-Fi adapter.

1. **Adapter Configuration**
   - Go to the */wireless/adapter* section
   - Configure parameters for the *radio0* adapter (Country, Channels)
   - Apply settings (apply)

2. **Network Creation**
   - Go to the */wireless/network* section

By default, *wifi1* is already created with default settings for operation in *Access Point (ap)* mode. It is possible to change the settings of this network or create a new one.

- Click **Add**, specify a network name. Latin letters (A-Z, a-z), digits (0-9), and underscores (_) are permitted. In our example _wifi_client_.
- From the **Adapter** menu, select the physical adapter, in this case *radio0*.
- Save settings (**OK**).



3. **Wireless Network Configuration**
   - **mode** (operating mode) - *STA*
   - **encryption** (encryption) - *psk-mixed+ccmp*
   - **ssid** (network name) - *PrivateWifi*
   - **key** (password) - *topsecret*
   - Apply the settings (apply)

Now all created wireless networks are visible on the */wireless/network* page.

4. **Assign IP (for STA mode)**
   - Go to */ip/interface*
   - Click **Add**, select *wifi_client* from the list (created in step 2).
   - Set the interface type to *dhcp*
   - Specify metric (if **Default Route** is set)
   - Apply settings (apply)

The maximum number of Wi-Fi networks (AP/STA) that can be created on a single adapter depends on the router series:
- **S Series:** up to 8
- **X Series:** up to 4
- **M Series:** up to 16

8.4. Wi-Fi Configuration via CLI

Adapter Configuration, Channel Selection

```
admin@Router[/]>
admin@Router[/]> wireless adapter radio0
admin@Router[/wireless adapter radio0]> channels 1,2,3
admin@Router[/wireless adapter radio0]> apply
```

Creating a Wireless Network, Specifying Parameters

```
admin@Router[/wireless adapter radio0]> /wireless network
admin@Router[/wireless network]> add name=wifi_client adapter=radio0
admin@Router[/wireless network wifi_client]>mode sta
admin@Router[/wireless network wifi_client]>encryption psk-mixed+ccmp
admin@Router[/wireless network wifi_client]>ssid PrivateWifi
admin@Router[/wireless network wifi_client]>key topsecret
admin@Router[/wireless network wifi_client]>apply
```

Creating an Interface in */ip interface*, Assigning IP

```
admin@Router[/]>/ip interface add device=wifi_client type=dhcp
admin@Router[/ip interface wifi_client]>metric 202
admin@Router[/ip interface wifi_client]>defaultroute true
admin@Router[/ip interface wifi_client]>apply
```

9. Customer Support

Website	donyx.com
Email	support@donyx.com