

Contents

Router Login.....	2
UPnP	3
Parental control.....	4
LAN clients	5
Wi-Fi name (SSID) and password change	5
Security modes of Wi-Fi.....	8
Creating new SSID	9
Changing Wi-Fi channel	10
Deleting existing SSID	12
WPS	13
Wi-Fi associated clients	14
Change of admin credentials	14
Factory reset and Restart of the router.....	15
Access to USB flash drive attached to router	16
Change of DNS	21
Port forwarding.....	23
DMZ	28
DHCP binding	29
IPv6 port filtering	30
Public IPv4 address block in LAN network.....	33

Router Login

To log into your router, open a web browser (for example, Google Chrome, Microsoft Edge, Mozilla Firefox etc.). Type **192.168.1.1** in the address bar of the browser. You should then see a login page (Image 1). In the **Username** field, type “**admin**”. In the **Password** field, type the password shown on the sticker on the back of your router. Once all fields are populated, press **Login**.

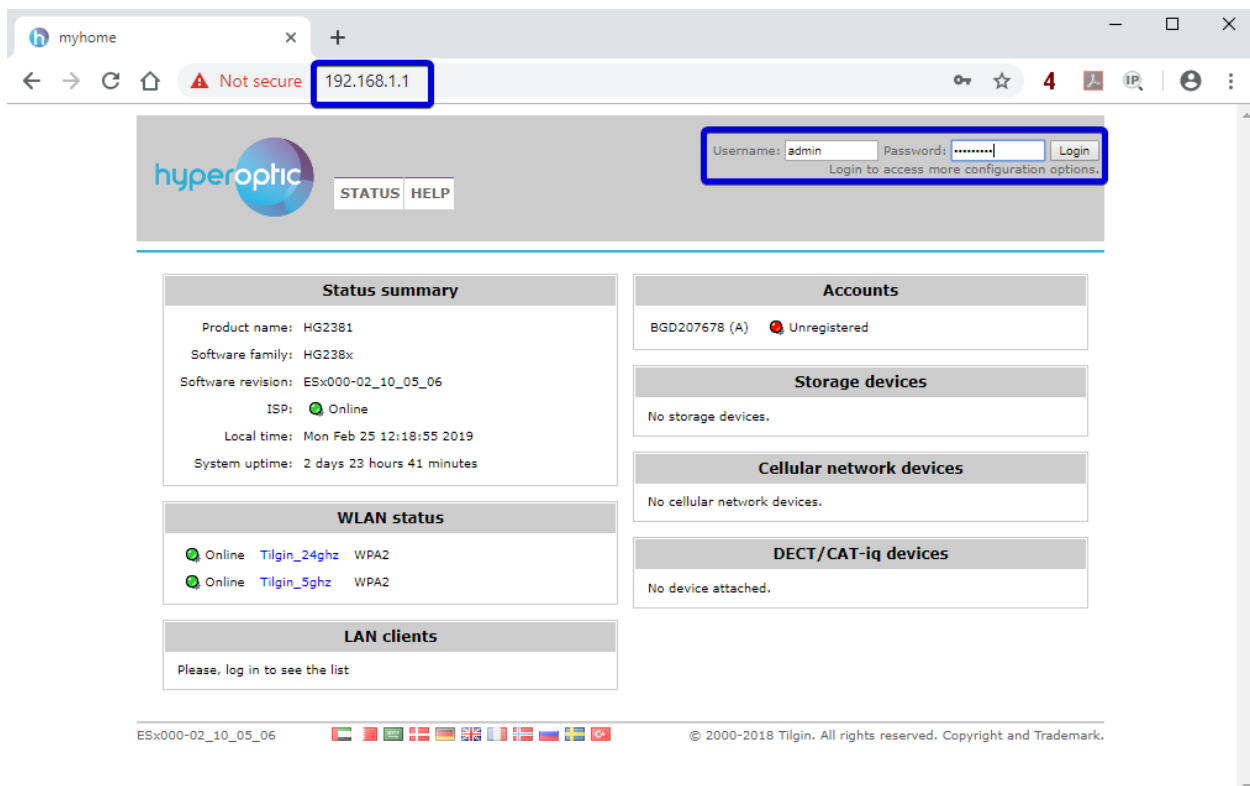


Image 1. Router HG2381 login screen

UPnP

UPnP service can be used for easier and more convenient router configuration. To configure your router using UPnP desktop applications (e.g. PortMapper Windows), please log into your router (page 2) and navigate to **Advanced > Connection settings > UPnP**. See Image 2. If you're not using UPnP applications, UPnP should be set to Off (the default UPnP setting is Off).

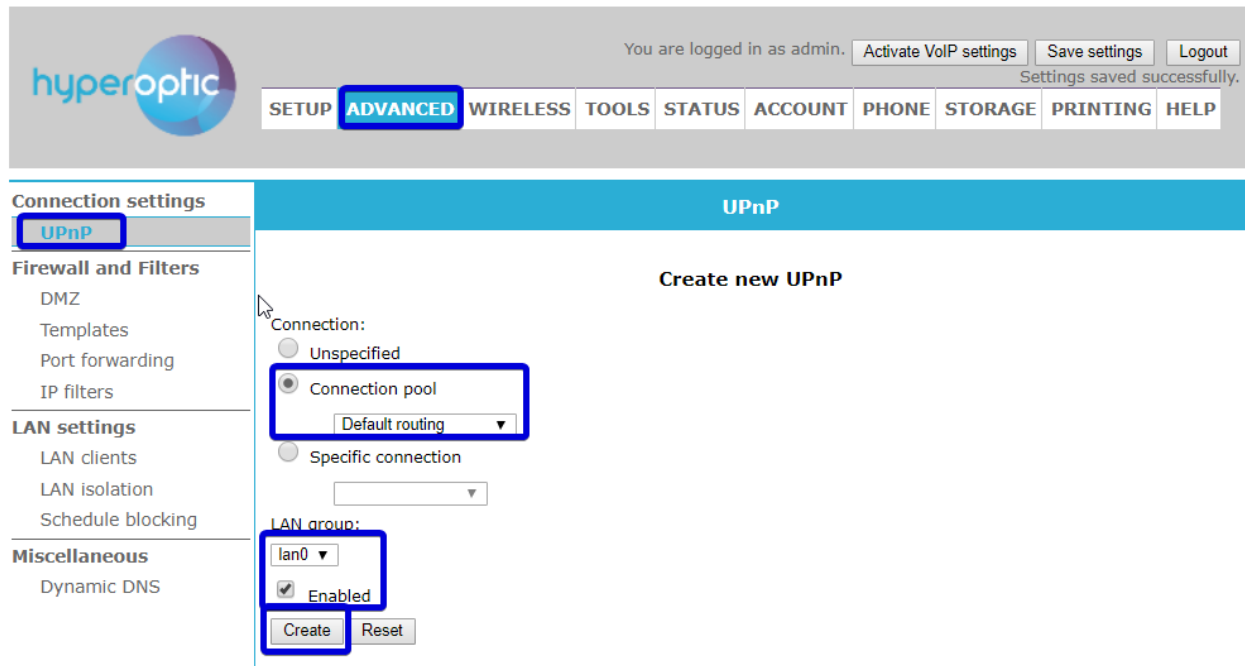


Image 2. Setting up UPnP service

Select options as in image 2, tick **Enabled** and click **Create**. Once this is done, click **Save settings** in the upper right side of the screen. You should see confirmation as per image 3.

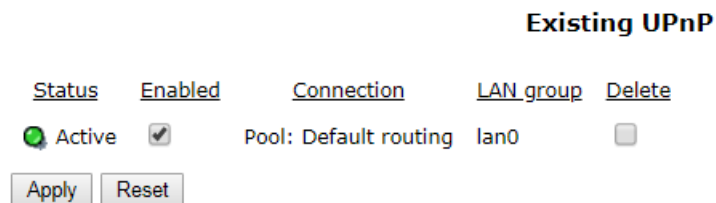


Image 3. Confirmation of UPnP settings

Parental control

Parental control can be used to restrict access to sites. To enable parental control, please log into your router (page 2) and navigate to **Advanced > LAN settings > LAN clients**. Select the device which needs to be blocked and click **Apply**. This part of the process will create static DHCP binding for certain MAC address (LAN client). See Image 4.

If clicked on IPv6 button, IPv6 address of LAN client will be displayed.

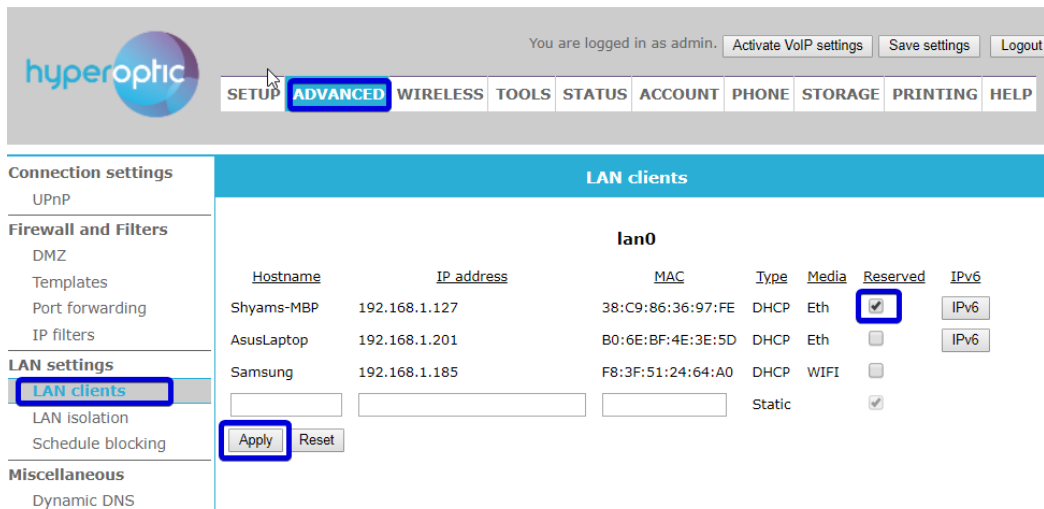


Image 4. Defining which LAN client will be blocked

Once completed, navigate to **Advanced > LAN settings > Schedule blocking**. Select the day and time you would like to restrict access and click **Apply**. Then click **Save settings**. See Image 5.

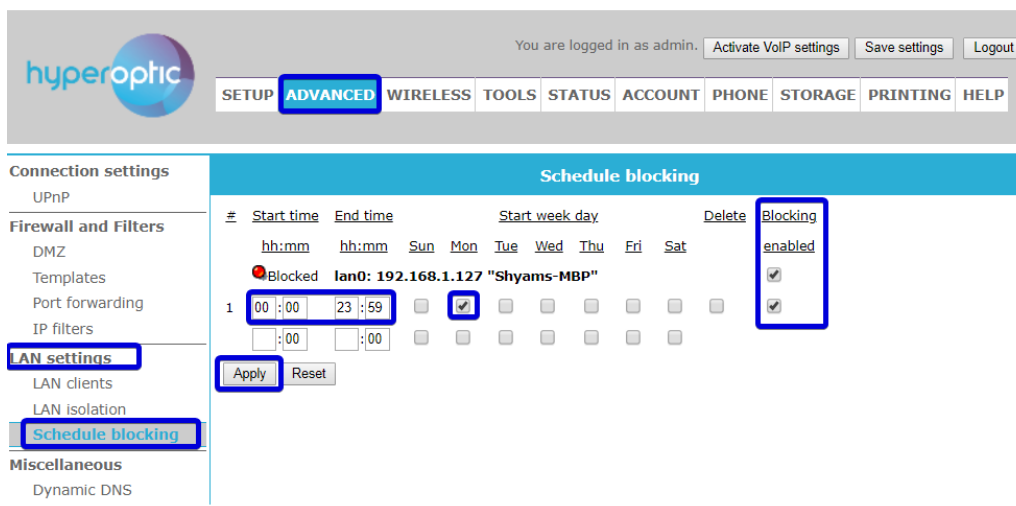
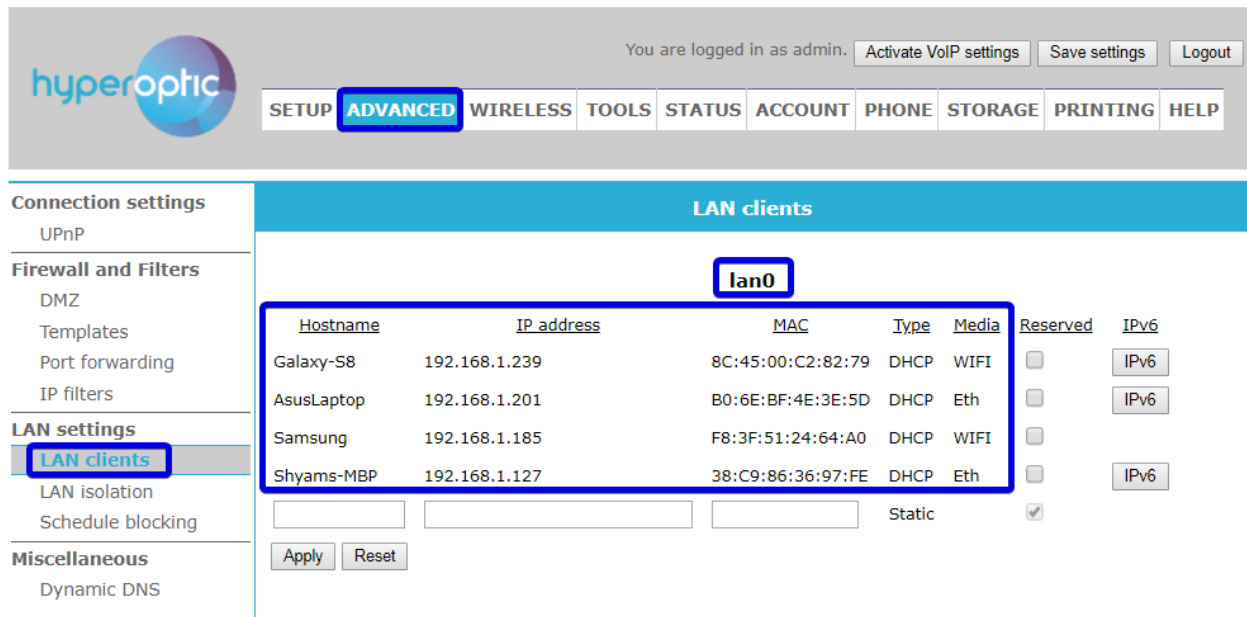


Image 5. Defining blocking time & day per week basis

LAN clients

The number of LAN (Local Area Network) clients, their MAC addresses and associated IPv4 addresses can be checked once you're logged into your router (see page 2). Navigate to **Advanced > LAN settings > LAN clients**. The connection type will be listed for every LAN client (see Image 6), and you'll be able to see all the devices that are using your router's LAN.



You are logged in as admin. [Activate VoIP settings](#) [Save settings](#) [Logout](#)

SETUP **ADVANCED** WIRELESS TOOLS STATUS ACCOUNT PHONE STORAGE PRINTING HELP

Connection settings
UPnP

Firewall and Filters
DMZ
Templates
Port forwarding
IP filters

LAN settings
LAN clients
LAN isolation
Schedule blocking

Miscellaneous
Dynamic DNS

LAN clients

lan0

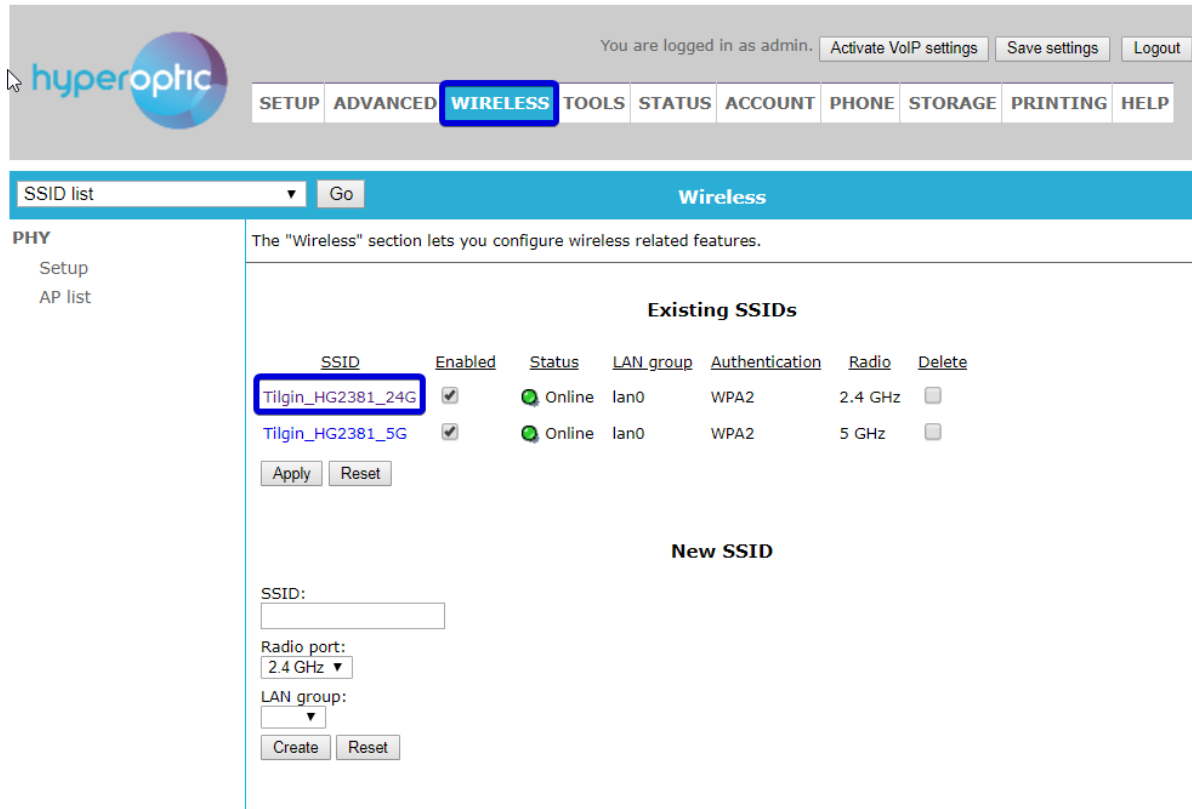
Hostname	IP address	MAC	Type	Media	Reserved	IPv6
Galaxy-S8	192.168.1.239	8C:45:00:C2:82:79	DHCP	WIFI	<input type="checkbox"/>	IPv6
AsusLaptop	192.168.1.201	B0:6E:BF:4E:3E:5D	DHCP	Eth	<input type="checkbox"/>	IPv6
Samsung	192.168.1.185	F8:3F:51:24:64:A0	DHCP	WIFI	<input type="checkbox"/>	IPv6
Shyams-MBP	192.168.1.127	38:C9:86:36:97:FE	DHCP	Eth	<input type="checkbox"/>	IPv6
<input type="text"/>	<input type="text"/>	<input type="text"/>	Static		<input checked="" type="checkbox"/>	

[Apply](#) [Reset](#)

Image 6. Overview of LAN clients

Wi-Fi name (SSID) and password change

To change your wifi name or password for 2.4 GHz or 5 GHz bands, log into your router (see page 2) and navigate to **Wireless**. To change the parameters of your wifi connection, click on the **SSID** in the **Existing SSIDs** section. Configuration changes are the same for 2.4 GHz and for 5 GHz. See Image 7, where we've used 2.4 GHz for demonstration purposes.



hyperoptic

You are logged in as admin. [Activate VoIP settings](#) [Save settings](#) [Logout](#)

[SETUP](#) [ADVANCED](#) **[WIRELESS](#)** [TOOLS](#) [STATUS](#) [ACCOUNT](#) [PHONE](#) [STORAGE](#) [PRINTING](#) [HELP](#)

SSID list Go **Wireless**

PHY

- Setup
- AP list

The "Wireless" section lets you configure wireless related features.

Existing SSIDs

SSID	Enabled	Status	LAN group	Authentication	Radio	Delete
Tilgin_HG2381_24G	<input checked="" type="checkbox"/>	Online	lan0	WPA2	2.4 GHz	<input type="checkbox"/>
Tilgin_HG2381_5G	<input checked="" type="checkbox"/>	Online	lan0	WPA2	5 GHz	<input type="checkbox"/>

[Apply](#) [Reset](#)

New SSID

SSID:

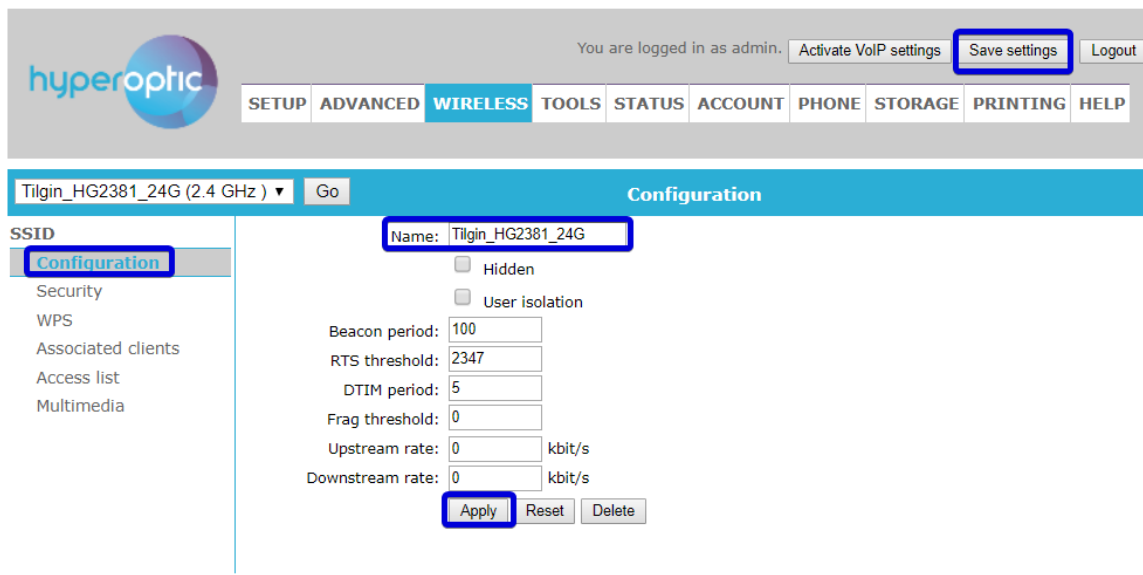
Radio port: 2.4 GHz

LAN group:

[Create](#) [Reset](#)

Image 7. Overview of existing Wi-Fi SSIDs

To change name of your wifi connection, navigate to **Wireless > SSID > Configuration**. Provide your desired connection name and then click **Apply** and **Save settings**. See Image 8.



hyperoptic

You are logged in as admin. [Activate VoIP settings](#) **[Save settings](#)** [Logout](#)

[SETUP](#) [ADVANCED](#) **[WIRELESS](#)** [TOOLS](#) [STATUS](#) [ACCOUNT](#) [PHONE](#) [STORAGE](#) [PRINTING](#) [HELP](#)

Tilgin_HG2381_24G (2.4 GHz) Go **Configuration**

SSID

- Configuration**
- Security
- WPS
- Associated clients
- Access list
- Multimedia

Name: **Tilgin_HG2381_24G**

☐ Hidden

☐ User isolation

Beacon period: 100

RTS threshold: 2347

DTIM period: 5

Frag threshold: 0

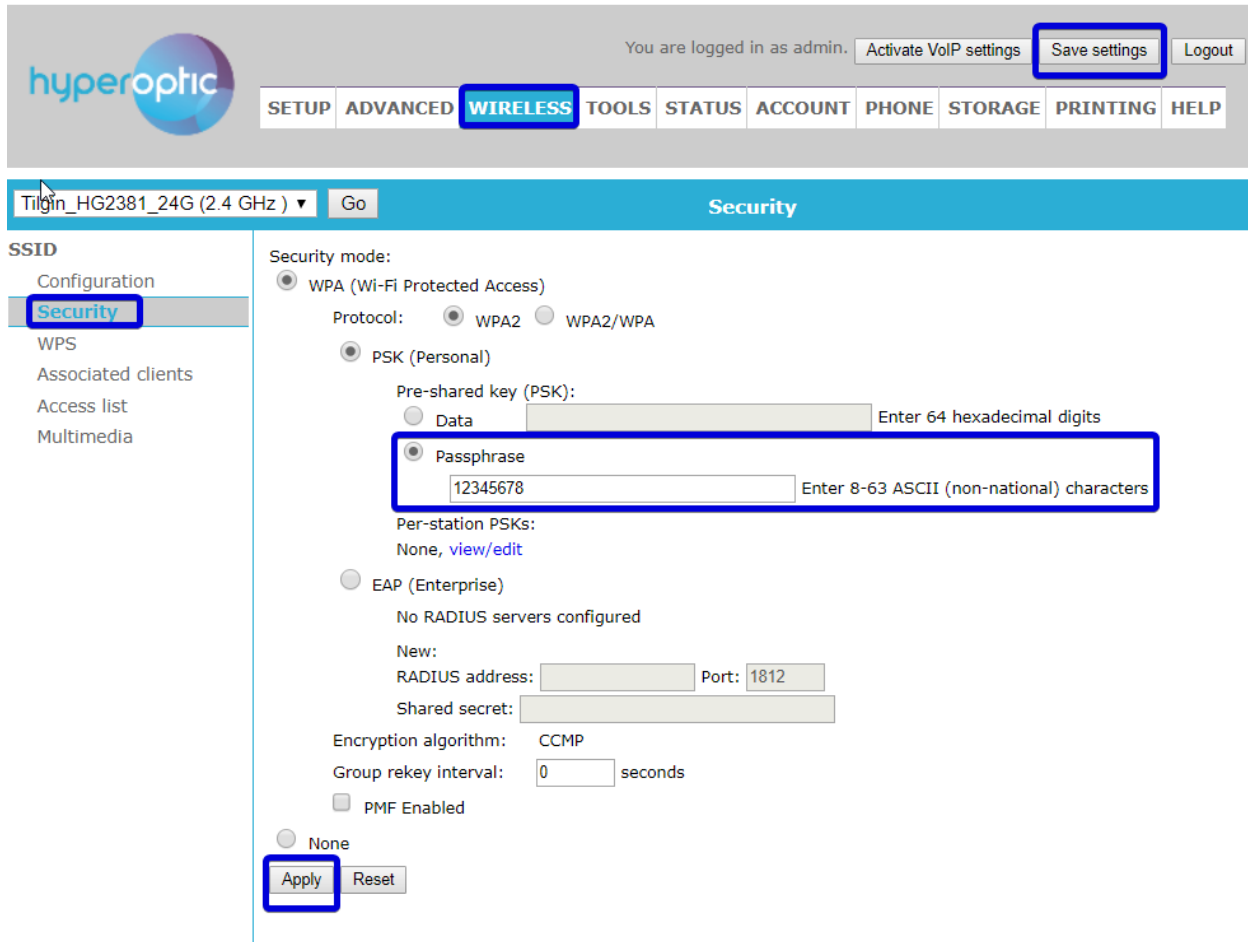
Upstream rate: 0 kbit/s

Downstream rate: 0 kbit/s

[Apply](#) [Reset](#) [Delete](#)

Image 8. Change of 2.4GHz connection name

To change your wifi password, navigate to **SSID > Security**. See Image 9. Please use passwords containing upper and lower-case letters and numbers, with a minimum of 12 characters in length. Once you've decided on a password, click **Apply** and **Save settings**.



hyperoptic

You are logged in as admin. [Activate VoIP settings](#) [Save settings](#) [Logout](#)

[SETUP](#) [ADVANCED](#) [WIRELESS](#) [TOOLS](#) [STATUS](#) [ACCOUNT](#) [PHONE](#) [STORAGE](#) [PRINTING](#) [HELP](#)

Tilgin_HG2381_24G (2.4 GHz) [Go](#) **Security**

SSID

- Configuration
- Security**
- WPS
- Associated clients
- Access list
- Multimedia

Security mode:

- ☒ WPA (Wi-Fi Protected Access)
 - Protocol: ☒ WPA2 ☐ WPA2/WPA
 - ☒ PSK (Personal)
 - Pre-shared key (PSK):
 - ☐ Data Enter 64 hexadecimal digits
 - ☒ Passphrase Enter 8-63 ASCII (non-national) characters
 - Per-station PSKs: None, [view/edit](#)
 - ☐ EAP (Enterprise)
 - No RADIUS servers configured
 - New:
 - RADIUS address: Port:
 - Shared secret:
- ☐ None

Encryption algorithm: CCMP

Group rekey interval: seconds

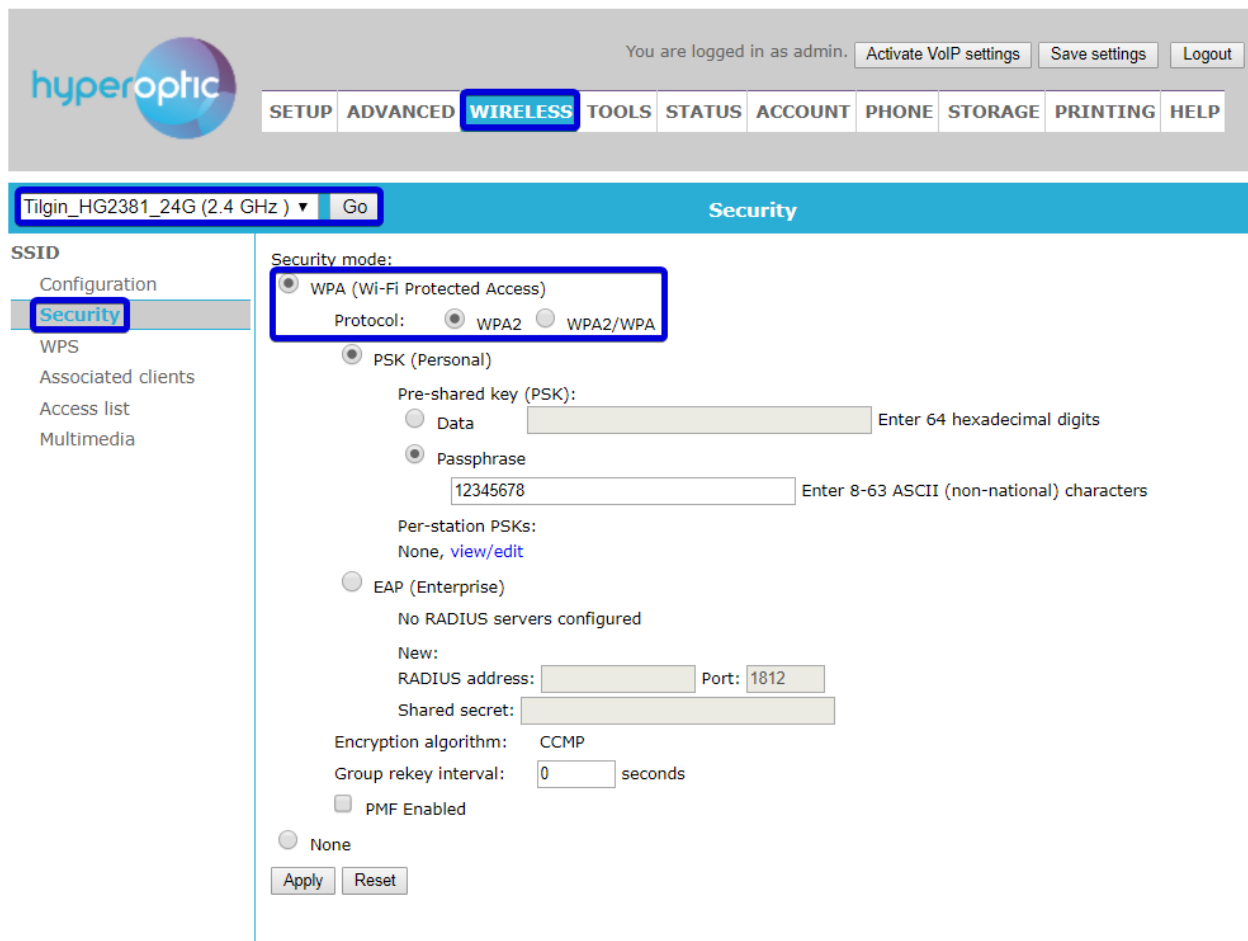
☐ PMF Enabled

[Apply](#) [Reset](#)

Image 9. Wi-Fi password change

Security modes of Wi-Fi

To change authentication setting for Wi-Fi, navigate to section **Wireless**. Click on either the **2.4GHz** or **5GHz** connection. Configuration is identical for both connections (see Image 10 for 2.4GHz example). Protocol **WPA2** or **WPA2/WPA** can be selected. After the protocol change, click **Apply** and **Save settings**. By default, advanced encryption algorithm is used.



hyperoptic

You are logged in as admin. [Activate VoIP settings](#) [Save settings](#) [Logout](#)

[SETUP](#) [ADVANCED](#) **[WIRELESS](#)** [TOOLS](#) [STATUS](#) [ACCOUNT](#) [PHONE](#) [STORAGE](#) [PRINTING](#) [HELP](#)

Tilgin_HG2381_24G (2.4 GHz) [Go](#) **Security**

SSID

- Configuration
- Security**
- WPS
- Associated clients
- Access list
- Multimedia

Security mode:

- ☒ WPA (Wi-Fi Protected Access)
 - Protocol: ☒ WPA2 ☐ WPA2/WPA
 - ☒ PSK (Personal)
 - Pre-shared key (PSK):
 - ☐ Data Enter 64 hexadecimal digits
 - ☒ Passphrase Enter 8-63 ASCII (non-national) characters
 - Per-station PSKs:
None, [view/edit](#)
 - ☐ EAP (Enterprise)
 - No RADIUS servers configured
 - New:
 - RADIUS address: Port:
 - Shared secret:
 - Encryption algorithm: CCMP
 - Group rekey interval: seconds
 - ☐ PMF Enabled
- ☐ None

[Apply](#) [Reset](#)

Image 10. Change of Wi-Fi security protocols

Creating new SSID

To create a new SSID, please log into your router (page 2) and navigate to **Wireless**. Under **New SSID**, use any name (e.g. New_2.4GHz), select **2.4 GHz** or **5GHz radio port** and select **lan0** LAN group. Click **Create**. See Image 11. If a new 5GHz network is needed, select 5 GHz radio port from the drop-down menu. The configuration steps for 2.4GHz SSID and 5GHz SSID are the same.

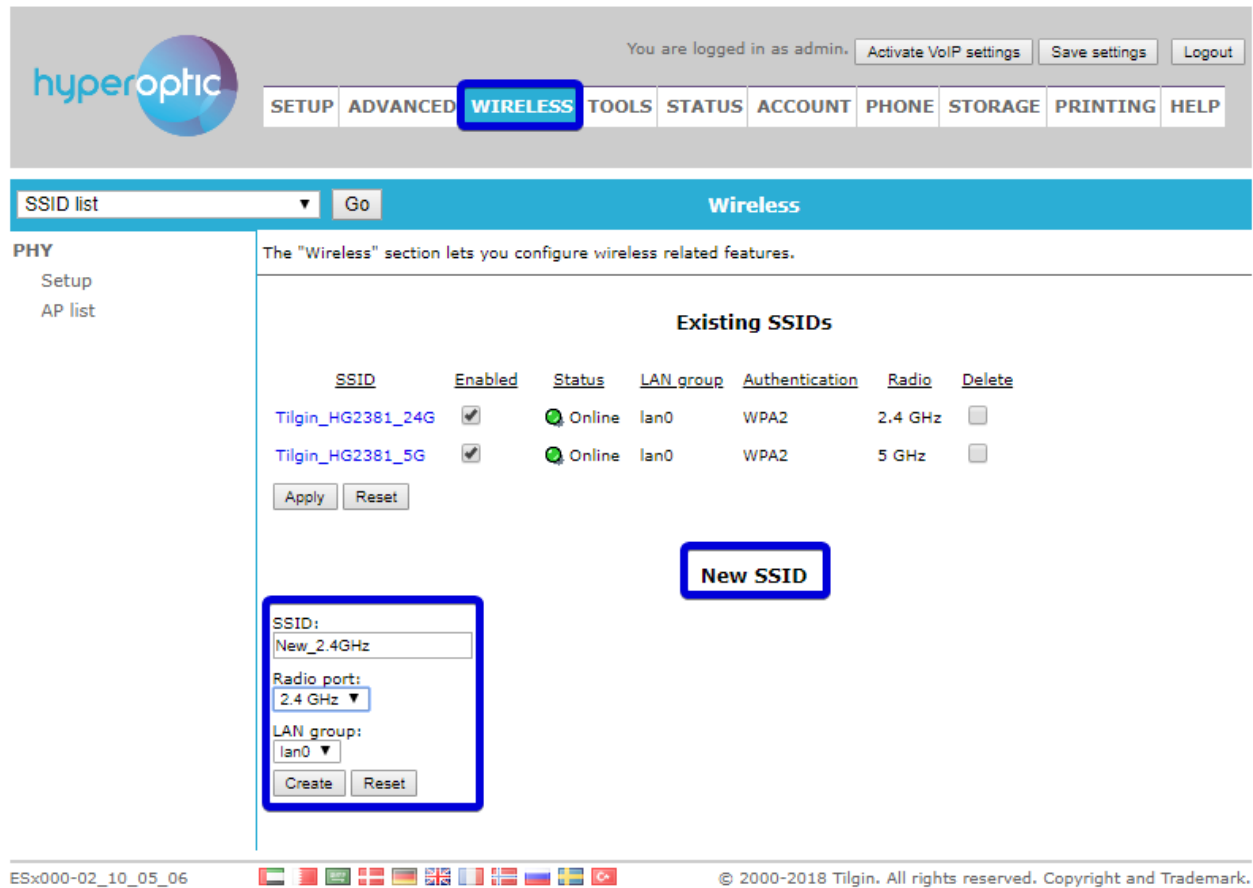
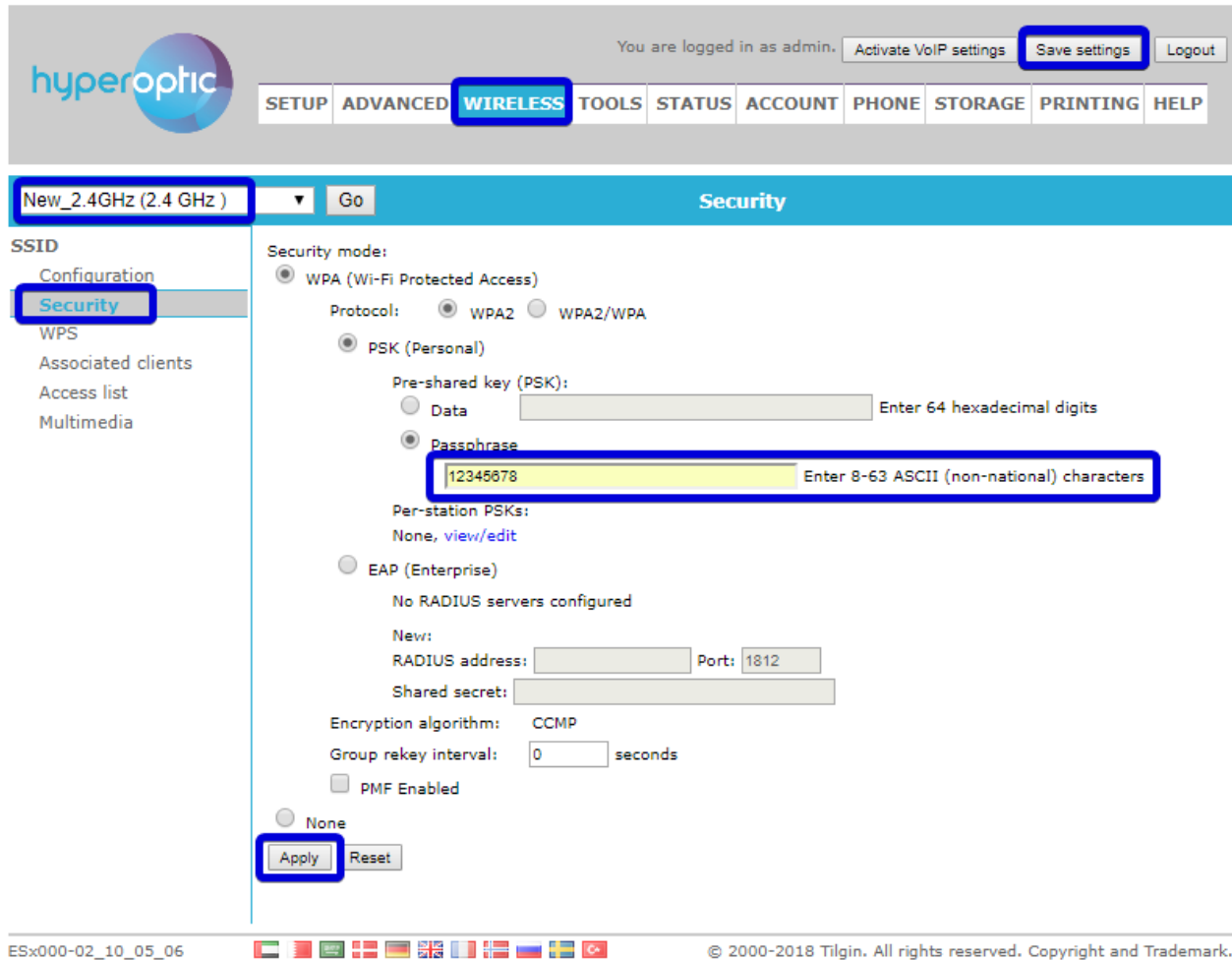


Image 11. Creating new SSID

Once your new SSID (in this case 2.4GHz) is created, you can change the passphrase of the SSID. Click **Apply** and **Save settings** in the upper right corner of the web page (see Image 12).



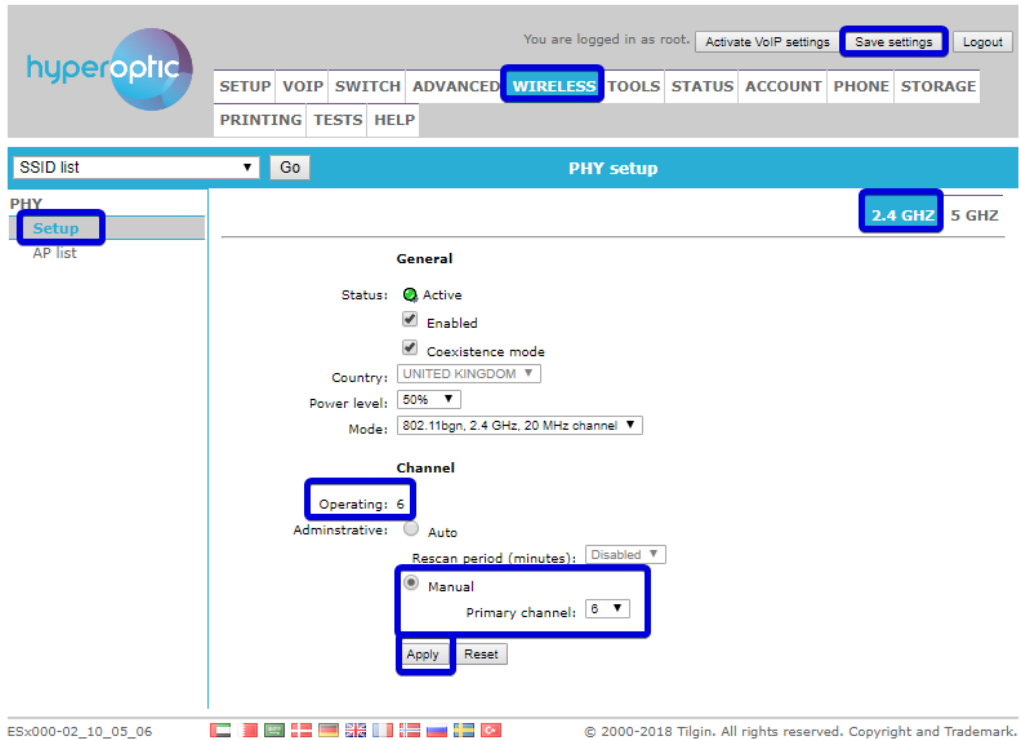
The screenshot shows the hyperoptic router's admin interface. At the top, there's a navigation bar with tabs: SETUP, ADVANCED, **WIRELESS**, TOOLS, STATUS, ACCOUNT, PHONE, STORAGE, PRINTING, and HELP. Below this, a sub-header shows 'New_2.4GHz (2.4 GHz)' and a 'Go' button. The main content area is titled 'Security'. On the left, a sidebar lists 'SSID' and 'Configuration', with 'Security' highlighted. The main area shows 'Security mode' with three options: WPA (Wi-Fi Protected Access), PSK (Personal), and EAP (Enterprise). WPA is selected. Under WPA, 'Protocol' has two options: WPA2 (selected) and WPA2/WPA. 'Pre-shared key (PSK)' has two options: Data and Password. The 'Password' option is selected, and a text box contains '12345678'. Below this, 'Per-station PSKs' is set to 'None, view/edit'. 'EAP (Enterprise)' is not selected. Under EAP, 'No RADIUS servers configured' is shown. 'New:' section has 'RADIUS address' and 'Port: 1812'. 'Shared secret' is empty. 'Encryption algorithm' is set to 'CCMP'. 'Group rekey interval' is '0 seconds'. 'PMF Enabled' is unchecked. At the bottom, there are 'Apply' and 'Reset' buttons. The footer shows 'ESx000-02_10_05_06' and '© 2000-2018 Tilgin. All rights reserved. Copyright and Trademark.'

Image 12. Defining password for new SSID

Changing Wi-Fi channel

To minimise interference, we highly recommend leaving your wifi channel selection on its default settings. If you'd like to change your channel selection, however, you can do so by logging into your router (see page 2) and navigating to **Wireless > Setup**. Select either **2.4GHz** or **5GHz** frequency band. Once selected, refer to **Channel**. Select **Manual** configuration and choose one of the listed channels from the drop-down menu. Click **Apply** and **Save settings**. See Image 13 and Image 14.

Note: please avoid using channel 11 for 2.4GHz networks.



hyperoptic

You are logged in as root. [Activate VoIP settings](#) [Save settings](#) [Logout](#)

SETUP VOIP SWITCH ADVANCED **WIRELESS** TOOLS STATUS ACCOUNT PHONE STORAGE

PRINTING TESTS HELP

SSID list Go PHY setup

PHY **Setup** AP list

2.4 GHZ 5 GHZ

General

Status: ☒ Active

☒ Enabled

☒ Coexistence mode

Country: UNITED KINGDOM

Power level: 50%

Mode: 802.11bgn, 2.4 GHz, 20 MHz channel

Channel

Operating: 6

Administrative: ☐ Auto

Rescan period (minutes): Disabled

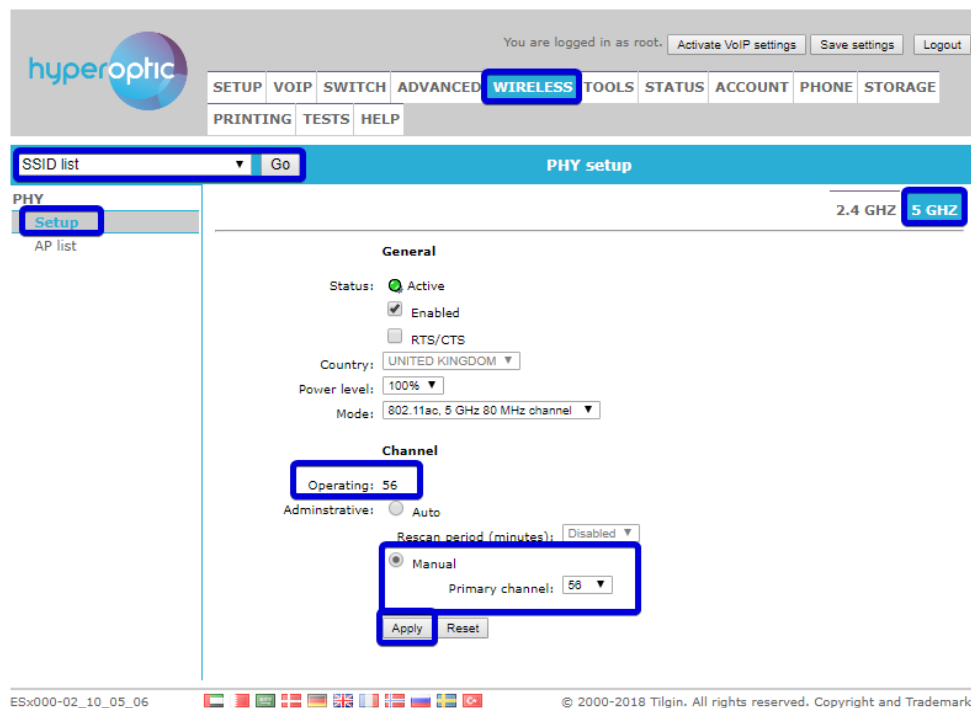
☒ Manual

Primary channel: 6

[Apply](#) [Reset](#)

ESx000-02_10_05_06 © 2000-2018 Tilgin. All rights reserved. Copyright and Trademark.

Image 13. Setting channel for 2.GHz network



hyperoptic

You are logged in as root. [Activate VoIP settings](#) [Save settings](#) [Logout](#)

SETUP VOIP SWITCH ADVANCED **WIRELESS** TOOLS STATUS ACCOUNT PHONE STORAGE

PRINTING TESTS HELP

SSID list Go PHY setup

PHY **Setup** AP list

2.4 GHZ **5 GHZ**

General

Status: ☒ Active

☒ Enabled

☐ RTS/CTS

Country: UNITED KINGDOM

Power level: 100%

Mode: 802.11ao, 5 GHz 80 MHz channel

Channel

Operating: 56

Administrative: ☐ Auto

Rescan period (minutes): Disabled

☒ Manual

Primary channel: 56

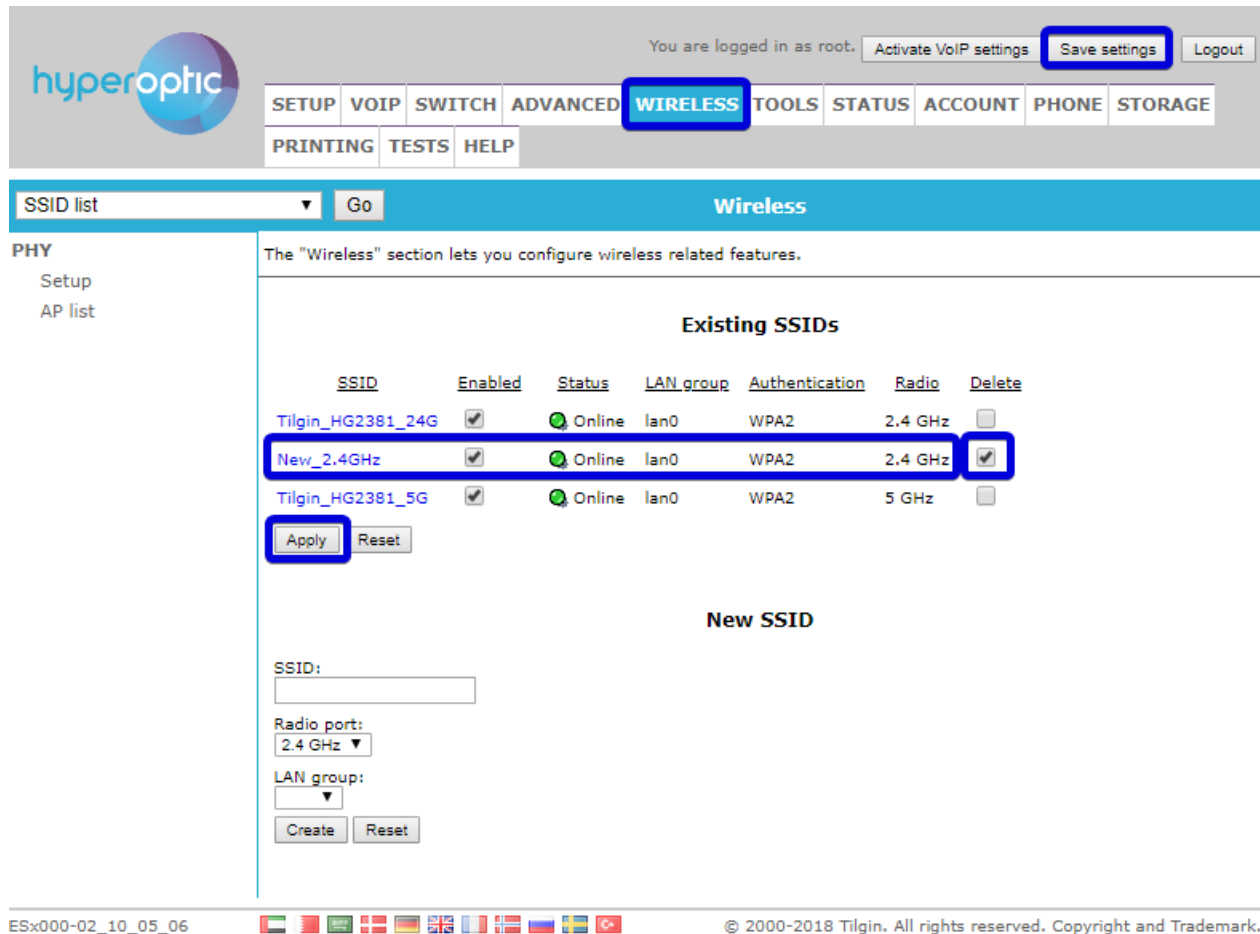
[Apply](#) [Reset](#)

ESx000-02_10_05_06 © 2000-2018 Tilgin. All rights reserved. Copyright and Trademark.

Image 14. Setting channel for 5GHz network

Deleting existing SSID

To delete an existing SSID, please log into your router (page 2) and navigate to **Wireless**. Tick **Delete** on the network you'd like to delete. Click **Apply** and **Save settings** (see Image 15).



hyperoptic

You are logged in as root. [Activate VoIP settings](#) [Save settings](#) [Logout](#)

SETUP VOIP SWITCH ADVANCED **WIRELESS** TOOLS STATUS ACCOUNT PHONE STORAGE

PRINTING TESTS HELP

SSID list **Wireless**

PHY

- Setup
- AP list

The "Wireless" section lets you configure wireless related features.

Existing SSIDs

SSID	Enabled	Status	LAN group	Authentication	Radio	Delete
Tilgin_HG2381_24G	<input checked="" type="checkbox"/>	Online	lan0	WPA2	2.4 GHz	<input type="checkbox"/>
New_2.4GHz	<input checked="" type="checkbox"/>	Online	lan0	WPA2	2.4 GHz	<input checked="" type="checkbox"/>
Tilgin_HG2381_5G	<input checked="" type="checkbox"/>	Online	lan0	WPA2	5 GHz	<input type="checkbox"/>

New SSID

SSID:

Radio port:

LAN group:


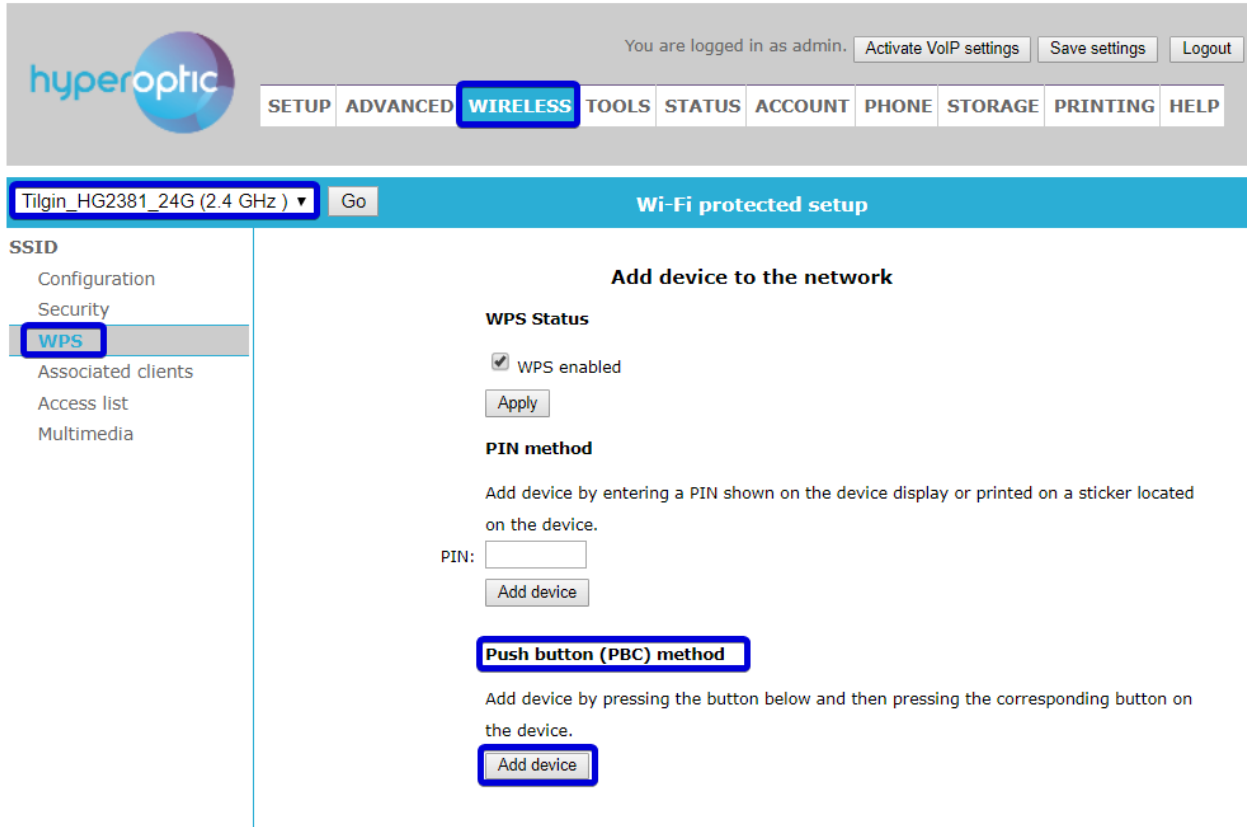
ESx000-02_10_05_06  © 2000-2018 Tilgin. All rights reserved. Copyright and Trademark.

Image 15. Deleting existing SSID

WPS

To connect to wifi without a password, please log in to your router (see page 2) and navigate to **Wireless**. Click on the desired SSID and go to **SSID > WPS**. See Image 16. Click **Add device**. Wait a few seconds and then click the WPS button on the desired LAN client. A wifi connection will then be made.



hyperoptic

You are logged in as admin. [Activate VoIP settings](#) [Save settings](#) [Logout](#)

[SETUP](#) [ADVANCED](#) **[WIRELESS](#)** [TOOLS](#) [STATUS](#) [ACCOUNT](#) [PHONE](#) [STORAGE](#) [PRINTING](#) [HELP](#)

Tilgin_HG2381_24G (2.4 GHz) [Go](#) **Wi-Fi protected setup**

SSID

- Configuration
- Security
- WPS**
- Associated clients
- Access list
- Multimedia

Add device to the network

WPS Status

☒ WPS enabled

[Apply](#)

PIN method

Add device by entering a PIN shown on the device display or printed on a sticker located on the device.

PIN:

[Add device](#)

Push button (PBC) method

Add device by pressing the button below and then pressing the corresponding button on the device.

[Add device](#)

Image 16. WPS button and access method

Wi-Fi associated clients

For each SSID, the number of LAN clients can be checked. To check LAN Wi-Fi clients, navigate to **Wireless**. Click on the **2.4GHz** or **5GHz** connection. Under **SSID > Associated clients**, the MAC address of every LAN user is listed. See image 16.

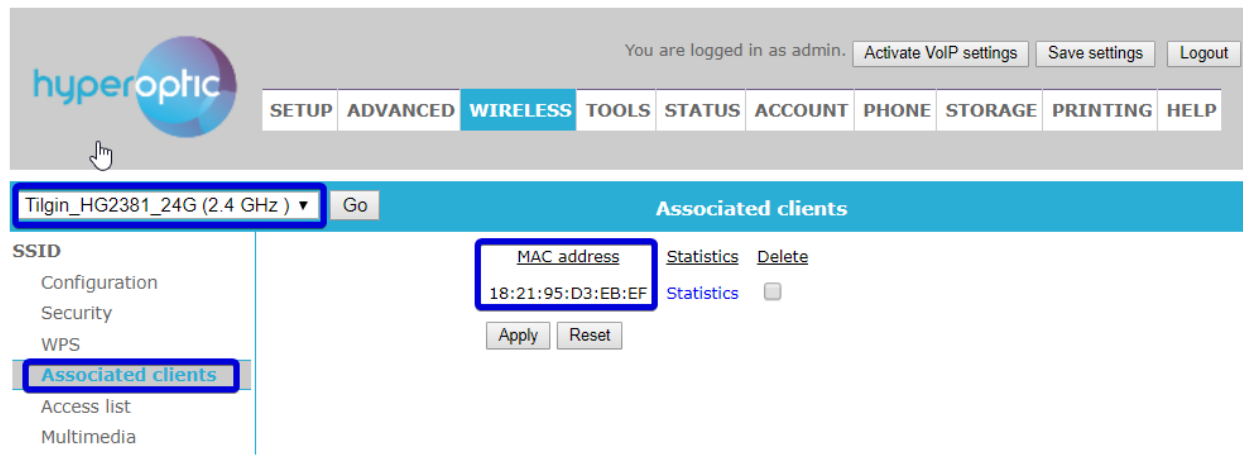


Image 16. Wi-Fi 2.4GHz LAN clients

Change of admin credentials

Your default admin credentials can be found on the router itself. If you'd like to make changes to these credentials, please contact Customer Support.

Factory reset and Restart of the router (admin account)

You can reboot your router via the web. Once you've logged in (see page 2), navigate to **Tools > Maintenance > Restart system**. Click on **Restart system**. See Image 17.

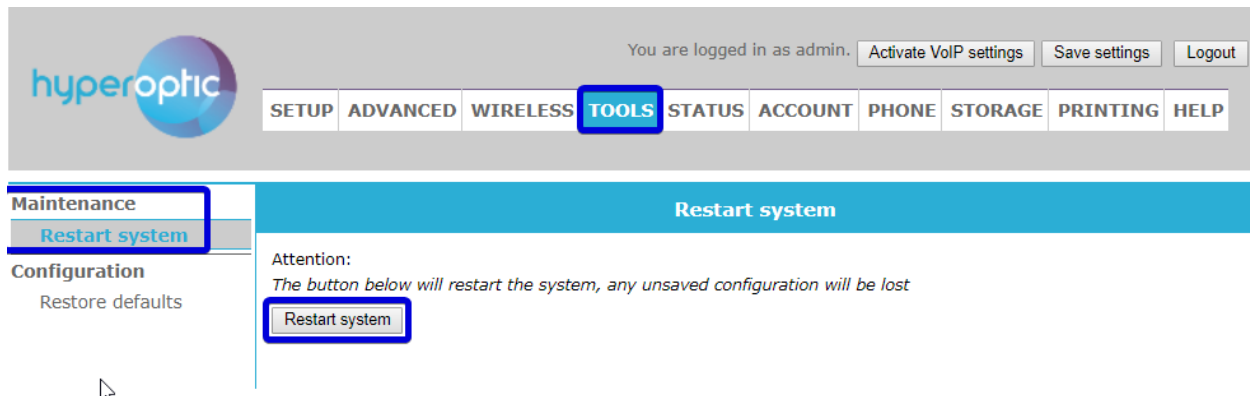


Image 17. Restart of router

To restore factory settings, navigate to **Tools > Configuration > Restore defaults**. Click on **Restore factory defaults**. See Image 18.

Please note, factory reset isn't recommended as it can shorten the life of a router if used often. Also, factory reset will delete any user-made configuration, such as wifi SSID, wifi password, port forwarding rules, etc.

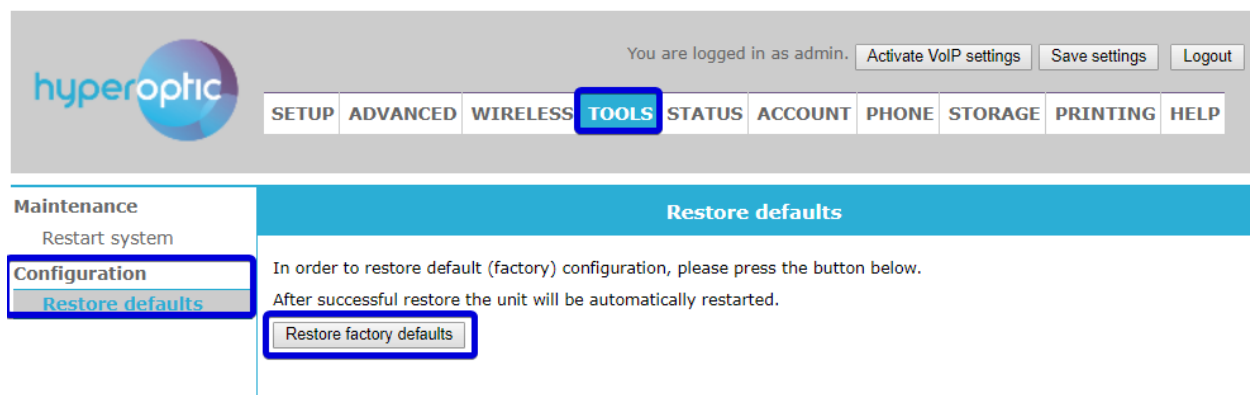
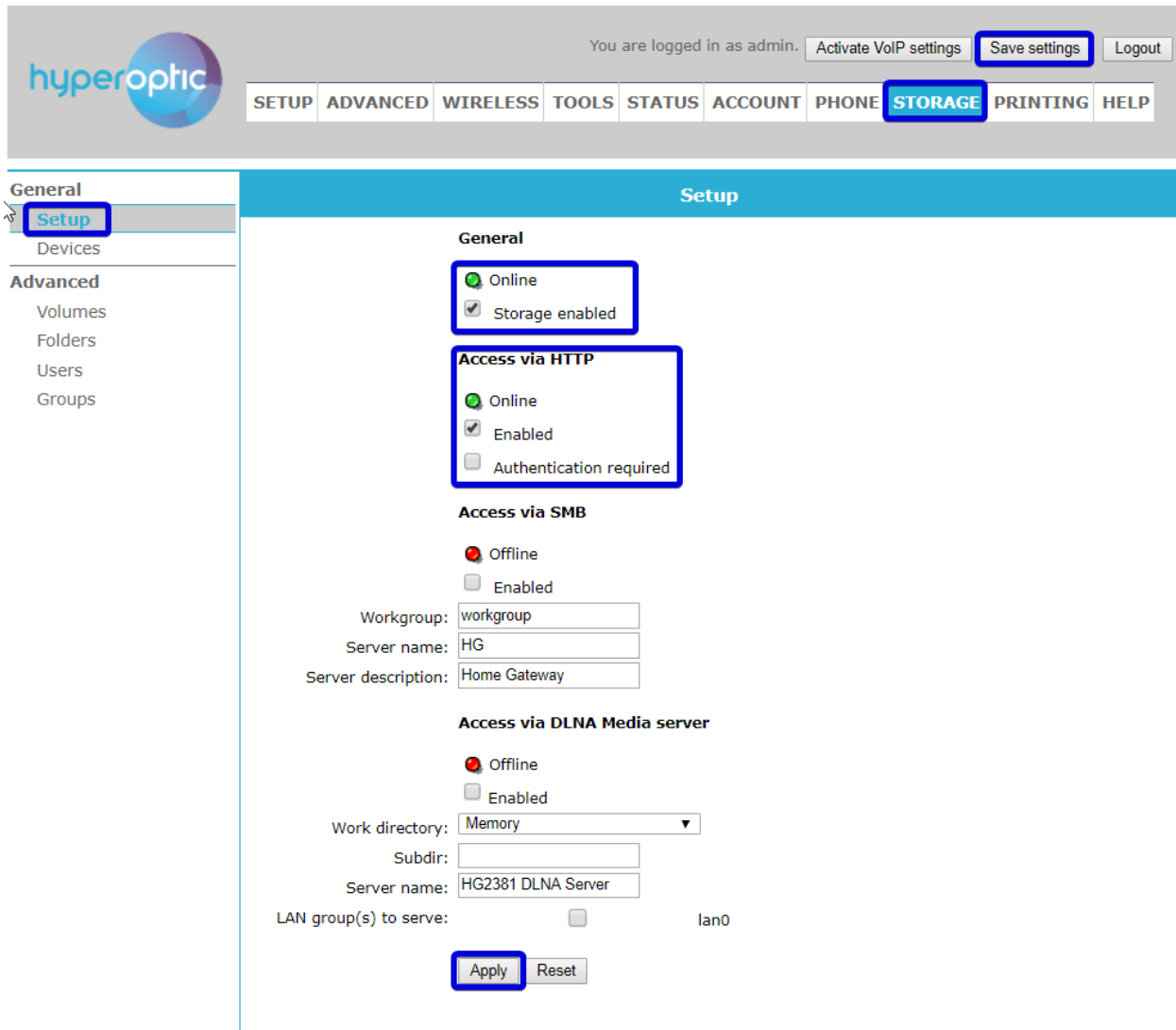


Image 18. Switching to factory router configuration

Access to USB flash drive attached to router

You can access the USB storage port on your router in a few ways. To access via HTTP protocol, please log into your router (page 2) and navigate to **Storage > General > Setup**. Click **Storage enabled** and **Enabled** under **Access via HTTP**. Click **Apply** and **Save settings**. To connect to flash drive type **http://ip_address/nas** into the browser. Router configuration is shown in Image 21. Router configuration is shown in image 19. Remote access is shown in image 20. Your router's USB port with attached flash drive can be used as additional storage, linked with LAN.



hyperoptic

You are logged in as admin. [Activate VoIP settings](#) [Save settings](#) [Logout](#)

[SETUP](#) [ADVANCED](#) [WIRELESS](#) [TOOLS](#) [STATUS](#) [ACCOUNT](#) [PHONE](#) [STORAGE](#) [PRINTING](#) [HELP](#)

General

[Setup](#)
Devices

Advanced

Volumes
Folders
Users
Groups

Setup

General

☒ Online
☒ Storage enabled

Access via HTTP

☒ Online
☒ Enabled
☐ Authentication required

Access via SMB

☒ Offline
☐ Enabled

Workgroup:
Server name:
Server description:

Access via DLNA Media server

☒ Offline
☐ Enabled

Work directory:
Subdir:
Server name:

LAN group(s) to serve: ☐ lan0

[Apply](#) [Reset](#)

Image 19. Flash drive access via HTTP

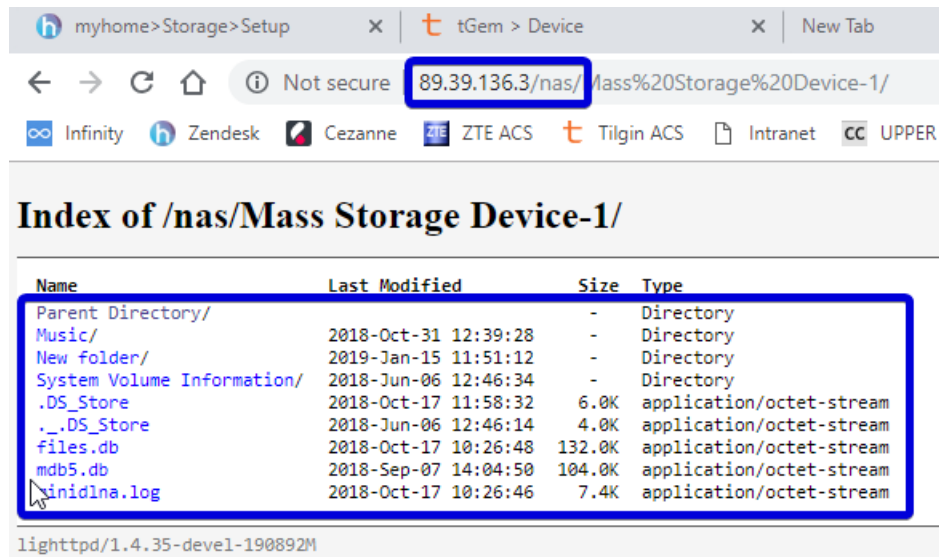


Image 20. Remote access to USB drive via http

To connect via SMB, click **Enabled** in the section **Access via SMB**. See Image 21. Once enabled, click **Apply** and **Save settings**. See Image 22 for SMB access.

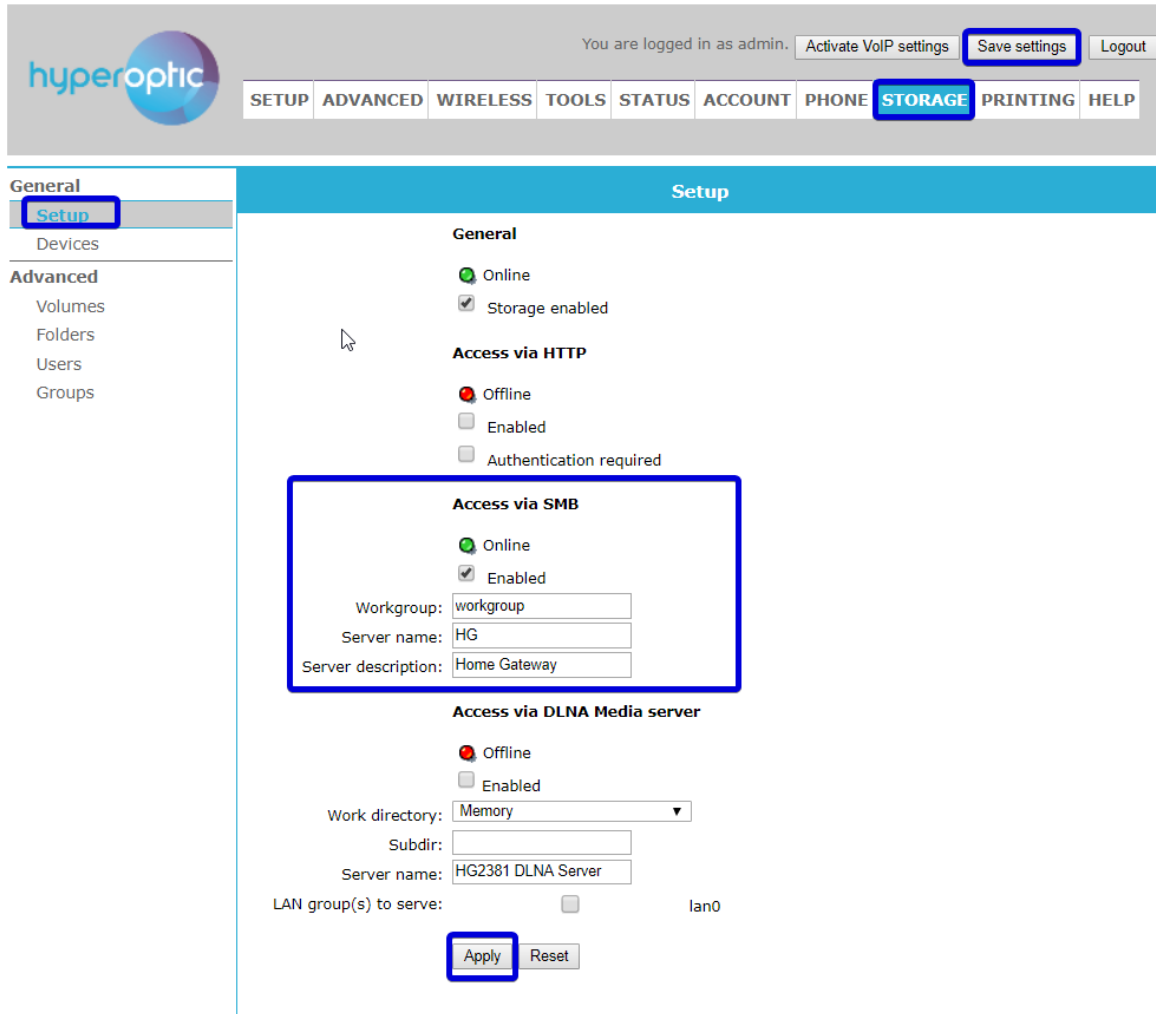


Image 21. Access to flash drive via SMB

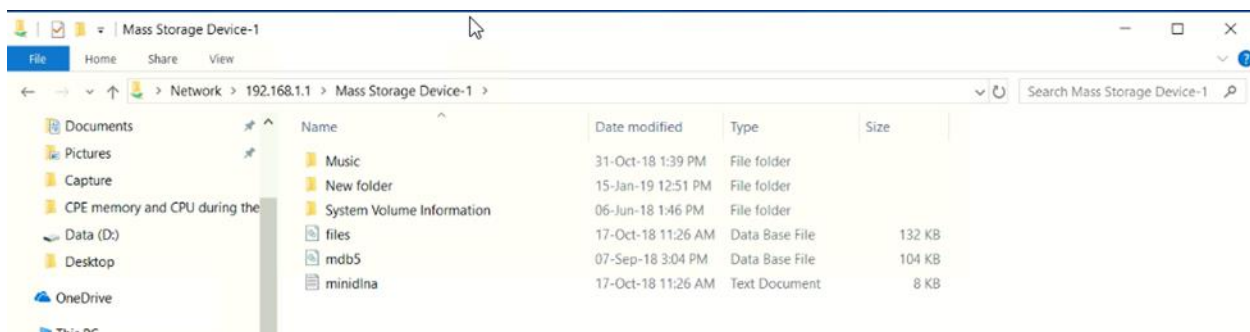
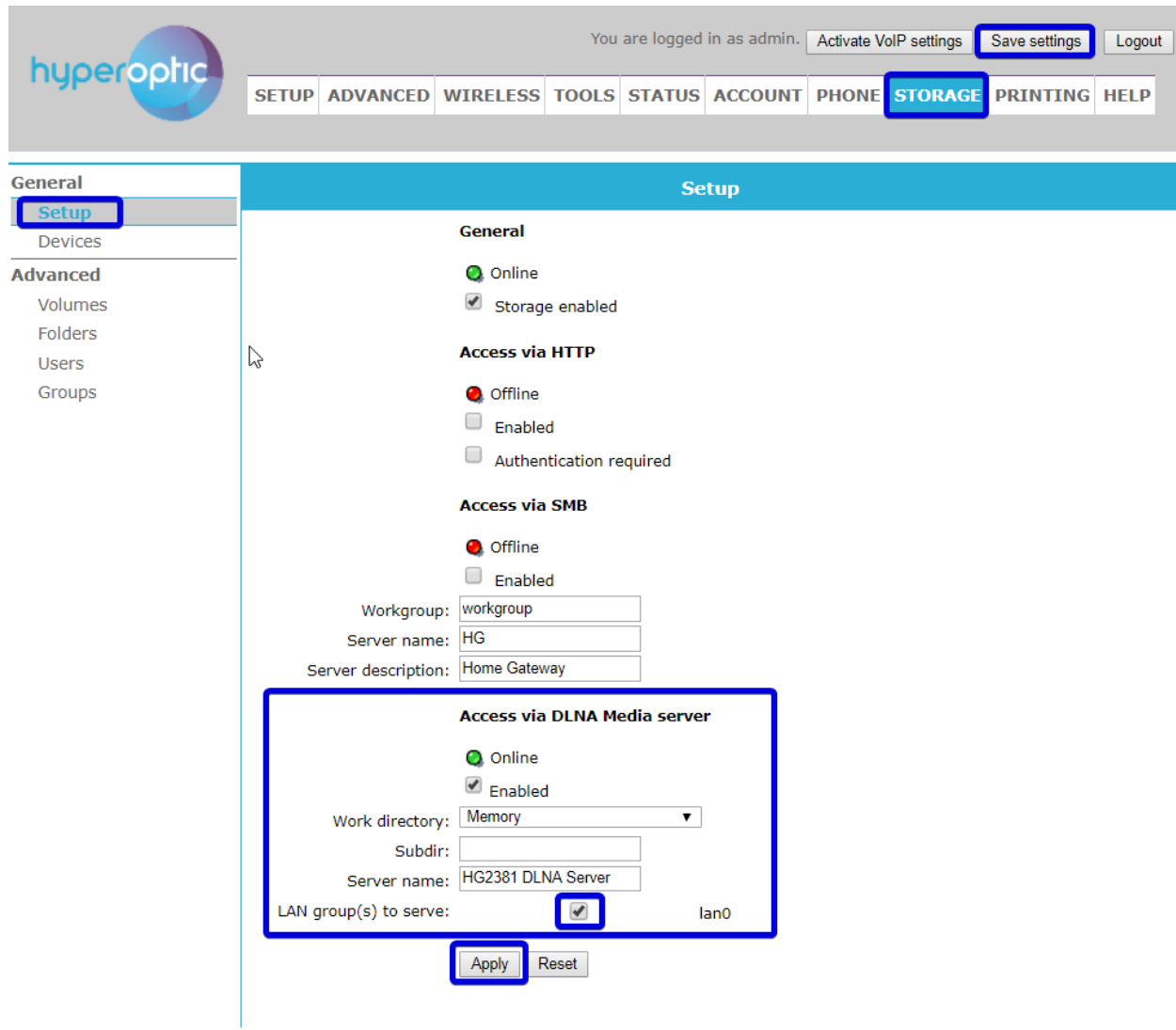


Image 22. LAN access via SMB (type \\192.168.1.1 in browser search)

See Image 23 for access via DLNA Media server. Click to serve **lan0** group. Click **Enabled** and then **Apply**.



The screenshot shows the Tilgin HG2381 admin interface. At the top, there is a header bar with the hyperoptic logo on the left, a status bar in the center stating "You are logged in as admin." with links for "Activate VoIP settings", "Save settings", and "Logout", and a navigation menu on the right with tabs for SETUP, ADVANCED, WIRELESS, TOOLS, STATUS, ACCOUNT, PHONE, STORAGE, PRINTING, and HELP. The STORAGE tab is selected and highlighted with a blue box. On the left side, there is a sidebar menu with "General" and "Advanced" sections. Under "General", "Setup" is selected and highlighted with a blue box. Under "Advanced", there are links for "Volumes", "Folders", "Users", and "Groups". The main content area is titled "Setup" and contains several sections: "General" with "Online" status and "Storage enabled" checked; "Access via HTTP" with "Offline" status and "Enabled" and "Authentication required" unchecked; "Access via SMB" with "Offline" status and "Enabled" unchecked; and "Access via DLNA Media server" which is highlighted with a blue box. This section includes "Online" status, "Enabled" checked, "Work directory" set to "Memory", "Subdir" empty, "Server name" set to "HG2381 DLNA Server", and "LAN group(s) to serve" with a checked checkbox and "lan0" listed. At the bottom of the "Access via DLNA Media server" section, there are "Apply" and "Reset" buttons, with the "Apply" button highlighted by a blue box.

Image 23. Access to DLNA Media server

See Image 24 for access to flash drive via PC application e.g. VLC, Windows Media Player.

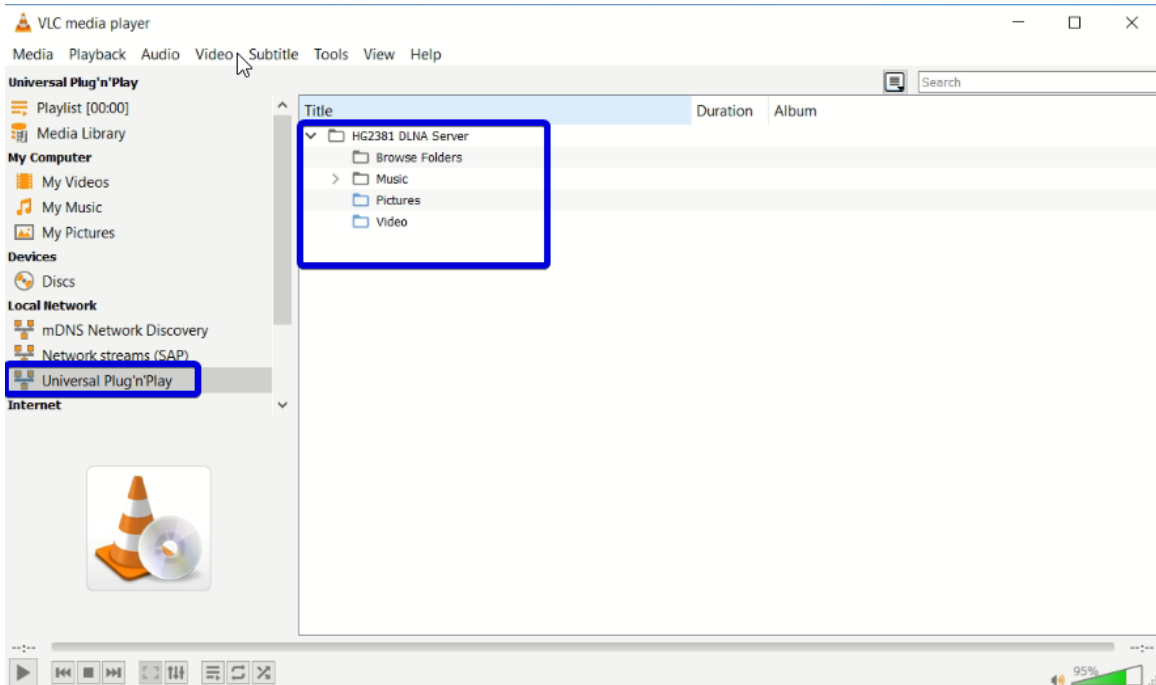
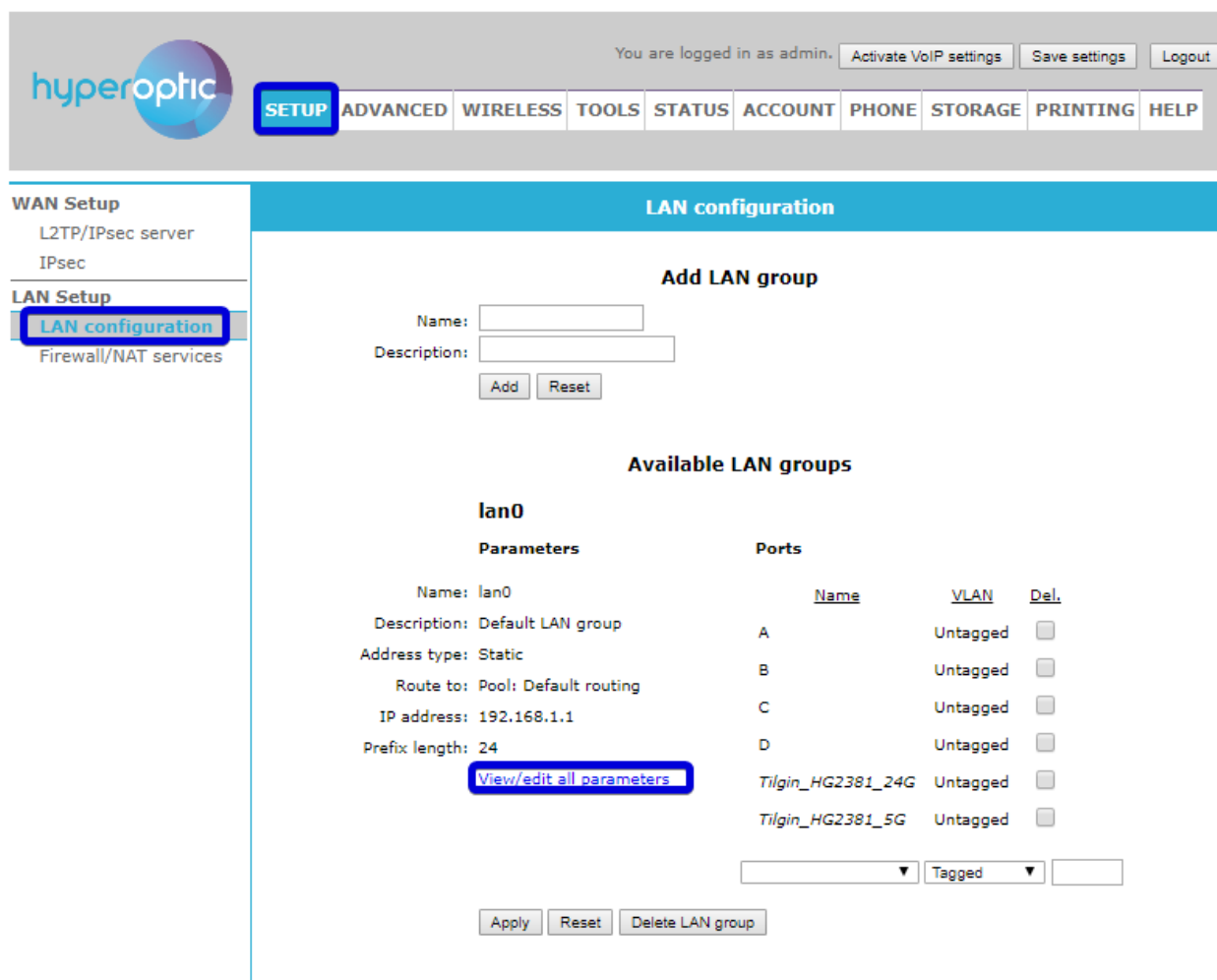


Photo 24. Access to USB flash drive DLNA Server

Change of DNS (admin account)

To change your DNS, please log into your router (page 2) and navigate to **Setup > LAN Setup > LAN configuration**. Click **View/edit all parameters** (see Image 25). By default, the router uses two Hyperoptic DNS servers which provide redundancy and address resolution. These servers communicate directly with the WAN ethernet router port and provide means for swift browsing.



The screenshot shows the Hyperoptic router's web interface. At the top, there's a navigation bar with the Hyperoptic logo and a menu: **SETUP** (highlighted), **ADVANCED**, **WIRELESS**, **TOOLS**, **STATUS**, **ACCOUNT**, **PHONE**, **STORAGE**, **PRINTING**, and **HELP**. Below the menu, the left sidebar shows **WAN Setup** (with sub-items L2TP/IPsec server, IPsec) and **LAN Setup** (with sub-items **LAN configuration** (highlighted), Firewall/NAT services). The main content area is titled **LAN configuration** and contains two sections: **Add LAN group** and **Available LAN groups**.

Add LAN group section includes input fields for **Name:** and **Description:**, and **Add** and **Reset** buttons.

Available LAN groups section shows details for the **lan0** group:

Parameters		Ports		
Name: lan0				
Description: Default LAN group				
Address type: Static				
Route to: Pool: Default routing				
IP address: 192.168.1.1				
Prefix length: 24				
View/edit all parameters (highlighted)				
		Name	VLAN	Del.
		A	Untagged	<input type="checkbox"/>
		B	Untagged	<input type="checkbox"/>
		C	Untagged	<input type="checkbox"/>
		D	Untagged	<input type="checkbox"/>
		Tilgin_HG2381_24G	Untagged	<input type="checkbox"/>
		Tilgin_HG2381_5G	Untagged	<input type="checkbox"/>
			Tagged	<input type="checkbox"/>

At the bottom of the **Available LAN groups** section, there are **Apply**, **Reset**, and **Delete LAN group** buttons.

Image 25. Navigating to DHCP LAN settings

In the "Static Address" section, look for DHCP fields as shown in Image 16. Configure the public DNS as per your choice. To enable the use of an arbitrary DNS, please disable DHCPv6 server. See Image 26.

hyperoptic You are logged in as admin. [Activate VoIP settings](#) [Save settings](#) [Logout](#)

SETUP ADVANCED WIRELESS TOOLS STATUS ACCOUNT PHONE STORAGE PRINTING HELP

WAN Setup
 L2TP/IPsec server
 IPsec
LAN Setup
 LAN configuration
 Firewall/NAT services

Edit LAN group

General
 Name: lan0
 Description: Default LAN group
 Managed by:

PPP pass-through
 Pass to: ☒ Nowhere
☐ Connection pool
☐ Specific connection
 Status: N/A

IP configuration
 Address type: Static
 Route to: ☐ Nowhere
☒ Connection pool
☐ Specific connection
 Hostname: myhome
 Domain: mynet

DHCP address
 IP address / prefix length:
 N/A
 Obtained:
 Expires:

Static address
 IP address / prefix length:
 192.168.1.1 / 24
 E.g.: 192.168.1.13 / 22
 2001:cdba:9abc:5678:: / 64
 DHCP provider: ☐ None
☒ DHCP server
 Start IP address: 192.168.1.100
 End IP address: 192.168.1.254
 Lease time: 86400
 DNS servers: ☐ Default
☒ Custom
 1: 8.8.8.8
 2:
☐ DHCP relay
 Server IP address:
 Relay via:

DHCPv6: ☒ None
☐ Stateful
☐ Stateless

IPv6 prefixes:
 fda9:e2c:b:2512:: / 64
 2a01:4b00:8003:a00:: / 64

IPv6 addresses:
 fe80::202:61ff:feba:d05c
 fda9:e2c:b:2512::202:61ff:feba:d05c
 2a01:4b00:8003:a00:202:61ff:feba:d05c
[Apply](#) [Reset](#)

ESx000-02_10_05_06 © 2000-2018 Tilgin. All rights reserved. Copyright and Trademark.

Image 26. DNS section of LAN configuration

Port forwarding (admin account)

Port forwarding is currently only being used for IPv4 addresses. Tilgin is developing firmware which will allow usage of IP Filtering for IPv6 addresses. Port forwarding can be used to establish home-based FTP server, web server or similar kind of a server.

To change your port forwarding parameters, connect your personal computer via ethernet cable or via wifi to the router. Open a web browser and type **192.168.1.1** in the search line of the browser. You should then see a login page, as below (Image 27).

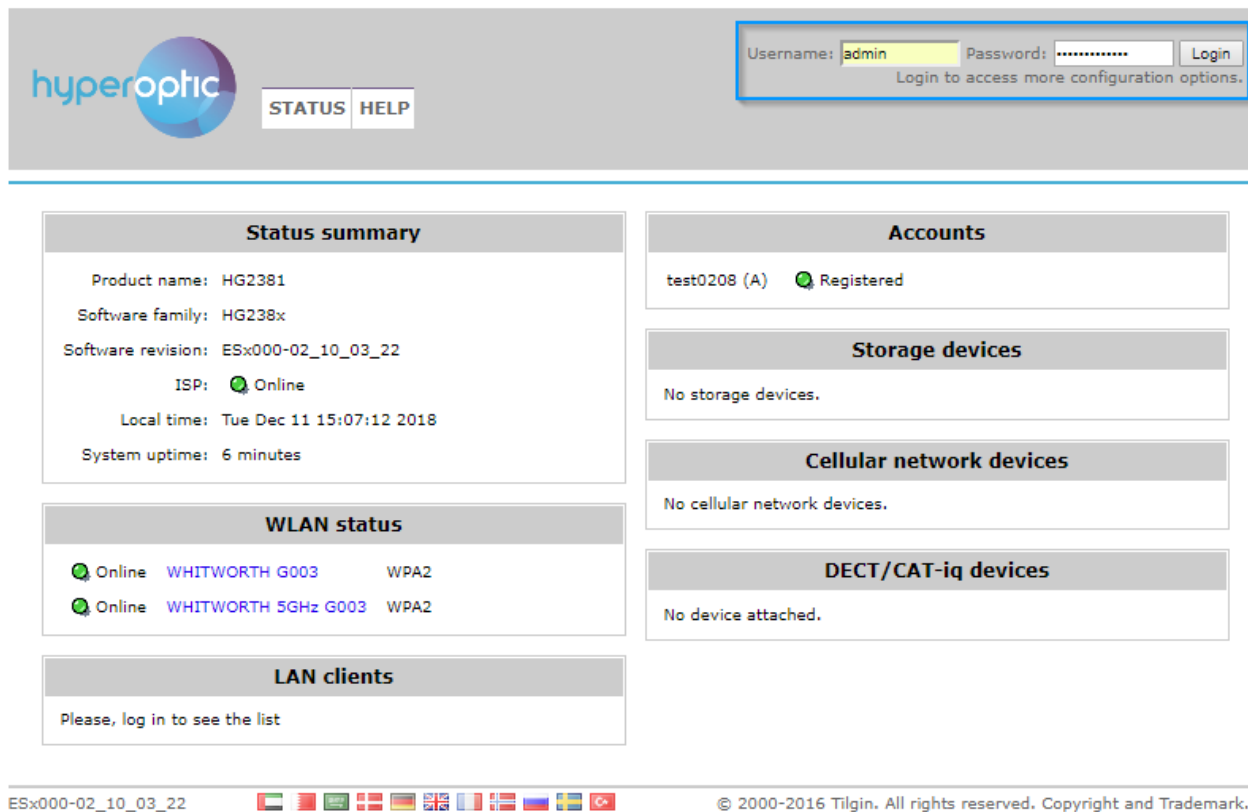
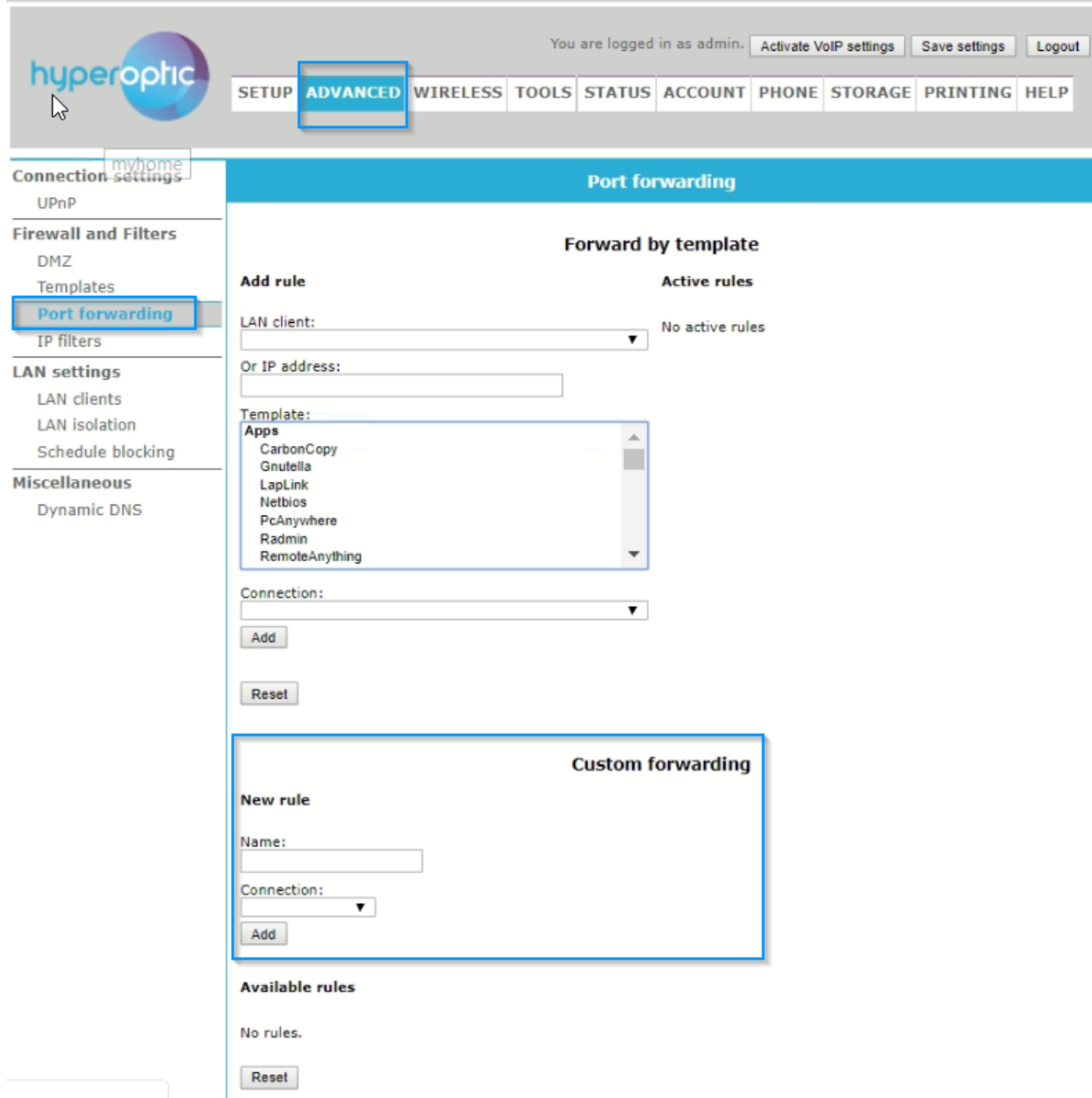


Image 27. Login page of the router

In the Username field, type “**admin**”. You’ll be able to find the password associated with your router written on the back of the router itself. Once identified, type this into the Password field.

Once logged in, navigate to **Advanced > Port forwarding**, as illustrated in Image 28.



hyperoptic

You are logged in as admin. [Activate VoIP settings](#) [Save settings](#) [Logout](#)

SETUP **ADVANCED** WIRELESS TOOLS STATUS ACCOUNT PHONE STORAGE PRINTING HELP

myhome

Connection settings

UPnP

Firewall and Filters

DMZ

Templates

Port forwarding

IP filters

LAN settings

LAN clients

LAN isolation

Schedule blocking

Miscellaneous

Dynamic DNS

Port forwarding

Forward by template

Add rule

LAN client:

Or IP address:

Template:

Apps

- CarbonCopy
- Gnutella
- LapLink
- Netbios
- PcAnywhere
- Radmin
- RemoteAnything

Connection:

[Add](#)

[Reset](#)

Active rules

No active rules

Custom forwarding

New rule

Name:

Connection:

[Add](#)

Available rules

No rules.

[Reset](#)

Image 28. Port forwarding section of the router web UI

At the bottom of this page, refer to the section **Custom forwarding**. Name the port forwarding rule and associate WAN connection to it. The connection type should be **dhcp-over-eth**. An example of the creation of a port forwarding rule for local web server is illustrated in Image 29. Once the **Name** and **Connection** type are set, click **Add**.

Custom forwarding

New rule

Name:
Web_Server

Connection:
dhcp-over-eth ▼

Add

Available rules

No rules.

Reset

Image 29. Creating web server port forwarding rule

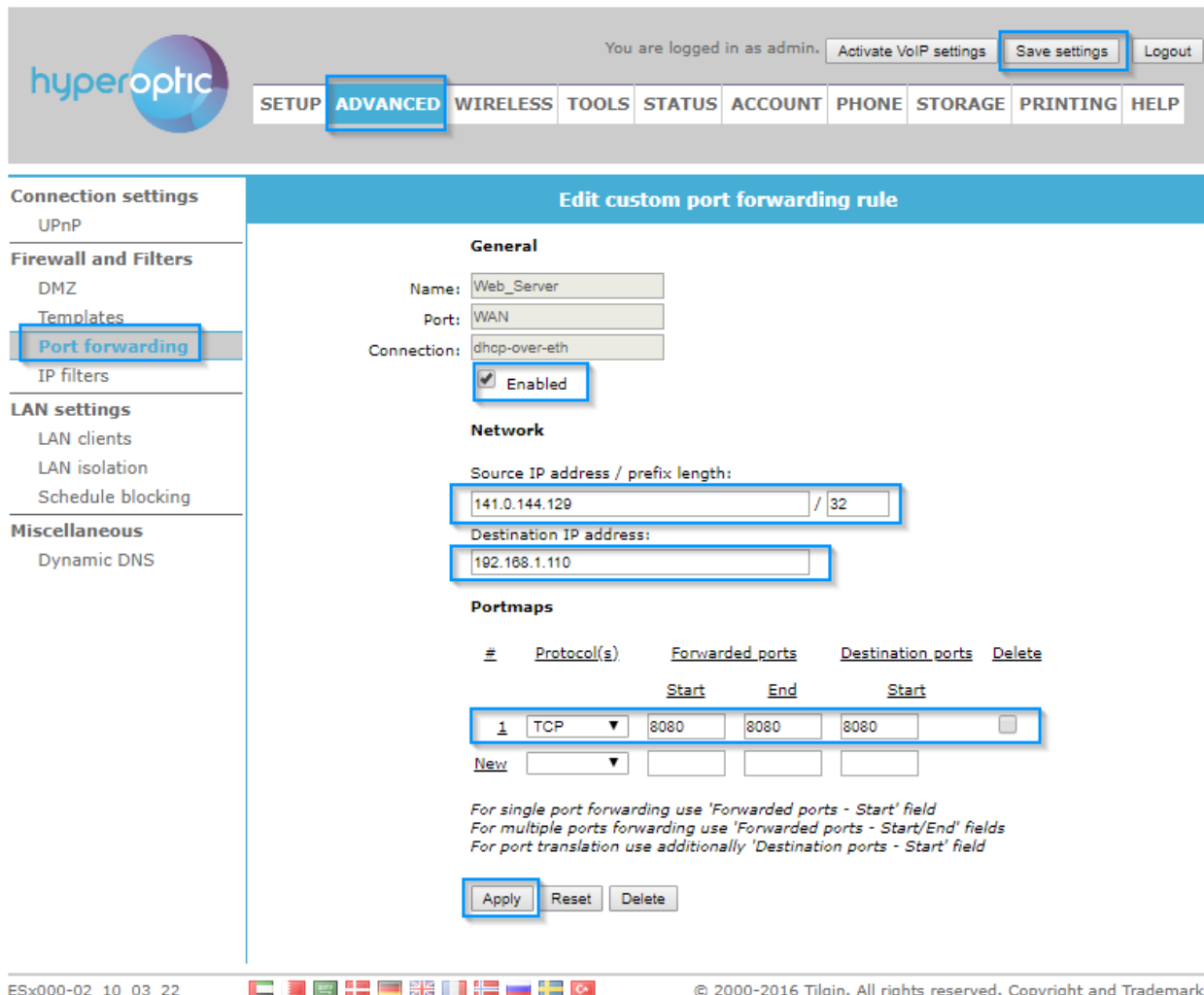
Image 30 illustrates the main parameter configuration of port forwarding rules.

First, click on **Enabled** field to make the port forwarding rule active.

Check your personal computer's private IPv4 address and type it in the **Destination IP address** field.

List which ports need to pass the router's firewall. In the example illustrated in Image 30, the **TCP** port **8080** which will serve local Web server placed in LAN.

If the web server needs to be seen from any public IPv4 address, type **0.0.0.0** in the **Source IP address** and list **0** as **prefix length**. Otherwise, if the web server needs to be accessed from just one IPv4 address, list that one address as illustrated in Image 30.



You are logged in as admin. [Activate VoIP settings](#) [Save settings](#) [Logout](#)

SETUP **ADVANCED** WIRELESS TOOLS STATUS ACCOUNT PHONE STORAGE PRINTING HELP

Connection settings
UPnP

Firewall and Filters
DMZ
Templates
Port forwarding
IP filters

LAN settings
LAN clients
LAN isolation
Schedule blocking

Miscellaneous
Dynamic DNS

Edit custom port forwarding rule

General

Name:

Port:

Connection:

☒ Enabled

Network

Source IP address / prefix length:
 /

Destination IP address:

Portmaps

#	Protocol(s)	Forwarded ports		Destination ports	Delete
		Start	End	Start	
1	TCP	8080	8080	8080	<input type="checkbox"/>
New	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	

*For single port forwarding use 'Forwarded ports - Start' field
For multiple ports forwarding use 'Forwarded ports - Start/End' fields
For port translation use additionally 'Destination ports - Start' field*

[Apply](#) [Reset](#) [Delete](#)

ESx000-02_10_03_22 © 2000-2016 Tilgin. All rights reserved. Copyright and Trademark.

Image 30. Configuring port forwarding rules

Once all parameters are entered, click **Apply**. Save the router configuration by clicking **Save settings** in the upper right corner of the screen.

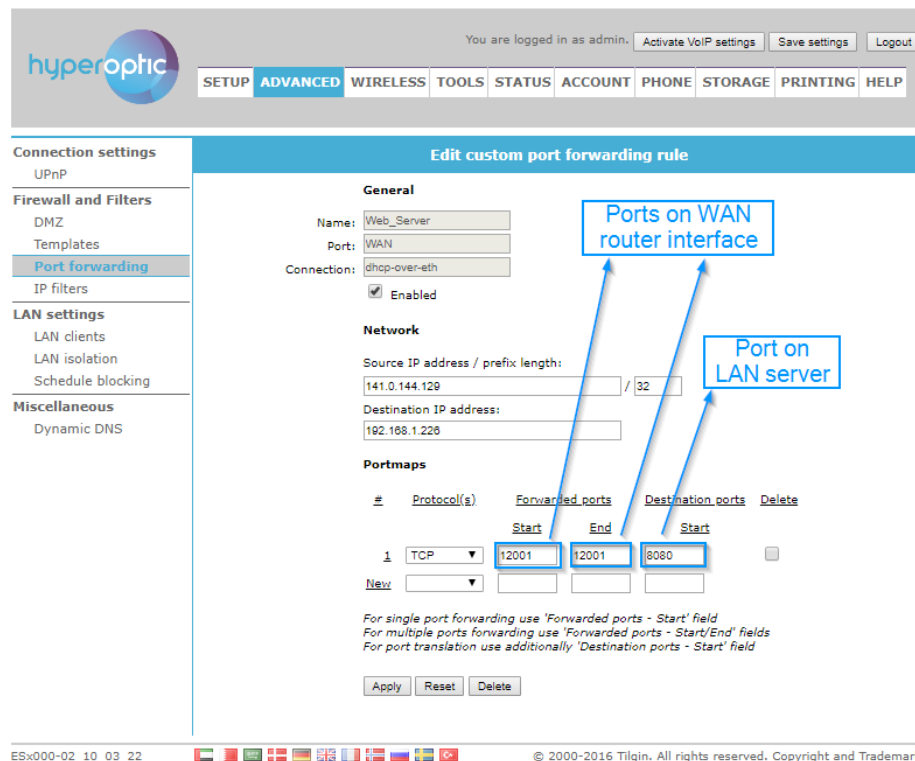
A list of commonly used ports is illustrated in Image 31.

Please also note that ports 80 and 443 **should never be used on WAN side**, as these ports are reserved for Hyperoptic Ltd. remote management. If you would like to use these ports on your server in a LAN, then you can use different ports on WAN side as shown on Image 32 (e.g. you can use ports on WAN side 12000, 12001 and map them to LAN ports 80, 443 respectively). For additional help on port numbers and TCP/UDP, please refer to https://en.wikipedia.org/wiki/List_of_TCP_and_UDP_port_numbers

Port Number(s)	Protocol	Application
20	TCP	FTP data
21	TCP	FTP control
22	TCP	SSH
23	TCP	Telnet
25	TCP	SMTP
53	UDP, TCP	DNS
67	UDP	DHCP Server
68	UDP	DHCP Client
69	UDP	TFTP
80	TCP	HTTP (WWW)
110	TCP	POP3
161	UDP	SNMP
443	TCP	SSL
514	UDP	Syslog
16,384 – 32,767	UDP	RTP (voice, video)

Image 31. List of commonly used ports

Alternatively, it's possible to allow a certain range of WAN ports that will all be translated into one LAN port. This kind of configuration is illustrated in Image 32. In this case, a local web server placed in LAN is listening for connections on port **8080**. The router will forward all connection requests that come to WAN router port **12001** to this local server.



The screenshot shows the 'Edit custom port forwarding rule' page in the Hyperoptic router's web interface. The left sidebar contains navigation links for Connection settings, Firewall and Filters, LAN settings, and Miscellaneous. The main content area is titled 'Edit custom port forwarding rule' and includes sections for General, Network, and Portmaps.

General section:

- Name: Web_Server
- Port: WAN
- Connection: dhcp-over-eth
- ☒ Enabled

Network section:

- Source IP address / prefix length: 141.0.144.129 / 32
- Destination IP address: 192.168.1.228

Portmaps section:

#	Protocol(s)	Forwarded ports	Destination ports	Delete	
		Start	End	Start	
1	TCP	12001	12001	8080	<input type="checkbox"/>
New					

Below the table, there is a note: "For single port forwarding use 'Forwarded ports - Start' field. For multiple ports forwarding use 'Forwarded ports - Start/End' fields. For port translation use additionally 'Destination ports - Start' field."

At the bottom of the form are buttons for 'Apply', 'Reset', and 'Delete'.

Annotations in the image point to the '12001' values in the 'Forwarded ports' column, stating 'Ports on WAN router interface', and the '8080' value in the 'Destination ports' column, stating 'Port on LAN server'.

At the bottom of the page, there is a footer with the text 'ESx000-02_10_03_22' and '© 2000-2016 Tilgin. All rights reserved. Copyright and Trademark.'

Image 32. Port forwarding with port mapping from WAN to LAN side

DMZ (admin account)

Please be aware that devices placed in DMZ will not be affected by a router's firewall. Placing LAN devices in DMZ can therefore pose an IT security risk and this action should be taken with caution. If a LAN device needs to be placed in a demilitarized zone, log into your router (page 2) and go to **Advanced > DMZ** (see image 33)

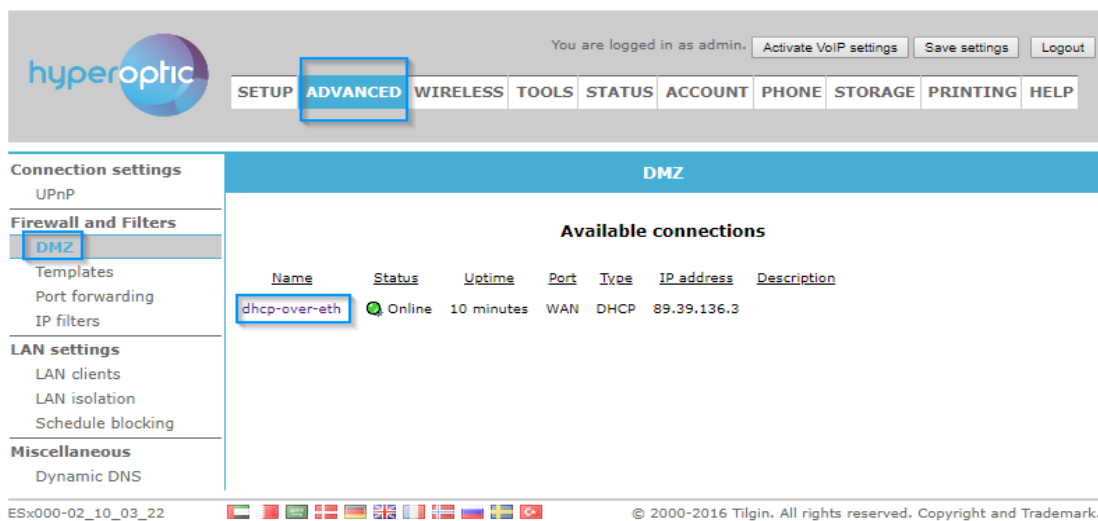


Image 33. DMZ section of router

Click on the Name of the connection – **dhcp-over-eth**. You should then be presented with Image 34.

List the IPv4 address of the LAN device and click **Apply**.

Save settings in the upper right corner of the screen.

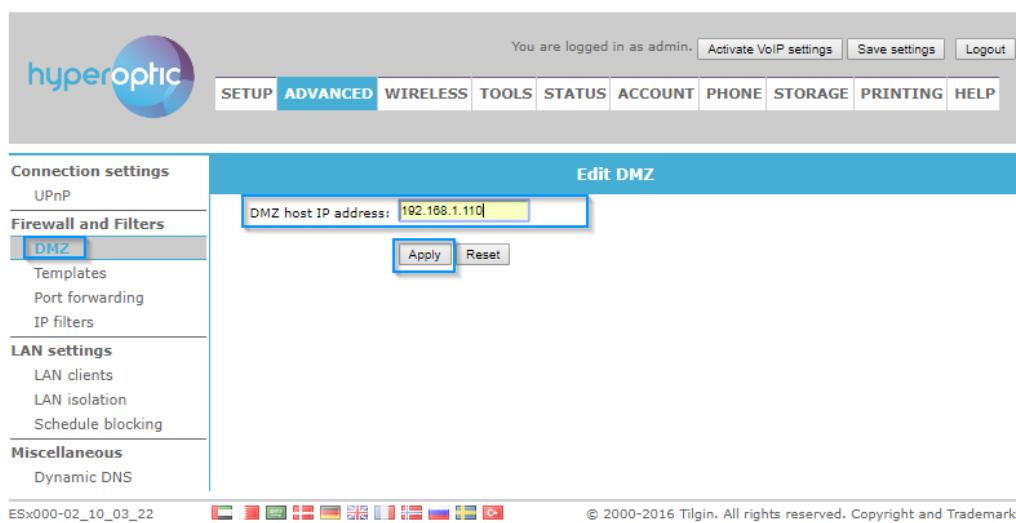
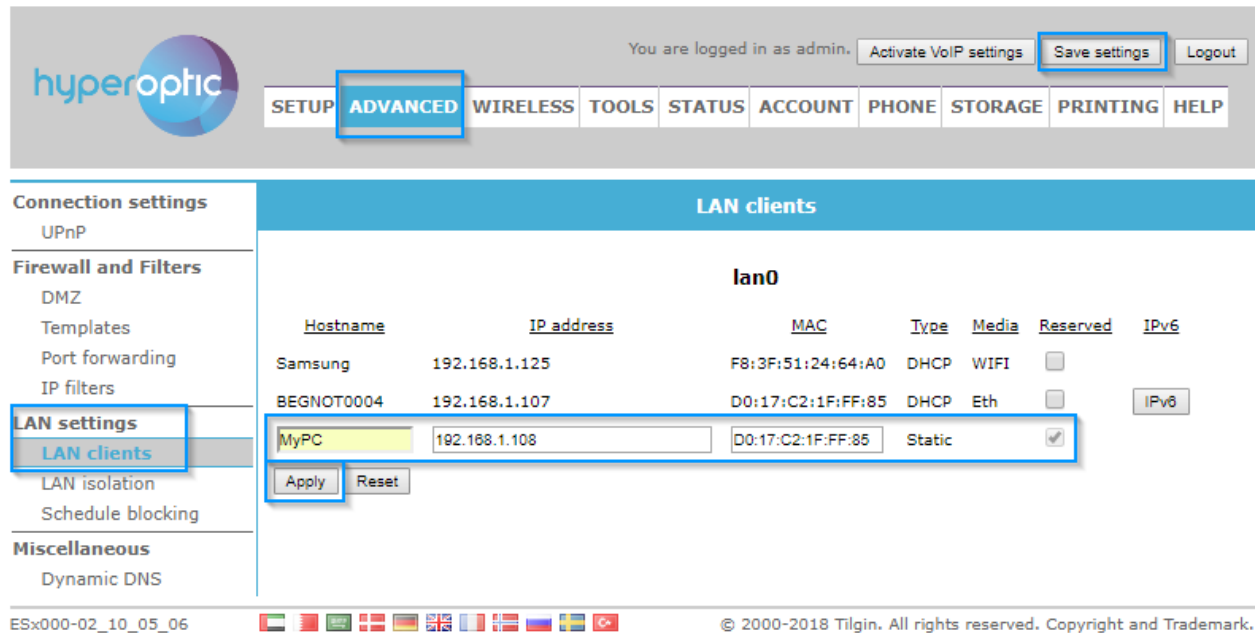


Image 34. List LAN device which needs to be placed in DMZ

DHCP binding (using User account)

Specific LAN client can have same IPv4 address all the time. To define which LAN client will have which IPv4 address, configuration of binding must be completed. This is described in photo 35. Navigate to section **Advanced > LAN settings > LAN clients**.



hyperoptic

You are logged in as admin. [Activate VoIP settings](#) [Save settings](#) [Logout](#)

[SETUP](#) [ADVANCED](#) [WIRELESS](#) [TOOLS](#) [STATUS](#) [ACCOUNT](#) [PHONE](#) [STORAGE](#) [PRINTING](#) [HELP](#)

Connection settings

- UPnP

Firewall and Filters

- DMZ
- Templates
- Port forwarding
- IP filters
- LAN settings**
 - LAN clients**
 - LAN isolation
 - Schedule blocking

Miscellaneous

- Dynamic DNS

LAN clients

lan0

Hostname	IP address	MAC	Type	Media	Reserved	IPv6
Samsung	192.168.1.125	F8:3F:51:24:64:A0	DHCP	WIFI	<input type="checkbox"/>	
BEGNOT0004	192.168.1.107	D0:17:C2:1F:FF:85	DHCP	Eth	<input type="checkbox"/>	<input type="checkbox"/>
MyPC	192.168.1.108	D0:17:C2:1F:FF:85	Static		<input checked="" type="checkbox"/>	<input type="checkbox"/>

[Apply](#) [Reset](#)

ESx000-02_10_05_06 © 2000-2018 Tilgin. All rights reserved. Copyright and Trademark.

Photo 35. DHCP host binding

Use arbitrary **Hostname**, List wanted IPv4 address and list MAC address of LAN client. Valid range of IPv4 addresses is **192.168.1.100** to **192.168.1.254** . After the configuration is made click **Save settings**.

IPv6 port filtering (AKA Port forwarding)

Allowing some services (equivalent of ports TCP/UDP) to pass through router from WAN side to LAN side can be configured using port forwarding feature of a router. To set this up, please navigate to **Advanced > Port forwarding > Custom forwarding / New rule**. See image 36. **Name** of a rule can be arbitrary but for IPv6, connection must be **ipv6-over-eth**. Once this is selected, click **Add** button.

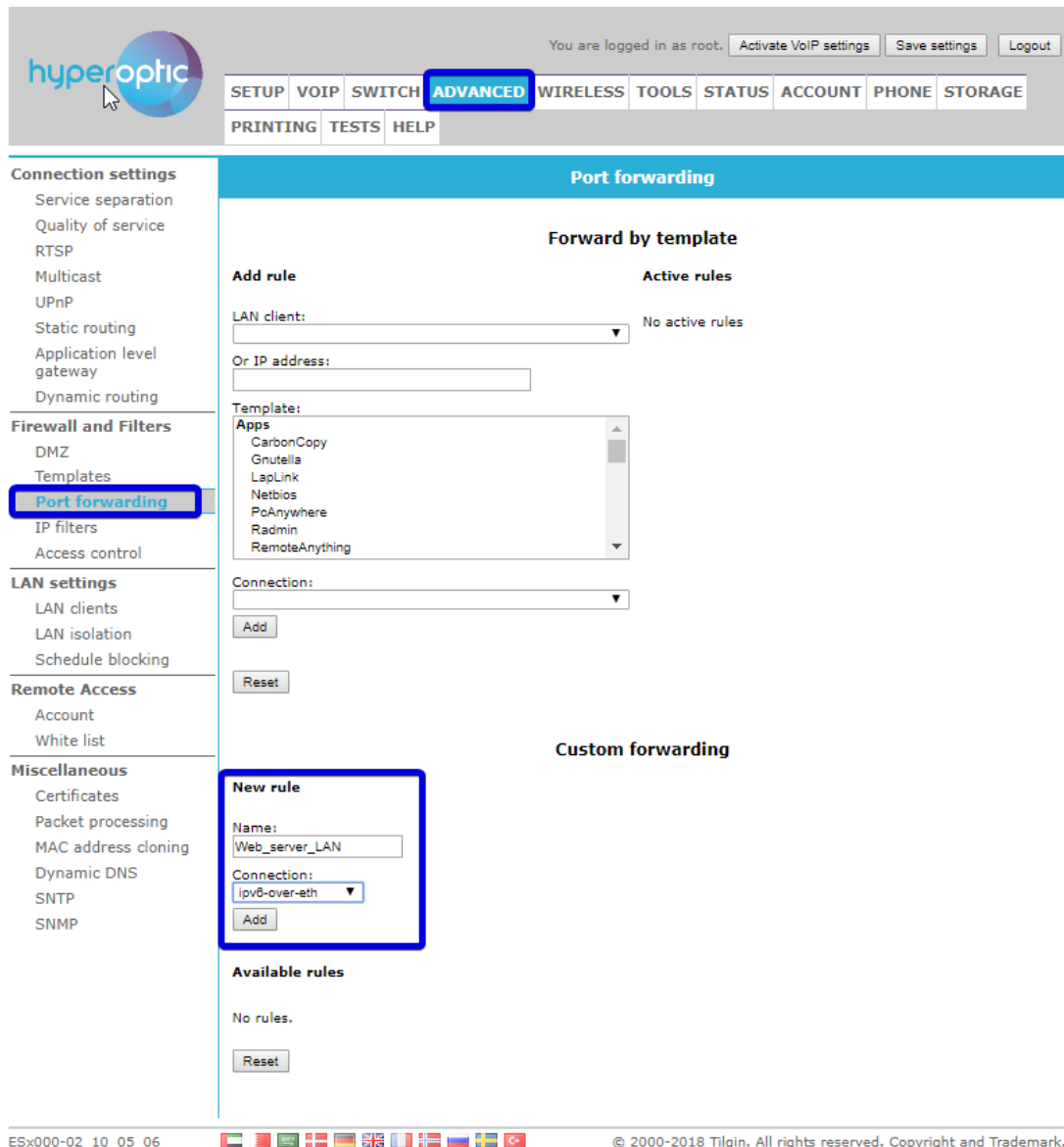
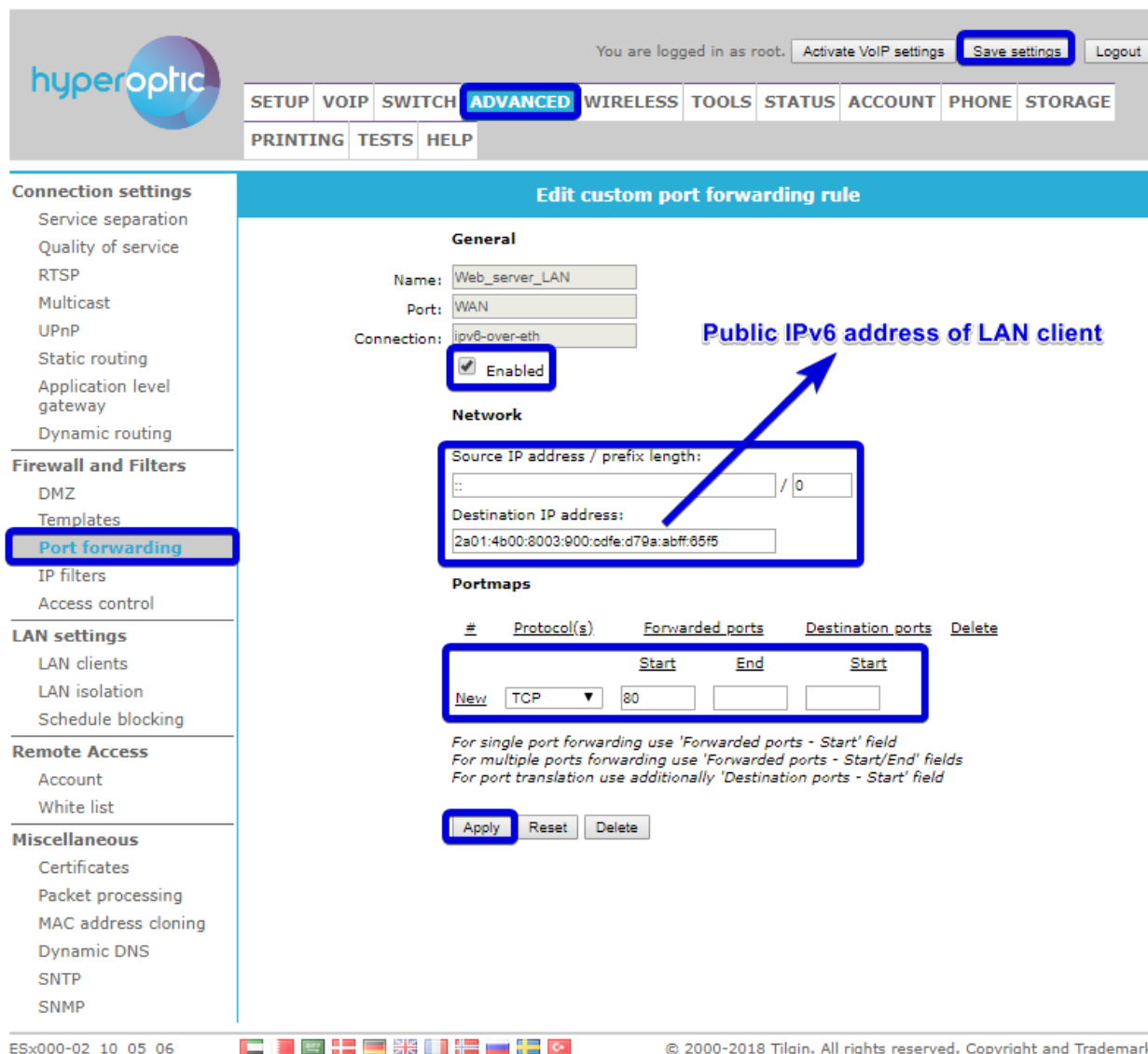


Image 36. Selecting IPv6 connection for Port forwarding router feature

In the new menu (see image 37), tick **Enabled** to allow this rule. **Source IP address** is the range or single address from which access to router is made. In case that from any location service must be available, state ":::" as source address. **Destination address** is the public IPv6 address of LAN client machine. As last step, list ports that need to be allowed to pass through router (e.g. TCP port 80), then click **Apply** and **Save settings**.



hyperoptic

You are logged in as root. [Activate VoIP settings](#) [Save settings](#) [Logout](#)

SETUP VOIP SWITCH **ADVANCED** WIRELESS TOOLS STATUS ACCOUNT PHONE STORAGE

PRINTING TESTS HELP

Connection settings

- Service separation
- Quality of service
- RTSP
- Multicast
- UPnP
- Static routing
- Application level gateway
- Dynamic routing

Firewall and Filters

- DMZ
- Templates
- Port forwarding**
- IP filters
- Access control

LAN settings

- LAN clients
- LAN isolation
- Schedule blocking

Remote Access

- Account
- White list

Miscellaneous

- Certificates
- Packet processing
- MAC address cloning
- Dynamic DNS
- SNTP
- SNMP

Edit custom port forwarding rule

General

Name: Web_server_LAN

Port: WAN

Connection: ipv6-over-eth

☒ Enabled

Network

Source IP address / prefix length: ::: / 0

Destination IP address: 2a01:4b00:8003:900:cdfe:d79a:abff:65f5

Portmaps

#	Protocol(s)	Forwarded ports	Destination ports	Delete
		Start	End	Start
New	TCP	80		

For single port forwarding use 'Forwarded ports - Start' field
 For multiple ports forwarding use 'Forwarded ports - Start/End' fields
 For port translation use additionally 'Destination ports - Start' field

[Apply](#) [Reset](#) [Delete](#)

ESx000-02_10_05_06 © 2000-2018 Tilgin. All rights reserved. Copyright and Trademark.

Image 37. Configuration of IPv6 port filtering

You'll see confirmation of setup in image 38.

hyperoptic

You are logged in as root. [Activate VoIP settings](#) [Save settings](#) [Logout](#) Settings saved successfully.

[SETUP](#) [VOIP](#) [SWITCH](#) **[ADVANCED](#)** [WIRELESS](#) [TOOLS](#) [STATUS](#) [ACCOUNT](#) [PHONE](#) [STORAGE](#)
[PRINTING](#) [TESTS](#) [HELP](#)

Connection settings

- Service separation
- Quality of service
- RTSP
- Multicast
- UPnP
- Static routing
- Application level gateway
- Dynamic routing

Firewall and Filters

- DMZ
- Templates
- Port forwarding**
- IP filters
- Access control

LAN settings

- LAN clients
- LAN isolation
- Schedule blocking

Remote Access

- Account
- White list

Miscellaneous

- Certificates
- Packet processing
- MAC address cloning
- Dynamic DNS
- SNTP
- SNMP

Port forwarding

Forward by template

Add rule

LAN client:

Or IP address:

Template:

Apps: CarbonCopy, Gnutella, LapLink, Netbios, PoAnywhere, Radmin, RemoteAnything

Connection:

[Add](#) [Reset](#)

Active rules

No active rules

Custom forwarding

New rule

Name:

Connection:

[Add](#)

Available rules

Name	Connection	Port	Enabled	Source	Destination	Portmaps	Delete
Web_server_LAN	ipv6-over-eth	WAN	<input checked="" type="checkbox"/>	Any	2a01:4b00:8003:900:cdfe:d79a:abff:65f5	TCP / 80 : 80	<input type="checkbox"/>

[Apply](#) [Reset](#)

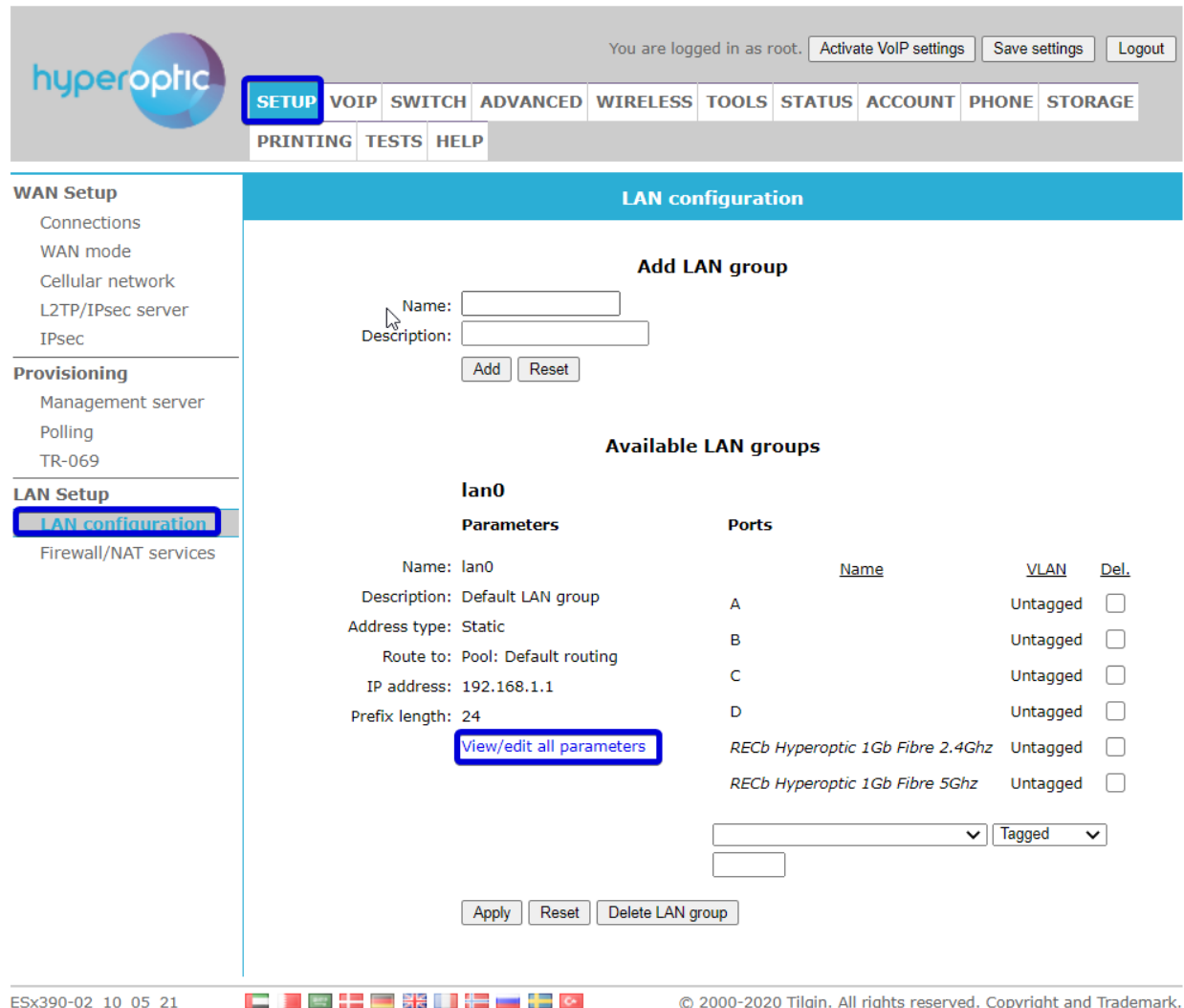
ESx000-02_10_05_06

© 2000-2018 Tilgin. All rights reserved. Copyright and Trademark.

Image 38. Confirmation of IPv6 port filtering rule

Public IPv4 address block in LAN network

Navigate to section **Setup > LAN Setup > LAN configuration**. Click on the **View/edit all parameters**. See image 39.



The screenshot shows the Hyperoptic admin interface. The top navigation bar includes links for SETUP, VOIP, SWITCH, ADVANCED, WIRELESS, TOOLS, STATUS, ACCOUNT, PHONE, and STORAGE. The left sidebar shows the navigation tree with LAN Setup > LAN configuration selected. The main content area is titled 'LAN configuration' and contains an 'Add LAN group' section with input fields for Name and Description, and buttons for Add and Reset. Below this is the 'Available LAN groups' section, which displays a table for the 'lan0' group. The table has columns for Name, Ports, and VLAN. The 'lan0' group is configured with a static IP address of 192.168.1.1 and a prefix length of 24. The 'View/edit all parameters' button is highlighted in the interface.

Name	Ports	VLAN	Del.
lan0	A	Untagged	<input type="checkbox"/>
	B	Untagged	<input type="checkbox"/>
	C	Untagged	<input type="checkbox"/>
	D	Untagged	<input type="checkbox"/>
	RECb Hyperoptic 1Gb Fibre 2.4Ghz	Untagged	<input type="checkbox"/>
RECb Hyperoptic 1Gb Fibre 5Ghz	Untagged	<input type="checkbox"/>	

At the bottom of the table, there is a dropdown menu for selecting a VLAN (currently set to 'Tagged') and a button to 'Apply' the changes.

Image 39. LAN settings of HG2381

New screen opens as described in image 40. Focus on the part of **Static address**. Define **IP address / prefix length** field. Example is shown for public block 137.220.108.0/29. Enter valid **Start IP address** and **End IP address**. Click on **Save** button at the bottom of the page.

Static address

IP address / prefix length:
 /

E.g.: 192.168.1.13 / 22
 2001:cdba:9abc:5678:: / 64

DHCP provider: ☐ None
☒ DHCP server

Start IP address:
 End IP address:
 Lease time:
 DNS servers: ☒ Default
☐ Custom

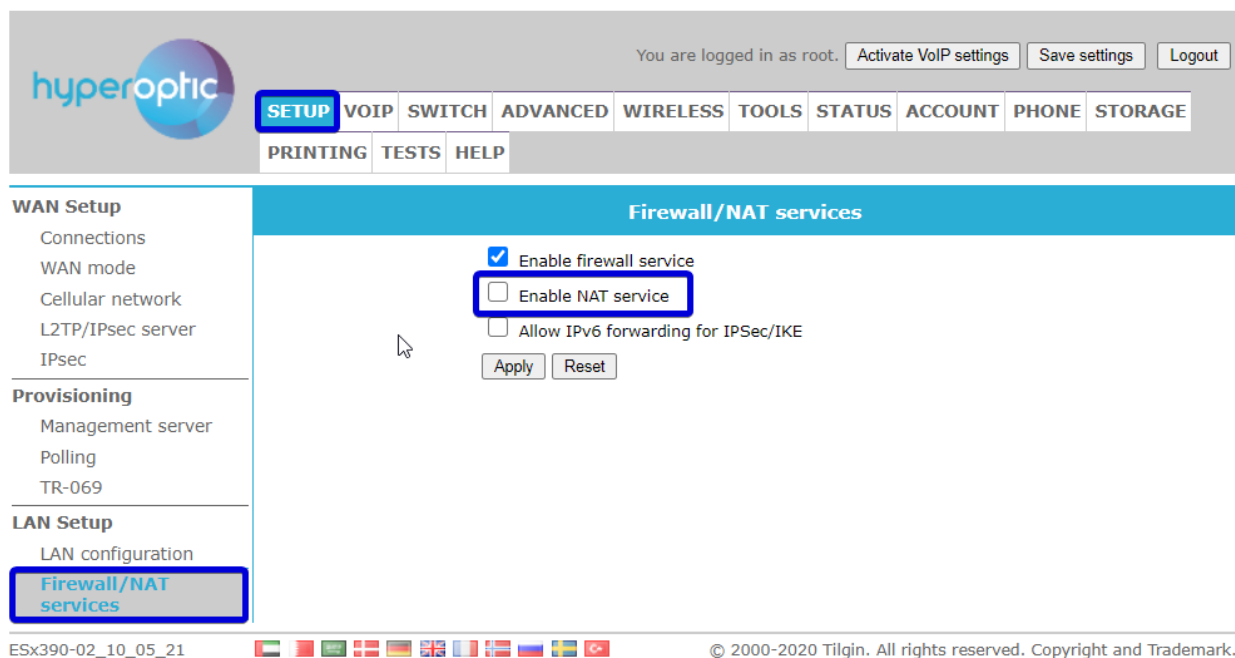
1:
 2:

☐ DHCP relay

Server IP address:
 Relay via:

Image 40. DHCP setting of HG2381

Return to section **Setup > LAN Setup > Firewall/NAT services**. Untick option of **Enable NAT service**. Click **Apply** and **Save settings**. This is illustrated in image 41.



hyperoptic

You are logged in as root. [Activate VoIP settings](#) [Save settings](#) [Logout](#)

SETUP VOIP SWITCH ADVANCED WIRELESS TOOLS STATUS ACCOUNT PHONE STORAGE

PRINTING TESTS HELP

WAN Setup

- Connections
- WAN mode
- Cellular network
- L2TP/IPsec server
- IPsec

Provisioning

- Management server
- Polling
- TR-069

LAN Setup

- LAN configuration
- Firewall/NAT services**

Firewall/NAT services

☒ Enable firewall service
☐ **Enable NAT service**
☐ Allow IPv6 forwarding for IPSec/IKE

[Apply](#) [Reset](#)


ESx390-02_10_05_21  © 2000-2020 Tilgin. All rights reserved. Copyright and Trademark.

Image 41. Disabling NAT service