# TEST GPON/1GE

# EXTRALINK NEPTUN

NEPTUN

GPON/1GE

- ROUTING/NAT FUNCTION

- 1 X GIGABIT ETHERNET

- 1 X GPON PORT, FSAN G.984.2

DOWNLINK 2,448 GBIT/S, UPLINK 1,244 GBIT/S
COMPATIBLE WITH ITU-T G.984
AES 128 ENCRYPTION WITH G.984 STANDARD

- CHIPSET ZTE

We have tested **EXTRALINK NEPTUNE GPON / 1GE.** The test was performed in the following steps concerning: performance, compatibility and functionality of hardware and software. All the tests are compatible with technical standards of GPON devices.

## Contents:

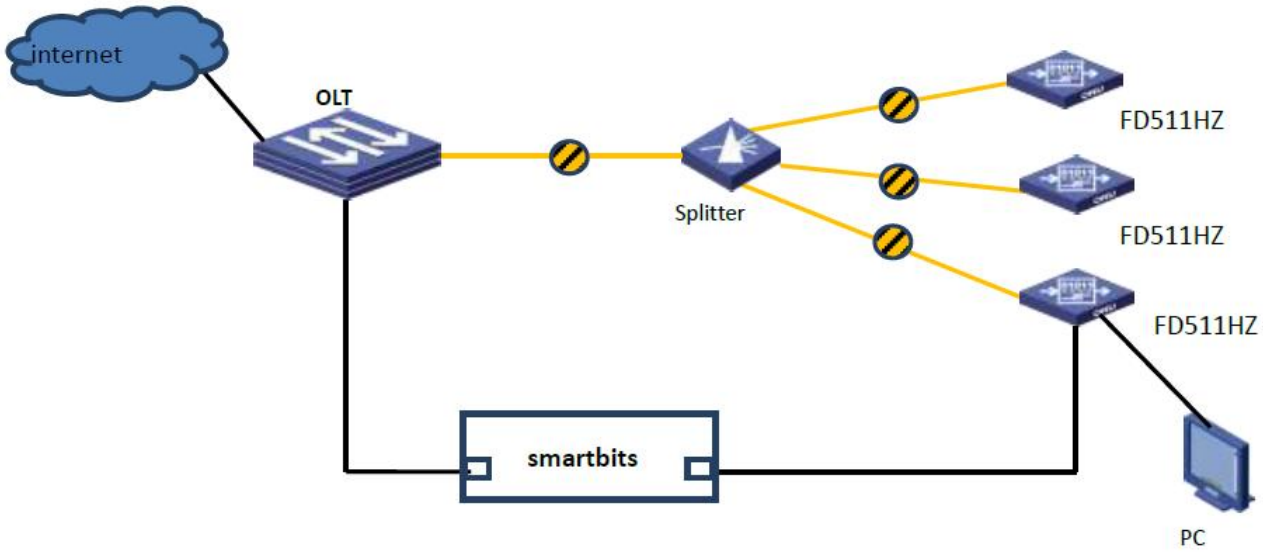
5. **Extralink GPON NEPTUN 1GE compatibility**
6. **Bandwidth test**
7. **Web interface**

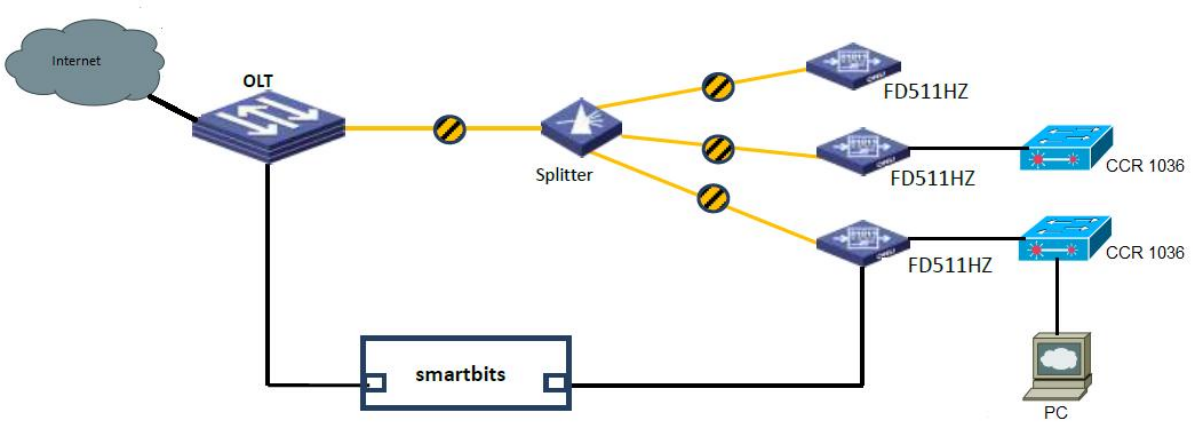
## 1. Description of the equipment and network diagram

Tests were performed using the following equipment:

| Device | Model/Version |
|---|---|
| OLT HUAWEI MA5683T | Software Version: V800R008 |
| ONU | Extralink Neptun GPON FD511HZ (1GE) |
| MIKROTIK ROUTERBOARD | CCR1036-12G-4S-EM |
| Smartbits | Smartwin8.51 |
| PC | System: Windows 10 |

Network diagram:






## 2. ONU functional tests

| Function | Specs of a tested element | Test situation | Test Passed | |
|---|---|---|---|---|
| | | | Yes | No |
| Visibility of necessary information | GPON ONU adopts MAC and LOID + password for online registration | Function completed | V | |
| | GPON ONU automatic search | Function completed | V | |
| | Once turned on, ONU indicates information about status (online status, configuration status) | Function completed | V | |
| | Once ONU is connected to OLT, information about MAC, LOID, ID and version are visible | Function completed | V | |
| | Information about optical module and ports | Function completed | V | |
| Test of necessary functions | Reboot test | Function completed | V | |
| | Registration test | Function completed | V | |
| | IP Address Management Test | Function completed | V | |
| | OLT restarts ONU to the default settings | Function completed | V | |
| | OMCI update test | Function completed | V | |
| | Power-fail test | Function completed | V | |
| Port test | Port auto negotiation test | Function completed | V | |
| | Port stream control function | Function completed | V | |
| | Port status management function | Function completed | V | |
| QoS function | QoS | Function completed | V | |
| | IGMP and Proxy (open/closed) | Function completed | V | |

| | | | | |
|---|---|---|---|---|
| **IGMP function test** | IGMP V2 and V3 function test | Function completed | V | |
| | Basic Multicast service test | Function completed | V | |
| | Test concerning adding and removing special Multicast address | Function completed | V | |
| | TAG STRIP function test | Function completed | V | |
| **Layer2 transmission functions** | Frame filter: based on a physical port, source and destination of MAC address, Ethernet data frame filter between a physical port and a source and MAC address destination | Function completed | V | |
| | UNI loop detect function | Function completed | V | |
| **Control diodes status** | PON diode status | Function completed | V | |
| | LOS diode status | Function completed | V | |
| | LAN diode status | Function completed | V | |
| | Power diode status | Function completed | V | |

## 3. Test of basic services

| **Function** | **Specs of a tested element** | **Test situation** | **Test Passed** | |
|---|---|---|---|---|
| | | | **Yes** | **No** |
| **Router function test** | WAN port adopts DHCP to surf the Internet | Function completed | V | |
| | WAN port adopts STATIC IP to surf the Internet | Function completed | V | |
| | WAN port adopts PPPoE to surf the Internet | Function completed | V | |
| **IGMP service test** | IGMP V2 V3 Configuration | Function completed | V | |
| | IGMP quickly leave function | Function completed | V | |
| | ONU combine gauge to send multicast streams | Function completed | V | |
| | ONU combines VLC to simulate multicast | Function completed | V | |

## 4. Performance and durability test

| Function | Specs of a tested element | Test situation | Test passed | |
|---|---|---|---|---|
| | | | Yes | No |
| Performance and durability | Running for a long time (>12h), Checking whether normal for data transfer services, voice services and multicast | Service is normal | V | |
| | Gauge test flow rate through a long time (64 128 512 bytes) , flow rate is more than 90% | No drop packet , system is normal | V | |
| | Big packets sending of broadcast and multicast type through a long time | System is normal | V | |
| | Fiber optic plugging in and out, and multiple software and hardware rebooting | System is normal | V | |
| | Multiple web interface refreshing | System is normal | V | |

## 5. Extralink GPON NEPTUN 1GE compatibility

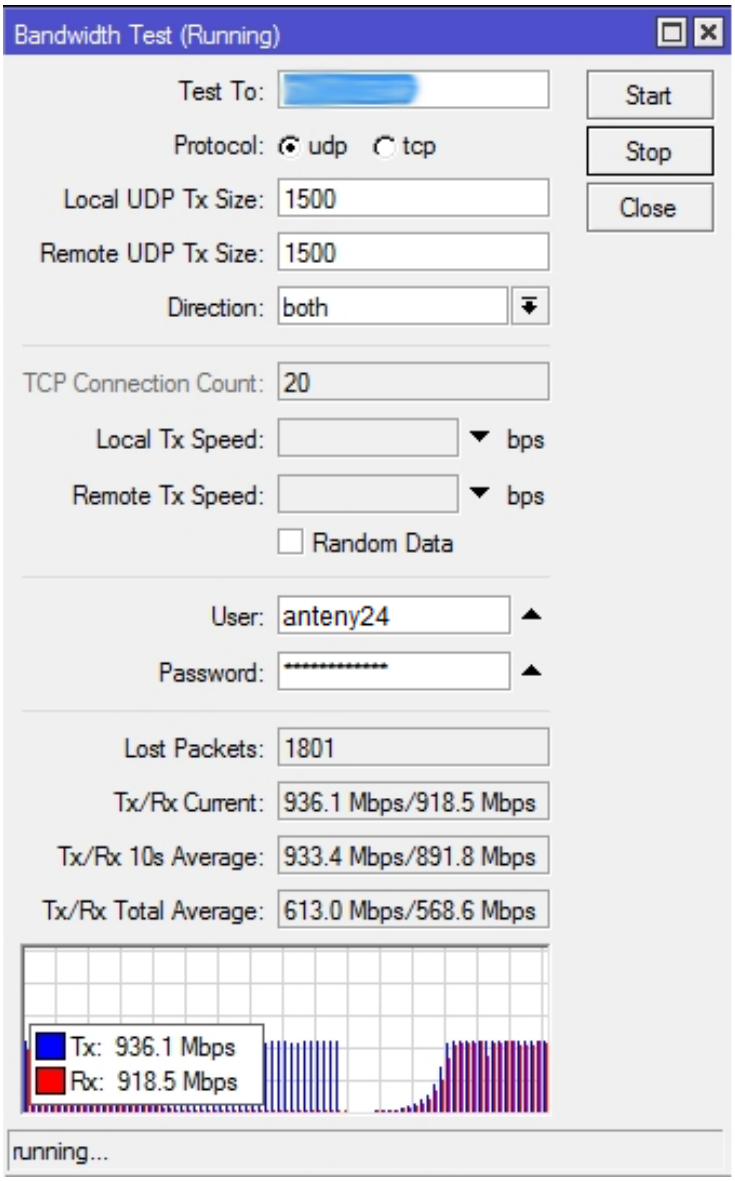
| Function | Specs of a tested element | Test situation | Test passed | |
|---|---|---|---|---|
| | | | Yes | No |
| Compatibility test | HUAWEI OLT connection test | Test is normal | V | |
| | ZTE OLT connection test | Test is normal | V | |
| | BDCOM OLT connection test | Test is normal | V | |

## 6. Bandwidth test

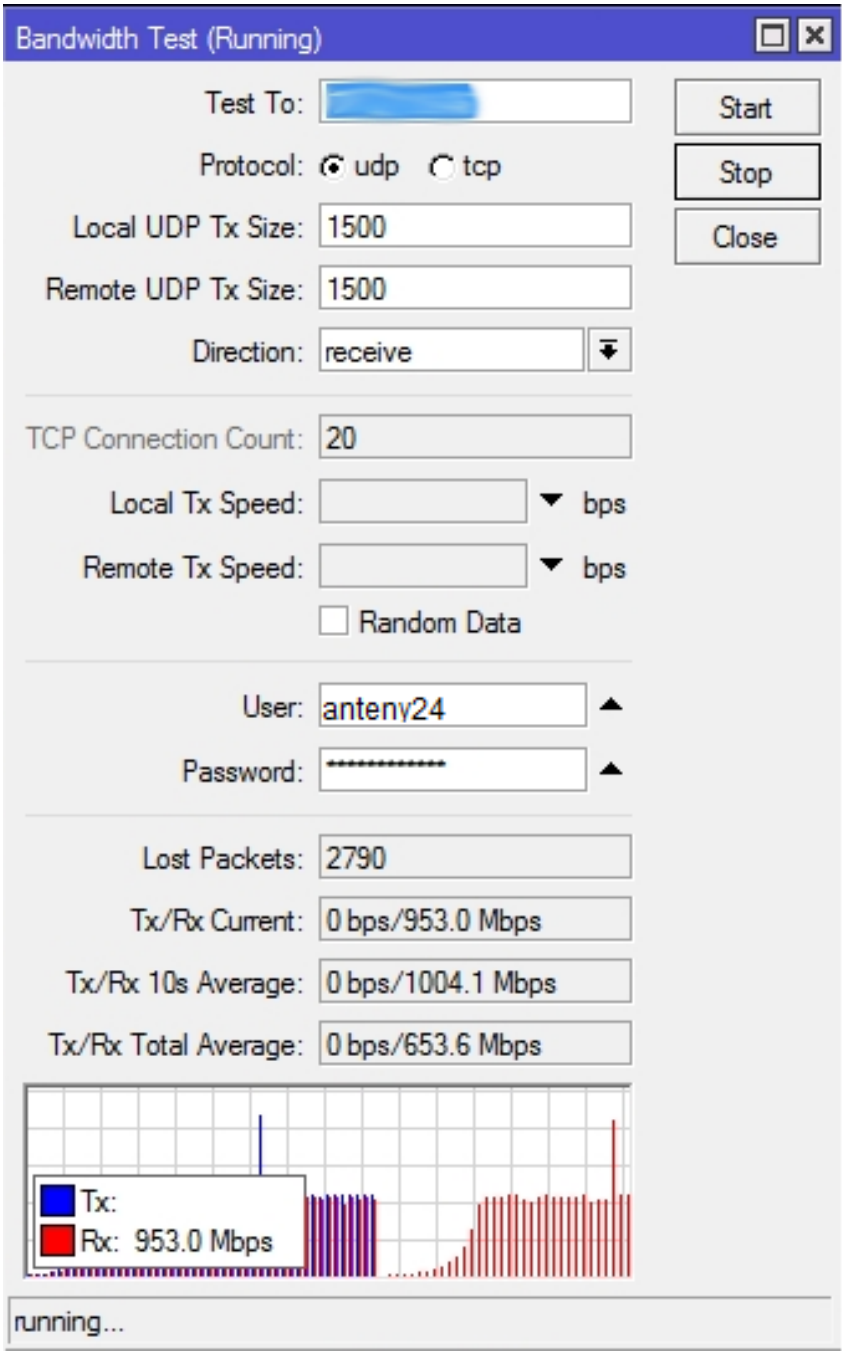
Bandwidth tests were conducted using two **EXTRALINK NEPTUN GPON/1GE** devices , two **Mikrotik RouterBoard CCR1036-12G-4S-EM** devices and **OLT HUAWEI MA5683T.**

In order to check the bandwidth (tcp/udp) we used in-build **Mikrotik Bandwidth Test** mechanism.

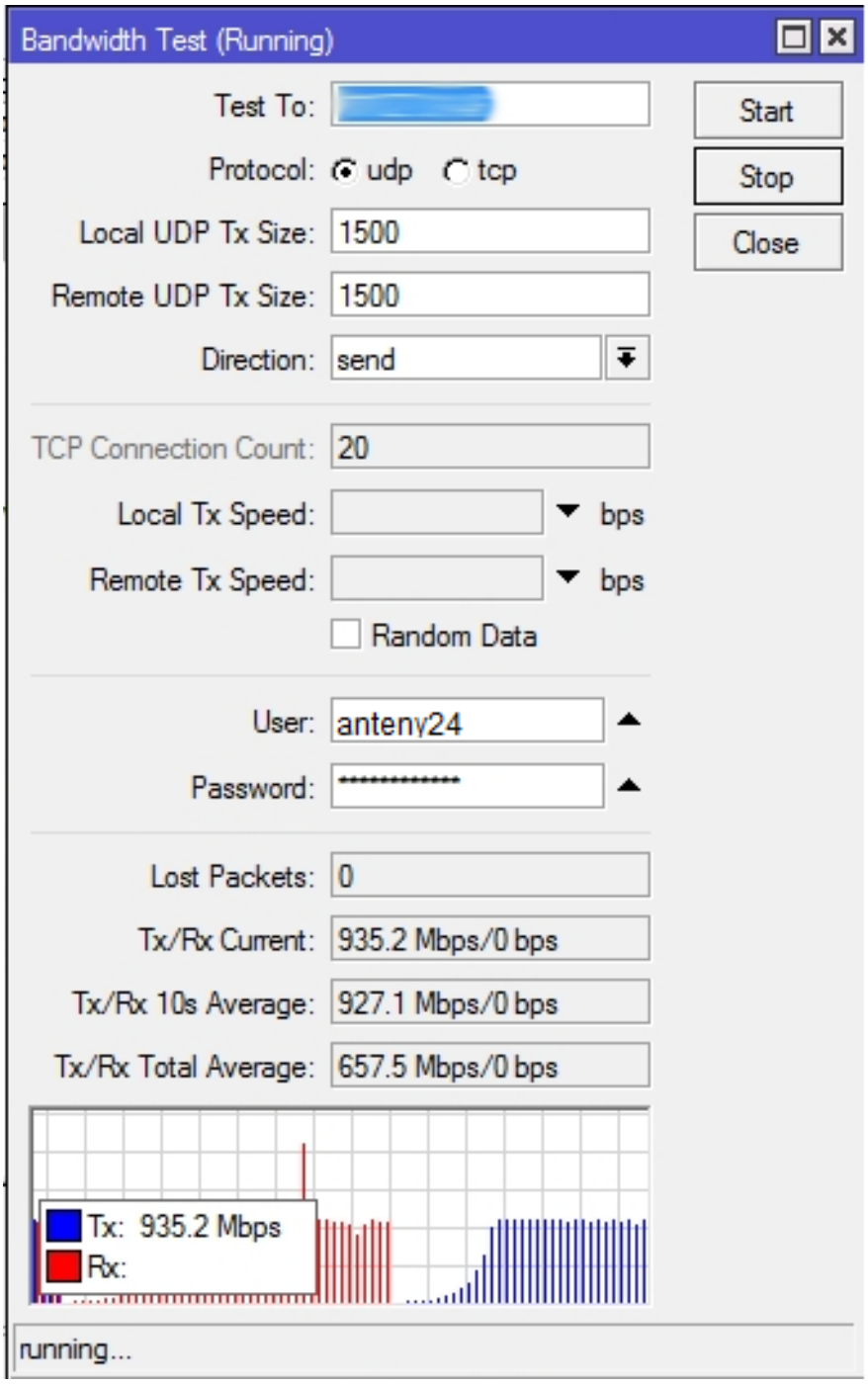
# Mikrotik BandwidthTest UDP both



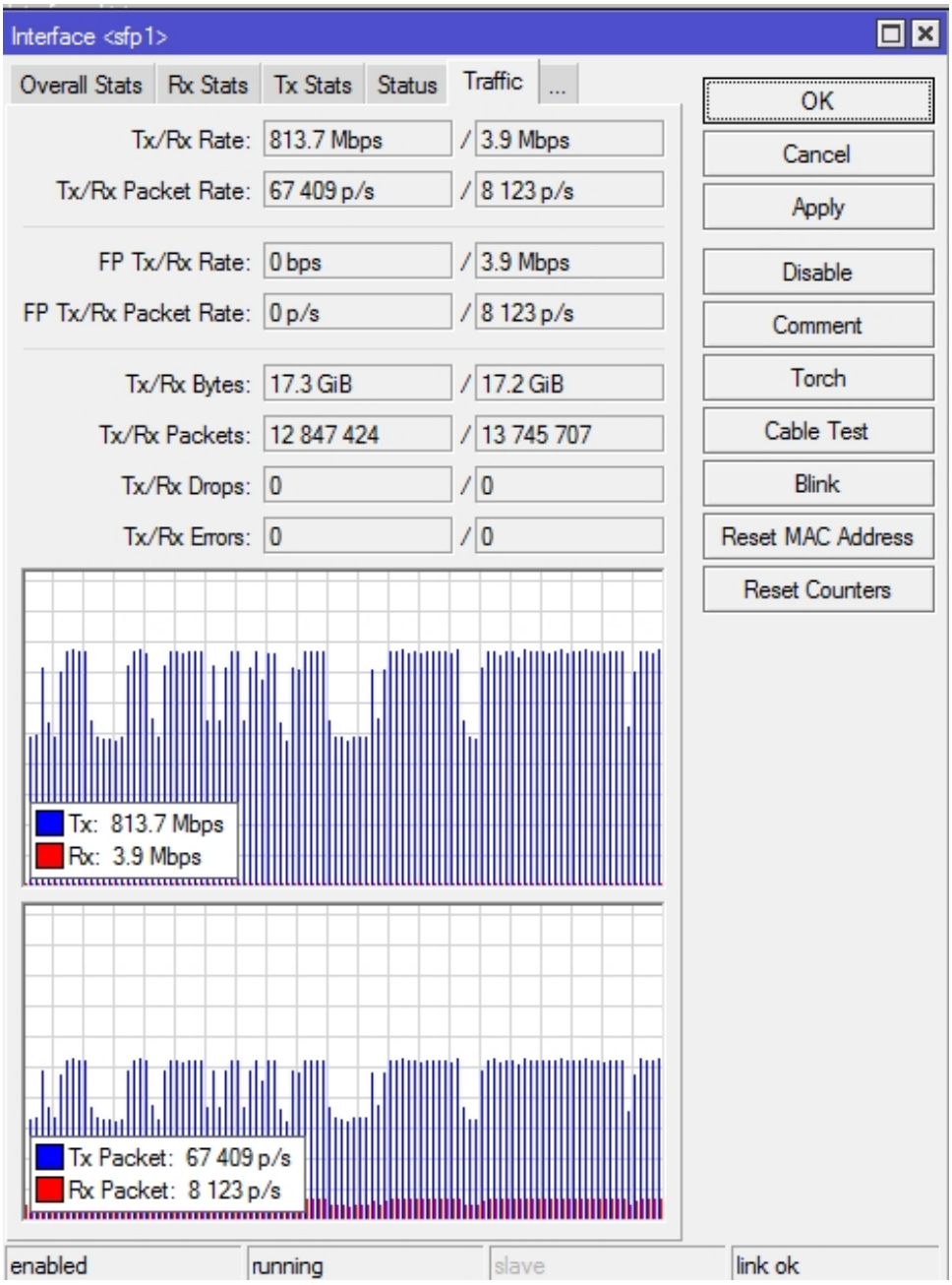
# Mikrotik BandwidthTest UDP receive



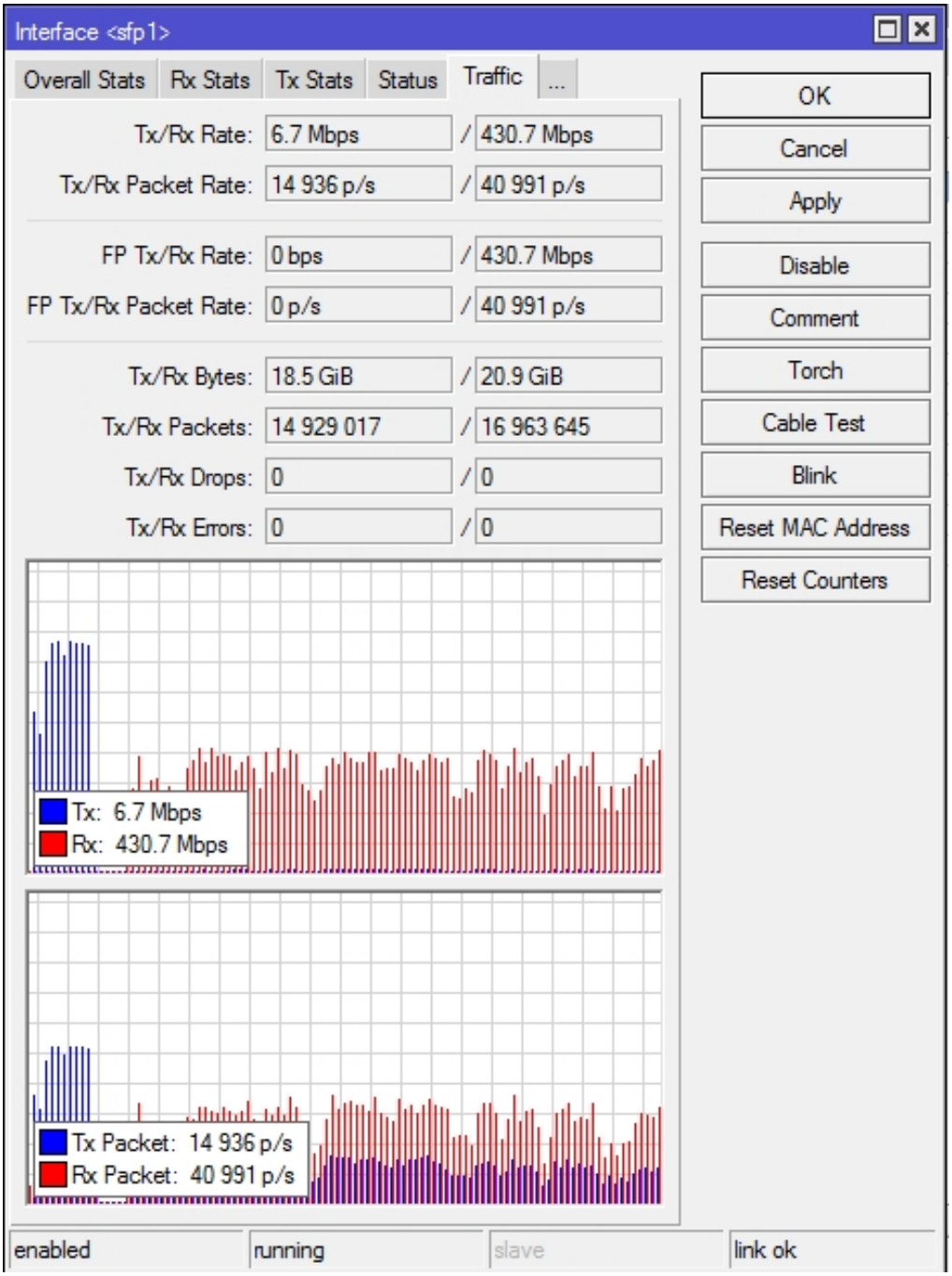
# Mikrotik BandwidthTest UDP send



# Mikrotik BandwidthTest TCP receive



**Mikrotik BandwidthTest TCP Send**

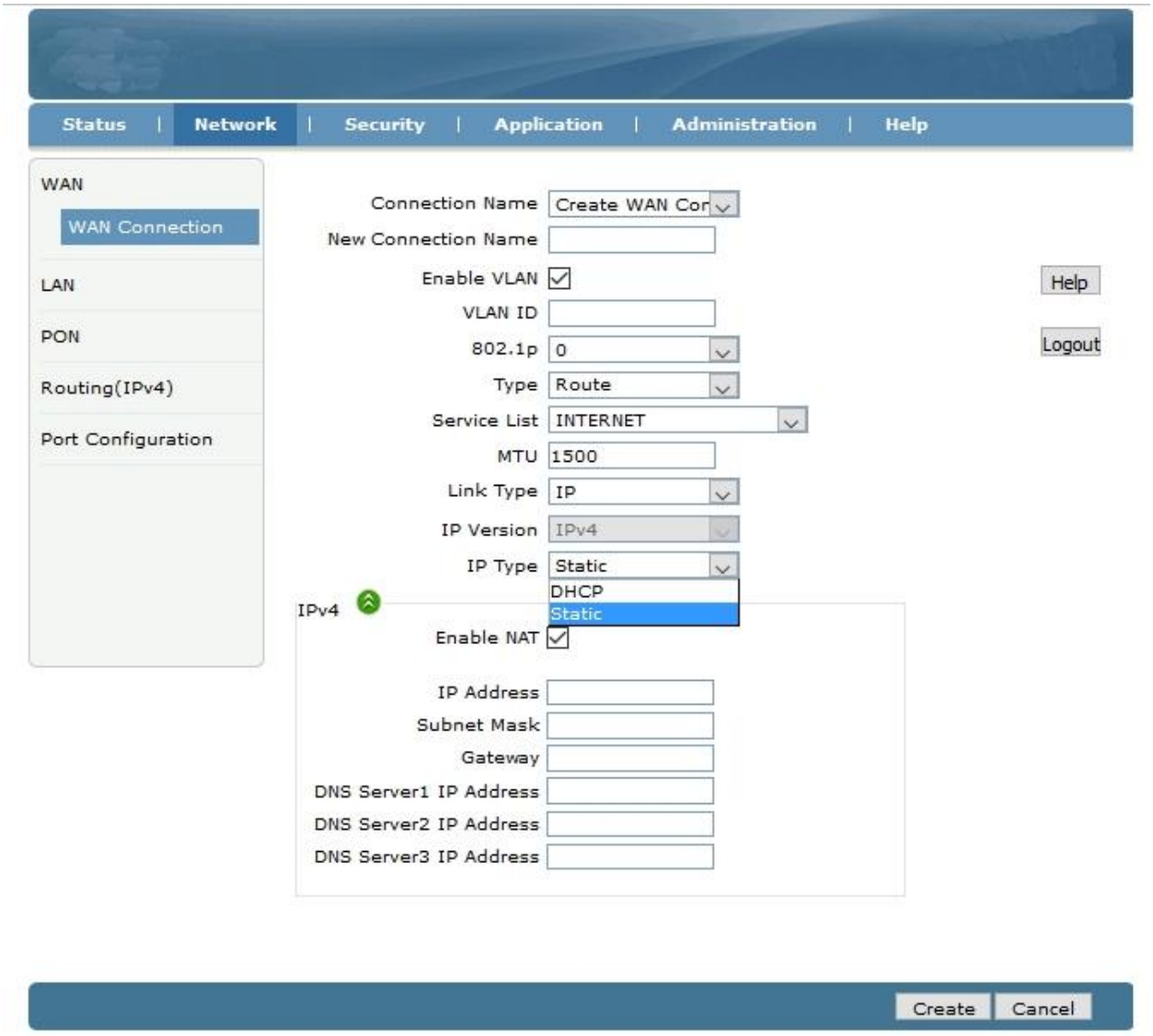



## 7. Web interface

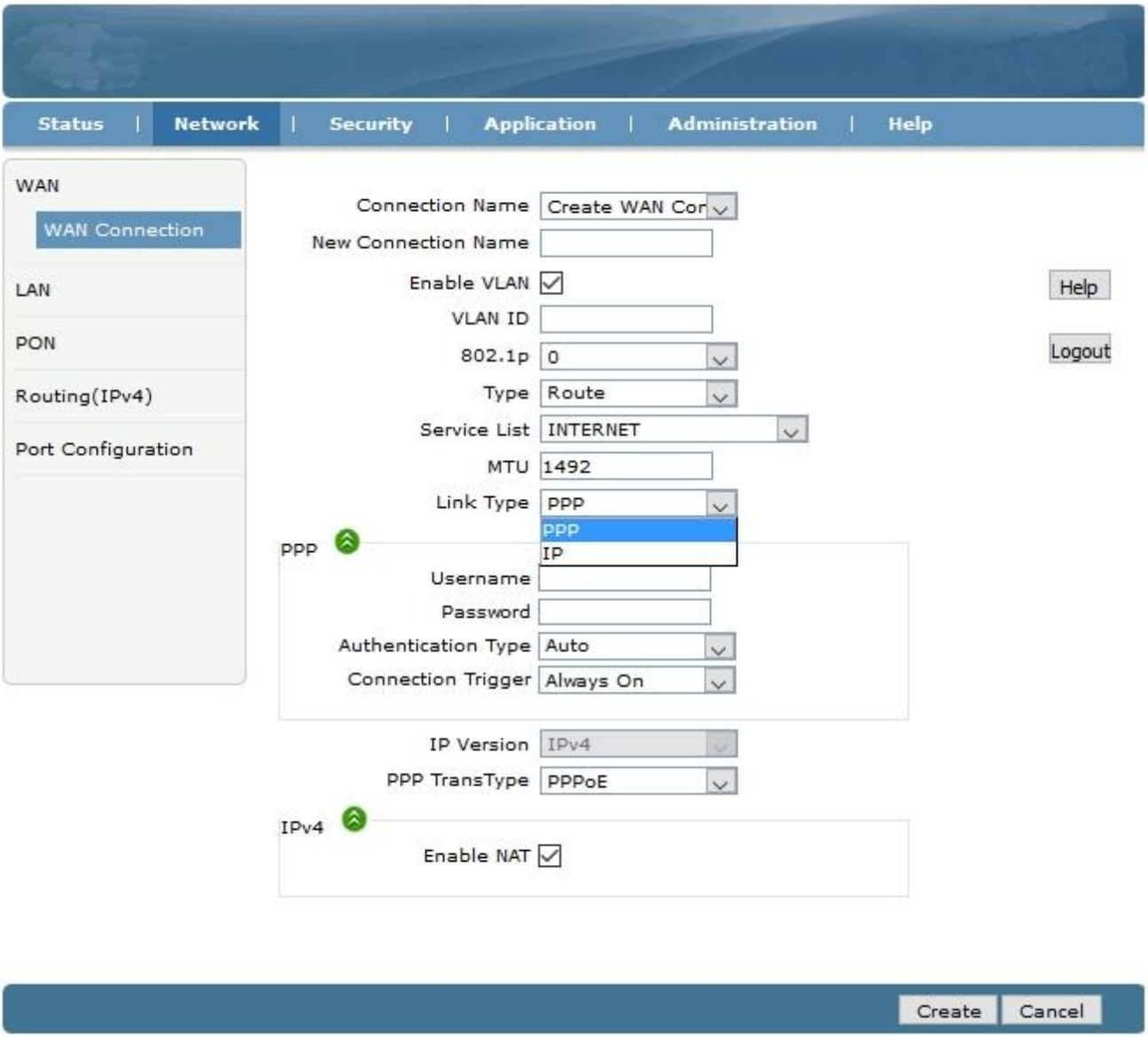
Web interface is very clear and easy to use. Navigating through the particular configuration functions of a device doesn't cause any problems and all the necessary options are arranged in an intuitive way. It is also worth to mention about the option of turning off the LEDs and the fact that introducing any changes doesn't require constant device restarting.

Below we present an overview of the most important configuration options.

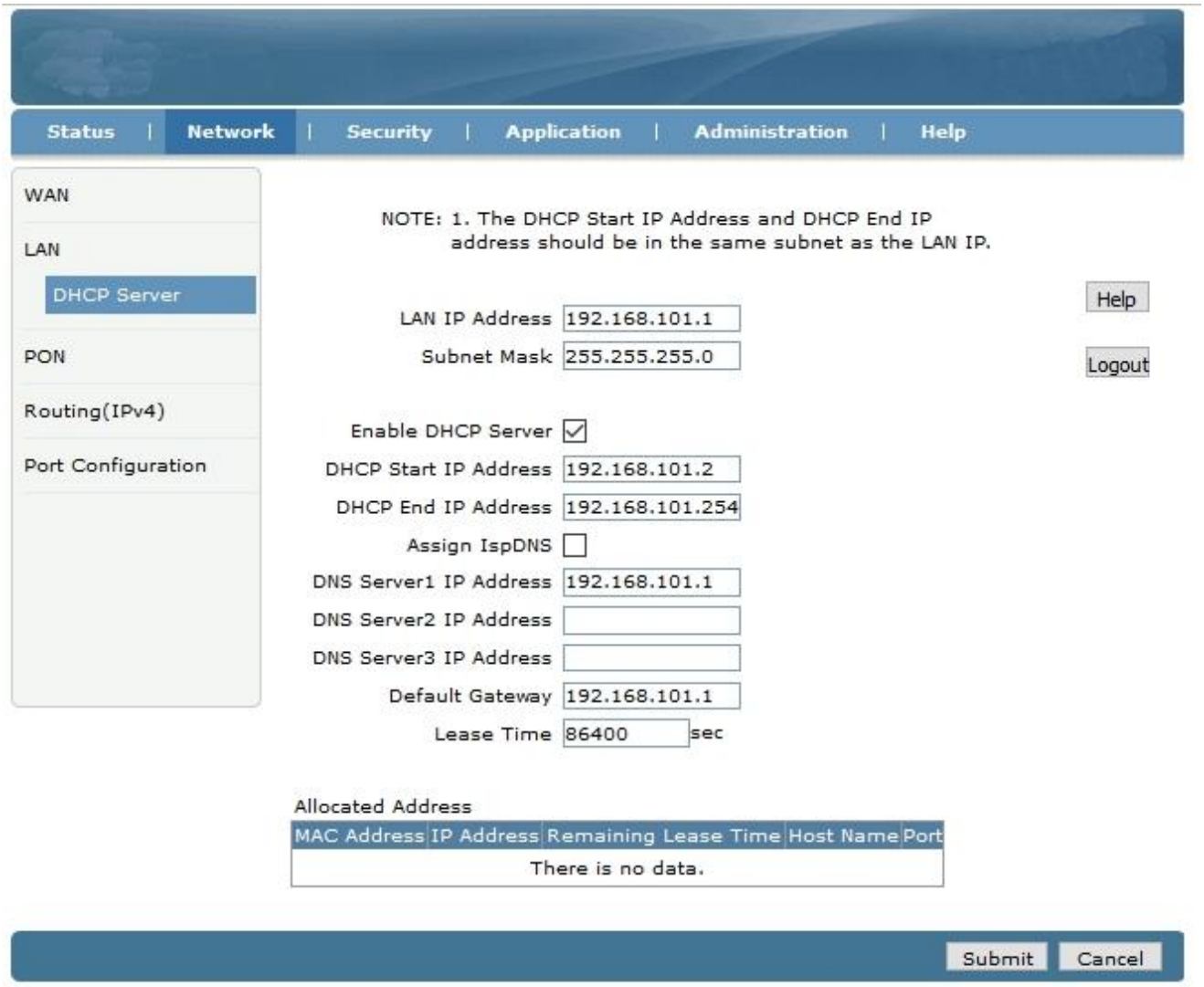
## WAN Connection(1)



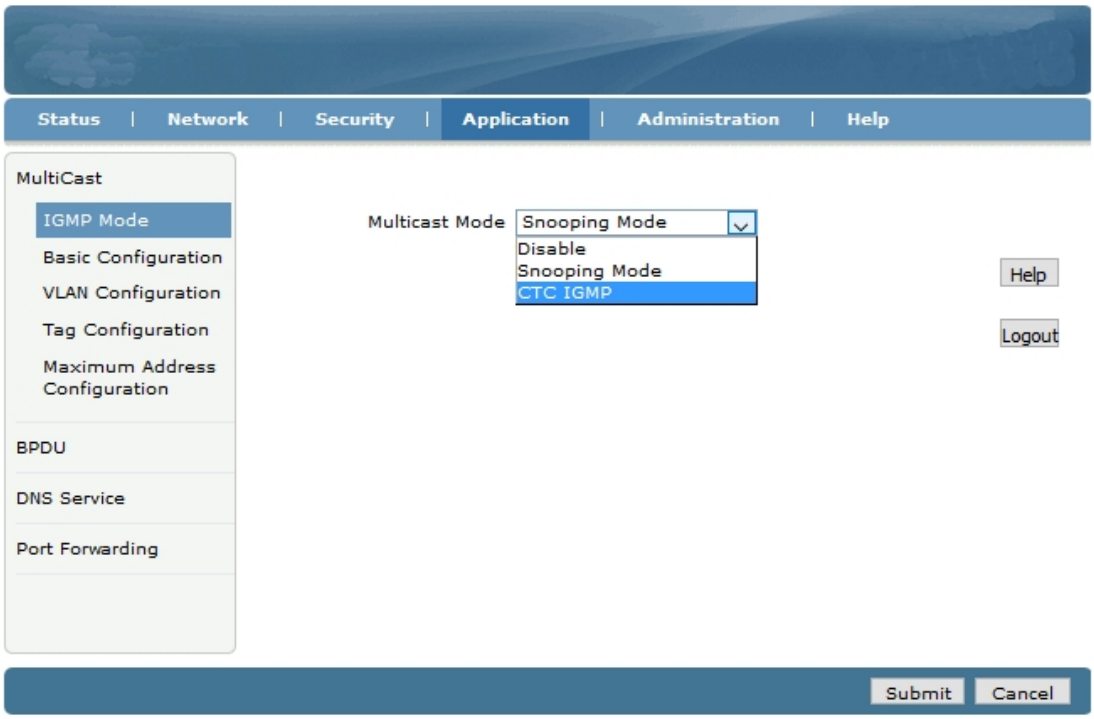
# WAN Connection(2)



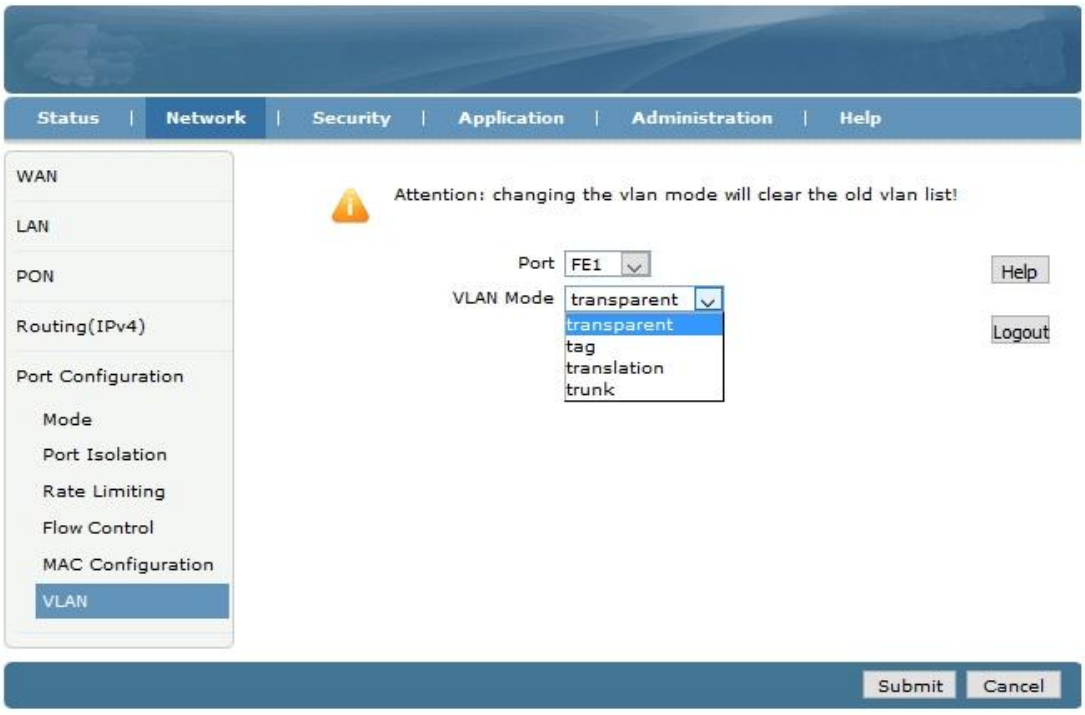
# LAN / DHCP SERVER



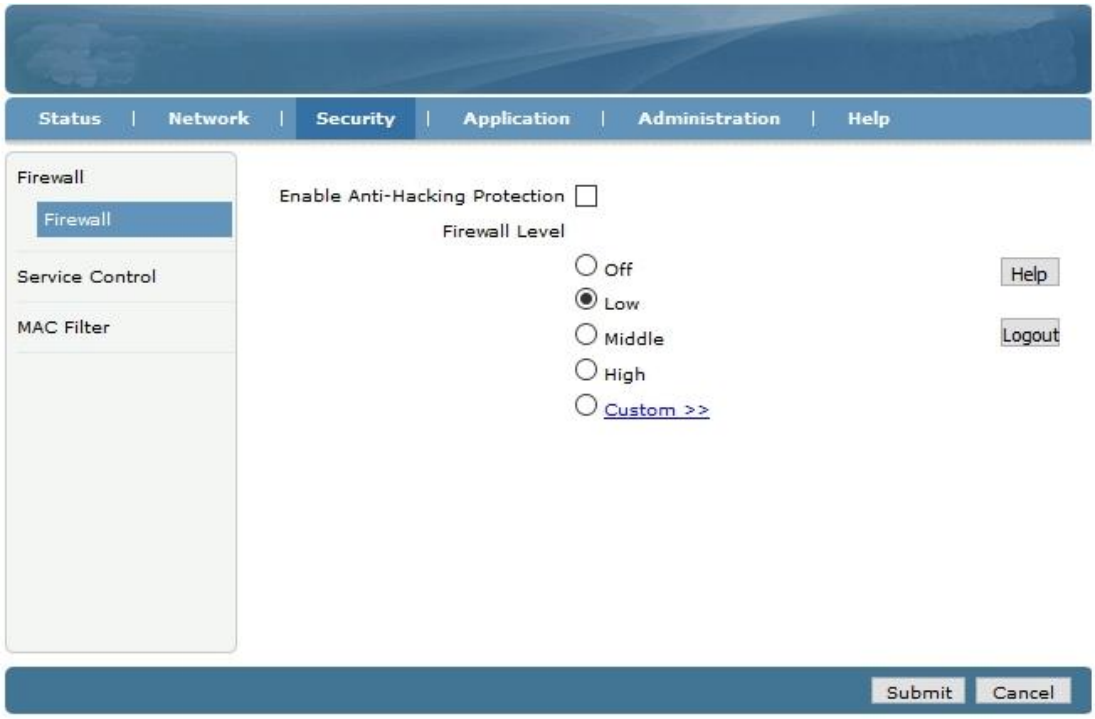
# IGMP


Status | Network | Security | Application | Administration | Help
MultiCast
IGMP Mode
Basic Configuration
VLAN Configuration
Tag Configuration
Maximum Address Configuration
BPDU
DNS Service
Port Forwarding
Multicast Mode
Snooping Mode
Disable
Snooping Mode
CTC IGMP
Help
Logout
Submit
Cancel

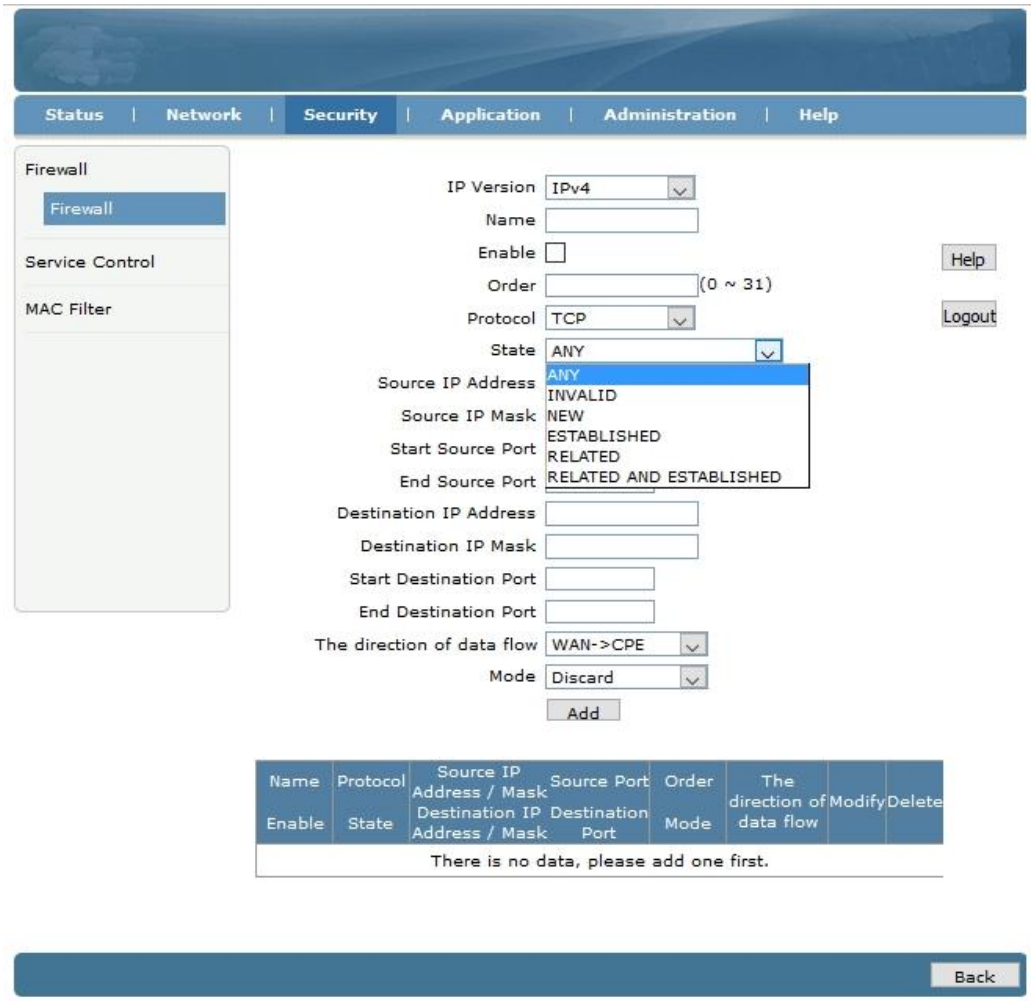
# VLAN


Status | Network | Security | Application | Administration | Help
WAN
LAN
PON
Routing(IPv4)
Port Configuration
Mode
Port Isolation
Rate Limiting
Flow Control
MAC Configuration
VLAN
Attention: changing the vlan mode will clear the old vlan list!
Port
FE1
VLAN Mode
transparent
transparent
tag
translation
trunk
Help
Logout
Submit
Cancel

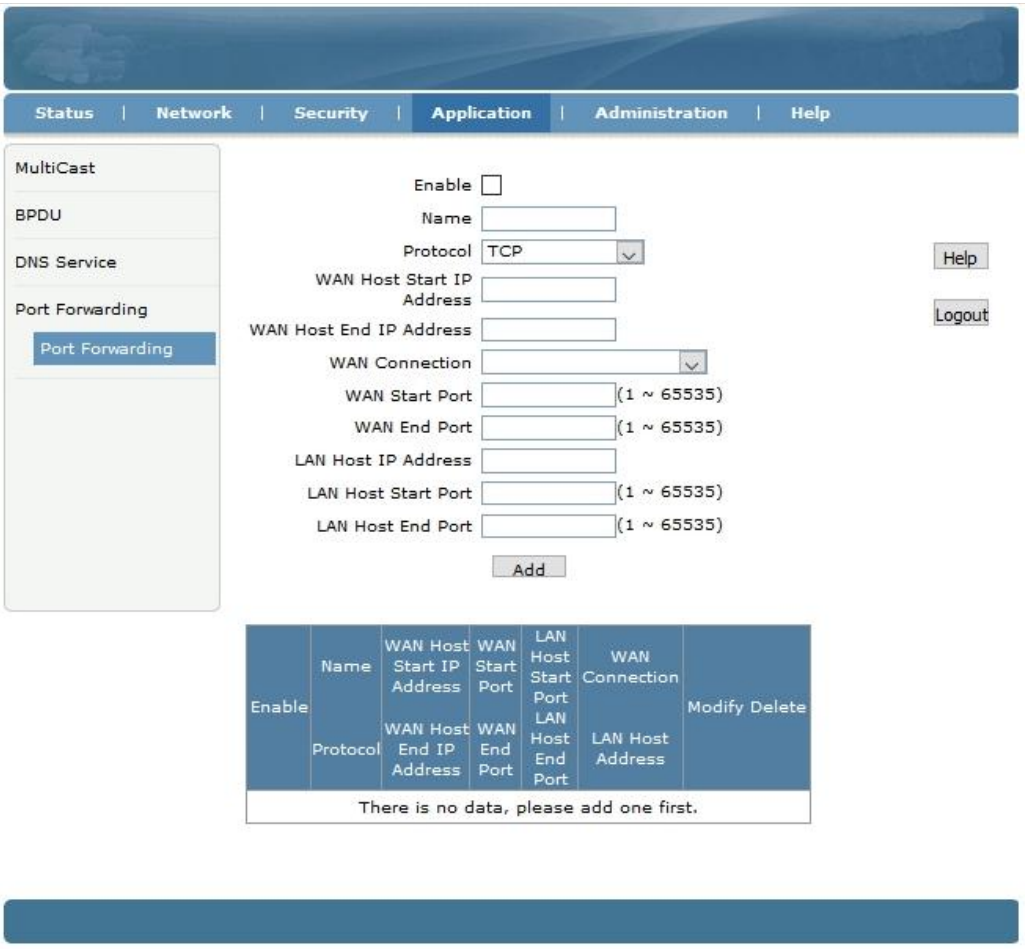
# FIREWALL (1)




# FIREWALL (2)



# PORT FORWARDING




# LED CONTROL