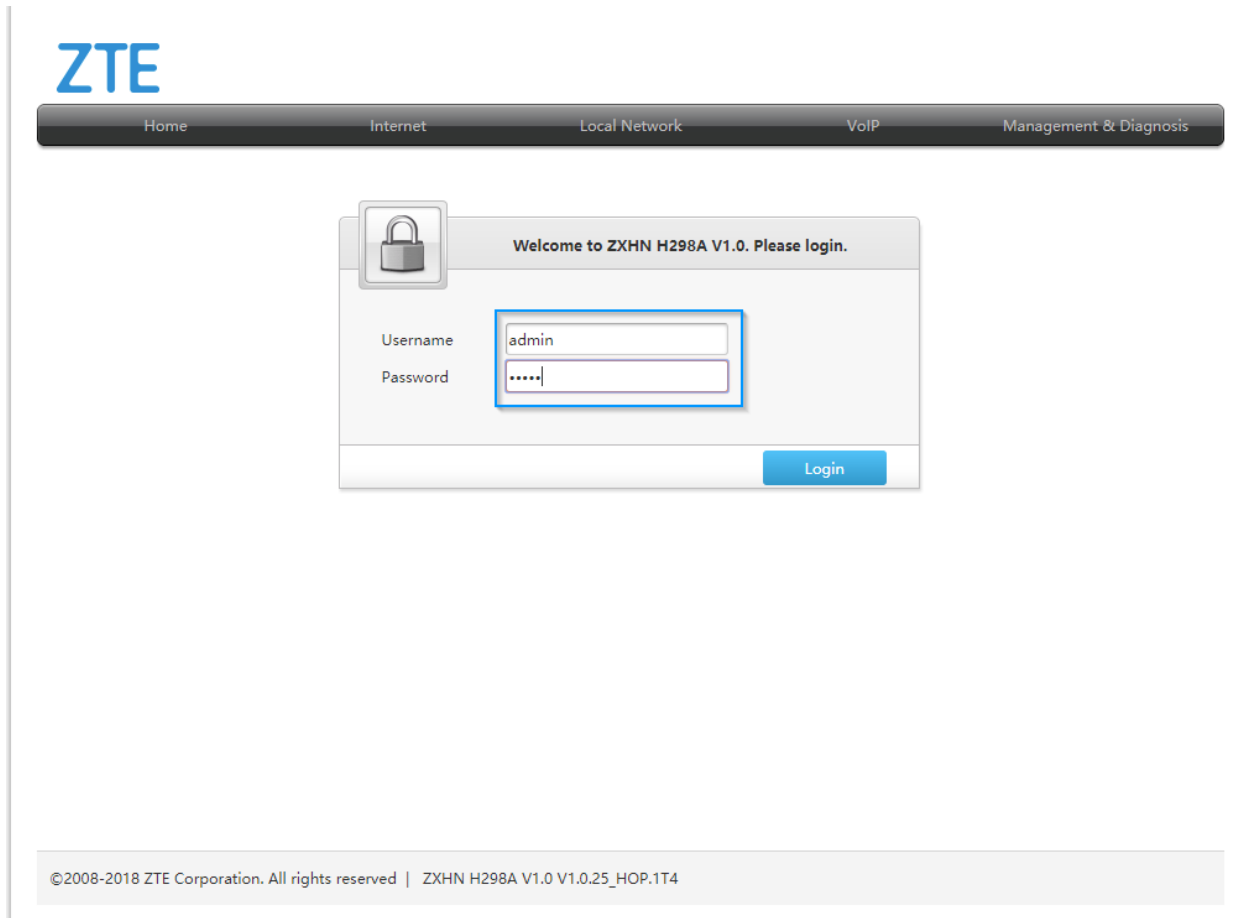


Port forwarding for ZTE H298A

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 1).



ZTE

Home Internet Local Network VoIP Management & Diagnosis

Welcome to ZXHN H298A V1.0. Please login.

Username admin

Password

Login

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Image 1. Login page of a ZTE H298A 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 **Internet > Security > Port Forwarding**. See Image 2.

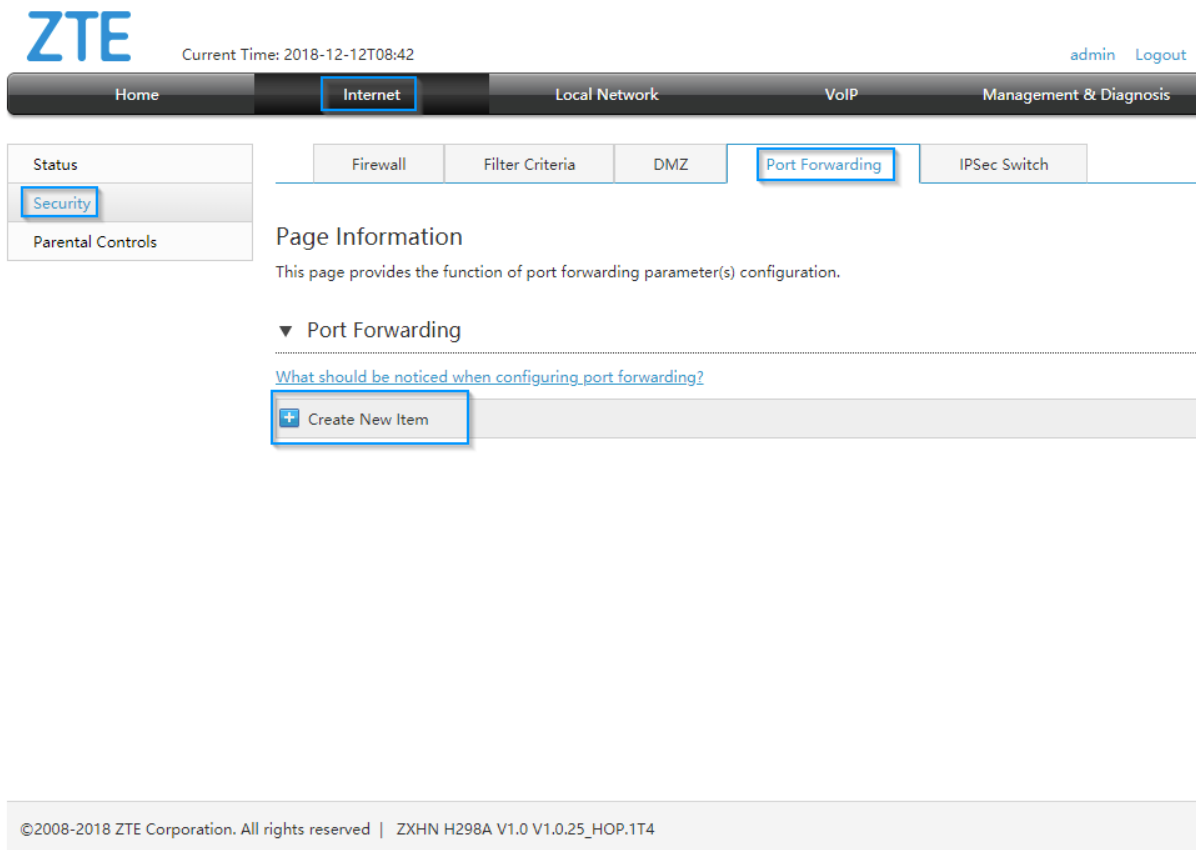


Image 2. Port forwarding section of the router configuration

Click on **Create New Item** in order to create a new port forwarding rule. This rule will use IPv4 addresses. The new section should appear with all relevant fields that need to be configured (see Image 3).


The **Name** field can be filled in with any name, which will be used to indicate which service is being served.

Select the **Protocol** type (TCP or UDP).

The **WAN Host IP address** fields can be left unpopulated if local service needs to be accessible from any location on internet (any IPv4 address). In this case, the values in all fields will be 0.

If access is needed from a specific IPv4 address or from a range of IPv4 addresses, this section needs to be configured (e.g. 141.0.144.129 ~ 141.0.144.130). In the example illustrated in Image 3, the SFTP server is running in LAN. The SFTP server is located on the LAN client with IPv4 address **192.168.1.100**. The server will be listening for connections on TCP port 22, so TCP 22 must be listed. The list port ranges in sections **WAN port** and **LAN Host port**.

Once all the parameters are listed, click **Apply**. This will save your new router configuration.


Current Time: 2018-12-12T08:41
admin Logout

Home
Internet
Local Network
VoIP
Management & Diagnosis

Status
Security
Parental Controls

Firewall
Filter Criteria
DMZ
Port Forwarding
IPSec Switch

Page Information

This page provides the function of port forwarding parameter(s) configuration.

▼ Port Forwarding

[What should be noticed when configuring port forwarding?](#)

▼ SFTP

☒ On
 ☐ Off

Name

SFTP

Protocol

TCP

WAN Host IP Address

0 . 0 . 0 . 0 ~ 0 . 0 . 0 . 0

LAN Host

192.168.1.100

WAN Port

22 ~ 22

LAN Host Port

22 ~ 22

Apply

Cancel

+

Create New Item

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Image 3. Defining port forwarding rule

Alternatively, port forwarding can be configured in a way that port mapping is performed. An example of this is illustrated in Image 4. In this case, WAN port 12001 traffic has been forwarded to the local web server which is listening for connections on port 8080. The router does a port translation.

Please also note that ports 80 and 443 **should never be used on WAN**, 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 as shown on Image 4 (e.g. you can use ports on WAN 12000, 12001 and map them to LAN ports 80, 443 respectively).

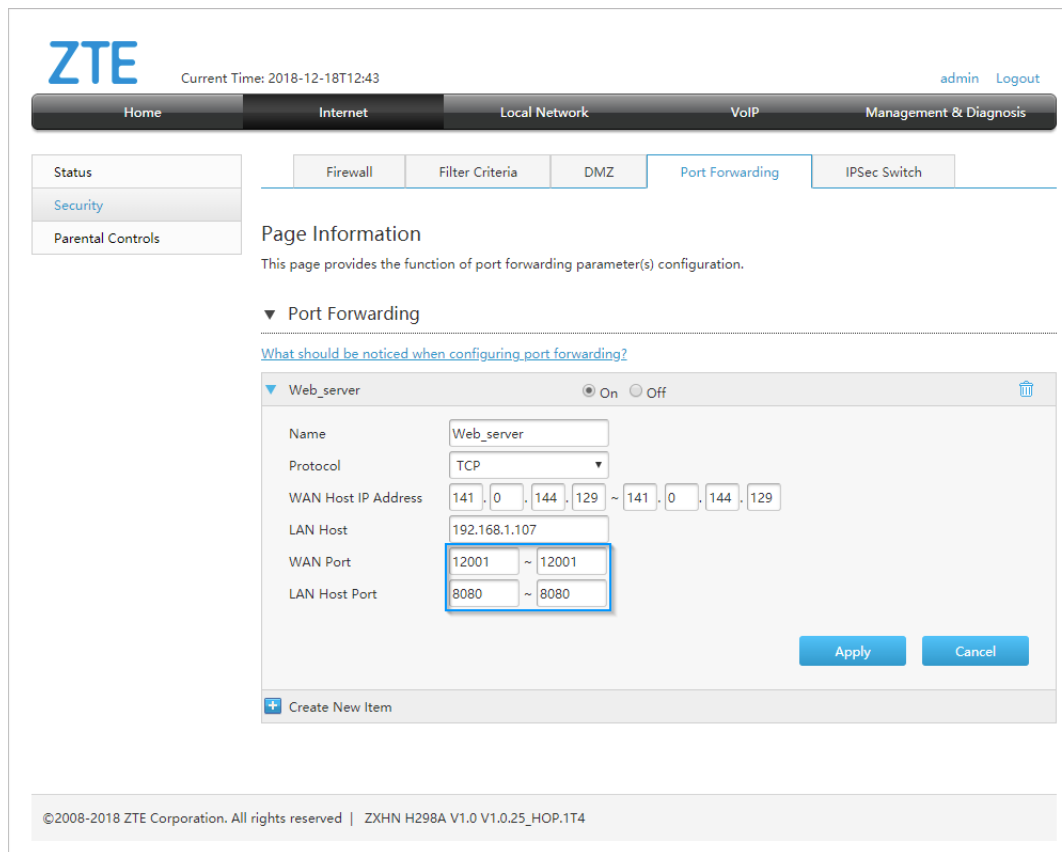


Image 4. Example when different WAN port is serving different LAN port

A list of commonly used ports is illustrated in Image 5. For additional information on TCP/UDP port numbers, 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 5. List of commonly used ports

DMZ for ZTE H298A

If a LAN device needs to be placed in a demilitarized zone, navigate to DMZ as illustrated in Image 6 (**Internet > Security > DMZ**). 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.

The screenshot displays the ZTE H298A router's web management interface. At the top, the ZTE logo is on the left, and the current time (2018-12-12T09:10) and user status (admin, Logout) are on the right. Below this is a navigation bar with tabs: Home, Internet (selected), Local Network, VoIP, and Management & Diagnosis. Under the 'Internet' tab, there are sub-tabs: Firewall, Filter Criteria, DMZ (selected), Port Forwarding, and IPsec Switch. On the left side, there is a sidebar with 'Status', 'Security' (selected), and 'Parental Controls'. The main content area is titled 'Page Information' and states: 'This page provides the function of DMZ parameter(s) configuration.' Below this, a section titled 'DMZ' is expanded, showing a 'DMZ' toggle switch set to 'On' and a 'LAN Host' text field containing the IP address '192.168.1.100'. At the bottom right of this section are 'Apply' and 'Cancel' buttons. The footer of the page reads: '©2008-2018 ZTE Corporation. All rights reserved | ZXHN H298A V1.0 V1.0.25_HOP.1T4'.

Image 6. DMZ configuration on router

Select **On** and list the IPv4 address of LAN device in the **LAN Host** field.

Click **Apply** to save new router configuration.

IPv6 filters (equivalent to IPv4 port forwarding)

If IPv6 servers are available for the LAN device, access can be granted via IPv6 filters. In order to configure IPv6 filters, navigate to **Internet > Security > Filter Criteria > IP Filter – IPv6**. This is illustrated in Image 7.

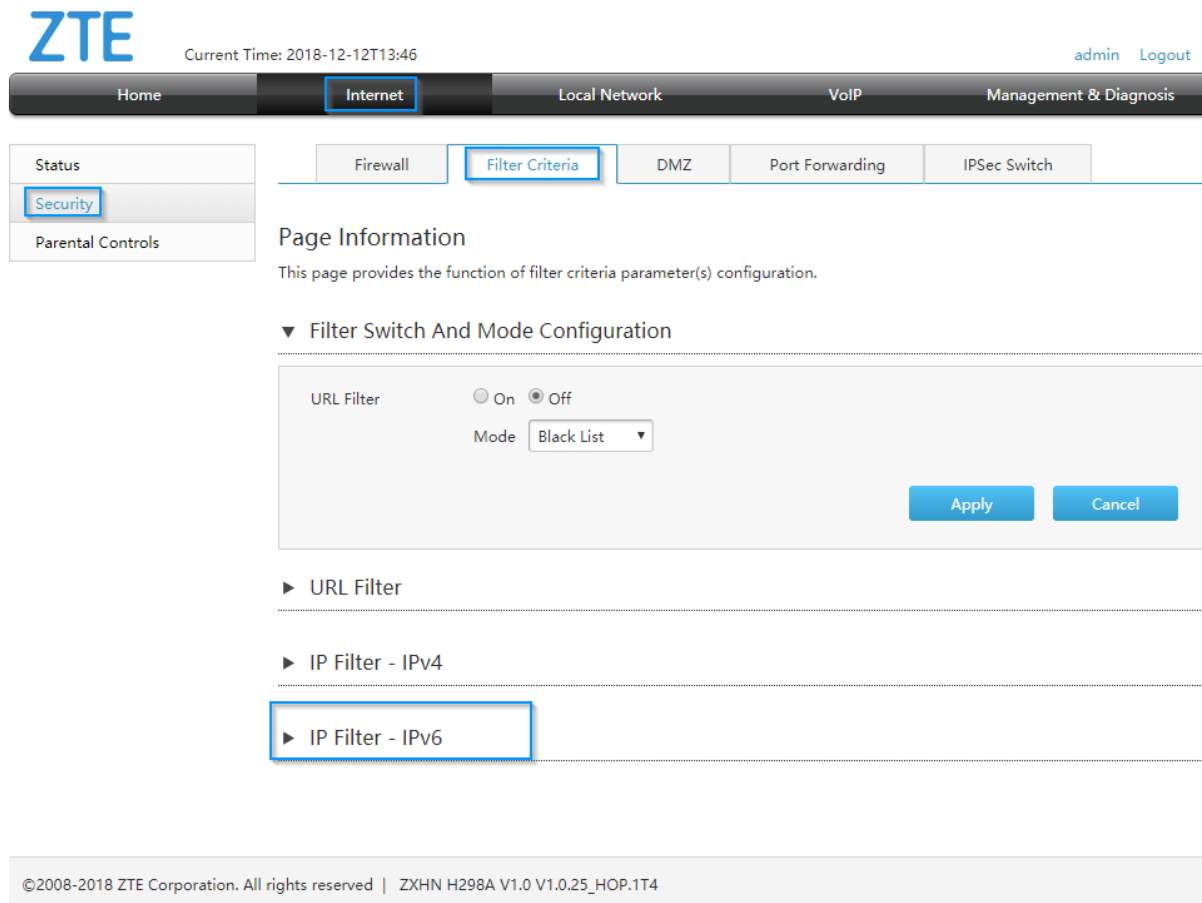


Image 7. IPv6 filters section of router configuration

Click on **IP Filter – IPv6**. You should then be presented with a page similar to Image 8.

Click **On** in order to activate the IPv6 filter.

Use any **Name** for the IPv6 filter.

Click **Allow** to permit connections to the web server.

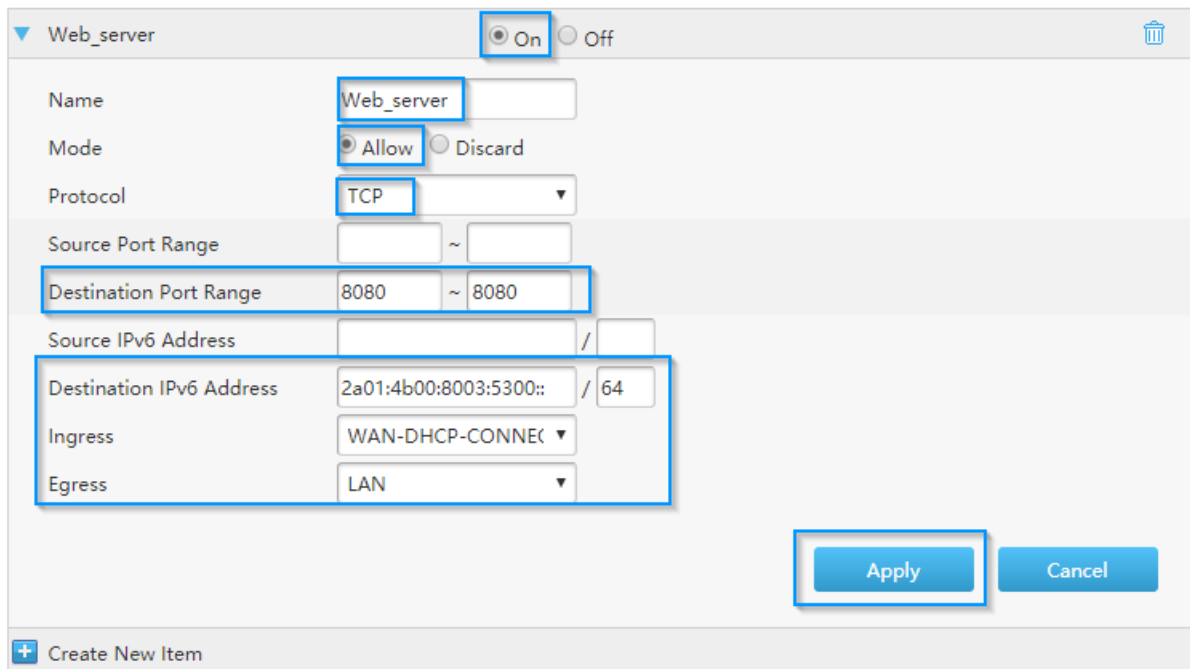
Select transport protocol – **TCP** in case of web server.

List the **Destination Port Range** which will be used for the local sever (port **8080**). Define the **Destination IPv6 Address** prefix which will be used in LAN (e.g. **2a01:4b00:8003:5300::/64**).

The **Ingress** port should be **WAN-DHCP-CONNECTION**.

The **Egress** port should be **LAN**.

If the remote address (internet side) is known, this can be configured in the **Source IPv6 Address** field.



Web_server ☒ On ☐ Off

Name: Web_server

Mode: ☒ Allow ☐ Discard

Protocol: TCP

Source Port Range: ~

Destination Port Range: 8080 ~ 8080

Source IPv6 Address: /

Destination IPv6 Address: 2a01:4b00:8003:5300:: / 64

Ingress: WAN-DHCP-CONNEC

Egress: LAN

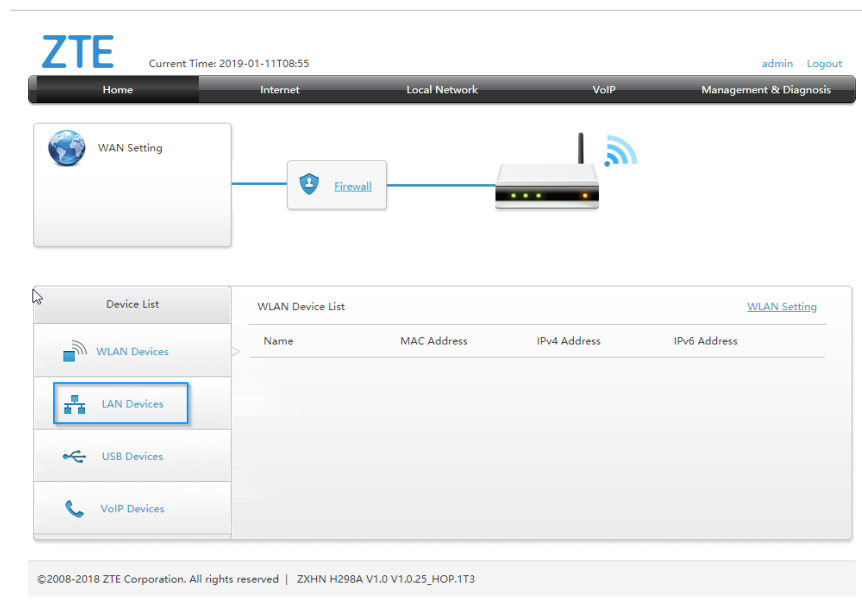
Apply Cancel

+ Create New Item

Image 8. Defining IPv6 filter parameters


DHCP Binding

Specific LAN clients can have the same IPv4 address all the time. In order to define which LAN client will have which IPv4 address, configuration of binding must be completed. This is illustrate in Image 9. Navigate to section **LAN Devices**.





9. Navigate to LAN Devices


Click on **LAN Settings** as illustrated in Image 10. . This will open another screen with **DHCP Binding** options.


Current Time: 2019-01-11T08:56
admin Logout


Home
Internet
Local Network
VoIP
Management & Diagnosis



WAN Setting



Firewall




Device List


WLAN Devices


LAN Devices


USB Devices


VoIP Devices

LAN Device List

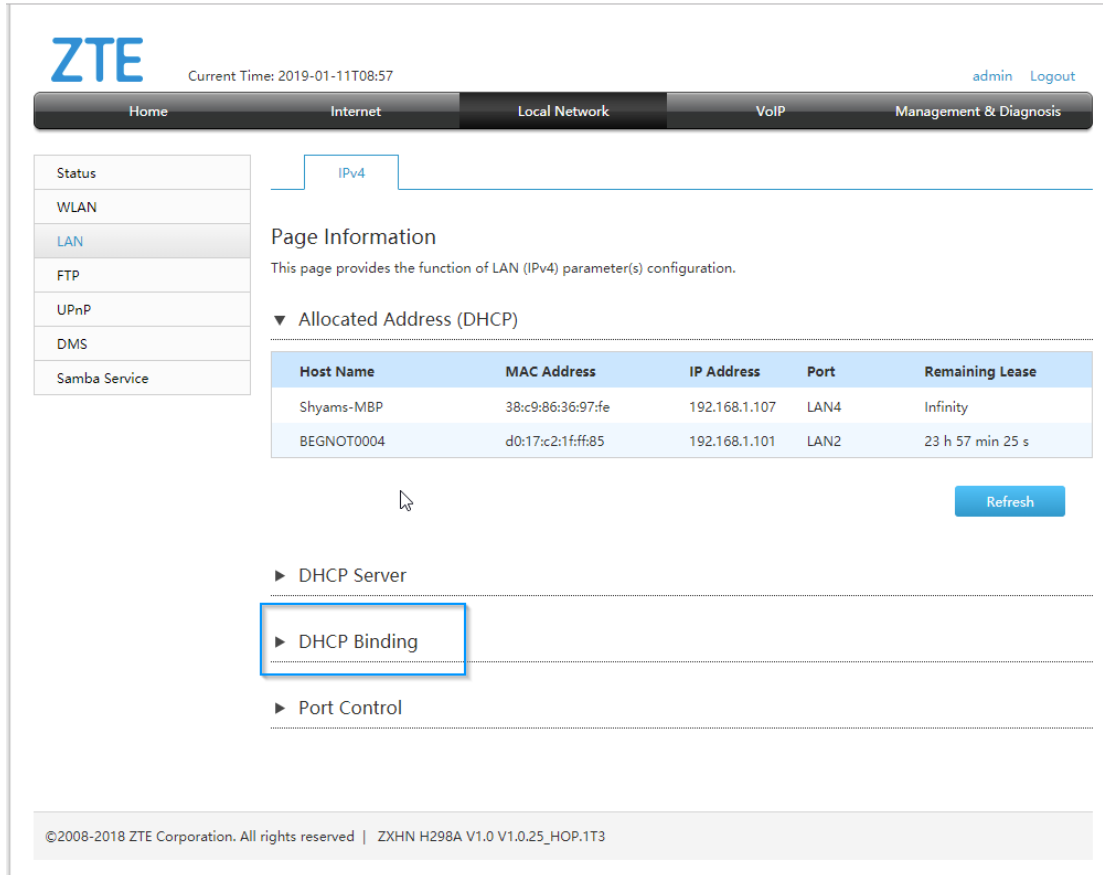
LAN Setting

Name	MAC Address	IPv4 Address	IPv6 Address
BEGNOT0004	d0:17:c2:1f:ff:85	192.168.1.101	fe80::83f:6171:af4d:2e...

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10. Navigate to section LAN Settings

After clicking on **LAN Settings**, link screen as illustrated in Image 11 should appear. .



The screenshot shows the ZTE router's web management interface. The top navigation bar includes links for Home, Internet, Local Network, VoIP, and Management & Diagnosis. The 'Local Network' tab is selected, and the 'IPv4' sub-tab is active. On the left, a sidebar menu lists various services: Status, WLAN, LAN (highlighted), FTP, UPnP, DMS, and Samba Service. The main content area is titled 'Page Information' and provides details about LAN (IPv4) configuration. A section titled 'Allocated Address (DHCP)' contains a table with the following data:

Host Name	MAC Address	IP Address	Port	Remaining Lease
Shyams-MBP	38:c9:86:36:97:fe	192.168.1.107	LAN4	Infinity
BEGNOT0004	d0:17:c2:1f:ff:85	192.168.1.101	LAN2	23 h 57 min 25 s

Below the table is a 'Refresh' button. Further down, there are expandable sections for 'DHCP Server', 'DHCP Binding' (which is highlighted with a blue box), and 'Port Control'. The footer of the interface displays the copyright notice: '©2008-2018 ZTE Corporation. All rights reserved | ZXHN H298A V1.0 V1.0.25_HOP.1T3'.

11. DHCP Binding section of router user interface

After clicking **DHCP Binding**, define relevant parameters. **Name** can be anything. Check MAC address of the attached LAN client. Input **MAC address**.

List wanted IPv4 for the LAN client. IPv4 addresses can be in range from **192.168.1.100** to **192.168.1.254**. An example of configuration is illustrated in Image 12.

► DHCP Server

▼ DHCP Binding

▼ host1

Name

host1

MAC Address

38 : c9 : 86 : 36 : 97 : fe

IP Address

192 . 168 . 1 . 107

Apply

Cancel

+

 Create New Item

► Port Control

12. Linking MAC address to IPv4 LAN address