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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**.

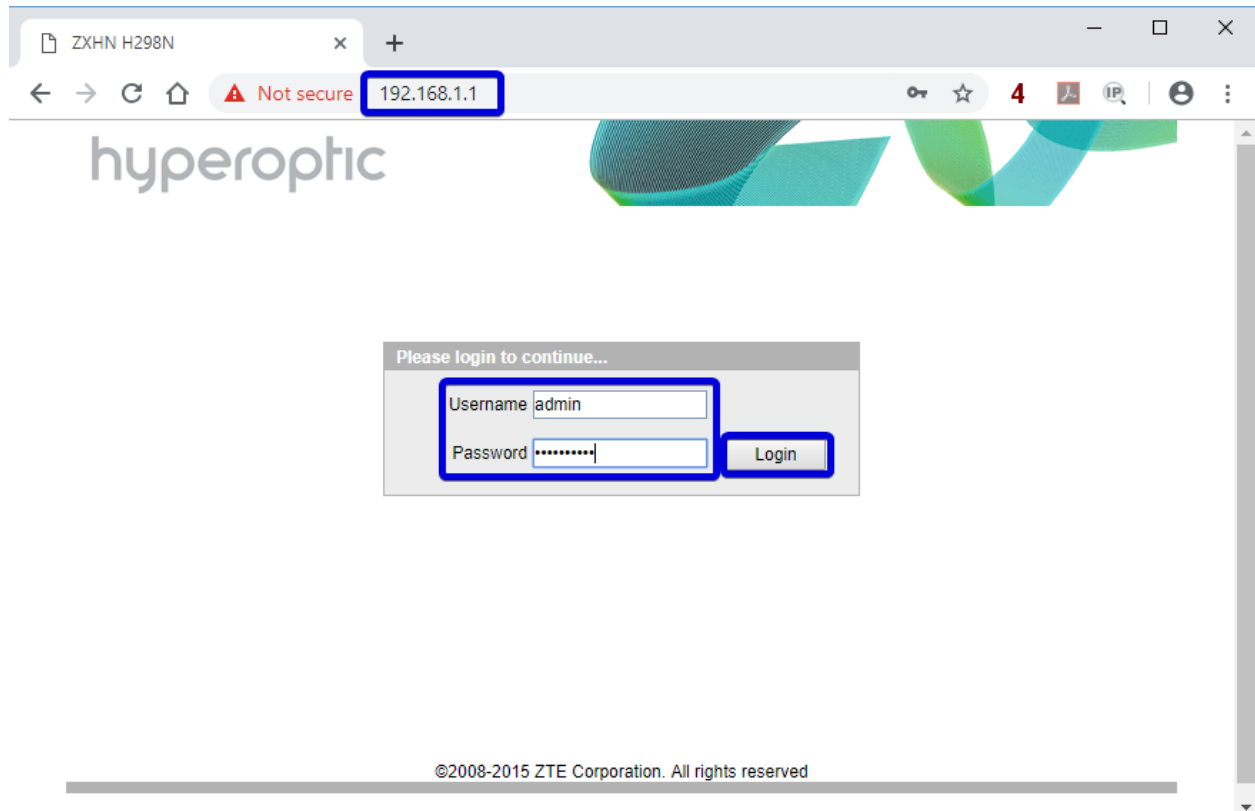
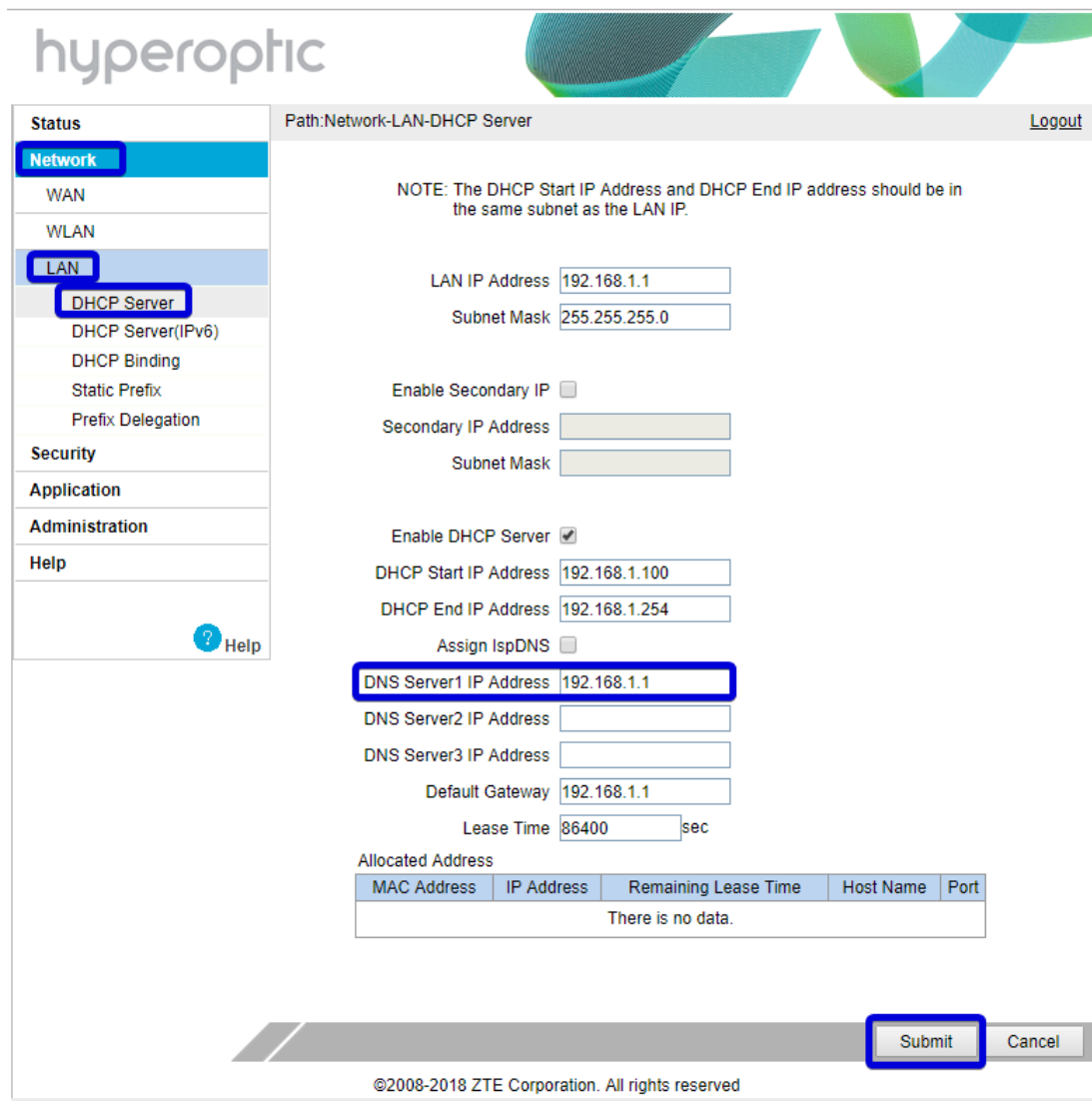


Image 1. Router H298N login screen

## DNS change

To change your DNS, please log into your router (page 2) and navigate to **Network > LAN > DHCP Server**. Change **DNS Server1/2/3 IP Address** fields with some of the public DNS servers and click **Submit**. See Image 2. 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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Status

Path: Network-LAN-DHCP Server [Logout](#)

NOTE: The DHCP Start IP Address and DHCP End IP address should be in the same subnet as the LAN IP.

LAN IP Address

Subnet Mask

Enable Secondary IP ☐

Secondary IP Address

Subnet Mask

Enable DHCP Server ☒

DHCP Start IP Address

DHCP End IP Address

Assign IspDNS ☐

DNS Server1 IP Address

DNS Server2 IP Address

DNS Server3 IP Address

Default Gateway

Lease Time  sec

Allocated Address

MAC Address	IP Address	Remaining Lease Time	Host Name	Port
There is no data.				

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Image 2. Change od DNS server for LAN network

To enable the use of an arbitrary DNS, please disable DHCPv6 server by unticking the **Enable DHCP Server** box. See Image 3.

Status

Network

WAN

WLAN

LAN

DHCP Server

DHCP Server(IPv6)

DHCP Binding

Static Prefix


Prefix Delegation

Security

Application

Administration

Help

 Help

Path:Network-LAN-DHCP Server(IPv6)

Logout

LAN IP Address fe80::1 / 64

Enable DHCP Server ☐

DNS Refresh Time 86400 sec

Allocated Address

DUID	IP Address	Remaining Lease Time
There is no data.		

Submit

Cancel

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Image 3. Disabling DHCPv6 server on LAN

## UPnP service

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 **Application > UPnP**. Click **Enable** and choose **WAN-DHCP-Connection**. Then click **Submit**. See Image 4.

If you're not using UPnP applications, UPnP should be set to **Off** (the default UPnP setting is Off).

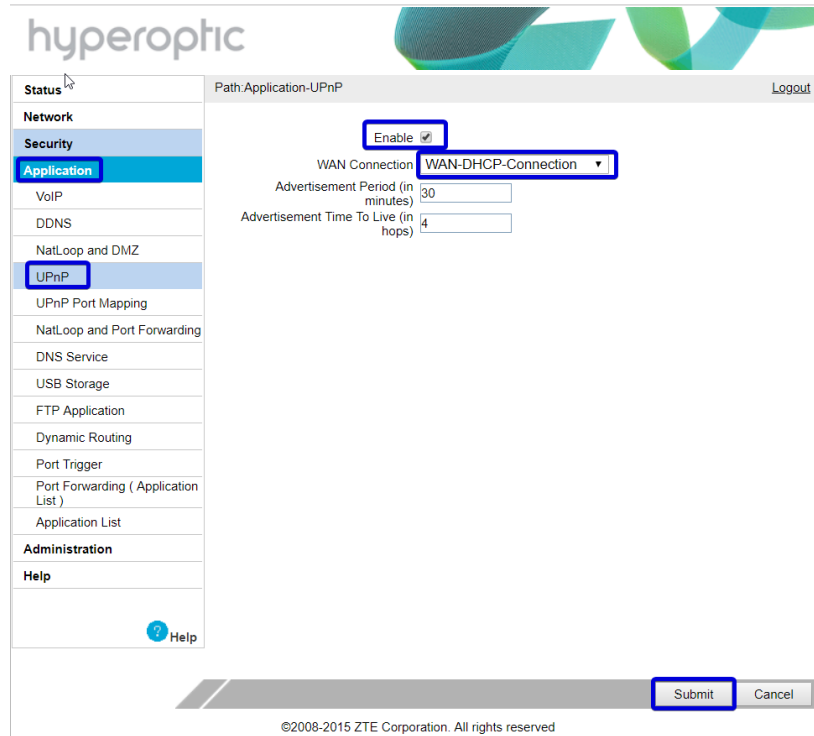


Image 4. Enabling UPnP service on a router

Please see Image 5 for the confirmation of UPnP router configuration. In this example, port mapping is configured.

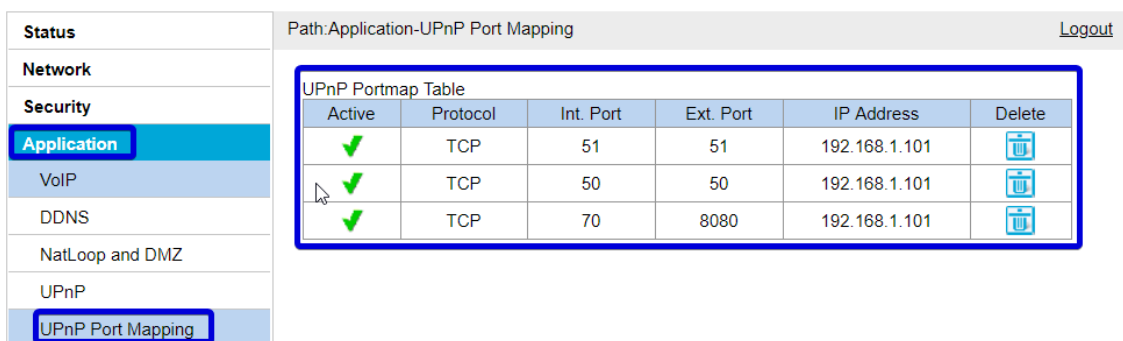
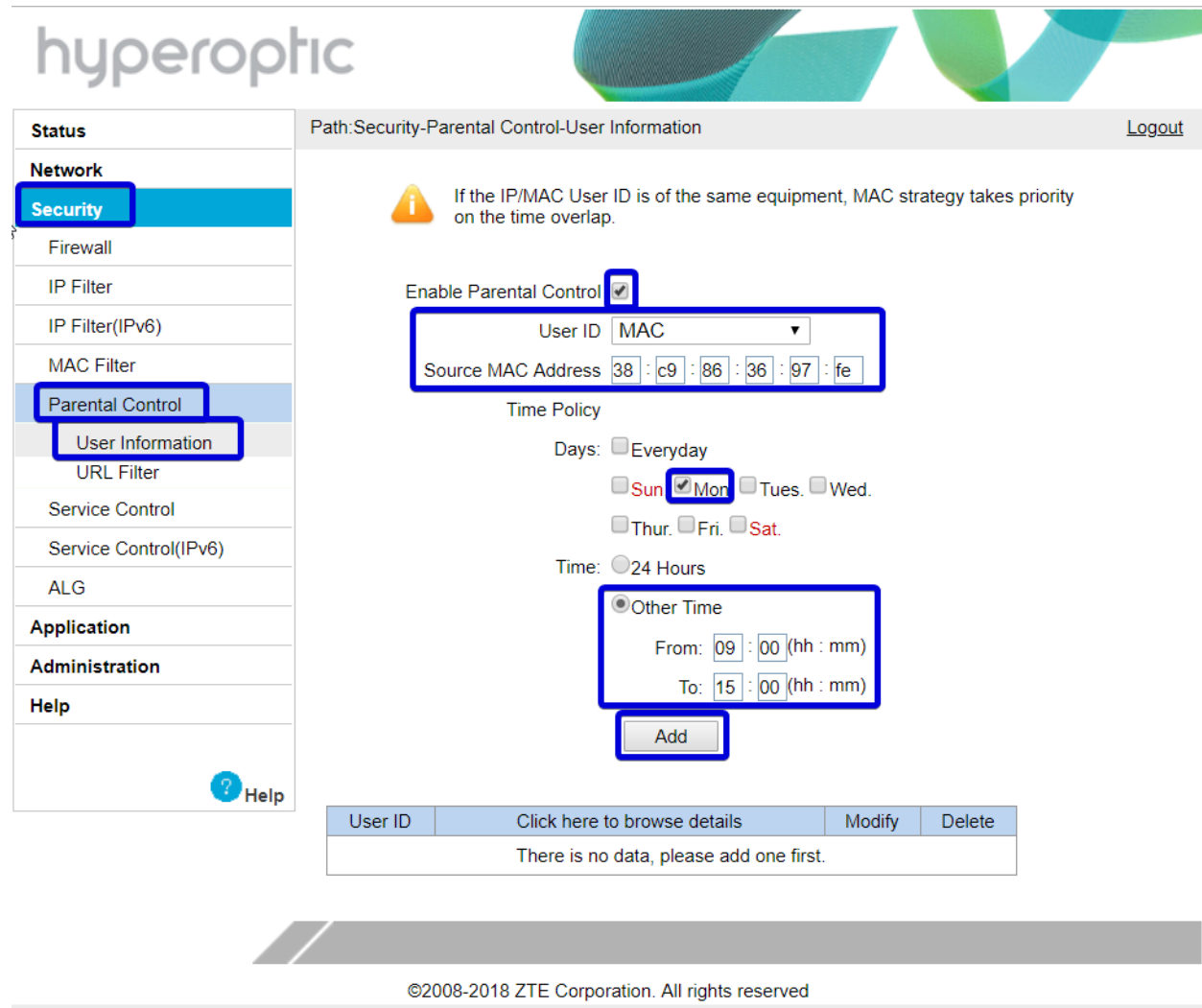


Image 5. Confirmation of UPnP router configuration

## 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 **Security > Parental Control > User Information**. Provide the MAC address of the LAN client (device) for which internet service should be blocked. Tick **Enable Parental Control**. Choose the day and time during which access should be restricted and click **Add**. See Image 6.



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Status Path: Security-Parental Control-User Information [Logout](#)

**Security**

Firewall

IP Filter

IP Filter(IPv6)

MAC Filter

Parental Control

User Information

URL Filter

Service Control

Service Control(IPv6)

ALG

Application

Administration

Help

**Enable Parental Control** ☒

User ID **MAC**

Source MAC Address 38 : c9 : 86 : 36 : 97 : fe

Time Policy

Days: ☐ Everyday ☐ Sun ☒ Mon ☐ Tues. ☐ Wed. ☐ Thur. ☐ Fri. ☐ Sat.

Time: ☐ 24 Hours ☒ Other Time

From: 09 : 00 (hh : mm)

To: 15 : 00 (hh : mm)

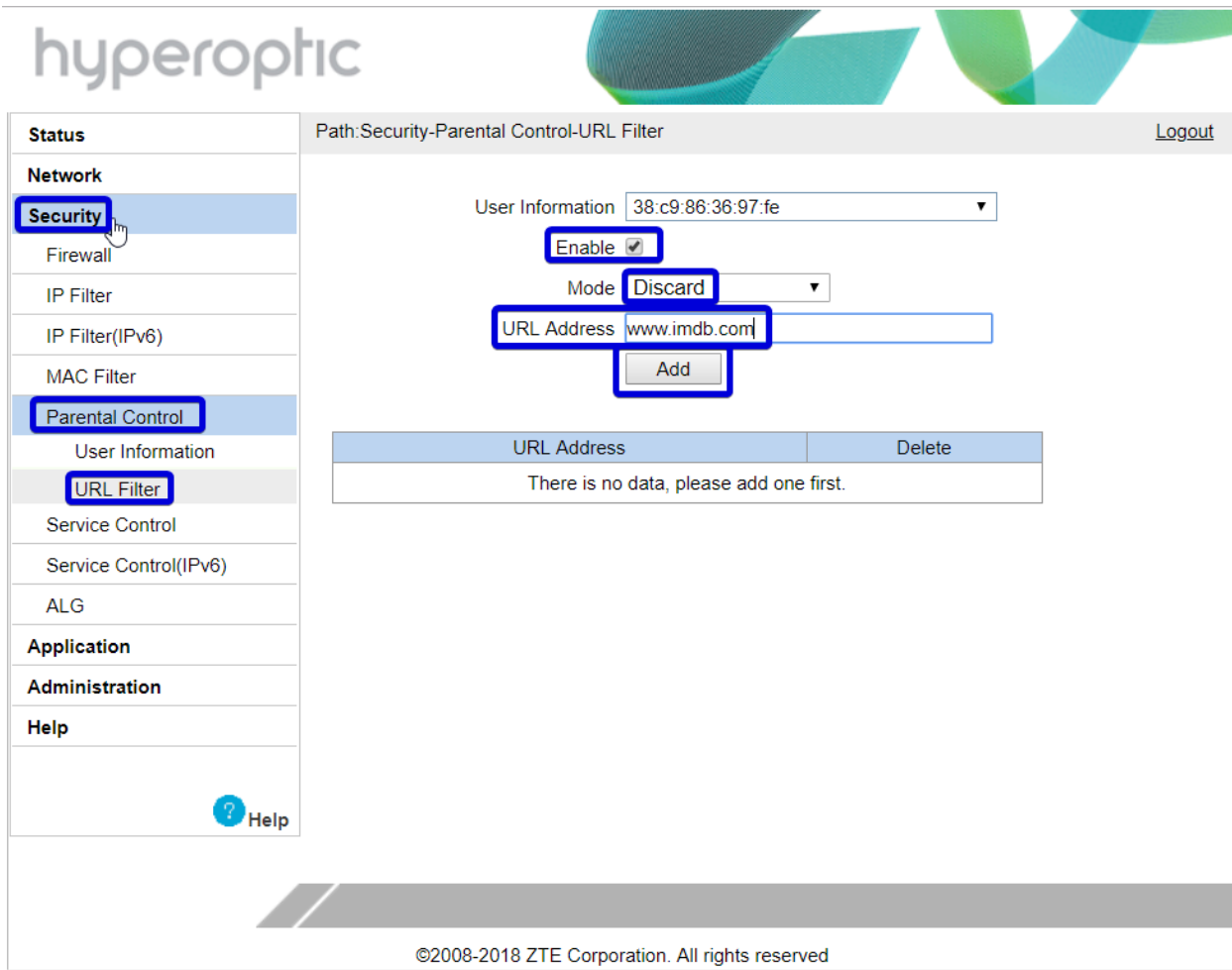
**Add**

User ID	Click here to browse details	Modify	Delete
There is no data, please add one first.			

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Image 6. Defining user for which internet access should be restricted

After defining LAN client, navigate to **Security > Parental Control > URL Filter**. Tick **Enable**, list the URL you would like to block and choose mode **Discard**. Then click **Add**. See Image 7. Please note that parental control will not filter IPv6 websites.



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Path: Security-Parental Control-URL Filter [Logout](#)

User Information: 38:c9:86:36:97:fe

Enable ☒

Mode: Discard

URL Address: www.imdb.com

Add

URL Address	Delete
There is no data, please add one first.	

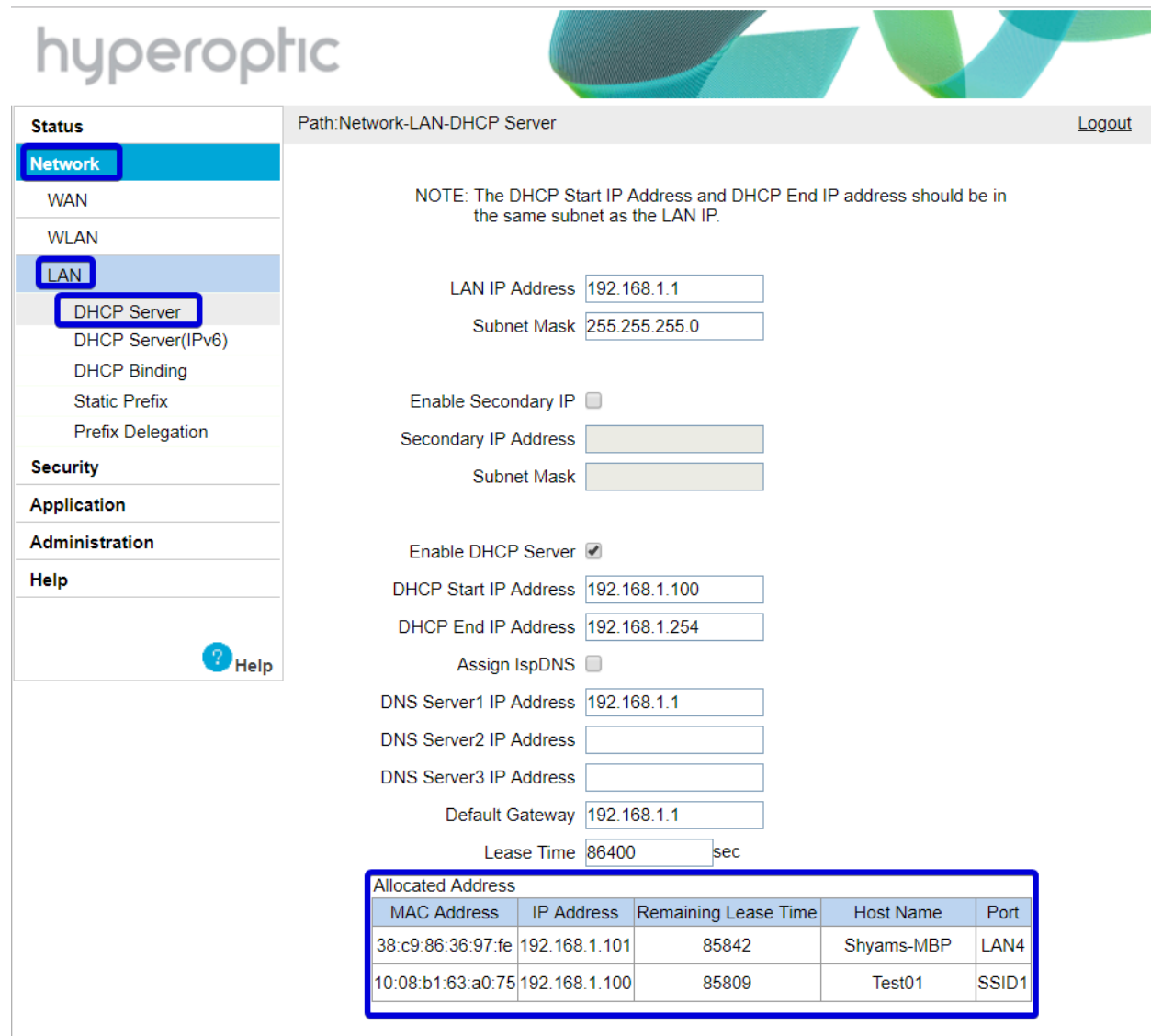
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Image 7. Example of blocking access to one web site

## 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 **Network > LAN > DHCP Server**. See Image 8.

Here you'll be able to see all the devices that are connected to your router's LAN network.



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Path: Network-LAN-DHCP Server [Logout](#)

NOTE: The DHCP Start IP Address and DHCP End IP address should be in the same subnet as the LAN IP.

LAN IP Address

Subnet Mask

Enable Secondary IP ☐

Secondary IP Address

Subnet Mask

Enable DHCP Server ☒

DHCP Start IP Address

DHCP End IP Address

Assign IspDNS ☐

DNS Server1 IP Address

DNS Server2 IP Address

DNS Server3 IP Address

Default Gateway

Lease Time  sec

MAC Address	IP Address	Remaining Lease Time	Host Name	Port
38:c9:86:36:97:fe	192.168.1.101	85842	Shyams-MBP	LAN4
10:08:b1:63:a0:75	192.168.1.100	85809	Test01	SSID1

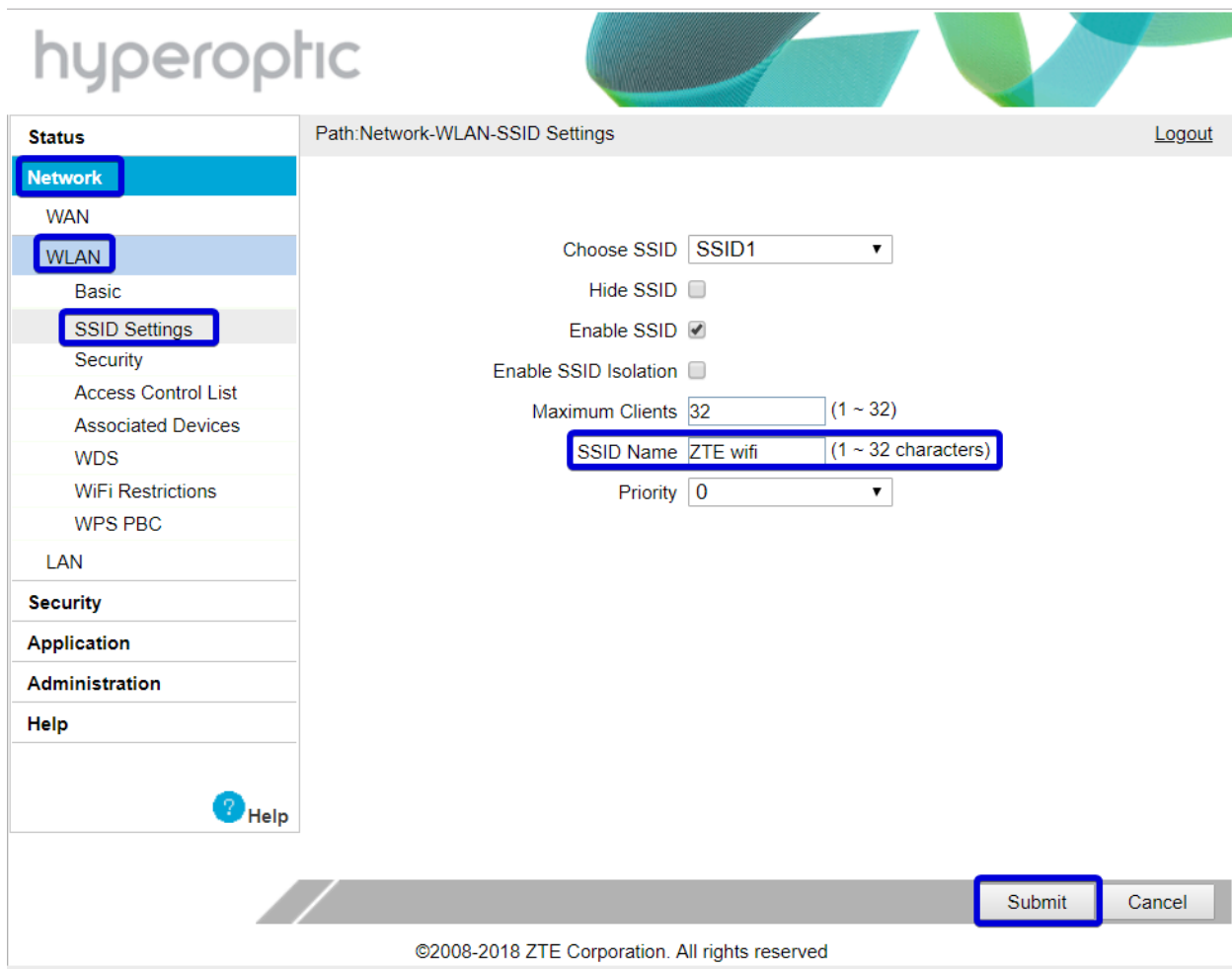
Image 8. List of LAN clients

Please note, if a LAN client is using a static IP and connects via cable, it won't be listed here.



## Wi-Fi password and SSID change

To change your wifi password or SSID name, log into your router (see page 2) and navigate to **Network > WLAN**. To change the name of your wifi connection, click on **SSID Settings** and change the **SSID Name** field. Once changed, click **Submit**. See Image 9.



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Path: Network-WLAN-SSID Settings [Logout](#)

**Status**

- Network**
- WAN
- WLAN**
- Basic
- SSID Settings**
- Security
- Access Control List
- Associated Devices
- WDS
- WiFi Restrictions
- WPS PBC
- LAN

**Security**

**Application**

**Administration**

**Help**

Choose SSID: SSID1 ▼

Hide SSID: ☐

Enable SSID: ☒

Enable SSID Isolation: ☐

Maximum Clients: 32 (1 ~ 32)

SSID Name: ZTE wifi (1 ~ 32 characters)

Priority: 0 ▼

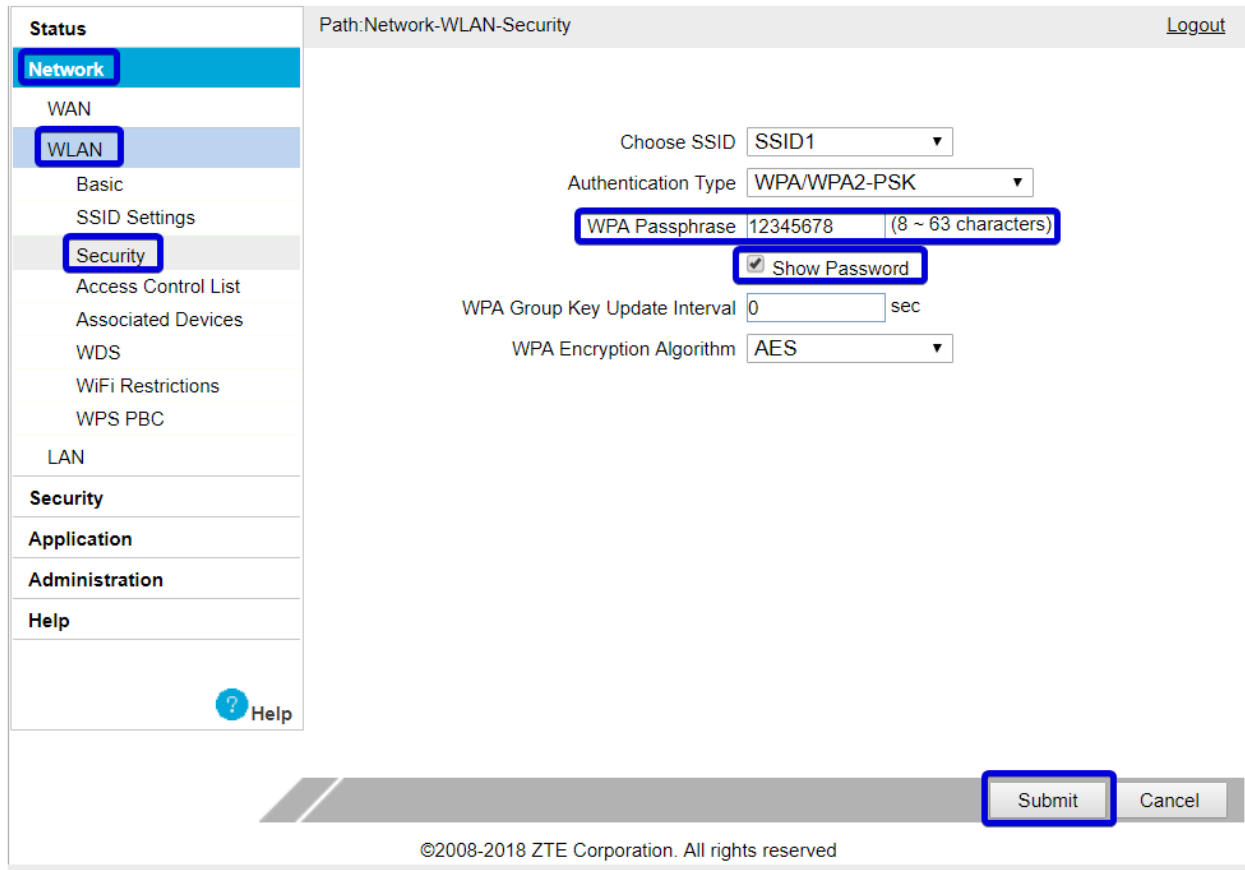
[? Help](#)

[Submit](#) [Cancel](#)

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Image 9. Change of Wi-Fi network name (SSID)

To change your wifi password, navigate to **Network > WLAN > Security**. Change **WPA Passphrase** field and click **Submit**. See Image 10. Please use passwords containing upper and lower case letters and numbers, with a minimum of 12 characters in length.



Path: Network-WLAN-Security [Logout](#)

Choose SSID:

Authentication Type:

WPA Passphrase:  (8 ~ 63 characters)

☒ Show Password

WPA Group Key Update Interval:  sec

WPA Encryption Algorithm:

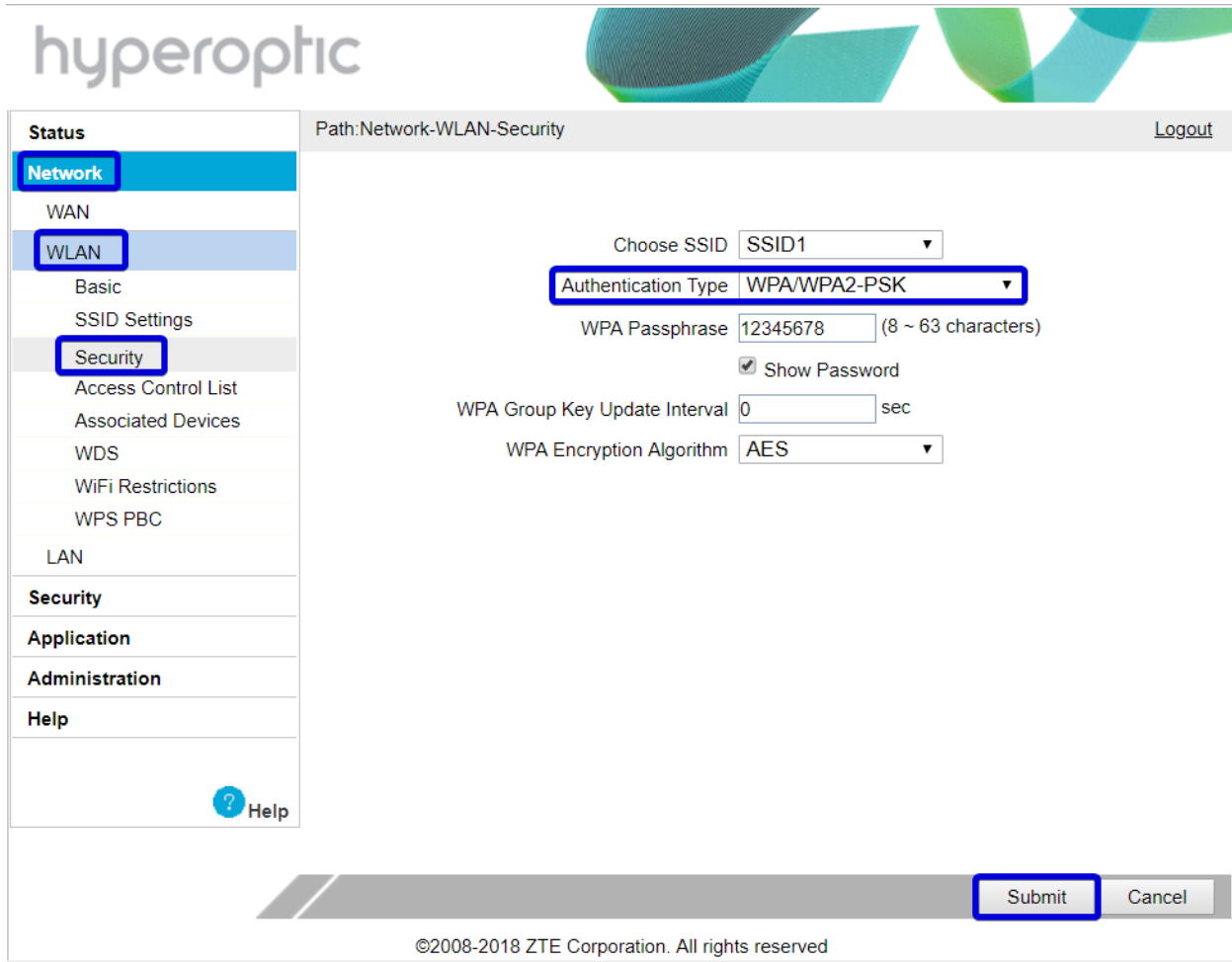
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Image 10. Change of Wi-Fi password

## Wi-Fi authentication

To change your wifi authentication settings, please log into your router (page 2) and navigate to **Network > WLAN > Security**. Select **Authentication Type** from the drop-down menu and click **Submit**. See Image 11. By default, advanced encryption algorithm is used.

Please note, it's highly recommended to use only WPA2-PSK-AES.



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Status Path: Network-WLAN-Security Logout

**Network**

- WAN
- WLAN**
  - Basic
  - SSID Settings
  - Security**
  - Access Control List
  - Associated Devices
  - WDS
  - WiFi Restrictions
  - WPS PBC
- LAN

**Security**

**Application**

**Administration**

**Help**

Choose SSID SSID1

Authentication Type WPA/WPA2-PSK

WPA Passphrase 12345678 (8 ~ 63 characters)

☒ Show Password

WPA Group Key Update Interval 0 sec

WPA Encryption Algorithm AES

Submit Cancel

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Image 11. Authentication types of Wi-Fi connection

## WPS

To connect to wifi without a password, please log into your router (see page 2) and navigate to **Network > WLAN > WPS PBC**. Press the **WPS** button on your router and on the LAN host. A connection will then be made. See Image 12.

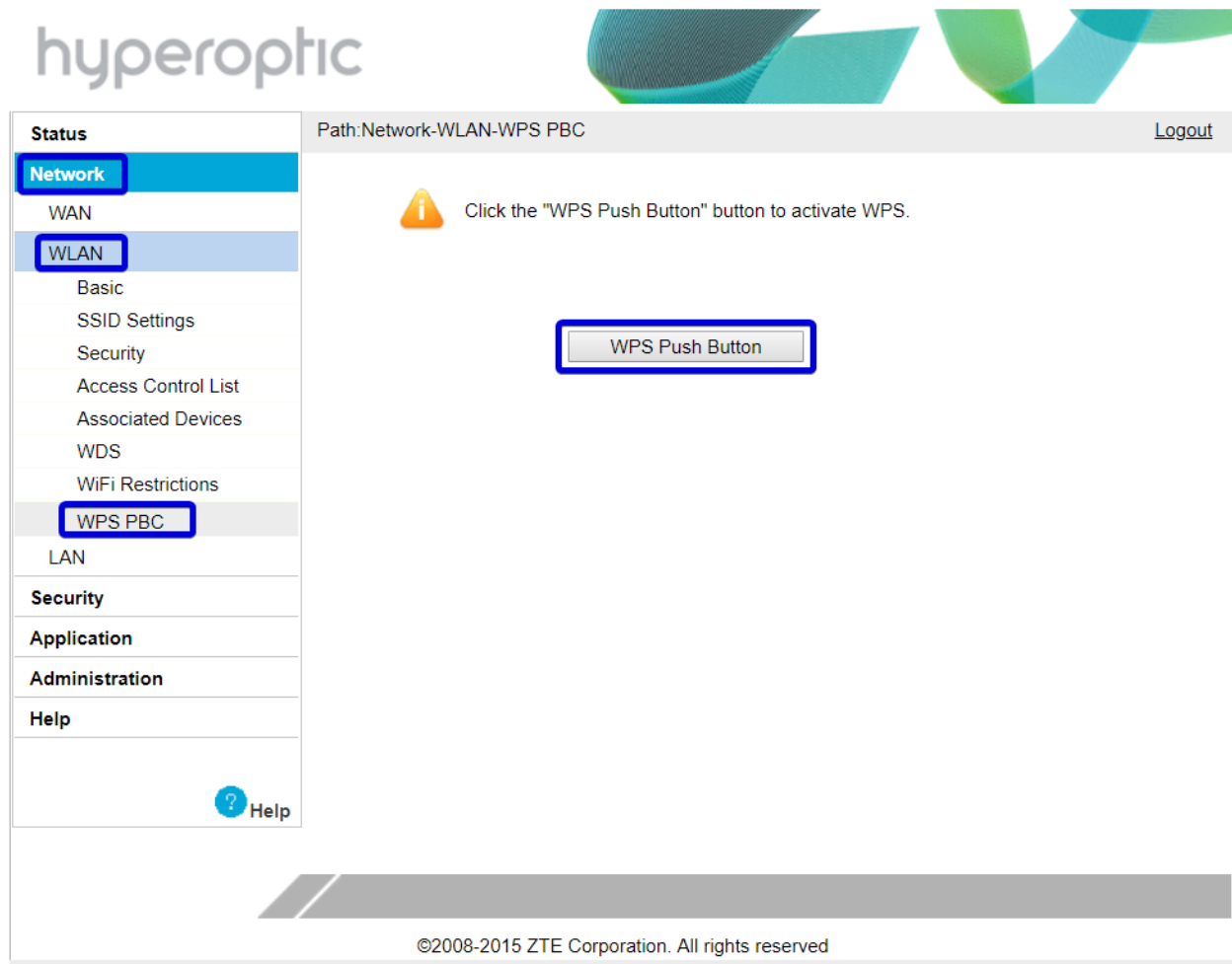
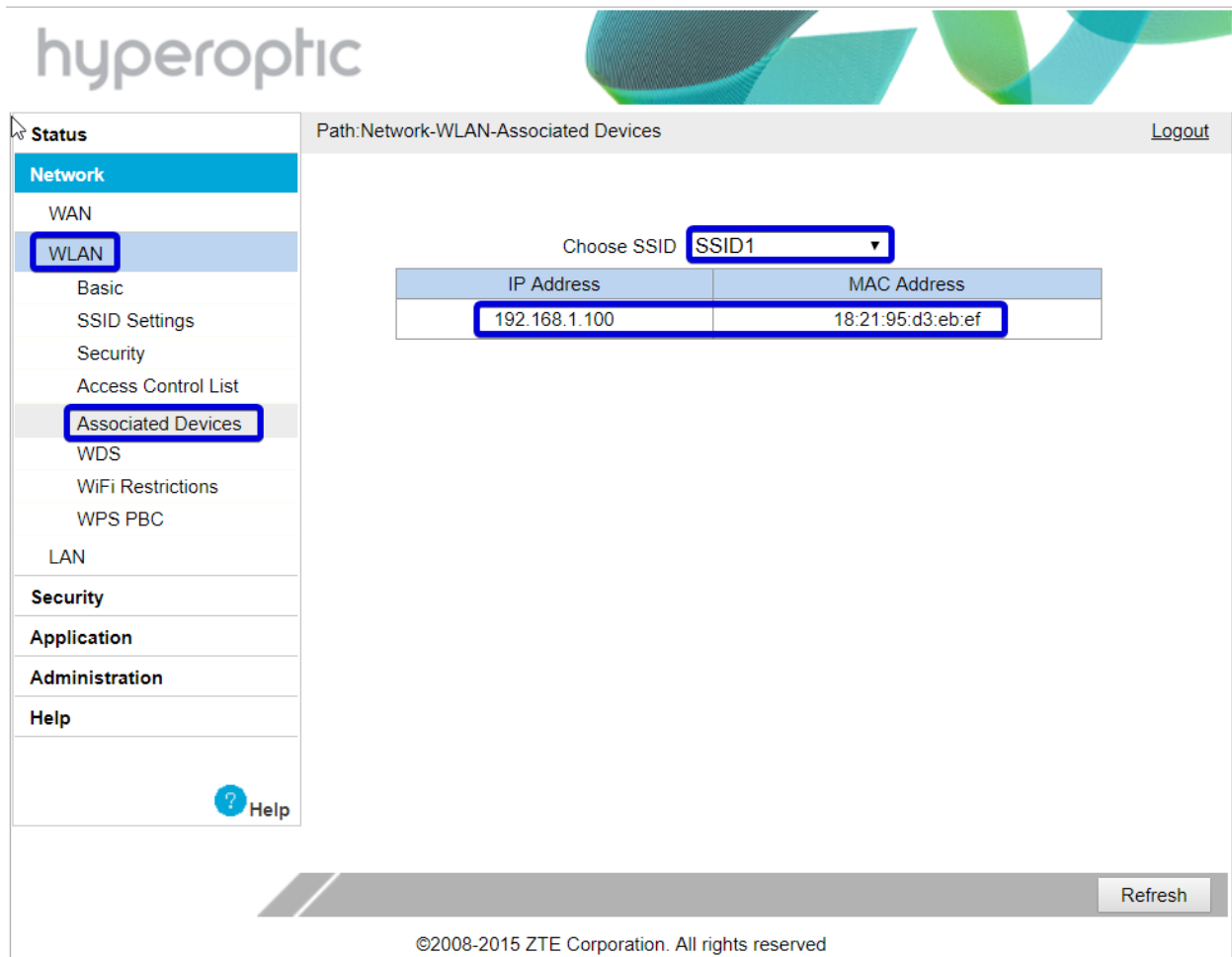


Image 12. WPS button on router

## Wi-Fi associated clients

The number of wifi clients (i.e. devices connected to the router wifi) can be checked once you're logged into your router (see page 2). Navigate to **WLAN > Associated Devices**. To refresh the page, click **Refresh**. See Image 13.



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Status Path: Network-WLAN-Associated Devices Logout

Network

- WAN
- WLAN**
- Basic
- SSID Settings
- Security
- Access Control List
- Associated Devices**
- WDS
- WiFi Restrictions
- WPS PBC
- LAN

Security

Application

Administration

Help

Choose SSID **SSID1**

IP Address	MAC Address
192.168.1.100	18:21:95:d3:eb:ef

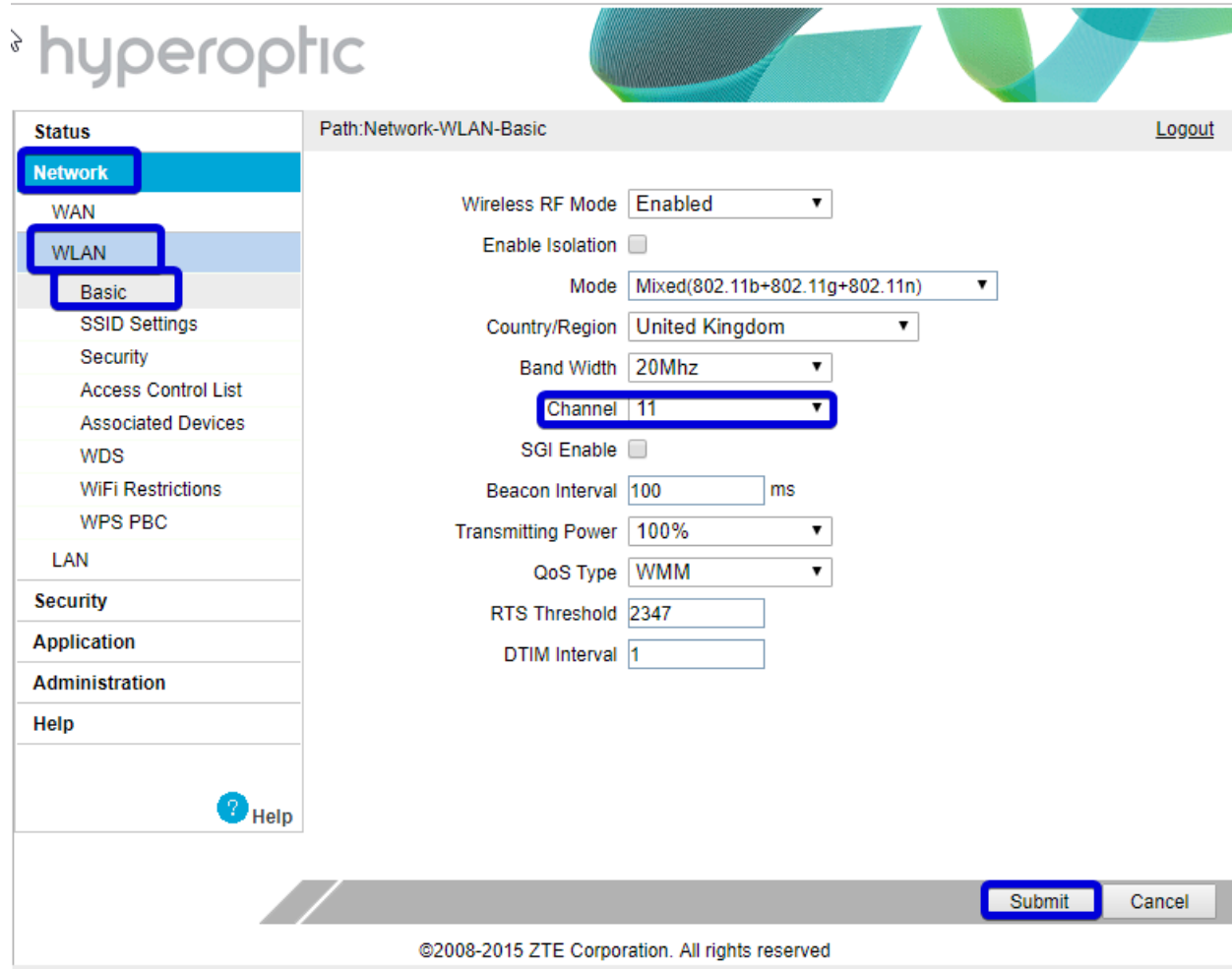
Refresh

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Image 13. List of WLAN clients

## Wi-Fi channel change

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 **Network > WLAN > Basic**. Select your desired channel from the drop-down menu and click **Submit**. See Image 14.



The screenshot displays the ZTE H298N router's web interface. The left sidebar contains a navigation menu with the following items: Status, Network (highlighted), WAN, WLAN (highlighted), Basic (highlighted), SSID Settings, Security, Access Control List, Associated Devices, WDS, WiFi Restrictions, WPS PBC, LAN, Security, Application, Administration, and Help. The main content area is titled "Path: Network-WLAN-Basic" and includes a "Logout" link. The settings for the WLAN Basic configuration are as follows:

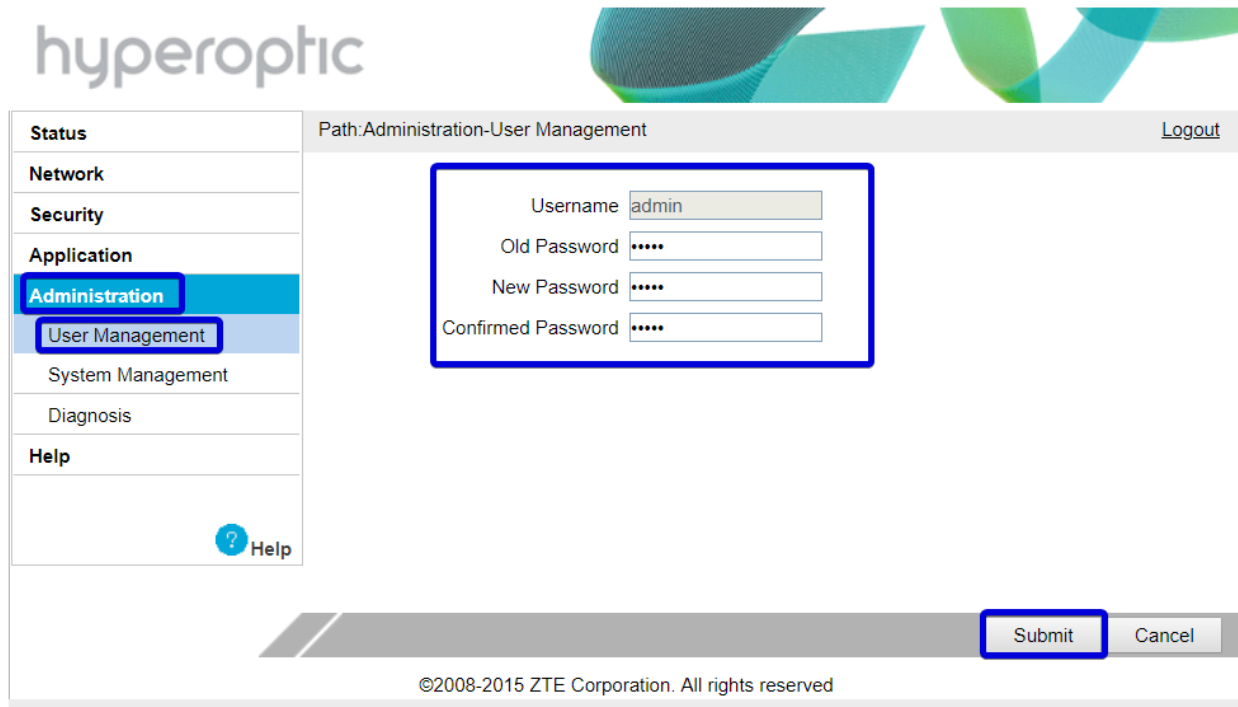
- Wireless RF Mode: Enabled
- Enable Isolation: ☐
- Mode: Mixed(802.11b+802.11g+802.11n)
- Country/Region: United Kingdom
- Band Width: 20Mhz
- Channel: 11
- SGI Enable: ☐
- Beacon Interval: 100 ms
- Transmitting Power: 100%
- QoS Type: WMM
- RTS Threshold: 2347
- DTIM Interval: 1

At the bottom right, there are "Submit" and "Cancel" buttons. The footer of the interface reads "©2008-2015 ZTE Corporation. All rights reserved".

Image 14. Wi-Fi channel change

## Change of admin credentials

To change your admin login password, log into your router (see page 2) and navigate to **Administration > User Management**. Once the new details are entered, click **Submit**. See Image 15.

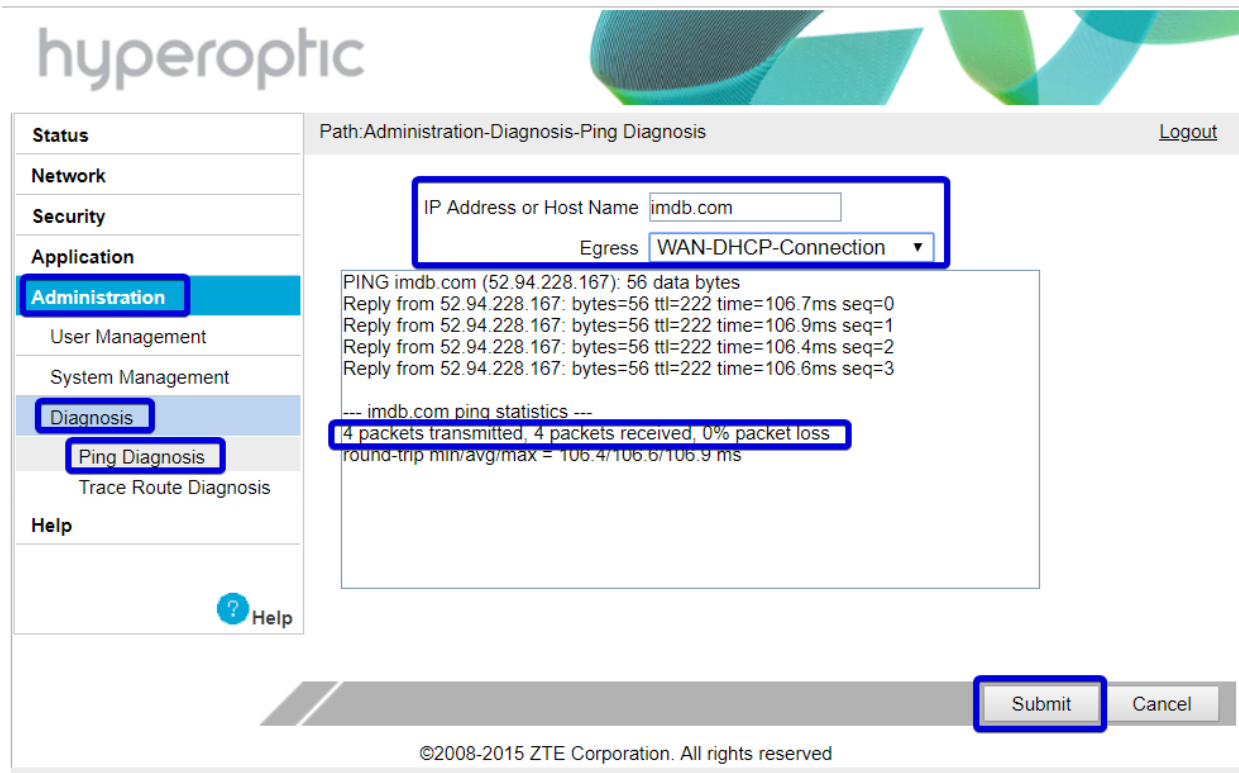


The screenshot displays the hyperoptic router's administrative web interface. On the left is a sidebar menu with categories: Status, Network, Security, Application, Administration, and Help. Under 'Administration', 'User Management' is selected. The main content area shows the 'Path: Administration-User Management' and a 'Logout' link. A form for changing credentials is centered, enclosed in a blue box. The form includes: Username (admin), Old Password (masked with dots), New Password (masked with dots), and Confirmed Password (masked with dots). Below the form, the 'Submit' button is highlighted with a blue box, next to a 'Cancel' button. The footer contains the copyright notice: ©2008-2015 ZTE Corporation. All rights reserved.

Image 15. Change old admin credentials

## Ping tests from router

To check your connection using ping command, log into your router (see page 2) and navigate to **Administration > Diagnosis > Ping Diagnosis**. See image 16. Once parameters are defined, press **Submit**.



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Path: Administration-Diagnosis-Ping Diagnosis [Logout](#)

Status

Network

Security

Application

**Administration**

User Management

System Management

**Diagnosis**

**Ping Diagnosis**

Trace Route Diagnosis

Help

IP Address or Host Name

Egress

PING imdb.com (52.94.228.167): 56 data bytes  
Reply from 52.94.228.167: bytes=56 ttl=222 time=106.7ms seq=0  
Reply from 52.94.228.167: bytes=56 ttl=222 time=106.9ms seq=1  
Reply from 52.94.228.167: bytes=56 ttl=222 time=106.4ms seq=2  
Reply from 52.94.228.167: bytes=56 ttl=222 time=106.6ms seq=3

--- imdb.com ping statistics ---  
4 packets transmitted, 4 packets received, 0% packet loss  
round-trip min/avg/max = 106.4/106.6/106.9 ms

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Image 16. Testing router status via ping command



## Factory reset and reboot of router

You can reboot your router or restore it to factory settings by logging in (see page 2) and navigating to **Administration > System Management > System Management**. Then select either **Reboot** or **Restore Default**. See Image 17.

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. If you're experiencing significant issues with your connection, we recommend trying a reboot first.

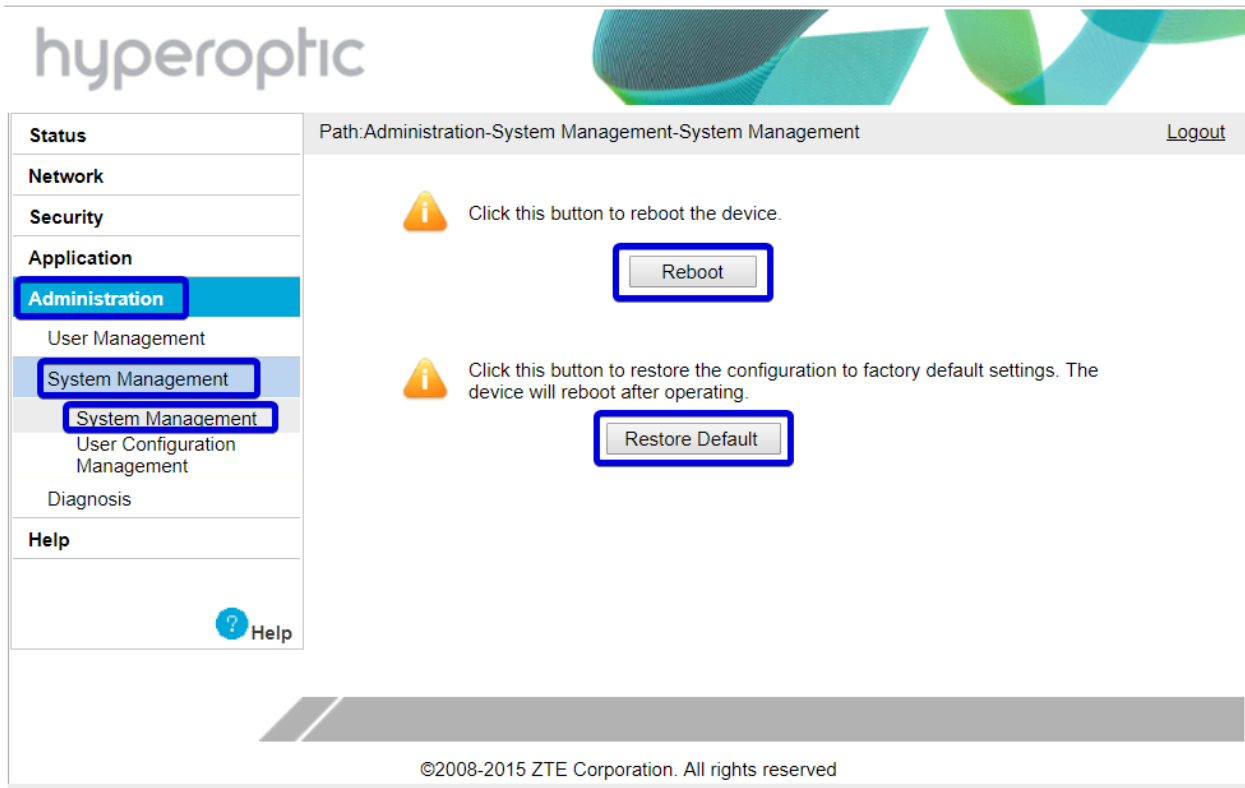
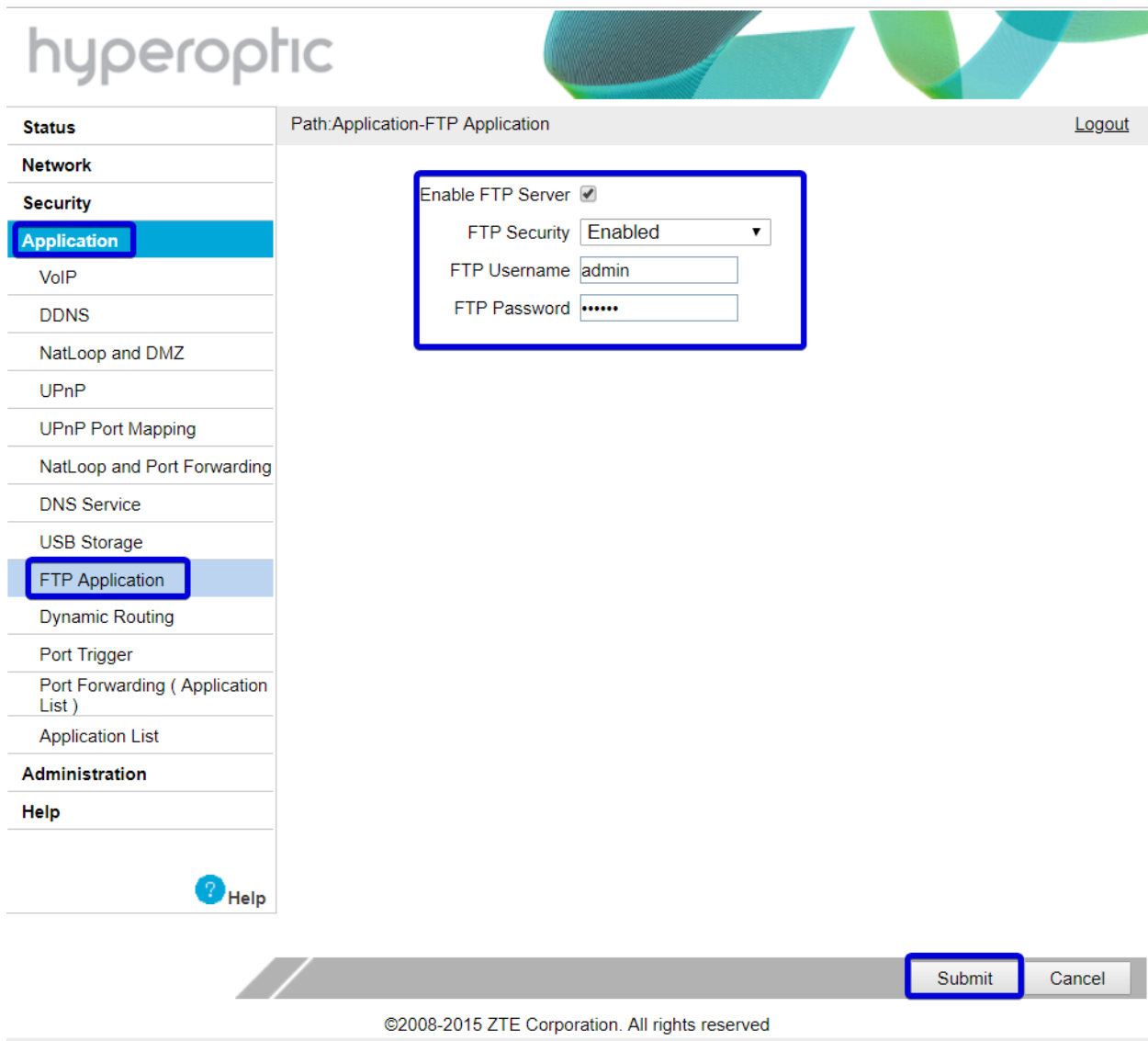


Photo 17. Reboot and factory reset buttons

## USB flash access

Once USB flash drive is attached to the router, you can access it using FTP protocol. To enable FTP server, navigate to **Application > FTP Application**. Tick **Enable FTP Server**, configure **username** and **password** and click **Submit**. See image 18. The router's USB port with attached flash drive can be used as additional storage area linked with LAN network.



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Status

Network

Security

**Application**

VoIP

DDNS

NatLoop and DMZ

UPnP

UPnP Port Mapping

NatLoop and Port Forwarding

DNS Service

USB Storage

**FTP Application**

Dynamic Routing

Port Trigger

Port Forwarding ( Application List )

Application List

Administration

Help

Path: Application-FTP Application [Logout](#)

Enable FTP Server ☒

FTP Security Enabled ▼

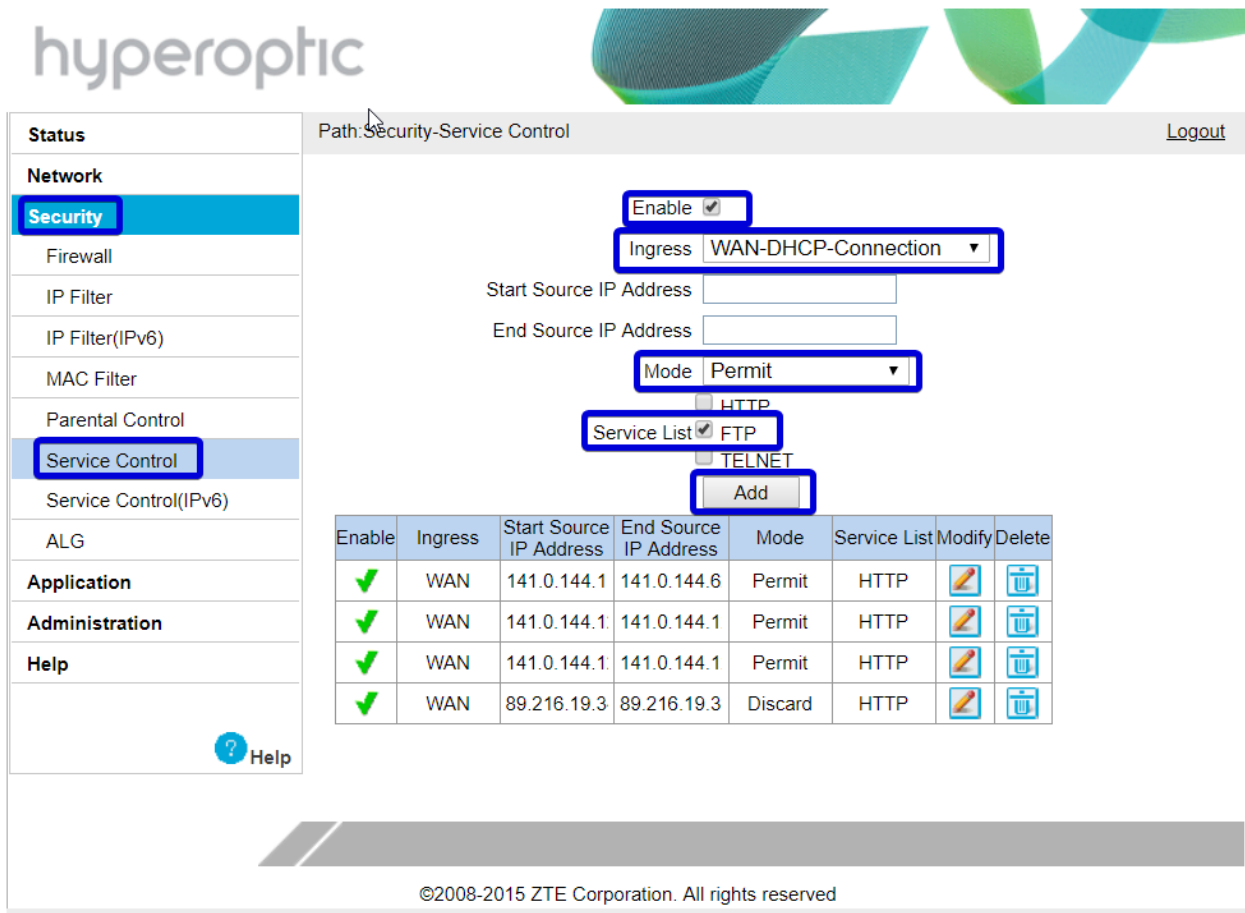
FTP Username

FTP Password

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Image 18. FTP server enabling on router

To enable remote access to FTP flash drive, navigate to **Security > Service Control**. Tick **Enable**, select **Ingress** connection as per image 19. If remote address is known, this can be defined in source IP fields. **Permit FTP** access and click **Add**.



Path: Security-Service Control Logout

Enable ☒

Ingress WAN-DHCP-Connection

Start Source IP Address

End Source IP Address

Mode Permit

☐ HTTP

Service List ☒ FTP

☐ TELNET

Enable	Ingress	Start Source IP Address	End Source IP Address	Mode	Service List	Modify	Delete
✓	WAN	141.0.144.1	141.0.144.6	Permit	HTTP		
✓	WAN	141.0.144.1	141.0.144.1	Permit	HTTP		
✓	WAN	141.0.144.1	141.0.144.1	Permit	HTTP		
✓	WAN	89.216.19.3	89.216.19.3	Discard	HTTP		

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Image 19. Allowing remote FTP access to USB flash drive

From local LAN station, access can be performed by typing <ftp://192.168.1.1> into the web browser. See image 19. Using web browser, it is possible only to download, but if FTP client is used (e.g. FileZilla, etc.), upload is also available. Remote access is described in image 20. Please note, **length of filename must be less than or equal to 8 characters and length of its suffix must be less than or equal to 3 characters**. So, the structure filename is like this, for example: 'xxxxxxx.xxx'.



Image 19. LAN access to USB flash drive

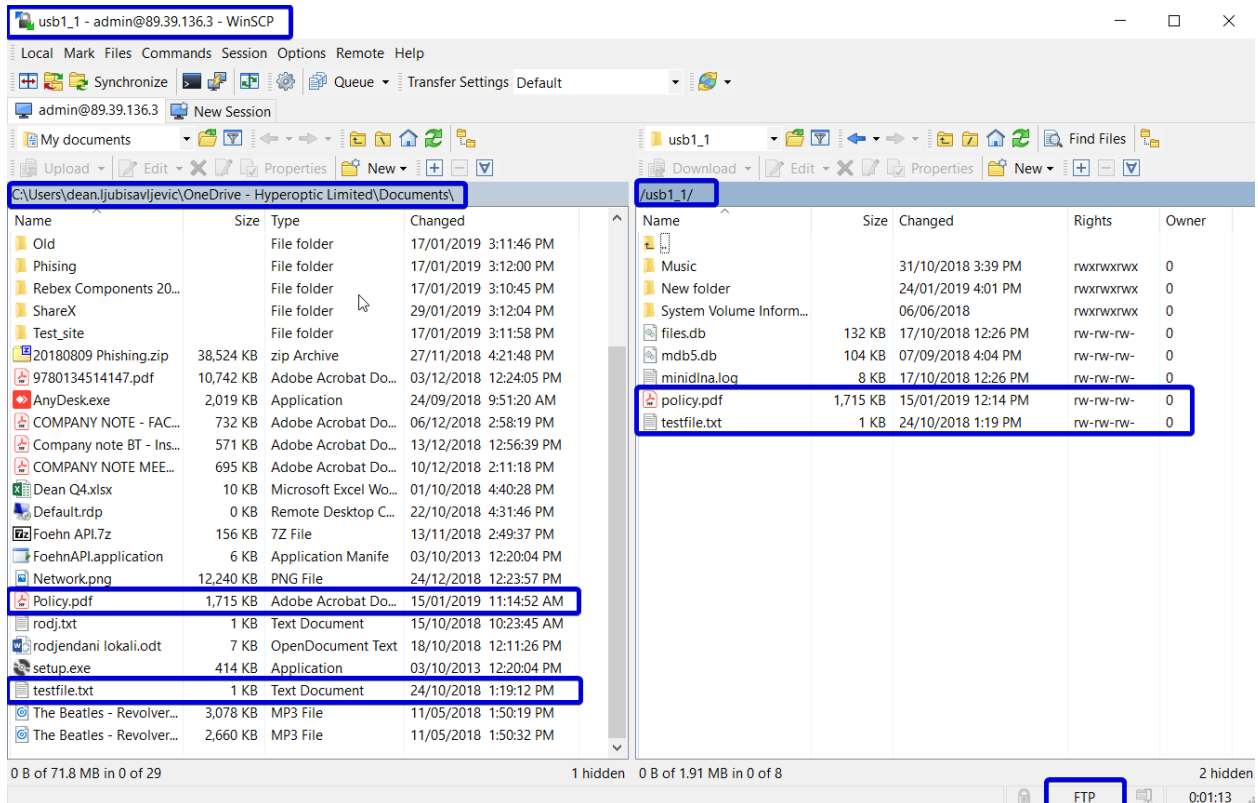
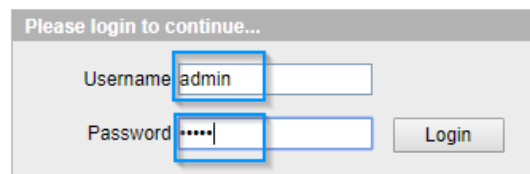


Image 20. WAN access and upload to USB flash drive

## Port forwarding

Connect your personal computer to the router via an ethernet cable or Wi-Fi. Open a web browser and type **192.168.1.1** in the search line. You should then see a login page, as below (Image 21). Port forwarding can be used to establish home-based FTP server, web server or similar kind of a server.

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.



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Image 21. Login screen of ZTE H298N router

Once logged in, navigate to **Applications > Application List**. Select **Click here to add an application** to make new port mapping, as illustrated in Image 22.

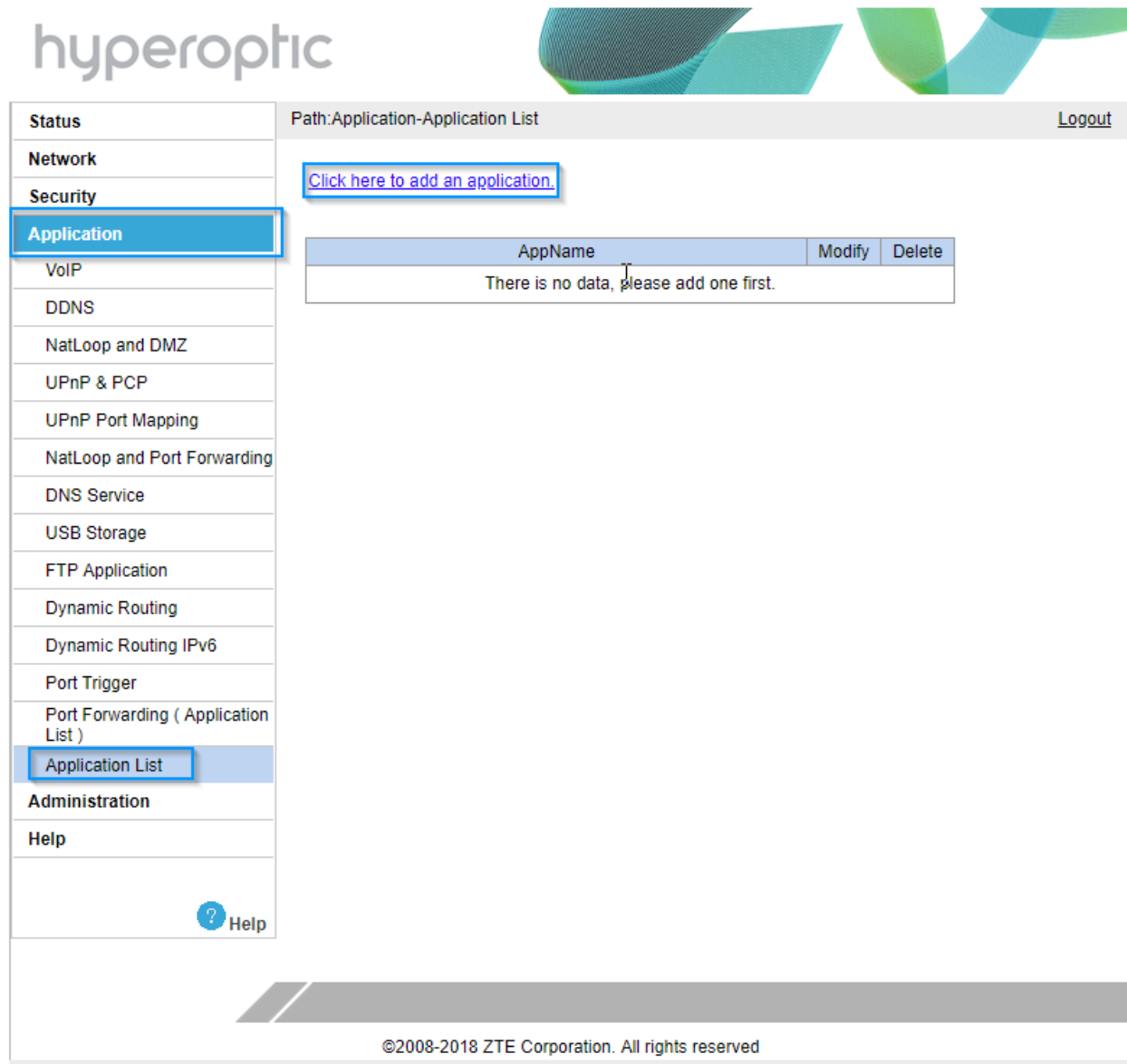


Image 22. Defining local application on router

You should then be presented with the webpage illustrated in Image 23. List any name in the **Application Name** field. In case of local web server, use **TCP Protocol**.

Status

Network

Security

Application

VoIP

DDNS

NatLoop and DMZ

UPnP & PCP

UPnP Port Mapping

NatLoop and Port Forwarding

DNS Service

USB Storage

FTP Application

Dynamic Routing

Dynamic Routing IPv6

Port Trigger

Port Forwarding ( Application List )

Application List

Administration

Help

Help

Path:Application-Application List

Logout

Application Name  (1 ~ 256)

Save

Protocol

WAN Start Port  (0 ~ 65535)

WAN End Port  (0 ~ 65535)

Start Mapping Port  (1 ~ 65535)

End Mapping Port  (1 ~ 65535)

Add

Protocol	WAN Start Port	WAN End Port	Map Start Port	Map End Port	Modify	Delete
There is no data, please add one first.						

Back

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Image 23. Defining LAN application in router GUI

List the port that will be used for the local web server (in this case, the server will be listening for connections on TCP port 8080). Populate **WAN Start Port**, **WAN End Port**, **Start Mapping Port** and **End Mapping Port** with the value **8080**. Once completed, click **Add**. Confirmation should appear as illustrated in Image 24.

Status

Network

Security

Application

VoIP

DDNS

NatLoop and DMZ

UPnP & PCP

UPnP Port Mapping

NatLoop and Port Forwarding

DNS Service

USB Storage

FTP Application

Dynamic Routing

Dynamic Routing IPv6

Port Trigger

Port Forwarding ( Application List )

Application List

Administration

Help

Help

Path:Application-Application List

Logout

Application Name

Web\_server

(1 ~ 256)

Modify

Protocol

TCP

WAN Start Port

(0 ~ 65535)

WAN End Port

(0 ~ 65535)



Start Mapping Port

(1 ~ 65535)

End Mapping Port

(1 ~ 65535)

Add

Protocol	WAN Start Port	WAN End Port	Map Start Port	Map End Port	Modify	Delete
TCP	8080	8080	8080	8080		

Back

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Image 24. Confirmation of application creation

After creating the application, navigate to **Application > Port Forwarding (Application List)**. This section will link the application with the relevant LAN device's IPv4 address. Enter **LAN Host IP Address** and click **Add**. This configuration is illustrated in Image 25.



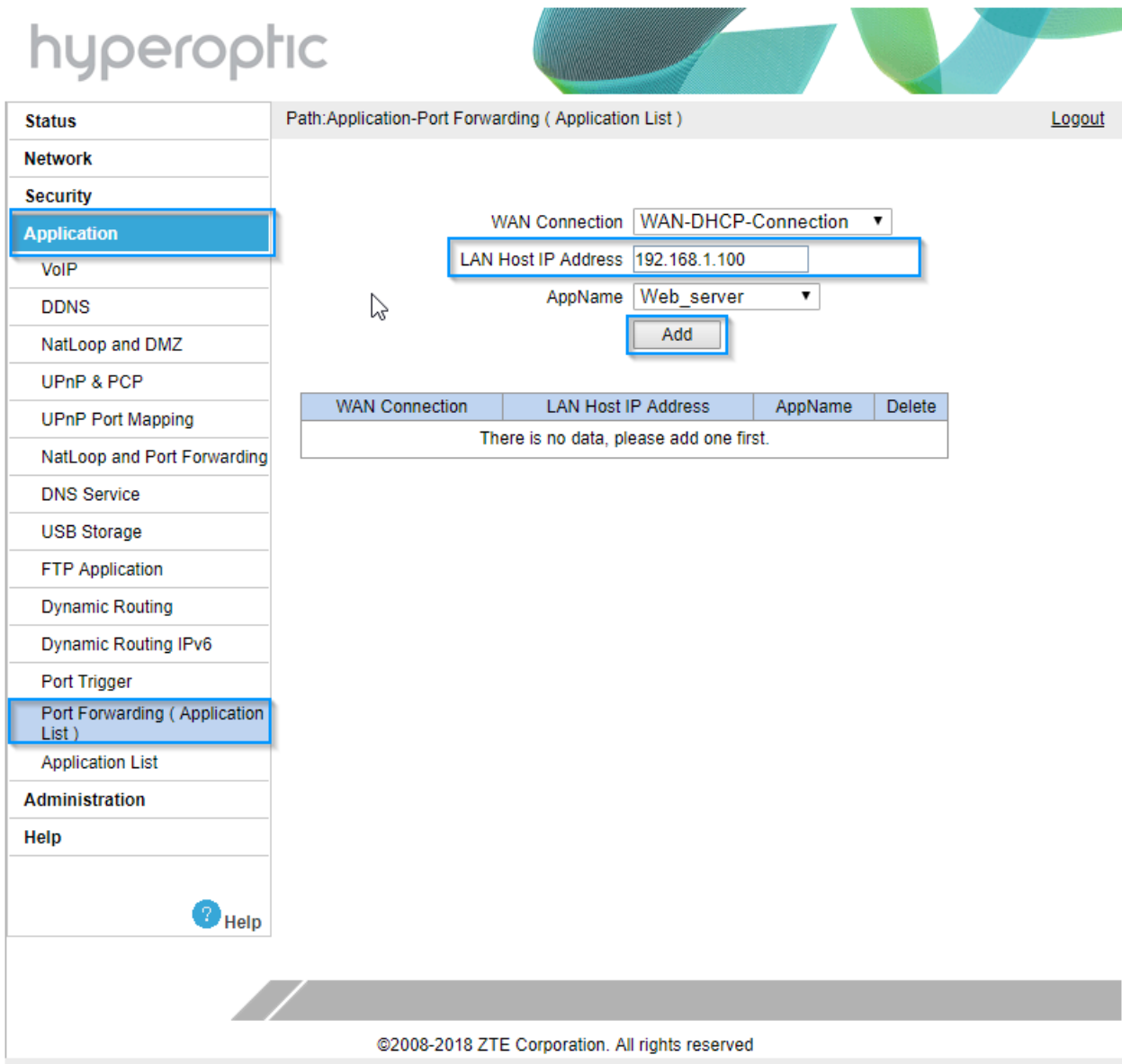
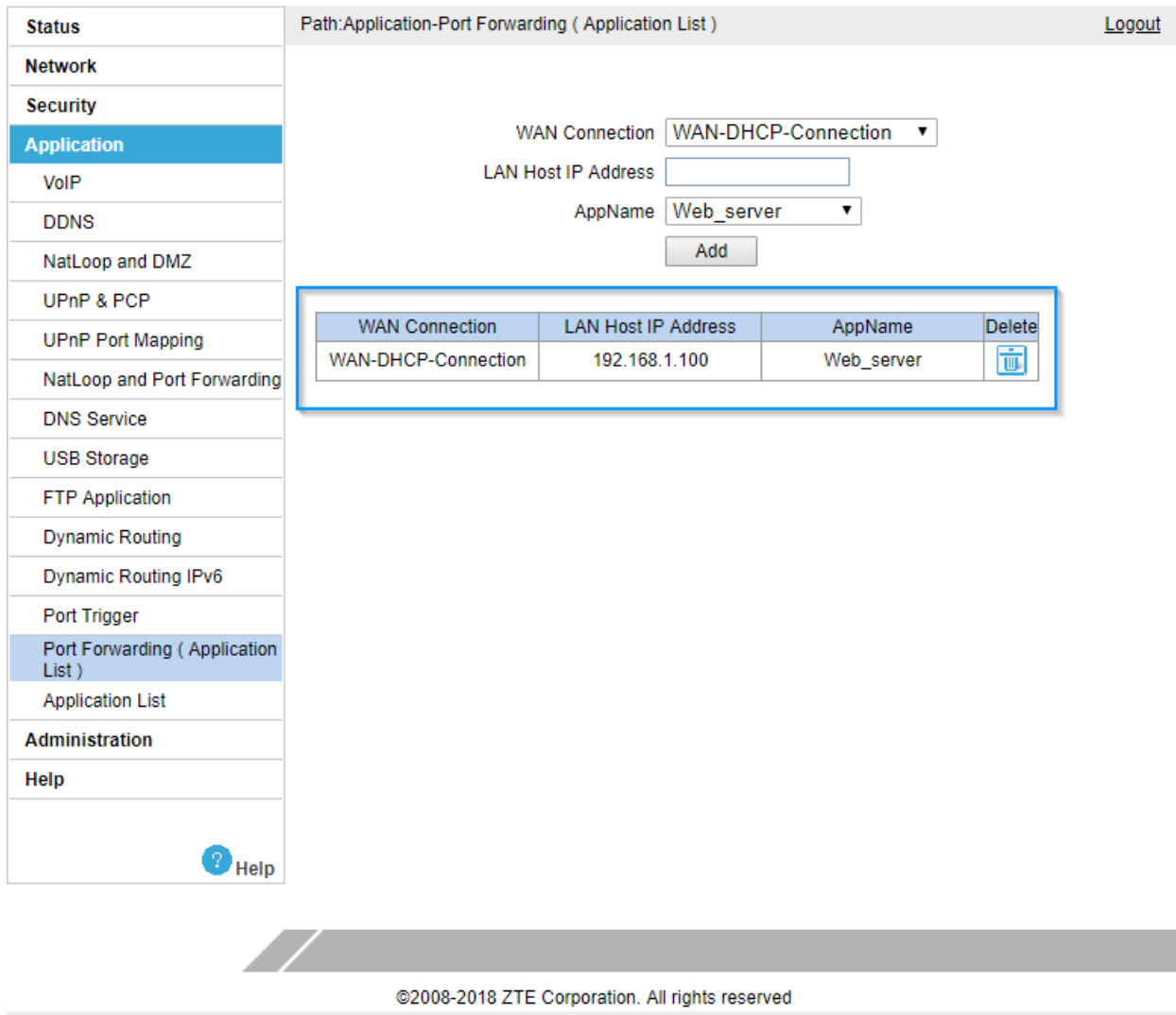



Image 25. Linking application with the LAN host

If the application is linked with the LAN device, you should see confirmation as illustrated in Image 26.



The screenshot shows the 'Application List' configuration page for Port Forwarding. The left sidebar contains a menu with the following items: Status, Network, Security, Application (highlighted), VoIP, DDNS, NatLoop and DMZ, UPnP & PCP, UPnP Port Mapping, NatLoop and Port Forwarding, DNS Service, USB Storage, FTP Application, Dynamic Routing, Dynamic Routing IPv6, Port Trigger, Port Forwarding ( Application List ), Application List, Administration, and Help. The main content area is titled 'Path: Application-Port Forwarding ( Application List )' and includes a 'Logout' link. It features input fields for 'WAN Connection' (set to 'WAN-DHCP-Connection'), 'LAN Host IP Address' (empty), and 'AppName' (set to 'Web\_server'), along with an 'Add' button. Below these fields is a table with the following data:

WAN Connection	LAN Host IP Address	AppName	Delete
WAN-DHCP-Connection	192.168.1.100	Web_server	

At the bottom of the page, there is a copyright notice: ©2008-2018 ZTE Corporation. All rights reserved.

Image 26. Confirmation that port forwarding is configured

Alternatively, the router can be configured to perform port mapping (port translation) during port forwarding. To configure the router in this way, navigate to **Application > NatLoop and Port Forwarding** (see Image 27). In this example, the router will map traffic with destination port 12001 to port 8080. Inbound traffic on WAN ethernet port with destination port 21001 will be forwarded to LAN server. After all parameters are set, click **Add** to save router configuration.

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, e.g. you can use ports on WAN side 12000, 12001 and map them to LAN ports 80, 443 respectively). See image 27.

**hyperoptic**

- Status
- Network
- Security
- Application**
- VoIP
- DDNS
- NatLoop and DMZ
- UPnP & PCP
- UPnP Port Mapping
- NatLoop and Port Forwarding**
- DNS Service
- USB Storage
- FTP Application
- Dynamic Routing
- Dynamic Routing IPv6
- Port Trigger
- Port Forwarding ( Application List )
- Application List
- Administration
- Help

Path:Application-NatLoop and Port Forwarding [Logout](#)

Enable ☒

Name

Protocol TCP ▼

Remote Host

WAN Connection WAN-DHCP-Connection ▼

WAN Start Port

WAN End Port

Enable MAC Mapping ☐

LAN Host IP Address

LAN Host Start Port

LAN Host End Port

Enable	Name	WAN Start Port	LAN Host Start Port	WAN Connection	Remote	Modify	Delete
	Protocol	WAN End Port	LAN Host End Port	LAN Host Address	Host		
There is no data, please add one first.							

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Image 27. Port forwarding with port mapping

A list of commonly used port is illustrated in Image 28. For additional information about TCP and UDP port numbers, please refer to [https://en.wikipedia.org/wiki/List\\_of\\_TCP\\_and\\_UDP\\_port\\_numbers](https://en.wikipedia.org/wiki/List_of_TCP_and_UDP_port_numbers)

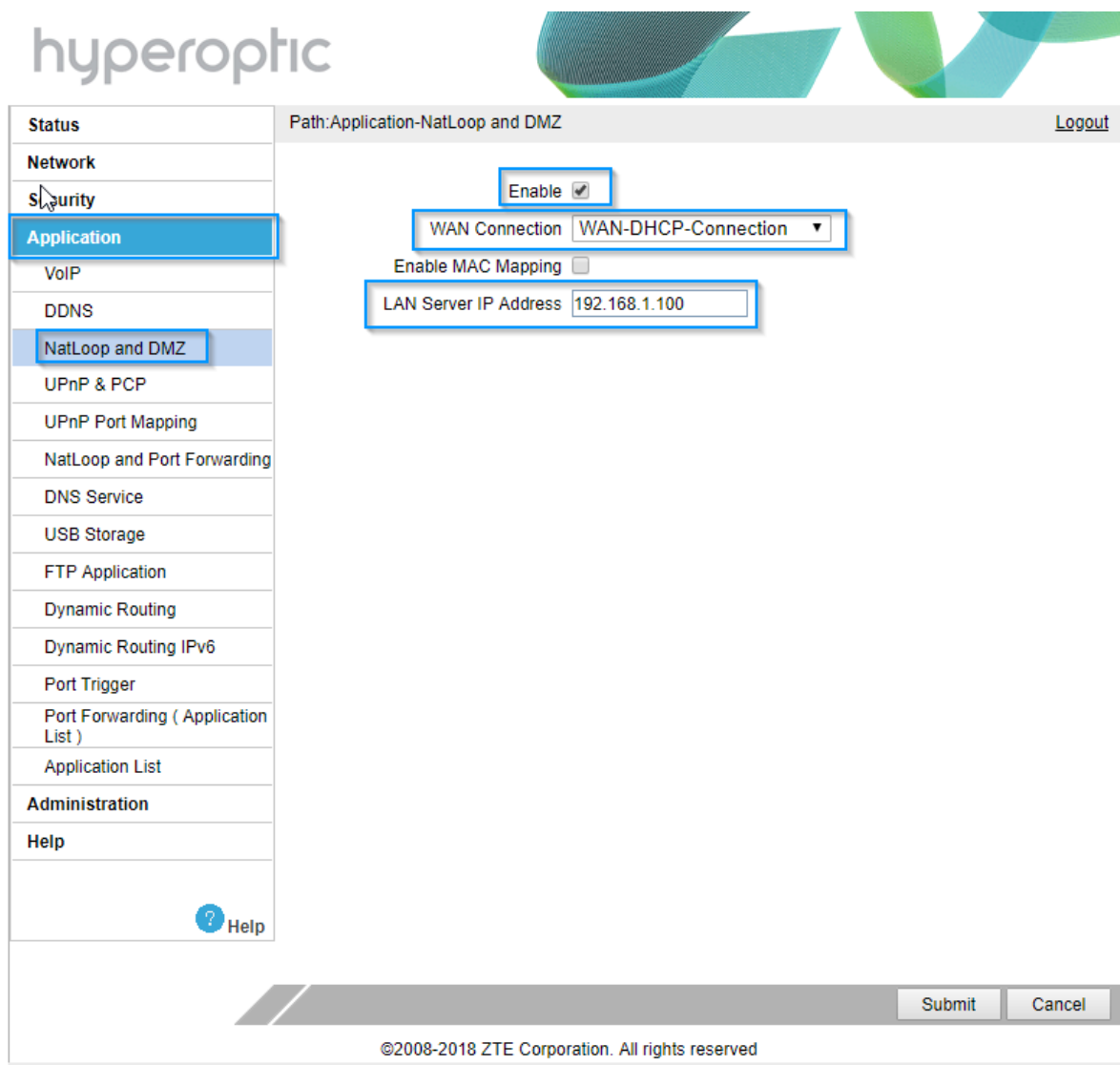
Port Number(s)	Protocol	Application
20	TCP	FTP data
21	TCP	FTP control
22	TCP	SSH
23	TCP	Telnet
25	TCP	SMTP
53	UDP, TCP	DNS
67	UDP	DHCP Server
68	UDP	DHCP Client
69	UDP	TFTP
80	TCP	HTTP (WWW)
110	TCP	POP3
161	UDP	SNMP
443	TCP	SSL
514	UDP	Syslog
16,384 – 32,767	UDP	RTP (voice, video)

Image 28. List of commonly used ports

## DMZ

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 **Application > NatLoop and DMZ** (see Image 29).

Click **Enable**. Select **WAN Connection** as **WAN-DHCP-Connection**. List the **LAN Server IP address**. Click **Submit**.

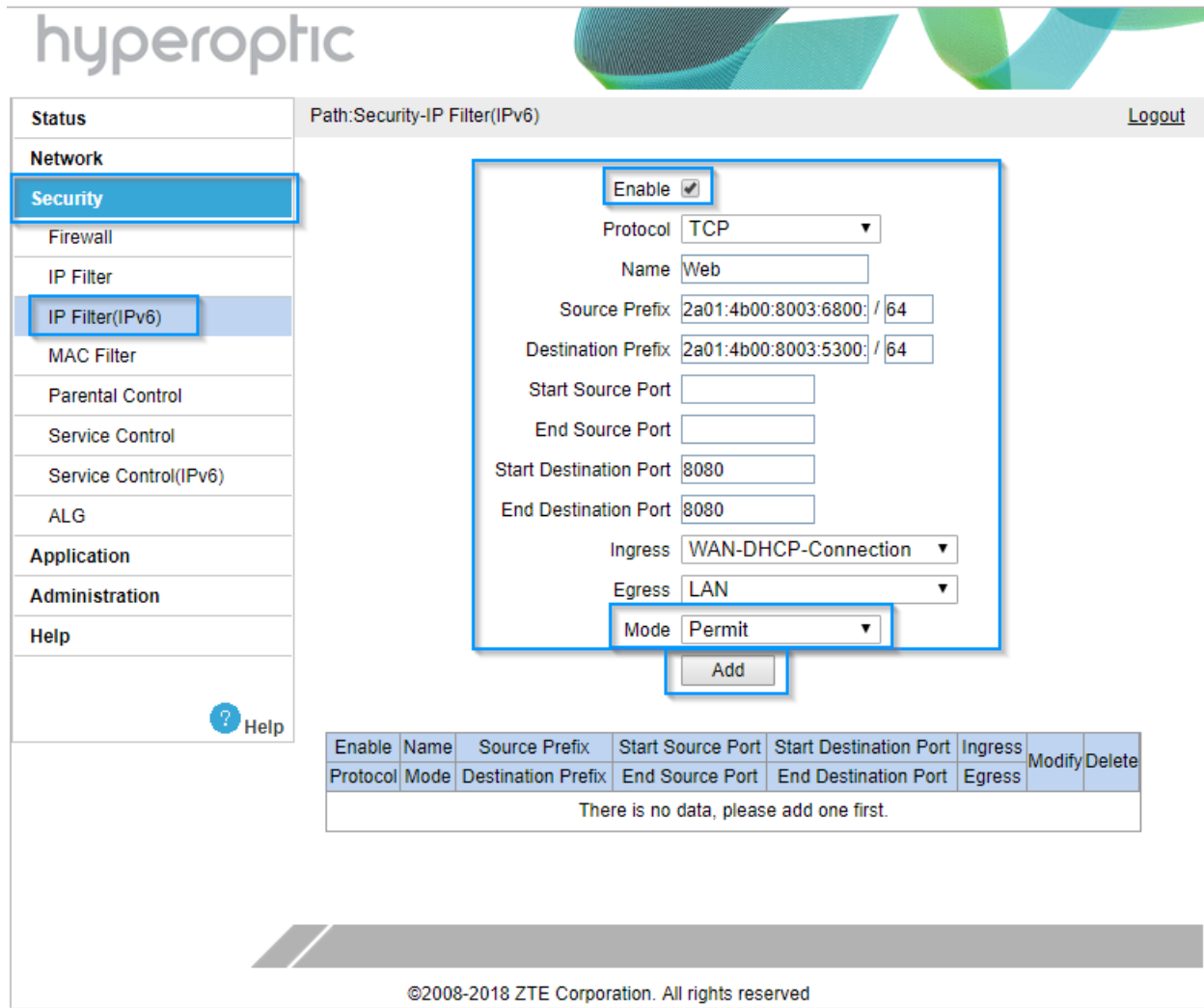


The screenshot displays the hyperoptic router's web management interface. On the left, a sidebar menu lists various settings categories: Status, Network, Security, Application (selected), VoIP, DDNS, NatLoop and DMZ (highlighted), UPnP & PCP, UPnP Port Mapping, NatLoop and Port Forwarding, DNS Service, USB Storage, FTP Application, Dynamic Routing, Dynamic Routing IPv6, Port Trigger, Port Forwarding (Application List), Application List, Administration, and Help. The main content area is titled 'Path: Application-NatLoop and DMZ' and features a 'Logout' link. The configuration options include: 'Enable' (checked), 'WAN Connection' (set to 'WAN-DHCP-Connection'), 'Enable MAC Mapping' (unchecked), and 'LAN Server IP Address' (set to '192.168.1.100'). At the bottom right, there are 'Submit' and 'Cancel' buttons. A copyright notice at the very bottom reads '©2008-2018 ZTE Corporation. All rights reserved'.

Image 29. DMZ configuration on router

## IPv6 Filter

IPv6 servers placed in LAN can be accessed from any remote IPv6 address. Access can be granted using the router's IPv6 filters. To configure a Hyperoptic router, navigate to **Security > IP Filters(IPv6)**. Image 30 illustrates an example of a local IPv6 web server.



Path: Security-IP Filter(IPv6) [Logout](#)

**Enable** ☒

Protocol: **TCP**

Name: **Web**

Source Prefix: **2a01:4b00:8003:6800::/64**

Destination Prefix: **2a01:4b00:8003:5300::/64**

Start Source Port:

End Source Port:

Start Destination Port: **8080**

End Destination Port: **8080**

Ingress: **WAN-DHCP-Connection**

Egress: **LAN**

Mode: **Permit**

**Add**

Enable	Name	Source Prefix	Start Source Port	Start Destination Port	Ingress	Egress	Modify	Delete

There is no data, please add one first.

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Image 30. IPv6 filter configuration

Click **Enable** to make the filter rule active.

For web servers, use **TCP** as **Protocol** type.

Use any **Name** for the filter.

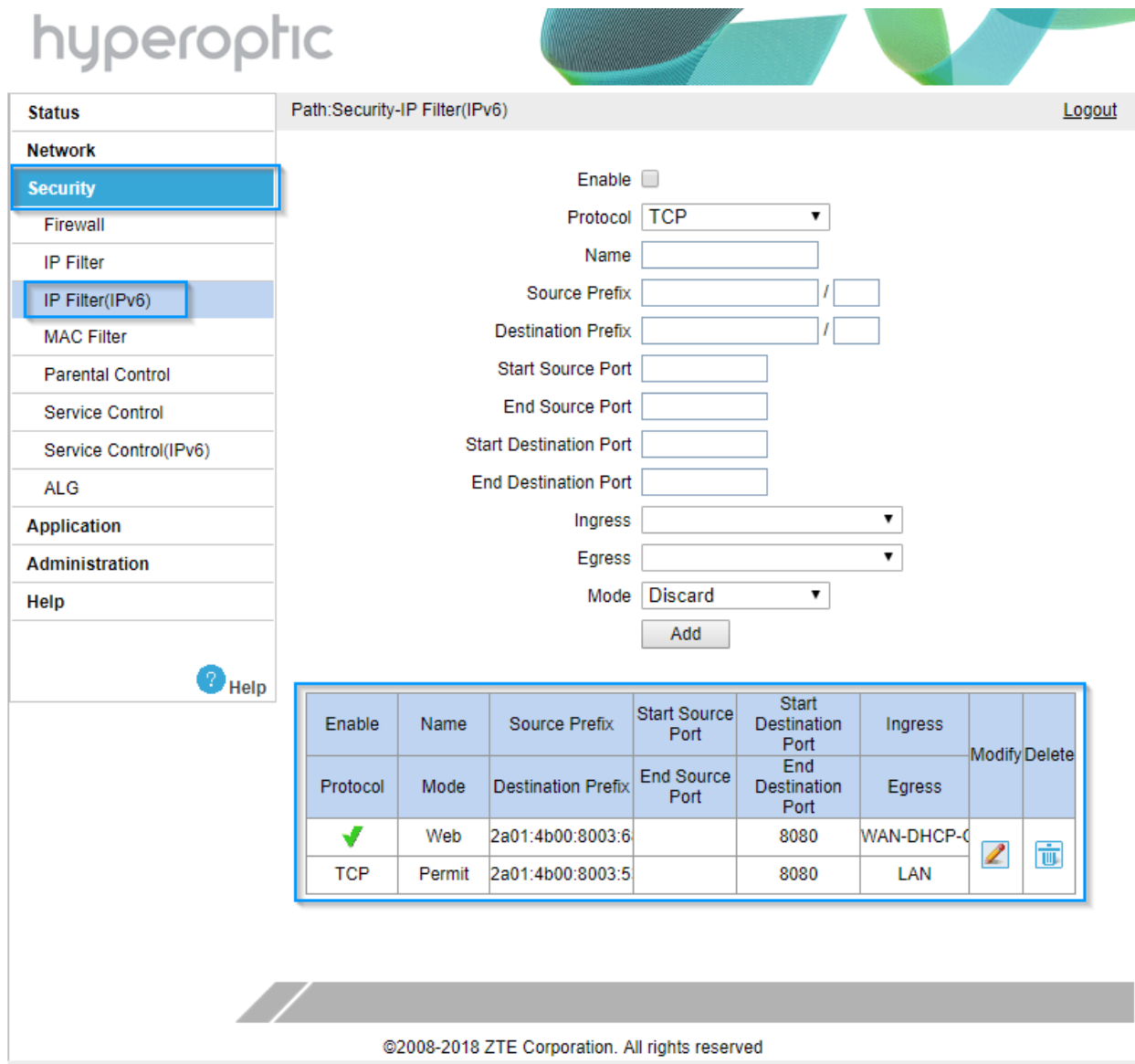
List the **Source Prefix** (IPv6 address range of remote computers) - for example, **2a01:4b00:8003:6800::** with prefix length **64**.

For **Destination Prefix**, use the address range assigned to the router. In the example illustrated in Image 30, this range is **2a01:4b00:8003:5300::** with prefix length **64**.

**Start Destination port** and **End destination port** define the range of ports that will be allowed to pass through local router. In this case only one port is permitted – port **8080**.

Define **Ingress** and **Egress** ports as per Image 30.

Choose **Permit** mode and click **Add** to save router configuration. Once configured, confirmation should appear as illustrated in Image 31.



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Status Path: Security-IP Filter(IPv6) Logout

Network

Security

Firewall

IP Filter

IP Filter(IPv6)

MAC Filter

Parental Control

Service Control

Service Control(IPv6)

ALG

Application

Administration

Help

Help

Enable ☒

Protocol TCP

Name

Source Prefix /

Destination Prefix /

Start Source Port

End Source Port

Start Destination Port

End Destination Port

Ingress

Egress

Mode Discard

Add

Enable	Name	Source Prefix	Start Source Port	Start Destination Port	Ingress	Modify	Delete
✓	Web	2a01:4b00:8003:6		8080	WAN-DHCP-C		
TCP	Permit	2a01:4b00:8003:5		8080	LAN		

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Image 31. Confirmation that IPv6 filter is made and Enabled

## DHCP Binding

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 image 32. Navigate to section **Network > LAN**.

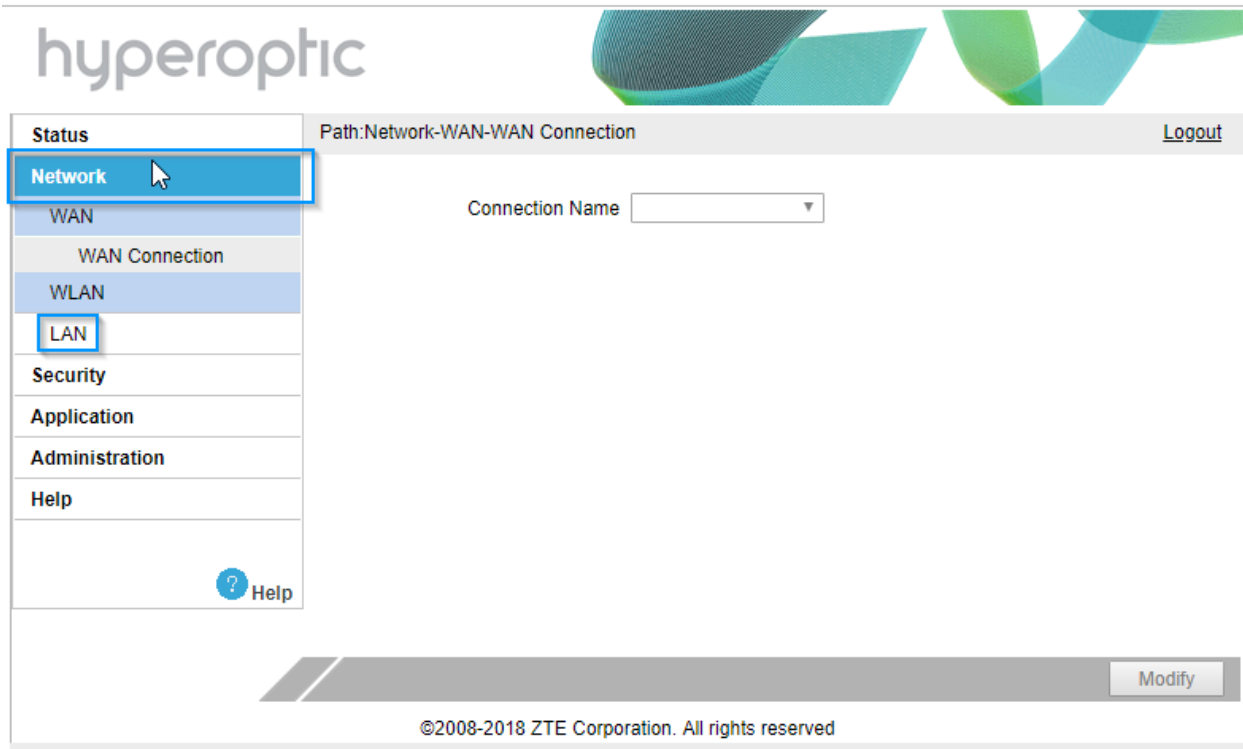
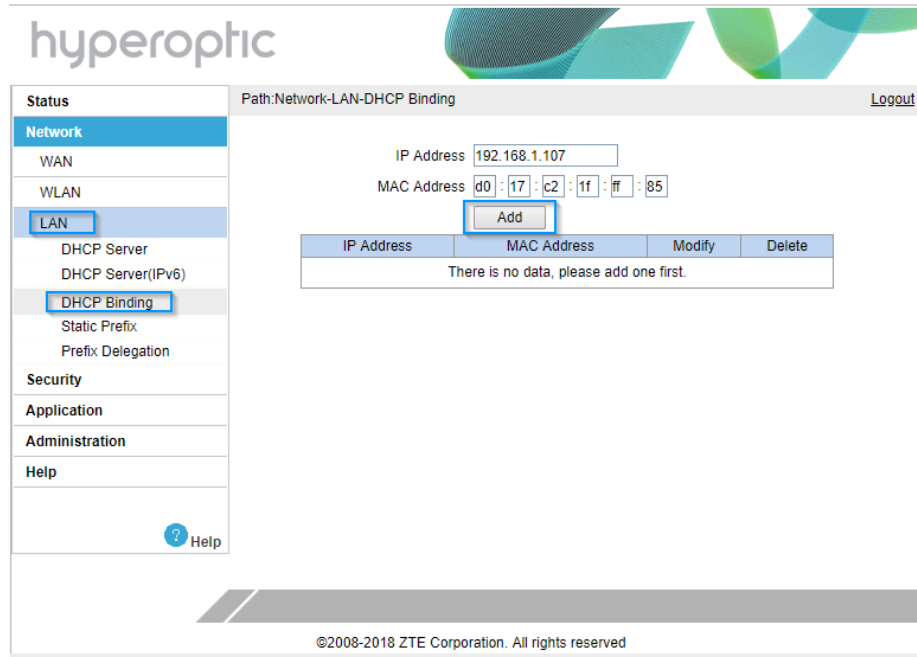


Image 32. LAN section of router configuration

Click on **LAN** segment and then click on **DHCP Binding**. This is described in image 33. List IPv4 wanted address and list MAC address of LAN client. After configuring these parameters click on **Add** to save settings.





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Status Path: Network-LAN-DHCP Binding [Logout](#)

**Network**

- WAN
- WLAN
- LAN**
  - DHCP Server
  - DHCP Server(IPv6)
  - DHCP Binding**
  - Static Prefix
  - Prefix Delegation
- Security
- Application
- Administration
- Help

IP Address

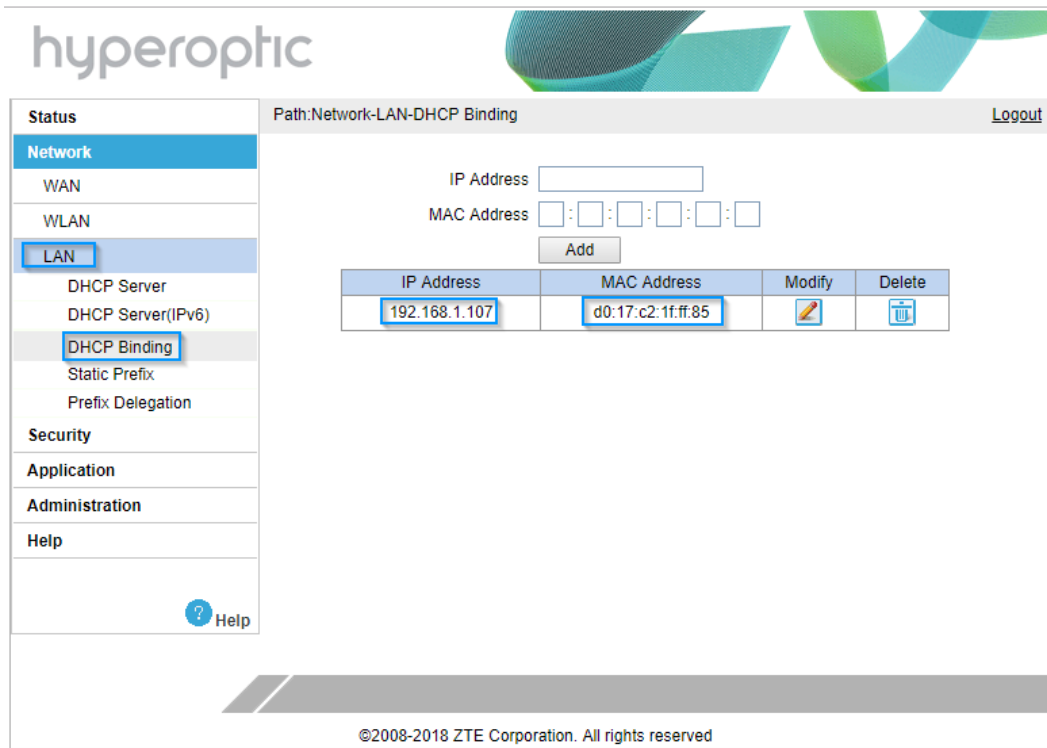
MAC Address

IP Address	MAC Address	Modify	Delete
There is no data, please add one first.			

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Image 33. Configuring DHCP binding

Confirmation of configuration looks like described in Image 34.



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Status Path: Network-LAN-DHCP Binding [Logout](#)

**Network**

- WAN
- WLAN
- LAN**
  - DHCP Server
  - DHCP Server(IPv6)
  - DHCP Binding**
  - Static Prefix
  - Prefix Delegation
- Security
- Application
- Administration
- Help

IP Address

MAC Address

IP Address	MAC Address	Modify	Delete
192.168.1.107	d0:17:c2:1f:ff:85		

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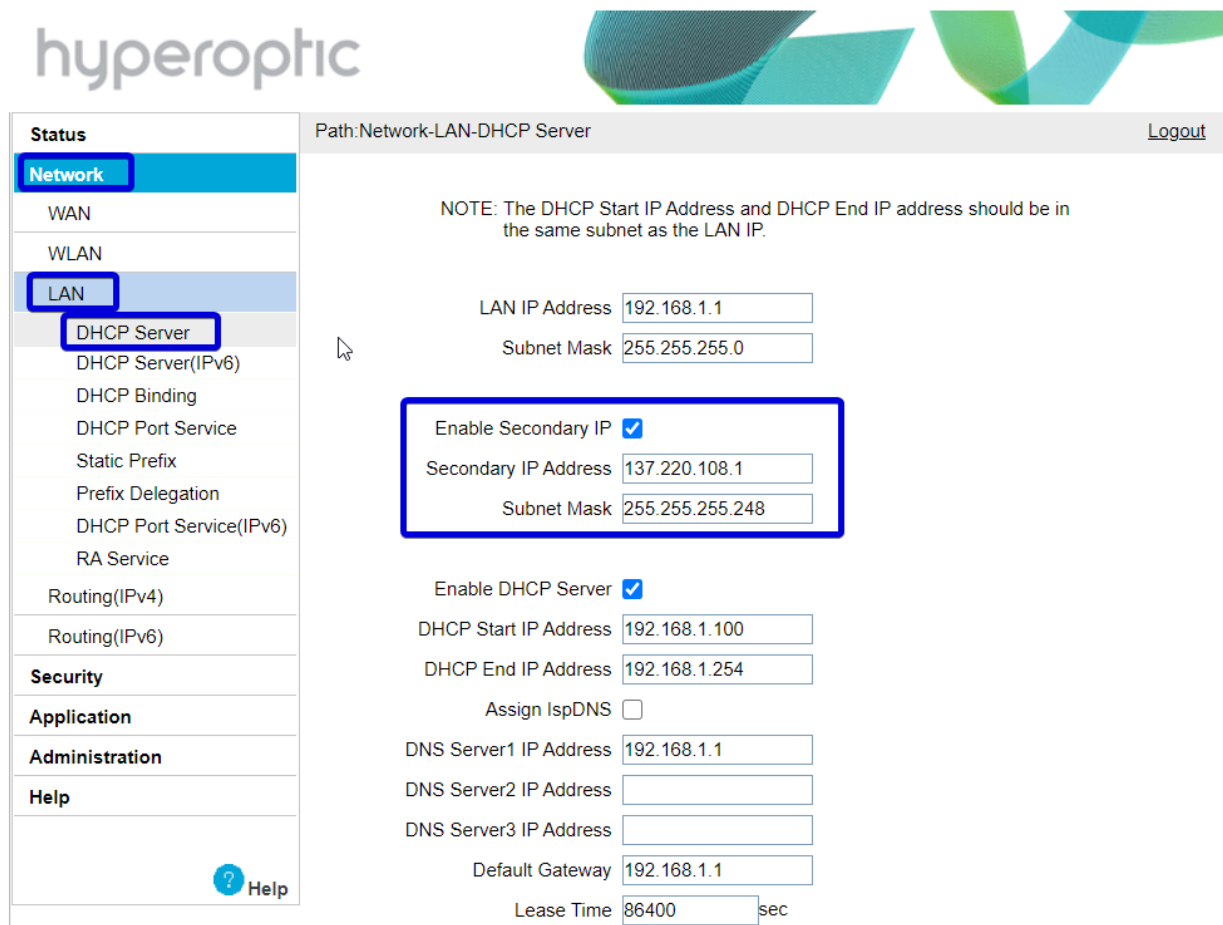
Image 34. Confirmation of DHCP binding

## Public IPv4 address block in LAN network

Navigate to **Network > LAN > DHCP Server**. Image 35 describes example of public block 137.220.108.0/29. Take first address from the IPv4 block and assign it to the router – **Secondary IP Address** field. Populate **Subnet mask** field as per table 1. Click **Submit** at the bottom of the page to save settings.

Table 1. Subnet mask values to be used in router config

Public IPv4 address block format	Subnet mask
x.x.x.x/ <b>32</b>	255.255.255. <b>255</b>
x.x.x.x/ <b>31</b>	255.255.255. <b>254</b>
x.x.x.x/ <b>30</b>	255.255.255. <b>252</b>
x.x.x.x/ <b>29</b>	255.255.255. <b>248</b>
x.x.x.x/ <b>28</b>	255.255.255. <b>240</b>



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Status Path: Network-LAN-DHCP Server [Logout](#)

**Network**

WAN

WLAN

**LAN**

**DHCP Server**

DHCP Server(IPv6)

DHCP Binding

DHCP Port Service

Static Prefix

Prefix Delegation

DHCP Port Service(IPv6)

RA Service

Routing(IPv4)

Routing(IPv6)

**Security**

**Application**

**Administration**

**Help**

NOTE: The DHCP Start IP Address and DHCP End IP address should be in the same subnet as the LAN IP.

LAN IP Address

Subnet Mask

Enable Secondary IP ☒

Secondary IP Address

Subnet Mask

Enable DHCP Server ☒

DHCP Start IP Address

DHCP End IP Address

Assign IspDNS ☐

DNS Server1 IP Address

DNS Server2 IP Address

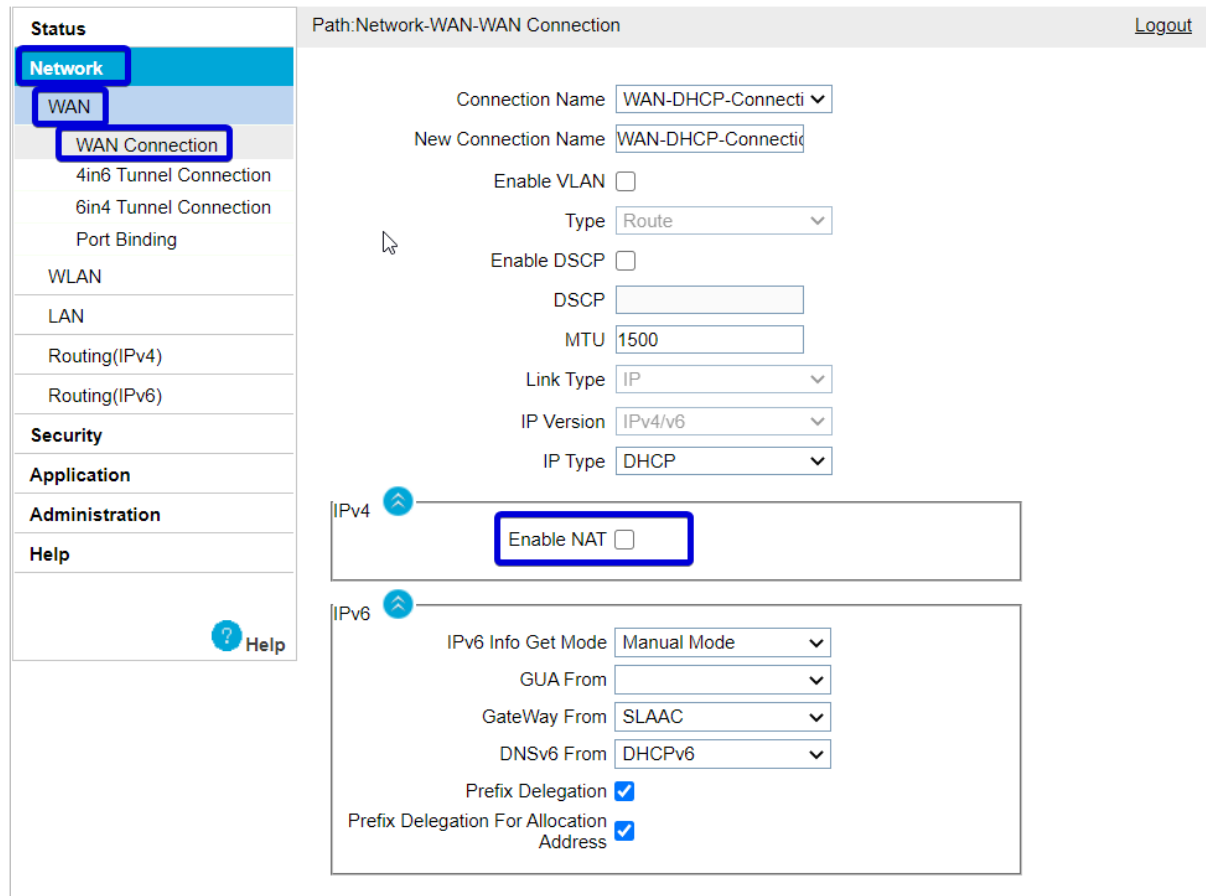
DNS Server3 IP Address

Default Gateway

Lease Time  sec

Image 35. Setting secondary IP block

Navigate to **Network > WAN > WAN Connection**. Select **WAN-DHCP-Connection** from first dropdown menu. Untick **Enable NAT** option and click **Modify** at the bottom of to save settings.



Path: Network-WAN-WAN Connection [Logout](#)

**Status**

- Network**
  - WAN
    - WAN Connection**
    - 4in6 Tunnel Connection
    - 6in4 Tunnel Connection
    - Port Binding
  - WLAN
  - LAN
  - Routing(IPv4)
  - Routing(IPv6)
- Security**
- Application**
- Administration**
- Help**

Connection Name: WAN-DHCP-Connection ▼

New Connection Name: WAN-DHCP-Connection

Enable VLAN: ☐

Type: Route ▼

Enable DSCP: ☐


DSCP:

MTU: 1500


Link Type: IP ▼

IP Version: IPv4/v6 ▼

IP Type: DHCP ▼

IPv4 

Enable NAT ☐

IPv6 

IPv6 Info Get Mode: Manual Mode ▼

GUA From:

GateWay From: SLAAC ▼

DNSv6 From: DHCPv6 ▼

Prefix Delegation: ☒

Prefix Delegation For Allocation Address: ☒

Image 36. Disabling NAT on the router