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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**.

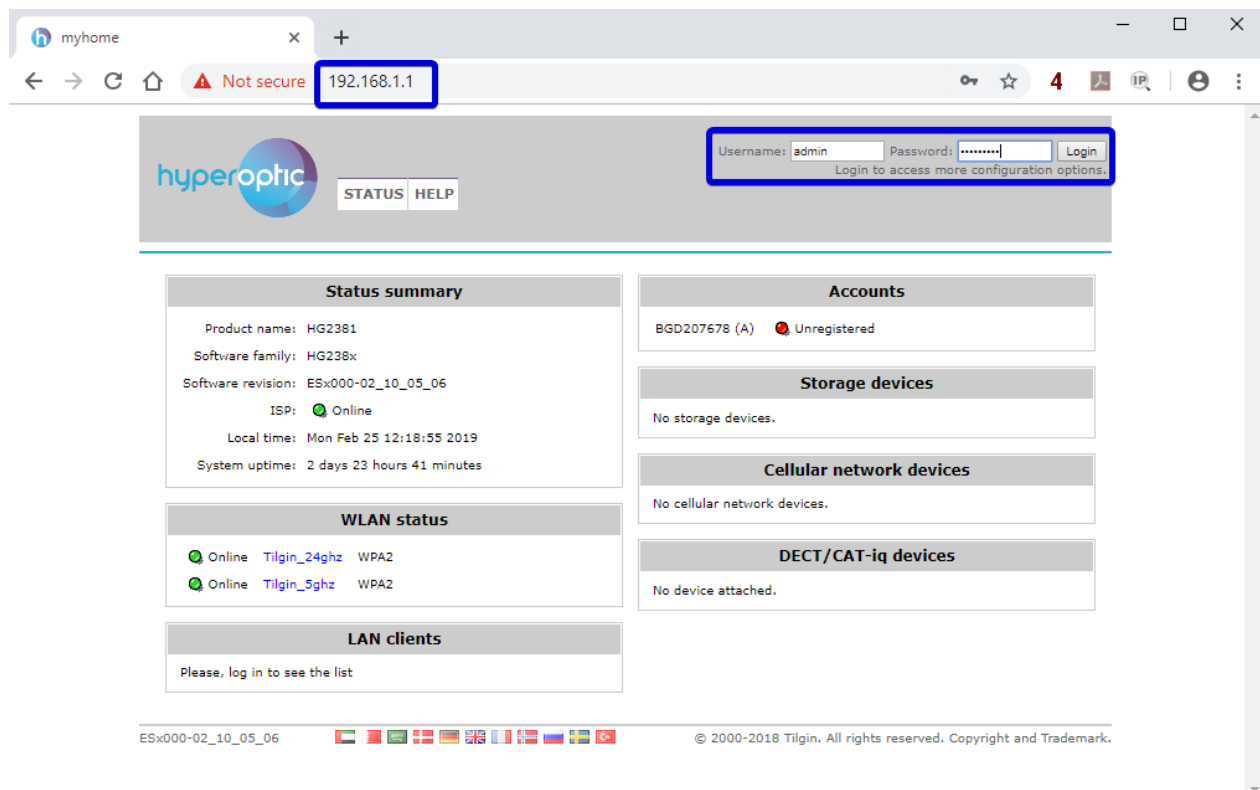


Image 1. Router HG2381 login screen

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).

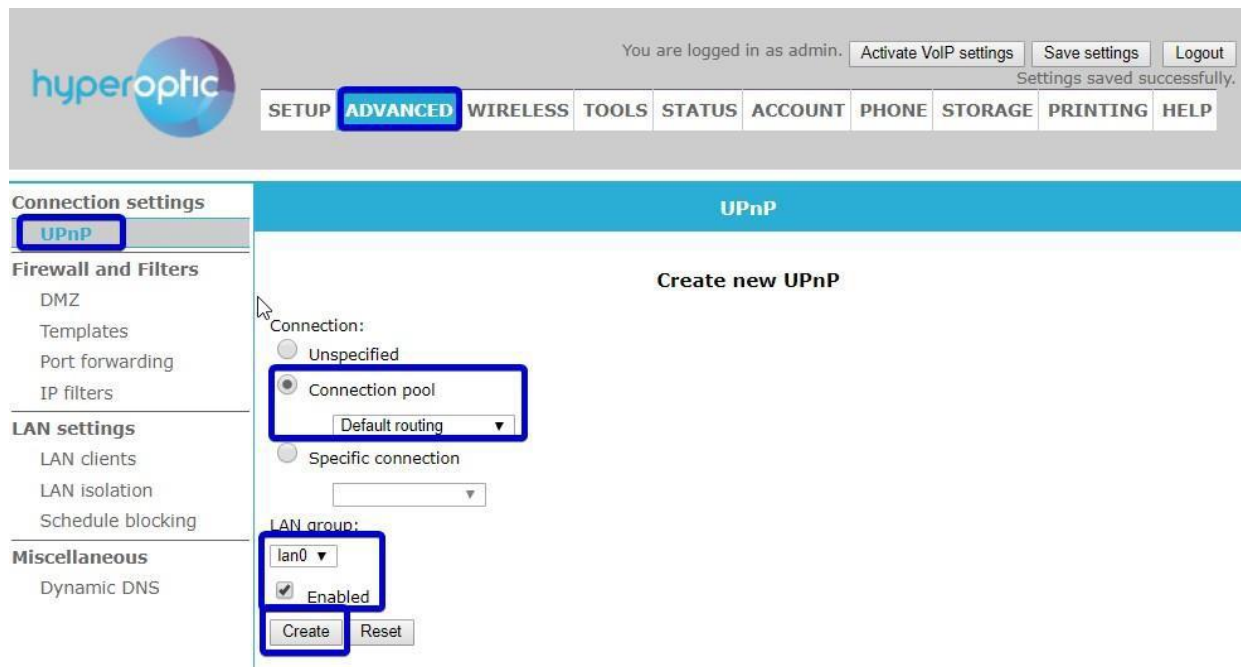


Image 2. Setting up UPnP service

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.

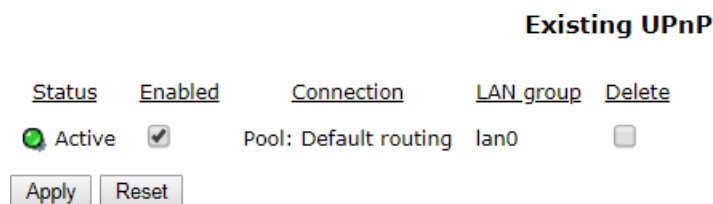


Image 3. Confirmation of UPnP settings

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.

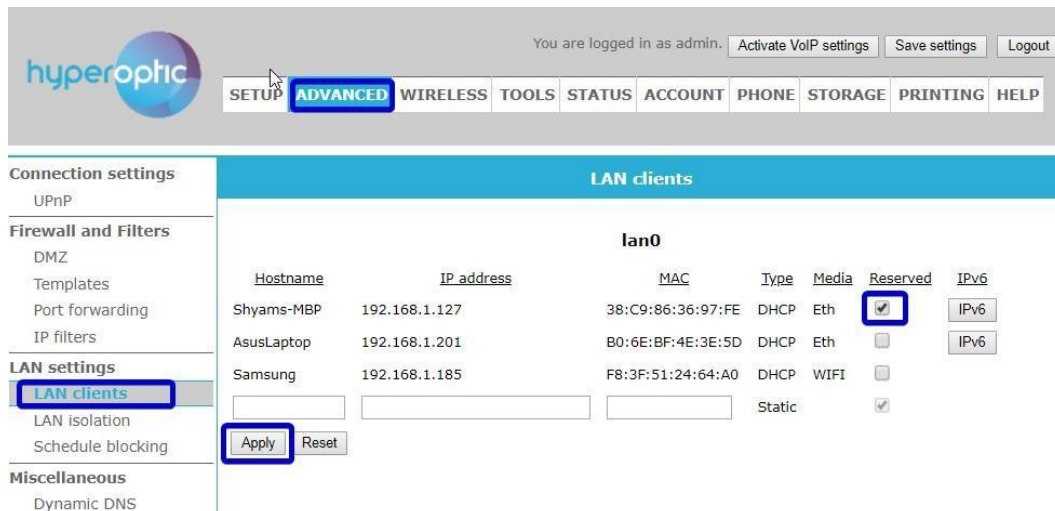


Image 4. Defining which LAN client will be blocked

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.

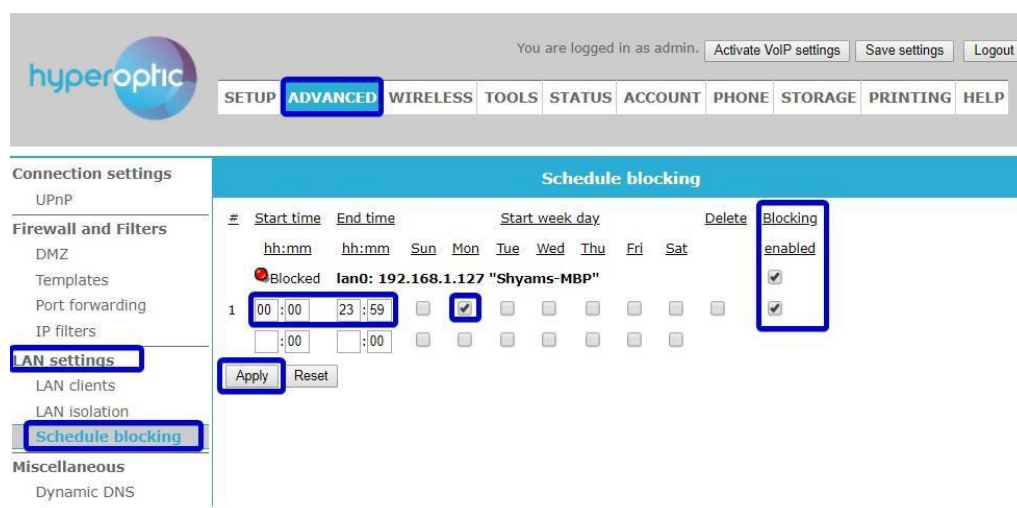
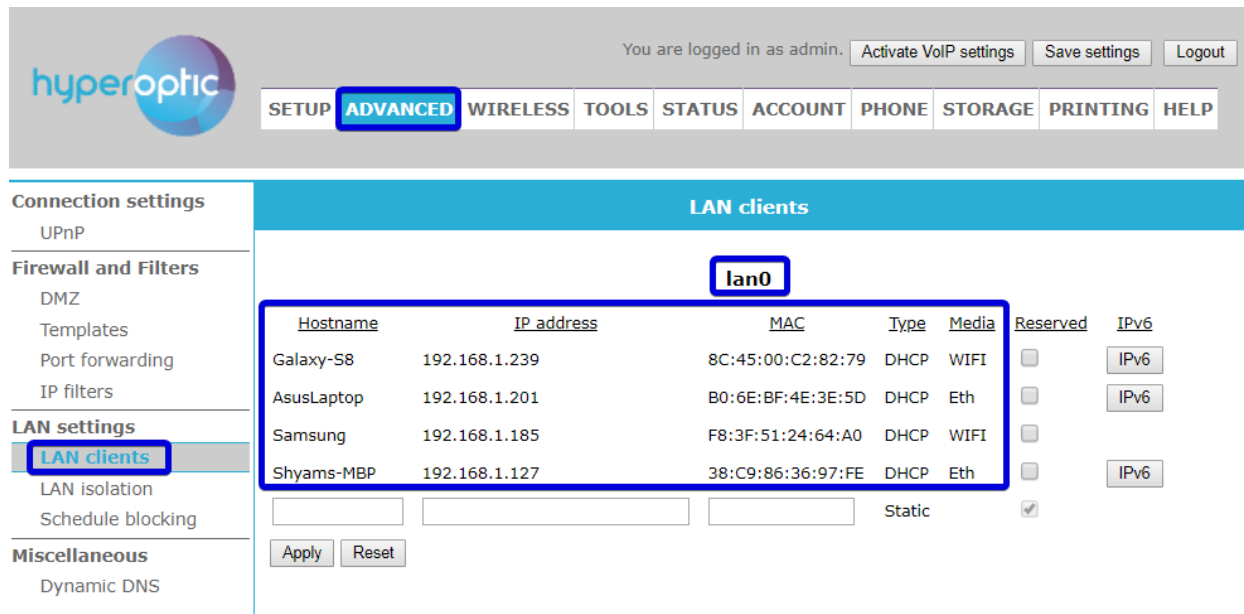


Image 5. Defining blocking time & day per week basis

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](#)

hyperoptic [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

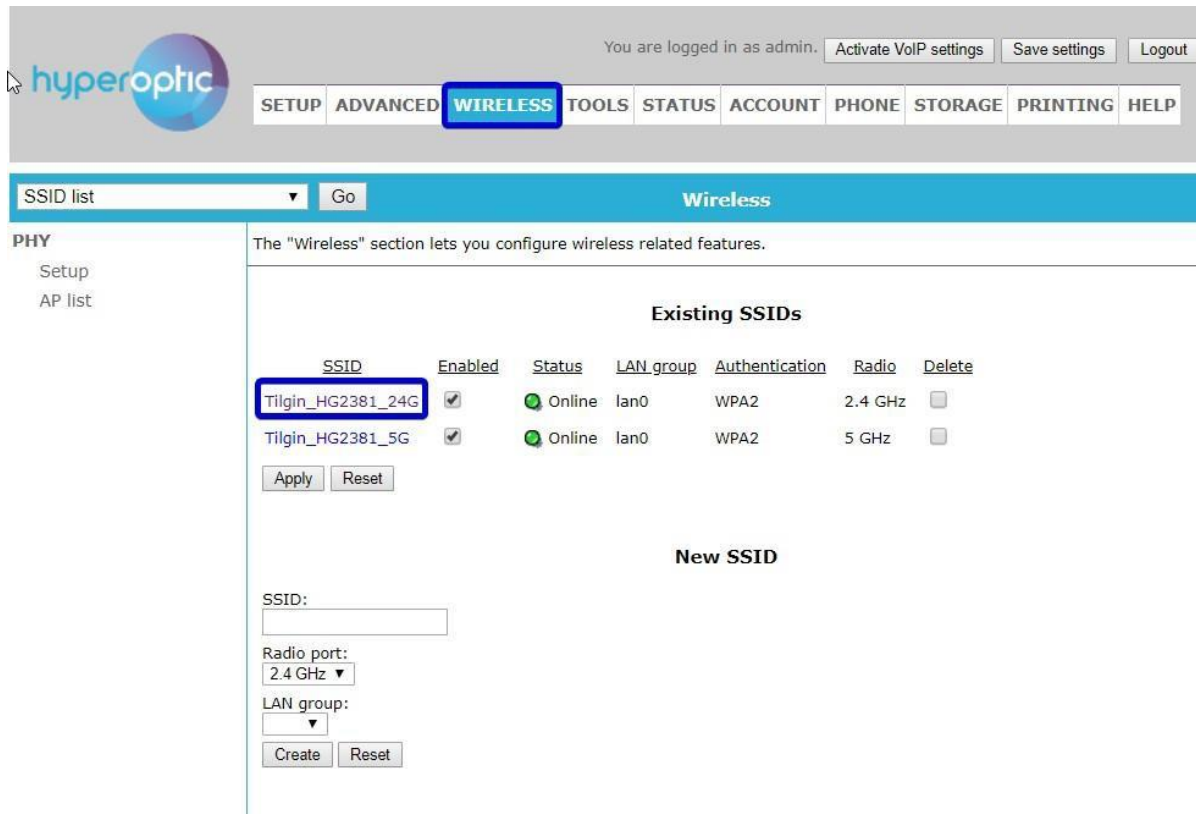
| Hostname | IP address | MAC | Type | Media | Reserved | IPv6 |
|----------------------|----------------------|----------------------|--------|-------|-------------------------------------|----------------------|
| Galaxy-S8 | 192.168.1.239 | 8C:45:00:C2:82:79 | DHCP | WIFI | <input type="checkbox"/> | 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"/> | |
| 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.

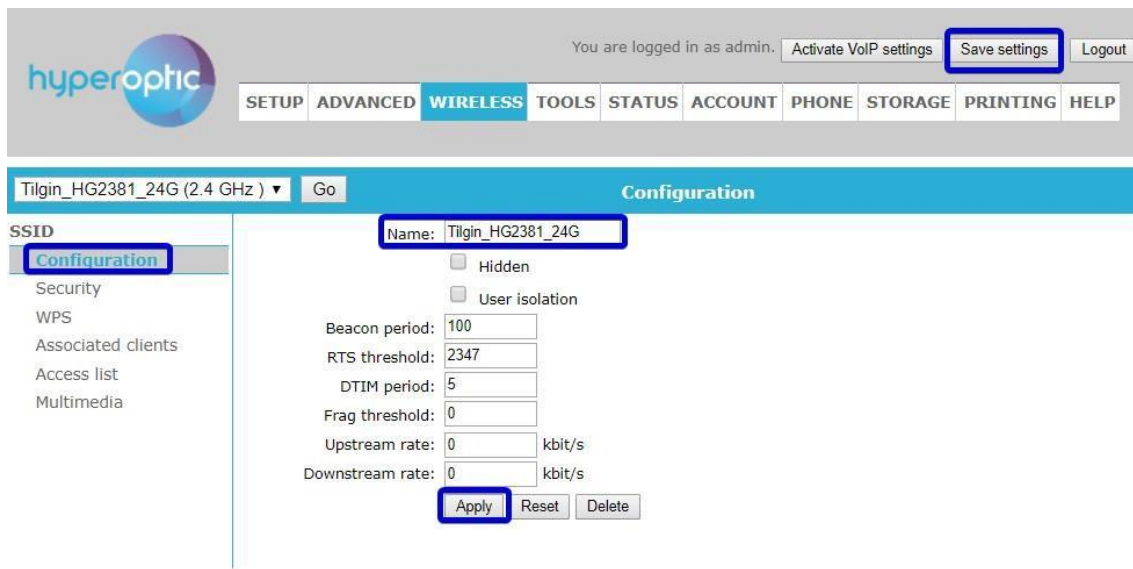


The screenshot shows the Hyperoptic admin interface. At the top, there is a navigation bar with the Hyperoptic logo and a user status bar indicating "You are logged in as admin." with buttons for "Activate VoIP settings", "Save settings", and "Logout". Below this is a main menu with tabs: SETUP, ADVANCED, WIRELESS (highlighted), TOOLS, STATUS, ACCOUNT, PHONE, STORAGE, PRINTING, and HELP. The WIRELESS tab is selected, and the "SSID list" dropdown is open, showing "Go". The main content area is titled "Wireless" and contains a sub-header "Existing SSIDs". Below this is a table with columns: SSID, Enabled, Status, LAN_group, Authentication, Radio, and Delete. Two SSIDs are listed: "Tilgin_HG2381_24G" and "Tilgin_HG2381_5G". Both are enabled and online, using WPA2 authentication on the lan0 interface. Below the table are "Apply" and "Reset" buttons. A section titled "New SSID" contains fields for "SSID:", "Radio port:" (set to 2.4 GHz), and "LAN_group:", with "Create" and "Reset" buttons at the bottom.

| 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"/> |

Image 7. Overview of existing Wi-Fi SSIDs

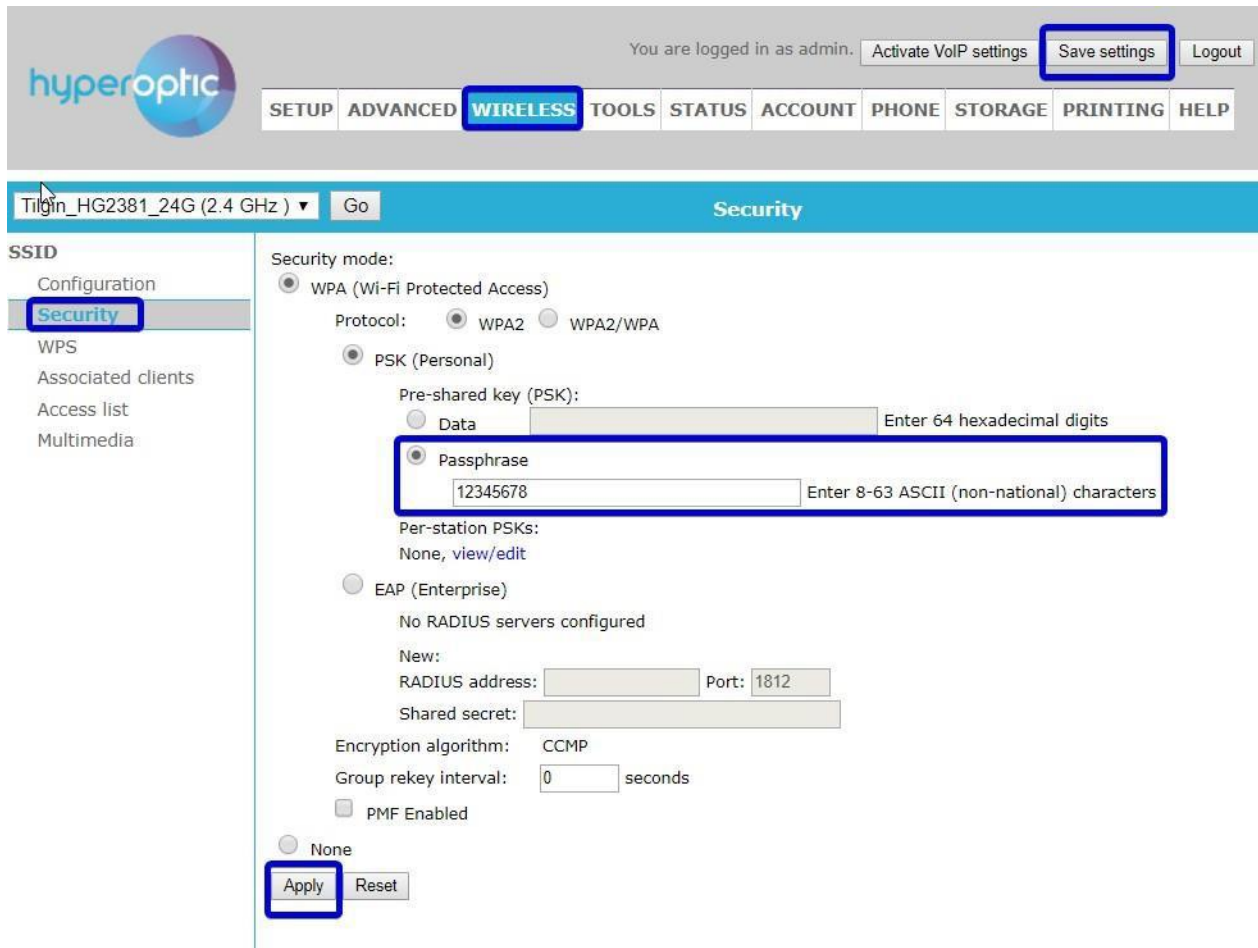
To change name of your wifi connection, navigate to **Wireless > SSID > Configuration**. Provide your desired connection name and then click **Apply** and **Save settings**. See Image 8.



The screenshot shows the Hyperoptic admin interface with the "Wireless" tab selected. The "SSID list" dropdown is open, showing "Go". The main content area is titled "Configuration" and contains a sub-header "Configuration". Below this is a form for configuring the SSID "Tilgin_HG2381_24G (2.4 GHz)". The form includes fields for "Name" (set to "Tilgin_HG2381_24G"), "Hidden" (checkbox), "User isolation" (checkbox), "Beacon period" (100), "RTS threshold" (2347), "DTIM period" (5), "Frag threshold" (0), "Upstream rate" (0 kbit/s), and "Downstream rate" (0 kbit/s). At the bottom are "Apply", "Reset", and "Delete" buttons. The "Configuration" tab is highlighted in the left sidebar.

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**.



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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:

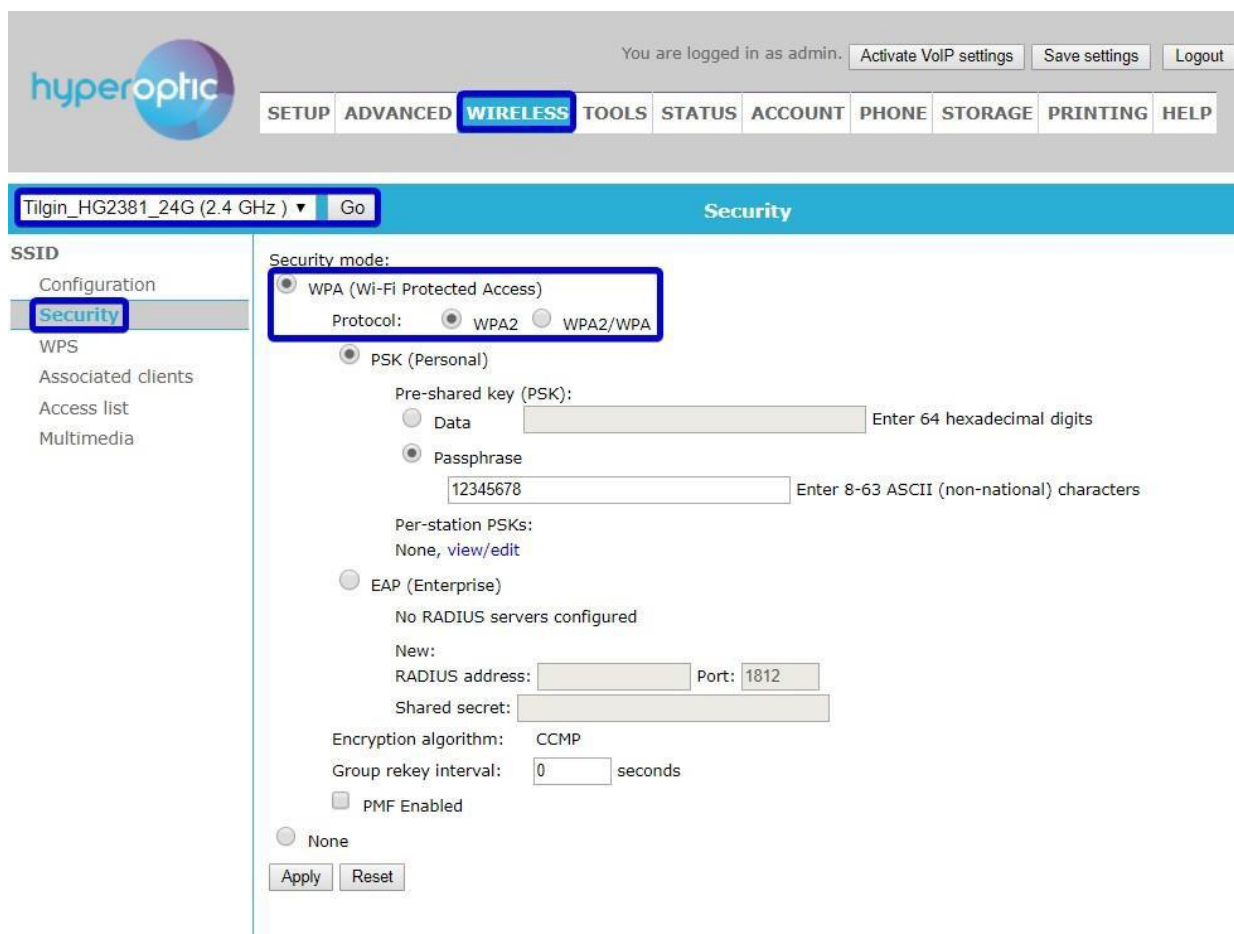
- ☒ WPA (Wi-Fi Protected Access)
 - Protocol: ☒ WPA2 ☐ WPA2/WPA
 - ☒ PSK (Personal)
 - Pre-shared key (PSK):
 - ☐ Data Enter 64 hexadecimal digits
 - ☒ Passphrase Enter 8-63 ASCII (non-national) characters
 - Per-station PSKs: None, view/edit
 - ☐ EAP (Enterprise)
 - No RADIUS servers configured
 - New: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

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

Image 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.



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

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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.

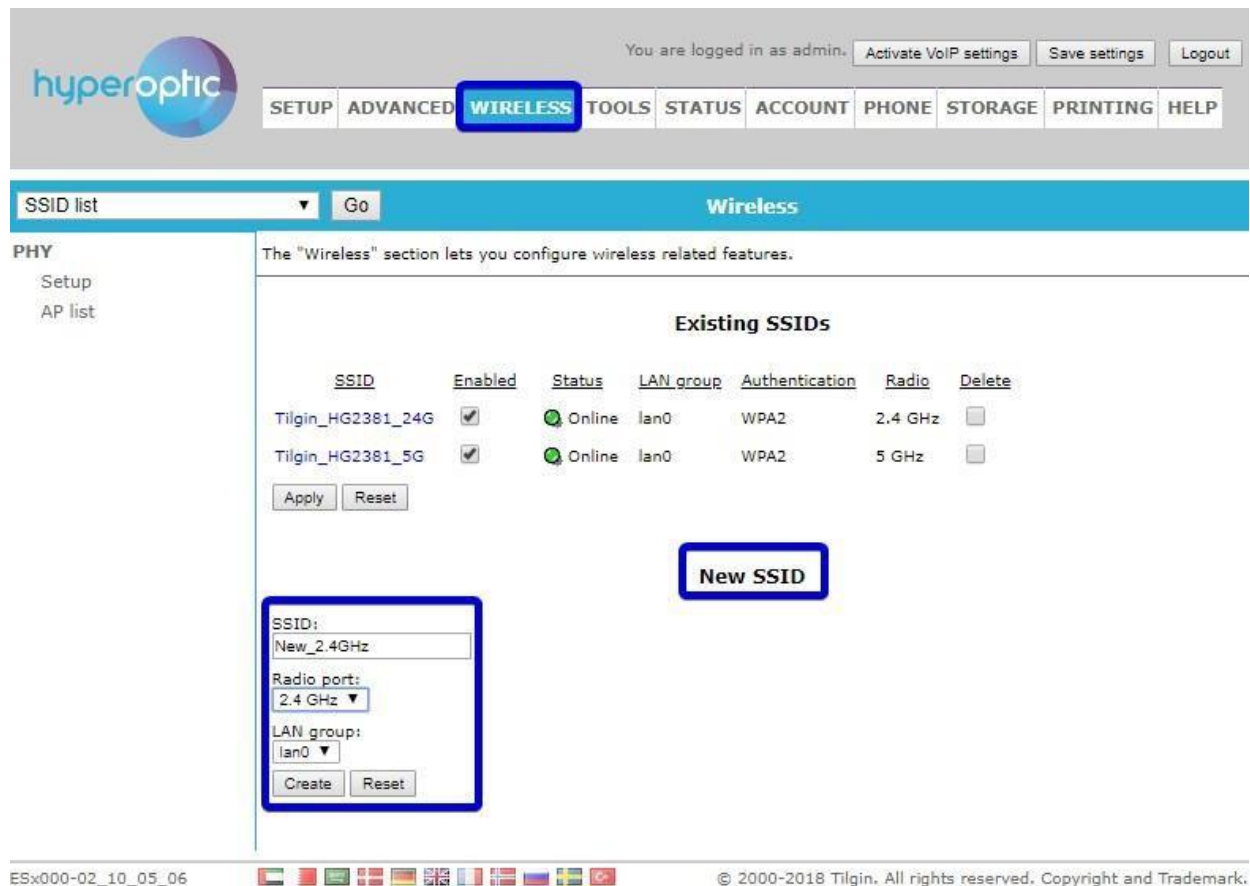
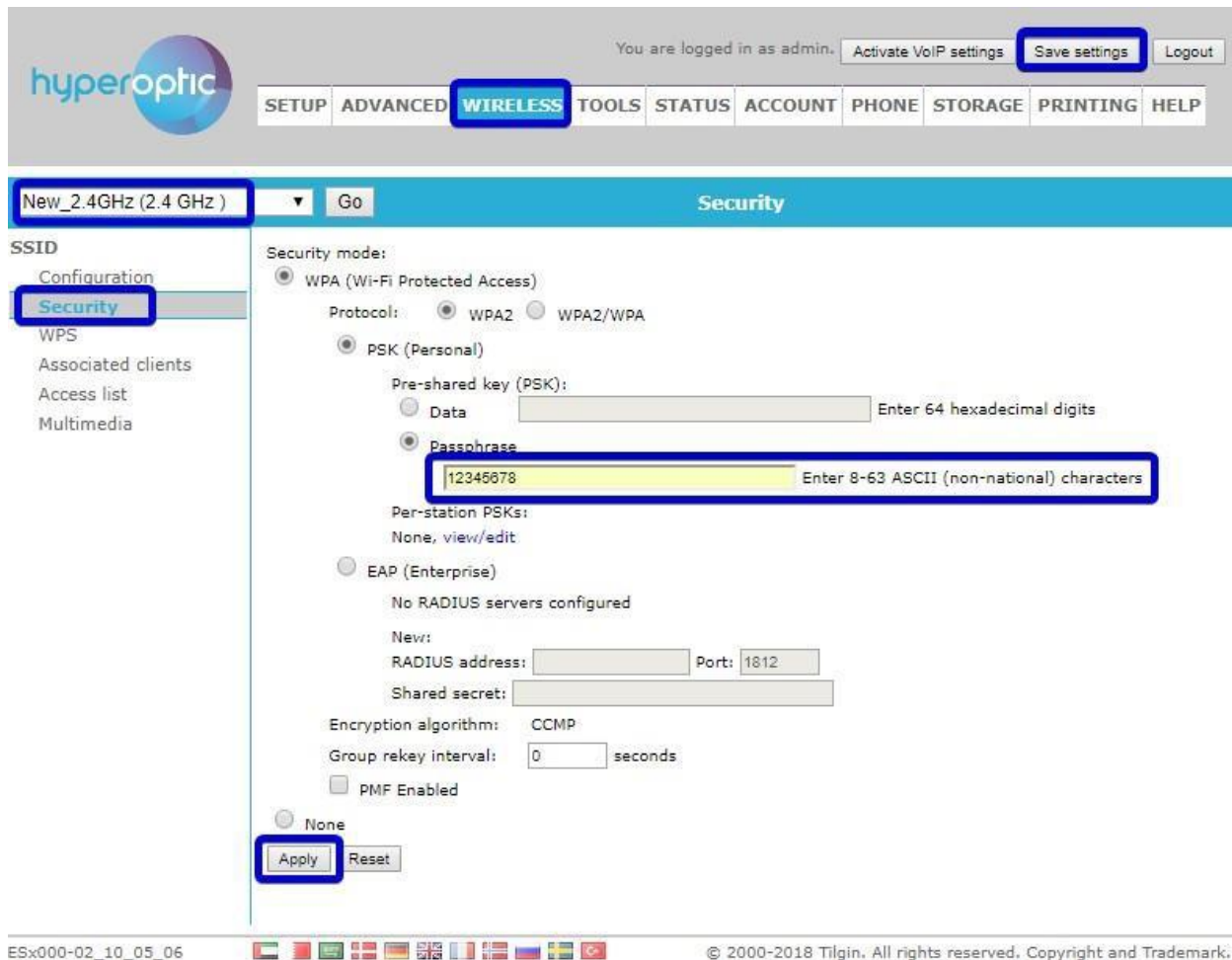


Image 11. Creating new SSID

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).



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

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

New_2.4GHz (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](#)

ESx000-02_10_05_06

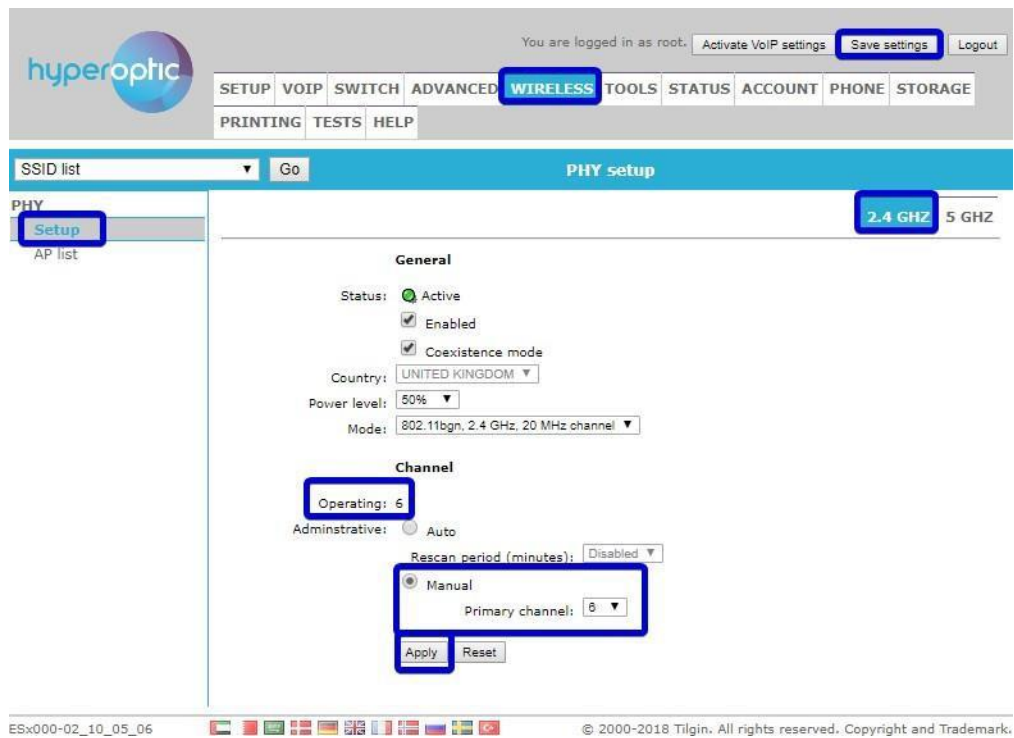
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Image 12. Defining password for new SSID

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.



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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

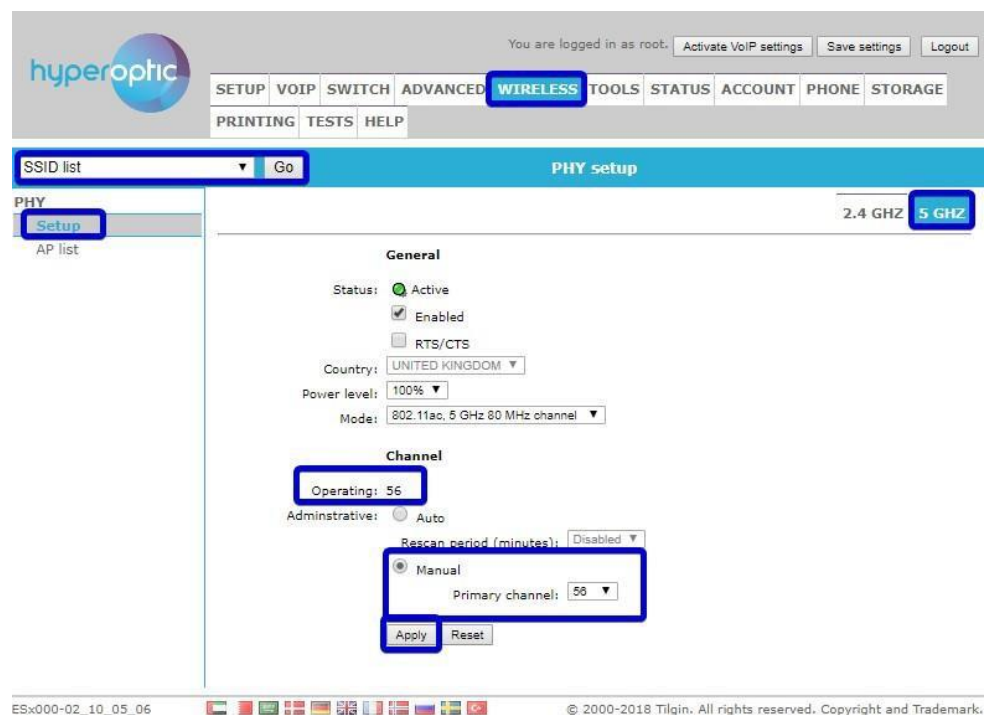
☒ Manual

Primary channel: 6

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

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Image 13. Setting channel for 2.GHz network



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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: 802.11ac, 5 GHz 80 MHz channel

Channel

Operating: 56

Administrative: ☐ Auto

Rescan period (minutes): Disabled

☒ Manual

Primary channel: 56

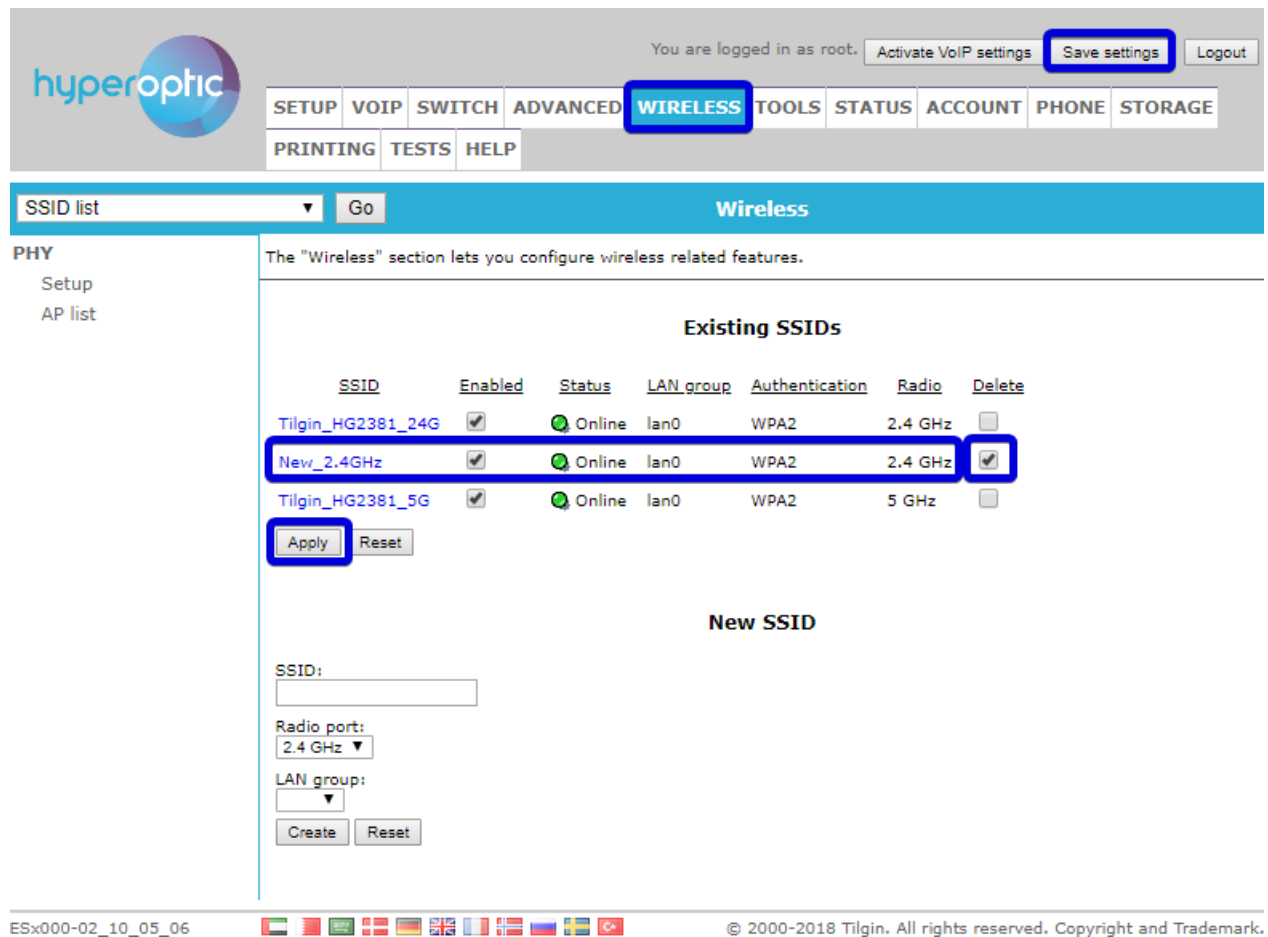
[Apply](#) [Reset](#)

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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).



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

| 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"/> |

Apply **Reset**

New SSID

SSID:

Radio port:

LAN group:

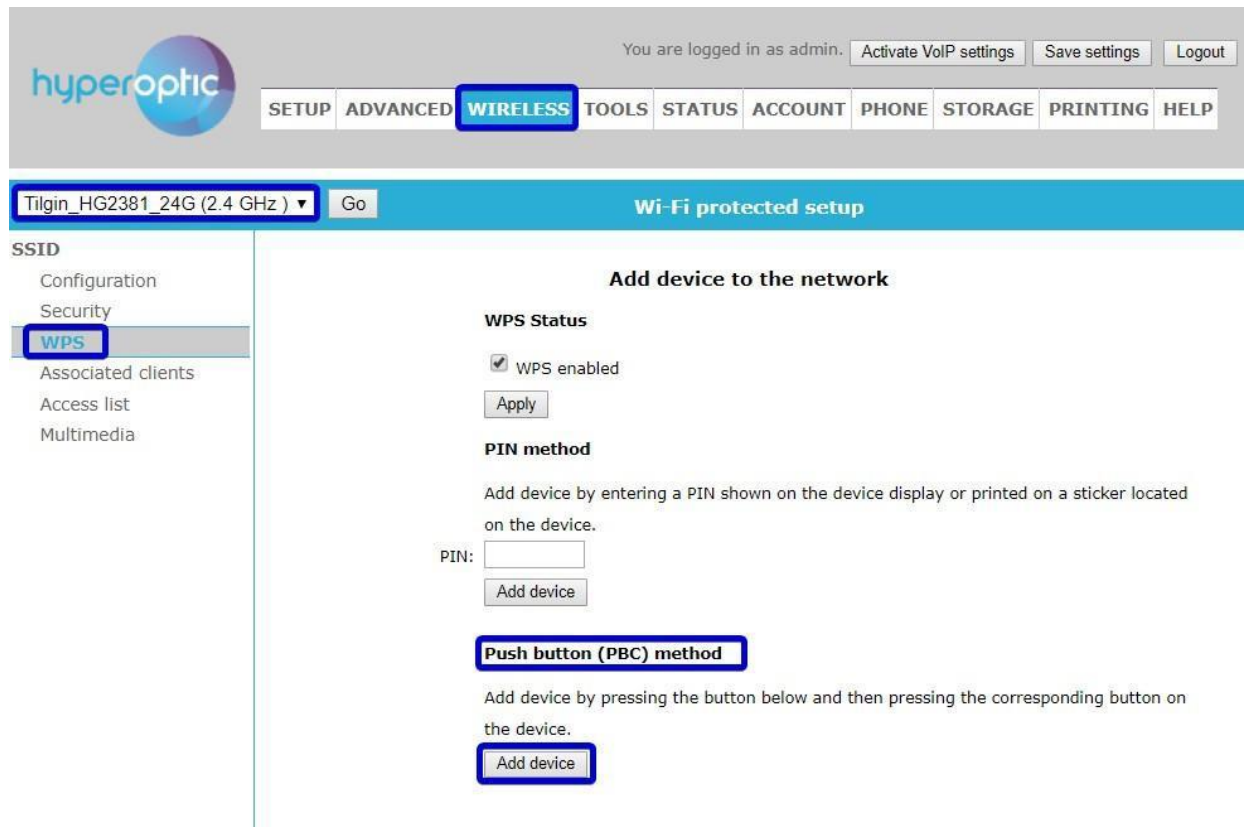
Create **Reset**

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.



The screenshot shows the router's web interface. At the top, the 'hyperoptic' logo is on the left, and the user is logged in as 'admin.' with links for 'Activate VoIP settings', 'Save settings', and 'Logout'. A navigation bar contains tabs: 'SETUP', 'ADVANCED', 'WIRELESS' (highlighted with a blue box), 'TOOLS', 'STATUS', 'ACCOUNT', 'PHONE', 'STORAGE', 'PRINTING', and 'HELP'. Below this, a blue bar shows the selected SSID 'Tilgin_HG2381_24G (2.4 GHz)' and a 'Go' button. The main content area is titled 'Wi-Fi protected setup' and 'Add device to the network'. Under 'WPS Status', 'WPS enabled' is checked, and an 'Apply' button is present. The 'PIN method' section instructs the user to enter a PIN from the device and includes a 'PIN:' input field and an 'Add device' button. The 'Push button (PBC) method' section instructs the user to press a button on the device and includes an 'Add device' button (highlighted with a blue box). A left sidebar lists 'SSID' options: 'Configuration', 'Security', 'WPS' (highlighted with a blue box), 'Associated clients', 'Access list', and 'Multimedia'.

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.

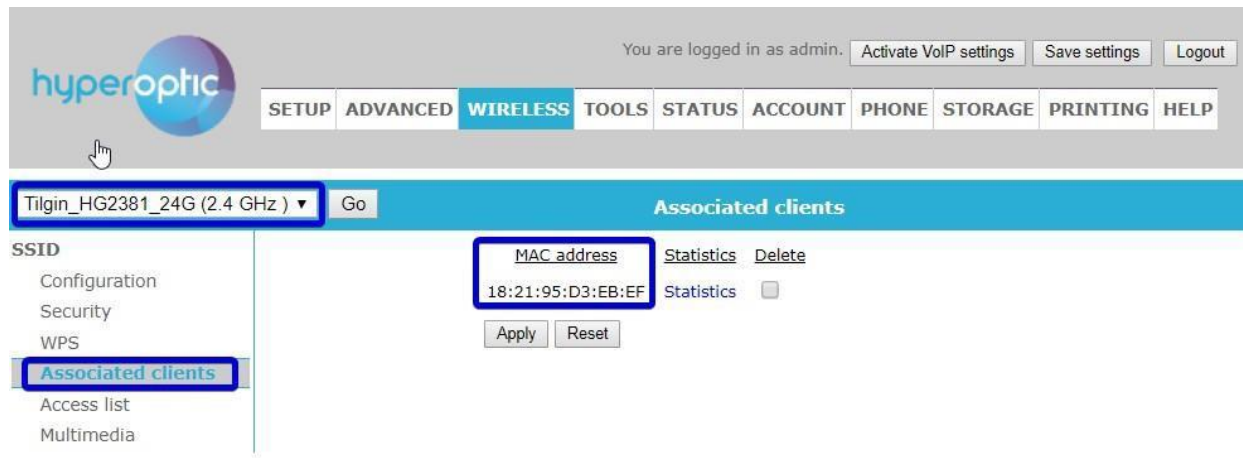


Image 16. Wi-Fi 2.4GHz LAN clients

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.

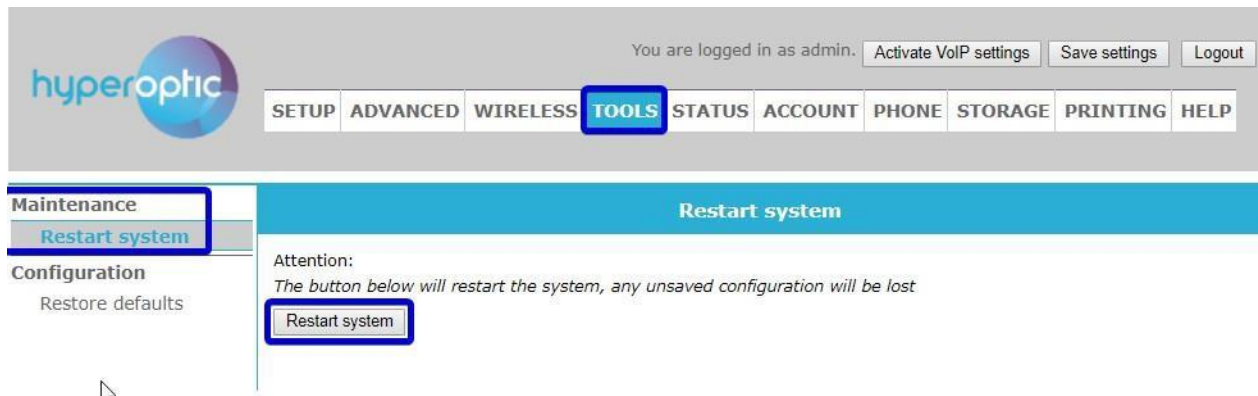


Image 17. Restart of router

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

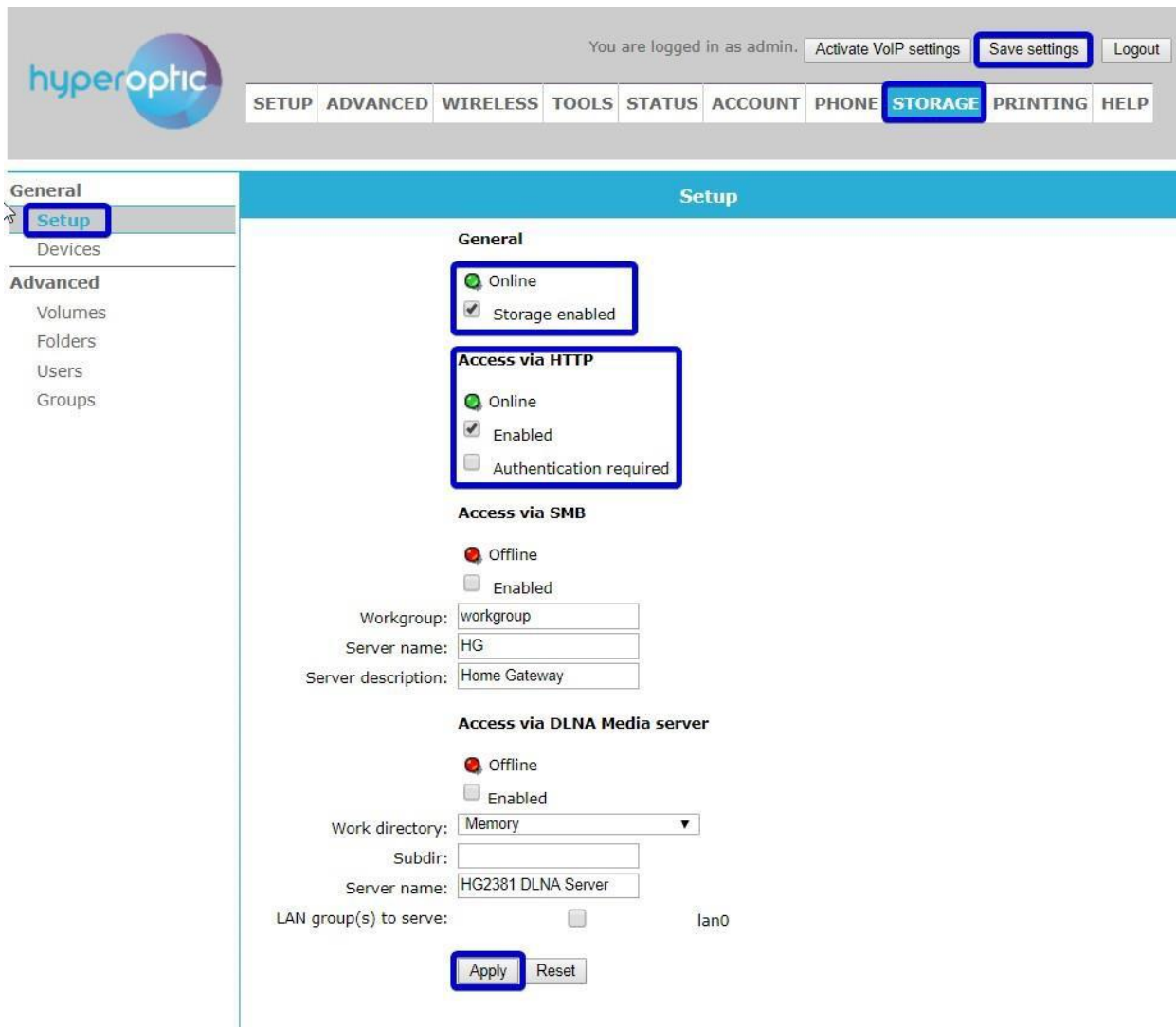
Please note, factory reset isn't recommended as it can shorten the life of a router if used often. Also, factory reset will delete any user-made configuration, such as wifi SSID, wifi password, port forwarding rules, etc.



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.



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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

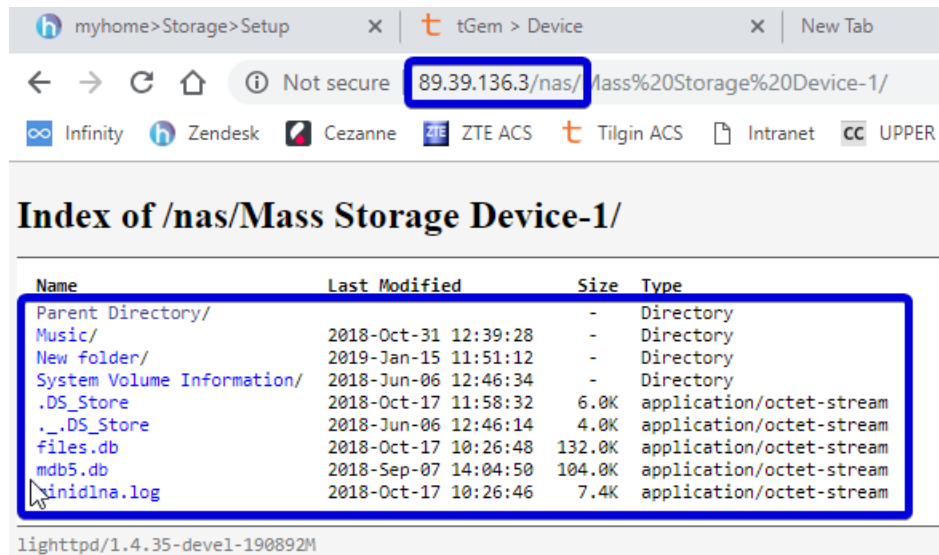


Image 20. Remote access to USB drive via http

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.

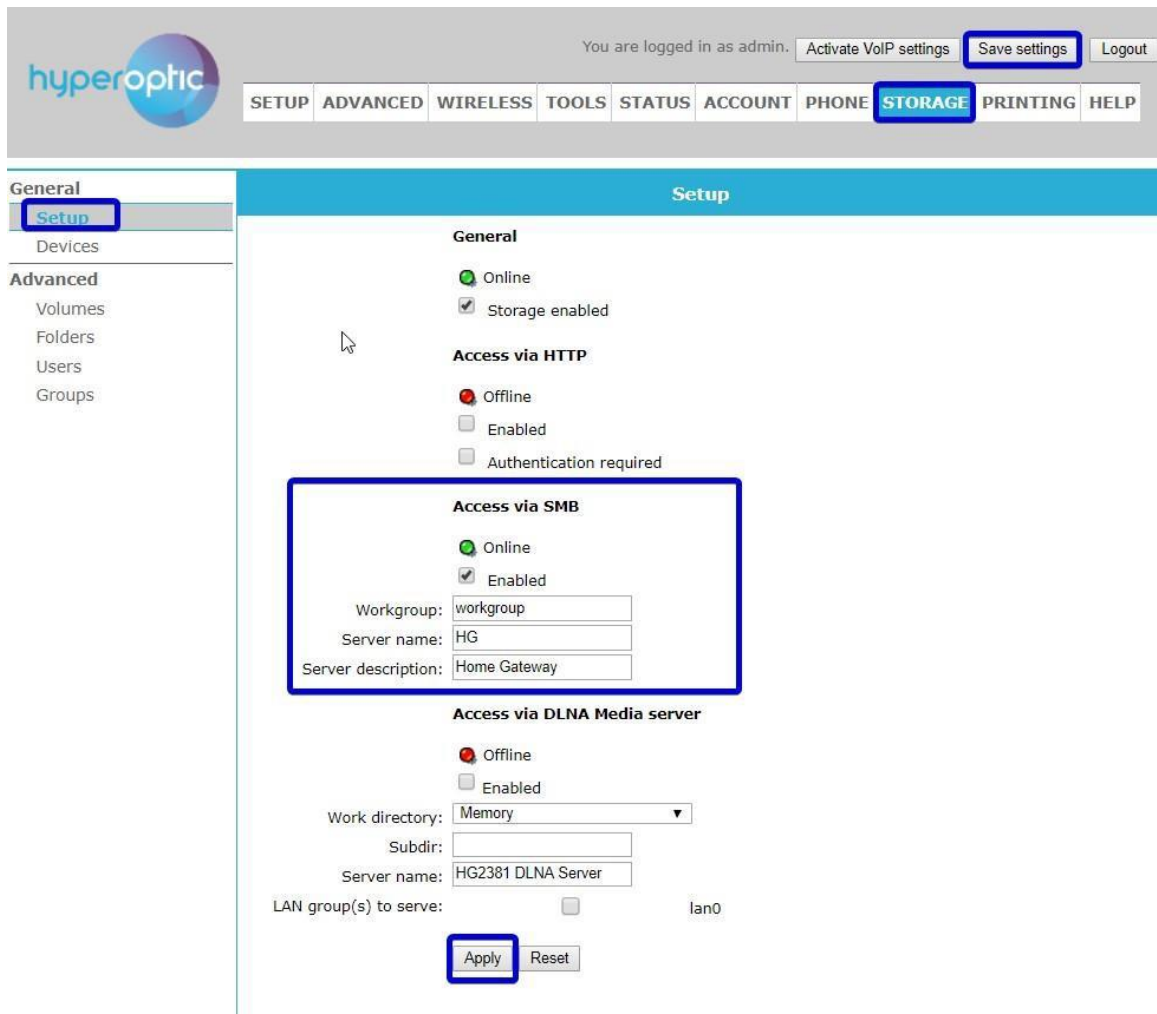


Image 21. Access to flash drive via SMB

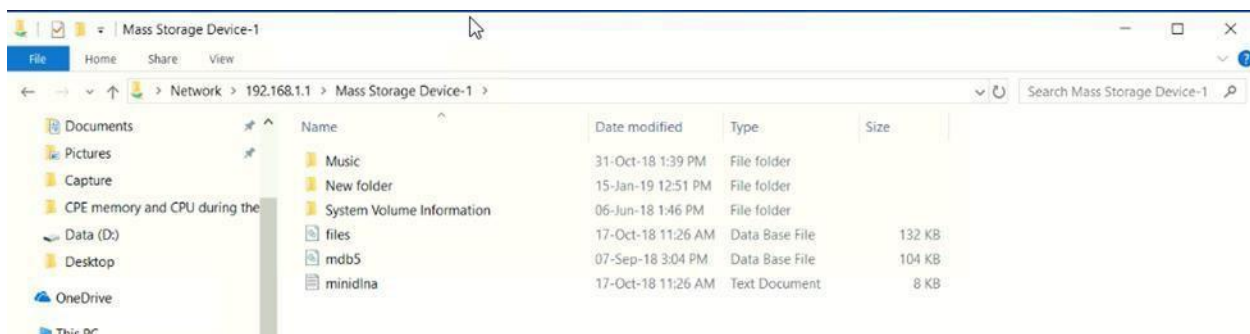
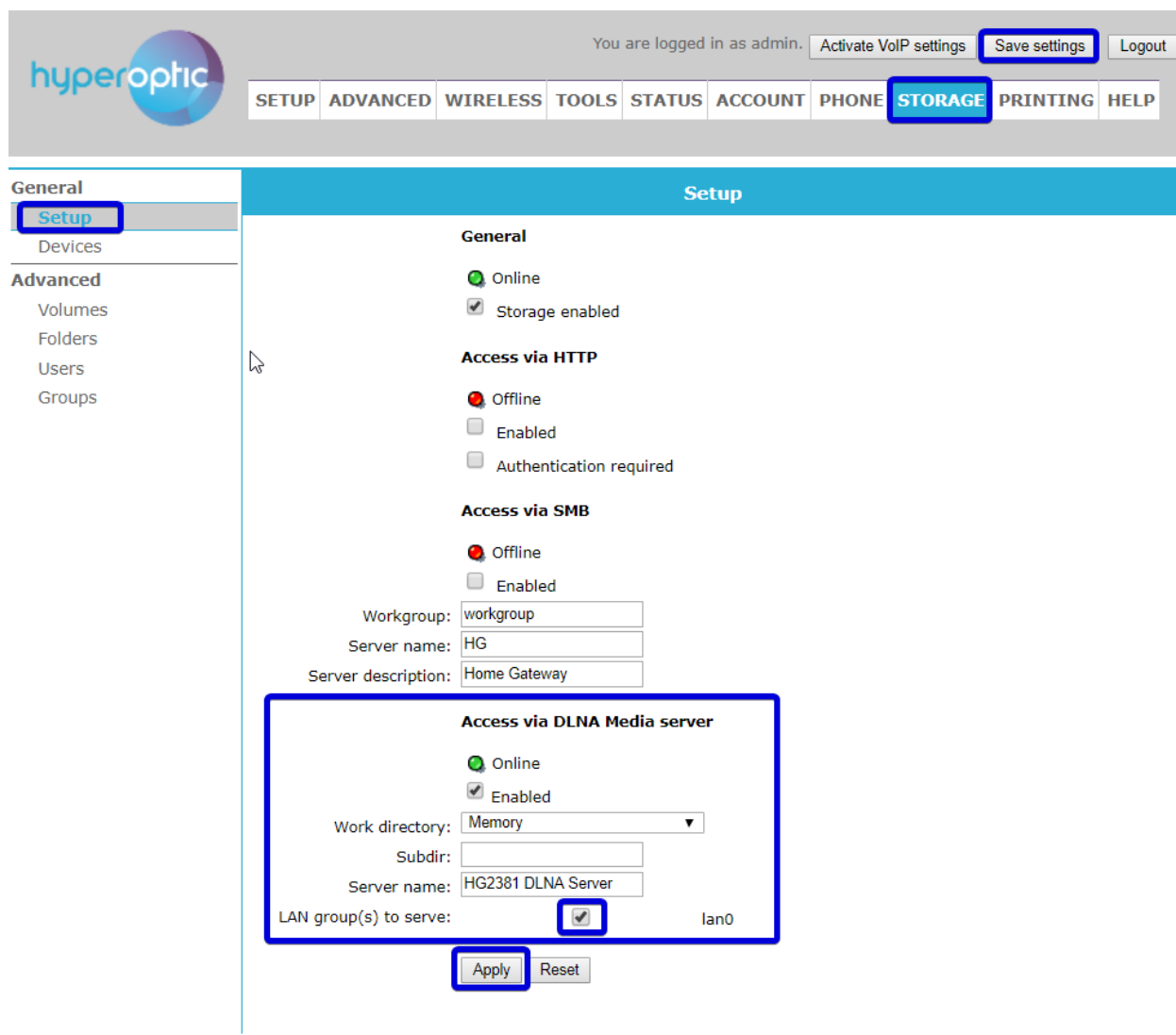


Image 22. LAN access via SMB (type \\192.168.1.1 in browser search)

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 with the hyperoptic logo, a login status "You are logged in as admin.", and buttons for "Activate VoIP settings", "Save settings", and "Logout". Below the header is a navigation bar with tabs: SETUP, ADVANCED, WIRELESS, TOOLS, STATUS, ACCOUNT, PHONE, STORAGE, PRINTING, and HELP. The "STORAGE" tab is selected. On the left side, there is a sidebar with "General" and "Advanced" sections. Under "General", "Setup" is selected. Under "Advanced", there are links for "Volumes", "Folders", "Users", and "Groups". The main content area is titled "Setup" and contains several sections: "General" (Online status, Storage enabled checkbox), "Access via HTTP" (Offline status, Enabled checkbox, Authentication required checkbox), "Access via SMB" (Offline status, Enabled checkbox, Workgroup: workgroup, Server name: HG, Server description: Home Gateway), and "Access via DLNA Media server" (Online status, Enabled checkbox, Work directory: Memory dropdown, Subdir: empty text box, Server name: HG2381 DLNA Server, LAN group(s) to serve: lan0 with a checked checkbox). The "Access via DLNA Media server" section is highlighted with a blue border. At the bottom of this section are "Apply" and "Reset" buttons.

Image 23. Access to DLNA Media server

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

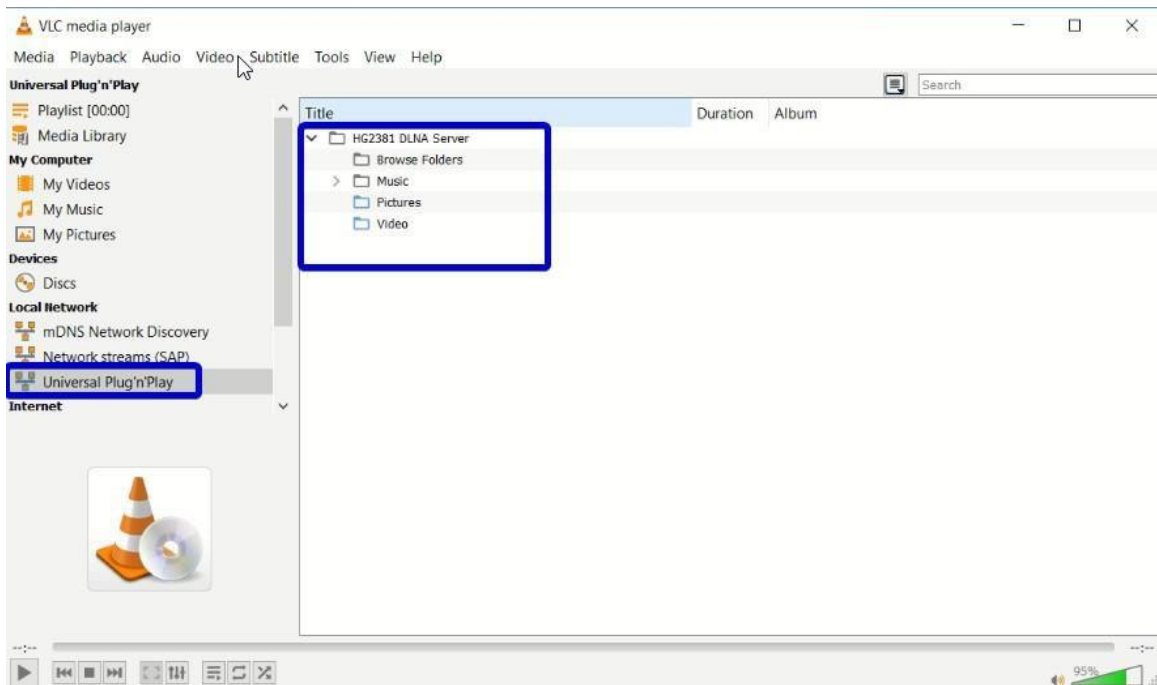
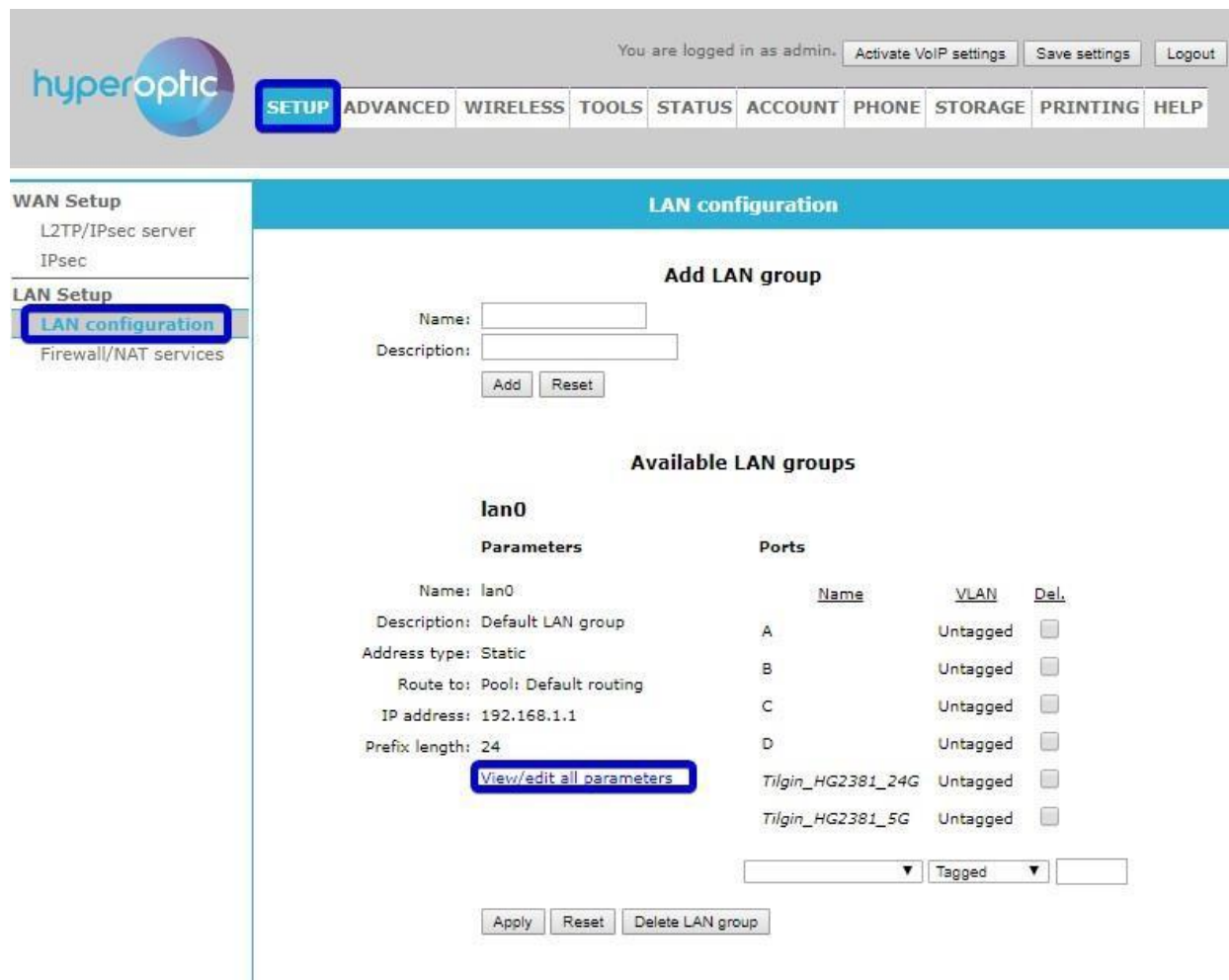


Photo 24. Access to USB flash drive DLNA Server

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.



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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

LAN configuration

Add LAN group

Name:
Description:
[Add](#) [Reset](#)

Available LAN groups

lan0

Parameters

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](#)

Ports

| 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

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

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.

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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
☒ Dynamic

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:a2c:b:2512:: / 64
2a01:4b00:8003:a00:: / 64

IPv6 addresses:
fe80::202:61ff:feba:d05c
fda9:a2c:b:2512:: / 64
2a01:4b00:8003:a00:: / 64

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


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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).

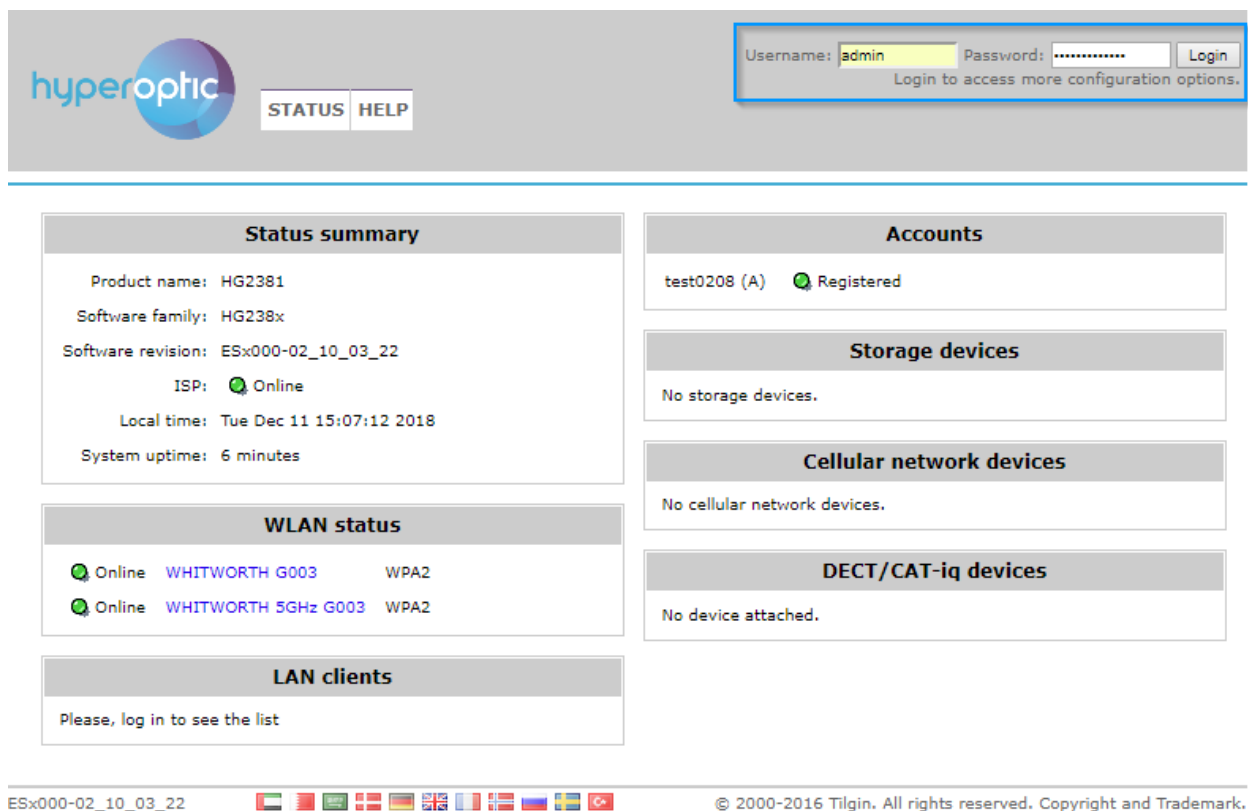


Image 27. Login page of the router

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.

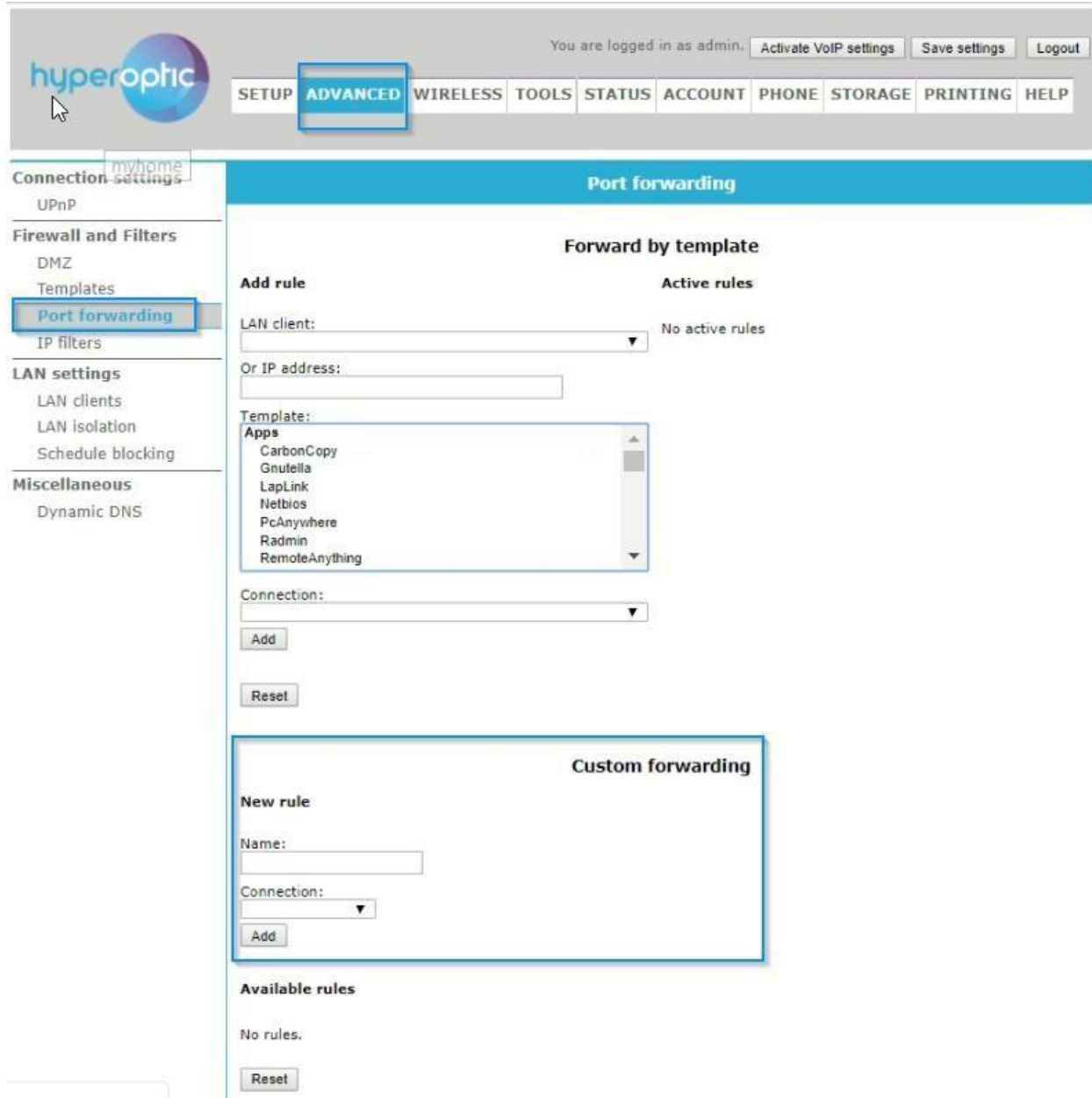


Image 28. Port forwarding section of the router web UI

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

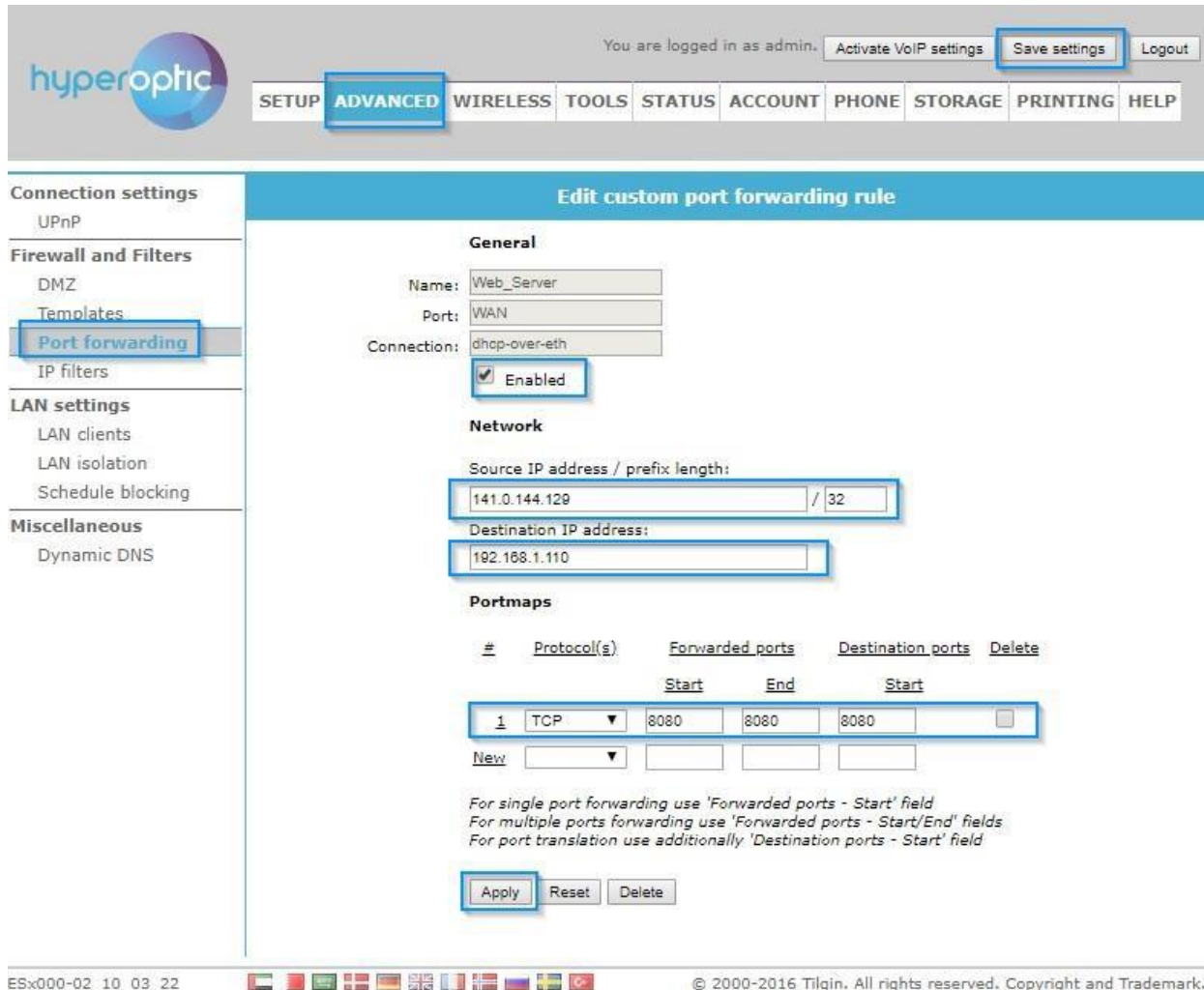
Image 30 illustrates the main parameter configuration of port forwarding rules.

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](#)

hyperoptic [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](#)

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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.

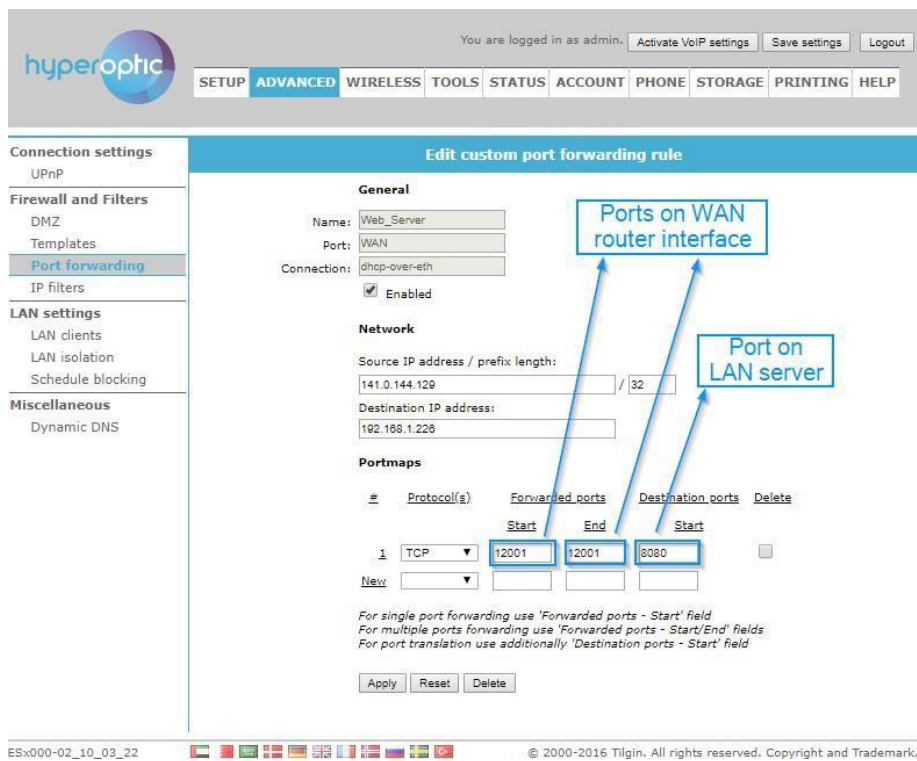
A list of commonly used ports is illustrated in Image 31.

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.



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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 | <input type="text" value="12001"/> | <input type="text" value="12001"/> | <input type="text" value="8080"/> | <input type="checkbox"/> |
| New | | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="checkbox"/> |

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](#)

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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)

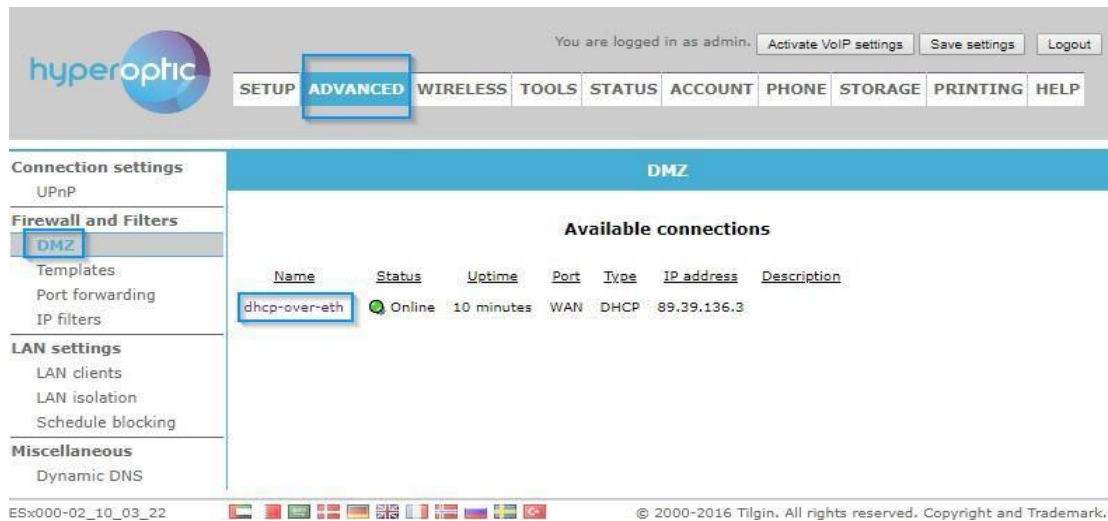


Image 33. DMZ section of router

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.

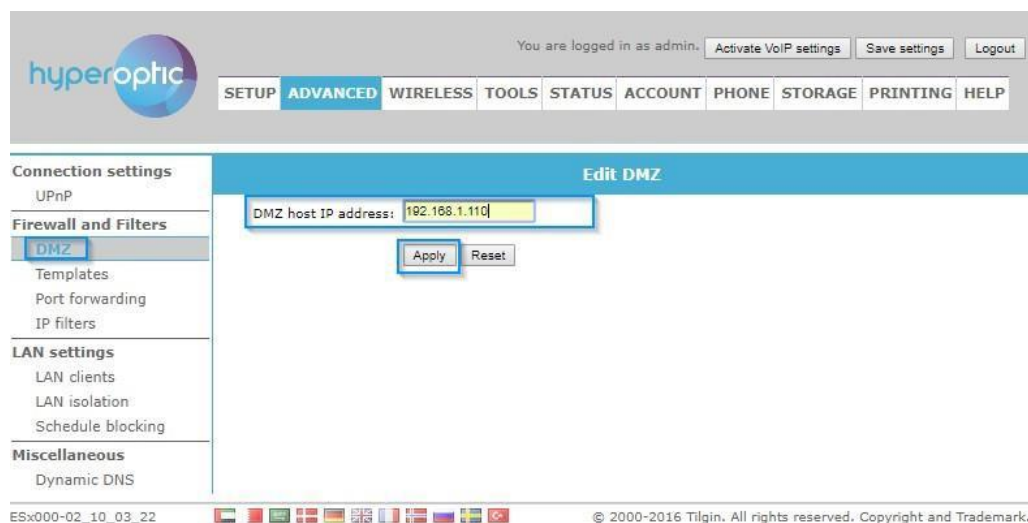


Image 34. List LAN device which needs to be placed in DMZ

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**.

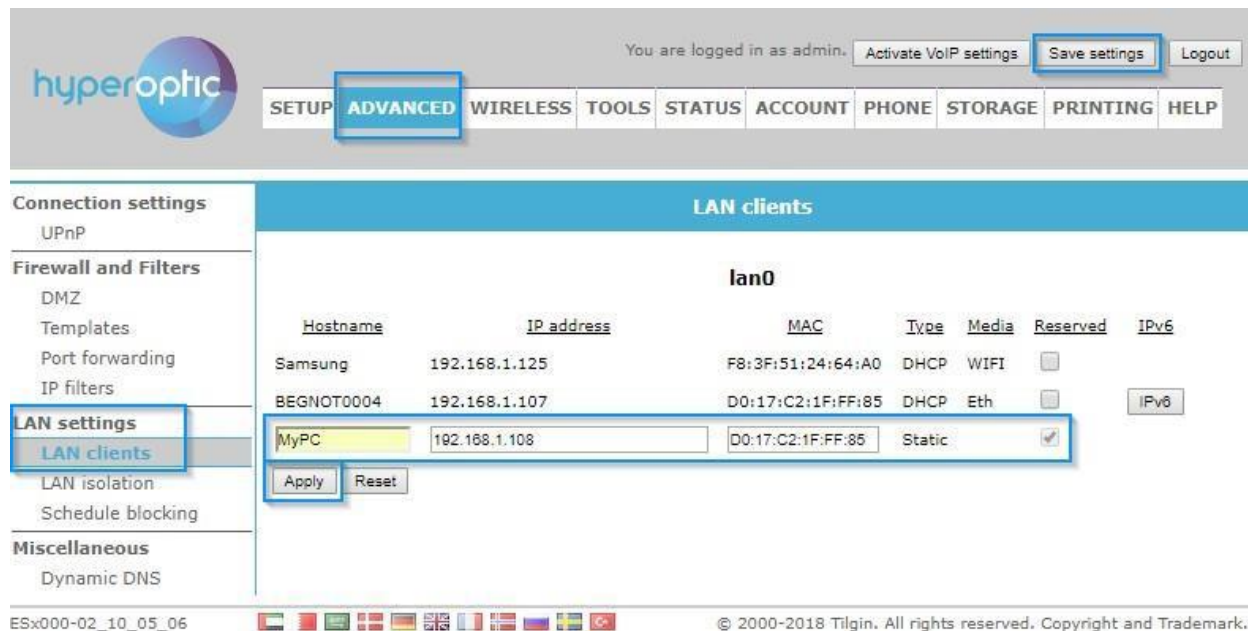


Photo 35. DHCP host binding

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.

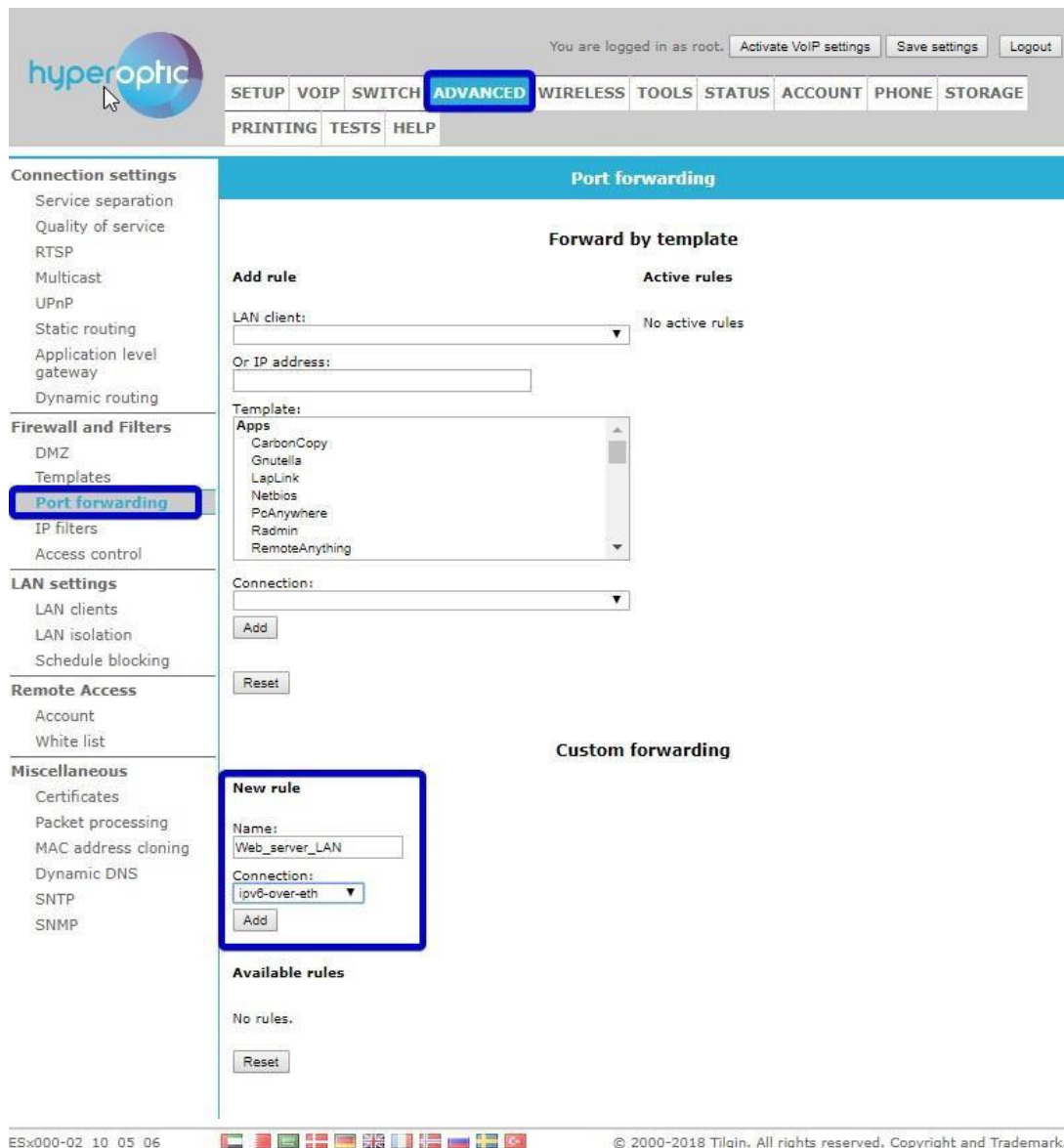
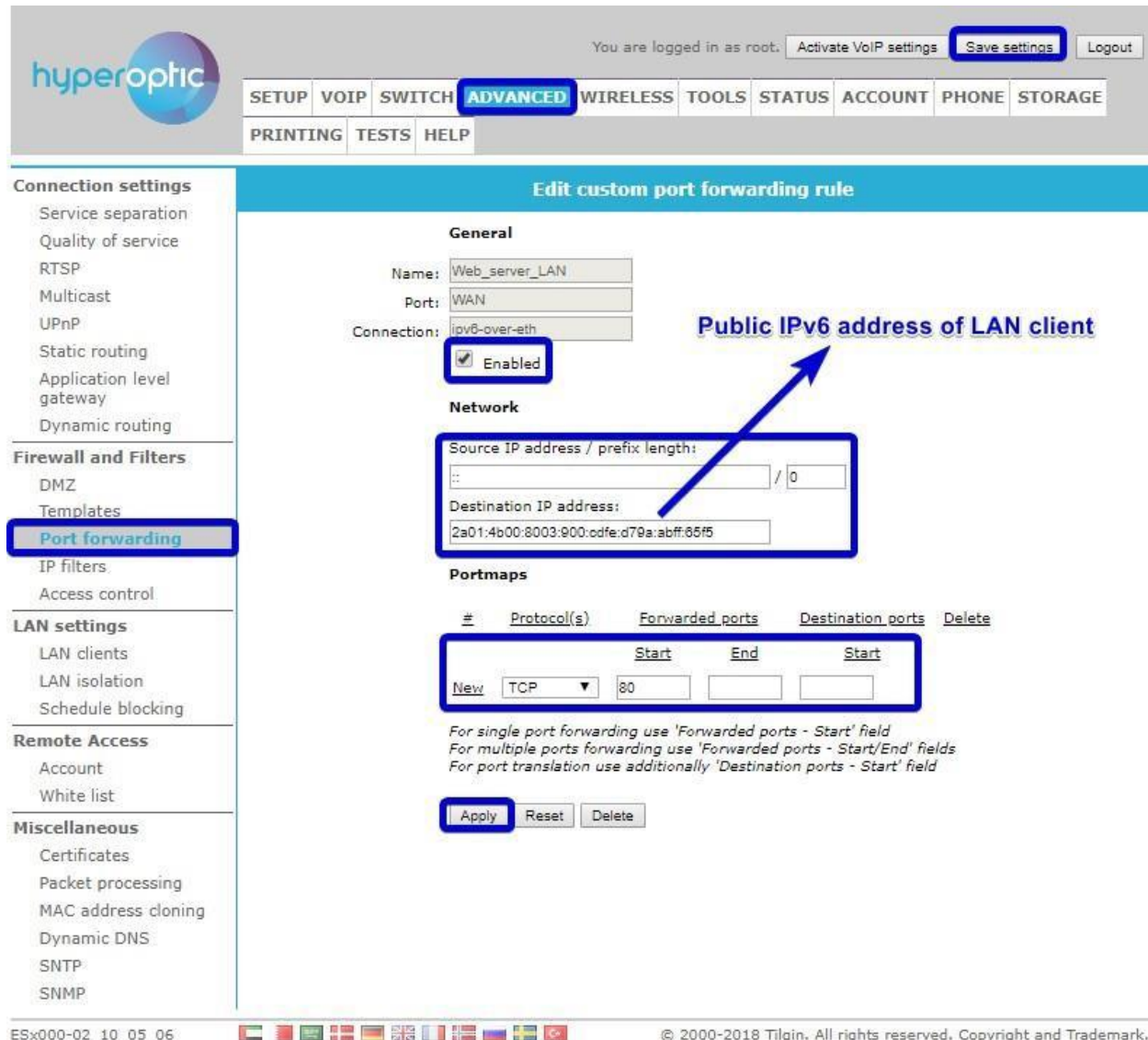


Image 36. Selecting IPv6 connection for Port forwarding router feature

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**.



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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 |
|-----|-------------|-----------------|-------------------|--------|
| New | TCP | Start: 80 End: | Start: | |

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](#)

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Image 37. Configuration of IPv6 port filtering

You'll see confirmation of setup in image 38.

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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
- PcAnywhere
- 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 | <input type="checkbox"/> |
| | | | | | | : 80 | |

[Apply](#)

[Reset](#)

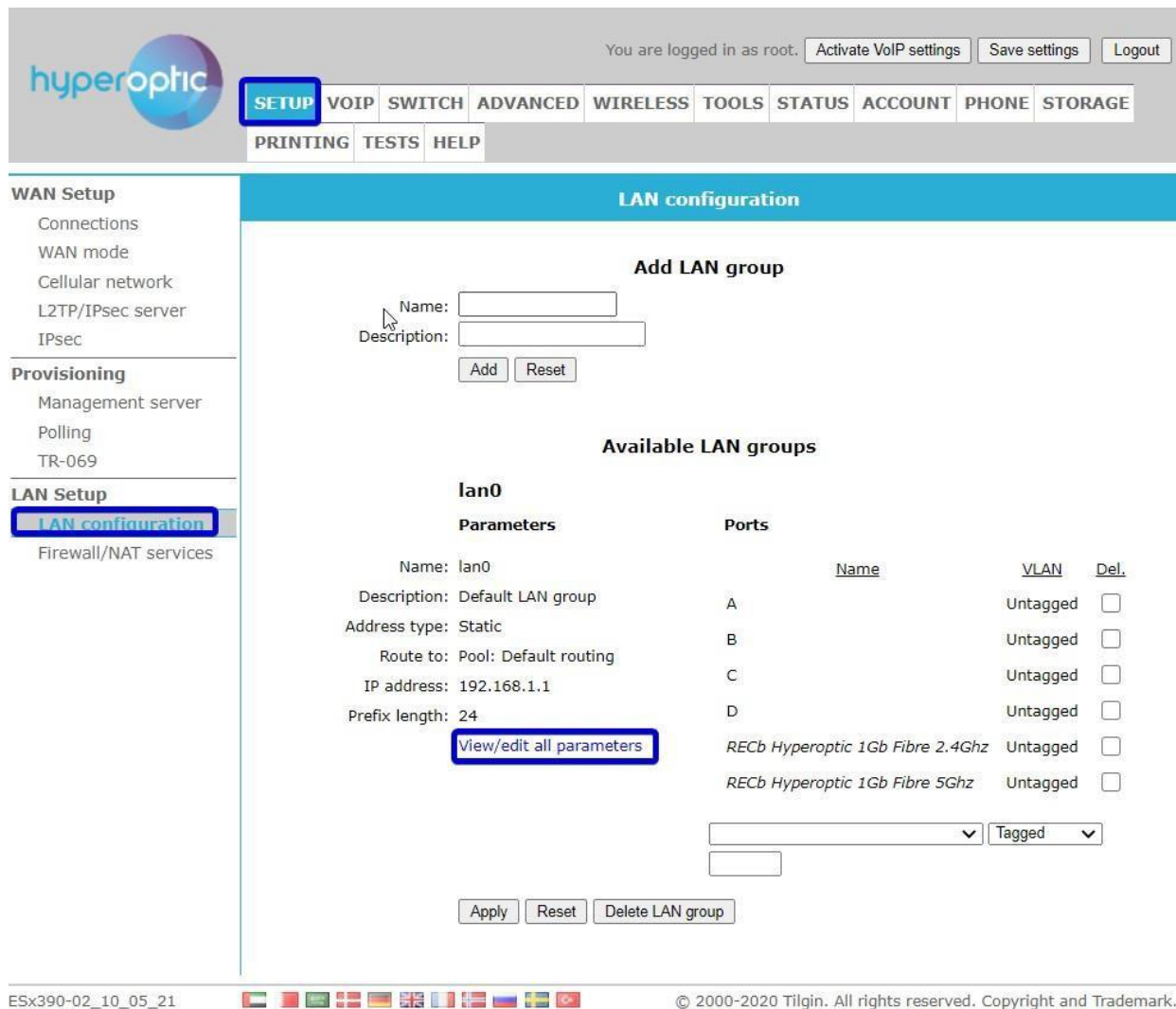
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Image 38. Confirmation of IPv6 port filtering rule

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 WAN Setup, Provisioning, and LAN Setup. Under LAN Setup, 'LAN configuration' is selected. The main content area is titled 'LAN configuration' and contains the following sections:

Add LAN group

Name:
 Description:

Available LAN groups

lan0

Parameters

Name: lan0
 Description: Default LAN group
 Address type: Static
 Route to: Pool: Default routing
 IP address: 192.168.1.1
 Prefix length: 24

Ports

| Name | VLAN | Del. |
|----------------------------------|----------------------|--------------------------|
| 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"/> |
| <input type="text"/> | <input type="text"/> | <input type="checkbox"/> |

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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

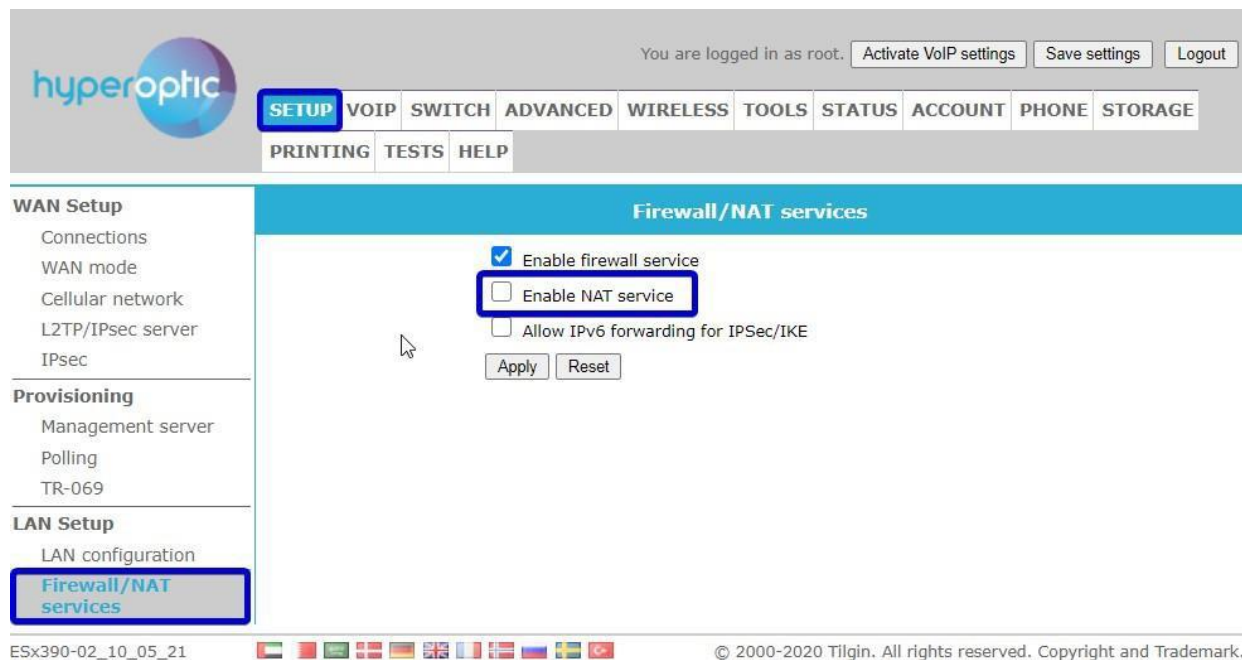
1:
2:

☐ 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.



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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](#)


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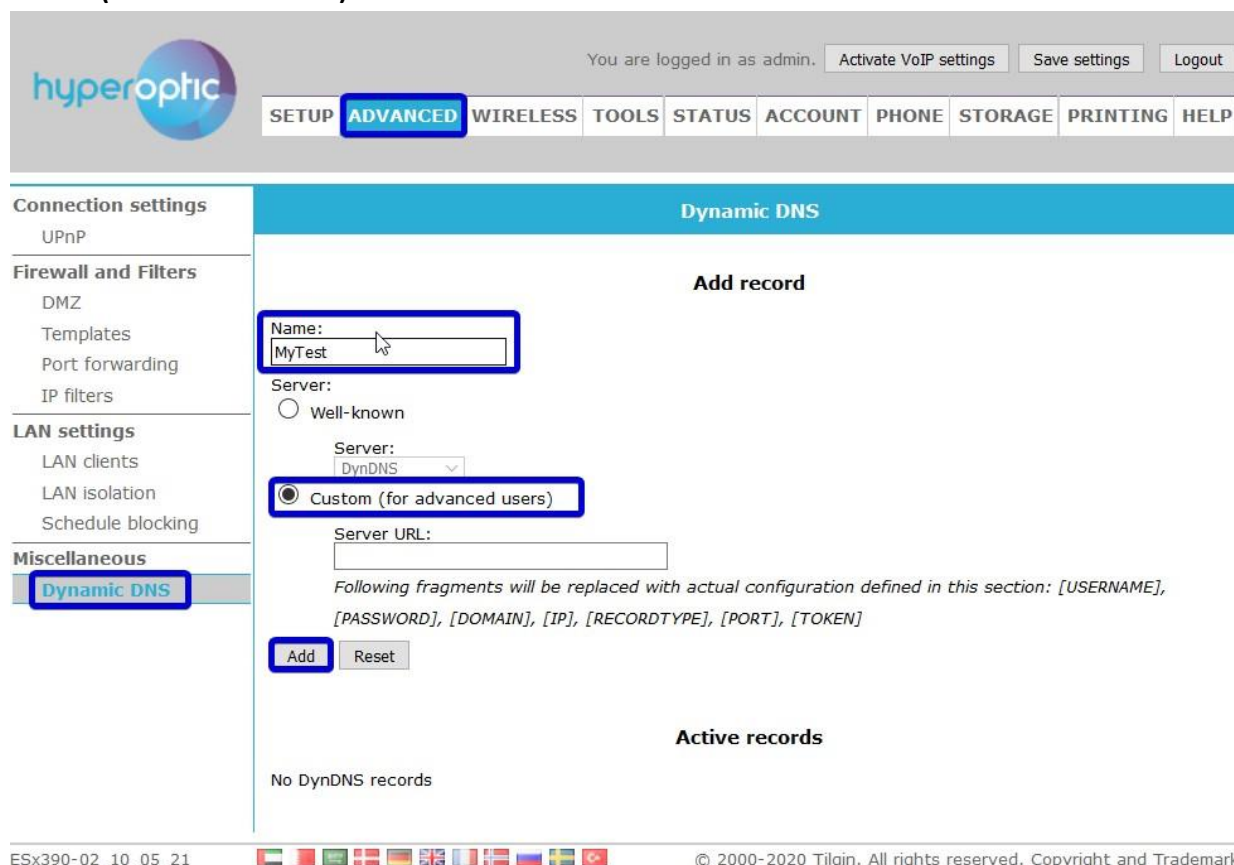
Image 41. Disabling NAT service

DDNS – Dynamic DNS

You can use Dynamic DNS to associate a fully qualified domain name (FQDN) with a public IPv4 address, which is present on WAN router interface. With this feature, you can access your router via a “descriptive” name, rather than via its IPv4 address.

To access this feature, please navigate to **Advanced > Dynamic DNS**.

Before setting parameters on the router, please register the FQDN with a DNS provider (e.g. <https://now-dns.com/>). After completing this step, give descriptive **Name** to the Dynamic DNS (see image 42). Select **Custom (for advanced users)**. Click **Add**.



The screenshot shows the router's web interface. At the top, the 'hyperoptic' logo is on the left, and a navigation bar contains 'SETUP', 'ADVANCED' (highlighted with a blue box), 'WIRELESS', 'TOOLS', 'STATUS', 'ACCOUNT', 'PHONE', 'STORAGE', 'PRINTING', and 'HELP'. Below the navigation bar, a sidebar on the left lists various settings categories: 'Connection settings' (UPnP), 'Firewall and Filters' (DMZ, Templates, Port forwarding, IP filters), 'LAN settings' (LAN clients, LAN isolation, Schedule blocking), and 'Miscellaneous' (Dynamic DNS, highlighted with a blue box). The main content area is titled 'Dynamic DNS' and contains an 'Add record' section. In this section, the 'Name' field is filled with 'MyTest' and is highlighted with a blue box. Below it, the 'Server' dropdown is set to 'DynDNS' and is also highlighted with a blue box. The 'Custom (for advanced users)' radio button is selected and highlighted with a blue box. Below the radio buttons, there is a 'Server URL' field. A note below the field states: 'Following fragments will be replaced with actual configuration defined in this section: [USERNAME], [PASSWORD], [DOMAIN], [IP], [RECORDTYPE], [PORT], [TOKEN]'. At the bottom of the 'Add record' section, the 'Add' button is highlighted with a blue box, and the 'Reset' button is next to it. Below the 'Add record' section, there is an 'Active records' section which currently shows 'No DynDNS records'. At the very bottom of the page, there is a footer with the text 'ESx390-02_10_05_21' on the left, a row of small flags in the center, and '© 2000-2020 Tilgin. All rights reserved. Copyright and Trademark.' on the right.

Image 42. Dynamic DNS section of router GUI

See image 43 for Dynamic DNS set-up. First, populate the **Hostname** field with the registered FQDN. Tick **Enabled**. In the **Server URL** field, specify the server with which the registration was made (e.g. now-dns.com). Select *dhcp-over-eth* as **Specific connection**. Populate the **Username** and **Password** fields with those which were used in registration process. Click **Apply** then **Save settings**. See image 44 for confirmation.

Once this is done, please contact Customer Support to complete the process.

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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 Dynamic DNS

Name: MyTest
Hostname: tilginhg2381.dnsup.net
Status: ☒ Active
☒ Enabled

DynDNS server:
Server: ☐ Well-known
Server: ☐ DynDNS
☒ Custom (for advanced users)
Server URL: now-dns.com
Following fragments will be replaced with actual configuration defined in this section: [USERNAME], [PASSWORD], [DOMAIN], [IP], [RECORDTYPE], [PORT], [TOKEN]
Port: 0
Connection: ☐ Connection pool
☒ Specific connection
User credentials:
Username:
Password:
Update token:
Target IP: ☒ Server-side detect
☐ Automatic
☐ Manual
Target IP: ::

Renew
Timeout (in minutes): 0
[Renew now](#)

Misc. settings
Retry timeout (in minutes): 600
[Apply](#) [Reset](#) [Delete](#)

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Image 43. Settings for Dynamic DNS

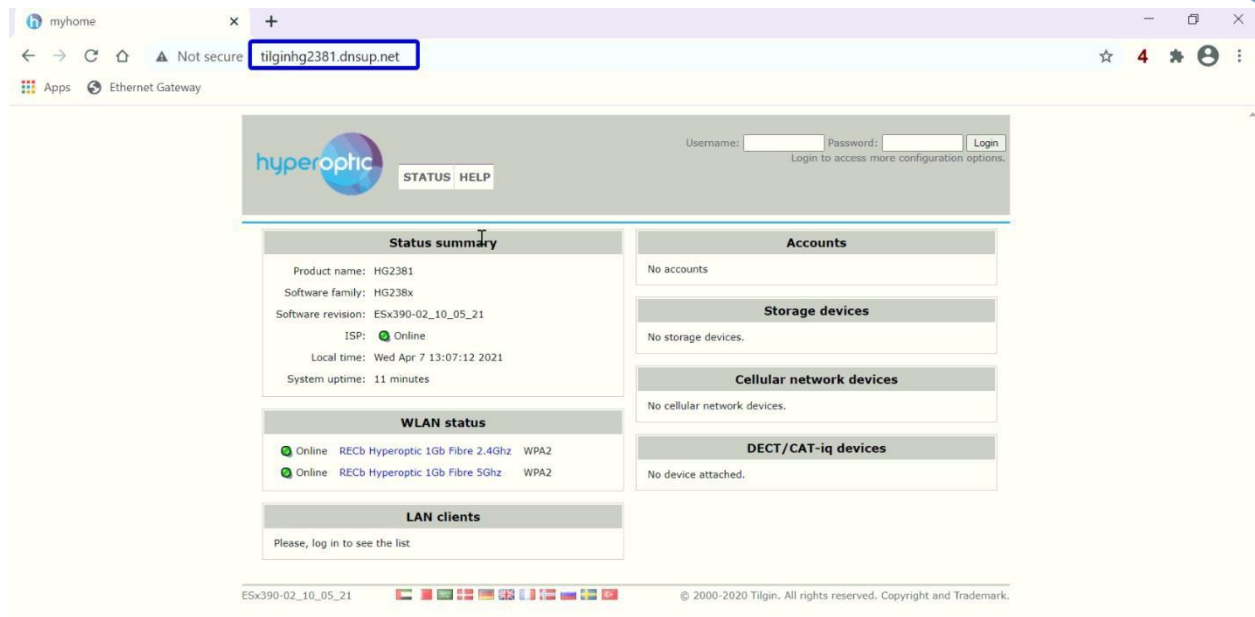


Image 44. Reaching router via FQDN.