Mikrotik WireGuard VPN WHMCS module

WHMCS server provisioning module for automated WireGuard VPN deployment on Mikrotik routers. Supports full lifecycle management, bandwidth shaping, atomic traffic statistics, post-paid metric billing, QR code configuration, human-readable traffic metrics, and multilingual client/admin interfaces.

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- Installation and Configuration Guide
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  - WHMCS Installation and Update
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  - Add Server (Router Mikrotik) in WHMCS
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Description

Mikrotik WireGuard VPN module **WHMCS**

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PUQ Mikrotik WireGuard VPN — WHMCS Server Module

PUQ Mikrotik WireGuard VPN is a WHMCS server provisioning module for automated deployment of WireGuard VPN accounts on Mikrotik routers. The module communicates with Mikrotik via REST API and provides full lifecycle management of VPN services including creation, suspension, unsuspension, termination, and package changes.

Key Features

- **Automatic WireGuard VPN provisioning** — create and deploy VPN accounts on Mikrotik routers automatically
- **Full lifecycle management** — create, suspend, unsuspend, terminate, and change packages
- **Mikrotik REST API only** — communicates exclusively via Mikrotik REST API (RouterOS 7+) with 15s connection timeout protection
- **Bandwidth speed limits** — configurable upload/download speed limits per product using Mikrotik Simple Queues
- **Private and public IP support** — assign IPs from a configurable pool per server
- **Metric billing** — post-paid usage-based billing for incoming and outgoing traffic (GB) via standard WHMCS MetricProvider
- **WireGuard configuration export** — text and dynamic QR code formats with one-click `.conf` file download
- **VPN connection status monitoring** — real-time endpoint, handshake, and transfer statistics dynamically formatted in human-readable units (B, KB, MB, GB, TB)
- **Reset VPN Interface** — disconnect and reset frozen connections from client or admin

area
- **Atomic traffic statistics** — daily and monthly traffic charts with Google Charts, backed by atomic database increments (can be disabled per product)
- **Multilingual interface** — 26 languages: Arabic, Azerbaijani, Catalan, Chinese, Croatian, Czech, Danish, Dutch, English, Estonian, Farsi, French, German, Hebrew, Hungarian, Italian, Macedonian, Norwegian, Polish, Romanian, Russian, Spanish, Swedish, Turkish, Ukrainian
- **Custom links** — configurable links to setup instructions and VPN client downloads in client area

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Available Options in the Admin Panel

- Create / Suspend / Unsuspend / Terminate users
- Change package (update bandwidth limits and WireGuard interface)
- VPN connection status and peer information
- Reset VPN Interface function
- Text and QR code configuration display
- Metric Billing (Bandwidth Usage Download/Upload in GB)

Available Options in the Client Panel

- VPN connection status (endpoint, handshake, RX/TX in human-readable units)
- Text and QR code configuration with download button
- Reset VPN Interface function
- Traffic statistics with daily and monthly charts
- Links to user manual and VPN client downloads

System requirements

Requirement	Minimum

WHMCS	8.x+, 9.x+
PHP	7.4, 8.1, 8.2, 8.3, 8.4
ionCube Loader	v15+
Mikrotik RouterOS	7.x+

Important Notes

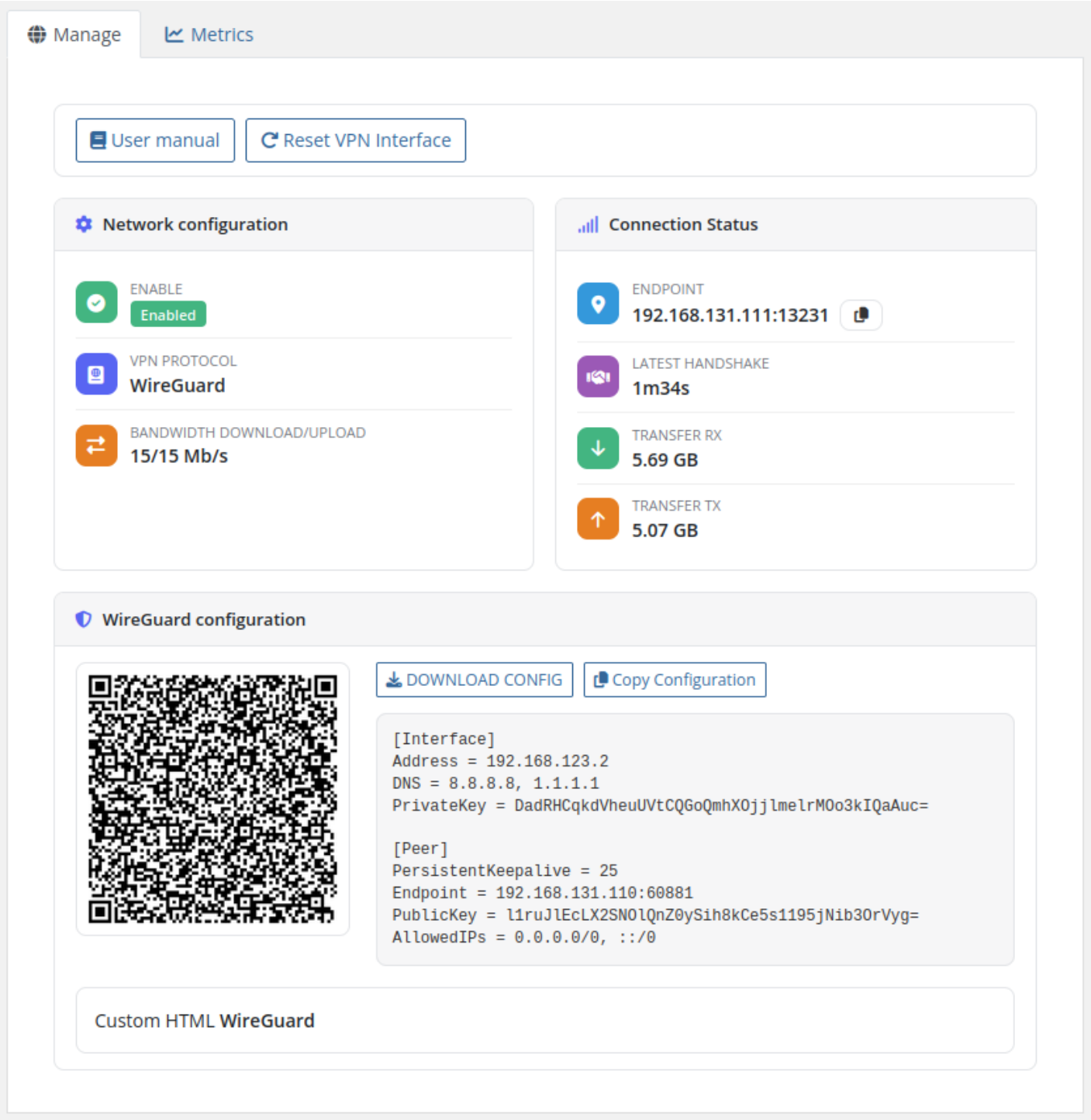
- The upload and download speed settings in the WHMCS module register the opposite values on the Mikrotik router (e.g., download speed in WHMCS = upload speed in Mikrotik).
- To ensure proper VPN functionality, the administrator must correctly configure the Mikrotik router: NAT, Firewall, routing, and all required settings for VPN to operate correctly.

Links

- **Product page:** https://puqcloud.com/whmcs-module-mikrotik-wireguard-vpn.php
- **Documentation:** https://doc.puq.info/books/mikrotik-wireguard-vpn-whmcs-module
- **Support:** https://puqcloud.com/submitticket.php
- **Community:** https://community.puqcloud.com/

Screenshots

Client area — Overview



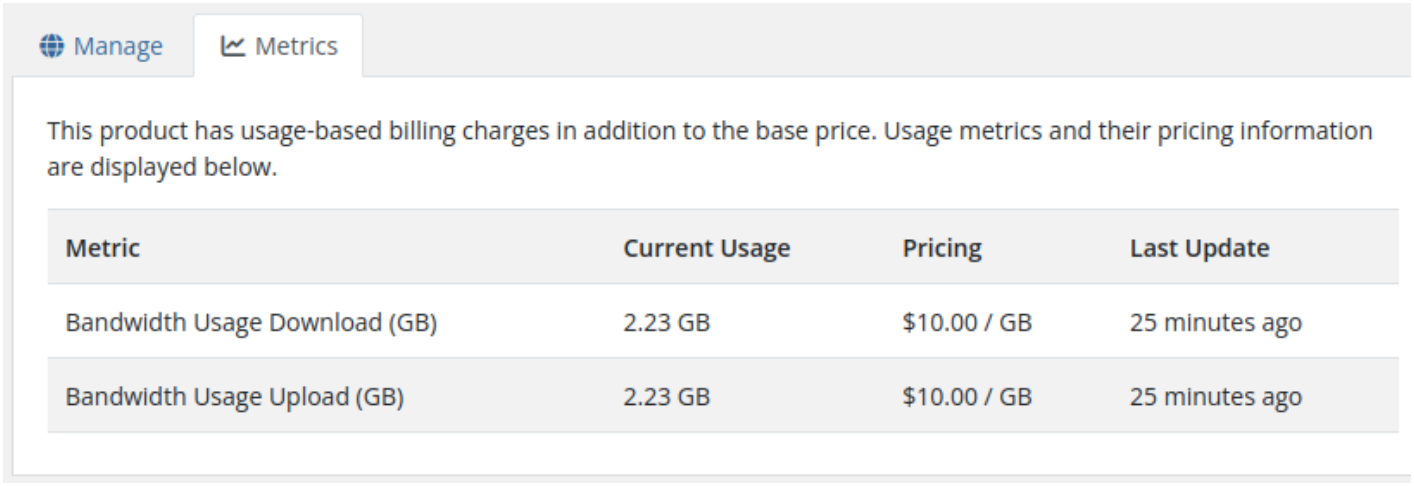
client-area-overview.png

Client area — Traffic statistics



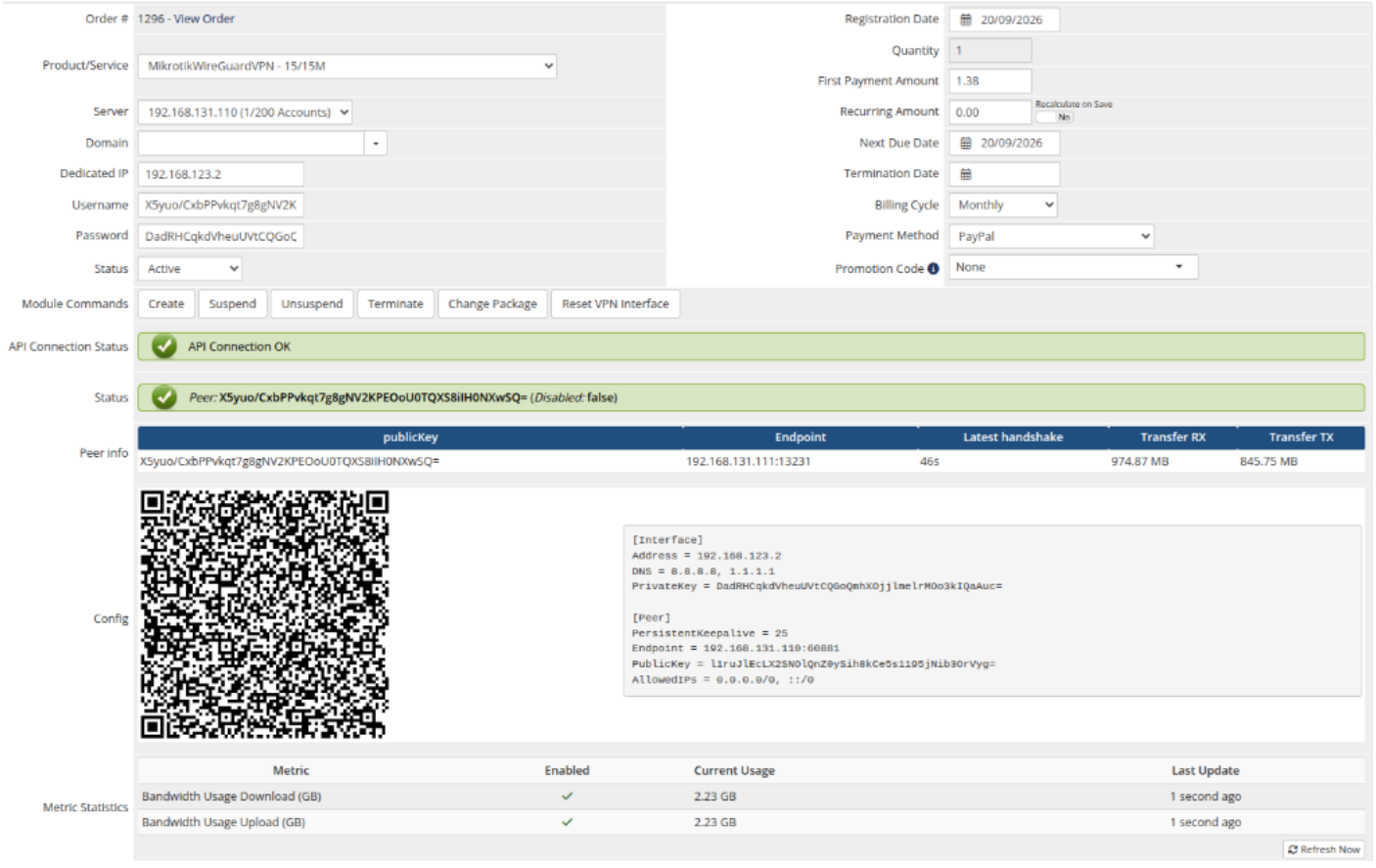
traffic-statistics.png

Client area — Usage metrics



client-area-metrics.png

Admin area — Product information



admin-product-info.png

Changelog

Mikrotik WireGuard VPN module **WHMCS**

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v4.1.0 — 2026-09-30

- **Fault-Tolerant Cron & Usage Tracking.** Daily usage updates and metric harvesting tasks in WHMCS automation are now strictly isolated per WireGuard service. Any momentary network loss or unreachable router will be safely logged without interrupting the synchronization of remaining customer accounts.
- **PHP 8.x Type Safety Hardening.** Thoroughly hardened typed property handling across bandwidth and package limits, preventing `TypeError` exceptions on PHP 8.1, 8.2, and 8.3 environments.
- **Zero-Touch Settings Auto-Migration.** Existing WireGuard products configured on legacy schemas automatically upgrade their settings into modern unified parameters (`configoption24`) upon product saving, ensuring smooth maintenance.
- **Enhanced Select2 & WHMCS 9 Admin UX.** Upgraded dynamic settings panel detection to guarantee instant and reliable form reactivity across WHMCS 9 and Select2 interfaces.
- **Clean Module Logging.** Excluded local database license verification checks (`License_Verification(db)`) from the WHMCS Module Log, recording exclusively online verification calls to keep diagnostic logs clean.

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v4.0.0 — 2026-09-22

- **WireGuard Simple Queue and metric collection fix.** Resolved router 404 errors caused by slashes (`%2F`) in Base64 public keys in REST API paths by introducing `apiFindQueue()` with dedicated IP (`target=.../32`) and query-parameter lookups. Queue deletion and counter resets are now executed reliably via internal RouterOS `.id`.
- **Atomic traffic statistics collection.** Replaced read-modify-write logic with atomic SQL increments (`Capsule::raw`) in `StatisticsSaveTraffic()`, eliminating race conditions and traffic data loss during concurrent WHMCS cron jobs and metric queries.

- **WHMCS Usage Billing MetricProvider fix.** Resolved zero-traffic reporting so that `Usage(0.0)` is reliably returned when usage is 0 GB, preventing "No usage data" statuses in WHMCS.
- **Human-readable Transfer RX & TX units.** Replaced raw byte integers in the client area with dynamically formatted units (`B`, `KB`, `MB`, `GB`, `TB`) with 2-decimal precision.
- **Admin API connection timeout and performance optimization.** Enforced a strict 15-second timeout on router status checks and removed early blocking API calls from constructor, eliminating admin panel delays and cron execution lags.
- **PHP 7.4 & PHP 8.x compatibility.** Resolved syntax compatibility issues across PHP 7.4 through PHP 8.4.
- **ionCube 15 & PHP 8.2+ architectural upgrade.** Transitioned `hooks.php` to an unencoded lightweight bootstrap delegating logic to `lib/puqMikrotikWireGuardVPNHooks.php` for seamless ionCube 15 compatibility.
- **Automated usage cleanup on termination.** Local usage statistics in `puqMikrotikWireGuardVPN_statistics` are now automatically purged when a service is terminated.
- **Enhanced Client Area UI.** Integrated standard PUQ client area UI toolkit with `header.tpl`, QR code rendering, dynamic config download, copy-to-clipboard, CSRF protection, and streamlined layout.
- **Legacy configuration fallback.** Added transparent backward compatibility for products migrating from older configuration schemas.

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v3.2.1 — 2026-06-02

- **Full compatibility with the latest Mikrotik RouterOS 7.21.4.** The module has been tested and certified against RouterOS 7.21.4, so you can confidently run the newest firmware on your routers without any provisioning hiccups.
- **Rock-solid REST API connections.** Resolved rare cases where requests to the router could stall and time out, leaving operations hanging. Account creation, suspension, statistics collection and status checks now complete instantly and reliably.
- **Snappier, more dependable automation.** With every API call responding without delay, day-to-day provisioning and billing run faster and smoother — fewer retries, no stuck tasks, and a more responsive experience for both your team and your customers.
- **PHP 7.4 support restored.** The module once again runs on PHP 7.4 in addition to PHP 8.x, so hosting environments that have not yet migrated to PHP 8 can keep using the latest version. PHP 7.4 will remain supported for as long as it is technically possible to do so.

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v3.2 — 2026-04-21

- **Improved stability across the WHMCS admin area.** Rare page-loading errors that could appear on some admin screens (for example when opening a support ticket on installations with non-standard file layouts, symlinks or custom hosting paths) have been eliminated. The admin panel now loads smoothly in every environment.
- **Greater compatibility with complex hosting setups.** The module is now fully resilient to WHMCS installations using symlinked directories, multi-domain hosting and custom include paths.
- **Smoother day-to-day operation for administrators.** Fewer interruptions, no unexpected "Oops!" pages, and a more predictable experience when working with tickets, clients and services — so your team can focus on customers, not on troubleshooting.

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v3.1 — 2026-02-26

New Features

- Added option to disable traffic statistics collection per product
- When statistics collection is disabled, traffic data is not collected and the statistics page is hidden from the client area

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v3.0 — 2026-02-02

Changes

- Support for WHMCS 9+ with redesigned product module settings
- Updated client area interface design
- New admin settings UI with custom panels (Mikrotik & Bandwidth, WireGuard Configuration, History, Client Area)
- Configuration stored as JSON in configoption24 instead of individual config options

> **Warning:** Product reconfiguration is required after update from v2.x.

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v2.0 — 2024-09-23

Changes

- Module is coded with ionCube v13
- Supports PHP 7.4, 8.1, and 8.2 with WHMCS 8.11.0 and later versions

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v1.3 — 2024-07-29

New Features

- Added metric pricing for incoming and outgoing traffic (Bandwidth Usage Download/Upload in GB)

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v1.2 — 2024-06-17

New Features

- Implemented VPN interface reboot capability for connection resets

Improvements

- Improved mobile client area adaptation
- Minor translation adjustments

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v1.1 — 2023-12-15

New Features

- Package change functionality introduced

Improvements

- Minor administrative and client interface modifications

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v1.0 — 2023-10-09

First release.

Features

- Automatic creation and deployment of WireGuard VPN accounts on Mikrotik routers
- Suspend, unsuspend, and terminate VPN accounts
- Integration with Mikrotik REST API only (RouterOS 7+)
- Configurable bandwidth speed limits (upload/download)
- Support for private and public IP addresses
- IP address pool management per server
- Text and QR code WireGuard configuration formats
- VPN connection status monitoring (endpoint, handshake, RX/TX)
- Traffic statistics with daily and monthly charts
- Client area with configuration download and connection info
- Admin area with peer management and API status
- Multilingual support (25 languages)
- License verification system

Installation and Configuration Guide

Step-by-step instructions for installing the module, preparing the Mikrotik router, and configuring WHMCS products and servers.

Setup Guide: Mikrotik Preparation and Configuration

Mikrotik WireGuard VPN module **WHMCS**

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Prerequisites

- **RouterOS version 7 or higher** is required.
- Access to the Mikrotik router via terminal (SSH, Winbox terminal, or WebFig terminal).

> **Important:** Enter the following commands one by one and wait for each command to complete before proceeding to the next.

Step I. Check RouterOS Version

Verify that your router is running RouterOS 7 or higher:

```
system/package/print
```

Step II. Create Root Certificate Authority

Create a local CA certificate for SSL:

```
/certificate add name=LocalCA common-name=LocalCA key-usage=key-cert-sign,crl-sign
```

Step III. Sign the CA Certificate

```
/certificate sign LocalCA
```

Step IV. Create Webfig Certificate

Replace `XXX.XXX.XXX.XXX` with the router's **public IP address**:

```
/certificate add name=Webfig common-name=XXX.XXX.XXX.XXX
```

Step V. Sign the Webfig Certificate

```
/certificate sign Webfig ca=LocalCA
```

Step VI. Enable SSL for the Web Interface

```

```

```
/ip service set www-ssl certificate=Webfig disabled=no
```

Step VII. Enable API-SSL

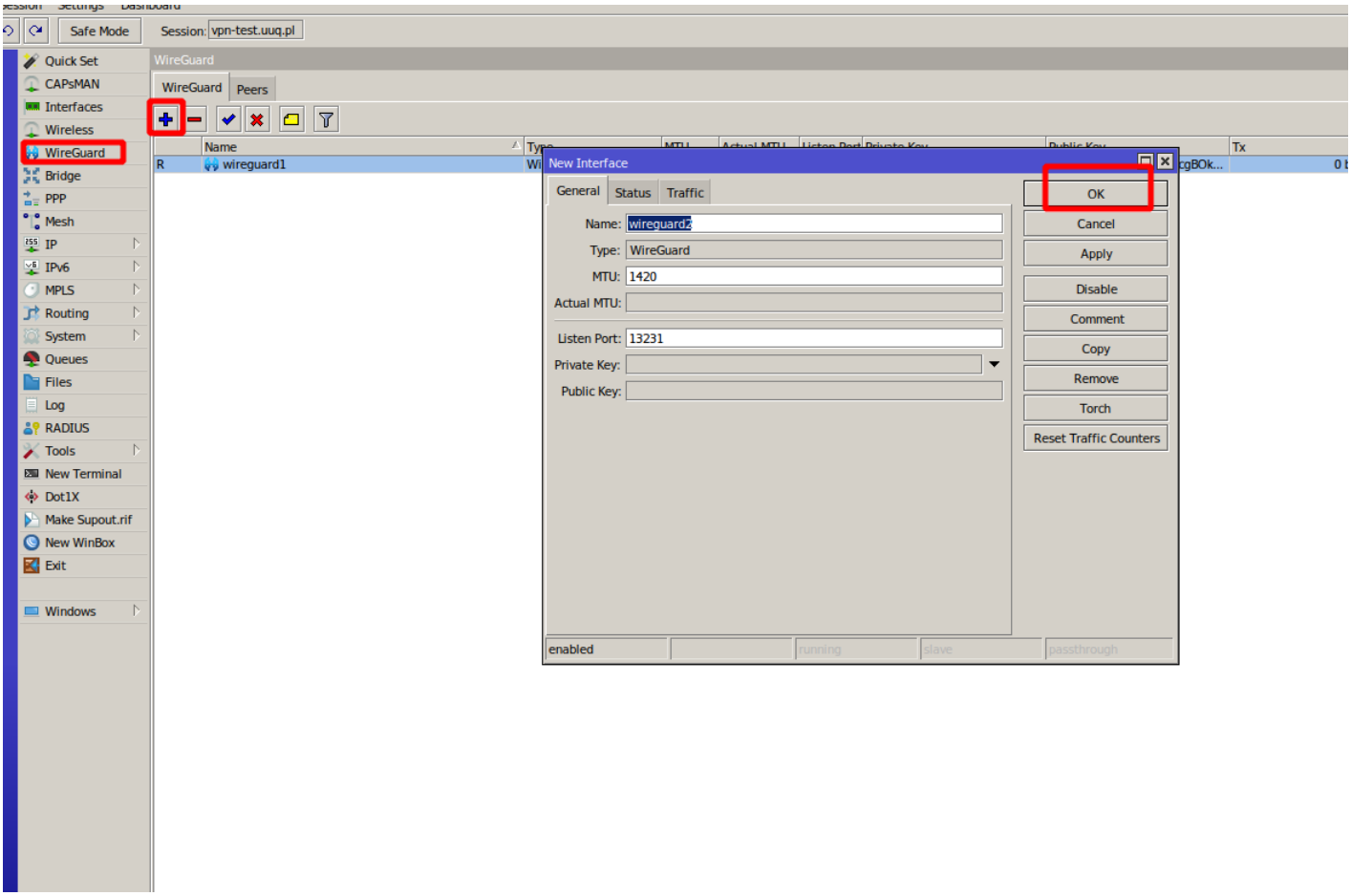
```
/ip service set api-ssl certificate=Webfig disabled=no
```

Step VIII. WireGuard VPN Server Setup

Create and enable the WireGuard VPN server interface through the RouterOS interface.

You can do this via Winbox or WebFig:

1. Navigate to **WireGuard** section
2. Click **Add New** (+)
3. Set the interface name (e.g., `wireguard1`)
4. Set the **Listen Port** (e.g., `13231`)
5. Enable the interface



mikrotik-wireguard-setup.png

Step IX. Configure Firewall, NAT and Routing

> **Important:** Please be aware that to ensure proper functionality of VPN connections, it is essential for you, as an administrator, to correctly configure the Mikrotik router. This entails configuring **NAT**, **Firewall**, **routing**, and all the required settings for VPN to operate correctly.

Example NAT masquerade rule (adjust to your network):

```
/ip firewall nat add chain=srcnat out-interface=ether1 action=masquerade
```

Example firewall rule to allow WireGuard traffic:

```
/ip firewall filter add chain=input protocol=udp dst-port=13231 action=accept comment="Allow WireGuard"
```

Next Steps

After completing the Mikrotik preparation, proceed to Add server (router Mikrotik) in WHMCS.

WHMCS Installation and Update

Mikrotik WireGuard VPN module **WHMCS**

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System requirements

Requirement	Minimum
WHMCS	8.x+, 9.x+.
PHP	7.4, 8.1, 8.2, 8.3, 8.4
ionCube Loader	v15+
Mikrotik RouterOS	7.x+

> **Note:** The module uses ionCube encoding. Make sure ionCube Loader is installed and active on your server.

Installation

> **Note:** The module now uses **ionCube 15**, which provides universal out-of-the-box support for all encodings.

> All versions can be found at this link:
> `https://download.puqcloud.com/WHMCS/servers/PUQ_WHMCS-Mikrotik-WireGuard-VPN/`
>
> Older module versions for WHMCS 8 are available in the archive directory:
> `https://download.puqcloud.com/WHMCS/servers/PUQ_WHMCS-Mikrotik-WireGuard-VPN/archive/`

1. Download the latest version from the PUQ download page:

```
wget https://download.puqcloud.com/WHMCS/servers/PUQ_WHMCS-Mikrotik-WireGuard-VPN/PUQ_WHMCS-Mikrotik-WireGuard-VPN-latest.zip
```

2. Unzip the archive:

```
unzip PUQ_WHMCS-Mikrotik-WireGuard-VPN-latest.zip
```

3. Copy the `puqMikrotikWireGuardVPN` directory into your WHMCS installation under `modules/servers/`:

```
cp -r puqMikrotikWireGuardVPN /path/to/whmcs/modules/servers/
```

   The resulting directory structure should look like:

```
modules/
  servers/
    puqMikrotikWireGuardVPN/
      puqMikrotikWireGuardVPN.php
      hooks.php
      lib/
      templates/
      lang/
      ...
```

Update

The update process is identical to the installation:

1. Download the latest archive from the download page:

```
wget https://download.puqcloud.com/WHMCS/servers/PUQ_WHMCS-Mikrotik-WireGuard-VPN/PUQ_WHMCS-Mikrotik-WireGuard-VPN-latest.zip
```

2. Unzip the archive:

```
unzip -o PUQ_WHMCS-Mikrotik-WireGuard-VPN-latest.zip
```

3. Replace the existing `puqMikrotikWireGuardVPN` directory in your WHMCS installation:

```
cp -r puqMikrotikWireGuardVPN /path/to/whmcs/modules/servers/
```

> **Warning:** When updating from v2.x to v3.x+, product reconfiguration is required due to the new settings storage format.

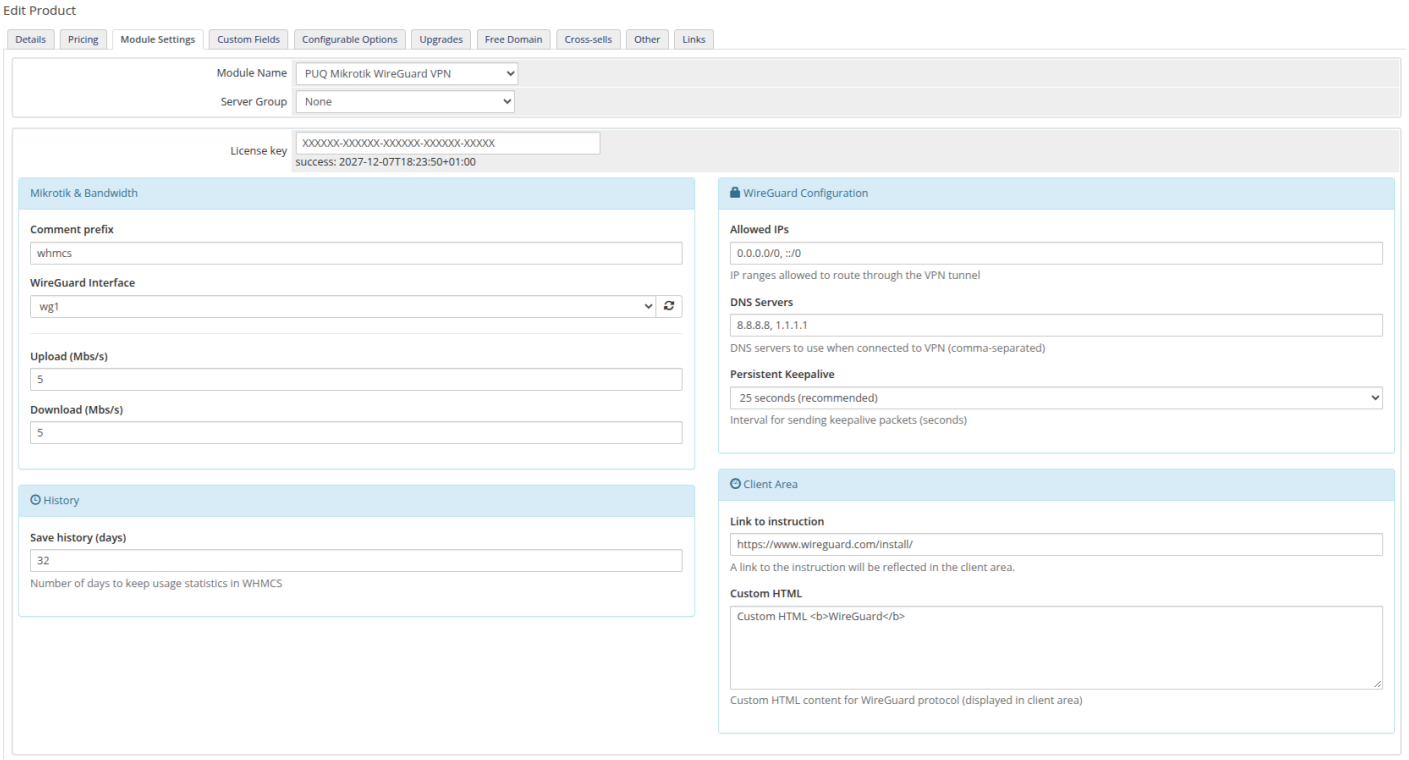
Product Configuration

Mikrotik WireGuard VPN module **WHMCS**

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Add new product to WHMCS

1. Log in to your WHMCS Admin Area.
2. Navigate to **System Settings** → **Products/Services** → **Create a New Product**.
3. Fill in the product details (name, description, pricing).
4. Go to the **Module Settings** tab.
5. Select **PUQ Mikrotik WireGuard VPN** from the **Module Name** dropdown.
6. Enter your **License key** in the corresponding field.
7. Configure the remaining module parameters.
8. Click **Save Changes**.



product-configuration.png

Configuration parameters

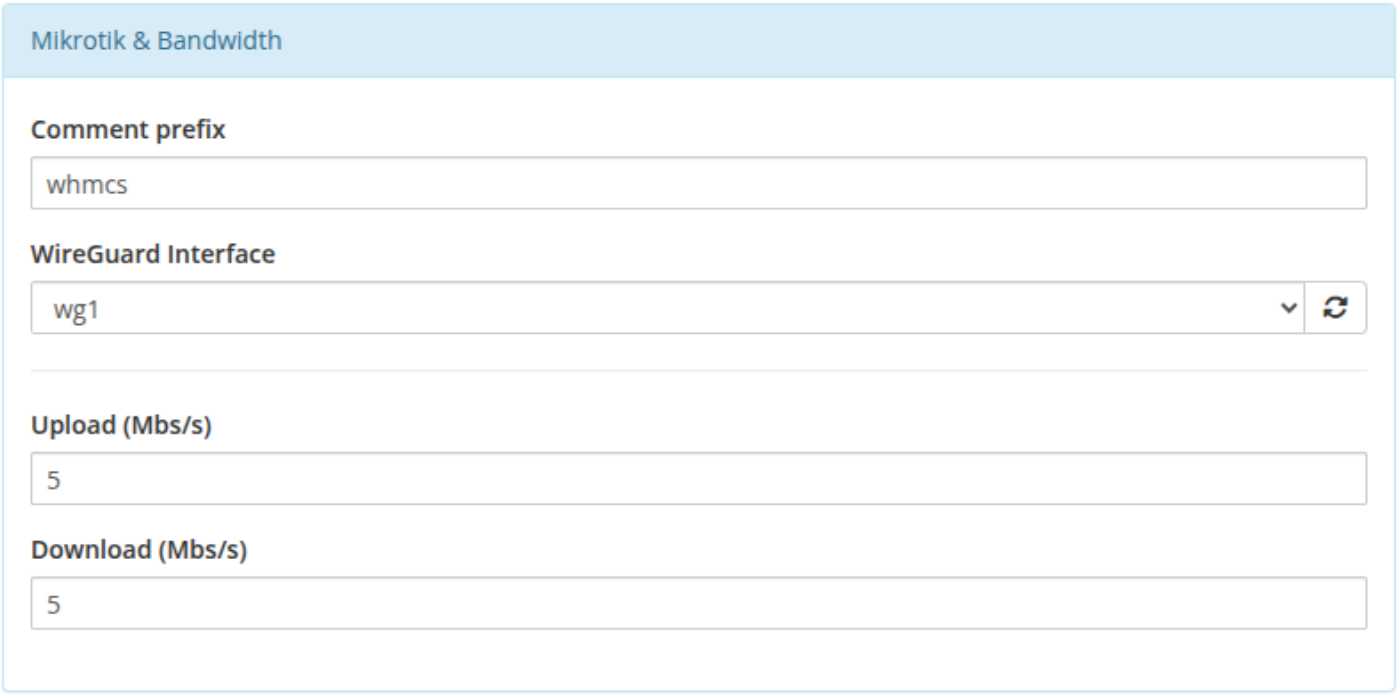
Parameter	Description	Default
License key	Pre-purchased license key for the module.	
WireGuard Interface	Name of the WireGuard interface on the Mikrotik router (must be pre-created)	`wg1`
Comment prefix	Prefix added to VPN peer and queue comments on Mikrotik	`whmcs`
Upload (Mbs/s)	Upload bandwidth speed limit in Mbps	`5`
Download (Mbs/s)	Download bandwidth speed limit in Mbps	`5`
Allowed IPs	IP ranges allowed to route through the VPN tunnel	`0.0.0.0/0, ::/0`
DNS Servers	DNS servers to use when connected to VPN (comma-separated)	`8.8.8.8, 1.1.1.1`
Persistent Keepalive	Interval for sending keepalive packets (seconds)	`25 seconds`

Parameter	Description	Default
Disable statistics collection	When enabled, traffic statistics will not be collected and the statistics page will be hidden from the client area	Unchecked
Save history (days)	Number of days to keep usage statistics in WHMCS (minimum 32 days)	`32`
Link to instruction	URL to setup instructions (displayed in client area as "User manual" button)	Empty
Custom HTML	Custom HTML content for WireGuard protocol (displayed in client area)	Empty

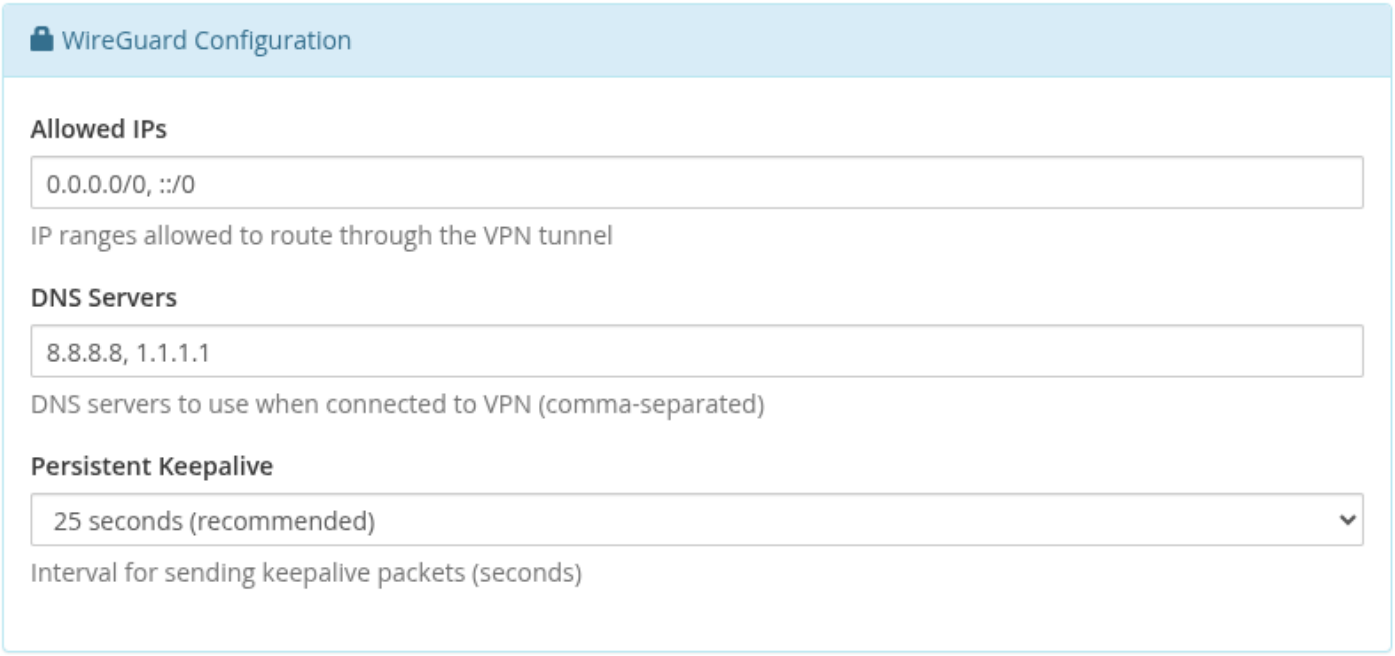
Allowed IPs examples:

- `0.0.0.0/0, ::/0` — route all IPv4 and IPv6 traffic through VPN (full tunnel)
- `10.0.0.0/8, 192.168.0.0/16` — route only specific networks (split tunnel)

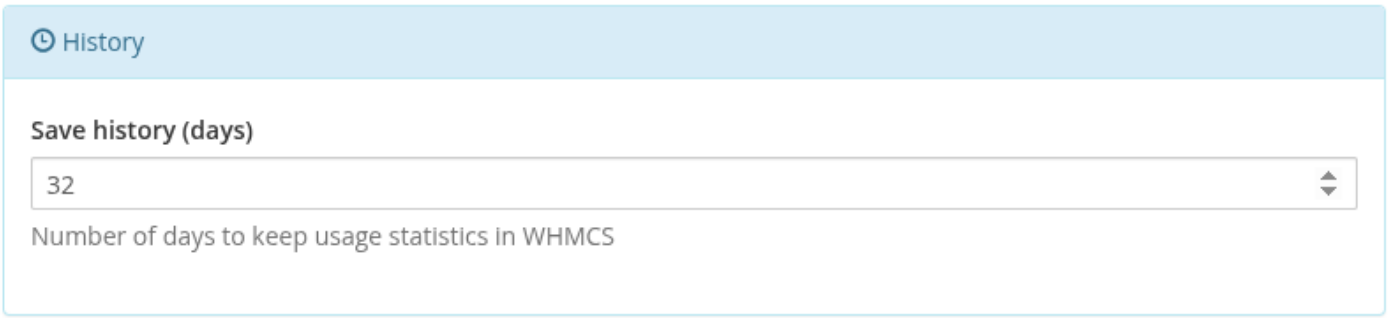
Recommended: Set "Link to instruction" to `https://www.wireguard.com/install/` — the official WireGuard client downloads page.



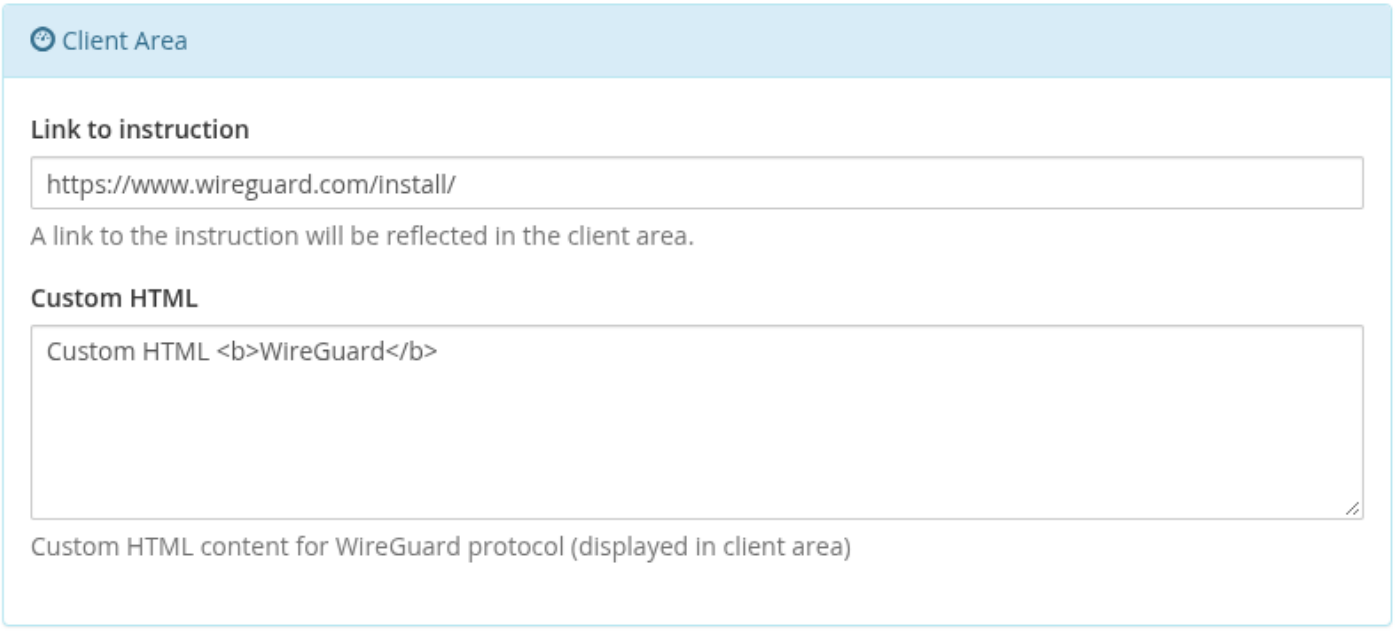
product-config-mikrotik-bandwidth.png



product-config-wireguard.png



product-config-history.png



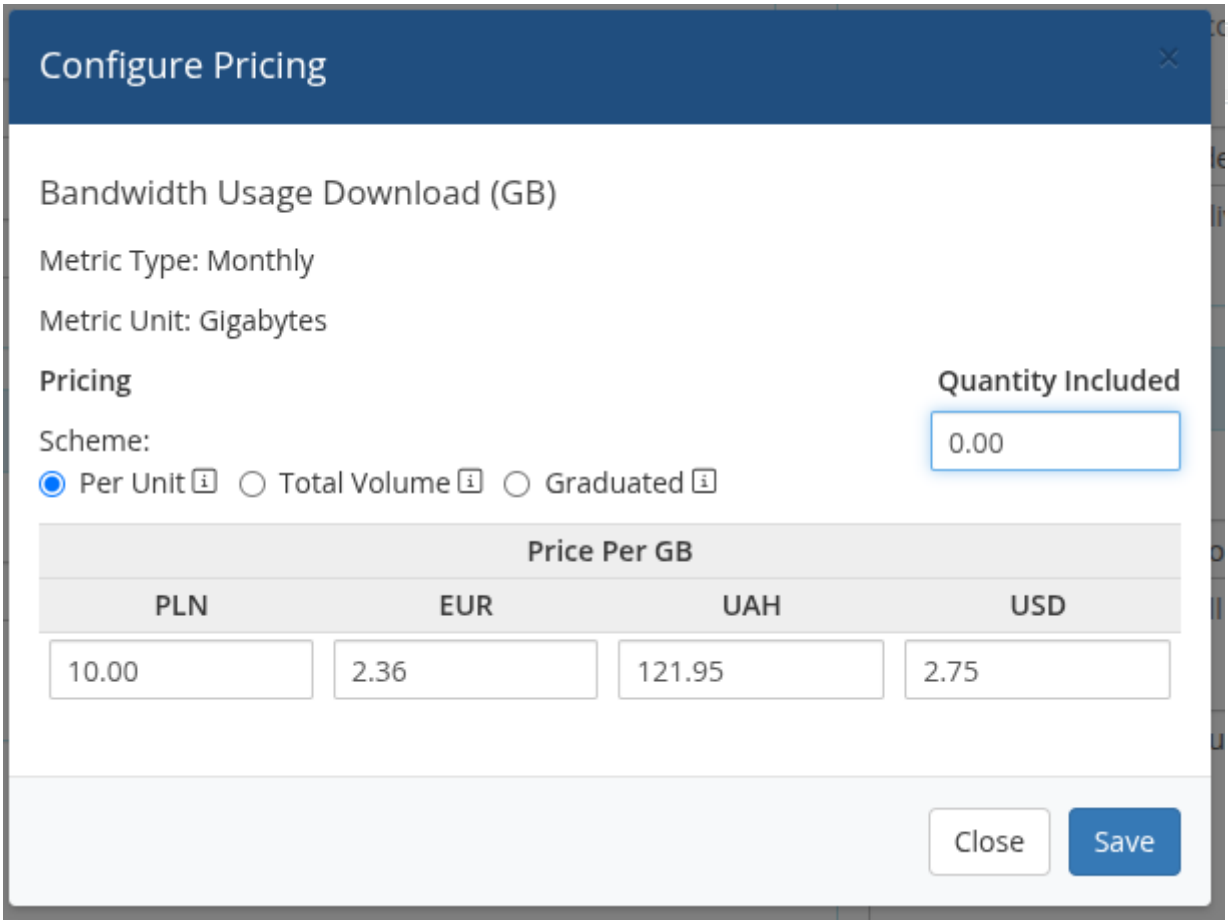
product-config-client-area.png

Metric Billing

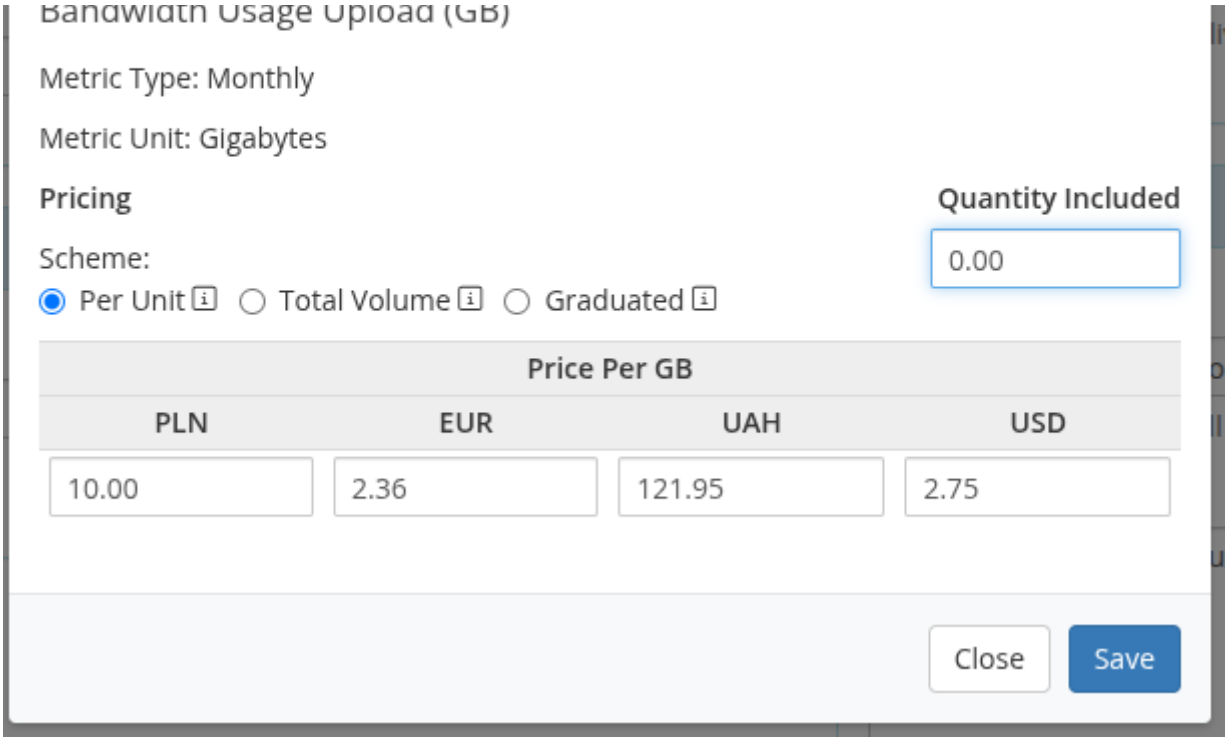
The module supports usage-based billing through WHMCS Metric Billing. Two metrics are available:

- **Bandwidth Usage Download (GB)** — monthly download traffic in gigabytes
- **Bandwidth Usage Upload (GB)** — monthly upload traffic in gigabytes

To enable metric billing, go to the product's **Metric Billing** section and toggle the desired metrics **ON**, then click **Configure Pricing** to set the per-GB price.



metric-billing-download.png



metric-billing-upload.png

Add Server (Router Mikrotik) in WHMCS

Mikrotik WireGuard VPN module **WHMCS**

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Navigate to **System Settings > Servers > Add New Server** in WHMCS admin area.

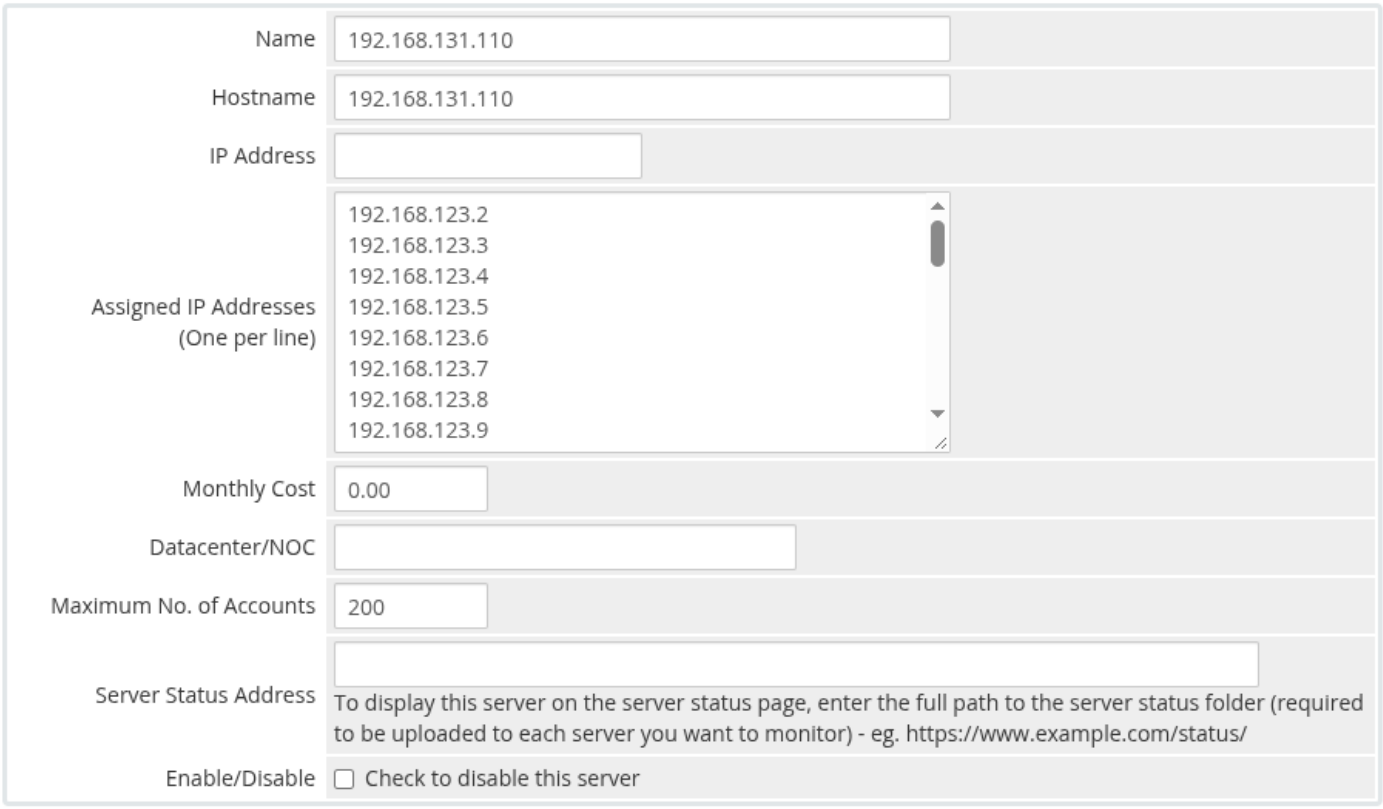
Step 1: Name and Hostname

- **Name** — a descriptive name for your convenience (e.g., "Mikrotik VPN Router 1")
- **Hostname** — the hostname that resolves to your Mikrotik router's IP address (e.g., `vpn.mydomain.com`). You can also use a dedicated domain. The important thing is that the chosen hostname resolves to the IP address of the Mikrotik router in your DNS.

Step 2: Assigned IP Addresses

In the **Assigned IP Addresses** field, enter a list of IP addresses that will be issued to VPN clients — one IP per line.

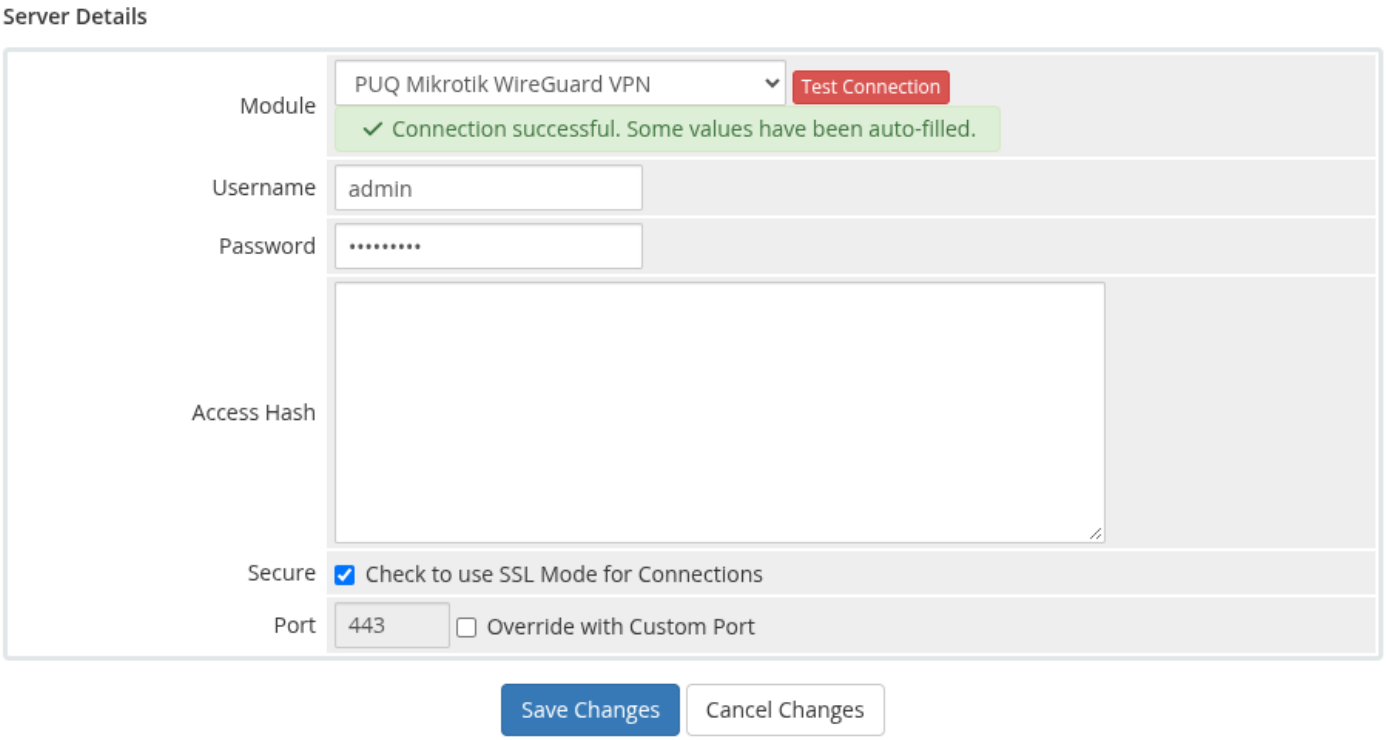
These IPs will be assigned to WireGuard peers as their tunnel addresses. The module automatically allocates the first available (unused) IP from this pool for each new service.



whmcs-server-ips.png

Step 3: Server Details

1. Select the **"PUQ Mikrotik WireGuard VPN"** module from the Module dropdown
2. Enter the correct **username** and **password** for the Mikrotik router
3. Set the **port** (default: `443` for HTTPS REST API)
4. Check the **Secure** checkbox if using HTTPS (recommended)



whmcs-server-details.png

Step 4: Test Connection

Click the **"Test Connection"** button to verify that WHMCS can communicate with the Mikrotik router via REST API.

A successful connection will confirm that:

- The Mikrotik router is reachable
- The credentials are correct
- The REST API is enabled and responding

Next Steps

After adding the server, proceed to Product Configuration in WHMCS.

Admin Area

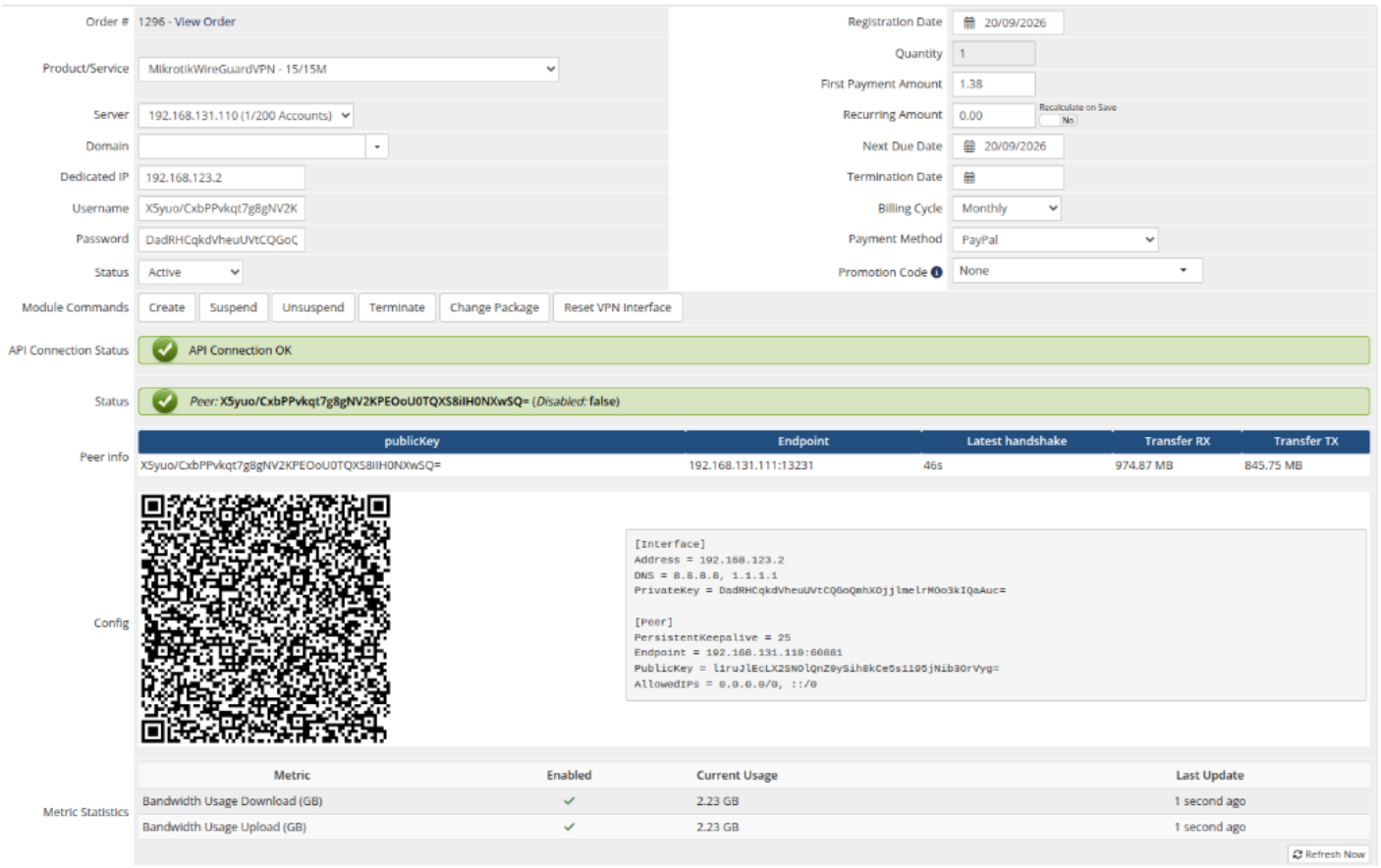
The administrator interface for managing WireGuard VPN service instances.

Product Information

Mikrotik WireGuard VPN module **WHMCS**

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The admin service management page provides a comprehensive view of each VPN service instance.



admin-product-info.png

License Verification

Displays the license status for the product. If the license is invalid or expired, an error message is shown.

API Connection Status

Shows whether WHMCS can successfully communicate with the Mikrotik router:

- **API Connection OK** — the Mikrotik router is reachable and responding
- **API connection problem** — the router is unreachable or credentials are incorrect

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Peer Status

Indicates whether the WireGuard peer exists on the Mikrotik router and its current state:

- **Disabled: false** — the peer exists and is active (green indicator)
- **Disabled: true** — the peer exists but is disabled/suspended (red indicator)
- **The peer does not exist on the VPN server** — no peer found for this service

---

Peer Info

A table displaying detailed peer information:

Field	Description
publicKey	The client's WireGuard public key
Endpoint	The client's current IP address and port (N/A if not connected)
Latest handshake	Timestamp of the last successful WireGuard handshake (N/A if never connected)
Transfer RX	Total data received by the peer
Transfer TX	Total data sent by the peer

Config

Displays the WireGuard client configuration in two formats:

- **QR Code** — scannable QR code image
- **Text config** — the full WireGuard configuration text

Admin Actions

The following management actions are available:

Action	Description
Create	Generate WireGuard keys, allocate IP, create peer and bandwidth queue on Mikrotik
Suspend	Disable the WireGuard peer on Mikrotik
Unsuspend	Re-enable the WireGuard peer on Mikrotik
Terminate	Delete the peer and queue from Mikrotik, clear service data
Change Package	Update the peer's WireGuard interface and recreate the bandwidth queue with new limits
Reset VPN Interface	Temporarily disable and re-enable the peer to reset a frozen connection

Client Area

The client-facing interface for managing WireGuard VPN services.

Home Screen

Mikrotik WireGuard VPN module **WHMCS**

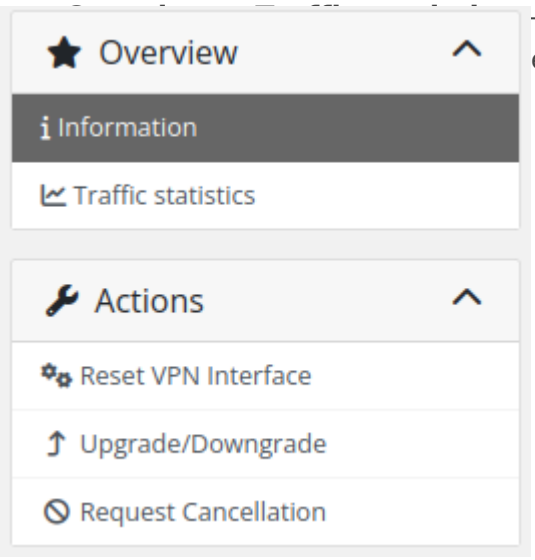
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Customers accessing their VPN service panel can view and manage their WireGuard VPN connection.

Overview and Sidebar

The sidebar navigation provides access to:

- **Overview > Information** — the main dashboard with VPN details.
- – daily and monthly usage graphs.
- e interface, upgrade/downgrade, or request cancellation.



client-area-sidebar.png

Action Buttons

At the top of the main page, the following buttons are displayed:

- **User manual** — link to setup instructions (if configured by administrator)
- **Reset VPN Interface** — reboot the VPN interface to reset a frozen connection

---

Network Configuration

Displays the VPN service status and settings:

- **Enable** — shows whether the VPN peer is enabled or disabled
- **VPN Protocol** — always "WireGuard"
- **Bandwidth download/upload** — the configured speed limits in Mb/s

---

Connection Status

Real-time information about the VPN connection:

- **Endpoint** — the client's current IP address and port (shown when connected)
- **Latest handshake** — timestamp of the last successful WireGuard handshake
- **Transfer RX** — data received by the peer (formatted dynamically in B, KB, MB, GB, TB)
- **Transfer TX** — data sent by the peer (formatted dynamically in B, KB, MB, GB, TB)

WireGuard Configuration

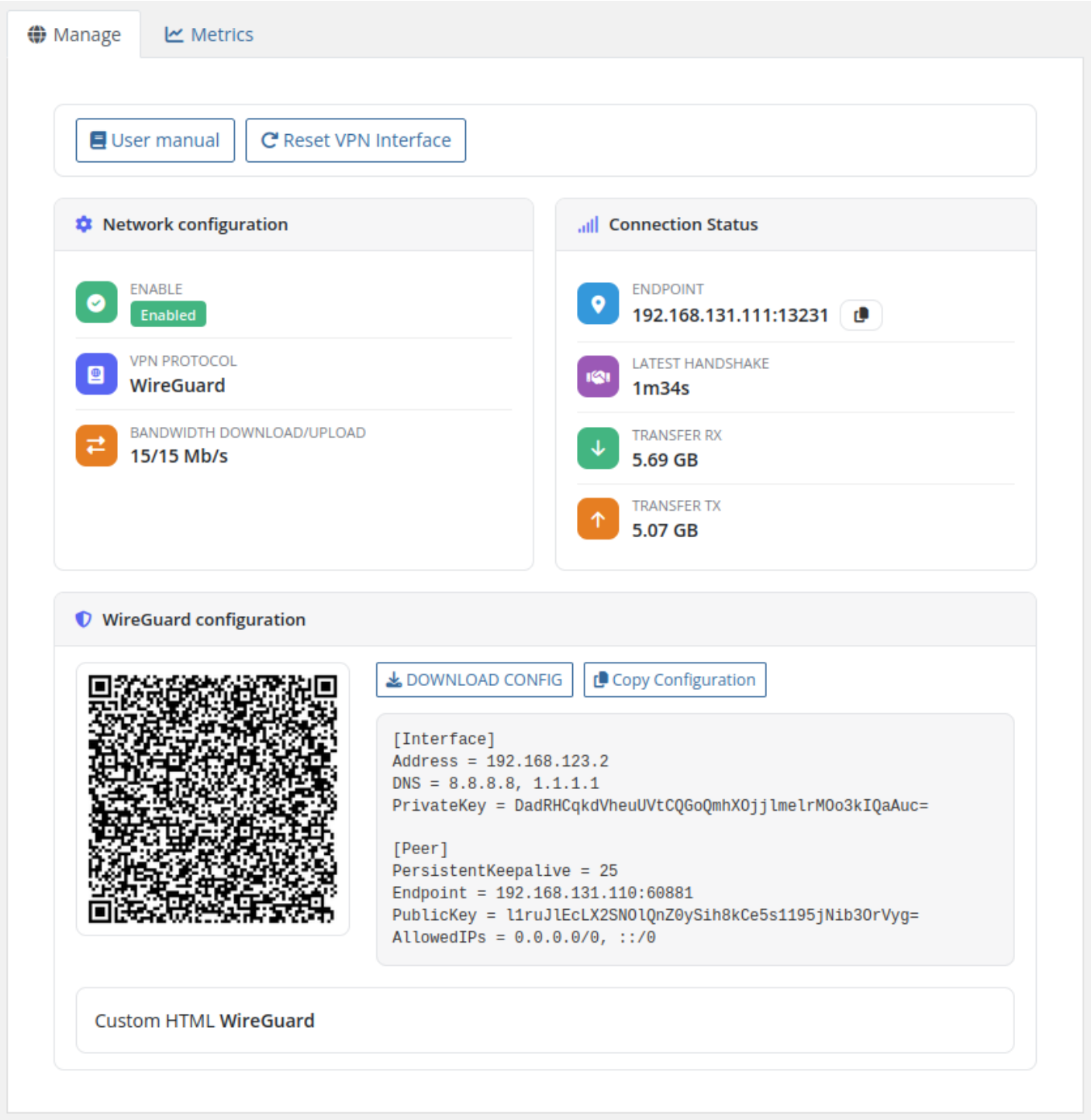
Provides the client with everything needed to configure their WireGuard client:

- **DOWNLOAD CONFIG** button — downloads the `wg0.conf` configuration file
- **Copy Configuration** button — copies the text configuration to clipboard
- **QR Code** — scannable QR code for mobile WireGuard apps
- **Configuration text** — the full WireGuard configuration in text format
- **Custom HTML** — any custom HTML content defined by the administrator

The configuration includes:

```
[Interface]
Address = <client VPN IP>
DNS = <configured DNS servers>
PrivateKey = <client private key>

[Peer]
PersistentKeepalive = <configured keepalive>
Endpoint = <server hostname>:<WireGuard listen port>
PublicKey = <server public key>
AllowedIPs = <configured allowed IPs>
```



client-area-overview.png

Traffic Statistics

When traffic statistics collection is enabled (default), a **Traffic statistics** link appears in the sidebar navigation.

The statistics page displays two charts powered by Google Charts:

- **Traffic statistics for the last 30 days** — daily download and upload traffic in GB
- **Total traffic for all time per month** — monthly aggregated download and upload traffic in GB



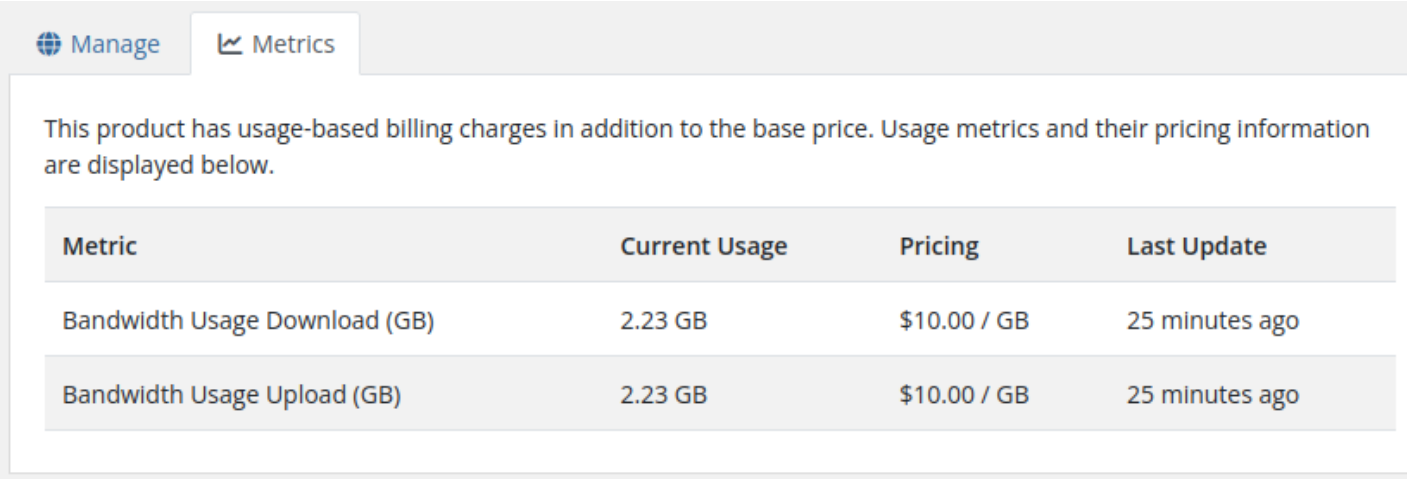
traffic-statistics.png

> **Note:** Traffic statistics can be disabled per product in the admin settings (History > Disable statistics collection). When disabled, the sidebar link and statistics page are hidden.

Usage Metrics (Metric Billing)

When WHMCS Usage-based Metric Billing is enabled for the product, clients can navigate to the **Metrics** tab alongside **Manage** in their service view:

- Displays current usage for **Bandwidth Usage Download (GB)** and **Bandwidth Usage Upload (GB)**.
- Shows pricing information per GB and when metrics were last updated.



client-area-metrics.png