IOPSYS

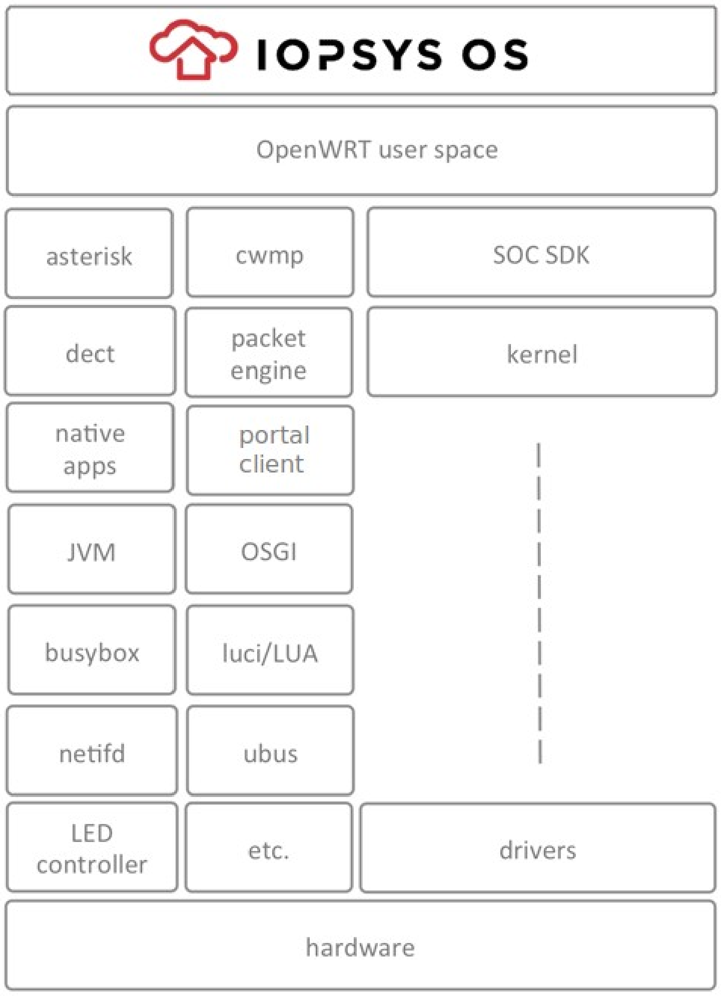
iopsysWRT Manual

v4.3.x

Contents

IopsysWRT

iopsys Operating System



Iopsys provides the first truly open source gateway software suited for the operator market. It supports all features required by modern business critical Gateway software. To improve the ease of field upgrades and service deployment, the Iopsys operating system contains a packet engine which provides modular installation/removal of native programs and application bundles. If Java is preferred, any OSGi framework can be installed. The iopsys SDK will enable both the operator and third party developers to develop functions and applications that may be downloaded and installed in the OS.

iopsys Portal

The iopsys Portal is a standalone software suite composed of a back-end management server and a portal front end. The management server handles the account administration and the communication with the iopsys communication engine residing in the registered devices. The portal front end handles device registration, customer triggered installation and running of applications, software updates and manages the gateway functions. Once powered-on the gateway will connect to a portal were the customer can register his account and get access to services beyond triple play.

iopsys Client

The iopsys communication engine is an embedded client software that can be integrated into any device that should be cloud connected. Typical devices are Gateways, Smart Phones, Tablets and Web Cameras but it could be just about anything that should be part of “The Internet of Things”. The client connects any device, for example a gateway, via an encrypted XMPP tunnel to a specific portal. A Smart Phone running a Home Control application including the client can now communicate to the gateway via the portal from anywhere at any time using the encrypted XMPP tunnel. The communication works behind any NAT and also provides for file transfers and proxy tunnel communication.

iopsys Ecosystem

Iopsys offers one of the first true ecosystem program for residential gateways. Third party software providers may port their existing or new applications to the iopsys operating system using the iopsys SDK. By running multiple applications on the gateway the in-home box count is reduced and as a side effect this becomes positive to the environment. In order to keep tab of the gateways available resources, iopsys has a built-in resource manager, managing the resources and priorities of the different applications.

Introduction

Administration of the gateway is done through a web interface. All settings are accessible through an address on your local network.

Requirements

To access the web interface, you need the following:

An installed gateway device.

A computer connected to the LAN or WLAN port on the device.

A web browser installed on the computer.

The default address for the web interface is http://192.168.1.1.

Overview

Access web interface

To access the web interface you need to use your web browser. There are multiple ways of accessing the interface.

Login

To login to the web interface, you use a user name and a password.

User Roles

The web interface uses *Roles* to provide and restrict access to the various features in the device.

There are four pre-defined roles: **User**, **Support**, **Admin**, and **Root**.

User Modes

In addition to *User Roles*, the *User Modes* may provide further constraints on what settings and features are displayed in the web interface.

Note: The mode affects display only, the features are still available and operational.

Features

Depending on your device and/or geographical region, certain features may be unavailable in the interface.

Menu

The menu contains a number of items, which provide access to various parts of the web interface.

Applying changes

When you change a setting or a value in the interface, it gets added to a list of changes. The changes will not take effect until you click **apply**.

Access web interface

To access the web interface you need to use your web browser. There are multiple ways of accessing the interface.

IPv4

The standard IPv4 address for the interface is http://192.168.1.1.

Hostname

The web interface can be accessed through a default hostname, for example inteno.lan/ or routerlogin.net/, or through custom hostnames set up by the provider.

IPv6

An IPv6 address or IPv6 hostname can also be used to access the web GUI. The exact address will vary with your provider.

Open GUI

- Launch your web browser
- Enter the address (for example: http://192.168.1.1) / http://(inteno.lan/ or http://routerlogin.net/ / http://2001:0:0:0:DB8:800:200C:417A
- Press [Enter].

You are taken to the web interface .

Login

To login to the web interface, you use a user name and a password.

Configuration

(For default passwords see:).

Note: Your operator may have specified different passwords and user levels. If so, you need to request those from your operator.

Log in to the web interface:

- Enter a user name
- Enter the password
- Click **OK.**

You are taken to the web interface Overview page.

User Modes

In addition to *User Roles*, the *User Modes* may provide further constraints on what settings and features are displayed in the web interface.

Note: The mode affects display only, the features are still available and operational.

Overview

Basic Mode

Basic mode provides access to a selected set of settings and aspects of features, displaying a reduced set of options. This mode is suitable for the most common tasks and configurations.

Expert Mode

Expert mode provides access to a larger number of settings and aspects of features. This mode is suitable when you have deeper technical knowledge and want to do specific customizations or troubleshooting.

Basic Mode

Basic mode provides access to a selected set of settings and aspects of features, displaying a reduced set of options. This mode is suitable for the most common tasks and configurations.

Features

In basic mode, all Expert mode settings and views are hidden from the interface. However, if you select a particular task in basic mode that requires expert mode settings, they will automatically be displayed.

Expert Mode

Expert mode provides access to a larger number of settings and aspects of features. This mode is suitable when you have deeper technical knowledge and want to do specific customizations or troubleshooting.

Features

In expert mode, all Basic mode settings and views are also shown.

User Roles

The web interface uses *Roles* to provide and restrict access to the various features in the device.

There are four pre-defined roles: **User**, **Support**, **Admin**, and **Root**.

User

The User role has restricted access to basic set of features.

login: user

password: user

Support

The Support role has elevated access to basic and a set of advanced features.

login: support

password:support

Admin

The Admin role has unrestricted access to all basic and advanced features.

login: admin

password:admin

Root

The Root role has unrestricted access to the device, and can be used for command line access to the device via ssh.

login: root

password:root

Features

Depending on your device and/or geographical region, certain features may be unavailable in the interface.

Availability

Certain features may not be available in your interface, depending on several factors:

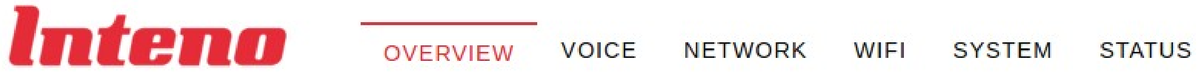
Device - Your device may be limited in which ports are avaible.

Geographical region - Features might not be offered in some regions or countries.

Operator Settings - Your operator may have restricted, altered or added features in the software.

Menu

The menu contains a number of items, which provide access to various parts of the web interface.



Menu

Overview

The **Overview** page shows the most important statuses and settings for your device.

Voice

The **Voice** provides access to settings relating to voice communications through the device.

Network

The **Network** view provides access to the devices, connections and available configurations in the network.

WIFI

The **WiFi view** shows you information about your wireless network.

System

The **System** view provides access to device information, management, provisioning and settings.

Status

The Status area provides an overview of the current situation for your device, network and services, and also contains diagnostic tools.

Applying changes

When you change a setting or a value in the interface, it gets added to a list of changes. The changes will not take effect until you click **apply**.

Configuration

The **unapplied changes** and **apply** button are shown at the bottom of the window.

Unapplied Changes 4
Apply
Cancel

Changes

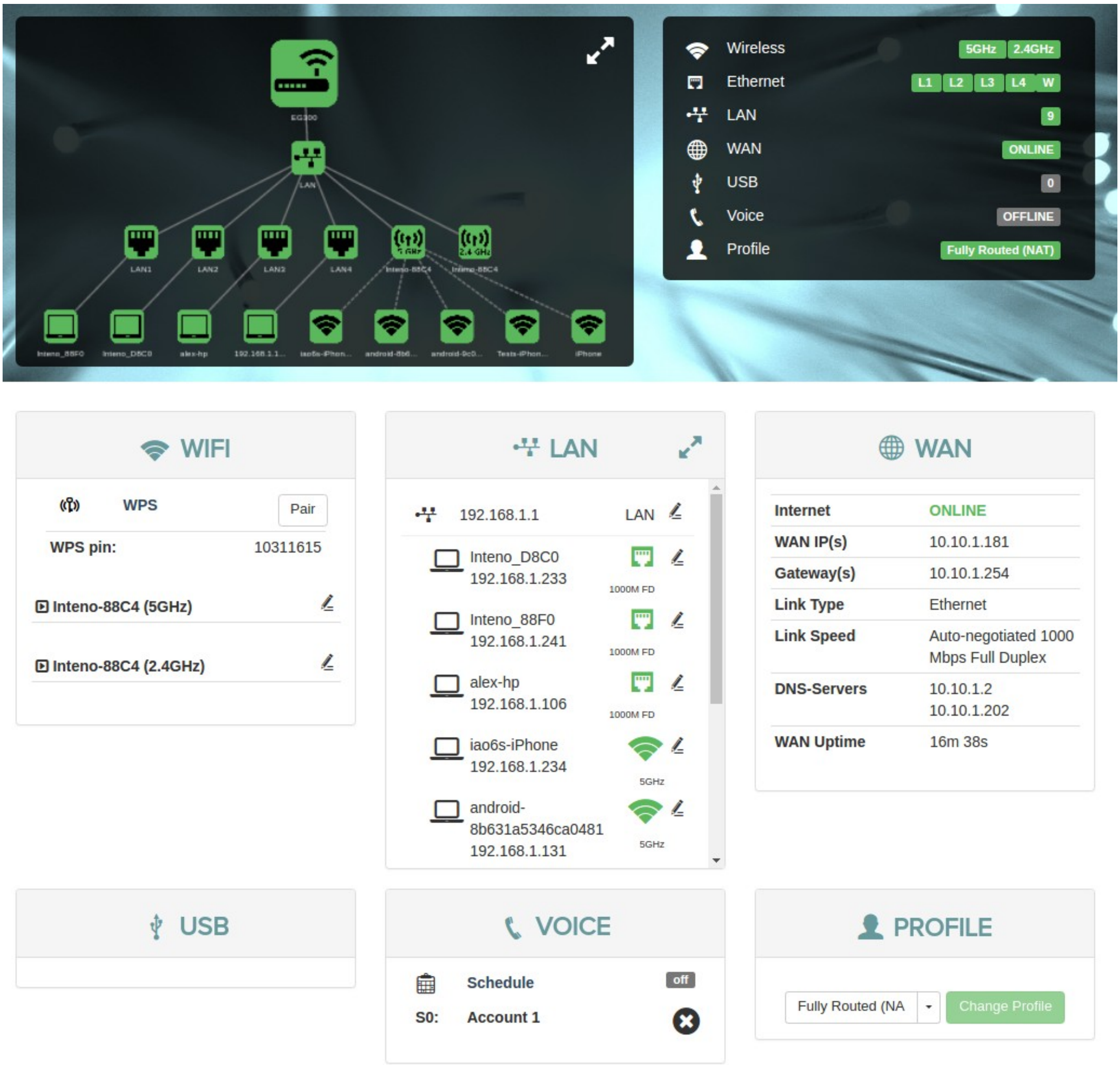
To make the changes take effect click **Apply**.

To keep the current state without any changes click **Cancel**.

Overview

The **Overview** page shows the most important statuses and settings for your device.

Parts



Wireless	5GHz 2.4GHz
Ethernet	L1 L2 L3 L4 W
LAN	9
WAN	ONLINE
USB	0
Voice	OFFLINE
Profile	Fully Routed (NAT)

WIFI

WPS Pair

WPS pin: 10311615

Inteno-88C4 (5GHz)

Inteno-88C4 (2.4GHz)

LAN

192.168.1.1 LAN

Inteno_D8C0 192.168.1.233 1000M FD

Inteno_88F0 192.168.1.241 1000M FD

alex-hp 192.168.1.106 1000M FD

iao6s-iPhone 192.168.1.234 5GHz

android-8b631a5346ca0481 192.168.1.131 5GHz

WAN

Internet	ONLINE
WAN IP(s)	10.10.1.181
Gateway(s)	10.10.1.254
Link Type	Ethernet
Link Speed	Auto-negotiated 1000 Mbps Full Duplex
DNS-Servers	10.10.1.2 10.10.1.202
WAN Uptime	16m 38s

USB

VOICE

Schedule off

S0: Account 1

PROFILE

Fully Routed (NA Change Profile

Main image

The overview has three parts: a , , and .

Device Network Map

The device map shows how your device is connected to the LAN and the WAN, as well as other devices in the local network.

Configuration Shortcuts

The configurations show status for and provide shortcuts provide quick access to various common settings.

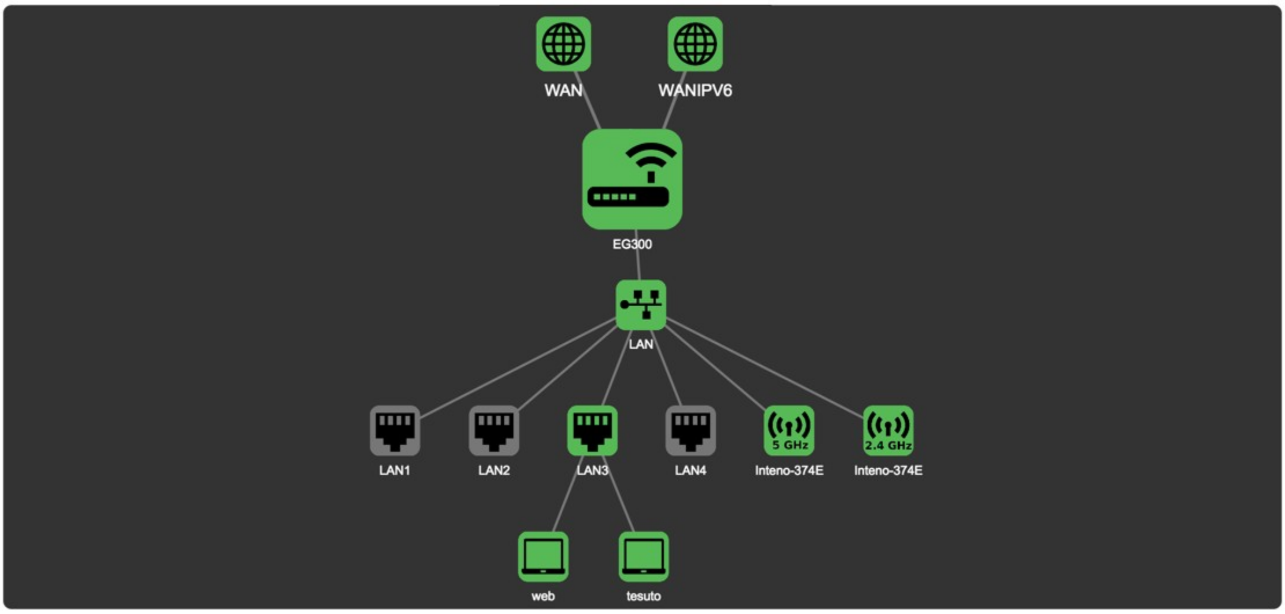
Status Panels

The status panels display status information about selected features. They also allow you quick access to configuration of the most common features.

Device Network Map

The device map shows how your device is connected to the LAN and the WAN, as well as other devices in the local network.

View



Map

Colors

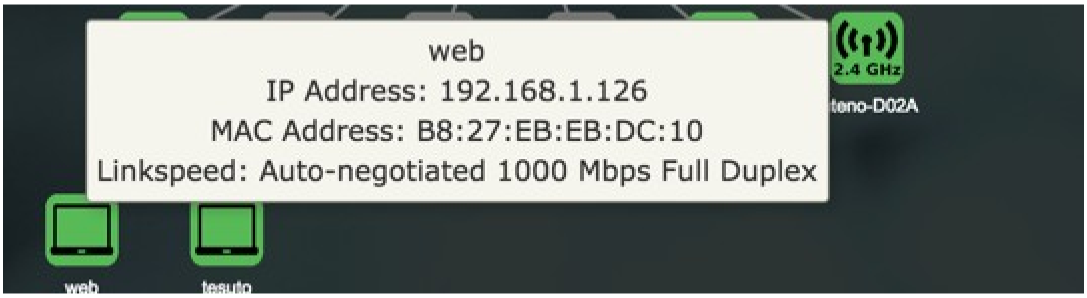
The status of a device is indicated by the color of the icon.

Color	Status
Green	Enabled and active
Black	Enabled, not active
Yellow	Active, with warnings.
Red	Active, not functional.

Details

More detailed Information about the status of an item in the map is availabe by pointing the cursor at an icon in the map.

View

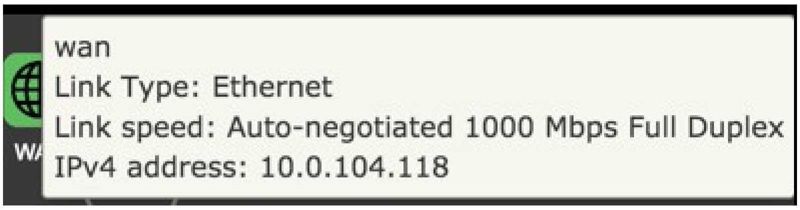


web
IP Address: 192.168.1.126
MAC Address: B8:27:EB:EB:DC:10
Linkspeed: Auto-negotiated 1000 Mbps Full Duplex

Details

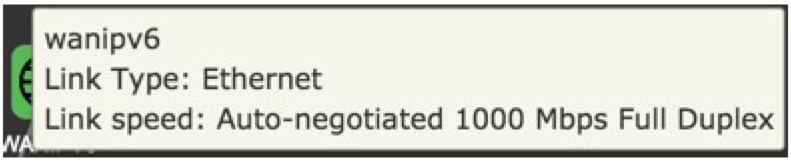
The information displayed in the popups varies with the item being viewed.

WAN



wan
Link Type: Ethernet
Link speed: Auto-negotiated 1000 Mbps Full Duplex
IPv4 address: 10.0.104.118

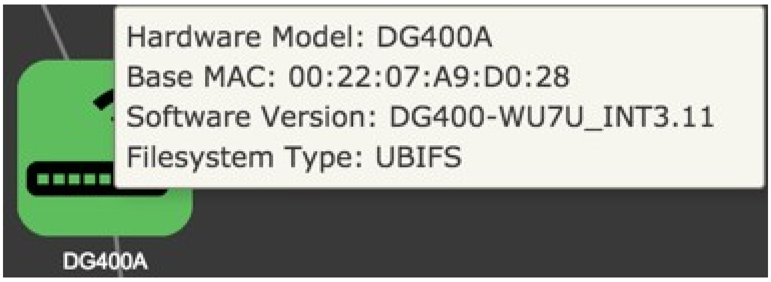
Wan



wanipv6
Link Type: Ethernet
Link speed: Auto-negotiated 1000 Mbps Full Duplex

Wan

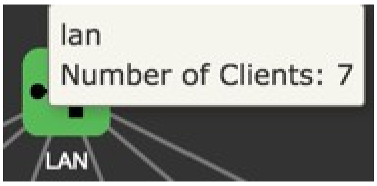
Device



Hardware Model: DG400A
Base MAC: 00:22:07:A9:D0:28
Software Version: DG400-WU7U_INT3.11
Filesystem Type: UBIFS

Device

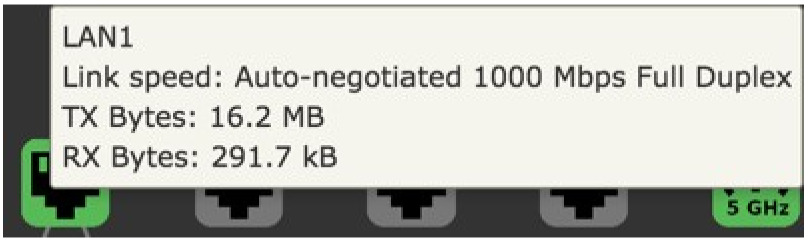
LAN



lan
Number of Clients: 7

Lan

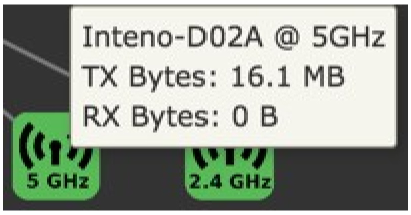
Port



LAN1
Link speed: Auto-negotiated 1000 Mbps Full Duplex
TX Bytes: 16.2 MB
RX Bytes: 291.7 kB

Port

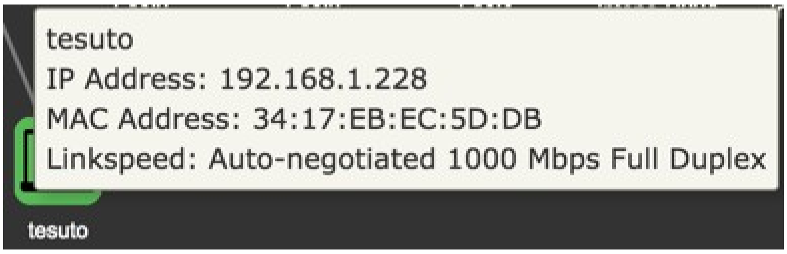
Wifi



Inteno-D02A @ 5GHz
TX Bytes: 16.1 MB
RX Bytes: 0 B

Wifi

Client



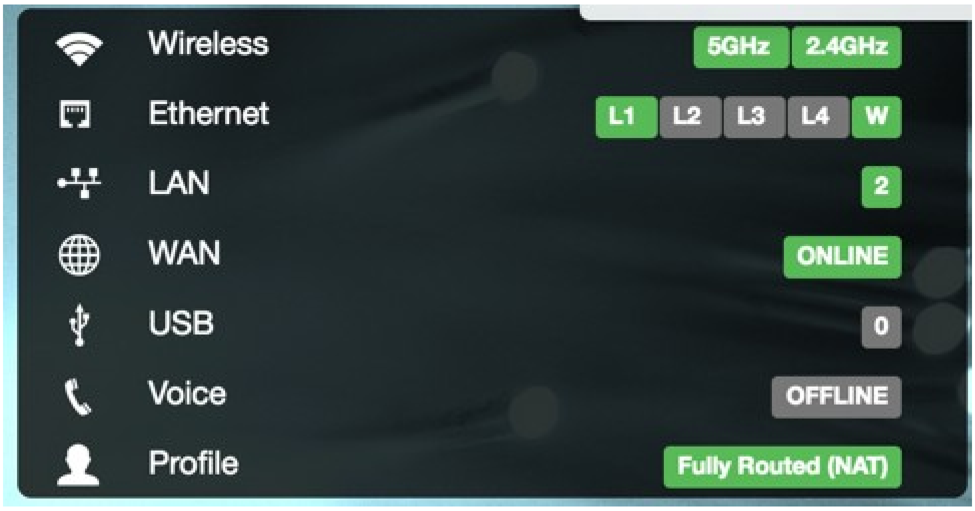
tesuto
IP Address: 192.168.1.228
MAC Address: 34:17:EB:EC:5D:DB
Linkspeed: Auto-negotiated 1000 Mbps Full Duplex

Client

Configuration Shortcuts

The configurations show status for and provide shortcuts provide quick access to various common settings.

Configuration



Wireless 5GHz 2.4GHz

Ethernet L1 L2 L3 L4 W

LAN 2

WAN ONLINE

USB 0

Voice OFFLINE

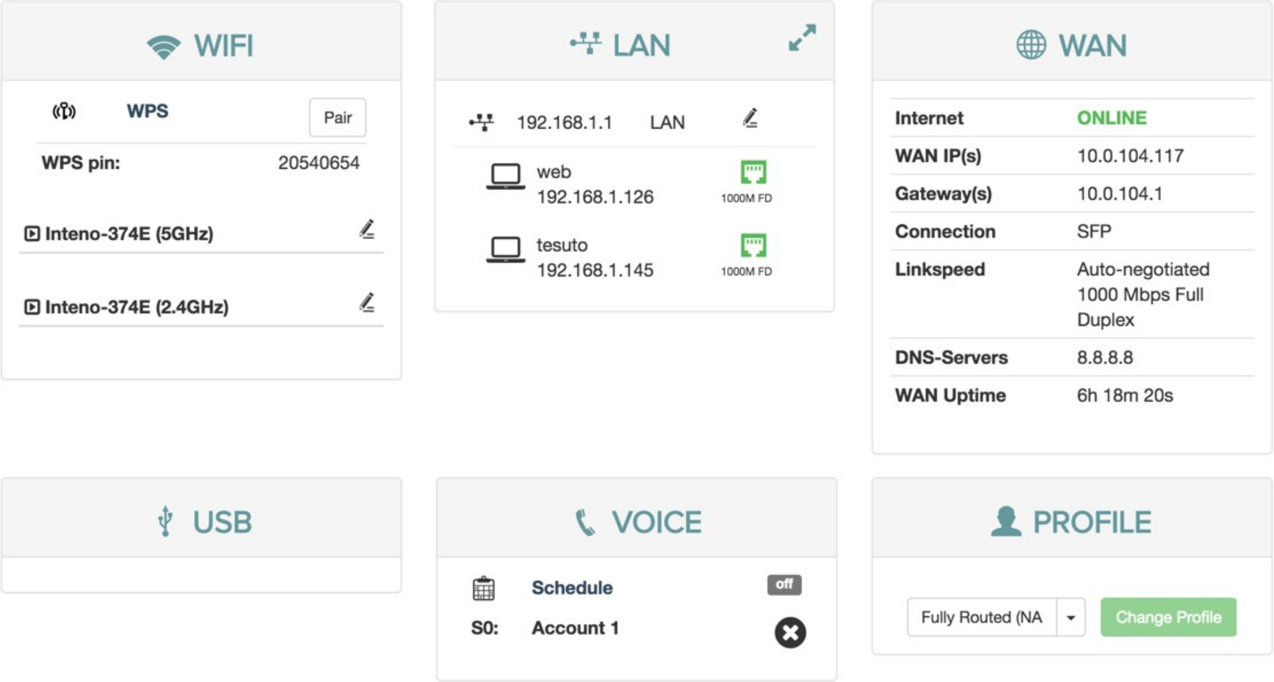
Profile Fully Routed (NAT)

Shortcuts

Option	
Wireless	Active wireless radios.
Ethernet	LAN ports in use on the device.
LAN	Active LAN
WAN	Status of WAN connection.
USB	Connected USB devices, if any.
Voice	Voice port status, if any.
Profile	Selected , if any.

Status Panels

The status panels display status information about selected features. They also allow you quick access to configuration of the most common features.



WIFI

WPS Pair

WPS pin: 20540654

Inteno-374E (5GHz)

Inteno-374E (2.4GHz)

LAN

192.168.1.1 LAN

web
192.168.1.126 1000M FD

tesuto
192.168.1.145 1000M FD

WAN

Internet	ONLINE
WAN IP(s)	10.0.104.117
Gateway(s)	10.0.104.1
Connection	SFP
Linkspeed	Auto-negotiated 1000 Mbps Full Duplex
DNS-Servers	8.8.8.8
WAN Uptime	6h 18m 20s

USB

VOICE

Schedule off

S0: Account 1

PROFILE

Fully Routed (NA

Change Profile

Panels

WIFI

The **WiFi status panel** lets you change the default wireless security settings to make your network more secure.

You can also view the wifi status and edit the wireless interface.

Additonally, you can WPS to set up clients.

LAN

The **LAN** panel shows basic information about the device and connected clients IP addresses.

From the LAN status panel you can configure the DHCP settings for the device.

WAN

The **WAN** panel displays the status of your WAN. It also lets you configure DNS servers.

USB

The **USB** panel displays the status of any connected USB devices.

Voice

The **Voice** panel shows the status of the ringing schedule connected phone lines.

Profile

The **Profile** panel shows the network profiles configured on your device, if any.

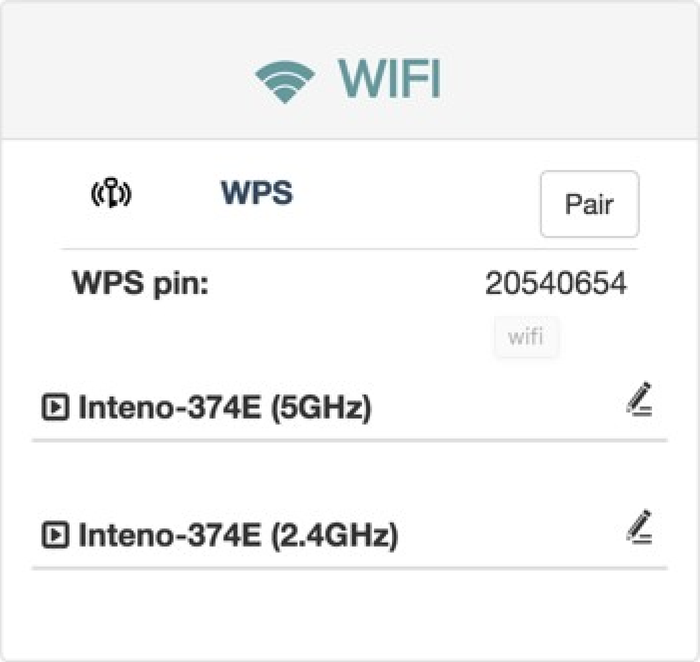
WIFI

The **WiFi status panel** lets you change the default wireless security settings to make your network more secure.

You can also view the wifi status and edit the wireless interface.

Additonally, you can WPS to set up clients.

View



WiFi panel

WPS settings

WPS makes it easier to connect other wireless devices to your device on an encrypted channel.

Edit 5GHz Wireless Interface

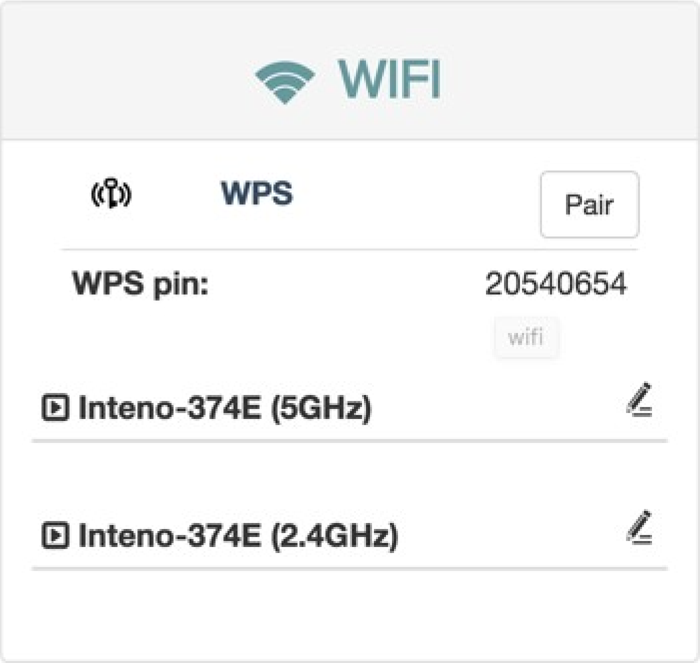
In the **edit wireless interface** view you can change different aspects of your interface.

Edit 2.4GHz Wireless Interface

In the **edit wireless interface** view you can change different aspects of your interface.

WPS settings

WPS makes it easier to connect other wireless devices to your device on an encrypted channel.



WPS pin: 20540654

Inteno-374E (5GHz)

Inteno-374E (2.4GHz)

WPS

To open the WPS view:

- Click **WPS**

To pair a device via WPS:

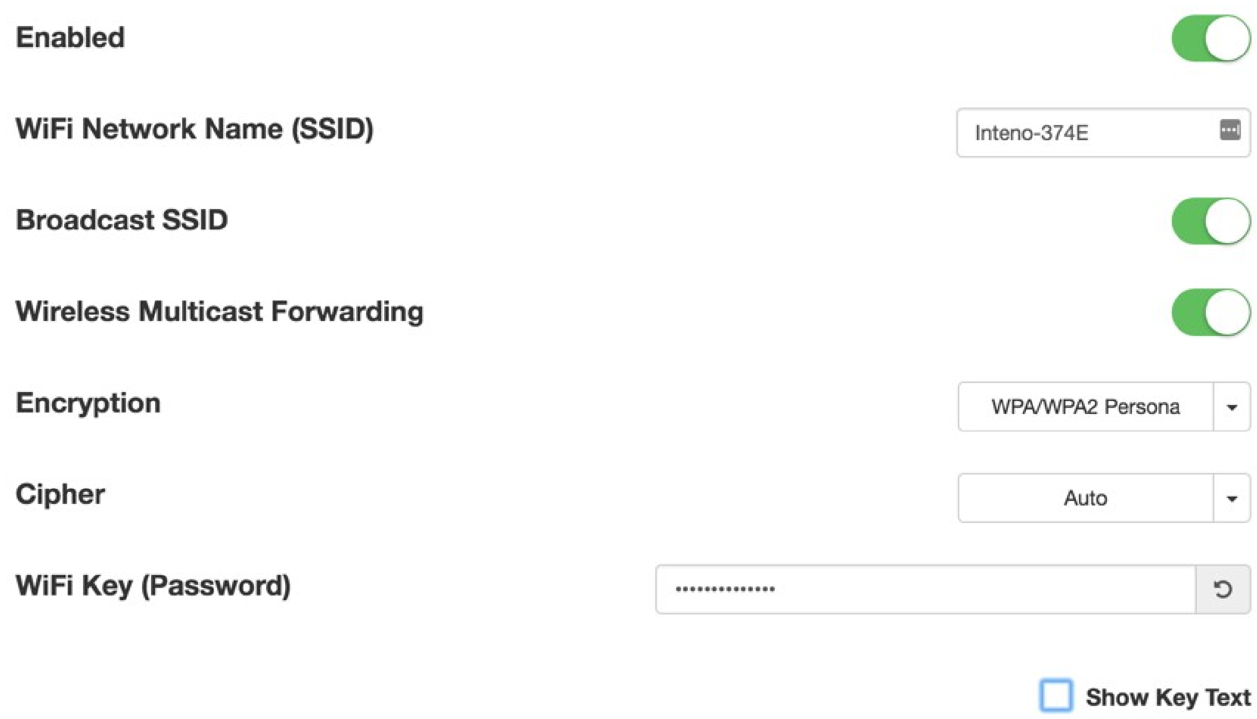
- Click **Pair**
- Press the corresponding button on the device you wish to connect

Your device will be open for pairing for two minutes.

Edit 2.4GHz Wireless Interface

In the **edit wireless interface** view you can change different aspects of your interface.

Configuration



Enabled

WiFi Network Name (SSID) Inteno-374E

Broadcast SSID

Wireless Multicast Forwarding

Encryption WPA/WPA2 Persona

Cipher Auto

WiFi Key (Password) ••••••••••••••

□ Show Key Text

Wireless interface

Item	Comment
Enabled	Turn on or off.
WiFi Network Name	Edit name of SSID network
Broadcast SSID	Toggle to make the network SSID visible or invisible
Encryption	Selected encryption method
Cipher	Form of Cipher
WiFi Key (Password)	Text to use as wifi key
Show Key Text	Displays the wifi key text

Wireless Settings

To open The **wifi status** view for 2.4GHZ:

- Click **2.4 GHz** to open the wifi status view

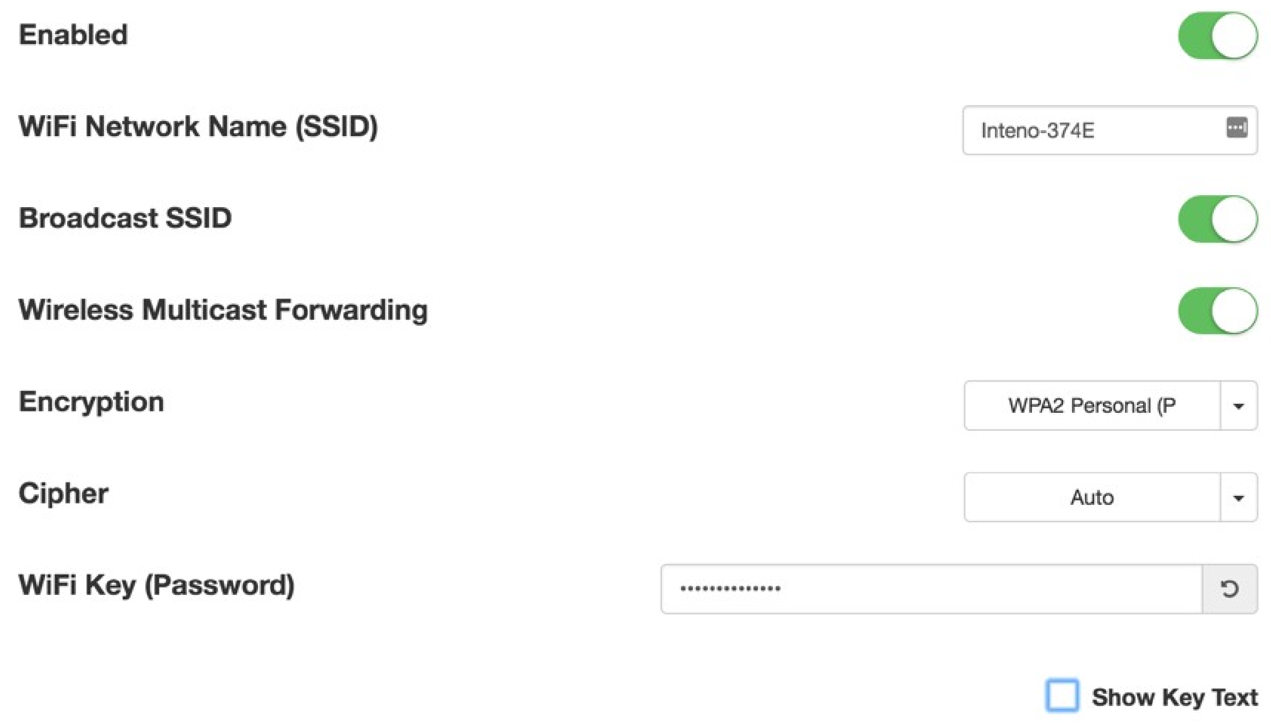
To edit the wireless interface for a radio:

- Click the **edit** button to open up the wireless interface settings
- Edit the wireless interface
- Click **Save**

Edit 5GHz Wireless Interface

In the **edit wireless interface** view you can change different aspects of your interface.

Configuration



Enabled

WiFi Network Name (SSID): Inteno-374E

Broadcast SSID

Wireless Multicast Forwarding

Encryption: WPA2 Personal (P

Cipher: Auto

WiFi Key (Password): ••••••••••••••

□ Show Key Text

Wireless interface

Item	Comment
Enabled	Toggle interface on or off.
WiFi Network Name	Edit name of SSID network.
Broadcast SSID	Toggle to make the network SSID visible or invisible.
Encryption	Selected encryption method.
Cipher	Form of Cipher.
WiFi Key (Password)	Text to use as wifi key.
Show Key Text	Displays the wifi key text.

Wireless Settings

To open the **wifi status** view for GHZ:

- Click **5GHz** to open the wifi status view

To edit the wireless interface for a radio:

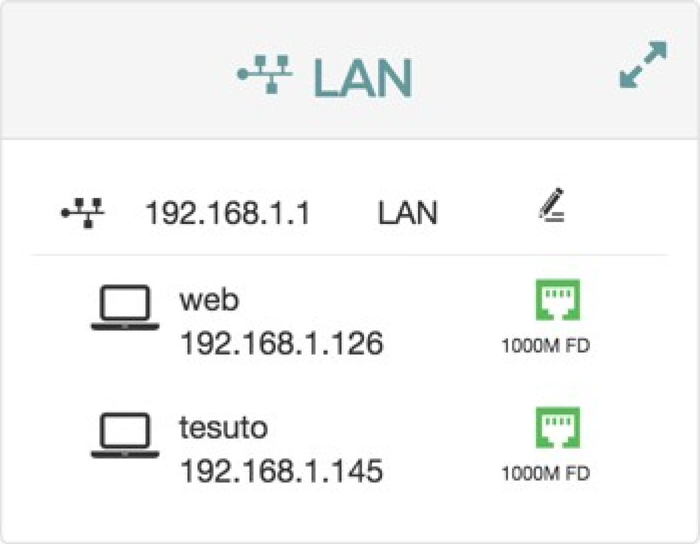
- Click the ✎ **edit** button to open up the wireless interface settings
- Edit the wireless interface
- Click **Save**

LAN

The **LAN** panel shows basic information about the device and connected clients IP addresses.

From the LAN status panel you can configure the DHCP settings for the device.

Configuration



LAN

192.168.1.1 LAN

web
192.168.1.126
1000M FD

tesuto
192.168.1.145
1000M FD

LAN panel

To open the **Edit LAN Settings** dialog, click the ✎ **edit** button.

To view a more detailed overview of the clients, click the ⤢ **expand** button

To view details about a client click the client in the list.

Overview

Detailed Client Overview

In The **Detailed Client Overview**, information about the clients in the LAN is displayed.

Edit LAN Settings

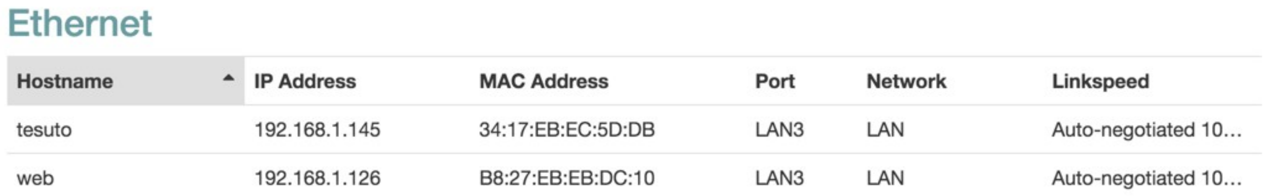
In The **Edit LAN settings** view you can change different features about your network.

Client

The **Client** dialog displays information about the connected clients and allows you to edit their configuration.

Detailed Client Overview

In The **Detailed Client Overview**, information about the clients in the LAN is displayed.



Ethernet

Hostname	IP Address	MAC Address	Port	Network	Linkspeed
tesuto	192.168.1.145	34:17:EB:EC:5D:DB	LAN3	LAN	Auto-negotiated 10...
web	192.168.1.126	B8:27:EB:EB:DC:10	LAN3	LAN	Auto-negotiated 10...

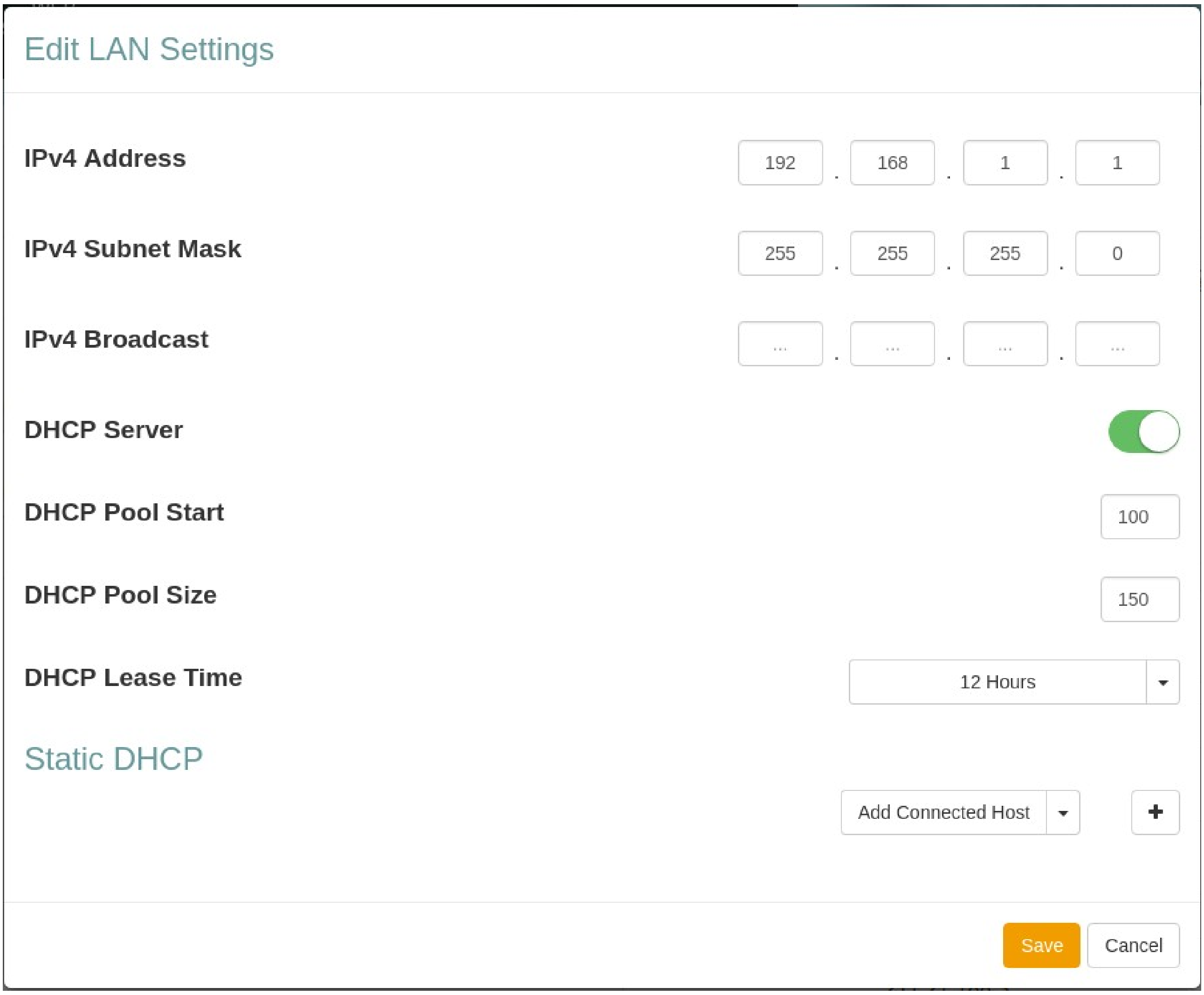
Overview

Item	Description	
Hostname	Client hostname.	
IP Address	Client IPv4.	
MAC Address	Client MAC Address .	
Port	Device port.	
Network	Network interface for the client.	
Link Speed	Type of negotiation, speed and duplex for the connection.	

Edit LAN Settings

In The **Edit LAN settings** view you can change different features about your network.

Configuration



Edit LAN Settings

IPv4 Address 192 . 168 . 1 . 1

IPv4 Subnet Mask 255 . 255 . 255 . 0

IPv4 Broadcast ... .

DHCP Server ●

DHCP Pool Start 100

DHCP Pool Size 150

DHCP Lease Time 12 Hours

Static DHCP

LAN Settings

Item	Description
IPv4 Address	Device DHCP address
IPv4 Subnet Mask	IPv4 Subnet Mask
IPv4 Broadcast Mask	IPv4 Broadcast Mask
DHCP Server	Turn DHCP Server on or off.
DHCP Pool Start	Start IP number for the DHCP Pool start number IP address
DHCP Pool Size	Number of IP addresses in the DHCP Pool
DHCP Lease Time	DHCP Lease Time for the LAN.
Static DHCP	Reserve an IP address DHCP Lease for a connected device.

Static DHCP

The Static DHCP section lets you configure IP address DHCP Leases for connected devices.

Configuration

Item	Description	
✎	Add a device to the static DHCP list	
Device Name	Hostname for IPv4	
MAC Address	Client MAC Address.	
IP Address	IP address for IPv4	
DUID	DUID for IPv6	
Host ID	Host ID for IPv6	

Add Static DHCP Lease

To add a static DHCP lease:

- Add an existing client or create a lease from scratch:
  - To select an existing client:
    - Click **Add connected host** to open the list
    - Select the desired client
    - Click the + **add** button
  - To add a static DHCP lease manually:
    - Only click the + **add** button

The information for existing client is added automatically.

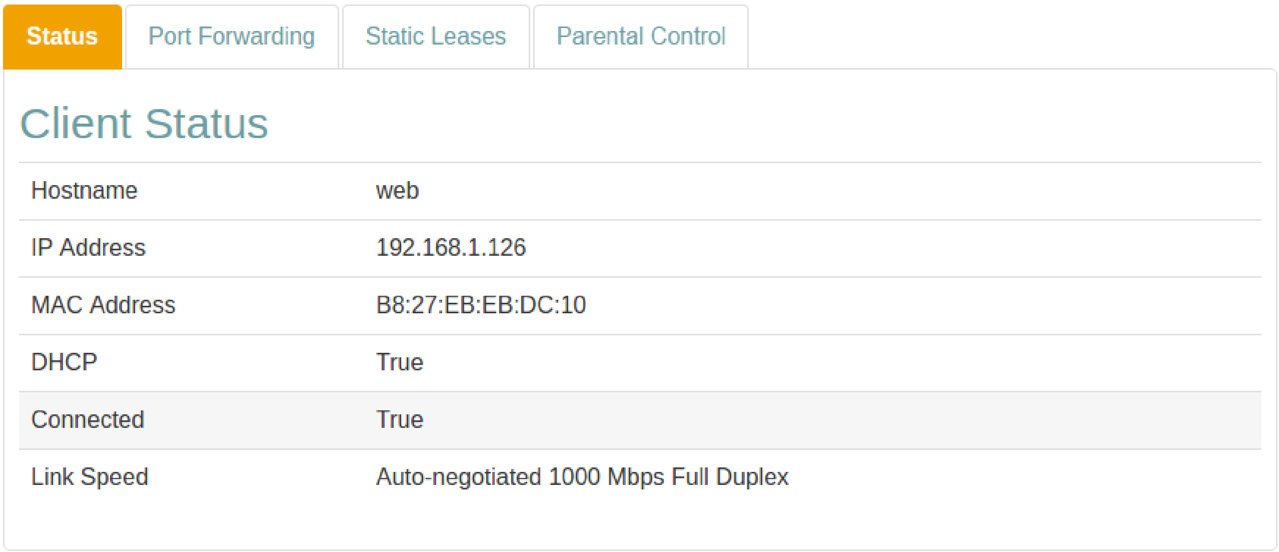
- Add or edit the client information as neeed.
- Click **Save**

Client

The **Client** dialog displays information about the connected clients and allows you to edit their configuration.

View

Information about the client is divided into several tabs.



Client Status

Hostname	web
IP Address	192.168.1.126
MAC Address	B8:27:EB:EB:DC:10
DHCP	True
Connected	True
Link Speed	Auto-negotiated 1000 Mbps Full Duplex

Client

Overview

Status

The **Status** tab shows information about the client and the connection.

Port Forwarding

In the **Port Forwarding** tab you can map incoming connections on different ports to ports on the client.

Static Leases

The **Static Leases** tab allows you to assign a static IP address dhcp lease to the client.

Parental Control

Parental control is used to restrict access to the network for particular devices.

Realtime Graphs

The **Realtime Graphs** view provides access to graphical representations of status for the device. The graphs scroll as time progresses and lines indicate the current status.

WiFi Realtime Graphs

For **WiFi clients** (it is not shown for regular LAN clients), the **Realtime Graphs** tab you can map incoming connections on different ports to ports on the client.

Status

The **Status** tab shows information about the client and the connection.

Status Information

Item	Description
Hostname	The client Hostname.
IP Address	Assigned IP address.
MAC Address	MAC address.
DHCP	DHCP status.
Connected	Connection status.
Link Speed	Type of negotiation, speed and duplex for the connection.

Wireless Details

For WiFi clients, the **Wireless Details** section shows detailed information about the wireless connection. All data is measured since last downtime.

Item	Description	Example
Frequency	WiFi frequency band for the access point.	2.4GHz
RSSI	RSSI strength for the signal.	-64 dBm
SNR	Signal-To-Noise-Ratio.	21 dBm
Idle	Time idle.	1 s
In Network	Time in network.	1813 s
WME	Status of WMM.	True
Power Save	Is Power save enabled?	False
N Mode	Is 802_11n supported?	True
VHT Mode	Is 802_11ac supported?	False
TX Bytes	Transmitted bytes.	2438426
RX Bytes	Recieved bytes.	347988
TX Rate	Transmission rate.	58 Mbps
RX Rate	Recieve rate.	6 Mbps

Port Forwarding

In the **Port Forwarding** tab you can map incoming connections on different ports to ports on the client.

Mapping Section

Item	Description
Name	Port name.
Excluded ports	Protected ports that can't be mapped.
Public port	Public (external) port.
Private port	Private (client) port.
Protocol	Protocol.

Protocol

The protocol setting filters traffic by protocol for the port forward.

Protocol	Description
TCP + UDP	Both TCP and UDP.
TCP	TCP only.
UDP	UDP only.
All	Any protocol.

Mapping Settings

To map incoming connections:

- Click **Add mapping** to open the mapping section

The mapping section lets you add configuration settings for the mapping.

Ports can be added one by one (80), as comma-separated lists (8080, 8090) or as ranges (21-22).

- Add information:
  - Add a name as identification
  - Add ports:
    - Add public/incoming port(s)
    - Add private/client port(s)
  - Select protocol
- Click **Save**
- Click **Close**

Your information has now been saved and is visible in the mapping list.

Static Leases

The **Static Leases** tab allows you to assign a static IP address dhcp lease to the client.

Static Leases Section

Item	Description
Device Name	Hostname for IPv4
IP Address	IP address for IPv4
Tag	Tag with further DHCP Options as configured in the DHCP/DNS settings.
DUID	DUID for IPv6
Host ID	Host ID for IPv6

Static Leases Settings

To assign a static address to the client:

- Click the + **add** button to open the section
- Add information for the type of network(s) you use

Parental Control

Parental control is used to restrict access to the network for particular devices.

Internet Access Scheduling

Parental control is handled by setting schedules where access is restricted to explicitly named MAC addresses.

Item	Description
Weekdays	List of days the filter applies.
Start Time	Time of day to start filtering.
Stop Time	Time of day to stop filtering.
✎	Edit filtering rule.
🗑	Delete filtering rule.

Add Parental Control

The Internet Access Schedule rules you add from the client panel will only apply to that client.

Internet Access Scheduling

Parental control is handled by setting schedules where access is restricted to explicitly named MAC addresses.

When adding a parental control filter from the client panel, the MAC Address is automatically selected from the client.

Add an Internet Access Schedule

- Select a **Time Frame** from the menu
- Edit the selected **Days** as needed
- Enter a time:
  - **From**
  - **To**
- Click **Save**
- Click **Close**

Start and Stop Times

The start time for a rule has to be lower than the end time.

If you want to have a rule that goes over midnight, you need to add two rules, one up until midnight, and one from midnight to when you want the rule to end.

For example:

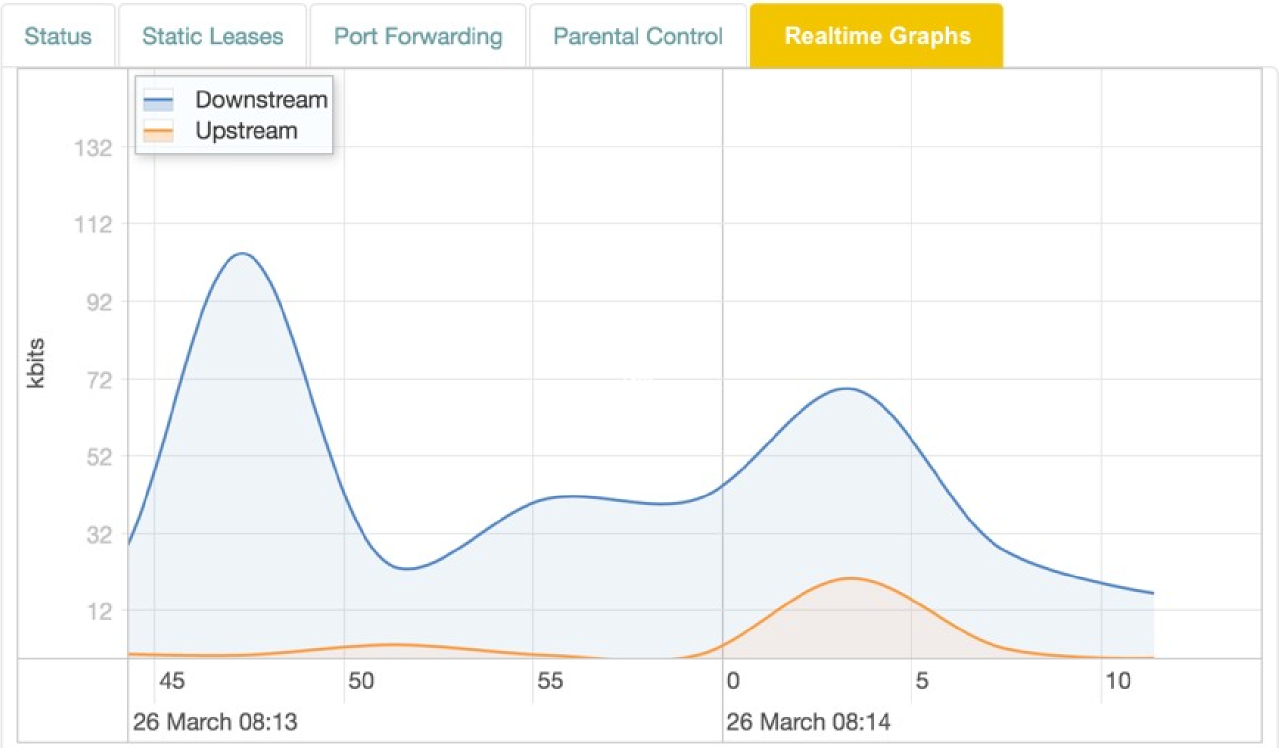
Rule one: **From** 21:00 **To** 23:59 Rule two: **From** 00:00 **To** 06:00

A single rule of **From** 21:00 **To** 06:00 will **not** be saved.

WiFi Realtime Graphs

For **WiFi clients** (it is not shown for regular LAN clients), the **Realtime Graphs** tab you can map incoming connections on different ports to ports on the client.

Graph



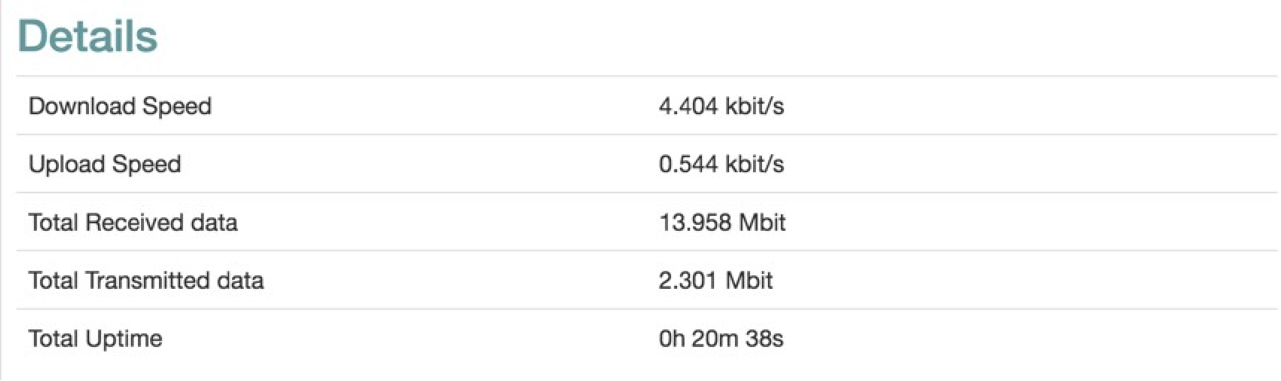
Graph

The display is shown in realtime, with lines representing traffic in kbit/s:

Color	Traffic
Blue	Downstream.
Red	Upstream.

Table

The table below the graph displays collected data since the tab was opened, and the total connection uptime since last downtime.



Details

Download Speed	4.404 kbit/s
Upload Speed	0.544 kbit/s
Total Received data	13.958 Mbit
Total Transmitted data	2.301 Mbit
Total Uptime	0h 20m 38s

Table

Item	Description
Download Speed	Current download speed.
Upload Speed	Current upload speed.
Total Received Data	Downloaded data since the tab was opened.
Total Transmitted Data	Transmitted data since the tab was opened.
Total Uptime	Connection uptime since last downtime.

Realtime Graphs

The **Realtime Graphs** view provides access to graphical representations of status for the device. The graphs scroll as time progresses and lines indicate the current status.

Overview

Load

The **Load** graph shows device load averages for different time recent periods.

Traffic

The **Traffic** graph shows upload and download traffic for the interfaces.

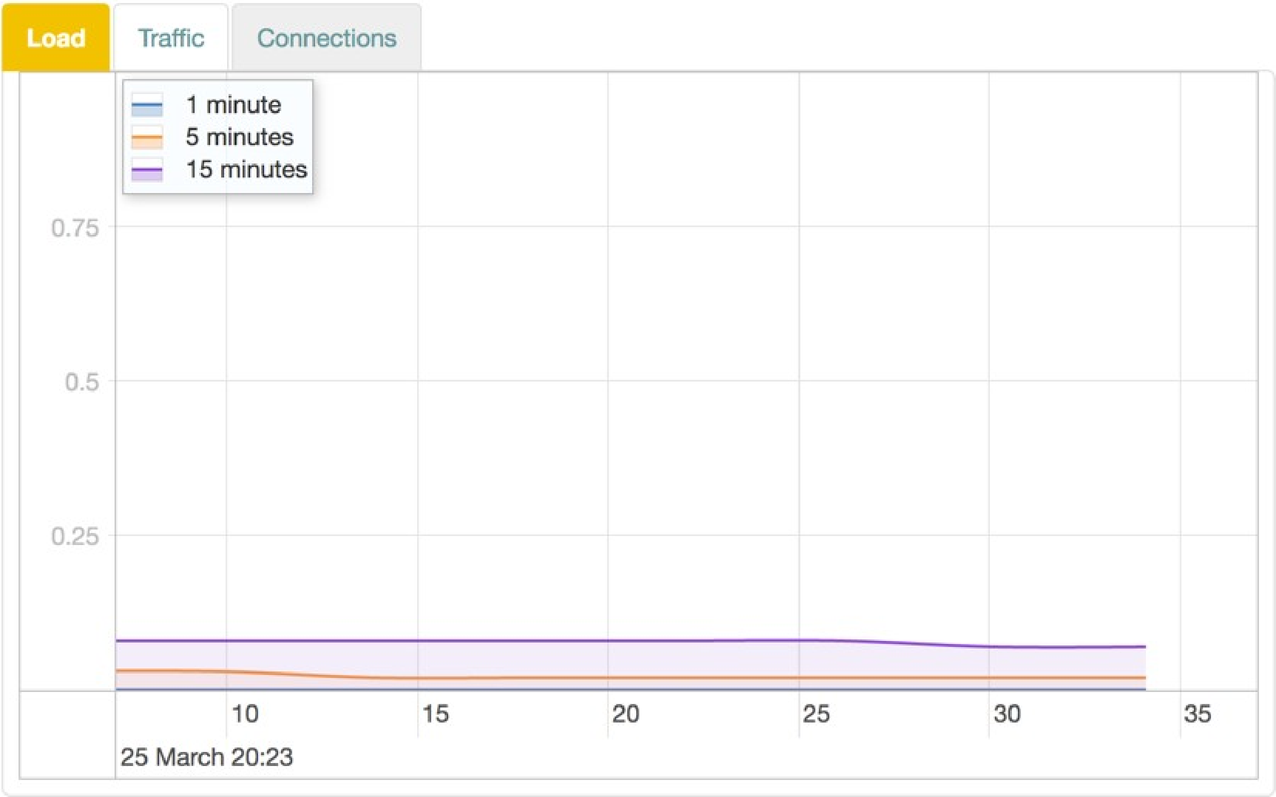
Load

The **Load** graph shows device load averages for different time recent periods.

Graph Lines

The display is shown in realtime, and the lines represent the average over different intervals:

Color	Time
Blue	1 minute
Red	5 minutes
Purple	15 minutes



Load

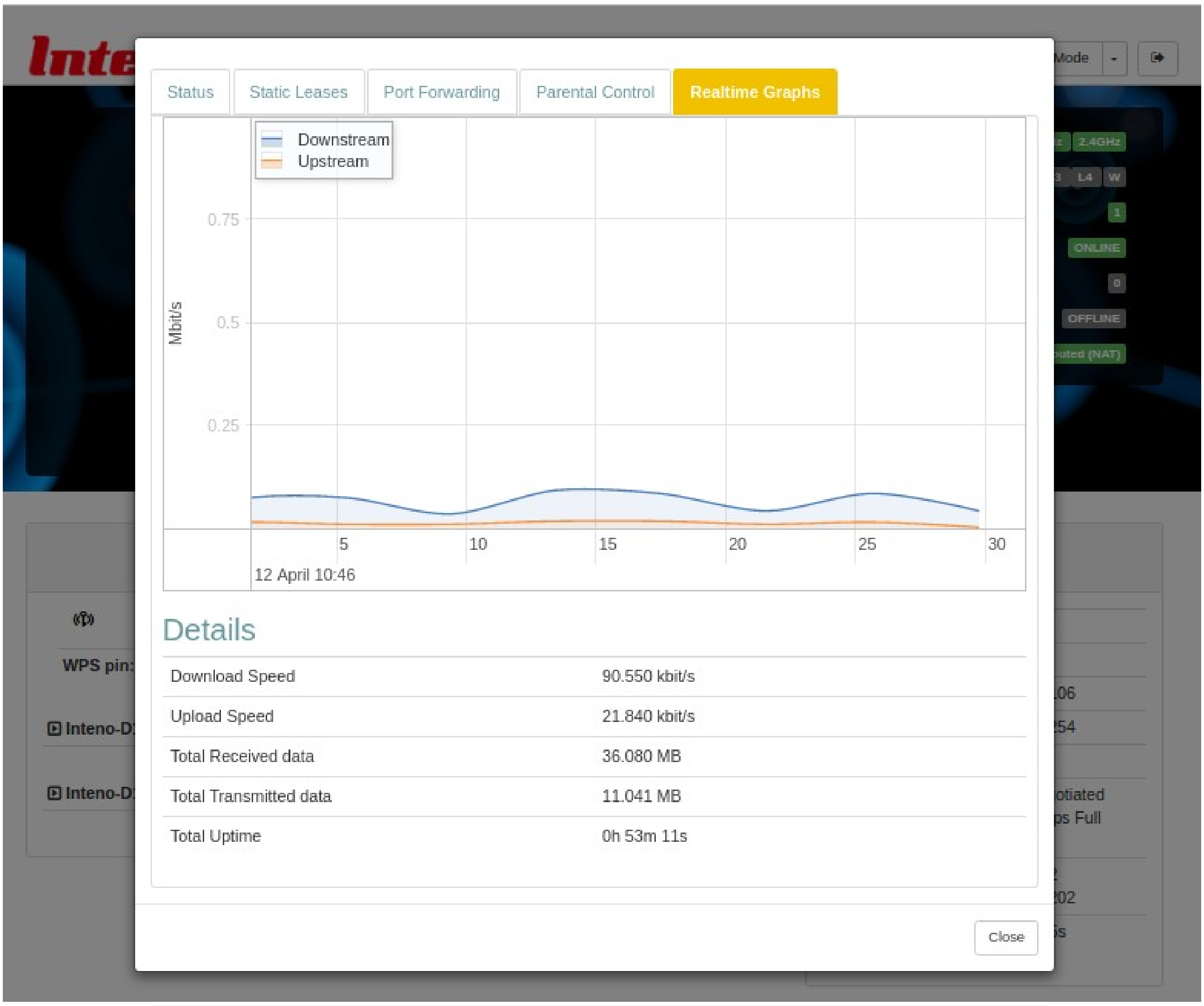
Traffic

The **Traffic** graph shows upload and download traffic for the interfaces.

Graph Lines

Each interface is available in its own tab. The display is shown in realtime, with lines representing traffic in kbit/s:

Color	Traffic
Blue	Downstream.
Red	Upstream.



Details

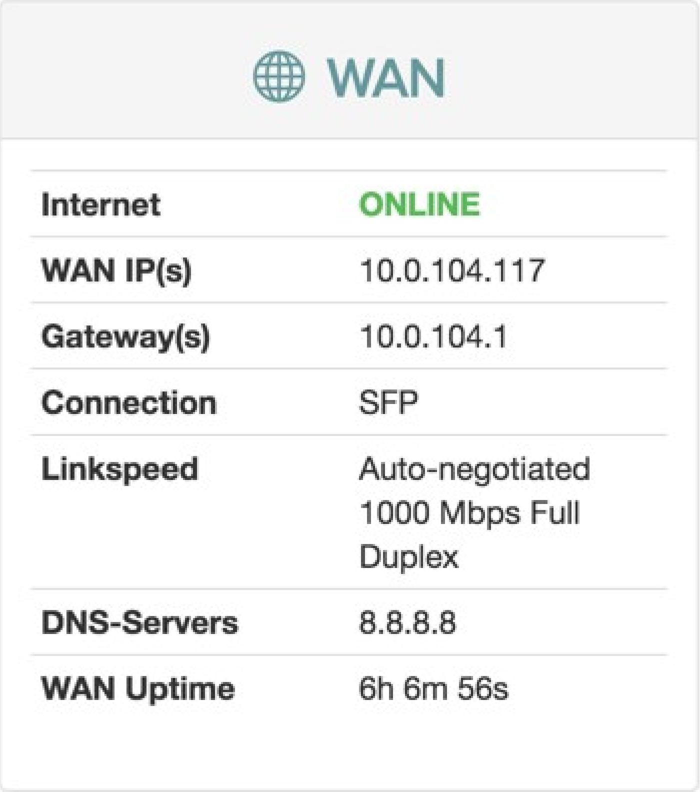
Download Speed	90.550 kbit/s
Upload Speed	21.840 kbit/s
Total Received data	36.080 MB
Total Transmitted data	11.041 MB
Total Uptime	0h 53m 11s

Traffic

WAN

The **WAN** panel displays the status of your WAN. It also lets you configure DNS servers.

Configuration



WAN

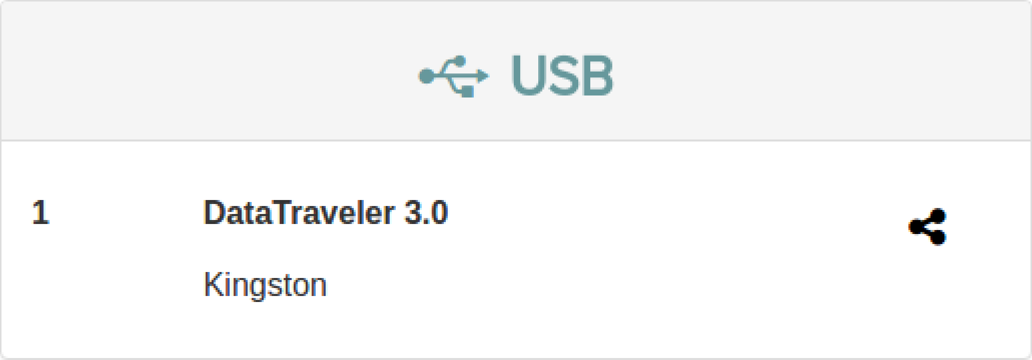
Internet	ONLINE
WAN IP(s)	10.0.104.117
Gateway(s)	10.0.104.1
Connection	SFP
Linkspeed	Auto-negotiated 1000 Mbps Full Duplex
DNS-Servers	8.8.8.8
WAN Uptime	6h 6m 56s

WAN panel

Item	Description
Internet	Status of Internet connection.
Link	Status of link.
WAN IP(s)	IPv4 and IPv6 address to the device.
Gateway(s)	IPv4 and IPv6 address to gateway.
Link Type	Ethernet
Link Speed	Auto-negotiated 1000 Mbps Full Duplex
DNS-Servers	IPv4 and IPV6 addresses to DNS servers.
WAN uptime	Time since last disconnect for IPv4 and IPV6 WAN connection.

USB

The **USB** panel displays the status of any connected USB devices.



USB

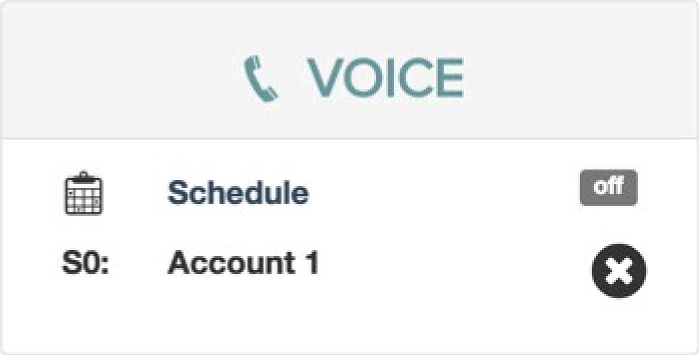
1 DataTraveler 3.0

Kingston

USB panel

Voice

The **Voice** panel shows the status of the ringing schedule connected phone lines.



VOICE

Schedule off

S0: Account 1

Voice panel

The Voice panel is not available in certain regions.

Profile

The **Profile** panel shows the network profiles configured on your device, if any.

The network profiles are configured by the manufacturer for each device type.

Depending on the network profile selected, additional panels may be displayed in the overview.

Voice

The **Voice** provides access to settings relating to voice communications through the device.

Overview

Call Log

The **Call Log** view shows a list of the recent calls handled through the device.

SIP Accounts

The **SIP Accounts** view shows information about configured SIP accounts for the device.

SIP Users

The **SIP Users** view shows information about configured SIP users for the device.

Voice Lines

The **Voice Lines** view shows a list of available voice lines for the device and allows you to configure them.

Advanced Settings

The **Advanced Settings** view contains advanced settings for SIP , voice lines and dial plans.

Number Blocking

The **Number Blocking** view allows you to block outgoing calls to specific numbers or or number ranges.

Ringing Schedule

The **Ringing Schedule** view lets you define when telephones should be allowed to ring.

Speed Dialing

The **Speed Dialing** view lets you configure a set of shortcode numbers that convert to the specified numbers when dialled.

DECT Radio

The **Dect Radio** view allows you to configure DECT radio settings.

Call Log

The **Call Log** view shows a list of the recent calls handled through the device.

Configuration

Item	Description
Date	Date for the call.
Time	Time for the call.
External Number	Calling number.
Internal Number	Receiving number.
Duration	Duration of the call.

Arrow Indicators

The arrow indicators next to the log items indicate the status of the connection.

Icon	Color	Status	Description
	Green	'ANSWERED'	Connection has been established.
	Red	'NO ANSWER'	Connection was not established.
	Black	Any other state (for example 'BUSY').	

SIP Accounts

The **SIP Accounts** view shows information about configured SIP accounts for the device.

Configuration

At the top of the page is a list of selectable accounts.

When a particular account is selected, details about it is shown in the configuration section.

Item	Description
Enabled	Turn account on or off.
Account Name	Name of SIP account.
SIP domain name	Name of SIP domain.
SIP Username	The SIP account username for the account.
SIP Authentication Name	SIP Authentication Name used with password to register with SIP server.

SIP Password	Enter new password to change.
Show Key Text	Display the password.
Display Name	Display name used in Caller ID.
SIP Server/Registrar	Address for SIP server.
SIP Server/Registrar Port	Port for SIP server.
SIP Outbound Proxy	Address for outbound proxy.
SIP Outbound Proxy Port	Port for outbound proxy.
Incoming Phone Lines	Check boxes for connected phone line ports.
Preferred codecs	Order of preference for SIP codecs.
G.711MuLaw Packetization	Packetization setting for G.711MuLaw.
G.726 Packetization	Packetization setting for G.726.
G.729a Packetization	Packetization setting for G.711ALaw.
G.G.729a Packetization	Packetization setting for G.729a.
Autoframing	Negotiate packetization when call is established.
SIP Transport	UDP / TCP / TLS
Encryption	Use Secure Real-time Transport Protocol.
Use as Fax	Indicate that this SIP account will be used for a fax machine. This will force some settings.
Mailbox	Voicemail inbox.

Add account

You can add as many accounts as you needed.

To add a account:

- Click the **Add** button
- Enter a **Name** for the account
- Enter values as needed.
- Click **Apply**

SIP Users

The **SIP Users** view shows information about configured SIP users for the device.

View

At the top of the page is a list of selectable accounts.

When a particular account is selected, details about it is shown in the configuration section.

Item	Description
Enabled	Turn user on or off.
Name	Display name used in Caller ID.
Extension	Extension for this user.
User Name	SIP user name.
User Password	Enter new password to change.
Show Key Text	Display the password.
Call out using SIP provider	SIP account for outbound calls.
Mailbox	Voicemail inbox.
Preferred codecs	Order of preference for SIP codecs.
Host	Specific host for this user.
Qualify	Check that the user is reachable.

Add user

You can add as many users as you needed.

To add a user:

- Click the **Add** button
- Enter a **Name** for the user
- Enter values as needed.
- Click **Apply**

Voice Lines

The **Voice Lines** view shows a list of available voice lines for the device and allows you to configure them.

Each available voice line has its own panel. Detailed information about each line is shown when you expand the panel.

The panels allow you to configure individual voice lines.

Item	Description
Name	Identifier for the DECT line.
Internal Number	Diect call number.
Outgoing Calls Number	SIP account for external calls.
Call Waiting	Enable call waiting notification.
Call ID Restriction	Hide caller ID.
Voice Activity Detection	Detect voice (Transparent / Aggressive /

	Conservative).
Comfort Noise Generation	Generated noise (White / Hot / Spectrum estimate).
Echo cancellation	Remove echoes.
Transmit gain	Increase transmitted signal.
Receive gain	Increase received signal.

Advanced Settings

The **Advanced Settings** view contains advanced settings for SIP , voice lines and dial plans.

Overview

Advanced SIP Settings

The **Advanced SIP Settings** view lets you configure detailed parameters for your SIP services.

Advanced Line Settings

The **Advanced Line Settings** view lets you configure detailed parameters for your voice lines .

Custom Dial Plan

The **Custom Dial plan** view allows you to configure dialling digits for various services and networks.

Advanced SIP Settings

The **Advanced SIP Settings** view lets you configure detailed parameters for your SIP services.

Configuration

Item	Description
Sip Proxy servers	Proxies to allow incoming calls from.
Bind Interface	Restrict listening to particular WAN interface.
Bindport	Port to use for UDP listening.
User Agent	Custom User-Agent information in the SIP header.

RTP Port Range	Ports to use for RTP
DTMF Mode	Mode for DTMF (Compatibility / RFC 2833 / SIP INFO / Inband).
Register Interval	Time in seconds between registration attempts.
Realm	SIP Realm for digest authentication.
Localnet	Network addresses that are considered inside of the NAT network.
Register Attempts	Number of registration attempts before giving up.
Register Timeout	Time before giving up a registration attempt.
Register Back-off Attempts	Number of attempts before back-off.
Register Back-off Timeout	Time in back-off before giving up attempt to register.
Remote Hold	Send hold events to proxy (Let network handle music on hold).
SRV Lookup	Enable DNS SRV lookup.
DNS Manager	Enable Asterisk DNS manager.
DNS Manager Refresh Interval	Refresh interval for the DNS manager.
Line suffix in contact header	Add suffix to SIP contact header with information about called lines.
SIP DiffServ	Differentiated services type of service for SIP data.
Audio DiffServ	Differentiated services type of service for audio data.
Congestion tone	Tone to play on congestion. (Congestion / Info)
STUN server	STUN service provider.
TLS/SSL Version	TLS v1 / TLS v2 / TLS v3.
Cipher string	Cipher identifier string.
Trusted CA	Public key for a trusted Certificate Authority.

Trusted CA Certificate

To add a Trusted CA Certificate key:

- Click **Add**
- Copy the public key
- Paste the key into the window
- Click **Save**
- Click **Apply**

Advanced Line Settings

The **Advanced Line Settings** view lets you configure detailed parameters for your voice lines .

Configuration

Item	Description
Locale selection	Country for device location.
Enable Jitter Buffer	Turn jitter prevention buffer on or off.
Force Jitter Buffer	Forces the receiver to use a jitter buffer.
Jitter Buffer implementation	The type of jitter buffer Fixed / Adaptive.
Maximum Jitter Buffer size	Size of jitter buffer (ms).
Enable Packet Loss Concealment	Turn PLC on or off.
Inter-digit timeout	Time between dialled digits before timing out (ms).

Custom Dial Plan

The **Custom Dial plan** view allows you to configure dialling digits for various services and networks.

Configuration

Item	Description
Enable incoming	Turn dial plan on or off for incoming calls.
Enable outgoing	Turn dial plan on or off for outgoing calls.
Enable custom hangup	Turn custom hang up on or off.
All Ports Extension	Port test extension.
Test Audio Extension	Audo tests the audio quality.
Test Echo Extension	Echo returns the outgoing audio from a channel back to the channel.

Number Blocking

The **Number Blocking** view allows you to block outgoing calls to specific numbers or or number ranges.

Outgoing

Item	Description
Outgoing Number Blocking	Turn blocking on or off for outgoing calls.
Do not allow connections to these numbers	List of blocked numbers.
Block connections to all foreign numbers	Block calls to different locales.
Block connections to all special rate numbers	Block calls to premium rate or pay services.

Incoming

Item	Description
Incoming Number Blocking	Turn blocking on or off for incoming calls.
Do not allow connections from these numbers	List of blocked numbers.

Block number

To block a number:

- Click the + **add** button
- Click in the **Phone extension** box
- Enter the number
- Click outside of the **Phone extension** box
- Click **Apply**

Block number range

You can use # as wildcard to define number ranges. For example “0160#” blocks all numbers starting with “0160”.

To block a sequence of numbers:

- Click the + **add** button
- Enter digits
- Add '#' as wildcard
- Enter the number
- Click outside of the **Phone extension** box
- Click **Apply**

Ringing Schedule

The **Ringing Schedule** view lets you define when telephones should be allowed to ring.

Configuration

Item	Description
Ringing Schedule	Turn the schedule on or off.
During the times below ringing is	Enabled / Disabled.
Day	List of days when **status** applies.
Time	Time interval when **status** applies.
Status	Enabled / Disabled.

Speed Dialing

The **Speed Dialing** view lets you configure a set of shortcode numbers that convert to the specified numbers when dialled.

The speed dialling list consists of the numbers 0 to 9. For each of these, you can add a number or extension that will be called when somebody dials the number.

Item	Description
Speed Dialing	Turn speed dialling on or off.
Remove all entries from speed dial list	Clears the list

DECT Radio

The **Dect Radio** view allows you to configure DECT radio settings.

Configuration

Item	Description
DECT Radio	Auto / On / Off.
Radio Status	Current status for the DECT Radio.
Pair DECT Device	Button to start pairing for a DECT device.
Codecs	DECT codecs available for the device.

At the bottom of the page is a list of currently paired devices.

Item	Description

ID	Pairing ID.
IPUI	IPUI number.
Codecs	DECT codecs available for the device.

Network

The **Network** view provides access to the devices, connections and available configurations in the network.

Overview

Devices

The **Devices** view allows you to configure settings for various network types.

Connections

The **Connections** view allows you configure various connection interfaces to use in your device.

Routes

Static routes are useful if you have several networks accessible from your router and you want to correctly route packets between them.

Firewall

The firewall lets you filter traffic, set up port forwarding or expose particular services to the outside world.

Parental Control

Parental control is used to restrict access to the network for particular devices.

Quality Of Service

The **Quality Of Service** view allows you to configure parameters for Quality of Service through applying groups of classes to interfaces.

MultiWAN

The **MultiWAN** view allows you to create and configure WAN traffic divisions for load balancing and failover and applying traffic .

Services

The **Services** view allows you to configure the services connected device.

Devices

The **Devices** view allows you to configure settings for various network types.

Overview

Network Devices

The **Network Devices** view shows you a list of devices that are used to access the network.

Ethernet

In the **Ethernet Ports** view, you can define parameters for the LAN ports and select which, if any port should be UPLINK.

VLAN

The **VLAN** view allows you to configure VLAN devices.

Network Devices

The **Network Devices** view shows you a list of devices that are used to access the network.

Configuration

Option	Description
Type	Type of device
Name	Name of device
Adapter	Adapter name
MAC	MAC address
MTU	Number of MTU bytes
Status	Device Status

Device Status

The status of a device is indicated by the color of the icon.

Color	Status
Green	Enabled and active
Black	Enabled, not active

Note: These are the default colors. Your operator may use a different coloring scheme.

Ethernet

In the **Ethernet Ports** view, you can define parameters for the LAN ports and select which, if any port should be UPLINK.

Ethernet Ports

The Ethernet Portss view shows a list of selectable ports.

Configuration

When a particular port is selected, details about it is shown in the configuration section.

Properties for unspecifed/untagged VLAN

Section	Description	Comment
Port Speed	Configuration of transmission speed, duplex setting and auto-negotiation.	Available values depend on port capacity.
Pause Frame	Enable Pause Frame for flow control.	

Port Speed Examples

In the **Port Speed** dropdown, you can select a combination of duplex setting and auto-negotiation settings for the interface.

For example:

Option	Description
Full auto-negotiation	Applies to both auto-negotiation and duplex setting.
Max 100Mb auto-negotiation, full duplex.	
Max 100Mb auto-negotiation, half duplex.	
Max 10Mb auto-negotiation, full duplex.	
Max 10Mb auto-negotiation, half duplex.	
Only 100Mb, full duplex.	
Only 100Mb, half duplex.	
Only 10Mb, full duplex.	
Only 10Mb, half duplex.	
Disabled	Interface is disabled.

Uplink

The **Uplink** section view allows you to select which interface to use as uplink for the device.

Configuration

Section	Description
Uplink Port	Port to use as uplink for the device.

Note: Selecting None will disable uplink traffic.

VLAN

The **VLAN** view allows you to configure VLAN devices.

Configuration

At the top of the page is a list of selectable devices.

When a particular device is selected, details about it is shown in the configuration section. The exact options depend on type.

Properties for unspecifed/untagged VLAN

Section	Description	Comment
Vlan Name	Name of the device.	
Vlan Type	Type of device.	untagged / 802.1Q
Base Device	Base DSL device to create interface for.	
Name	802 1q identifier.	

Properties for specifed/tagged VLAN

Section	Description	Comment
Vlan Name	Name of the device.	
Vlan Type	Type of device.	802.1Q
Base Device	Base DSL device to create interface for.	
VLAN ID	Vlan ID number.	
Priority	Traffic priority level.	
Name	802 1q identifier.	
Override MTU	Specified MTU to use.	

Connections

The **Connections** view allows you configure various connection interfaces to use in your device.

View

This view allows to configure IP addresses used in your home network. In case DHCP is used, your router automatically assignes an IP address to devices connected to the network.

The page contains a list of interfaces, with one widget for each interface.

Connection Buttons

Connect

To turn a connection on:

- Select the connection you are interested in
- Click **Connect** button

Disconnect

To turn a connection off:

- Select the connection you are interested in
- Click **Disconnect** button

Edit

To change the settings for a connection:

- Select the connection you are interested in
- Click **Edit** button

The connection editor is shown below the connection list.

Connection Editor

You can view, manage and configure the settings for interfaces from the page.

Main Buttons

Delete

To change the settings for a connection:

- Select the connection you are interested in
- Click **Edit** button

Add

To add new connection interface:

- Select the connection you are interested in
- Click **Edit** button

The new interface dialog is shown.

Create Connection Wizard

The **Create New Network Interface** wizard allows you to create a new interface according to your needs through a number of dialogs.

Create Connection Wizard

The **Create New Network Interface** wizard allows you to create a new interface according to your needs through a number of dialogs.

Create Connection

The dialog is a wizard where you add information in several steps.

The number of steps and their contents varies depending on the type of interface you create.

Note: As a last step you finalize the setup, but you can further from the page.

Connection Types

In the first step, you can choose the type of interface: Uplink, Downlink, or Unmanaged.

Depending on your choice in the first step, different options become available.

Uplink

An uplink interface type is an interface to services.

Downlink

A Downlink interface is an interface to subscribers/clients.

Unmanaged

The interface protocol type Unmanaged means that the connection has no defined protocol.

Uplink

An uplink interface type is an interface to services.

Interfaces

DHCP v4

An DHCP v4 connection uses an IPv4 address provided by a DHCP server.

DHCP v6 (Uplink)

An DHCP v6 connection uses an IPv6 address provided by a DHCP server.

Point-to-Point Protocol

A Point-to-Point Protocol connection uses PPP to establish the network.

Point-to-Point Protocol over Ethernet

A Point-to-Point Protocol over Ethernet connection uses PPPoE to establish the network.

Point-to-Point Protocol over ATM

A Point-to-Point Protocol over ATM connection uses PPPoA to establish the network.

3G

A 3G connection uses PPP over GPRS/EVDO/CDMA/UMTS.

Point-to-point Tunnel

A Point-to-Point Tunnel connection uses PPP across a VPN tunnel to establish the network.

IPv6 Tunnel in IPv4

A IPv6 Tunnel in IPv4 connection uses IPv4 to transmit IPv6 traffic.

IPv6 Tunnel to IPv4

A IPv6 Tunnel to IPv4 connection uses IPv4 to transmit IPv6 traffic.

IPv6 rapid deployment

A IPv6 rapid deployment interface for IPv4 infrastructures.

Dual-Stack Lite

A Dual-Stack Lite connection uses DS-Lite through an Address Family Transition Router to establish the network.

Point-to-Point Protocol over L2TP

A Point-to-Point Protocol over L2TP connection uses PPP and L2TP server to establish the network.

WWAN (LTE/HSPA+)

The WWAN connection uses LTE / HSPA+.

Overview

WWAN

A Wireless Wide Area Network (WWAN), is a wireless network that extends over a large geographical distance.

LTE

Long-Term Evolution (LTE) is a standard for high-speed wireless communication for mobile phones and data terminals, based on GSM and UMTS.

HSPA / HSPA+

High Speed Packet Access (HSPA) is an extension of 3G mobile networks utilizing WCDMA.

Evolved High Speed Packet Access (HSPA+) is a furhter improvement on HSPA allowing for higher speeds.

Wizard

Step 1

In the first step you select basic settings for the interface.

Item	Description
Interface Name	Name for the interface.
Interface Type	Select interface protocol type.

Finalize

In the final step you select protocol and firewall settings for the interface.

Item	Description
Protocol	Select protocol.
Add network to a firewall zone	Connects interface to .

DHCP v4

An DHCP v4 connection uses an IPv4 address provided by a DHCP server.

Overview

IPv4

Internet Protocol Version 4 - IPv4 - is the first major version of the Internet Protocol.

Wizard

Step 1

In the first step you select basic settings for the interface.

Item	Description
Interface Name	Name for the interface.
Interface Type	Select interface protocol type.

Finalize

In the final step you select protocol, adapter and firewall settings for the interface.

Item	Description
Protocol	Select protocol.
Interface Type	Select interface protocol type.
Ethernet Adapter	to create interface for.
Add network to a firewall zone	Connects interface to .

DHCP v6 (Uplink)

An DHCP v6 connection uses an IPv6 address provided by a DHCP server.

Overview

IPv6

Internet Protocol Version 6 - IPv6 - is the the successor to IPv4.

Wizard

Step 1

In the first step you select basic settings for the interface.

Item	Description
Interface Name	Name for the interface.
Interface Type	Select interface protocol type.

Finalize

In the final step you select protocol, adapter and firewall settings for the interface.

Item	Description
Protocol	Select protocol.
Interface Type	Select interface protocol type.
Ethernet Adapter	to create interface for.
Add network to a firewall zone	Connects interface to .

Point-to-Point Protocol

A Point-to-Point Protocol connection uses PPP to establish the network.

Overview

PPP

Point-to-Point Protocol (PPP) is a protocol for providing a direct data link connection with authentication, encryption and compression.

Wizard

Step 1

In the first step you select basic settings for the interface.

Item	Description
Interface Name	Name for the interface.
Interface Type	Select interface protocol type.

Finalize

In the final step you select protocol and firewall settings for the interface.

Item	Description
Protocol	Select protocol.
Add network to a firewall zone	Connects interface to .

Point-to-Point Protocol over Ethernet

A Point-to-Point Protocol over Ethernet connection uses PPPoE to establish the network.

Overview

PPPoE

PPP over Ethernet (PPPoE) is a protocol using PPP to provide an DSL Internet connection over Ethernet, by putting PPP frames inside Ethernet frames.

Wizard

Step 1

In the first step you select basic settings for the interface.

Item	Description
Interface Name	Name for the interface.
Interface Type	Select interface protocol type.

Finalize

In the final step you select protocol and firewall settings for the interface.

Item	Description
Protocol	Select protocol.
Ethernet Adapter	to create interface for.
Add network to a firewall zone	Connects interface to .

Point-to-Point Protocol over ATM

A Point-to-Point Protocol over ATM connection uses PPPoA to establish the network.

Overview

PPPoA

PPP over ATM (PPPoA) is a protocol using PPP to provide an DSL Internet connection over ATM.

Wizard

Step 1

In the first step you select basic settings for the interface.

Item	Description
Interface Name	Name for the interface.
Interface Type	Select interface protocol type.

Finalize

In the final step you select protocol and firewall settings for the interface.

Item	Description
Protocol	Select protocol.
Ethernet Adapter	to create interface for.
Add network to a firewall zone	Connects interface to .

3G

A 3G connection uses PPP over GPRS/EVDO/CDMA/UMTS.

Overview

3G

Third-generation wireless telephone technology (3G), is a cellular network for digital mobile data communication for broadband traffic.

Wizard

Step 1

In the first step you select basic settings for the interface.

Item	Description
Interface Name	Name for the interface.
Interface Type	Select interface protocol type.

Finalize

In the final step you select protocol and firewall settings for the interface.

Item	Description
Protocol	Select protocol.
Add network to a firewall zone	Connects interface to .

Point-to-point Tunnel

A Point-to-Point Tunnel connection uses PPP across a VPN tunnel to establish the network.

Overview

Point-to-Point Tunneling Protocol

Point-to-Point Tunneling Protocol (PTPT) is a technology for virtual private networks through TCP and a GRE with PPP packets.

Wizard

Step 1

In the first step you select basic settings for the interface.

Item	Description
Interface Name	Name for the interface.
Interface Type	Select interface protocol type.

Finalize

In the final step you select protocol and firewall settings for the interface.

Item	Description
Protocol	Select protocol.
Add network to a firewall zone	Connects interface to .

IPv6 Tunnel in IPv4

A IPv6 Tunnel in IPv4 connection uses IPv4 to transmit IPv6 traffic.

Overview

6in4

6in4 is a method to transmit IPv6 traffic over explicit IPv4 connections.

The traffic is sent over the IPv4 Internet inside IPv4 packets whose IP headers have the IP protocol number set to 41.

Wizard

Step 1

In the first step you select basic settings for the interface.

Item	Description
Interface Name	Name for the interface.
Interface Type	Select interface protocol type.

Finalize

In the final step you select protocol and firewall settings for the interface.

Item	Description
Protocol	Select protocol.
Add network to a firewall zone	Connects interface to .

IPv6 Tunnel to IPv4

A IPv6 Tunnel to IPv4 connection uses IPv4 to transmit IPv6 traffic.

Overview

6to4

6to4 is a method to transmit IPv6 traffic over IPv4 networks without having to configure explicit tunnels.

Wizard

Step 1

In the first step you select basic settings for the interface.

Item	Description
Interface Name	Name for the interface.
Interface Type	Select interface protocol type.

Finalize

In the final step you select protocol and firewall settings for the interface.

Item	Description
Protocol	Select protocol.
Add network to a firewall zone	Connects interface to .

IPv6 rapid deployment

A IPv6 rapid deployment interface for IPv4 infrastructures.

Overview

6rd

6rd is a method for IPv6 rapid deployment on Internet Service Provider IPv4 infrastructures, operating within the ISP's network.

Wizard

Step 1

In the first step you select basic settings for the interface.

Item	Description
Interface Name	Name for the interface.
Interface Type	Select interface protocol type.

Finalize

In the final step you select protocol and firewall settings for the interface.

Item	Description
Protocol	Select protocol.
Add network to a firewall zone	Connects interface to .

Dual-Stack Lite

A Dual-Stack Lite connection uses DS-Lite through an Address Family Transition Router to establish the network.

Overview

DS-Lite

Dual-Stack Lite (DS-Lite) is a method for sharing of IPv4 addresses by combining IPv4-in-IPv6 and NAT.

Wizard

Step 1

In the first step you select basic settings for the interface.

Item	Description
Interface Name	Name for the interface.
Interface Type	Select interface protocol type.

Finalize

In the final step you select protocol and firewall settings for the interface.

Item	Description
Protocol	Select protocol.
Add network to a firewall zone	Connects interface to .

Point-to-Point Protocol over L2TP

A Point-to-Point Protocol over L2TP connection uses PPP and L2TP server to establish the network.

Overview

PPP

Point-to-Point Protocol (PPP) is a protocol for providing a direct data link connection with authentication, encryption and compression.

L2TP

Layer 2 Tunneling Protocol (L2TP) is a protocol used to support VPNs, where security is provided in the transmitted packages rather than in the tunneling.

Wizard

Step 1

In the first step you select basic settings for the interface.

Item	Description
Interface Name	Name for the interface.
Interface Type	Select interface protocol type.

Finalize

In the final step you select protocol and firewall settings for the interface.

Item	Description
Protocol	Select protocol.
Add network to a firewall zone	Connects interface to .

Downlink

A Downlink interface is an interface to subscribers/clients.

Finalize

In the final step you select protocol and firewall settings for the interface.

Item	Description	Applies to
Interface Type	Select interface type (Standalone / Anywan / Bridge).	
Physical Device	Device(s) to use for the connection.	
Add network to a firewall zone	Connects interface to .	

Physical Device

For Standalone, you need to select the to use for the connection.

For Anywan and Bridge, you need to add a physical device to use for the connection.

Item	Description	Applies to
Ethernet Adapter	Selector for to use for the connection.	Standalone
Add Device	Dialog to select network device to use for the connection.	Anywan / Bridge

Ethernet Adapter

- Select a base device from the dropdown menu.

Add Device

- Click **Add**

The **Select Network Device** dialog is shown.

- Select a network device from the dropdown menu

Unmanaged

The interface protocol type Unmanaged means that the connection has no defined protocol.

Step 1

In the first step you select basic settings for the interface.

Configuration

Item	Description
Interface Type	Select interface type.
Add/Remove Devices	Select interface protocol type.

- Select Interface Type
- Add as many devices as needed

Add Device

- Click **Add**

The Add Device dialog is shown.

- Select a network device from the dropdown menu
- Click **OK**

Finalize

- Click **OK** again
- Click **Apply**

Connection Editor

You can view, manage and configure the settings for interfaces from the page.

Edit Connections

To edit a connection:

- Click **Edit** button

The **Connection Section** is displayed at the bottom of the page.

The connection section consists of a number of tabs, showing details the connection.

Depending on connection type the tabs will be different, but the standard tabs are **General**, **Physical Settings**, and **Advanced**.

Additional tabs become visible as they are needed.

Default Connections

LAN

The default LAN connection is a DHCP v4 connection using a static IPv4 address.

WAN

The default WAN connection uses an IPv4 address provided by a DHCP server.

WAN6

The default WAN6 connection is a IPv6 address provided by a DHCP server.

Connection Types

Unmanaged

An unmanaged connection has no predefined protocol for the connection.

Static Address

A static address uses a fixed IP address for the connection.

DHCP v4

An DHCP v4 connection uses an IPv4 address provided by a DHCP server.

DHCP v6

An DHCP v6 connection uses an IPv6 address provided by a DHCP server.

Point-to-Point Protocol

A Point-to-Point Protocol connection uses PPP to establish the network.

Point-to-Point Protocol over Ethernet

A Point-to-Point Protocol over Ethernet connection uses PPPoE to establish the network.

Point-to-Point Protocol over ATM

A Point-to-Point Protocol over ATM connection uses PPPoA to establish the network.

3G

A 3G connection uses PPP over GPRS/EVDO/CDMA/UMTS.

4G

A 4G connection uses 4G interface over LTE / HSPA+.

Point-to-point Tunnel

A Point-to-Point Tunnel connection uses PPP across a VPN tunnel to establish the network.

IPv6 Tunnel in IPv4

A IPv6 Tunnel in IPv4 connection uses IPv4 to transmit IPv6 traffic.

IPv6 Tunnel to IPv4

A IPv6 Tunnel to IPv4 connection uses IPv4 to transmit IPv6 traffic.

IPv6 rapid deployment

A IPv6 rapid deployment interface for IPv4 infrastructures.

Edit (ade:network:connections:6rd:start)

Dual-Stack Lite

A Dual-Stack Lite connection uses DS-Lite through an Address Family Transition Router to establish the network.

Point-to-Point Protocol over L2TP

A Point-to-Point Protocol over L2TP connection uses PPP and L2TP server to establish the network.

LAN

The default LAN connection is a DHCP v4 connection using a static IPv4 address.

Overview

IPv4

Internet Protocol Version 4 - IPv4 - is the first major version of the Internet Protocol.

Overview

General

The general tab contains status information and settings relating to the protocol.

Physical Settings

The physical settings tab contains settings for hardware management and devices for the connection.

DHCP

The DHCP tab allows you to enable and use a specific DHCP server for the connection.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

General

The general tab contains status information and settings relating to the protocol.

Configuration

Item	Description
Status	Connection status.
Device	Device for the connection.
Protocol	Protocol in use.

Protocol

The protocol section contains detailed settings for the connection.

Item	Description
Protocol	Connection protocol setting.
Interface Type	Downlink / Uplink

IPv4

The IPv4 section contains IP configuration.

Item	Description
IPv4 Address	Device DHCP address
IPv4 Subnet Mask	IPv4 Subnet Mask
IPv4 Broadcast Mask	IPv4 Broadcast Mask

IPv6

The IPv6 section contains IP configuration.

Item	Description	Comment
IPv6 Assignment Length		Number betwen 48 and 64.
IPv6 Assigned Prefix Hint		Hexadecimal number between 1 and FFFF

Physical Settings

The physical settings tab contains settings for hardware management and devices for the connection.

Configuration

Section	Description
Interface type	The connection interface type.
Ethernet Adapter	Selector for to use for the connection.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

Configuration

Item	Description
Bring up on boot	Start the connection when device starts.
Use gateway metric	Gateway metric to use.
Override MAC address	Enforced MAC address to use.
Override MTU	MTU size to use.

Add/Remove custom DNS Servers

These DNS entries will be applied on the interface

You can add as many custom DNS servers as you like, but they must be unique.

Note: These custom DNS entries only affect the interface where they are added.

To add a custom DNS server:

- Click the + **add** button
- Add the IP numbers to the DNS server
- Click **Save**

To remove a custom DNS server:

- Click the − **delete** button next to the item to delete
- Click **Save**

DHCP

The DHCP tab allows you to enable and use a specific DHCP server for the connection.

View

Item	Description
DHCP Server	Turn DHCP Server on or off.
DHCP Pool Start	Start IP number for the DHCP Pool start number IP address
DHCP Pool Size	Number of IP addresses in the DHCP Pool
DHCP Lease Time	DHCP Lease Time for the LAN.

Additional Sections

To view more details for a section, click the **expand** button.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

IPv6

In the **IPv6** section you can configure IPv6 properties for the server.

Static DHCP

The Static DHCP section lets you configure IP address DHCP Leases for connected devices.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

Configuration

Item	Description	
DHCP options	DHCP option ID:s to apply.	
Dynamic DHCP	Dynamically allocate client addresses.	If disabled, only configured static clients are served.
Force	Forces DHCP serving on the specified interface even if	

	another DHCP server is detected on the same network segment.	

Add DHCP Option

To add DHCP option as needed:

- Click the **Add option** button
- Select the **ID** value
- Enter **Option** value
- Click **Apply**

IPv6

In the **IPv6** section you can configure IPv6 properties for the server.

Configuration

Item	Description	Comment
DHCPv6-Service	Type of service.	Server, Relay or Disabled.
Router Advertisement-Service	Type of advertisement service.	Server, Relay or Disabled.
NDP-Proxy	Behavior for Neighbor Discovery Protocol.	Relay or Disabled.

Static DHCP

The Static DHCP section lets you configure IP address DHCP Leases for connected devices.

Configuration

Item	Description	
✎	Add a device to the static DHCP list	
Device Name	Hostname for IPv4	
MAC Address	Client MAC Address.	
IP Address	IP address for IPv4	
DUID	DUID for IPv6	
Host ID	Host ID for IPv6	

Tag	Tag with further DHCP Options as configured in the settings.	

Add Static DHCP Lease

To add a static DHCP lease:

- Add an existing client or create a lease from scratch:
  - To select an existing client:
    - Select the desired client
    - Click the + **add** button
  - To add a static DHCP lease manually:
    - Only click the + **add** button

The information for existing client is added automatically.

- Add or edit the client information as neeed.
- Click **Save**

WAN

The default WAN connection uses an IPv4 address provided by a DHCP server.

Overview

IPv4

Internet Protocol Version 4 - IPv4 - is the first major version of the Internet Protocol.

Overview

General

The general tab contains status information and settings relating to the protocol.

Physical Settings

The physical settings tab contains settings for hardware management and devices for the connection.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

General

The general tab contains status information and settings relating to the protocol.

Configuration

Item	Description
Status	Connection status.
Device	Device for the connection.
Protocol	Protocol in use.
Hostname	Hostname to use for DHCP requests.
Create default route	Automatically generated routing information.

Physical Settings

The physical settings tab contains settings for hardware management and devices for the connection.

Configuration

Section	Description
Interface type	The connection interface type.
Add/Remove Devices	Devices to associate with the connection.
Ethernet Adapter	Selector for to use for the connection.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

Configuration

Item	Description
Bring up on boot	Start the connection when device starts.
Use gateway metric	Gateway metric to use.
Override MAC address	Enforced MAC address to use.

Override MTU	MTU size to use.
Use broadcast flag	Add broadcast flag to traffic.
Use default gateway	Use default route.
Use DNS servers advertised by peer	Use DHCP DNS server.

Add/Remove custom DNS Servers

You can add as many custom DNS servers as you like, but they must be unique.

To add a custom DNS server:

- Click the + **add** button
- Add the IP numbers to the DNS server
- Click **Save**

To remove a custom DNS server:

- Click the − **delete** button next to the item to delete
- Click **Save**

DHCP Options

Item	Description
Additional DHCP options to request from the server	DHCP option ID:s for additional options.
Client ID to send when requesting DHCP	Custom ID to use for DHCP requests.
Vendor Class to send when requesting DHCP	Use for device-specific DHCP options.

WAN6

The default WAN6 connection is a IPv6 address provided by a DHCP server.

Overview

IPv6

Internet Protocol Version 6 - IPv6 - is the the successor to IPv4.

Overview

General

The general tab contains status information and settings relating to the protocol.

Physical Settings

The physical settings tab contains settings for hardware management and devices for the connection.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

General

The general tab contains status information and settings relating to the protocol.

Configuration

Item	Description
Status	Connection status.
Device	Device for the connection.
Protocol	Protocol in use.
Request IPv6 Address	Try / Force / None
Request Prefix Length	48 / 52 / 56 / 60 / 64 / Auto / Disabled

Physical Settings

The physical settings tab contains settings for hardware management and devices for the connection.

Configuration

Section	Description
Interface type	The connection interface type.
Add/Remove Devices	Devices to associate with the connection.
Ethernet Adapter	Selector for to use for the connection.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

Configuration

Item	Description
Bring up on boot	Start the connection when device starts.
Use gateway metric	Gateway metric to use.
Override MAC address	Enforced MAC address to use.
Override MTU	MTU size to use.
Use default gateway	Use default route.
Use DNS servers advertised by peer	Use DHCP DNS server.

Add/Remove custom DNS Servers

You can add as many custom DNS servers as you like, but they must be unique.

To add a custom DNS server:

- Click the + **add** button
- Add the IP numbers to the DNS server
- Click **Save**

To remove a custom DNS server:

- Click the − **delete** button next to the item to delete
- Click **Save**

DHCP Options

Item	Description
Custom delegated IPv6-prefix	Prefix for prefix delegation.
Client ID to send when requesting DHCP	Custom ID to use for DHCP requests.

Unmanaged

An unmanaged connection has no predefined protocol for the connection.

Overview

Unmanaged

The interface protocol type Unmanaged means that the connection has no defined protocol.

Overview

General

The general tab contains status information and settings relating to the protocol.

Physical Settings

The physical settings tab contains settings for hardware management and devices for the connection.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

General

The general tab contains status information and settings relating to the protocol.

Configuration

Item	Description
Status	Connection status.
Device	Device for the connection.
Protocol	Protocol in use.

Physical Settings

The physical settings tab contains settings for hardware management and devices for the connection.

Bridge Devices

The bridge devices section lets you add or remove bridged devices to the connection.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

Configuration

Item	Description
Bring up on boot	Start the connection when device starts.
Use gateway metric	Gateway metric to use.
Override MAC address	Enforced MAC address to use.
Override MTU	MTU size to use.

Static Address

A static address uses a fixed IP address for the connection.

Overview

Static address

A static IP address is an address that doesn't change, unless manually changed by the administrator.

Overview

General

The general tab contains status information and settings relating to the protocol.

Physical Settings

The physical settings tab contains settings for hardware management and devices for the connection.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

DHCP

The DHCP tab allows you to enable and use a specific DHCP server for the connection.

General

The general tab contains status information and settings relating to the protocol.

Configuration

Item	Description
Status	Connection status.
Device	Device for the connection.
Protocol	Protocol in use.

Protocol

The protocol section contains detailed settings for the connection.

Item	Description
Protocol	Connection protocol setting.
Interface Type	Downlink / Uplink

IPv4

The IPv4 section contains IP configuration.

Item	Description
IPv4 Address	Device DHCP address
IPv4 Subnet Mask	IPv4 Subnet Mask
IPv4 Broadcast Mask	IPv4 Broadcast Mask

Add/Remove custom DNS Servers

You can add as many custom DNS servers as you like, but they must be unique.

To add a custom DNS server:

- Click the + **add** button
- Add the IP numbers to the DNS server
- Click **Save**

To remove a custom DNS server:

- Click the − **delete** button next to the item to delete
- Click **Save**

IPv6

The IPv6 section contains IP configuration.

Item	Description	Comment
IPv6 Assignment Length		Number betwen 48 and 64.
IPv6 Assigned Prefix Hint		Hexadecimal number between 1 and FFFF

Physical Settings

The physical settings tab contains settings for hardware management and devices for the connection.

Configuration

Section	Description
Interface type	The connection interface type.
Ethernet Adapter	Selector for to use for the connection.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

Configuration

Item	Description
Bring up on boot	Start the connection when device starts.
Use gateway metric	Gateway metric to use.
Override MAC address	Enforced MAC address to use.
Override MTU	MTU size to use.

DHCP

The DHCP tab allows you to enable and use a specific DHCP server for the connection.

Basic

Item	Description
DHCP Server	Turn DHCP Server on or off.

DHCP Pool Start	Start IP number for the DHCP Pool start number IP address
DHCP Pool Size	Number of IP addresses in the DHCP Pool
DHCP Lease Time	DHCP Lease Time for the LAN.
Static DHCP	Reserve an IP address DHCP Lease for a connected device.

Advanced

IPv6

DHCP v4

An DHCP v4 connection uses an IPv4 address provided by a DHCP server.

Overview

IPv4

Internet Protocol Version 4 - IPv4 - is the first major version of the Internet Protocol.

Overview

General

The general tab contains status information and settings relating to the protocol.

Physical Settings

The physical settings tab contains settings for hardware management and devices for the connection.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

General

The general tab contains status information and settings relating to the protocol.

Configuration

Item	Description
Status	Connection status.
Device	Device for the connection.
Protocol	Protocol in use.
Hostname	Hostname to use for DHCP requests.
Create default route	Automatically generated routing information.

Physical Settings

The physical settings tab contains settings for hardware management and devices for the connection.

Configuration

Section	Description
Interface type	The connection interface type.
Add/Remove Devices	Devices to associate with the connection.
Ethernet Adapter	Selector for to use for the connection.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

Configuration

Item	Description
Bring up on boot	Start the connection when device starts.
Use gateway metric	Gateway metric to use.
Override MAC address	Enforced MAC address to use.
Override MTU	MTU size to use.
Use broadcast flag	Add broadcast flag to traffic.
Use default gateway	Use default route.
Use DNS servers advertised by peer	Use DHCP DNS server.

Add/Remove custom DNS Servers

You can add as many custom DNS servers as you like, but they must be unique.

To add a custom DNS server:

- Click the + **add** button
- Add the IP numbers to the DNS server
- Click **Save**

To remove a custom DNS server:

- Click the − **delete** button next to the item to delete
- Click **Save**

DHCP Options

Item	Description
Additional DHCP options to request from the server	DHCP option ID:s for additional options.
Client ID to send when requesting DHCP	Custom ID to use for DHCP requests.
Vendor Class to send when requesting DHCP	Use for device-specific DHCP options.

DHCP v6

An DHCP v6 connection uses an IPv6 address provided by a DHCP server.

Overview

IPv6

Internet Protocol Version 6 - IPv6 - is the the successor to IPv4.

Overview

General

The general tab contains status information and settings relating to the protocol.

Physical Settings

The physical settings tab contains settings for hardware management and devices for the connection.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

General

The general tab contains status information and settings relating to the protocol.

Configuration

Item	Description
Status	Connection status.
Device	Device for the connection.
Protocol	Protocol in use.
Request IPv6 Address	Try / Force / None
Request Prefix Length	48 / 52 / 56 / 60 / 64 / Auto / Disabled

Physical Settings

The physical settings tab contains settings for hardware management and devices for the connection.

Configuration

Section	Description
Interface type	The connection interface type.
Add/Remove Devices	Devices to associate with the connection.
Ethernet Adapter	Selector for to use for the connection.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

Configuration

Item	Description
Bring up on boot	Start the connection when device starts.
Use gateway metric	Gateway metric to use.
Override MAC address	Enforced MAC address to use.

Override MTU	MTU size to use.
Use default gateway	Use default route.
Use DNS servers advertised by peer	Use DHCP DNS server.

Add/Remove custom DNS Servers

You can add as many custom DNS servers as you like, but they must be unique.

To add a custom DNS server:

- Click the + **add** button
- Add the IP numbers to the DNS server
- Click **Save**

To remove a custom DNS server:

- Click the − **delete** button next to the item to delete
- Click **Save**

DHCP Options

Item	Description
Custom delegated IPv6-prefix	Prefix for prefix delegation.
Client ID to send when requesting DHCP	Custom ID to use for DHCP requests.

Point-to-Point Protocol

A Point-to-Point Protocol connection uses PPP to establish the network.

Overview

PPP

Point-to-Point Protocol (PPP) is a protocol for providing a direct data link connection with authentication, encryption and compression.

Overview

General

The general tab contains status information and settings relating to the protocol.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

General

The general tab contains status information and settings relating to the protocol.

Configuration

Item	Description
Status	Connection status.
Device	Device for the connection.
Protocol	Protocol in use.
Hostname	Hostname to use for DHCP requests.
Create default route	Automatically generated routing information.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

Configuration

Item	Description
Bring up on boot	Start the connection when device starts.
Use gateway metric	Gateway metric to use.
Override MAC address	Enforced MAC address to use.
Override MTU	MTU size to use.
Enable IPv6 on the PPP link	Enables IPv6 connection from the provider.
Use default gateway	Use default route.
Use DNS servers advertised by peer	Use DHCP DNS server.

Add/Remove custom DNS Servers

You can add as many custom DNS servers as you like, but they must be unique.

To add a custom DNS server:

- Click the + **add** button
- Add the IP numbers to the DNS server

- Click **Save**

To remove a custom DNS server:

- Click the − **delete** button next to the item to delete
- Click **Save**

LCP Options

The LCP options section contains LCP configuration.

Item	Description	Comment
LCP echo failure threshold	Number of echo failures before peer is considered dead.	Use 0 to ignore failures.
LCP echo interval	How often to send echo-requests.	Used together with failure threshold.
Inactivity timeout	Time until inactive connection is closed.	Use 0 to persist connection.

Point-to-Point Protocol over Ethernet

A Point-to-Point Protocol over Ethernet connection uses PPPoE to establish the network.

Overview

PPPoE

PPP over Ethernet (PPPoE) is a protocol using PPP to provide an DSL Internet connection over Ethernet, by putting PPP frames inside Ethernet frames.

Overview

General

The general tab contains status information and settings relating to the protocol.

Physical Settings

The physical settings tab contains settings for hardware management and devices for the connection.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

General

The general tab contains status information and settings relating to the protocol.

Configuration

Item	Description
Status	Connection status.
Device	Device for the connection.
Protocol	Protocol in use.
PAP/CHAP Username	For authentication with PAP or CHAP.
PAP/CHAP Password	For authentication with PAP or CHAP.

Physical Settings

The physical settings tab contains settings for hardware management and devices for the connection.

Configuration

Section	Description
Ethernet Adapter	Selector for to use for the connection.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

Configuration

Item	Description
Bring up on boot	Start the connection when device starts.
Use gateway metric	Gateway metric to use.
Override MAC address	Enforced MAC address to use.
Override MTU	MTU size to use.
Enable IPv6 on the PPP link	Enables IPv6 connection from the provider.

Use default gateway	Use default route.
Use DNS servers advertised by peer	Use DHCP DNS server.

Add/Remove custom DNS Servers

You can add as many custom DNS servers as you like, but they must be unique.

To add a custom DNS server:

- Click the + **add** button
- Add the IP numbers to the DNS server
- Click **Save**

To remove a custom DNS server:

- Click the − **delete** button next to the item to delete
- Click **Save**

LCP Options

The LCP options section contains LCP configuration.

Item	Description	Comment
LCP echo failure threshold	Number of echo failures before peer is considered dead.	Use 0 to ignore failures.
LCP echo interval	How often to send echo-requests.	Used together with failure threshold.
Inactivity timeout	Time until inactive connection is closed.	Use 0 to persist connection.

Point-to-Point Protocol over ATM

A Point-to-Point Protocol over ATM connection uses PPPoA to establish the network.

Overview

PPPoA

PPP over ATM (PPPoA) is a protocol using PPP to provide an DSL Internet connection over ATM.

Overview

General

The general tab contains status information and settings relating to the protocol.

Physical Settings

The physical settings tab contains settings for hardware management and devices for the connection.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

General

The general tab contains status information and settings relating to the protocol.

Configuration

Item	Description
Status	Connection status.
Device	Device for the connection.
Protocol	Protocol in use.
Hostname	Hostname to use for DHCP requests.
Create default route	Automatically generated routing information.

Physical Settings

The physical settings tab contains settings for hardware management and devices for the connection.

Configuration

Section	Description
Ethernet Adapter	Selector for to use for the connection.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

Configuration

Item	Description
Bring up on boot	Start the connection when device starts.
Use gateway metric	Gateway metric to use.
Override MAC address	Enforced MAC address to use.
Override MTU	MTU size to use.
Enable IPv6 on the PPP link	Enables IPv6 connection from the provider.
Use default gateway	Use default route.
Use DNS servers advertised by peer	Use DHCP DNS server.

Add/Remove custom DNS Servers

You can add as many custom DNS servers as you like, but they must be unique.

To add a custom DNS server:

- Click the + **add** button
- Add the IP numbers to the DNS server
- Click **Save**

To remove a custom DNS server:

- Click the − **delete** button next to the item to delete
- Click **Save**

LCP Options

The LCP options section contains LCP configuration.

Item	Description	Comment
LCP echo failure threshold	Number of echo failures before peer is considered dead.	Use 0 to ignore failures.
LCP echo interval	How often to send echo-requests.	Used together with failure threshold.
Inactivity timeout	Time until inactive connection is closed.	Use 0 to persist connection.

3G

A 3G connection uses PPP over GPRS/EVDO/CDMA/UMTS.

Overview

3G

Third-generation wireless telephone technology (3G), is a cellular network for digital mobile data communication for broadband traffic.

Overview

General

The general tab contains status information and settings relating to the protocol.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

General

The general tab contains status information and settings relating to the protocol.

Configuration

Item	Description
Status	Connection status.
Device	Device for the connection.
Protocol	Protocol in use.
Modem device	Modem to use for 3G traffic.
Service Type	Both UMTS and GPRS / Only UMTS / Only GPRS.
APN	Access Point Name.
PIN-Code	PIN code for identification.
PAP/CHAP Username	For authentication with PAP or CHAP.
PAP/CHAP Password	For authentication with PAP or CHAP.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

Configuration

Item	Description
Bring up on boot	Start the connection when device starts.
Use gateway metric	Gateway metric to use.
Override MAC address	Enforced MAC address to use.
Override MTU	MTU size to use.
Enable IPv6 on the PPP link	Enables IPv6 connection from the provider.
Use default gateway	Use default route.
Modem Init timeout	Use DHCP DNS server.
Use DNS servers advertised by peer	Use DHCP DNS server.

Add/Remove custom DNS Servers

You can add as many custom DNS servers as you like, but they must be unique.

To add a custom DNS server:

- Click the + **add** button
- Add the IP numbers to the DNS server
- Click **Save**

To remove a custom DNS server:

- Click the − **delete** button next to the item to delete
- Click **Save**

LCP Options

The LCP options section contains LCP configuration.

Item	Description	Comment
LCP echo failure threshold	Number of echo failures before peer is considered dead.	Use 0 to ignore failures.
LCP echo interval	How often to send echo-requests.	Used together with failure threshold.
Inactivity timeout	Time until inactive	Use 0 to persist connection.

	connection is closed.	

WWAN (LTE/HSPA+)

The WWAN connection uses LTE / HSPA+.

Overview

WWAN

A Wireless Wide Area Network (WWAN), is a wireless network that extends over a large geographical distance.

LTE

Long-Term Evolution (LTE) is a standard for high-speed wireless communication for mobile phones and data terminals, based on GSM and UMTS.

HSPA / HSPA+

High Speed Packet Access (HSPA) is an extension of 3G mobile networks utilizing WCDMA.

Evolved High Speed Packet Access (HSPA+) is a furhter improvement on HSPA allowing for higher speeds.

Overview

General

The general tab contains status information and settings relating to the protocol.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

General

The general tab contains status information and settings relating to the protocol.

Status

Item	Description
Status	Connection status.

Device	Device in use.
Protocol	Protocol in use.

Configuration

Item	Description
Protocol	Protocol in use.
Modem device	Modem to use for WWAN traffic.
APN	Access Point Name.
PIN-Code	PIN code for identification.
Authentication type	PAP / CHAP / Both / None .
Username	For authentication with PAP or CHAP.
Password	For authentication with PAP or CHAP.
Modes	Comma-separated list of allowed network modes (**all** / lte / umts / gsm / cdma / td-scdma).
Delay	Seconds to wait before trying to interact with the modem.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

Configuration

Item	Description
Bring up on boot	Start the connection when device starts.
Use gateway metric	Gateway metric to use.
Override MAC address	Enforced MAC address to use.
Override MTU	MTU size to use.

4G

A 4G connection uses 4G interface over LTE / HSPA+.

Overview

4G

Fourth-generation wireless telephone technology (4G), is a cellular network for digital mobile data communication for high-speed broadband.

Overview

General

The general tab contains status information and settings relating to the protocol.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

General

The general tab contains status information and settings relating to the protocol.

Configuration

Item	Description
Status	Connection status.
Device	Device for the connection.
Protocol	Protocol in use.
Modem device	Modem to use for 4G traffic.
APN	Access Point Name.
PIN-Code	PIN code for identification.
PAP/CHAP Username	For authentication with PAP or CHAP.
PAP/CHAP Password	For authentication with PAP or CHAP.
Hostname to send when requesting DHCP	Hostname to include in DHCP requests.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

Configuration

Item	Description
Bring up on boot	Start the connection when device starts.
Use gateway metric	Gateway metric to use.
Override MAC address	Enforced MAC address to use.
Override MTU	MTU size to use.
Use broadcast flag	Add broadcast flag to traffic.
Use default gateway	Use default route.
Use DNS servers advertised by peer	Use DHCP DNS server.

Add/Remove custom DNS Servers

You can add as many custom DNS servers as you like, but they must be unique.

To add a custom DNS server:

- Click the + **add** button
- Add the IP numbers to the DNS server
- Click **Save**

To remove a custom DNS server:

- Click the − **delete** button next to the item to delete
- Click **Save**

DHCP Options

Item	Description	Comment
Client ID to send when requesting DHCP	Custom ID to use for DHCP requests.	
Vendor Class to send when requesting DHCP	Use for device-specific DHCP options.	

Point-to-point Tunnel

A Point-to-Point Tunnel connection uses PPP across a VPN tunnel to establish the network.

Overview

Point-to-Point Tunneling Protocol

Point-to-Point Tunneling Protocol (PTPT) is a technology for virtual private networks through TCP and a GRE with PPP packets.

Overview

General

The general tab contains status information and settings relating to the protocol.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

General

The general tab contains status information and settings relating to the protocol.

Configuration

Item	Description
Status	Connection status.
Device	Device for the connection.
Protocol	Protocol in use.
VPN Server	Virtual Private Network server.
PAP/CHAP Username	For authentication with PAP or CHAP.
PAP/CHAP Password	For authentication with PAP or CHAP.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

Configuration

Item	Description
Bring up on boot	Start the connection when device starts.
Use gateway metric	Gateway metric to use.

Override MAC address	Enforced MAC address to use.
Override MTU	MTU size to use.
Enable IPv6 on the PPP link	Enables IPv6 connection from the provider.
Use default gateway	Use default route.
Use DNS servers advertised by peer	Use DHCP DNS server.

Add/Remove custom DNS Servers

You can add as many custom DNS servers as you like, but they must be unique.

To add a custom DNS server:

- Click the + **add** button
- Add the IP numbers to the DNS server
- Click **Save**

To remove a custom DNS server:

- Click the − **delete** button next to the item to delete
- Click **Save**

LCP Options

The LCP options section contains LCP configuration.

Item	Description	Comment
LCP echo failure threshold	Number of echo failures before peer is considered dead.	Use 0 to ignore failures.
LCP echo interval	How often to send echo-requests.	Used together with failure threshold.
Inactivity timeout	Time until inactive connection is closed.	Use 0 to persist connection.

IPv6 Tunnel in IPv4

A IPv6 Tunnel in IPv4 connection uses IPv4 to transmit IPv6 traffic.

Overview

6in4

6in4 is a method to transmit IPv6 traffic over explicit IPv4 connections.

The traffic is sent over the IPv4 Internet inside IPv4 packets whose IP headers have the IP protocol number set to 41.

Overview

General

The general tab contains status information and settings relating to the protocol.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

General

The general tab contains status information and settings relating to the protocol.

Configuration

Item	Description
Status	Connection status.
Device	Device for the connection.
Protocol	Protocol in use.
Local IPv4 address	IPv4 address to use instead of WAN address.
Remote IPv4 address	Address to use tunnel broker Point of Presence
Local IPv6 address	Endpoint provided by the tunnel broker.
IPv6 routed prefix	Prefix to be used by clients.
Dynamic tunnel	Dynamic update of endpoint.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

Configuration

Item	Description
Bring up on boot	Start the connection when device starts.
Use gateway metric	Gateway metric to use.

Override MAC address	Enforced MAC address to use.
Override MTU	MTU size to use.
Use default gateway	Use default route.
Use TTL on tunnnel interface	Data Time To Live.

IPv6 Tunnel to IPv4

A IPv6 Tunnel to IPv4 connection uses IPv4 to transmit IPv6 traffic.

Overview

6to4

6to4 is a method to transmit IPv6 traffic over IPv4 networks without having to configure explicit tunnels.

Overview

General

The general tab contains status information and settings relating to the protocol.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

General

The general tab contains status information and settings relating to the protocol.

Configuration

Item	Description
Status	Connection status.
Device	Device for the connection.
Protocol	Protocol in use.
Local IPv4 address	IPv4 address to use instead of WAN address.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

Configuration

Item	Description
Bring up on boot	Start the connection when device starts.
Use gateway metric	Gateway metric to use.
Override MAC address	Enforced MAC address to use.
Override MTU	MTU size to use.
Use default gateway	Use default route.
Use TTL on tunnnel interface	Data Time To Live.

IPv6 rapid deployment

A IPv6 rapid deployment interface for IPv4 infrastructures.

Edit (ade:network:connections:6rd:start)

Overview

6rd

6rd is a method for IPv6 rapid deployment on Internet Service Provider IPv4 infrastructures, operating within the ISP's network.

Overview

General

The general tab contains status information and settings relating to the protocol.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

General

The general tab contains status information and settings relating to the protocol.

Configuration

Item	Description
Status	Connection status.
Device	Device for the connection.
Protocol	Protocol in use.
Local IPv4 address	IPv4 address to use instead of WAN address.
Remote IPv4 address	Address to the relay.
IPv6 prefix	Prefix assigned to provider.
IPv6 prefix length	no or 48 to 64
IPv4 prefix length	Up to 43 bits.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

Configuration

Item	Description
Bring up on boot	Start the connection when device starts.
Use gateway metric	Gateway metric to use.
Override MAC address	Enforced MAC address to use.
Override MTU	MTU size to use.
Use default gateway	Use default route.
Use TTL on tunnnel interface	Data Time To Live.

Dual-Stack Lite

A Dual-Stack Lite connection uses DS-Lite through an Address Family Transition Router to establish the network.

Overview

DS-Lite

Dual-Stack Lite (DS-Lite) is a method for sharing of IPv4 addresses by combining IPv4-in-IPv6 and NAT.

Overview

General

The general tab contains status information and settings relating to the protocol.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

General

The general tab contains status information and settings relating to the protocol.

Configuration

Item	Description
Status	Connection status.
Device	Device for the connection.
Protocol	Protocol in use.
DS-Lite AFTR address	Address to Address Family Transition Router.
Local IPv6 address	IPv6 address to use instead of WAN address.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

Configuration

Item	Description
Bring up on boot	Start the connection when device starts.
Use gateway metric	Gateway metric to use.
Override MAC address	Enforced MAC address to use.
Override MTU	MTU size to use.
Tunnel Link	Connection to use as tunnel link.
Use TTL on tunnnel interface	Data Time To Live.

Point-to-Point Protocol over L2TP

A Point-to-Point Protocol over L2TP connection uses PPP and L2TP server to establish the network.

Overview

PPP

Point-to-Point Protocol (PPP) is a protocol for providing a direct data link connection with authentication, encryption and compression.

L2TP

Layer 2 Tunneling Protocol (L2TP) is a protocol used to support VPNs, where security is provided in the transmitted packages rather than in the tunneling.

Overview

General

The general tab contains status information and settings relating to the protocol.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

General

The general tab contains status information and settings relating to the protocol.

Configuration

Item	Description
Status	Connection status.
Device	Device for the connection.
Protocol	Protocol in use.
L2TP Server	Address to Layer 2 Tunneling Protoco server.
PAP/CHAP Username	For authentication with PAP or CHAP.
PAP/CHAP Password	For authentication with PAP or CHAP.

Advanced

The advanced tab contains settings for management of advanced features for the connection.

Configuration

Item	Description
Bring up on boot	Start the connection when device starts.
Use gateway metric	Gateway metric to use.
Override MAC address	Enforced MAC address to use.
Override MTU	MTU size to use.
Enable IPv6 on the PPP link	Enables IPv6 connection from the provider.
Use default gateway	Use default route.
Use DNS servers advertised by peer	Use DHCP DNS server.

Add/Remove custom DNS Servers

You can add as many custom DNS servers as you like, but they must be unique.

To add a custom DNS server:

- Click the + **add** button
- Add the IP numbers to the DNS server
- Click **Save**

To remove a custom DNS server:

- Click the − **delete** button next to the item to delete
- Click **Save**

Routes

Static routes are useful if you have several networks accessible from your router and you want to correctly route packets between them.

Overview

IPv4 Routes

The IPv4 section lets you add static routes for IPv4 .

IPv6 Routes

The IPv6 section lets you add static routes for IPv6 .

Add Static Route

To add a static route:

- Click the **add** button
- Enter information for the route fields.
- Click **Apply**

IPv4 Routes

The IPv4 section lets you add static routes for IPv4 .

Configuration

Item	Description	
Interface	Affected for the route.	
Target	Destination IP address.	
Netmask	Applicable netmask.	
Gateway	IP address to the internet gateway.	
Metric	Route metric.	
MTU	MTU size to use.	
Delete	Remove route.	

IPv6 Routes

The IPv6 section lets you add static routes for IPv6 .

Configuration

Item	Description	
Interface	Affected for the route.	
Target	Destination IP address.	
Gateway	IP address to the internet gateway.	
Metric	Route metric.	
MTU	MTU size to use.	

Delete	Remove route.	

Firewall

The firewall lets you filter traffic, set up port forwarding or expose particular services to the outside world.

Overview

General Settings

The **general settings** view allows you to turn the firewall on or off.

Zones

The **Zones** view lets you can configure firewall zones to group your firewall rules.

Rules

Firewall rules are more fine grained filtering rules for filtering your traffic.

Forwarding

Port Forwarding allows remote computers to connect to a specific device within your private network.

DMZ / Exposed Host

A local network device can be made an *Exposed Host*. It is placed in the DMZ outside of the firewall, which provides unrestricted Internet access to the network device.

General Settings

The **general settings** view allows you to turn the firewall on or off.

Firewall Settings

To enable the firewall:

- Click **Enable Firewall**

Zones

The **Zones** view lets you can configure firewall zones to group your firewall rules.

At the top of the page is a list of selectable zones.

By default this list contains the LAN and WAN zones, which contain default settings for local and Internet traffic.

When a particular interface is selected, details about it is shown in the configuration section.

Zone configuration

Item	Description
Name	Identifier for the zone.
Default policy	Default behavior for various traffic.
Masquerading	Enable firewall masquerading.
MSS Clamping	MSS Clamping limit.
Allow forward to destination zones	Check zones to permit forwarding.
Allow forward from source zones	Check zones to permit forwarding.
Zone members	Interfaces that are part of the zone.

Default Policy

The default policy setting defines firewall rules that apply unless specific rules override them.

Item	Description
Input	Incoming traffic from WAN.
Output	Outgoing traffic to WAN.
Forward	Traffic from LAN to WAN.

The different default policy values determine the firewall behavior, through the firewall actions:

Firewall Action

The firewall action defines how traffic is handled by the firewall.

Item	Description
ACCEPT	Allow the traffic.
REJECT	Refuse the traffic.
DROP	Ignore the traffic.
FORWARD	Pass the traffic along.

Add Firewall Zone

To add a firewall zone:

- Click the **Add** button
- Enter information in the fields
- Click **Apply**

Once the zone has been created, you can use it with your .

Add Zone Members

If you have networks/devices set up, you can add them to the zone.

To add a device as a zone member:

- Click the **Add** button

The **Select network device** dialog opens.

- Open the **select network** menu
- Select the device
- Click **OK**
- Click **Apply**

Rules

Firewall rules are more fine grained filtering rules for filtering your traffic.

View

The page shows the configured rules. Each rule can be modified by clicking the **Edit** button.

Once you have chosen to edit one rule, the edit view is shown consistently, and you can quickly switch between configured rules by selecting them in the list.

Configuration

When a particular interface is selected, details about it is shown in the configuration section.

General

Item	Description	Comment
Enabled	Turn firewall rule on or off.	
Expose To	Users with access to the	

	rule.	
Name	Identifier for the rule.	

Source / Destination

Where applicable, the configuration is divided into separate sections for **source** and **destination** zones.

Item	Description	Comment
Zone	Device / Any / LAN / WAN	
IP	IPv4 / IPv6 address.	
MAC	MAC address.	
Port	Port affected.	

Parameters

Item	Description	Comment
IP version	Any / IPv4 / IPv6	
Protocol	Protocol affected: (UDP / TCP / ICMP / TCP + UDP / ESP)	
Firewall action	to perform.	

Add Firewall Rule

- Click the **Add** button

A new rule named new_rule is added at the bottom of the list.

- Click the **Edit** button for the new rule
- Enter properties as needed.
- Click **OK**
- Click **Apply**

Reorder Firewall Rules

The firewall rules are applied in order from top to bottom in the list.

You can rearrange the rules by using the buttons:

▲	Move up	
▼	Move down	

Default Firewall Rules

A number of sample firewall rules are enabled by default, providing a basic set of filtering for the network.

Rule	Purpose
Allow-Ping	Permit ping from WAN to device.
Allow-DHCP-Renew	Permit traffic from WAN to any zone.
Allow-IGMP	Permit IGMP traffic from WAN to IPv4 devices.
Allow-DHCPv6	Permit IPV6 traffic from WAN to IPV6 device.
Allow-MLD	Permit MLD traffic over ICMP from WAN to IPV6 devices.
Allow-ICMPv6-Input	Permit ICMP traffic from WAN to IPV6 devices.
Allow-ICMPv6-Forward	Permit ICMP traffic from WAN to any zone.
Allow-IPsec/ESP	Permit IPsec over ESP traffic from WAN to LAN.
Allow-ISAKMP-Passthrough	Permit ISAKMP over UDP traffic from WAN to LAN.

Forwarding

Port Forwarding allows remote computers to connect to a specific device within your private network.

Configuration

The forwarding list shows information about any configured port forwarding rules.

Item	Comment
Name	Identifier for the mapping.
Direction	zone involved
Dst. IP Address	Client IP address.
Protocol	Mapping protocol (UDP / TCP / TCP + UDP).
Public port(s)	Public (external) port.
Private port(s)	Private (client) port.

Overview

Add or Edit Port Mapping

The **Add or Edit Port Mapping** view allows you to add or change port mapping settings.

Add or Edit Port Mapping

The **Add or Edit Port Mapping** view allows you to add or change port mapping settings.

Configuration

Item	Description	Comment
Rule Name	Rule name.	
Source Zone	Incoming zone.	
Destination Zone	Destination zone.	
Source IP Address	Source IP address (for filtering).	
Dst. Device	Client hostname.	
Dst. IP Address	Client IP address.	
Protocol	Mapping protocol	(UDP / TCP / TCP + UDP).
Public port(s)	Public (external) port.	
Private port(s)	Private (client) port.	
NAT Loopback	Enable NAT Loopback	

Protocol

The protocol setting filters traffic by protocol for the port forward.

Protocol	Description
TCP + UDP	Both TCP and UDP.
TCP	TCP only.
UDP	UDP only.

Port Mapping Settings

To map incoming connections:

- Click the + **add** button to open the settings

The port mapping dialog lets you add configuration settings for the mapping.

Ports can be added one by one (80) or as ranges (21:22).

- Add information:
  - Add a name as identification
  - Add ports:
    - Add public/incoming port(s)
    - Add private/client port(s)
  - Select protocol
- Click **Save**
- Click **Close**

Your information is saved and is visible in the mapping list.

DMZ / Exposed Host

A local network device can be made an *Exposed Host*. It is placed in the DMZ outside of the firewall, which provides unrestricted Internet access to the network device.

Configuration

WAN IP Address	Public IPv4 and IPv6 address for the DMZ.
Host IPv4 Address	IPv4 of device to place in DMZ.
Host IPv6 Address	IPv6 of device to place in DMZ.
Select Existing Host	Dropmenu to select connected devices.

Add Exposed Host

To allow DMZ/exposed host:

- Click **Enable** to enable an exposed host
- Enter the local IP address to expose
- Alternatively, click **select existing host**

Note: You should also configure the DMZ IP address as static DHCP address for your device.

Parental Control

Parental control is used to restrict access to the network for particular devices.

Internet Access Scheduling

Parental control is handled by setting schedules where access is restricted to explicitly named MAC addresses.

Item	Description
Weekdays	List of days the filter applies.
Start Time	Time of day to start filtering.
Stop Time	Time of day to stop filtering.
Host Names	List of devices / MAC addresses.

Overview

Add / Edit MAC Filter Scheduling

The **Add / Edit MAC Filter Scheduling** view allows you to add or change parental control rules.

Add / Edit MAC Filter Scheduling

The **Add / Edit MAC Filter Scheduling** view allows you to add or change parental control rules.

Configuration

Item	Comment	Comment
Time Frame	Quick select for time predefined time periods.	Individual Days/Every Day/Every Workday/All Weekend

Item	Description
Weekdays	List of days the filter applies.
Start Time	Time of day to start filtering.
Stop Time	Time of day to stop filtering.
Mac List	Dropdown to select list of devices / MAC addresses to include in the rule.

Start and Stop Times

The start time for a rule has to be lower than the end time.

If you want to have a rule that goes over midnight, you need to add two rules, one up until midnight, and one from midnight to when you want the rule to end.

For example:

Rule one: **From** 21:00 **To** 23:59 Rule two: **From** 00:00 **To** 06:00

A single rule of **From** 21:00 **To** 06:00 will **not** be saved.

Quality Of Service

The **Quality Of Service** view allows you to configure parameters for Quality of Service through applying groups of classes to interfaces.

Interface views

Interface

The **interface** tab lets you select interfaces and configure Quality of Service profiles for them.

Class

The **class** tab lets you manage QoS .

Classification Group

The **Classification Group** tab lets you manage groupings of QoS classes.

classgroup blocks are used to define different class groupings. This is only really useful if you wish to have multiple interfaces with different class considerations, for example, you might want eth1 to have an ultrapriority class or something.

This is useful when you have multiple interfaces and want to manage classes differently for them.

Classify

The **classify** tab lets you configure filtering parameters in order to define types of traffic to include in which Class.

Classification assigns a to traffic in a connection, but only affect connections which have not been assigned a traffic class already.

Reclassify

The **Reclassify** tab lets you configure filtering parameters in order to redefine types of traffic to include in which Class.

Reclassification can override the on a per packet basis without altering the defined .

Workflow

Workflow

In order to use Quality of Service on the traffic for your device, you need to perform a number of configurations.

1: Class

The classes define how network traffic is to be prioritized and allocated.

There are a number of predefined classes, but you can add your own.

2: Classify/Reclassify

In order to direct traffic to the correct classes, you need to define classificaton rules in the **Classify** tab.

Since the classification only affects connections that haven't already been classified you may also need to apply filters in the **Reclassify** tab.

3: Class Group

With the classes defined, you can add and order them in a class group in the **Class Group** tab.

If you have multiple interfaces, and want different QoS settings for them, you can create multiple class groups.

4: Enable

As a final step, you enable QoS for the desired interface in the **Interface** tab.

Workflow

In order to use Quality of Service on the traffic for your device, you need to perform a number of configurations.

Process

Configuration steps

The order of operations involved in configuring QoS is different from the order in which the interface displays the setting tabs. Not all settings are needed in all cases.

1: Class

The classes define how network traffic is to be prioritized and allocated.

There are a number of predefined classes, but you can add your own.

2: Classify/Reclassify

In order to direct traffic to the correct classes, you need to define classificaton rules in the **Classify** tab.

Since the classification only affects connections that haven't already been classified you may also need to apply filters in the **Reclassify** tab.

3: Class Group

With the classes defined, you can add and order them in a class group in the **Class Group** tab.

If you have multiple interfaces, and want different QoS settings for them, you can create multiple class groups.

4: Enable

As a final step, you enable QoS for the desired interface in the **Interface** tab.

1: Class

The classes define how network traffic is to be prioritized and allocated.

There are a number of predefined classes, but you can add your own.

Predefined Classes

Class

There are a number of predefined classes QoS classes. Each class is a set of definitions for a token bucket.

Default Settings

The predefined classes can be edited and all values changed, but they have default settings that should be suitable in normal cases.

Priority

The priority class is an upstream class for high priority traffic such as handshaking and ICMP packets.

Item	Description	Default Value
Priority	Bandwidth allocation limit (%).	20
Average Rate	Average target rate (%).	10
Limit Rate	Maximum allowed bandwidth (%).	100
Packet Size	Size of packets (bytes).	400
Packet Delay	Target delay for packets (ms).	0
Max Size	Maximum size of packets (bytes).	1000

Priority_down

The Priority_down class is an downstream class for high priority traffic.

Item	Description	Default Value
Priority	Bandwidth allocation limit (%).	1
Average Rate	Average target rate (%).	10
Limit Rate	Maximum allowed bandwidth (%).	100
Packet Size	Size of packets (bytes).	1000
Packet Delay	Target delay for packets (ms).	0
Max Size	Maximum size of packets (bytes).	1000

Express

The Express class is for interactive applications that require bandwidth above standard services so that interactive apps run smoothly.

Item	Description	Default Value
Priority	Bandwidth allocation limit (%).	10
Average Rate	Average target rate (%).	50
Limit Rate	Maximum allowed bandwidth (%).	100
Packet Size	Size of packets (bytes).	1000
Packet Delay	Target delay for packets (ms).	0
Max Size	Maximum size of packets (bytes).	1000

Normal

The Normal Class is the standard upstream class for all services.

This class will apply to all services not otherwise defined.

Item	Description	Default Value
Priority	Bandwidth allocation limit (%).	5
Average Rate	Average target rate (%).	10
Limit Rate	Maximum allowed bandwidth (%).	100
Packet Size	Size of packets (bytes).	1500

Packet Delay	Target delay for packets (ms).	100
Max Size	Maximum size of packets (bytes).	1000

Normal_down

The Normal_down class is the standard downstream class for all services.

This class will apply to all services not otherwise defined.

Item	Description	Default Value
Priority	Bandwidth allocation limit (%).	1
Average Rate	Average target rate (%).	20
Limit Rate	Maximum allowed bandwidth (%).	100
Packet Size	Size of packets (bytes).	1500
Packet Delay	Target delay for packets (ms).	0
Max Size	Maximum size of packets (bytes).	1000

Bulk

The bulk class is suitable for very low priority traffic. It will be allocated available bandwidth if other classes are idle. When other classes are active, it will be allocated bandwidth according to the priority setting.

It is suitable for transfer services such as (P2P and FTP).

Item	Description	Default Value
Priority	Bandwidth allocation limit (%).	1
Average Rate	Average target rate (%).	1
Limit Rate	Maximum allowed bandwidth (%).	100
Packet Size	Size of packets (bytes).	1500
Packet Delay	Target delay for packets (ms).	200
Max Size	Maximum size of packets (bytes).	1000

Tab

Class

The **class** tab lets you manage QoS .

Overview

At the top of the page is a list of selectable classes.

When a particular class is selected, details about it is shown in the configuration section.

Item	Description	Comment
Priority	Bandwidth allocation limit (%).	
Average Rate	Average target rate (%).	
Limit Rate	Maximum allowed bandwidth (%).	
Packet Size	Size of packets (bytes).	See note.
Packet Delay	Target delay for packets (ms).	See note.
Max Size	Maximum size of packets (bytes).	

Note: Packet Size and Packet Delay rely on the Average Rate setting. The average rate is impacted by the maximum packet delay and the transfer time for the packet size. Generally the delay is lower for smaller packet sizes.

Configuration Values

Priority

The **Priority** indicates the bandwidth allocation limit as a percentage of total available bandwidth.

ls m2 = priority / sum (priority) * max_bandwidth

Limit Rate

The **Limit Rate** provides a maximum allowed bandwidth, expressed as a percentage of the total available bandwidth.

ul rate = limitrate * max_bandwidth / 100

Average Rate

The **Average target rate** is a percentage of the total available bandwidth.

Average rate for this class, value in % of bandwidth (this value uses for calculate vaues

'Nx' of 'tc ... hfsc rt m1 N1 d N2 m2 N3'

Note: Packet Size and Packet Delay rely on the Average Rate setting. The average rate is impacted by the maximum packet delay and the transfer time for the packet size. Generally the delay is lower for smaller packet sizes.

Packet Size

Size of packets (bytes).

packetsize & packetdelay: (only works if avgrate is present)

rt d = max(packetdelay, 'time required for packetsize to transfer')
ls d = rt d

Packet Delay

Target delay for packets (ms).

Max Size

The **maximum size of packets** indicates the maximum packet size in iptables.

2: Classify/Reclassify

In order to direct traffic to the correct classes, you need to define classificaton rules in the **Classify** tab.

Since the classification only affects connections that haven't already been classified you may also need to apply filters in the **Reclassify** tab.

Tabs

Classify

The **classify** tab lets you configure filtering parameters in order to define types of traffic to include in which Class.

Classification assigns a to traffic in a connection, but only affect connections which have not been assigned a traffic class already.

Overview

At the top of the page is a list of selectable classification groups.

When a particular group is selected, details about it is shown in the configuration section.

Adding a parameter will filter out traffic according to the parameters and assign it to the group.

Item	Description	Comment	
Target	Classification Group to assign.	As configured in settings	
Protocol	Protocol affected.	All / UDP / TCP / ICMP	
Source Host	Originating host(s) to affect.	All / Specific host	
Destination Host	Receiving host(s) to affect.	All / Specific host	
Ports	Settings for **ports filtering**.	Port/Source/Destination/Port range	
Direction	Direction of traffic to be affected by the classificaton.	Both/In/Out	
Connbytes	Connection Bytes for when to start filtering.		

Ports Filtering

Item	Description	Comment
Ports	List of ports anywhere (source and destination).	
Source	Included ports in source.	
Destination	Included ports in destination.	
Port Range	Range of ports anywhere (source and destination).	

Reclassify

The **Reclassify** tab lets you configure filtering parameters in order to redefine types of traffic to include in which Class.

Reclassification can override the on a per packet basis without altering the defined .

Overview

At the top of the page is a list of selectable classification groups.

When a particular group is selected, details about it is shown in the configuration section.

Adding a parameter will filter out traffic according to the parameters and assign it to the group.

Item	Description	Comment	
Target	Classification Group to assign.	As configured in settings	
Protocol	Protocol affected.	All / UDP / TCP / ICMP	
Source Host	Originating host(s) to affect.	All / Specific host	
Destination Host	Receiving host(s) to affect.	All / Specific host	
Ports	Settings for **ports filtering.**	Port/Source/Destination/Port range	
Direction	Direction of traffic to be affected by the classificaton.	Both/In/Out	
Connbytes	Connection Bytes for when to start filtering.		
Precedence	Quality of service parameters relating for precedence.		
Packet Size	Size of packets to match.	Minimum size From or From-To range.	
Mark	Hexadecimal mark code to att to the packets. (0x000000-0xFFFFFF)		
TCP flags	TCP Flags to match.	SYN/ACK/FIN/RST/URG/PSH	

Ports Filtering

Item	Description	Comment
Ports	List of ports anywhere (source and destination).	
Source	Included ports in source.	
Destination	Included ports in destination.	
Port Range	Range of ports anywhere (source and destination).	

3: Class Group

With the classes defined, you can add and order them in a class group in the **Class Group** tab.

If you have multiple interfaces, and want different QoS settings for them, you can create multiple class groups.

Tab

Classification Group

The **Classification Group** tab lets you manage groupings of QoS classes.

classgroup blocks are used to define different class groupings. This is only really useful if you wish to have multiple interfaces with different class considerations, for example, you might want eth1 to have an ultrapriority class or something.

This is useful when you have multiple interfaces and want to manage classes differently for them.

Overview

At the top of the page is a list of selectable classification groups.

When a particular group is selected, details about it is shown in the configuration section.

Item	Description	Comment
Default Class	Class to use as fallback if packets don't match any other class.	
Classes	Classes to include in the group.	**Note:** You need to for it to be available in the list.

The **Default** Classgroup contains these : - **Priority** - **Express** - **Normal** - **Bulk**

4: Enable

As a final step, you enable QoS for the desired interface in the **Interface** tab.

Tab

Interface

The **interface** tab lets you select interfaces and configure Quality of Service profiles for them.

Overview

At the top of the page is a list of selectable interfaces.

When a particular interface is selected, details about it is shown in the configuration section.

Item	Description		
Enable QoS	Turn the Quality of Service on for the interface.		
Classification Group	Classification group to use for the interface.		**Note:** You need to for it to be available in the list.
Calculate Overhead	Include overhead in the packet calculations for shaping and policing.		
Limit Download Speed	Restrict the network speed *to* clients.		
Limit Upload Speed	Restrict the network speed *from* clients.		

Class

The **class** tab lets you manage QoS .

Overview

At the top of the page is a list of selectable classes.

When a particular class is selected, details about it is shown in the configuration section.

Item	Description	Comment
Priority	Bandwidth allocation limit (%).	
Average Rate	Average target rate (%).	
Limit Rate	Maximum allowed bandwidth (%).	
Packet Size	Size of packets (bytes).	See note.
Packet Delay	Target delay for packets (ms).	See note.
Max Size	Maximum size of packets (bytes).	

Note: Packet Size and Packet Delay rely on the Average Rate setting. The average rate is impacted by the maximum packet delay and the transfer time for the packet size. Generally the delay is lower for smaller packet sizes.

Add Class

You can add as many classes as you like.

Add Class

To add a class:

- Click the **Add** button
- Enter a **Name** for the class
- Enter QoS values as needed.
- Click **Apply**

Class

There are a number of predefined classes QoS classes. Each class is a set of definitions for a token bucket.

Default Settings

The predefined classes can be edited and all values changed, but they have default settings that should be suitable in normal cases.

Priority

The priority class is an upstream class for high priority traffic such as handshaking and ICMP packets.

Item	Description	Default Value
Priority	Bandwidth allocation limit (%).	20
Average Rate	Average target rate (%).	10
Limit Rate	Maximum allowed bandwidth (%).	100
Packet Size	Size of packets (bytes).	400
Packet Delay	Target delay for packets (ms).	0
Max Size	Maximum size of packets (bytes).	1000

Priority_down

The Priority_down class is an downstream class for high priority traffic.

Item	Description	Default Value
Priority	Bandwidth allocation limit (%).	1
Average Rate	Average target rate (%).	10
Limit Rate	Maximum allowed bandwidth (%).	100
Packet Size	Size of packets (bytes).	1000
Packet Delay	Target delay for packets (ms).	0
Max Size	Maximum size of packets (bytes).	1000

Express

The Express class is for interactive applications that require bandwidth above standard services so that interactive apps run smoothly.

Item	Description	Default Value
Priority	Bandwidth allocation limit (%).	10
Average Rate	Average target rate (%).	50
Limit Rate	Maximum allowed bandwidth (%).	100
Packet Size	Size of packets (bytes).	1000
Packet Delay	Target delay for packets (ms).	0
Max Size	Maximum size of packets (bytes).	1000

Normal

The Normal Class is the standard upstream class for all services.

This class will apply to all services not otherwise defined.

Item	Description	Default Value
Priority	Bandwidth allocation limit (%).	5
Average Rate	Average target rate (%).	10
Limit Rate	Maximum allowed bandwidth (%).	100

Packet Size	Size of packets (bytes).	1500
Packet Delay	Target delay for packets (ms).	100
Max Size	Maximum size of packets (bytes).	1000

Normal_down

The Normal_down class is the standard downstream class for all services.

This class will apply to all services not otherwise defined.

Item	Description	Default Value
Priority	Bandwidth allocation limit (%).	1
Average Rate	Average target rate (%).	20
Limit Rate	Maximum allowed bandwidth (%).	100
Packet Size	Size of packets (bytes).	1500
Packet Delay	Target delay for packets (ms).	0
Max Size	Maximum size of packets (bytes).	1000

Bulk

The bulk class is suitable for very low priority traffic. It will be allocated available bandwidth if other classes are idle. When other classes are active, it will be allocated bandwidth according to the priority setting.

It is suitable for transfer services such as (P2P and FTP).

Item	Description	Default Value
Priority	Bandwidth allocation limit (%).	1
Average Rate	Average target rate (%).	1
Limit Rate	Maximum allowed bandwidth (%).	100
Packet Size	Size of packets (bytes).	1500
Packet Delay	Target delay for packets (ms).	200
Max Size	Maximum size of packets (bytes).	1000

Interface

The **interface** tab lets you select interfaces and configure Quality of Service profiles for them.

Overview

At the top of the page is a list of selectable interfaces.

When a particular interface is selected, details about it is shown in the configuration section.

Item	Description		
Enable QoS	Turn the Quality of Service on for the interface.		
Classification Group	Classification group to use for the interface.		**Note:** You need to for it to be available in the list.
Calculate Overhead	Include overhead in the packet calculations for shaping and policing.		
Limit Download Speed	Restrict the network speed *to* clients.		
Limit Upload Speed	Restrict the network speed *from* clients.		

Add Interface

You can add Interfaces as needed.

Add Interface

To add an interface:

- Click the **Add** button

The interface dialog opens.

- Select an **Interface** from the list
- Click **OK**
- Enable other settings as needed:
  - Turn QoS on with the **Enable QoS** slider
  - Select an available **Classification Group**
  - Turn QoS on with the **Limit Download Speed** slider

    - Enter a speed value (kbps)
  - Turn QoS on with the **Limit Upload Speed** slider
    - Enter a speed value (kbps)
- Click **Apply**

Classification Group

The **Classification Group** tab lets you manage groupings of QoS classes.

classgroup blocks are used to define different class groupings. This is only really useful if you wish to have multiple interfaces with different class considerations, for example, you might want eth1 to have an ultrapriority class or something.

This is useful when you have multiple interfaces and want to manage classes differently for them.

Overview

At the top of the page is a list of selectable classification groups.

When a particular group is selected, details about it is shown in the configuration section.

Item	Description	Comment
Default Class	Class to use as fallback if packets don't match any other class.	
Classes	Classes to include in the group.	**Note:** You need to for it to be available in the list.

The **Default** Classgroup contains these : - **Priority** - **Express** - **Normal** - **Bulk**

Add Classification Group

You can add Classification Groups as needed.

Add Classification Group

To add a class group:

- Click the **Add** button
- Enter a **Name** for the group
- Select **Default group**
- Add classes as needed:
  - Click **Add a new class**
  - Select the desired class from the list
- Click **Apply**

Classify

The **classify** tab lets you configure filtering parameters in order to define types of traffic to include in which Class.

Classification assigns a to traffic in a connection, but only affect connections which have not been assigned a traffic class already.

Overview

At the top of the page is a list of selectable classification groups.

When a particular group is selected, details about it is shown in the configuration section.

Adding a parameter will filter out traffic according to the parameters and assign it to the group.

Item	Description	Comment	
Target	Classification Group to assign.	As configured in settings	
Protocol	Protocol affected.	All / UDP / TCP / ICMP	
Source Host	Originating host(s) to affect.	All / Specific host	
Destination Host	Receiving host(s) to affect.	All / Specific host	
Ports	Settings for **ports filtering.**	Port/Source/Destination/Port range	
Direction	Direction of traffic to be affected by the classificaton.	Both/In/Out	
Connbytes	Connection Bytes for when to start filtering.		

Ports Filtering

Item	Description	Comment
Ports	List of ports anywhere (source and destination).	
Source	Included ports in source.	
Destination	Included ports in destination.	
Port Range	Range of ports anywhere (source and destination).	

Add Classification Group

You can add Classification Filters as needed.

Add Filter

To add a filter:

- Click the **Add** button
- Select **Classification group**
- Enter QoS values as needed.
- Click **Apply**

Order

The filters are prioritized in order from top to bottom in the list.

Reorder

You can rearrange the classes by using the buttons:

▲	Move up	
▼	Move down	

Reclassify

The **Reclassify** tab lets you configure filtering parameters in order to redefine types of traffic to include in which Class.

Reclassification can override the on a per packet basis without altering the defined .

Overview

At the top of the page is a list of selectable classification groups.

When a particular group is selected, details about it is shown in the configuration section.

Adding a parameter will filter out traffic according to the parameters and assign it to the group.

Item	Description	Comment	
Target	Classification Group to assign.	As configured in settings	
Protocol	Protocol affected.	All / UDP / TCP / ICMP	
Source Host	Originating host(s) to	All / Specific host	

	affect.		
Destination Host	Receiving host(s) to affect.	All / Specific host	
Ports	Settings for **ports filtering.**	Port/Source/Destination/Port range	
Direction	Direction of traffic to be affected by the classificaton.	Both/In/Out	
Connbytes	Connection Bytes for when to start filtering.		
Precedence	Quality of service parameters relating for precedence.		
Packet Size	Size of packets to match.	Minimum size From or From-To range.	
Mark	Hexadecimal mark code to att to the packets. (0x000000-0xFFFFFF)		
TCP flags	TCP Flags to match.	SYN/ACK/FIN/RST/URG/PSH	

Ports Filtering

Item	Description	Comment
Ports	List of ports anywhere (source and destination).	
Source	Included ports in source.	
Destination	Included ports in destination.	
Port Range	Range of ports anywhere (source and destination).	

Order

The filters are prioritized in order from top to bottom in the list.

Reorder

You can rearrange the classes by using the buttons:

▲	Move up	
▼	Move down	

Add Filter

You can add Reclasssify filters as needed.

Add Filter

To add a filter:

- Click the **Add** button
- Select **Classification group**
- Enter QoS values as needed.
- Click **Apply**

Add WAN

MultiWAN

The **MultiWAN** view allows you to create and configure WAN traffic divisions for load balancing and failover and applying traffic .

Introduction

Using the MultiWAN feature, you can enable up to 250 WAN interfaces to:

- Provide load balancing over multiple WAN interfaces based on a numeric weight assignment.
- Monitor connections using repeated ping tests and can automatically route outbound traffic to another WAN interface if the first WAN interface loses connectivity.
- Set rules to customize which outbound connections should use which WAN interface
- Customize rules based on various parameters such as IP:s, port(s) and protocol.

Why should I use mwan3?

If you have multiple internet connections, you want to control which traffic goes through which WANs

Mwan3 can handle multiple levels of primary and backup interfaces, load-balanced or not. Different sources can have different primary or backup WANs.

Mwan3 uses netfilter mark mask to be compatible with other packages (such as OpenVPN, PPTP VPN, QoS-script, Tunnels, etc) as you can configure traffic to use the default routing table.

Mwan3 can also load-balance traffic originating from the router itself

Tabs

The MultiWAN settings are divided into tabs.

Settings

The **MultiWAN Settings** tab allows you to add or edit multiple WAN connections and turn them on or off. You can also configure thresholds for WAN up/down detection and reliability monitoring.

Members

The **Members** tab allows you to create member groups for interfaces, to use with policies for traffic management. The metric and weight settings are used to manage traffic in the member groups.

Policies

The **Policies** tab allows you to group members into policy sets for use with the traffic .

Rules

The **Rules** tab allows you to define how LAN traffic should be filtered and distributed over the available WANs.

Rules are the way the Policies are applied to the traffic. Each Rule targets packets with some kind of filter.

The Rules are applied in order from top to bottom. Multiple rules that can use the same but target different traffic.

Workflow

Workflow

In order to use the multiwan feature, you need to do a number of configurations.

1: WAN Interfaces

As a first step, you need to add all network interfaces that should be part of the MultiWAN.

2: Members

Next, each interface must have at least one member, with per interface giving it appropriate Metric and Weight.

3: Policies

With the set up, you must create at least one policy containing at least two members.

4: Rules

As the final step you can set up the rules that will govern how traffic is handled.

Workflow

In order to use the multiwan feature, you need to do a number of configurations.

Process

Configuration Steps

The order of operations involved in configuring MultiWan is roughly the same as the order in which the interface displays the setting tabs.

1: WAN Interfaces

As a first step, you need to add all network interfaces that should be part of the Multi-WAN.

2: Members

Next, each interface must have at least one member, with per interface giving it appropriate Metric and Weight.

3: Policies

With the set up, you must create at least one policy containing at least two members.

4: Rules

As the final step you can set up the rules that will govern how traffic is handled.

1: WAN Interfaces

As a first step, you need to add all network interfaces that should be part of the Multi-WAN.

Important

The following prerequisites apply:

- The interface must be **enabled** and working.

- All addresses defined in the settings are reachable from the interface.
- The must be enabled for the interface.
- The must be unique for the interface.

Tab

Settings

The **MultiWAN Settings** tab allows you to add or edit multiple WAN connections and turn them on or off. You can also configure thresholds for WAN up/down detection and reliability monitoring.

Configuration

Below the general settings is a list of selectable WANs.

When a particular WAN is selected, details about it is shown in the configuration section.

Item	Description	Comment
Enabled	Turn WAN on or off.	
Family	Type of WAN.	IPv4 / IPv6
Tracking Type	Method to determine if the WAN is online.	IP / Gateway / DNS
Host(s) to ping	List of hosts to ping.	Used to determine WAN status. If this value is not set, the interface is always considered up.
Interface Reliability	Number of hosts that must reply for the interface to be considered up.	At least this many hosts must be defined or the interface will always be considered down.
Number of Pings	Number of pings to send to each host.	
Timeout	Number of seconds to wait for reply from host.	
Interval	Number of seconds between each test.	
Up	Number of successful tests to consider interface as up.	
Down	Number of failed tests to consider interface as down.	

Overview

Add WAN

You can add as many WANS as you have WAN interfaces.

2: Members

Next, each interface must have at least one member, with per interface giving it appropriate Metric and Weight.

Naming The Members

A good way to keep track of the members and make them easier to find when applying , is to use a regular naming scheme.

The following scheme will provide a good structure:

<interface>_m<metric>_w<weight>

and allow you to know the setup from the name alone.

Tabs

Members

The **Members** tab allows you to create member groups for interfaces, to use with policies for traffic management. The metric and weight settings are used to manage traffic in the member groups.

Configuration

Below the general settings is a list of selectable members.

When a particular member is selected, details about it is shown in the configuration section.

Item	Description	Comment
Interface	Interface configured in the tab.	
Metric	Precedence metric.	Members within one policy with a lower metric have precedence over higher metric members.
Weight	Distribution weight.	Members with same metric will distribute load based on this weight value.

3: Policies

With the set up, you must create at least one policy containing at least two members.

Tab

Policies

The **Policies** tab allows you to group members into policy sets for use with the traffic .

Configuration

At the top of the page is a list of policies.

When a particular policy is selected, details about it is shown in the configuration section.

Item	Description	Comment
Selected members	List of members configured in the tab.	

4: Rules

As the final step you can set up the rules that will govern how traffic is handled.

Tab

Rules

The **Rules** tab allows you to define how LAN traffic should be filtered and distributed over the available WANs.

Rules are the way the Policies are applied to the traffic. Each Rule targets packets with some kind of filter.

The Rules are applied in order from top to bottom. Multiple rules that can use the same but target different traffic.

Configuration

At the top of the page is a list of rules.

When a particular rule is selected, details about it is shown in the configuration section.

Item	Description	Comment
Policy to use	Policy configured in the tab.	Default means the default routing table will be used.
Any Source IP	Enable to match all origins,	

	regardless of IP address.	
Source Address	External target IP address.	
Source Port	Range of ports to match.	
Any Destination IP	Enable to match all destinations, regardless of IP address.	
Destination Address	External target IP address.	
Destination Port	Range of ports to match.	
Protocol	Protocols affected by the rule.	All / TCP / UDP / ICMP

Settings

The **MultiWAN Settings** tab allows you to add or edit multiple WAN connections and turn them on or off. You can also configure thresholds for WAN up/down detection and reliability monitoring.

Configuration

Below the general settings is a list of selectable WANs.

When a particular WAN is selected, details about it is shown in the configuration section.

Item	Description	Comment
Enabled	Turn WAN on or off.	
Family	Type of WAN.	IPv4 / IPv6
Tracking Type	Method to determine if the WAN is online.	IP / Gateway / DNS
Host(s) to ping	List of hosts to ping.	Used to determine WAN status. If this value is not set, the interface is always considered up.
Interface Reliability	Number of hosts that must reply for the interface to be considered up.	At least this many hosts must be defined or the interface will always be considered down.
Number of Pings	Number of pings to send to each host.	
Timeout	Number of seconds to wait for reply from host.	
Interval	Number of seconds between each test.	
Up	Number of successful tests to consider interface as up.	

Down	Number of failed tests to consider interface as down.	

Overview

Add WAN

You can add as many WANS as you have WAN interfaces.

Add WAN

You can add as many WANS as you have WAN interfaces.

Add WAN Interface

To add a WAN:

- Click the **Add** button
- Select an available **Interface**

A new WAN is added to the list.

- Edit the parameters as needed.
- Click **Apply**

Members

The **Members** tab allows you to create member groups for interfaces, to use with policies for traffic management. The metric and weight settings are used to manage traffic in the member groups.

Configuration

Below the general settings is a list of selectable members.

When a particular member is selected, details about it is shown in the configuration section.

Item	Description	Comment
Interface	Interface configured in the tab.	
Metric	Precedence metric.	Members within one policy with a lower metric have precedence over higher

		metric members.
Weight	Distribution weight.	Members with same metric will distribute load based on this weight value.

Add Member

You can add as many rules as you like.

Add Member

To add a member:

- Click the **Add** button
- Enter a **Name**

A new rule is added to the list.

- Select the WAN to add as member
- Edit the parameters as needed.
- Click **Apply**

Policies

The **Policies** tab allows you to group members into policy sets for use with the traffic .

Configuration

At the top of the page is a list of policies.

When a particular policy is selected, details about it is shown in the configuration section.

Item	Description	Comment
Selected members	List of members configured in the tab.	

Add Policy

You can add as many Policies as you like.

Add Policy Configuration

To add a policy:

- Click the **Add** button
- Enter a **Name**

A new member is added to the list.

- Click the **Edit** button
- Select to add to the policy
- Click **Apply**

Rules

The **Rules** tab allows you to define how LAN traffic should be filtered and distributed over the available WANs.

Rules are the way the Policies are applied to the traffic. Each Rule targets packets with some kind of filter.

The Rules are applied in order from top to bottom. Multiple rules that can use the same but target different traffic.

Configuration

At the top of the page is a list of rules.

When a particular rule is selected, details about it is shown in the configuration section.

Item	Description	Comment
Policy to use	Policy configured in the tab.	Default means the default routing table will be used.
Any Source IP	Enable to match all origins, regardless of IP address.	
Source Address	External target IP address.	
Source Port	Range of ports to match.	
Any Destination IP	Enable to match all destinations, regardless of IP address.	
Destination Address	External target IP address.	
Destination Port	Range of ports to match.	
Protocol	Protocols affected by the rule.	All / TCP / UDP / ICMP

Add Rule

You can add as many rules as you like.

Add Rule

To add a rule:

- Click the **Add** button
- Enter a **Name** (**Note:** This cannot be changed later.)

A new rule is added to the list.

- Click the **Edit** button
- Edit the parameters as needed.
- Click **Apply**

Services

The **Services** view allows you to configure the services connected device.

Overview

Printer Server

The **Printer Server Settings** view allows you to change different features about your printer server for connected printers.

MiniDLNA

The **MiniDLNA** view lets you configure the MiniDLNA server.

UPnP

The **UPNP** view allows you to configure UPNP services.

DDNS

The **DDNS** view allows you configure Dynamic DNS services for your device.

IPTV

The **IPTV** view lets you configure the IPTV server.

DHCP

The **DHCP** view lets you configure the DHCP server settings.

SNMP

The **SNMP Configuration** view lets you configure the Simple Network Management Protocol service.

Samba

In the **Samba** view you can change settings for the Sambaserver.

Printer Server

The **Printer Server Settings** view allows you to change different features about your printer server for connected printers.

Configuration

Item	Comment
Enable	Turn printer server on or off.
Interface	Interface to listen on
Port	Port to listen on.
Bidirectional mode	Allow printer to communicate with client.

MiniDLNA

The **MiniDLNA** view lets you configure the MiniDLNA server.

Overview

Status

For Enabled At the top of the page is a status window that can be expanded to display the current MiniDLNA status.

General

In the **General** settings tab you can change different general features about your MiniDLNA server.

Advanced

In the **Advanced** tab you can change different advanced features about your media server.

Status

For Enabled At the top of the page is a status window that can be expanded to display the current MiniDLNA status.

Show Status

To view the status window, click the **expand** icon.

Media Library

In the media library table, the number of audio, video and image files on the server is shown.

Column	Description
Audio files	0
Video files	0
Image files	0

Connected Clients

The Connected Clients table displays information about possible clients and their connections to the server.

Column	Description
ID	Client ID.
Type	Type of client (as identified by the client).
IP Address	IPv4 IP address for the client.
HW Address	MAC address for the client.
Connections	Number of connections to this client.

General

In the **General** settings tab you can change different general features about your MiniDLNA server.

Configuration

Item	Comment
Port	Port for HTTP traffic.
Network	List of interfaces to serve.
Friendly Name	Name to display to clients.
Root Container	Start point when browsing.

Media Directories	File system locations for media.
Album-Art Names	List of file names for album art.

Advanced

In the **Advanced** tab you can change different advanced features about your media server.

Configuration

Item	Comment
Database directory	Directory for database and cache storage.
Log directory	Directory to store logs.
Enable inotify	Turn Inotify on or off.
Enable TIVO	Support for streaming files to TiVo.
Strict to DLNA standard	Only use DLNA standard features.
Presentation URL	Default presentation URL.
Notify interval	Time between notification messages.
Announced serial number	Serial number to show to clients.
Announced model number	Model number to report to clients.
miniSSDP socket	Path to miniSSDPd socket for SSDP.

UPnP

The **UPNP** view allows you to configure UPNP services.

At the top of the page is a list of currently open UPnP ports, if any.

The UPnP settings are divided into tabs.

General

The **General** tab allows you to enable and configure the service parameters.

Advanced

The **Advanced** tab lets you configure advanced UPNP settings.

ACL

The **ACL** tab lets you configure the Access Control List for UPNP access.

General

The **General** tab allows you to enable and configure the service parameters.

Configuration

Item	Description
Enable UPNP	Enable UPNP protocol
Enable NAT-PMP	Enable NAT-PMP protocol.
Enable secure mode	Only add forwards to requesting ip addresses.
Enable additional logging	Add extra debugging information to the system log.
Downlink	Nominal uplink speed (KByte/s).
Uplink	Nominal downlink speed (KByte/s).
Port	Port for the service.
External Interface	Interface for external access.
Internal Interface	Interface to use for local access.

Advanced

The **Advanced** tab lets you configure advanced UPNP settings.

Configuration

Device UUID	UUID
Announced serial number	Serial number to show to clients.
Announced model number	Model number to show to clients.
Notify interval	Time between notification messages.
Clean rules threshold	Number of rules to keep.
Clean rules interval	Time between cleaning of UPnP rules.
Presentation URL	Location for service control web interface.
UPnP lease file	Location for file containing leases.

ACL

The **ACL** tab lets you configure the Access Control List for UPNP access.

Configuration

Item	Description
Comment	Description of the rule.
External ports	External ports to filter.
Internal addresses	Internal addresses to filter.
Internal ports	Internal ports to filter.
Action	Allow / Deny
Sort	Change order of list items.

DDNS

The **DDNS** view allows you configure Dynamic DNS services for your device.

Configuration

At the top of the page is a list of selectable services.

When a particular service is selected, details about it is shown in the connection section.

Configuration

Item	Description
Enabled	Turn service on or off.
Label	Identifier in the service list.
IP Retrieval Method	Interface / Network / Script / Web.
Select Interface	For **Interface**: Interface.
Select Connection	For **Network**: Connection.
Script Path	For **Script**: Local path to IP detection script.
Enter website to poll for ip address	For **Web**: Address to IP detection service.
Provider	Service provider list.
Enter DDNS Provider	Manually add service provider.
Domain name	Full hostname to use for the device.
Username	Service account username.
Password	Service account password.
Use HTTPS	USe secure communication with service.

DDNS Services

You can add as many DDNS Services as you like.

To add a DDNS Service:

- Click the **add** button

A new service is added to the list.

- Edit the parameters as needed.
- Click **Apply**

IPTV

The **IPTV** view lets you configure the IPTV server.

Configuration

Item	Description
Differentiated Services Code Point	DSCP to use for tagging outgoing IGMP packets.
Proxy interface	Interface to use as proxy.
Default version	IGMP version.
Query interval	Time between IGMP query messages.
Query response interval	Time to wait for response to query beofre timeout.
Last member query interval	Time between queries to determine the loss of the last member in an IGMP group.
Robustness value	Tolerance for lost packets.
LAN to LAN multicast	Allow multicast between LANs.
Max groups	Maximum allowed multicastgroups.
Max sources	Maximum allowed multicast sources.
Max members	Maximum allowed members in a multicast group.
Fast leave	Leave multicast groups immediately after the last host.
Join immediate	Join group directly.
Enable IGMP proxy	Turn on IGMP Proxy handling.
Ignore SSM Range	Ignore SSM and deliver regular multicasting.
IGMP snooping mode	IGMP snooping mode: Disabled / Standard / Blocking.
IGMP snooping interfaces	Interfaces to use for IGMP snooping.

DHCP

The **DHCP** view lets you configure the DHCP server settings.

The DHCP settings are divided into several tabs.

General

The **General** tab allows you to configure the DHCP server basic settings.

Advanced

The **Advanced** tab allows you to configure advanced settings for the DHCP server.

Hostname Entries

The **Hostname Entries** tab allows you to configure hostnames for IPv4 or IPV6 addresses in the LAN.

DNS Tags

The **DNS Tags** tab allows you to add DNS tags containing DHCP options. These tags can be used when configuring interfaces.

General

The **General** tab allows you to configure the DHCP server basic settings.

Configuration

Item	Description	Comment
Local domain	Local domain suffix appended to DHCP names and hosts file entries.	
Log queries	Write received DNS requests to system log.	
Leasefile	file where given DHCP leases will be stored.	
Ignore resolve file	Do not use the local Resolve file.	
Resolve file	Local DNS file storage.	File used by dnsmasq to find upstream name servers.
Ignore Hosts file	Do not use the local Hosts	

	file.	
Hostname Entries file(s)	Path to additional host files to read for serving DNS responses.	

Advanced

The **Advanced** tab allows you to configure advanced settings for the DHCP server.

Configuration

Item	Description	
Domain required	Do not forward DHCP-requests without DNS-Name.	
Authoritative	This is the only DHCP in the local network.	
Filter private	Do not forward reverse lookups for local networks.	
Filter useless	Do not forward requests that cannot be answered by public name servers.	
Localise queries	Localise hostname depending on the requesting subnet if multiple IPs are available.	
Local server	Domain resolved from DHCP or hosts files only.	
Expand hosts	Add local domain suffix to names served from hosts files.	
No negative cache	Do not cache negative replies.	
Strict order	DHCP servers will be queried in the order of the resolve file.	
Bogus NX Domain Override	List of hosts that do not supply non-existent domain (NXDOMAIN) results.	
DNS forwarding	List of DNS servers to forward requests to.	
Rebind protection	Discard upstream RFC1918 responses.	
Allow localhost	Allow upstream responses in	

	the 127.0.0.0/8 range.	
Domain whitelist	List of domains to allow RFC1918 responses to.	
DNS server port	Listening port for inbound DHCP queries.	
DNS query port	Fixed source port for outbound DNS queries.	
Max DHCP leases	Maximum allowed number of active DHCP leases.	
Max. EDNS0 packet size	Maximum size of EDNS0 UDP packets.	
Max. concurrent queries	Maximum number of concurrent DNS queries.	

Hostname Entries

The **Hostname Entries** tab allows you to configure hostnames for IPv4 or IPV6 addresses in the LAN.

Configuration

Item	Description
Hostname	List of hostnames.
Family	Type of IP address (IPv4 or IPv6).
Address	IPv4 or IPv6 address.

Add Hostname Entry

You can add as many entries as you like, and each entry can have any number of hostnames for each IP address.

To add a hostname entry:

- Click the **Add** button
- Click the **Edit** button
- Enter hostnames in the **Hostname** field
- Select address **Family**
- Enter IP Adress to redirect to
- Click **Apply**

Classifications

The **Classifications** tab lets you add classifications for connected clients.

The classifications can be used to provide specific DHCP Options options for the classified clients, based on client parameters.

Parameters

The classification can be based on client parameters:

- MAC class
- Vendor ID
- User Class
- Circuit ID
- Remote ID
- Subscriber ID

View

At the top of the page is a list of configured classifications.

When a particular account is selected, details about it is shown in the configuration section.

For all classification types, the configuration is similar:

Item	Description
Parameter value	Value for the classification parameter, according to its type.
Network ID	Option value.
ID	DHCP option ID.
Option	Option value.

Add Tag

You can add as many tags as you like.

To add a tag:

- Click the **Add** button

The **Select type of Classification** dialog opens:

- Pick a **Select Classification Type** from the dropdown menu
- Click **Apply**

The tag is added to the list.

- Click the **Edit** button
  - Enter **Parameter** value according to Classification Type

- Add as many DHCP options as needed:
    - Click the **Add option** button
    - Select the **ID** value
    - Enter **Option** value
- Click **Apply**

DNS Tags

The **DNS Tags** tab allows you to add DNS tags containing DHCP options. These tags can be used when configuring interfaces.

View

At the top of the page is a list of configured tags.

When a particular tag is selected, details about it is shown in the configuration section.

Item	Description
ID	DHCP option ID.
Option	Option value.

Add Tag

You can add as many tags as you like.

To add a tag:

- Click the **Add** button

The **Add New Tag** dialog opens:

- Enter a **Tag Name**

The tag is added to the list

- Click the **Edit** button
- Add as many options as needed:
    - Click the **Add option** button
    - Select the **ID** value
    - Enter **Option** value
- Click **Apply**

SNMP

The **SNMP Configuration** view lets you configure the Simple Network Management Protocol service.

The SNMP settings are divided into tabs.

System

The **System** tab lets you configure general information about the SNMP service.

Agent

The **Agent** tab allows you to manage SNMP agents.

Com2Sec

The **Com2Sec** tab lets you configure Com2Sec access profiles for the SNMP service.

Group

The **Group** tab allows you to configure Com2Sec access groups for the SNMP service.

View

The **View** tab lets you configure Com2Sec views for the SNMP service.

Access

The **Access** tab allows you to configure Com2Sec access directives for the SNMP service.

Pass

The **Pass** tab lets you configure Com2Sec passthrough for MIBs the SNMP service.

System

The **System** tab lets you configure general information about the SNMP service.

Configuration

Item	Description
Location	Physical location of the device.
Contact	Contact information for the responsible person.
Name	Name of the server.
Services	Offered services.
Description	Server description for presentation.

Object ID	Identifier for the device.

Agent

The **Agent** tab allows you to manage SNMP agents.

Configuration

Item	Description
Agent Address	Protocol and port for the agent variable.

Add Agent

You can add as many agents as you like.

To add an agent:

- Click the **Add** button
- Enter an **Agent Address**
- Click **Apply**

Com2Sec

The **Com2Sec** tab lets you configure Com2Sec access profiles for the SNMP service.

Configuration

Item	Description	Example
Community	Community group to access.	private
Source	Hostname or subnet.	localhost
SecName	Access string.	rw

Add Profile

You can add as many profiles as you like.

To add a profile:

- Click the **Add** button
- Enter parameters as needed
- Click **Apply**

Group

The **Group** tab allows you to configure Com2Sec access groups for the SNMP service.

Configuration

Item	Description	Example
Community	Community group to access.	public
Source	Hostname or subnet.	usm
SecName	Access string.	ro

Add Group

You can add as many groups as you like.

To add a group:

- Click the **Add** button
- Enter parameters as needed
- Click **Apply**

View

The **View** tab lets you configure Com2Sec views for the SNMP service.

Configuration

Item	Description
View Name	Name of the view.
Type	Type of view.
OID	Object ID
Mask	Netmask.

Add View

You can add as many views as you like.

To add a view:

- Click the **Add** button
- Enter parameters as needed
- Click **Apply**

Access

The **Access** tab allows you to configure Com2Sec access directives for the SNMP service.

Configuration

The access directive maps from group/security model/security level to a view.

Item	Description	Example
Group	Group.	
Context	Security name or empty.	
Version	Version access.	any / v1 / v2c / usm
Level	Access level.	noauth / auth / priv
Prefix	Context matching.	exact / prefix
Read	Read permissions	
Write	Write permissions	
Notify	Notify permissions.	

Add Access Group

You can add as many acces groups as you like.

To add an access group:

- Click the **Add** button
- Enter parameters as needed
- Click **Apply**

Pass

The **Pass** tab lets you configure Com2Sec passthrough for MIBs the SNMP service.

Configuration

Item	Description
Persist	Enable permanent passthrough.
Priority	Passthrough priority.
MIB OID	Object ID for the MIB.
Program	Execution for the arguments.

Add Passthrough

You can add as many passthroughs as you like.

To add a passthrough:

- Click the **Add** button
- Enter parameters as needed
- Click **Apply**

Samba

In the **Samba** view you can change settings for the Sambaserver.

The Samba settings are divided into sections.

General

The **General section of the** view allows you to change the general Samba settings, such as name, workgroup and interface.

Samba Users

The **Samba Users** section of the view allows you to change the user settings.

Samba Shares

The **Samba Shares** section lets you configure Samba shares and user access.

General

The **General section of the** view allows you to change the general Samba settings, such as name, workgroup and interface.

Configuration

Option	Description
Name	Service identifier.
Workgroup	Service workgroup.
Description	Description of the service.
Interface	Interfaces to provide the service to.

Change Interface Settings

To change the interface that Samba will listen on:

- Click **LAN** to open the list
- Choose as many interfaces as needed
- Click outside of the list
- Click **Apply**

Samba Users

The **Samba Users** section of the view allows you to change the user settings.

Configuration

Option	Description
Username	user name
Password	password
Description	description

Samba User Settings

To add a Samba user:

- Click **Add**
- Edit the parameters as needed.
- Click Apply

Samba Shares

The **Samba Shares** section lets you configure Samba shares and user access.

Configuration

Option	Description
Name	Share identifier.
Path	Path to the shared directory.
Allowed users	Users with access.
Allow guest access	Turn public access on or off.
Read only?	Turn write protection on or off.

Add Samba Share

To add a Samba Share:

- Click **Add**
- Enter a **Name**
- Click + **Add**

The **Add folder to share** dialog opens**.**

- Browse to the directory you want to share and select it
- Click **Apply**
- Add Samba Users
- Select **Guest Access** setting
- Select **Read Only** setting
- Click **Apply**

Add Users To Share

To add a Samba users:

- Click **Add**
- Click **Allowed Users** to open the list
- Choose as many users as needed
- Click outside of the list
- Click **Apply**

WIFI

The **WiFi view** shows you information about your wireless network.

Overview

General

In the **General WiFi** view you can view and edit the wireless interface.

WPS Settings

The **WPS Settings** view lets you change the default wireless security settings (WPS) to make your network more secure.

MAC Filter

In the **MAC Filter** view you can make your wireless network more secure. Just specify which devices are allowed to connect, or explicitly lock out devices.

General

In the **General WiFi** view you can view and edit the wireless interface.

Overview

Radios

The **Wireless Radios** view allows you to configure wireless radios installed on your system.

Wireless

In the **Wireless** view you can view and edit the wireless interfaces.

Each radio can have up to 4 SSIDs.

Radios

The **Wireless Radios** view allows you to configure wireless radios installed on your system.

At the top of the page is a list of radios.

Clicking the **Edit** button will open the edit view for that radio.

Item	Description	Comment
Radio On/off	Turn radio on or off.	
WiFi Mode (SSID)	Choose wifi mode.	
Channel	Choose WiFi Channel.	
Bandwidth	Choose bandwidth capacity.	This specifies capacity, not a fixed value.
Scan Timer	Determine the dwell time for channel hopping.	
DFS Channels	Turn DFS channels on or off.	
Beamforming	Turn beamforming on or off.	
Airtime Fairness	Turn ATF on or off.	
Maximum Associated Stations	Maximum number of clients allowed.	
RX Chain PowerSave Quiet Time	Turn RXC PS Quiet Time on or off.	
RX Chain PowerSave PPS	Turn RXC PS PPS on or off one of the receive chains to save power.	
Enable WMM Multimedia Extensions	Turn WMM multimedia extensions on or off.	
Disable WMM Ack	Turn WMM acknowledgement on or off.	
Enable WMM UAPSD Power Saving	Turn WMM UAPSD power saving on or off.	

Wireless

In the **Wireless** view you can view and edit the wireless interfaces.

Each radio can have up to 4 SSIDs.

Configuration

At the top of the page is a list of selectable interfaces.

When a interface is selected, the edit view for the interface is shown below.

Item	Comment
Enabled	Turn on or off.
WiFi Network Name	Edit name of SSID network.
Broadcast SSID	Toggle to make network visible or invisible.
AP isolation	Toggle to turn access point isolation on or

	off.
Wireless Multicast Forwarding	Toggle to turn multicast forwarding on or off.
Maximum Number of Connected Clients	Maximum number of connected clients.
Encryption	Change to a different encryption method.
Cipher	Choose form of Cipher.
WiFi Key (Password)	Reset to default password.
Show Key Text	Change format of wifi key text.

Add Wireless Interface

- Click **Add**

A dialog is shown

- Click **Select Wireless Radio**
- Choose wireless radio
- Add new SSID
- Click **OK**

Band Steering

The **Band Steering** view allows you to enable and configure band steering for the device.

Configuration

Item	Description
Enable	Turn band steering on or off.
Steering Policy	RSSI or bandwidth usage.
Threshold	Bandwidth or RSSI threshold value.

Enable Band Steering

To enable band steering:

- Click **Enable** toggle
- Choose steering policy
- Set threshold value to use for the selected policy.

AP Steering

The **Access Point Steering** view allows you to enable and configure AP Steering for the device.

Note: This feature is only enabled if the device discovers another Inteno device in the same network.

Item	Description	Comment
Enable	Turn AP steering on or off.	
RSSI Threshold	Deauthentication RSSI threshold value.	Client will be de-authenticated if RSSI goes below this value.
Reassoc Timer	Grace period in seconds.	Clients returning below the RSSI threshold are immune from de-authentication until after Retry Interval.
Retry Interval	Timeout period in seconds.	After this time, the client can be de-authenticated.

Enable AP Steering

To enable AP Steering:

- Click **Enable** toggle
- Set Threshold value
- Set Reassociation timer value
- Set Retry Interval value

WPS Settings

The **WPS Settings** view lets you change the default wireless security settings (WPS) to make your network more secure.

Overview

General WPS Settings

The **WPS Settings** section allows you to choose and configure different connection methods on an encrypted channel.

WPS-PBC: Push Button on Device

The WPS-PBC: Push Button on Device section lets you pair your devices.

WPS/REG: Device provides PIN

The section WPS-REG: Device provides PIN lets you generate a personal identification number through WPS.

WPS-PIN: Another Device provides PIN

The section WPS-PIN: Another Device provides PIN allows you to enter a PIN provided by another device.

WPS-PIN: Another Device provides PIN

The section WPS-PIN: Another Device provides PIN allows you to enter a PIN provided by another device.

Configuration

Item	Comment
Enter your device PIN	Enter device PIN
Pair (within 2 minutes)	Pair button.

WPS/REG: Device provides PIN

The section WPS-REG: Device provides PIN lets you generate a personal identification number through WPS.

Configuration

Item	Comment
WPS Using Generated PIN	Turn on or off.
Generated PIN	Generated PIN shown
Generate PIN	Generate button.

Generating a PIN

To generate a PIN through WPS:

- Click the **Generate** button

General WPS Settings

The **WPS Settings** section allows you to choose and configure different connection methods on an encrypted channel.

Configuration

Item	Comment
WPS Function	Turn on or off for device.
Enable WPS on (5GHz)	Turn WPS on or off for radio.
Enable WPS on (2.4GHz)	Turn WPS on or off for radio.

WPS-PBC: Push Button on Device

The WPS-PBC: Push Button on Device section lets you pair your devices.

Configuration

Item	Comment
Enable WPS button on device	Turn on or off.
Pressing WiFi on/off button on your device for long time activates pairing	Turn on or off.
Pair (within 2 minutes)	Pair button.

Pairing Your Device

To a device via WPS:

- Click the **Pair** button
- Press the corresponding button on the device you wish to connect

Your device will be open for pairing for two minutes.

MAC Filter

In the **MAC Filter** view you can make your wireless network more secure. Just specify which devices are allowed to connect, or explicitly lock out devices.

Configuration

Filters can be applied separately for each radio .

The devices are identified by their MAC address. You can manage up to 32 devices.

Section	Description
MAC Filtering	Turn filtering on or off.
Access for listed devices	Access setting for clients in the list.
Currently added devices	List of filtered devices.
Add currently connected hosts ot the list	Collect all currently active devices to the list.

Enable MAC Filter

To enable MAC Filtering:

- Click the **MAC Filtering** toggle button
- Choose type of **Access for listed devices**
  - Allow - Access
  - Deny - No access
- Click the + **add** button next to **Currently added devices**
- Enter the MAC address for the device
- Click **Save**
- Click **Apply**

System

The **System** view provides access to device information, management, provisioning and settings.

Overview

General Settings

The **General Settings** view contains basic device settings.

Item	Description
Local Time	Local time for the device.
Timezone	Device timezone setting.
Hostname	Device hostname.

Menu Access

The **Menu Access** view allows you to switch access to menus and menu items in the web interface on or off.

Passwords

The **Passwords** view lets you change passwords for device users.

Firmware Upgrade

The **Firmware Upgrade** view lets you upgrade the device firmware by using image files.

Backup/Restore

The **Backup/Restore** view allows you to manage backups and resets of the device.

IUP

The **IUP** view allows you to set up parameters for provisioning services and configurations with Inteno Universal Provisioning.

TR69

The **TR69 Settings** view allows you to configure TR069 support for device management and provisioning from the WAN.

Management

The **Management** view lets you configure WAN to SSH connections and access to services.

Hardware

Power Management

The **Power Management** view allows you to manage CPU effiency and Ethernet hardware ports.

Services

The **Services** view lets you manage system services on the device.

Restart

The **Restart** page allows to restart your Internet connection and reboot your device.

General Settings

The **General Settings** view contains basic device settings.

Item	Description
Local Time	Local time for the device.
Timezone	Device timezone setting.
Hostname	Device hostname.

Time Servers

The Time Servers section shows NTP time servers in use.

Configuration

Item	Description
Time Servers (NTP)	List of NTP servers to use.
Server Mode	Turn NTP server mode on or off.

Add Server

To add a time server:

- Click the + **add** button
- Enter the server address in **URL** box
- Click **Apply**

Log Settings

The **Log Settings** view contains settings for the system logs.

Current Firmware

Item	Description
System Log Level	System Logging level
Cron Log Level	Cron Logging level
Kernel Log Level	Kernel Logging level
Log File	Location to save the log file.
Log IP	IP address of remote log server.
Log Port	Port for the remote log server.
Log Prefix	Prefix to use in log.
Log Protocol	Protocol for transfer of log information (UDP / TCP).
Log Remote	Turn remote logging on or off.
Log Size	Max size of log in Kb.
Trailing null	Use trailing null insted of newline when using TCP
Log Type	Type of logging to use (circular = limited /file = unlimited number of files).

Connectivity Test

The **Connectivity Test** view allows for automatic verification of the Internet connection by accessing a predefined URL.

Current Firmware

Item	Description
Internet	URL for checking Internet connection.

Menu Access

The **Menu Access** view allows you to switch access to menus and menu items in the web interface on or off.

Note: The admin account cannot have restrictions on menu access.

At the top of the page is a list of user roles.

When a particular role is selected for editing, all menu and menu items are shown in the list.

You can change the access status of any item by moving the associated slider.

Passwords

The **Passwords** view lets you change passwords for device users.

Change Password Dialog

Item	Description
Current Password	The existing password.
New Password	Password to change to.
Reenter Password	Verification of new password.
Password Strength	Indicates the security level of the new password.

Note: For security reasons, the current password is never displayed.

Change password

To change password for a user:

- Open the **Change password for user**
- Select a user role
- Click **Change Password**

The change password dialog opens.

- Enter the current password
- Enter the new password
- Enter the new password again

- Click **Change Password**

Firmware Upgrade

The **Firmware Upgrade** view lets you upgrade the device firmware by using image files.

Current Firmware

The **Current Firmware Version** shows currently installed firmware on the device.

Online Update

With the **Online Update** function, you can perform an automatic search for upgrade image file on an upgrade server.

Note: The type of image file and server adddress and to use for upgrades is defined in .

USB Firmware Upgrade

In the **USB Firmware Upgrade** section you can perform an automatic search for upgrade image file on USB devices, and perform the upgrade.

The **check for upgrade** starts a search for image files on any connected USB devices.

Note: The type of image file to use for upgrades is defined in .

Manual Firmware Upgrade

In the **manual firmware upgrade** section you can select an image file on your computer, upload it to the device, and perform the upgrade.

Item	Description
Select firmware file to upload	Upgrade image file on local computer.
Start upgrade	Button to start upgrade.

Upgrade Options

The **Upgrade Options** view lets you configure parameters for firmware upgrades.

Firmware image extensions

The firmware image extension setting defines which type of image file to use for upgrades.

Item	Description
.y2	UBIFS Image version 2

.y3	UBIFS Image version 3

Online Upgrade

The online upgrade settings define where the online upgrade images are located.

Item	Description
URL for file with latest image filename	URL to a text file containing the latest image filename on the server.
Upgrade URL base path	URL to directory containing upgrade image files.

Backup/Restore

The **Backup/Restore** view allows you to manage backups and resets of the device.

Overview

Backup Configuration

In the **Backup Configuration** section you can save a copy of your device configuration or load a saved configuration into the device.

Factory Reset

In the **Factory Reset** section you can restore the device to factory settings.

Backup Settings

The **Backup Settings** view lets you select which services and settings to include in backups.

Backup Configuration

In the **Backup Configuration** section you can save a copy of your device configuration or load a saved configuration into the device.

Save Backup

- Click **Save**

The **Save Configuration** dialog opens.

- If you want to encrypt the backup file:

    - Click the **Password Protection** slider
    - Enter a **Backup file password**
    - Retype the password
- Click **Continue**

The file is saved as a compressed file archive to your local computer.

Load Backup

To load a saved configuration after the factory reset:

- Click **Load**

The **Load New Configuration** dialog opens.

- Click **Choose File**
- If the backup file is encrypted:
    - Enter a **Backup file password**
- Click **Continue**

Factory Reset

In the **Factory Reset** section you can restore the device to factory settings.

Soft Reset

Alternatively, you can choose to perform a **Soft Reset**, where you select particular settings to keep when doing the factory reset.

Note: Reset restores your device to the factory defaults and removes any configurations you have made. You can only keep settings if you select them in the **Soft Reset** section.

Available Settings

These are the settings you can protect:

Settings	
Port redirects	
Parental rules	
User password	
ICE config	
WiFi Settings	

Soft Reset

To perform a soft reset:

- Select the settings you want to keep:
    - Click the **Soft Reset** slider button
    - Make sure that the settings you want to keep are enabled.
      Note: Enabled settings will be protected from the factory reset.
- Click **Reset**

Factory Reset

To perform the factory reset:

- Click **Reset**

Backup Settings

The **Backup Settings** view lets you select which services and settings to include in backups.

The list contains a selection of services and settings that can be included when performing backups.

You can change the status of any item by moving the associated slider.

IUP

The **IUP** view allows you to set up parameters for provisioning services and configurations with Inteno Universal Provisioning.

Configuration

The IUP view is divided into several sections.

General

In the **General** section you can manage general provisioning settings.

Item	Description
Enabled	Turn provisioning on or off.
Update frequency start time	Time of day to start update.
Update frequency	Hourly / Daily / Weekly.
Export file	Download provisioning file.

Main Provisioning Server

In the **Main Provisioning Server** section you can add a manual provisioning server address.

Note: This will override DHCP Discover Provisioning, even if it is enabled.

Item	Description
Reboot	Reboot after configuration has been applied.
Keep user config	Address to the provisioning server.
Enabled	Turn main provisioning server on or off.

DHCP Discover Provisioning Server

In the **DHCP Discover Provisioning Server** section you can enable automatic discovery of provisioning server.

Item	Description
Enabled	Turn software update on or off.

Software Update Config

In the **Software Update Config** section you can configure online update of software.

Item	Description
Enabled	Turn software update on or off.

Item	Description
Enabled	Turn software update on or off.
Default reset	Remove device configurations and set to default.
Software URL	Location of software configuration.

Sub Configs

In the **sub configs** section you can add sub configurations of specific parts.

Item	Description
URL	Location of configuration file.
Package Control	
Enabled	Turn sub configurations on or off.

Add Sub Config

To add a sub configuration:

- Click **Add sub config**
- Enter the **URL** for the configuration file
- Enter the relevant **Package Control**
- Select if the sub config should be **Enabled**

TR69

The **TR69 Settings** view allows you to configure TR069 support for device management and provisioning from the WAN.

The TR69 view is divided into sections.

Configure ACS Specific Settings

In the **ACS** section, you can configure ACS settings.

Configuration

Item	Description
ACS User Name	User name for the ACS connection.
ACS Password	Password for the ACS connection.
URL	Location of the ACS server.
Periodic Inform Enable	Turn Periodic Inform on or off.
Periodic Inform Interval	Wait time between Periodic Inform calls for CPEs.
DHCP Discovery	Turn automatic discovery of server on or off.

Configure CPE Specific Settings

In the **CPE** section, you can configure CPE connection settings.

Configuration

Item	Description
WAN Interface	Interface for the connection.
Connection Request User Name	User name for the ACS connection
Connection Request Password	Password for the ACS connection.

Port	Specific connection port.
Log Severity Level	Logging information level.
Log to console	Display logging messages in the console.
Log to file	Turn logging to file on or off.
Log file max size	Size of log file.
Provisioning Code	Identifier for provisioning.

ICE

The **ICE** view allows you to configure ICE support for device management and provisioning from the WAN.

Configuration

Item	Description	
ICE		
Enabled	Turn ICE communication engine on or off.	If ICE is disabled, Cloud is disabled automatically.
Cloud		
Status	Current status for the cloud service.	Offline /Registered
Enabled	Turn Cloud service on or off.	Enables the XMPP connection to the Cloud URL.
Cloud URL	URL for access to the the device.	

Management

The **Management** view lets you configure WAN to SSH connections and access to services.

Overview

CATV

The **CATV** view lets you enable the CATV service, if your device has this capability.

Services

The **Services** view lets you configure WAN access to device services, if your device has this capability.

OWSD

The **OWSD** view lets you configure settings for the open web-server daemon.

The server listens on a number of interfaces, and allows for separate configuration of access for each of them.

At the top of the page is a list of interfaces the server listens on.

When a particular interface is selected, details about it is shown in the configuration section.

Configuration

The **Configure firewall rule** section allows you to enable and configure a firewall rule for the selected service.

Item	Description
Interface	Listening interface.
Port	Port to listen on.
IPv6	IPv4 / IPv6 address.
IPv6 only	Limit to IPv6
List of allowed origins	Filter for origin (* for allow all).

Add Listen Interface

- Click **Add**
- Enter a **Name**

The firewall settings are displayed.

- Add interface settings as needed.
- Click **Apply**

Add Origin

Select an interface in the list.

- Click **Add**
- Enter the **Origin**
- Click **Add**
- Click **Apply**

SSH

The **SSH** view allows you to configure SSH access, server instances, and keys.

Dropbear Instances

The **Dropbear Instances** section lets you create SSH server instances with different parameters.

Item	Description
Password Autentication	Turn access with password authentication on or off.
Port	Connection port.
Enable Root Password Auth	Turn root access with password authentication on or off.
Enable Root Login	Turn root account access on or off.
Enable Forwarded Ports	Turn forwarded ports on or off.
Interface	Restrict SSH server to particular interface.

Add SSH Server instance:

To add a SSH Server instance:

- Click **Add**
- Enter parameters for the instance
- Click **Apply**

Accepted SSH Keys

The **SSH** view allows you to configure SSH access, server instances, and keys.

Add Key

To add a SSH key:

- Click **Add**
- Copy the public SSH key
- Paste the public SSH key into the window
- Click **OK**
- Click **Apply**

CATV

The **CATV** view lets you enable the CATV service, if your device has this capability.

Configure

Item	Description
Ebnable	Turn CATV / RF Enable on or off.

Services

The **Services** view lets you configure WAN access to device services, if your device has this capability.

Allow WAN Access To Running Services

At the top of the page is a list of services.

When a particular service is selected, details about it is shown in the configuration section.

Configure firewall rule for this service

The **Configure firewall rule** section allows you to enable and configure a firewall rule for the selected service.

Where applicable, the configuration is divided into separate sections for **source** and **destination** zones.

Item	Description
Enable WAN forwarding for this service	Turn WAN access on or off.
Name	Identifier for the rule.
Zone	Device / Any / LAN / WAN
IP	IPv4 / IPv6 address.
MAC	MAC address.
Port	Port affected.
IP version	Any / IPv4 / IPv6
Protocol	Protocol affected: (UDP / TCP / ICMP / TCP + UDP / ESP)
Firewall action	Firewall action to perform.

Add Firewall Rule

Select a service in the list.

- Click the **Enable WAN forwarding for this service** button

The firewall settings are displayed.

- Add rule settings as needed.
- Click **Apply**

Hardware

Overview

Configure Buttons

The **Configure Buttons** view allows you to enable or disable the buttons on your device.

The exact buttons available vary with device type.

LEDs

The **LED view** allows you to enable or disable the status LEDs on your device.

Configure Buttons

The **Configure Buttons** view allows you to enable or disable the buttons on your device.

The exact buttons available vary with device type.

Examples

Reset

Status

Wireless

WPS

DECT

EXT

Toggle Button

To switch a button on or off:

- Find the desired button in the list
- Click the slider button in the interface
- Click **Apply**

LEDs

The **LED view** allows you to enable or disable the status LEDs on your device.

Displayed Leds

The exact LEDs available vary with device type. The status of each LED is shown on the left of the name.

Examples

BROADBAND

DECT

DSL

EXT

INTERNET

LOGO

STATUS

VOICE1

WAN

WIFI

WPS

Toggle LED

To switch a LED on or off:

- Find the desired LED in the list
- Click the slider button in the interface
- Click **Apply**

Power Management

The **Power Management** view allows you to manage CPU effiency and Ethernet hardware ports.

Configuration

Item	Description
CPU Speed	CPU Sync.

CPU r4k Wait	Sleep mode configuration.
Ethernet Auto Power Down	Turn Ethernet Auto Power Down on or off.
Energy Efficent Ethernet	Turn Energy-Efficient Ethernet on or off.

Services

The **Services** view lets you manage system services on the device.

Configuration

The list contains system running and available services.

Item	Description
Priority	System priority.
Service	Service identifier.
Enable	Enable or disable service.
Action	Buttons to start, stop and restart the service.

Restart

The **Restart** page allows to restart your Internet connection and reboot your device.

Restart device

Note: Restarting the device will disconnect all phone, Internet and TV services while the device is restarting.

To restart your device:

- Click **Restart**

A confirmation dialog is shown

- Click **Yes**

A restart dialog is shown.

When the device has restarted, the browser reconnects and the **login** dialog is shown.

Status

The Status area provides an overview of the current situation for your device, network and services, and also contains diagnostic tools.

Overview

System

The **System Status** view displays information about a number of parameters regarding your gateway and its operation.

IGPM TV

The **IGPM TV Status** views shows information about your IPTV services and their connection status.

WiFi

The **WiFi Status** view shows information about the wireless network, and allows you to scan the local area for other wireless access points.

DSL

The **DSL status** view shows information about any DSL connections to the device.

USB

The **USB devices** views displays information about any USB devices connected to the gateway device.

Note: Supported file systems for USB devices are NTFS and FAT32.

Network

The **Network Status** view shows information about various aspects of your network.

Diagnostics

The **Diagnostic Utility** allows you to perform diagnostic tests from the web interface.

Voice

The **Voice Status** view shows information about SIP accounts, phone numbers and voice lines connected to the device.

System

The **System Status** view displays information about a number of parameters regarding your gateway and its operation.

Overview

System

The **System Status** overview shows basic data about the device.

Processes

The **Processes** view shows information about system processes and CPU usage.

System

The **System Status** overview shows basic data about the device.

Configuration

Option	Description	Sample value	
Hostname	The hostname for the gateway.	Inteno	
Model	Gateway model.	DG400A	
Serial No	Device serial number.	G542012033	
MAC Address	Device MAC address.	00:22:07:A9:CE:F9	
Filesystem	Filesystem used in gateway storage.	UBIFS	
Firmware Version	Version of installed firmware.	DG400-WU7U_INT3.5.5-160513_1617	
Other Bank	Alternative firmware.	DG400-WU7U_INT3.13-170904_1354	
Kernel Version	The gateway operating system kernel version.	3.13	
BRCM Version	(Broadcom Devices only) Version number for the Broadcom driver.	4.16L.04	

CFE Version	Version of CFE.	4.16L.05	
Local Time	Time according to the gateway internal clock.	Mon May 23 2049 17:21:12 GMT+0200 (CEST) | | Uptime | Time the gateway has been runnning since last startup. | 5d 2h 53m 14s | | CPU | Percentage of CPU processing in use. | 0% | | Active Connections | Number and percentage of connections to the gateway. | 259 / 7660 (3%)`	

System Memory

The **System Memory Status** view displays information about memory usage in the device.

Configuration

Option	Description	Sample value
Usage	Memory used by the system.	163144 kB / 226308 kB (72%)
Shared	Shared memory in use.	0 kB / 226308 kB (0%)
Buffered	Memory buffer in use.	0 kB / 226308 kB (0%)
Swap	Swap file system used.	0 kB / 0 kB (0%)

System Storage

The **System Storage Status** view shows information about file systems and space used.

Examples

Option	Description
rootfs(/)	Root.
tmpfs(/tmp)	Temporary.
tmpfs(/dev)	Devices.
tmpfs(/mnt)	Mount point.

tmpfs(/dev/sda1)	An attached USB stick.

Processes

The **Processes** view shows information about system processes and CPU usage.

Overview

The overview shows a summary of the processes:

Item	Description	Comment
Total number of processes		96
Total CPU usage		9%

Process Detail Toggle

You can access detailed realtime information about running processes, by clicking the information toggle.

To open the **Details** view:

- Click **Click here to view details**

Details

In the **details** view, you can get detailed information about all processes running on the device.

Configuration

For each process, information about a number of properties is displayed:

Property	Description	Comment
PID	Process ID	Unique identifier for the process.
PPID	Parent Process ID	Unique identifier for the parent process.
USER	User running the service.	
STAT	State Code.	
VSZ	Virtual Memory Size.	
VSZP	Virtual Memory Size Percentage.	
CPU	CPU Percentage.	
COMMAND	The command used to run	

	the process.	

Network

The **Network Status** view shows information about various aspects of your network.

Overview

Status

The **Network Status** view provides an overview of network elements for your device.

Clients

The **Connected Clients** view shows a list of clients connected to the network.

Routing Tables / Status

The **Routing Status** view shows the static routes configuration for the various network types.

UPnP

The **UPnP Open Ports** view shows the status of any UPnP ports currently in use.

DHCP

The **Active DHCP Leases** view shows the status of any DHCP leases currently in use.

NAT

The **NAT** view shows a list of active NAT mappings in the device network.

Status

The **Network Status** view provides an overview of network elements for your device.

Configuration

WAN6

The **WAN6** view shows information about any connected IPv6 network.

LAN

The **LAN** view shows information about the local network connected IPv4 network.

Option	Description	Comment
IP Address	IP address of the device on the local network.	Typically 192.168.1.1.

WAN

The **WAN** view shows information about any connected IPv4 network.

Option	Description	
IP Address	IP address for the device on the Internet.	
Gateway	IP address to the internet gateway.	
Primary DNS	First priority DNS server.	
Secondary DNS	Second priority DNS server.	

Clients

The **Connected Clients** view shows a list of clients connected to the network.

Table

Column	Description	Comment
Hostname	Client hostname.	
MAC Address	Client MAC Address .	
IPv4 Address	Client IPv4.	
IPv6 Address	Client IPv6 address.	
Active Connections	Number of active connections.	

Routing Tables / Status

The **Routing Status** view shows the static routes configuration for the various network types.

Overview

ARP

The **ARP status** view shows information about ARP routes.

IPv4

The **IPv4 status** view shows information about IPv4 routes.

IPv6

The **IPv6 status** view shows information about IPv6 routes.

IPv6 Neighbors

The **IPv6 Neighbors** view shows information about IPv6 devices in the network neighborhood.

ARP

The **ARP status** view shows information about ARP routes.

Table

The table displays information about static ARP routes.

Column	Description	Comment
IPv4 Address	IPv4.	
MAC Address	Client MAC Address .	
Device	Network device type.	Displayed as virtual interface name.

IPv4

The **IPv4 status** view shows information about IPv4 routes.

Table

The table displays information about static IPv4 routes.

Column	Description	Comment
IPv4 Address	IPv4.	
Gateway	IP address to the internet gateway.	
Genmask	Route genmask.	
Device	Network device type.	Displayed as virtual interface name.

IPv6

The **IPv6 status** view shows information about IPv6 routes.

Table

The table displays information about static IPv6 routes.

Column	Description	Comment
IPv6 Address	IPv6 address.	
Next Hop	Next Hop device.	
Device	Network device type.	Displayed as virtual interface name.

IPv6 Neighbors

The **IPv6 Neighbors** view shows information about IPv6 devices in the network neighborhood.

Table

The table shows information about discovered IPv6 neighbors.

Column	Description	Comment
IPv6 Address	IPv6 address.	
IPv6 Status	Device .	INCOMPLETE / REACHABLE / STALE / DELAY / PROBE
Device	Connected device.	
MAC address	MAC address for the device.	
Router	Is the device a router?	true/false

NDP Status

The RFC 4861 defines a number of statuses:

Status	Description	Comment
INCOMPLETE	Address resolution is in progress and the link-layer address of the device has not yet been determined.	
REACHABLE	Device is known to have been reachable recently (within tens of seconds ago).	
STALE	Device is no longer known to be reachable but until traffic	

	is sent to the neighbor, no attempt should be made to verify its reachability.	
DELAY	Device is no longer known to be reachable, and traffic has recently been sent to the neighbor. Probes should be delayed in order to give upper-layer protocols a chance to provide reachability confirmation.	
PROBE	Device is no longer known to be reachable, and unicast Neighbor Solicitation probes are being sent to verify reachability.	

UPnP

The **UPnP Open Ports** view shows the status of any UPnP ports currently in use.

DHCP

The **Active DHCP Leases** view shows the status of any DHCP leases currently in use.

DHCPv4 Leases

Column	Description
Hostname	Client hostname.
IPv4 Address	Client IPv4.
MAC Address	Client MAC Address.
Leasetime remaining	Time until the lease expires.

DHCPv6 Leases

Column	Description
Hostname	Client hostname.
IPv6 Address	Client IPv6 address.
DUID	Client DUID.
Leasetime remaining	Time until the lease expires.

NAT

The **NAT** view shows a list of active NAT mappings in the device network.

Connections

The **Active Connections** gauge shows how many NAT mappings are in use out of the allowed total, as a percentage and as a count.

NAT Connection Table

Connections to and from the local network to the external network are added to the table, allowing the device to handle traffic routing decisions.

The table displays information about active NAT connections.

Column	Description	Comment
Protocol	Communication protocol used.	
Source	Internal IP address.	
Destination.	External IP address.	
Source Port	Internal Port.	
Destination Port	External Port.	

WiFi

The **WiFi Status** view shows information about the wireless network, and allows you to scan the local area for other wireless access points.

Overview

General

The **general WiFI Status** view displays information about your wireless channels and network interfaces.

WiFi Scan

The **WiFi scan** view allows you to scan the area around the device to find out what other access points are visible.

Band Steering

The **Band Steering** view shows information about band steering.

General

The **general WiFI Status** view displays information about your wireless channels and network interfaces.

Configuration

For each wireless radioinformation is displayed about:

- WiFi channel in use.
- Noise level in dB for the channel.
- WiFi interface name.
- WiFi encryption used by the interface.

Client

For each connected client, more infomation about the connected client is available.

Client

For each connected client, more infomation about the connected client is available.

Details

To view more details about a client, click the **expand** button.

Item	Description	Example
IP-Address	Client IPv4 address.	10.0.0.154
MAC-Address	Client MAC address.	1A:97:1C:C7:76:63
DHCP	Does client use DHCP?	true
Idle	Is the device transmitting?	0
In Network	ID for connected network.	74
RSSI	Received signal strength indicator value.	-42 dBm
SNR	Signal to Noise Ratio value.	41 dB
Number of Antennas	Client antennas in use.	2
TX Rate	Transmission rate.	130 Mbps
RX Rate	Receive rate.	144 Mbps
Flags	Provided device flags.	BRCM, WME, N_CAP, AMPDU
HT Capabilities	Supported HT Capabilities (data rates).	LDPC, BW40, SGI20, SGI40
TX Total Packets	Total number of transmitted	22589

	packets.	
Unicast Packets	Total packets transmitted through unicast.	224
TX Unicast Packets	Packets transmitted through unicast.	224
TX Multicast/Broadcast Packets	Packets transmitted through multicast.	22365
TX Failures	Transmission failures.	0
RX Data Packets	Received packets.	440
RX Unicast Packets	Received packets transmitted through unicast.	209
RX Multicast/Broadcast Packets	Received packets transmitted through multicast.	231
TX Data Packets Retried	Resent data packets.	0
TX Total Packets Sent	Total data packets transmitted through unicast.	7
TX Packets Retries	Retransmitted data packets.	1
TX Packets Retry Exhausted	Data Packets failed after retry.	0
RX Total Packets Retried	Retransmitted data packets.	107

Utilization

The **WiFi Utilization** view displays information about usage for the connected devices in the network.

Table

Each available radio is displayed in a table, with one client per row.

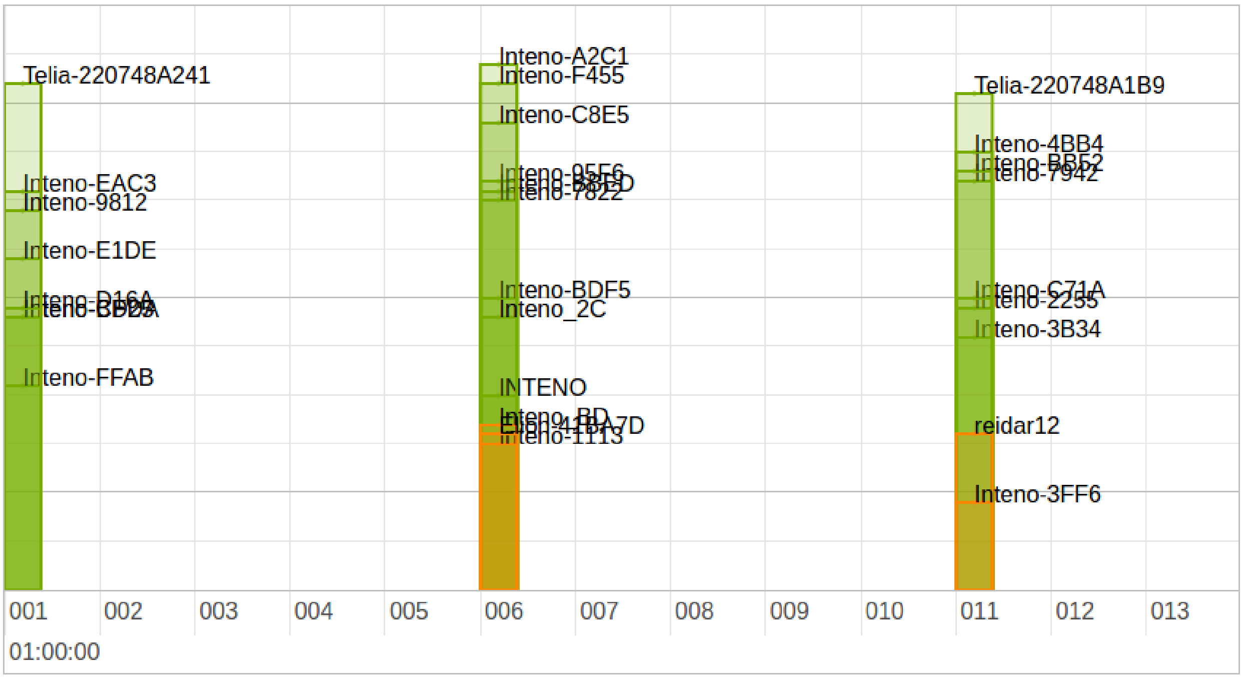
Column	Description	
MAC Address	Client MAC address.	
Airtime Usage	Percentage of airtime used by the client.	
Data Rate	Transmitted data rate in Mbps.	
Data Usage	Percentage of available data volume used.	
Physical Rate	Transmission rate in Mbps.	
Retries	Percentage of connections that were retried.	

WiFi Scan

The **WiFi scan** view allows you to scan the area around the device to find out what other access points are visible.

Chart

The scan results table displays all detected access points and information about each in a graphical manner.



Graph

Axes

The horizontal axis shows the discovered channels.

The vertical axis shows the signal strength, according to RSSI.

Color	Description	Comment
Red	Poor.	
Yellow	Acceptable.	
Green	Good.	

Table

The scan results table displays all detected access points and information about each:

Column	Description	Comment
SSID	SSID identifying the access	

	point.	
Frequency	WiFi frequency band for the access point.	
Channel	Channel used by the access point.	
RSSI	RSSI strength for the signal.	
Noise	Noise level for the connection to the access point.	
Cipher	Cipher used for encryption in the access point.	
WPS	WPS version used by the access point.	

Scan WiFi

To scan a frequency band:

- Select **Frequency to Scan**
- Click **Scan**

The results for the selected band are displayed in the graph and table.

Band Steering

The **Band Steering** view shows information about band steering.

Status

The **status** section shows the current band steering status.

The information is displayed in the STA info summary table.

Column	Description
STA*MAC | Station (client) MAC address. || Interface | Client interface name. || TimeStamp | Timestamp for the steering event. ||* Txrate	Transmission rate.
RSSI	Received signal strength indicator .
Bounce	Does the client bounce back to a particular bandafter steering? (yes/no).
Picky	Does the client prefer a particular band? (yes/no).
PSTA	Is the client a proxy station? (yes/no).

DUALBAND	Is the client dual-band capable? (yes/no).

Log

The **log** section contains the log file, which shows the band steering events.

The information is displayed in the Band Steering Record table.

Column	Description
Seq	
TimeStamp	Timestamp for the steering event.
STA*MAC | Station (client) MAC address. | | Fm*ch	From channel (hex code).
To_ch	To channel (hex code).
Reason	Event (hex code).
Description	Description of event.

DSL

The **DSL status** view shows information about any DSL connections to the device.

DSL Status Information

The DSL Status Information section shows the status for the DSL line.

Line Status

Status	Description
Idle	No connection.
Handshake	Searching for connection, negotiating transfer.
Training	Connection found, testing cable.
Showtime/Active	Connection established.

DSL Mode

The DSL Mode section shows the DSL.

Bit Rate

The Bit Rate section shows transmission rates for streams in bits per second (bps).

Actual Data Rate

Column	Description
Downstream	Rate to the device.

Upstream	Reate from the device.

Operating Data

The Operating Data section shows signal strength for the DSL line.

SNR margin

The SNR Margin section displays the signal-to-noise margin for the streams.

Column	Description
Downstream	To the device.
Upstream	From the device.

Loop Attentuation

The Loop Attentuation section shows signal attentuation for the streams.

Column	Description
Downstream	To the device.
Upstream	From the device.

Error Counter

The Error Counter section lists the number of (discovered) errors for the connection.

FEC Corrections

The FEC Corrections table shows FEC corrections for the streams.

Column	Description
Downstream	To the device.
Upstream	From the device.

CRC Corrections

The CRC Corrections table shows CRC corrections for the streams.

Column	Description
Downstream	To the device.
Upstream	From the device.

Cell Statistics

The Cell Statistics section shows the number of cells transmitted for the streams.

Column	Description
Received	To the device.

Transmitted	From the device.

IGPM TV

The **IGPM TV Status** views shows information about your IPTV services and their connection status.

Configuration

The table shows any connected IGMP TV channels and information about each:

Column	Description
Group IP	IP address of the IGMP group.
Client IP	IP address of the client.
LAN Port	LAN Port used for the group.
WAN Port	WAN Port used for the group.
Timeout	Time until the gateway triggers IGMP query reelection.

USB

The **USB devices** views displays information about any USB devices connected to the gateway device.

Note: Supported file systems for USB devices are NTFS and FAT32.

Table

The **USB device information** table shows information about the USB devices.

Column	Description	Comment
Device ID	Identification for the USB device.	
Vendor ID	Identification for the manufacturer.	
Vendor Name	Name of the manufacturer.	
Device Name	Name reported by the USB device.	

CATV

The **CATV Status** view shows information about CATV services connected to the device.

Configuration

Note: Available on EG300 & EG400 only.

Option	Description	Example
Inteno model	Model.	CATV-302
VPD	Reverse voltage on Protection Device.	-inf dBm
RF	Range.	75.7 dBμV
RF enable	Enable RF.	OFF

SFP

The **SFP Status** view shows information about SFP connectors enabled in the device.

Configuration

Information is shown in two tables; ROM information and DDM information.

Note: Available on EG300 & EG400 only.

DDM

The DDM table shows information about the DDM retrieved from the SFP.

Option	Description	Example
voltage	Port voltage.	3.1872 (V)
current	Port current.	26.448 (mA)
tx-pwr	Broadcasting power.	0.3530 (mW)
tx-pwr-dBm	Broadcasting power.	-4.5223 (dBm)
rx-pwr	Received signal power.	0.3026 (mW)
rx-pwr-dBm	Received signal power.	-5.1913 (dBm)
rx-pwr-type	Received power type.	average

ROM

The ROM table shows information about the ROM.

Option	Description	Example
connector	Connector type.	SC
ethernet	Ethernet type.	LX
encoding	Encoding type.	8B10B
rate	Line rate.	1300
single-mode	Single mode distance.	20000

vendor	Port manufacturer or vendor.	Skylane Optics
oui	Organizationally Unique Identifier.	00:25:cd
pn	Product name.	SBU35020DR3D000
rev	ROM Revision.	A
sn	Serial Number	b19bmjrx1857
date	ROM date.	2016-04-21
ddm	DDM version	9.3

Diagnostics

The **Diagnostic Utility** allows you to perform diagnostic tests from the web interface.

Overview

Ping

The **Ping Test** view allows you to perform a Ping for a selected host.

Trace

The **Tracing tool** view allows you to perform a Traceroute Test for a selected host.

Speed Test

The **Speed Test** view allows you to perform a TP Test for your network, using your device as the endpoint.

Ping

The **Ping Test** view allows you to perform a Ping for a selected host.

Ping Test

To perform a ping test against an endpoint:

- Enter a valid hostname or IP address in the **Host to ping** box
- Click **Ping**

The result of the ping is shown below the utility.

Example:

```
PING 127.0.0.1 (127.0.0.1): 56 data bytes
64 bytes from 127.0.0.1: seq=0 ttl=64 time=0.208 ms
64 bytes from 127.0.0.1: seq=1 ttl=64 time=0.130 ms
64 bytes from 127.0.0.1: seq=2 ttl=64 time=0.129 ms
64 bytes from 127.0.0.1: seq=3 ttl=64 time=0.146 ms
64 bytes from 127.0.0.1: seq=4 ttl=64 time=0.130 ms

--- 127.0.0.1 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 0.129/0.148/0.208 ms
```

Trace

The **Tracing tool** view allows you to perform a Traceroute Test for a selected host.

Traceroute Test

To perform a tracroute test against an endpoint:

- Enter a valid hostname or IP address in the **Host to trace** box
- Click **Trace**

The result of the trace is shown below the utility.

Example:

Trace results:

```
traceroute to 127.0.0.1 (127.0.0.1), 30 hops max, 38 byte packets
 1  127.0.0.1  0.033 ms
```

Speed Test

The **Speed Test** view allows you to perform a TP Test for your network, using your device as the endpoint.

Configuration

Option	Description	Comment
Direction	Traffic direction to test.	Up and Down, Up, Down.
Package Size	Size of test data packages to send.	Size of test packages to send.
Speedtest Server	Server to use for the test.	A number of default servers are provided, but you can

		edit the list.

Perform Speed Test

Example

Test results:

Downstream: 103.45 Mbit/s
Upstream: 44.10 Mbit/s

Add test server

If you have additional test servers you want to use, you can add them to the dropdown list.

To add a test server:

- Click the **+** plus sign

A dialog is shown allowing you to enter parameters:

Option	Description	Comment
Hostname	Test Server hostname	
Port	Test server port	

- Add a valid Server **Hostname**
- Add a valid server **Port**
- Click **OK**

Remove test server

Servers in the test server list can be removed.

To remove a test server:

- Select the server in the **Speedtest Server** list
- Click the **-** minus sign

The server is removed from the list immediately.

Realtime Graphs

The **Realtime Graphs** view provides access to graphical representations of status for the device. The graphs scroll as time progresses and lines indicate the current status.

Overview

Load

The **Load** graph shows device load averages for different time recent periods.

Traffic

The **Traffic** graph shows upload and download traffic for the interfaces.

Connections

The **Connections** graph shows the number of currently active connections for the device.

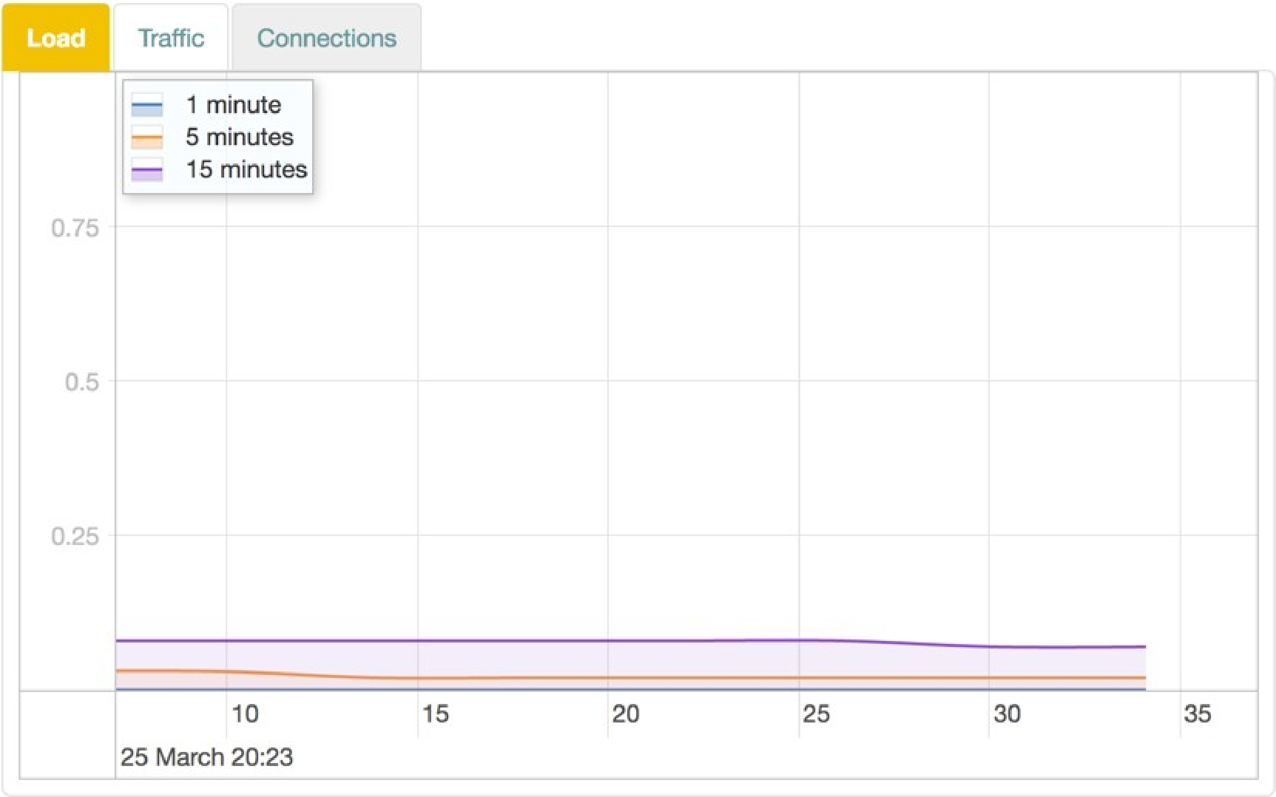
Load

The **Load** graph shows device load averages for different time recent periods.

Graph Lines

The display is shown in realtime, and the lines represent the average over different intervals:

Color	Time
Blue	1 minute
Red	5 minutes
Purple	15 minutes



Load

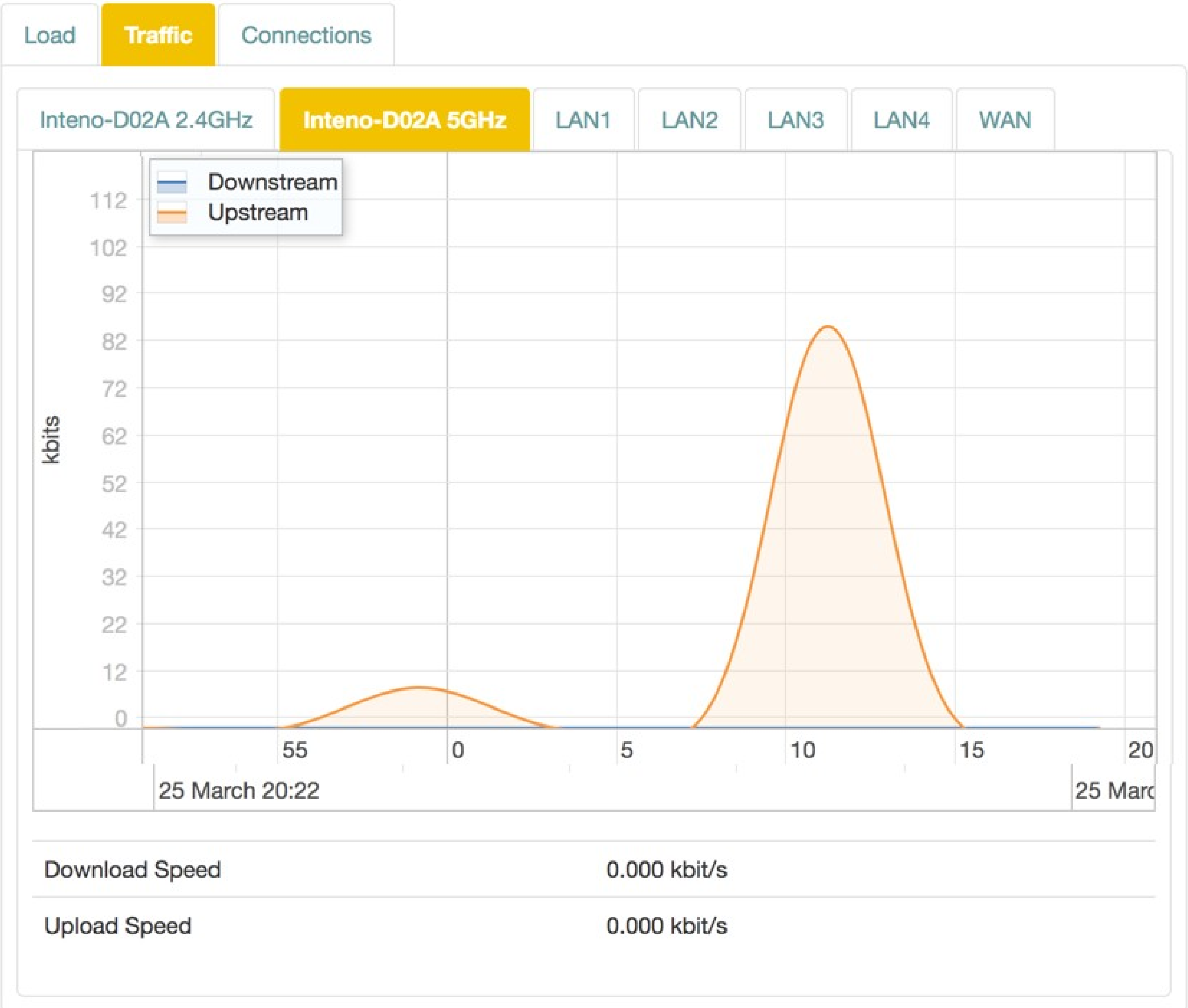
Traffic

The **Traffic** graph shows upload and download traffic for the interfaces.

Graph Lines

Each interface is available in its own tab. The display is shown in realtime, with lines representing traffic in kbit/s:

Color	Traffic
Blue	Downstream.
Red	Upstream.



Download Speed	0.000 kbit/s
Upload Speed	0.000 kbit/s

Traffic

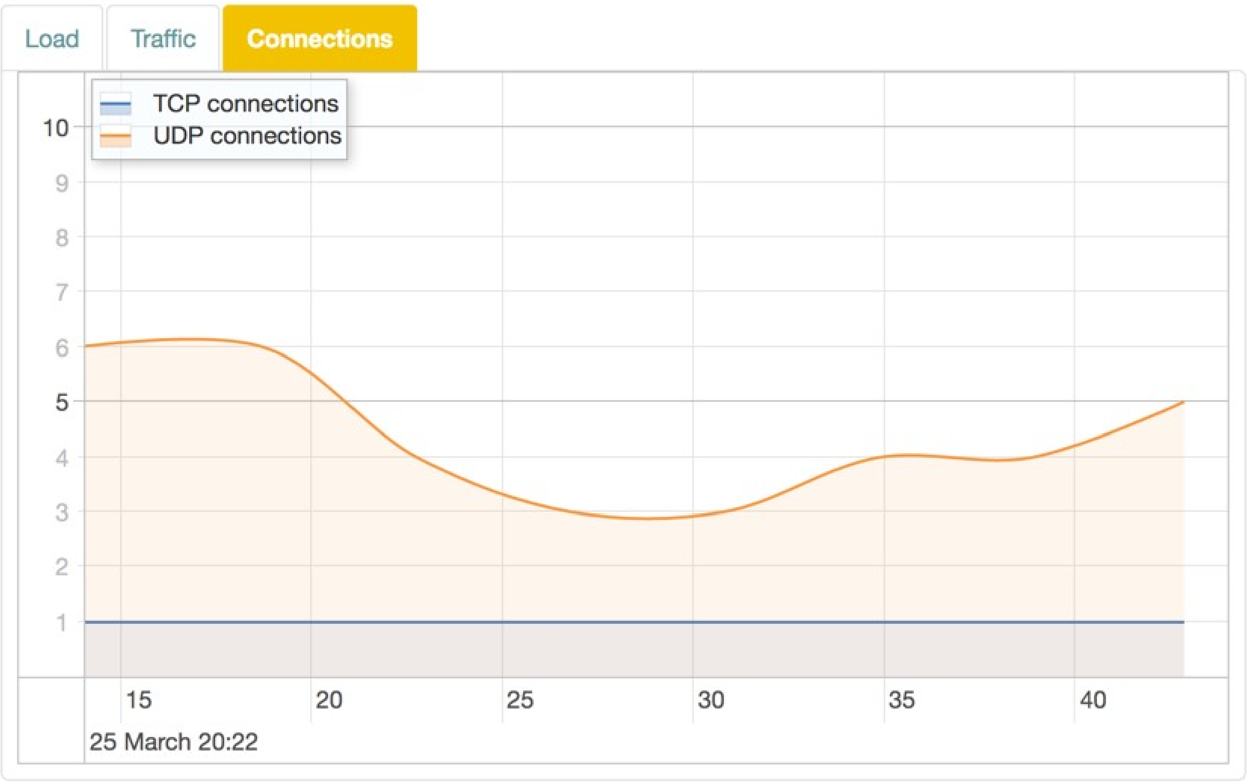
Connections

The **Connections** graph shows the number of currently active connections for the device.

Graph Lines

The lines representing different connection types:

Color	Traffic
Blue	TCP connections.
Red	UDP connections.



Connections

Voice

The **Voice Status** view shows information about SIP accounts, phone numbers and voice lines connected to the device.

Configuration

Information is shown in two tables.

Your phone numbers

Option	Description	Comment
Name	SIP account name.	Uses type and number unless otherwise set.
User	SIP user.	
Domain	SIP domain.	
Registration interval	SIP registration interval domain.	
Last registration	Last registration time.	
Status	Current status of the line.	

Voice lines

The Voice lines shows a list of connected voice lines.

Option	Description	
Name	Voice line name.	Uses type and number unless otherwise set.
State	Current state of the line.	

Event Log

The **Event Log** view lets you view and manage the event log for the device.

Log

The **Log** section contains log settings and lets you download the logs.

Item	Description
Download All Logs	Save the logs to the local computer.
Limit Log List	Limit the number of events.
Filter Log Messages By Source	Filter out events by freetext search in source.
Filter By Type	Filter out event types by Logging level.
Filter By	Filter out events in the log (firewall / network / system / iptv).

Enable Online Help

For JUCI version 3.10.0+, online help is enabled by default.

However, if you upgrade from an earlier version, this option may not have been enabled. If so, you may need to connect to your device via SSH and run console commands to enable the setting.

CLI Enable Online Help

To enable online help:

Commands on Local Computer

- Open a console window on your local computer.
- Connect to the device:

```
ssh admin@192.168.1.1
```

Note: The address may be different from 192.168.1.1 for your device. Use the same address as for the usual login.

Note: You may need to enable SSH access to your device from the System > Management > SSH.

Note: For login, use the password defined in System > Passwords.

Commands on Device

The command line commands to run are the following:

To enable the help:

```
uci set juci.wiki.visible=1
```

To apply the setting:

```
uci commit juci
```