

**I-241W-U User' s Manual with product spec.**

# History Page

<b>Date</b>	<b>Version</b>	<b>Description</b>	<b>Author</b>
2013/01/29	V0	Initial editing.	Kevin Huang

# Feature Description: Overview

## 1 Introduction

The I-241W-U is a GPON ONT which supports

- 4 Gigabit Ethernet
- 2 POTS
- 2 Wi-Fi (2.4G & 5G)
- 1 HomePNA
- 2 USB
- 1 GPON WAN port (32 GEM ports, 128 TCONTs)

Either pure RG model or pure ONT model is supported at one time by downloading different software releases.

In this document, we will briefly introduce the feature of pure RG model and pure ONT model. The more detailed information please refers to related documents.

## 2 Pure ONT model release

With pure ONT model release, I-241W-U will report to OLT that it contains one Ethernet slot with 4 GE ports, HomePNA and one POTS slot with 2 ports as Figure 1 shown. The Wi-Fi module and USB module are disabled in this mode.

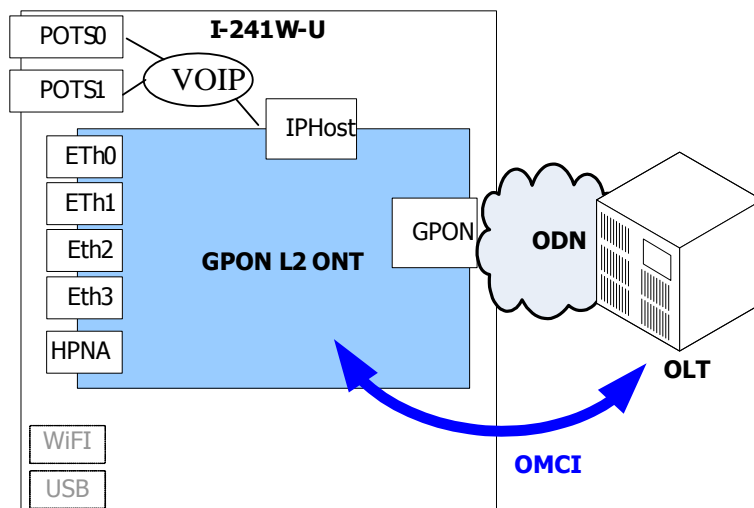


Figure 1

I-241W-U provides VOIP service and L2 bridging service including Multicast service. They are all controlled by OLT.

## 2.1 VoIP

The IP Host interface is dedicated for VOIP service. Single VLAN id could be assigned but different p-bits/DSCP could be assigned for SIP control packets and VOIP data.

ALU's SIP protocol is ported for I-241W-U. VOIP related parameters could be configured through OMCI protocol and downloading VOIP XML file to I-241W-U.

## 2.2 L2

VLAN tagging, VLAN/p-bit transparent and VLAN/p-bit translation are all supported in each Ethernet port and following OLT VLAN modes could be supported.

- C-VLAN cross-connect
- S+C-VLAN cross-connect
- S-VLAN tunnel cross-connect
- C-VLAN residential-bridge

## 2.3 Multicast

IGMP snooping is supported and 64 multicast groups.

## 3 Pure RG model release

With RG model release, it will report to OLT that it contains one VEIP slot with single port and one POTS slot with 2 ports as Figure 2 shown.

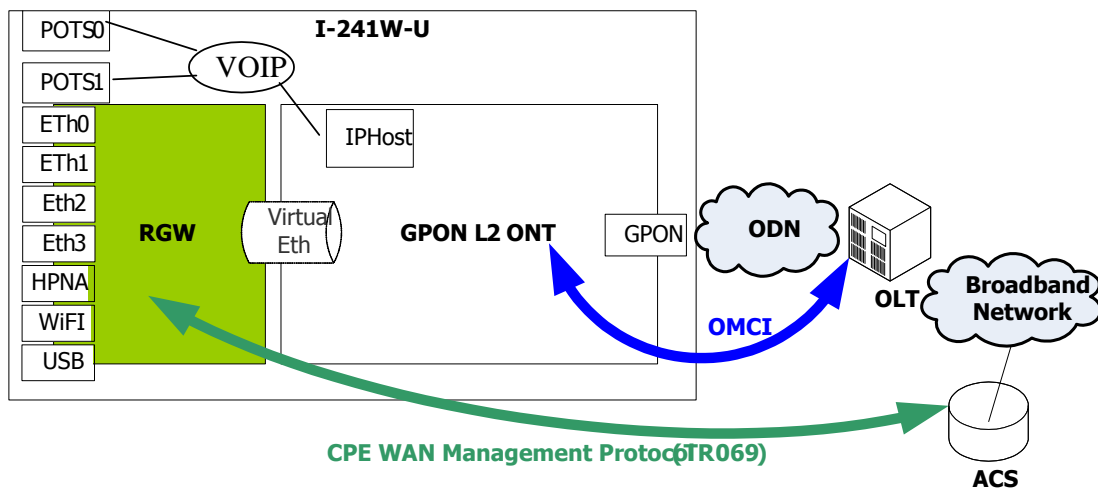


Figure 2

I-241W-U provides VOIP service and L3 routing service including Multicast service. In current release, VOIP service is still controlled by OMCI not TR-069. Besides

VOIP service, OLT only configures L2/Multicast information for VEIP interface and leaves routing service to ACS's business.

### 3.1 VoIP

The same as pure ONT release. Please see section 2.1.

### 3.2 VEIP

The OLT must configure all the VLAN/p-bit used by different services: HSI, IPTV, Management and VOIP. (The VOIP interface is reserved for future ACS-controlled VOIP service. In currently release, it is not supported yet.). Also, the Multicast channel VLAN used for IPTV service. It should treat the virtual Ethernet interface just like an Ethernet Port to allow the traffic coming RGW could pass OLT correctly.

After OLT has well configured the L2 path for VEIP interface, the RG service could be controlled by remote ACS via TR069 protocol.

Before ACS could reach I-241W-U, one WAN connection used to connect to ACS server and ACS server information must be configured first in I-241W-U to make sure I-241W-U could communicate with remote ACS and it could be configured by local management interface: Web and TR-064.

### 3.3 RG interfaces

Basically, the embedded RG in I-241W-U provides up to two LAN interfaces and up to 4 WAN connections in WAN side and it is shown in following figure.

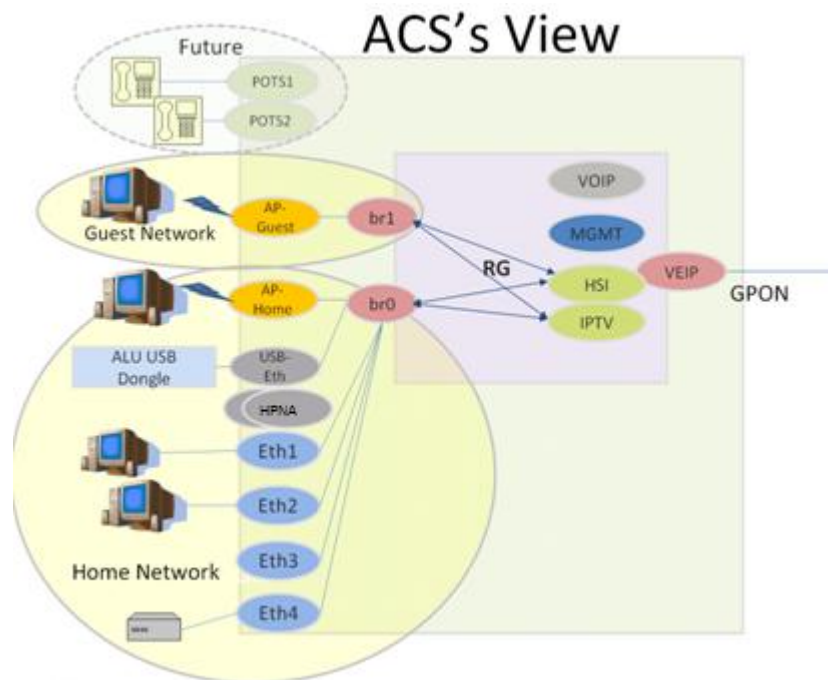


Figure 3

### **3.3.1 WAN interface**

In WAN side, up to 4 WAN connections for following services are supported.

- HIS: Internet service
- IPTV: VoD and Multicast service
- Management: remote management of TR-069 (ACS server)
- VOIP: ACS controlled VOIP service. (Currently, it's not supported yet)

Only HSI and IPTV interfaces used for routing service for LAN devices. Traffic of other interfaces is terminated in I-241W-U. IPoE and PPPoE could be configured for each interface, except IPTV interface does not support PPPoE mode.

Addressing of each interface is individual. Different IP address, gateway and DNS servers could be retrieved by each interface and used for respective service. Since both HSI interface and IPTV interface provide routing service for LAN users, either the gateway of HSI interface or that of IPTV interface must be selected to be the default gateway for routing traffic and both DNS servers of two interfaces must be used for DNS queries coming from LAN side.

Only HSI interface supports IPv6.

### **3.3.2 LAN interface**

There is a main interface (called home network interface) used for home network including 4 Ethernet ports, Dual-band Wi-Fi APs, HomePNA and 2 USB ports. I-241W-U provides an extra LAN interface (called guest network interface) for Wi-Fi guest, there is only one Wi-Fi AP of this extra LAN interface. I-241W-U forbids the traffic between two LAN interfaces, so the packets can not be forwarded between home network interfaces and guest network interfaces.

#### **3.3.2.1 LAN interface for Home Network (Home Network Interface)**

All interfaces (4 Ethernet ports, 2 Wi-Fi APs, HomePNA, 2 USB ports ) are bridged. The user belonging to home network could reach each other and also use HSI/IPTV service.

The Web/TR-064 could be used to manage I-241W-U from LAN side. I-241W-U also supports UPnP IGD and DLNA service.

IPv6 is supported for home network also.

#### **3.3.2.2 LAN interface for Wi-Fi Guest Network (Guest Network Interfaces)**

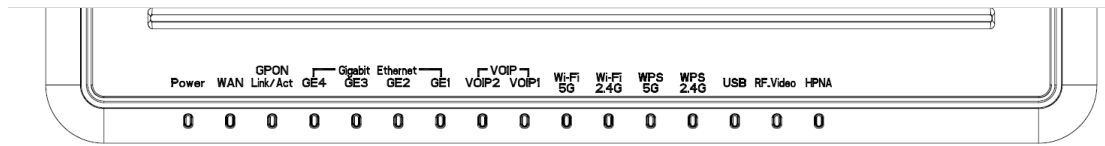
In order to provide Dual-band Wi-Fi guest network for visitors and protect home network security, an extra LAN interface is provided and two Wi-Fi APs are attached

to these 2.4G and 5G interface. Visitors can access HSI/IPTV service just like home network by Wi-Fi, but they are forbidden to access I-241W-U management interface. UPnP IGD and DLNA service are not supported for Wi-Fi guest network.

### **3.4 Multicast service**

IGMP snooping is supported for home network interface and IGMP proxy is supported in WAN IPTV interface. I-241W-U does not support multicast service on guest network interface.

## I-241W-U LED



### Power

[Green Solid]

Power on

[Green Off]

Power off

### WAN: only for HSI interface

[Green Solid]

IP connected (the device has a WAN IP address from IPCP/DHCP/Static and Broadband link is up) and no traffic detected. If the IP or PPPoE session is dropped due to an idle timeout, the light will remain green if PON link is still present. If the session is dropped for any other reason, the light is turned off. The light will turn red when it attempts to reconnect and DHCP or PPPoE fails.

[Green and Red Off]

Broadband physical connection power off, device in bridged mode with no IP address assigned to the device, or Broadband physical interface connection not present

[Green Flash]

IP connected and IP Traffic is passing thru the device (either direction)

[Red]

Device attempted to become IP connected and failed (no 802.1x, DHCP, PPPoE, PPPoA response or authentication failure, etc.)

### GPON

[Red Solid]

No PON detected, (O1)

[Red Flash]

PON connected, but not ranged (O2, O3)

[Green Solid]

Registered and in service (O5)

[Orange Flash]



PON connected and ranged, and accepting new provisioning (O5 + OMCI traffic)

[Orange Solid]

PON registered, but out of service (O6, O7)

#### **GE 1-4**

[Green Solid]

Link up

[Green Off]

Link down

[Green Flash]

Activity

#### **HomePNA**

[Green Solid]

Link up

[Green Off]

Link down

[Green Flash]

Activity

#### **VoIP 1-2**

##### **Mode A: without registration status**

[Green Solid]

Off-hook

[Green Off]

On-hook

##### **Mode B: with registration status**

[Green Solid]

Registered and On-hook

[Green Off]

Unregistered

[Green Flash]

Registered and Off-hook

#### **Wi-Fi – 2.4G / 5G**

[Green Solid]

WLAN link up

[Green Off]

WLAN is down or no link connected

[Green Flash]

WLAN activity

### **WPS 2.4G / 5G**

[Green Solid]

"In Progress" and "Success" status

[Red Solid]

"Error" and "Session Overlap" status

### **USB**

[Green Solid]

At least one device which is not a USB hub connected to the USB port

[Green Off]

No device which is not a USB hub connected to the USB port

[Green Flash]

Activity

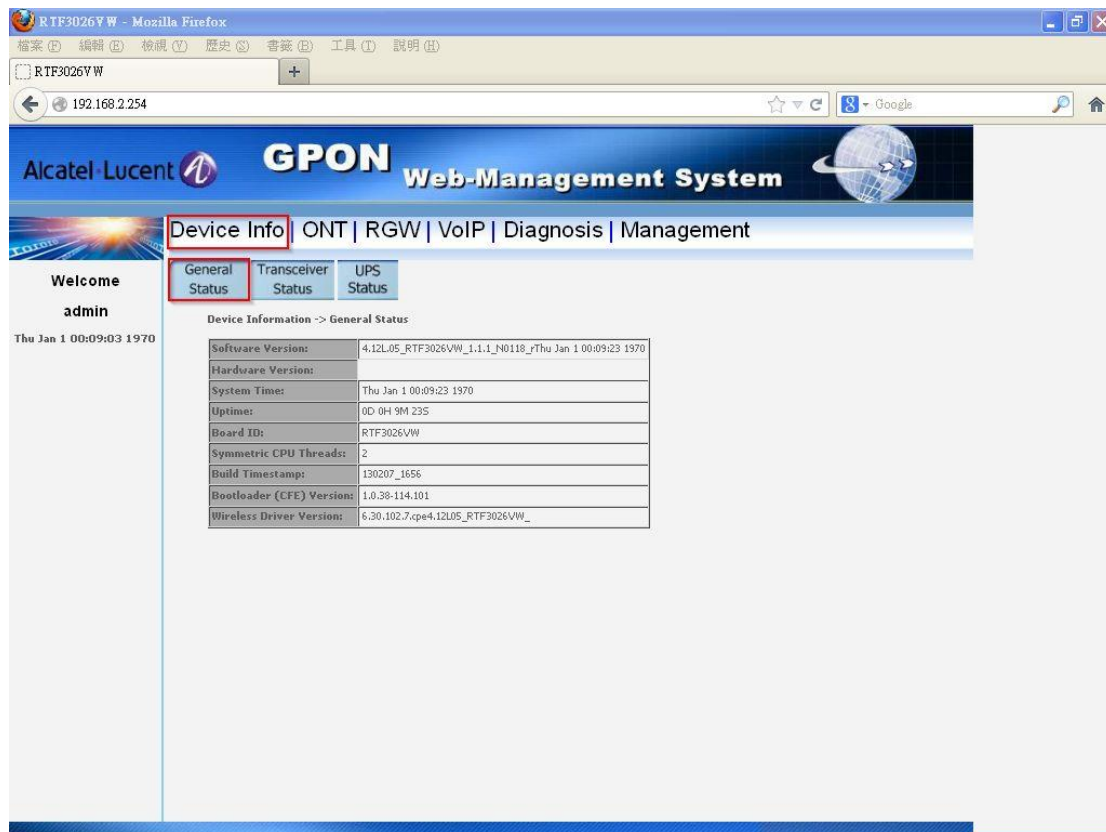
## Web interface

### 4 Introduction

The I-241W-U supports the remote management with web browser (IE, Firefox, chrome... etc).

#### 4.1 Supported Device Info

##### 4.1.1 General Status



The screenshot shows a web browser window displaying the Alcatel-Lucent GPON Web-Management System. The browser address bar shows the URL 192.168.2.254. The page title is "Alcatel-Lucent GPON Web-Management System". The main navigation menu includes "Device Info", "ONT", "RGW", "VoIP", "Diagnosis", and "Management". The "Device Info" menu is expanded, showing "General Status", "Transceiver Status", and "UPS Status". The "General Status" page is active, displaying "Device Information -> General Status". A table provides the following information:

Software Version:	4.12L05_RTF3026VW_1.1.1_N0118_7Thu Jan 1 00:09:23 1970
Hardware Version:	
System Time:	Thu Jan 1 00:09:23 1970
Uptime:	0D 0H 9M 23S
Board ID:	RTF3026VW
Symmetric CPU Threads:	2
Build Timestamp:	130207_1656
Bootloader (CFE) Version:	1.0.38-114.101
Wireless Driver Version:	6.30.102.7.cpe4.12L05_RTF3026VW_

Figure 1

##### 4.2 Transceiver Status

In this page, you can see temperature, voltage and power.

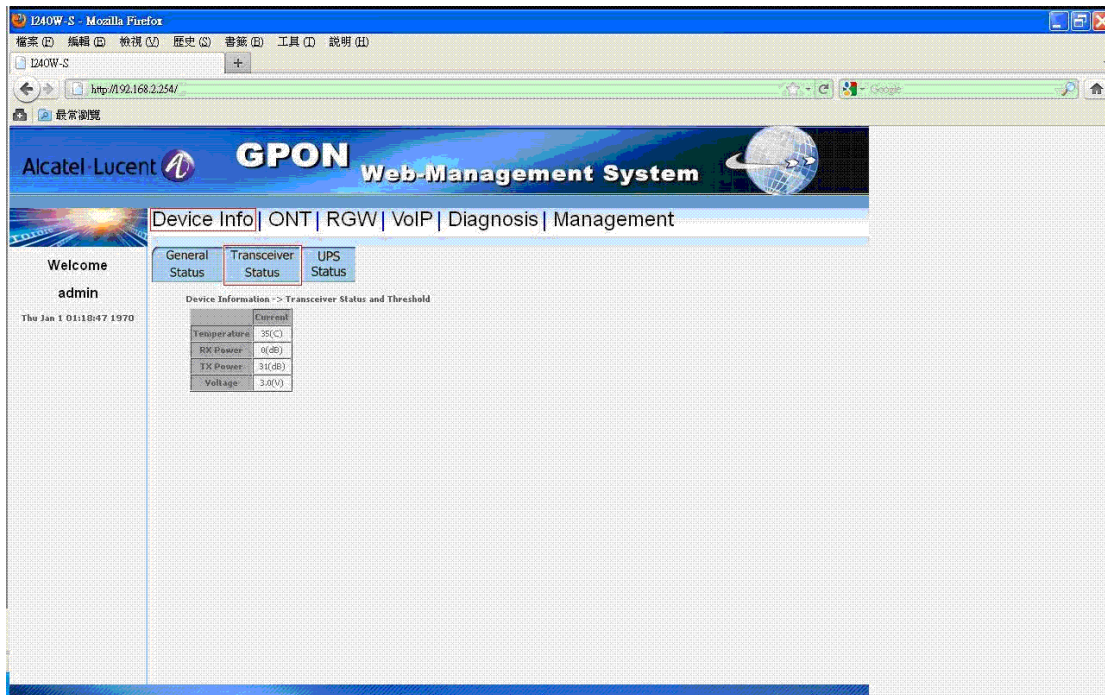


Figure 2

### 4.3 UPS status

In this page, you can see the status of UPS (Battery, Battery Miss, Battery Replace, Battery Low).



Figure 3

## 5 Supported ONT

### 5.1 GPON

In this page, you can modify password of GPON and see the status of GPON.



The screenshot displays the Alcatel-Lucent GPON Web-Management System interface. The main navigation bar includes 'Device Info', 'ONT', 'RGW', 'VoIP', 'Diagnosis', and 'Management'. The 'ONT' tab is selected, and the 'GPON' sub-tab is active. The interface shows the following configuration and status information:

**GPON Configuration:**

- Serial Number: ERSN000000F3
- Radio Button:  Password (ASCII) (selected),  Password (hex)
- Buttons: Apply/Save

**Status Section:**

ONT State	Mapping		Statistics		
	TC-DNT	GEM Port	GEM Port	TX GEM Blocks	RX GEM Blocks
Operation (OS)	265	274	2047	0	394277
	265	275	274	0	0
	265	276	2046	0	15584
	265	277	275	0	0
	265	313	276	0	0
	265	314	277	0	0
			313	0	0
		314	0	0	

Buttons: Refresh

Figure 4

### 5.2 Multicasting

In this page, you can see the active group IP address in system.



Figure 5

### 5.3 IP Host

In this page, you can see the status of IP host (IP Address, Subnet Mask, Gateway, DNS Server, Mode, RX Statistic and TX Statistic).

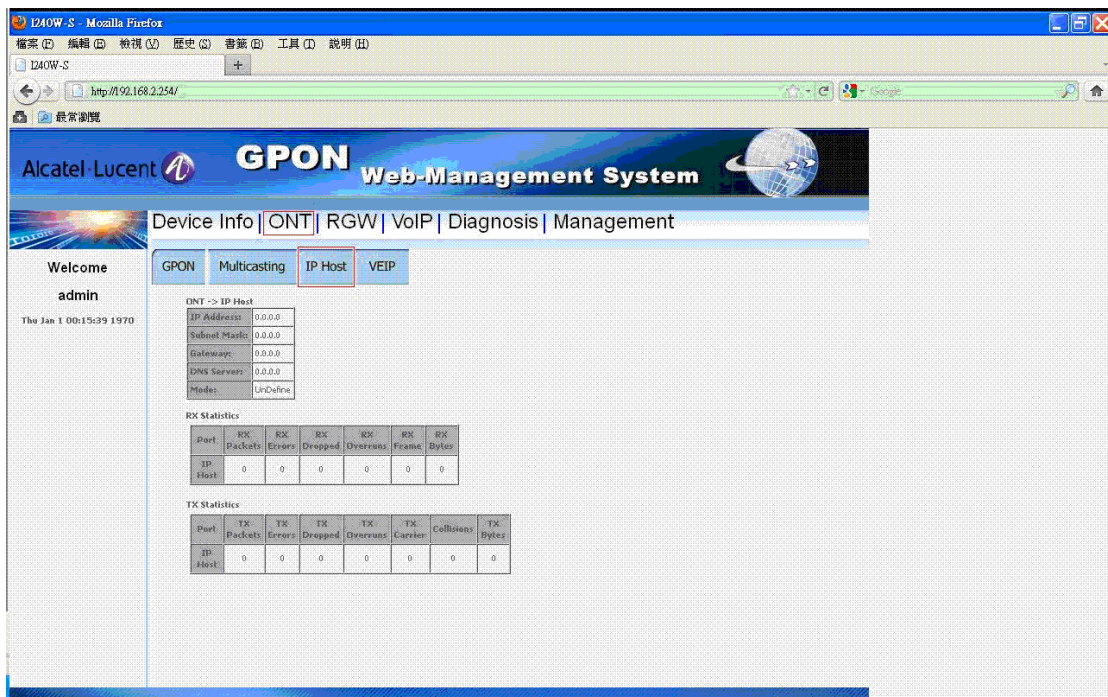


Figure 6

## 5.4 VEIP

In this page, you can see the statistic of VEIP.

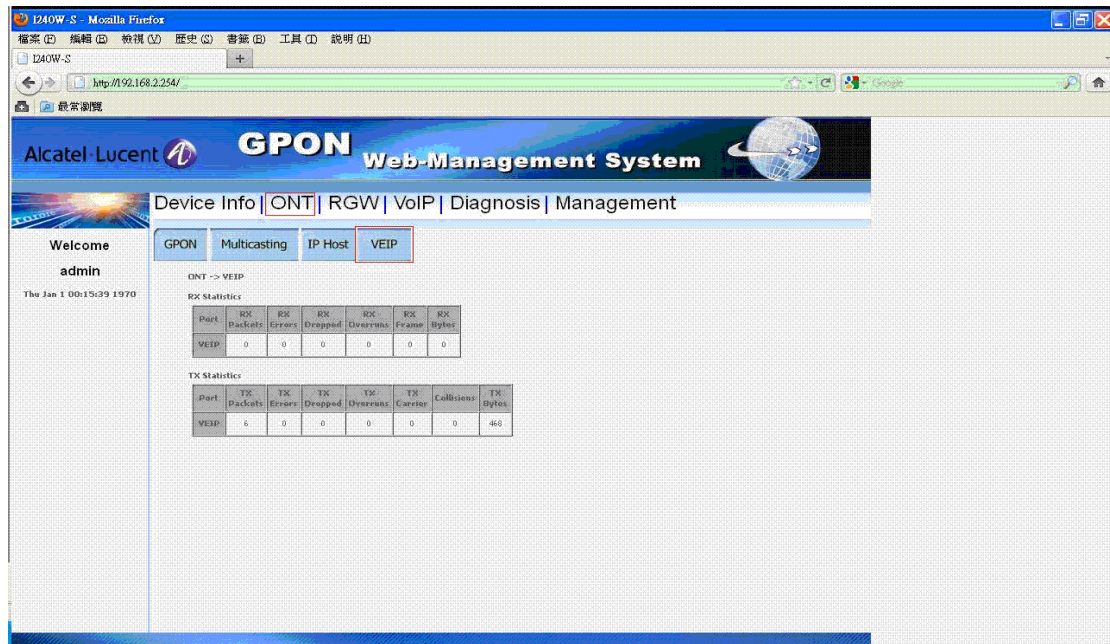


Figure 7

## 6 RGW

### 6.1 WAN

#### 6.1.1 IPv4

In this page, you can add or remove wan connection.



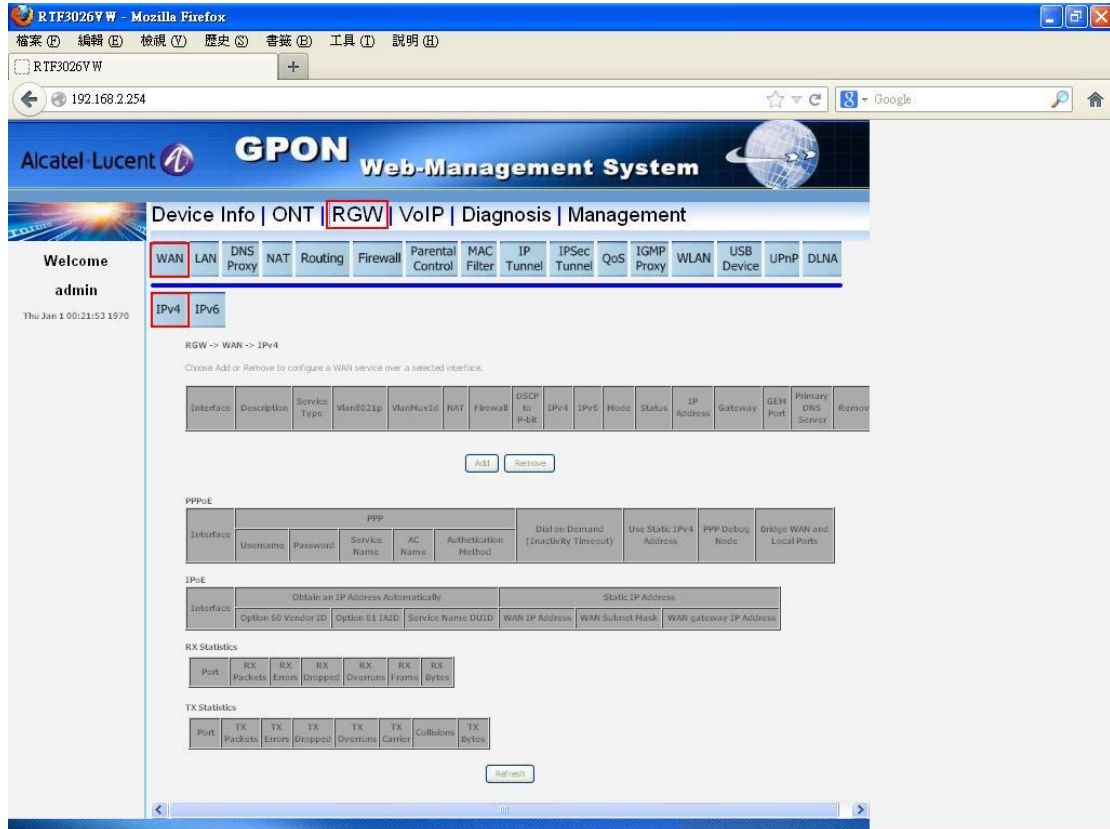


Figure 8-0-1

### 6.1.1.1 Add WAN - PPPoE

Press "Add".



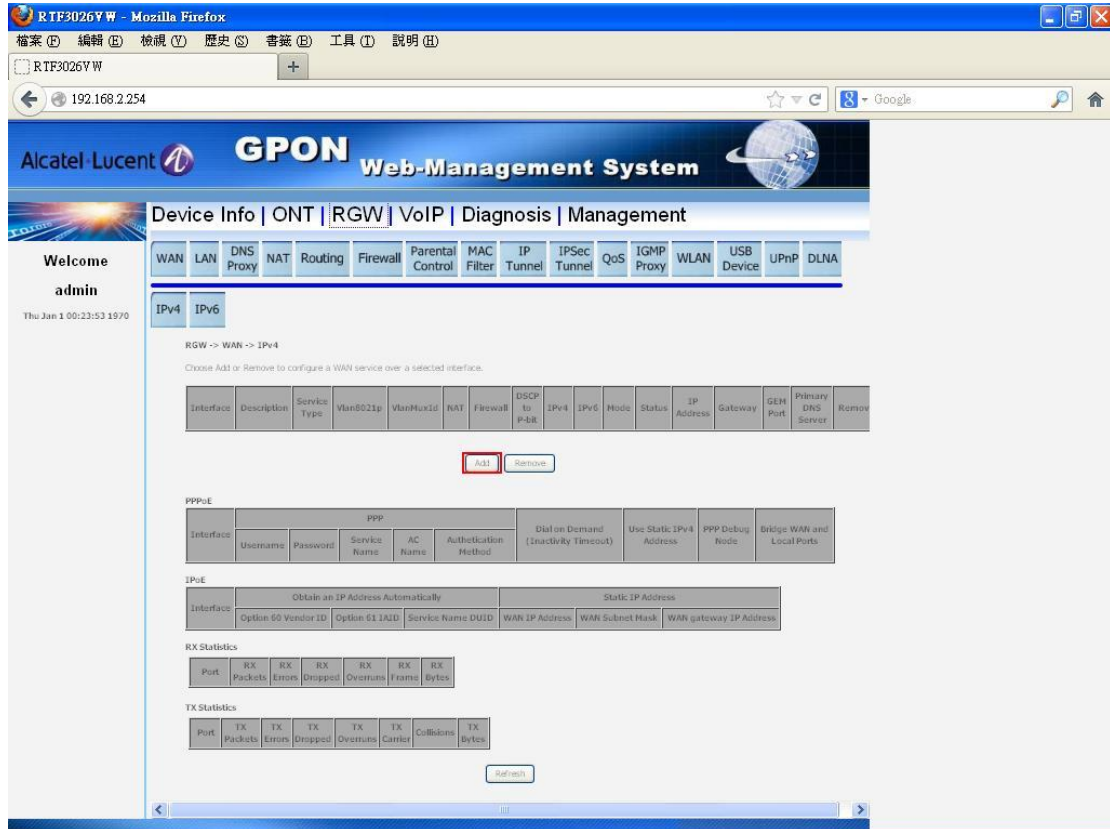


Figure 8-1-1

Select PPPoE and service type (multiple selections), setting service description, 802.1p, 802.1q, enable DSCP to P-bit, IPv6 (HSI only) and default gateway (HSI only), press “Next”.

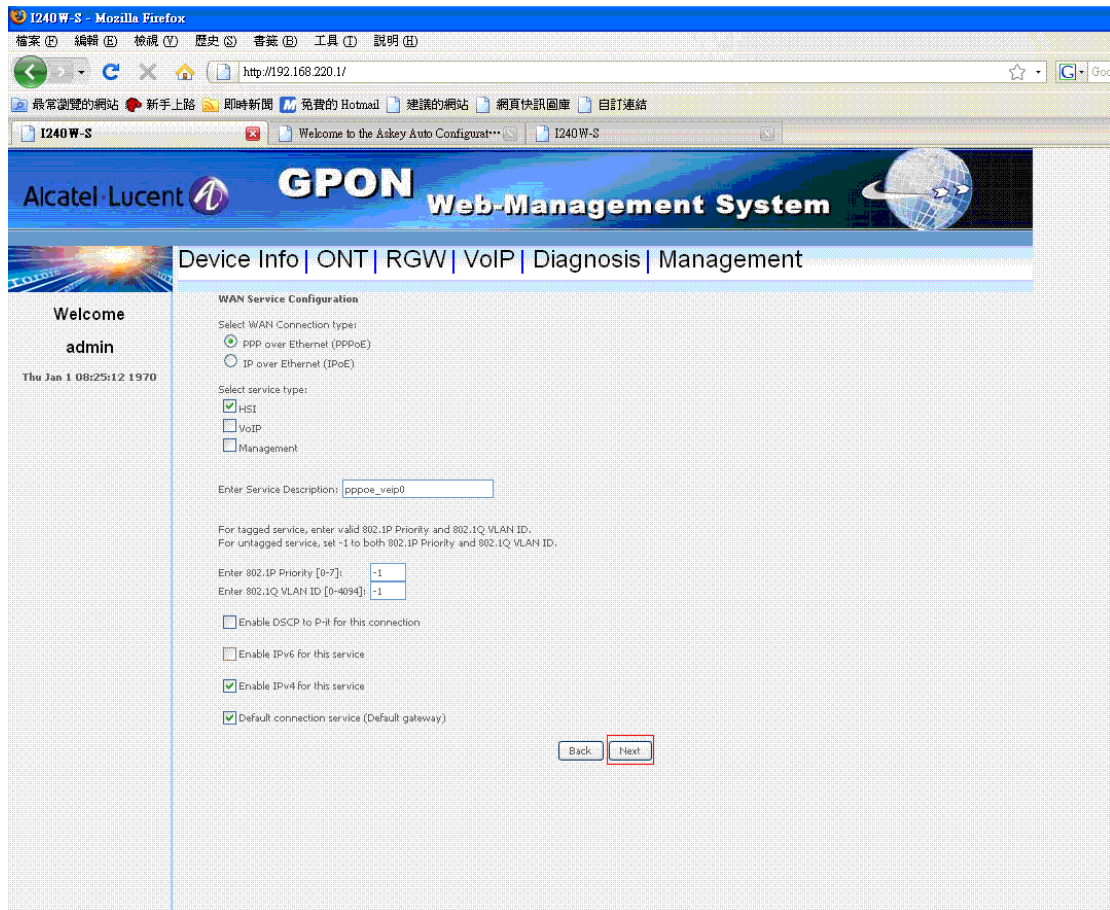


Figure 8-1-2

Setting PPPoE username, password, service name, AC name and authentication mode. Setting NAT (HIS only), firewall (HIS only), Dial on demand, Use Static IPv4 Address, Enable PPP Debug Mode, Bridge PPPoE Frames Between WAN and Local Ports, press “Next”.

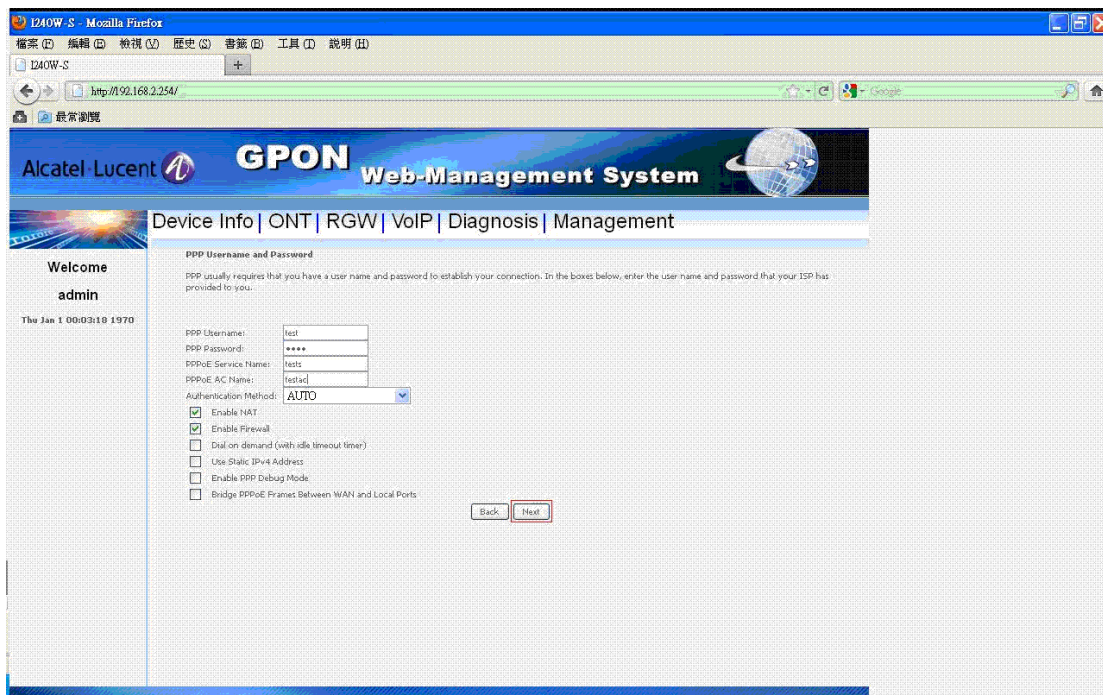


Figure 8-1-3

Setting DNS server, DNS overwrite, press “Next”.



Figure 8-1-4

Checking configuration, press “Apply/Save”.

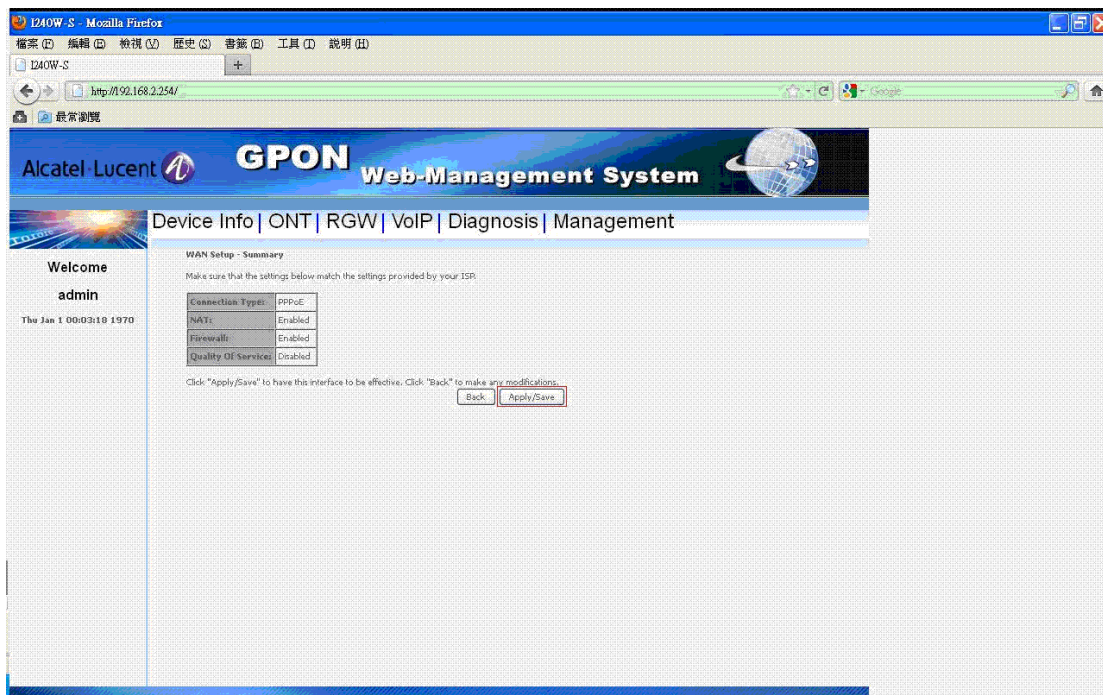


Figure 8-1-5

Add PPPoE connection complete!

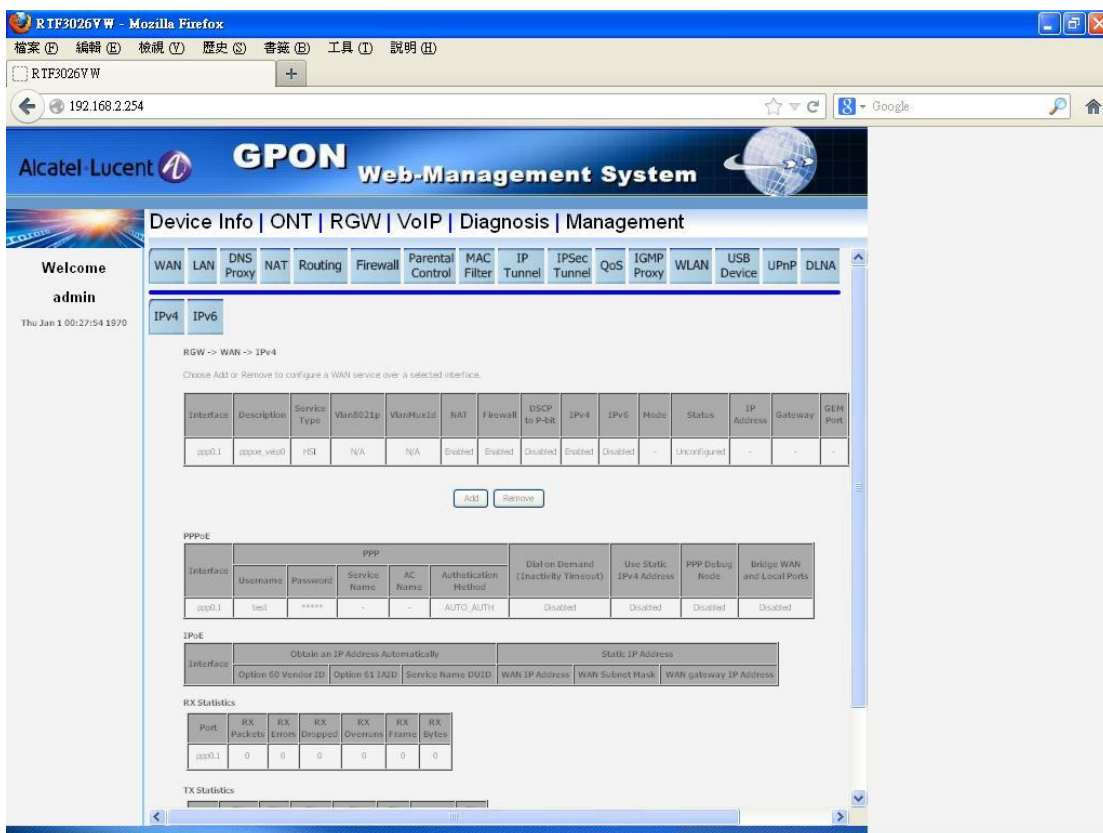


Figure 8-1-6

### 6.1.1.2 Add WAN (IPoE)

Press “Add”.

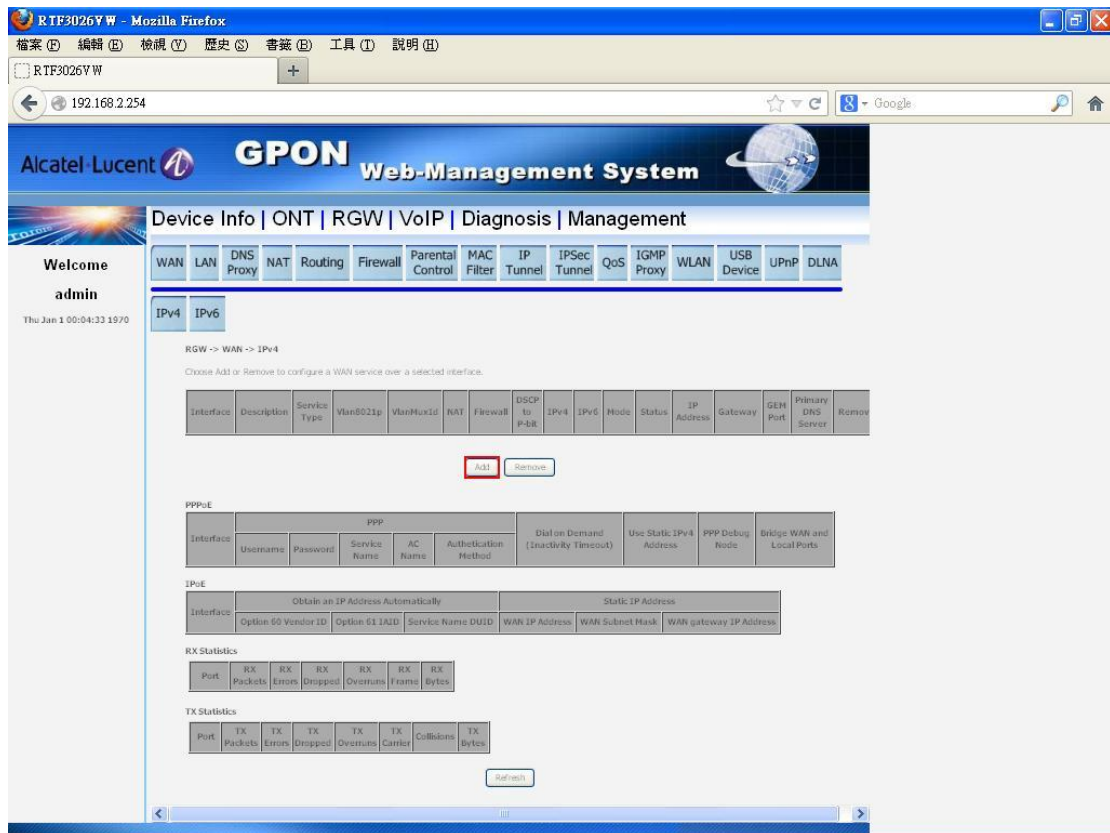


Figure 8-2-1

Select IPoE, service type (multiple selections), setting service description, 802.1p, 802.1q, enable DSCP to P-bit, IPv6 (HSI only) and default gateway (HIS or IPTV support), press “Next”.



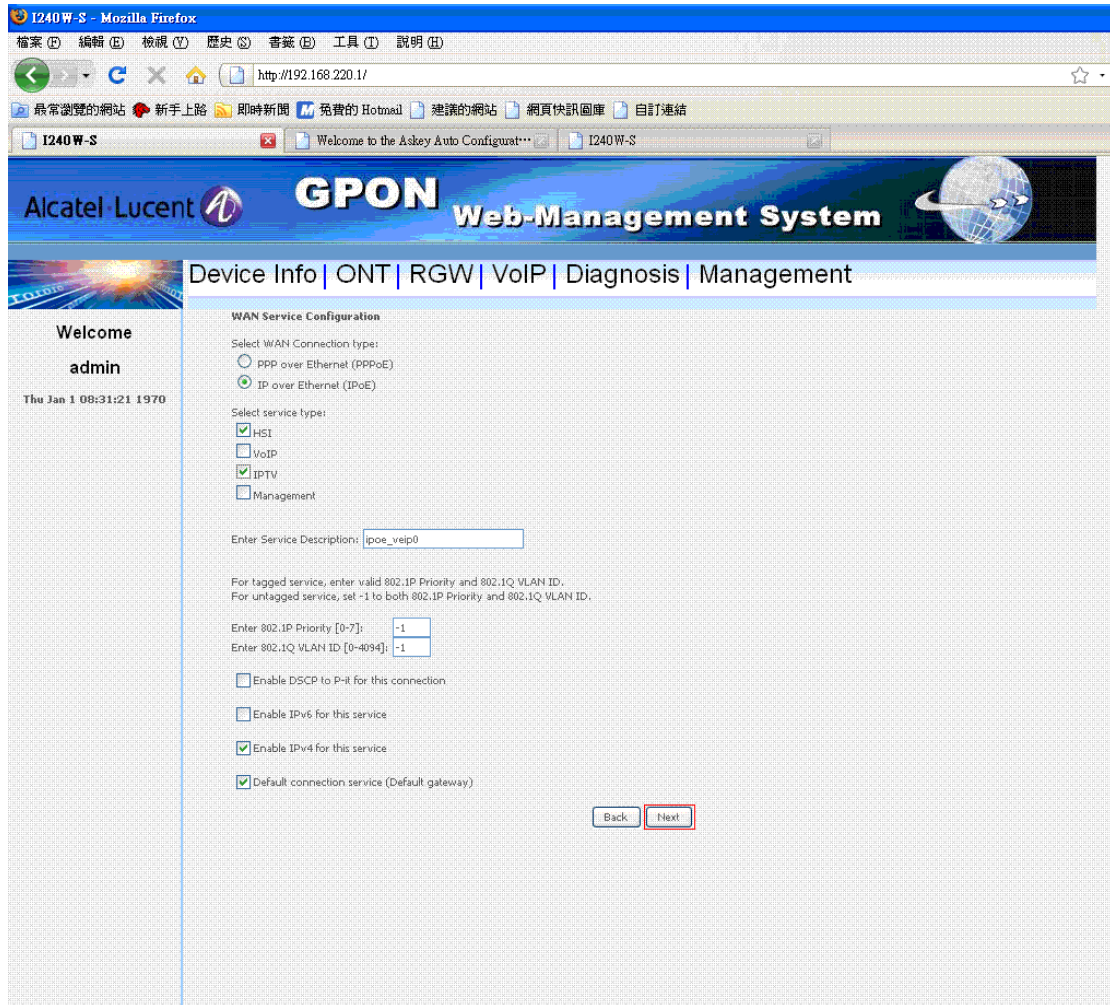


Figure 8-2-2

Select Obtain an IP address automatically, setting option60 and 125 or select Use the following Static IP address, setting WAN IP Address, WAN Subnet Mask and WAN gateway IP Address, press “Next”.

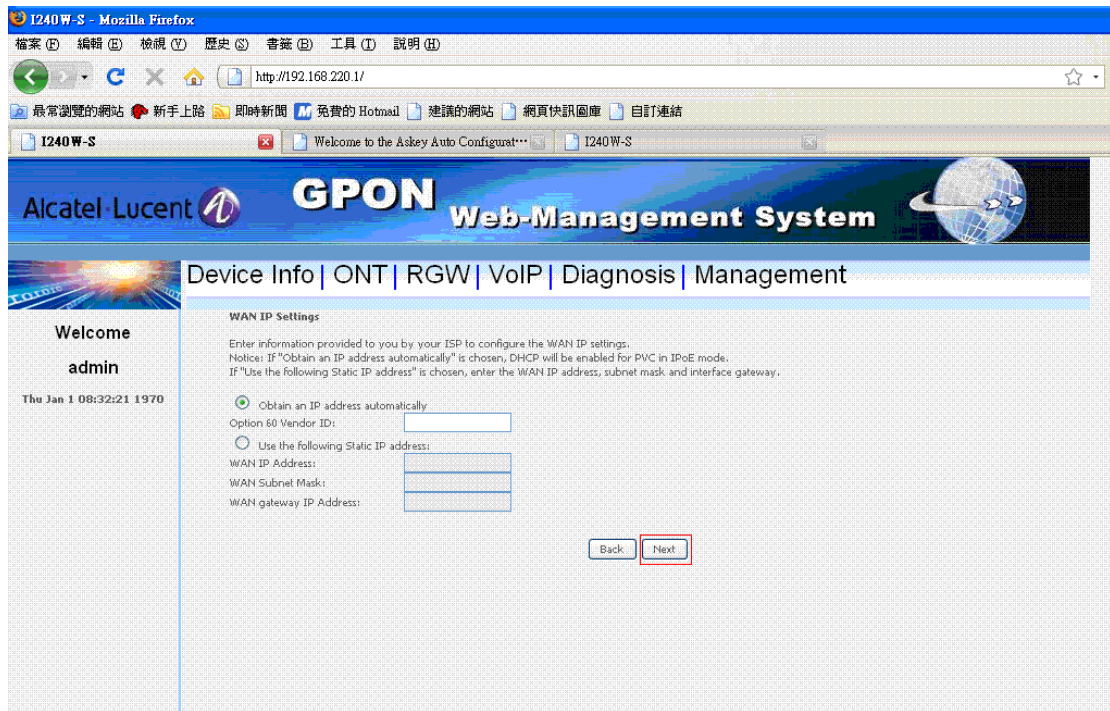


Figure 8-2-3

You can modify configuration of NAT or firewall if service type include HIS or IPTV, press “Next”.



Figure 8-2-4

Setting DNS server and DNS overwrite, press “Next”.



Figure 8-2-5

Checking configuration, press “Apply/Save”.

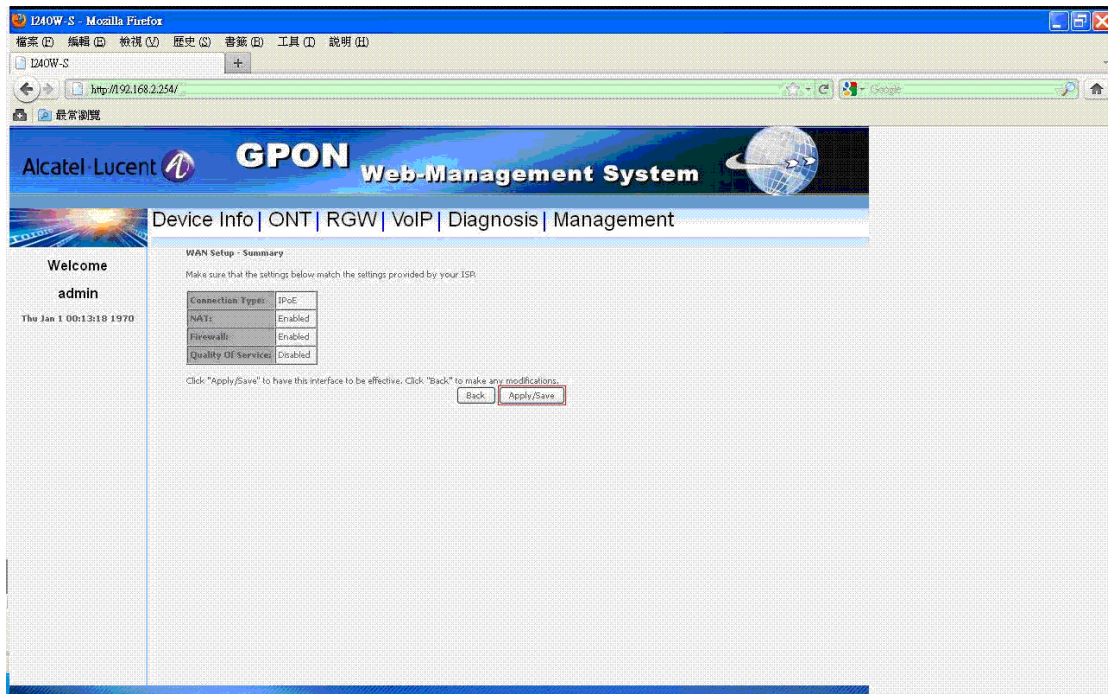


Figure 8-2-6

Add IPoE connection complete!



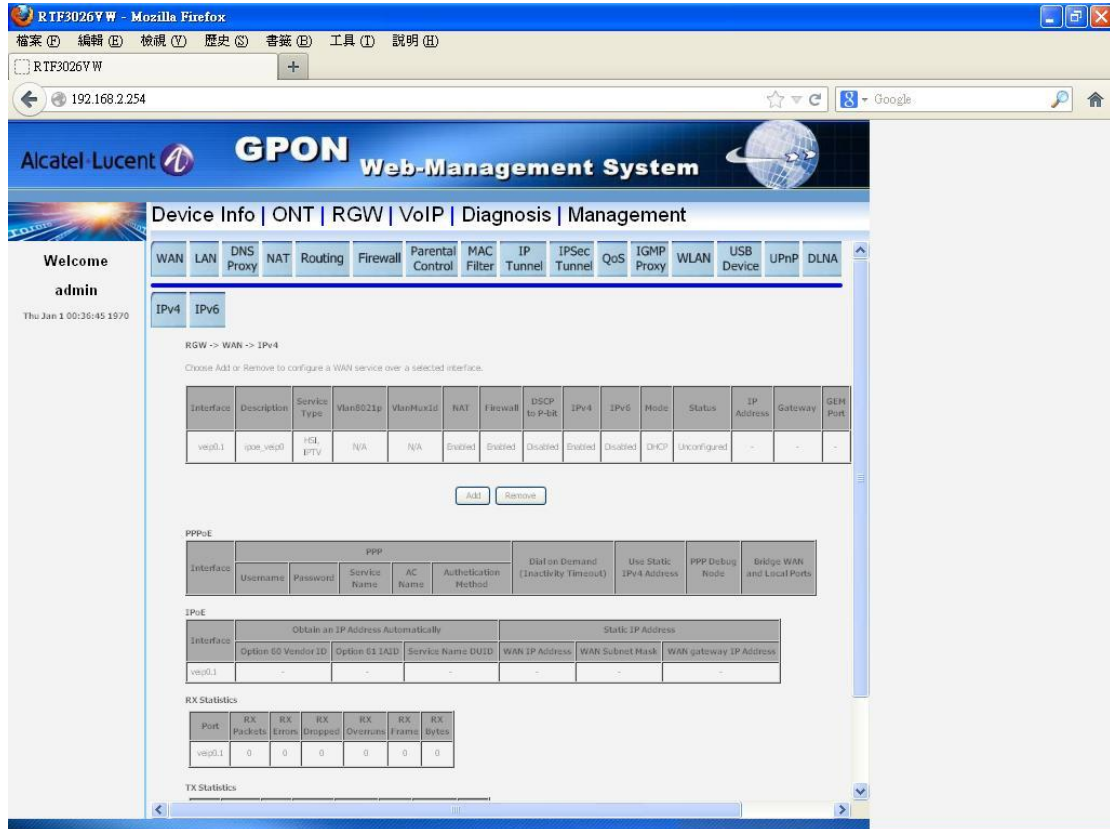


Figure 8-2-7

### 6.1.1.3 Remove WAN connection

Select the WAN connection which you want to remove. You can select more than one connections at a time, press “Remove”.

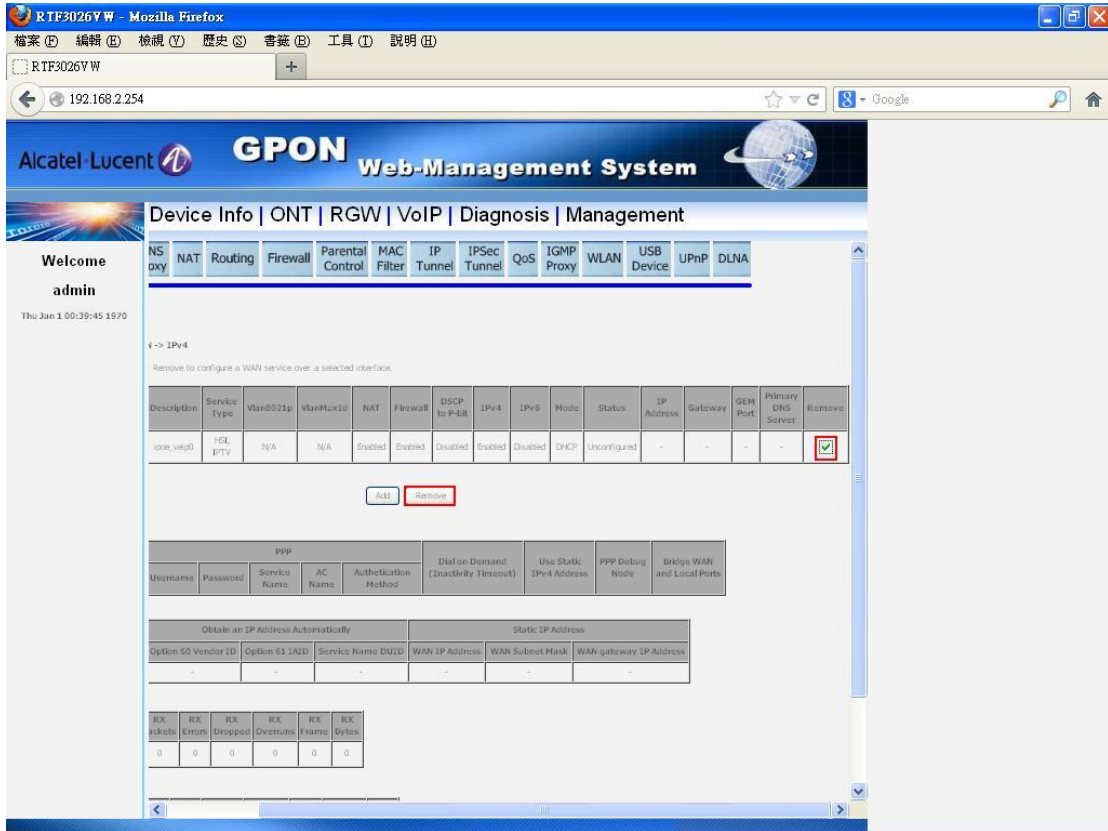


Figure 8-3-1

Remove WAN connection complete!

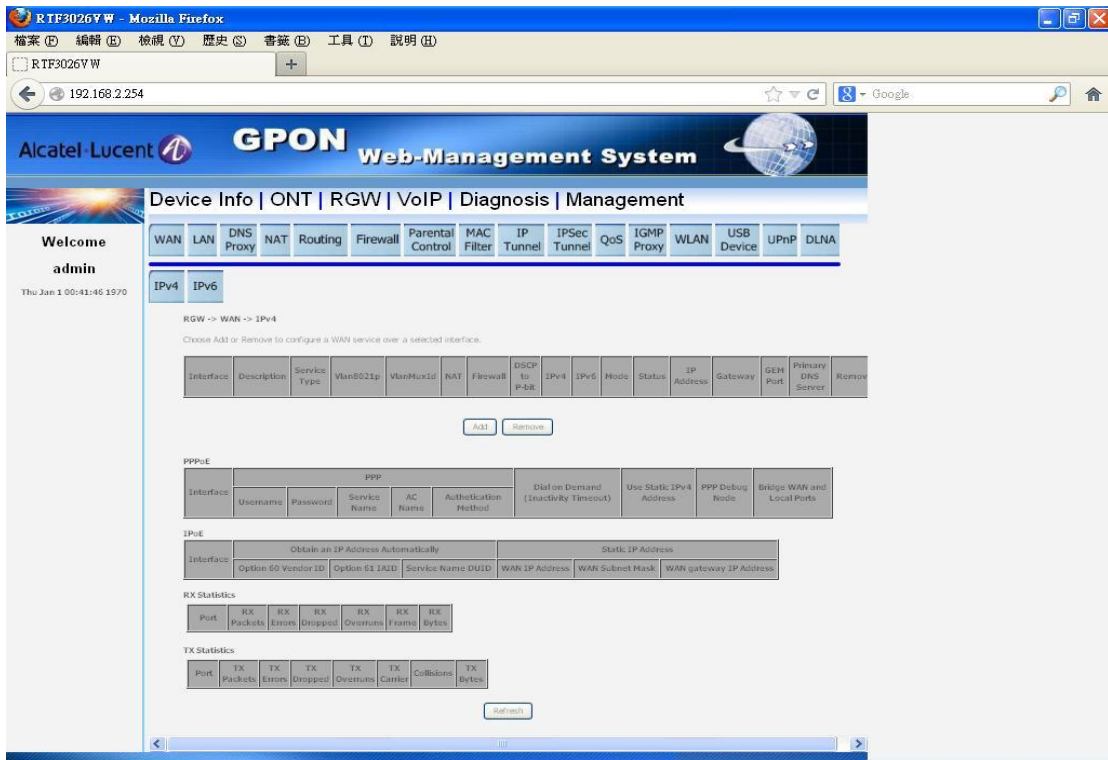


Figure 8-3-2

## 6.1.2 IPv6

This page show IPv6 related information of wan connection.

The screenshot shows the Alcatel-Lucent GPON Web-Management System interface. The browser address bar shows the IP address 192.168.2.254. The main navigation bar includes 'Device Info | ONT | RGW | VoIP | Diagnosis | Management'. Below this, there are tabs for 'WAN', 'LAN', 'DNS Proxy', 'NAT', 'Routing', 'Firewall', 'Parental Control', 'MAC Filter', 'IP Tunnel', 'IPSec Tunnel', 'QoS', 'IGMP Proxy', 'WLAN', 'USB Device', 'UPnP', and 'DLNA'. The 'WAN' tab is selected, and within it, the 'IPv6' sub-tab is active. The breadcrumb path is 'RGW -> WAN -> IPv6'. The main content area is titled 'WAN IPv6 Info' and contains a table with the following data:

Interface	Description	Connection Type	Service Type	VlanMuxId	IPv6	HLD	NAT	Firewall	Status	IPv4 Address	Status5	IPv6 Address	IPv4Enabled
ppp0.1	pppoe_vstp0.303	PPPoE	HSL	303	Enabled	Disabled	Enabled	Enabled	Connected	192.168.0.4	Connecting		Enabled
Unnumber	AddressType	DhcpSdForAddr	DefaultIPv6GW	IPv6DNSServers	IPv6PD	IPv6SitePrefix	IPv6SPPtime	IPv6SPVtime	IPv6SPpUp				
Disabled	DHCP	Disabled			Disabled		0	0	0				

Figure 8-4-1

## 6.2 LAN

### 6.2.1 Setting br0

Setting IP address, subnet mask, select DHCP client or DHCP server and setting IP range, press “Apply/Save”.

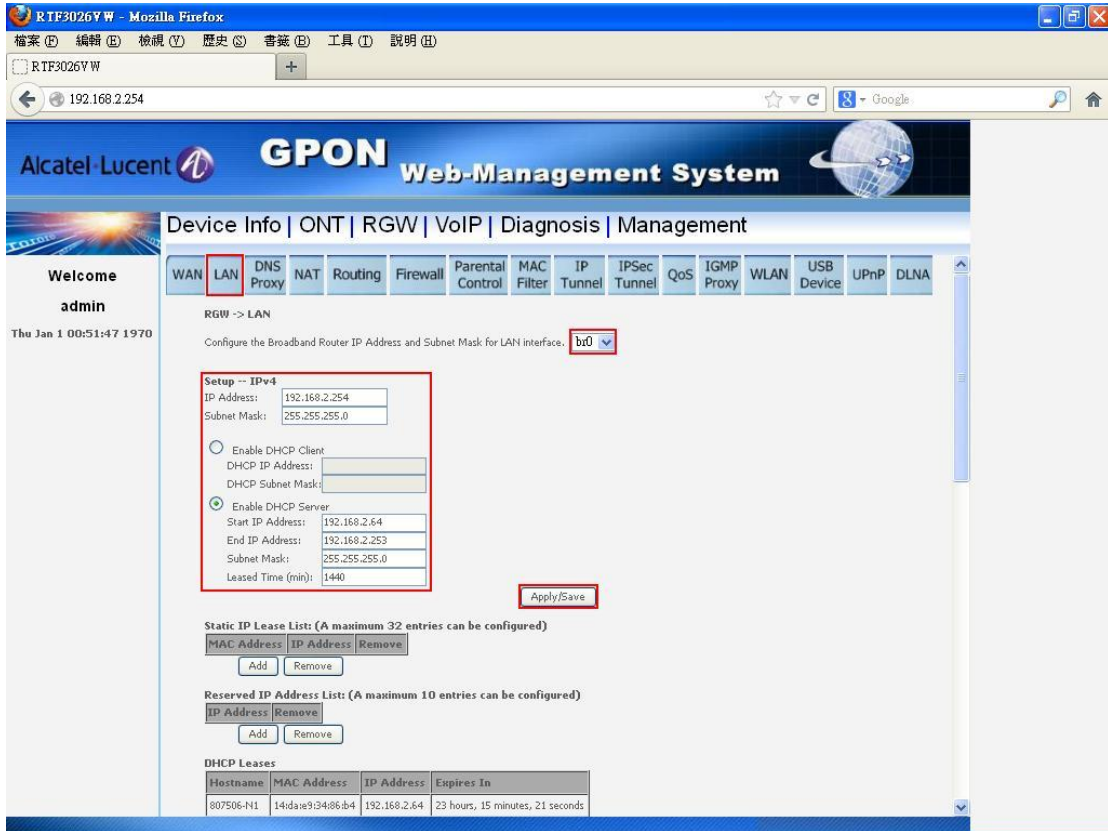


Figure 9-1-1

Add or remove Static IP Lease List and Reserved IP Address List.

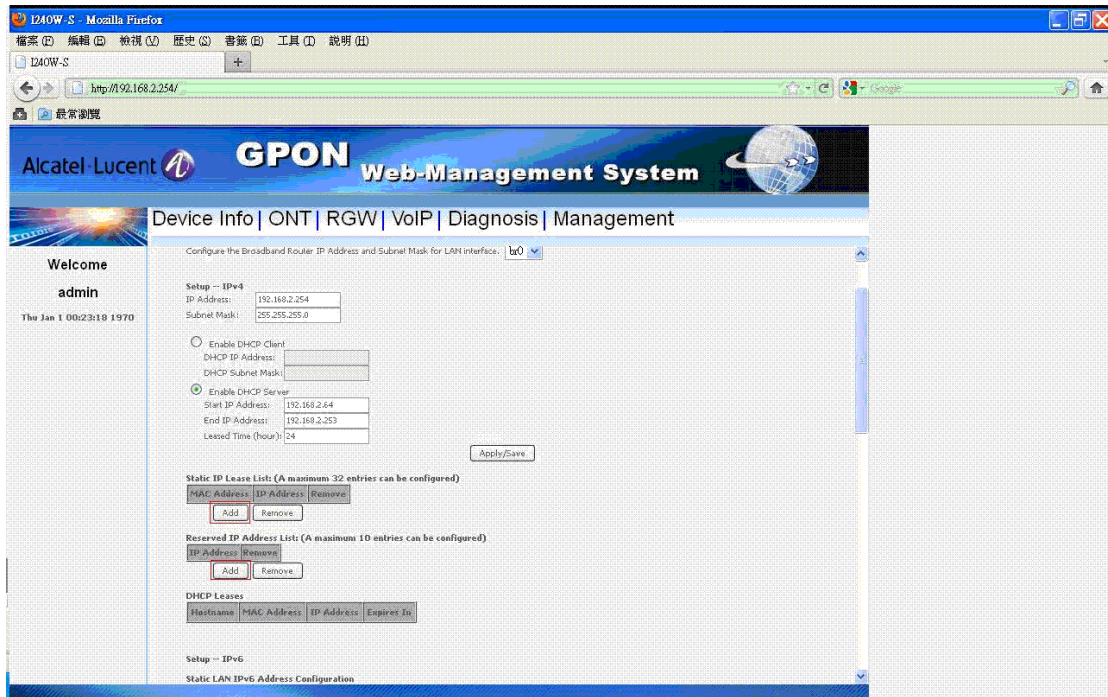


Figure 9-1-2

Setting parameters of IPv6.



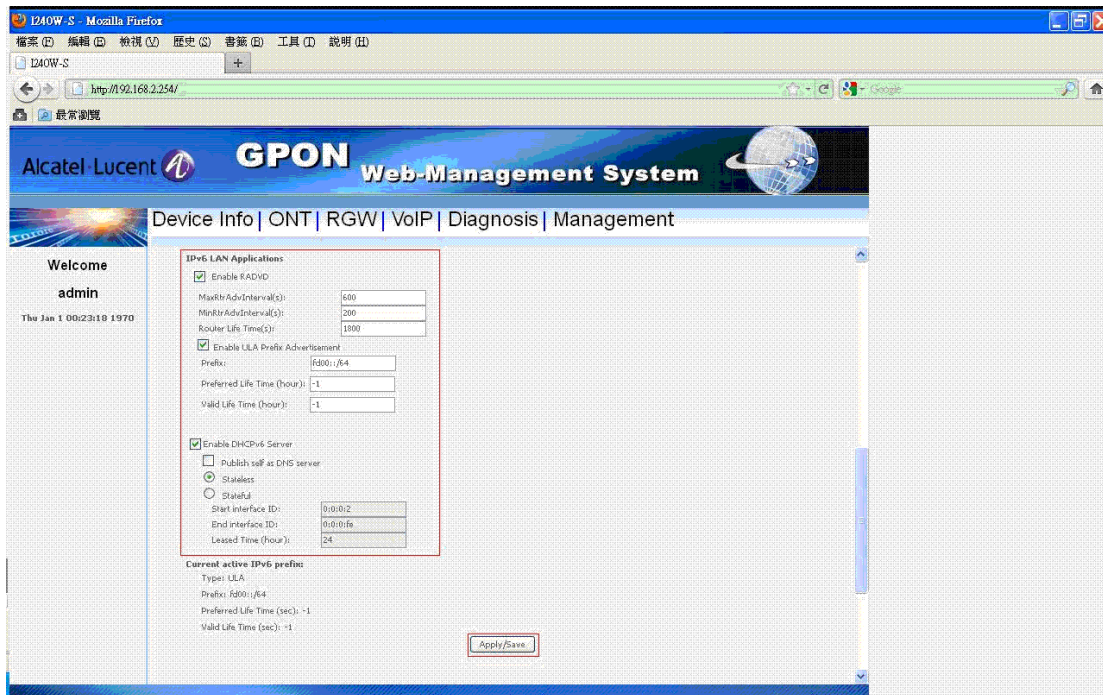


Figure 9-1-3

You can see the statistic of br0.

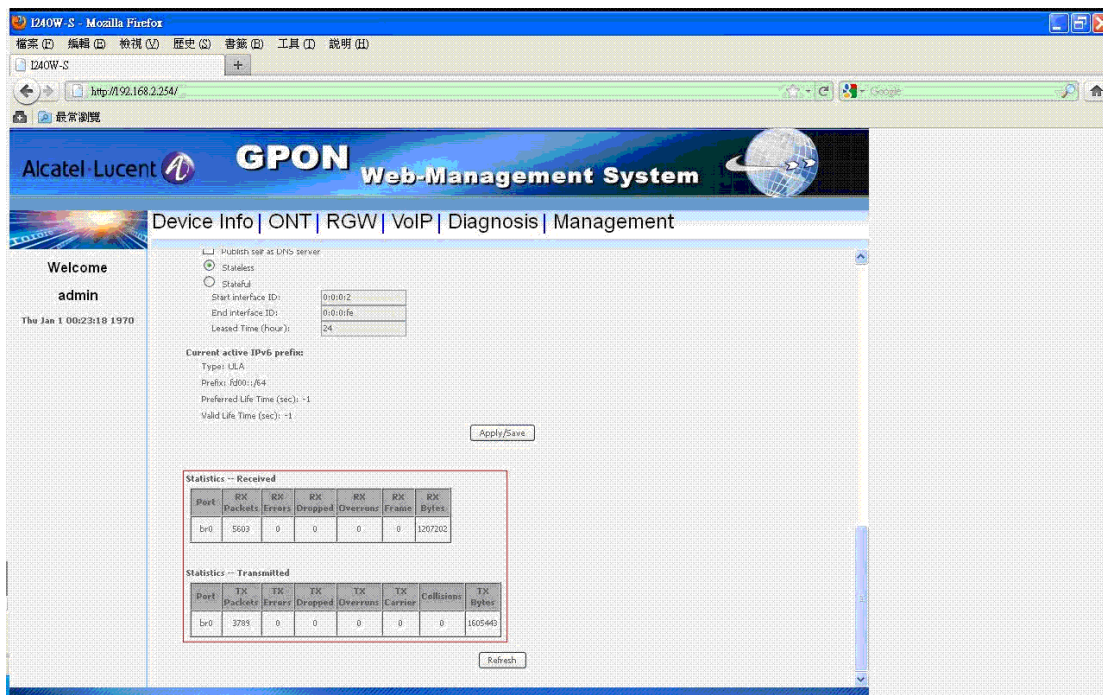


Figure 9-1-4

## 6.2.2 Setting br1 (not support IPv6)

Setting IP address, subnet mask, select DHCP client or DHCP server and setting IP range, press “Apply/Save”.

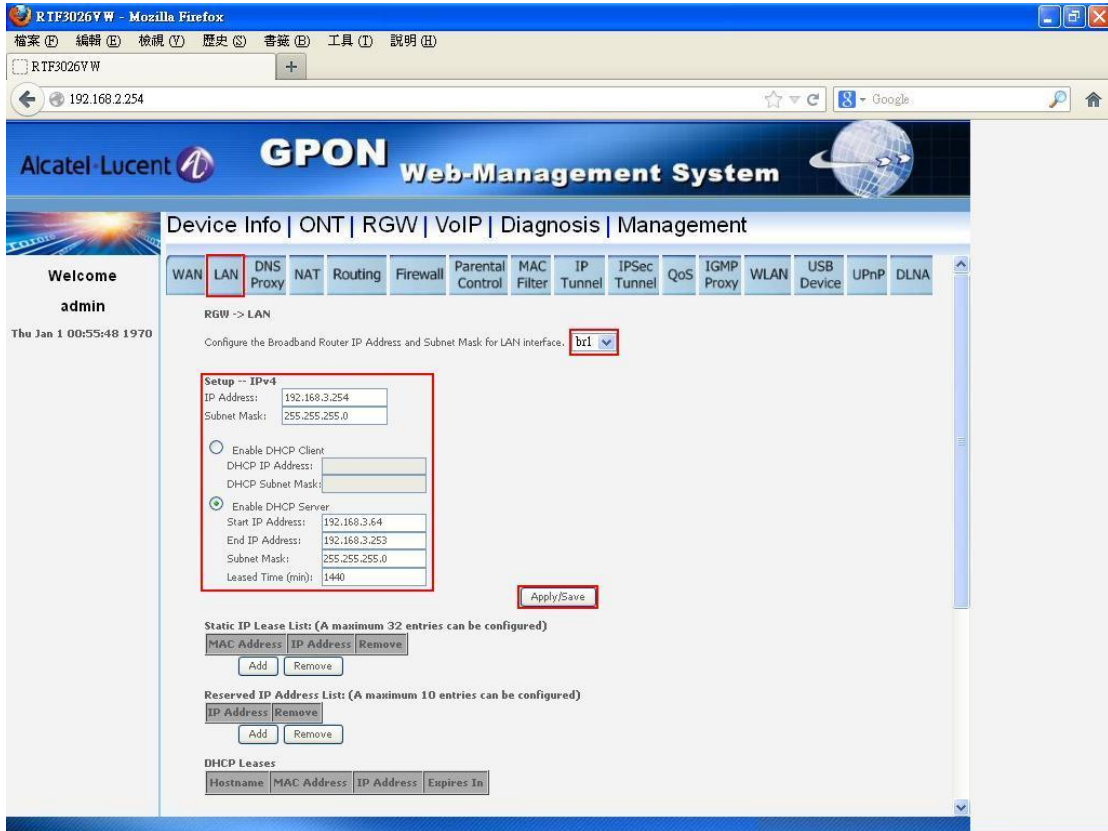


Figure 9-2-1

Add or remove Static IP Lease List and Reserved IP Address List.

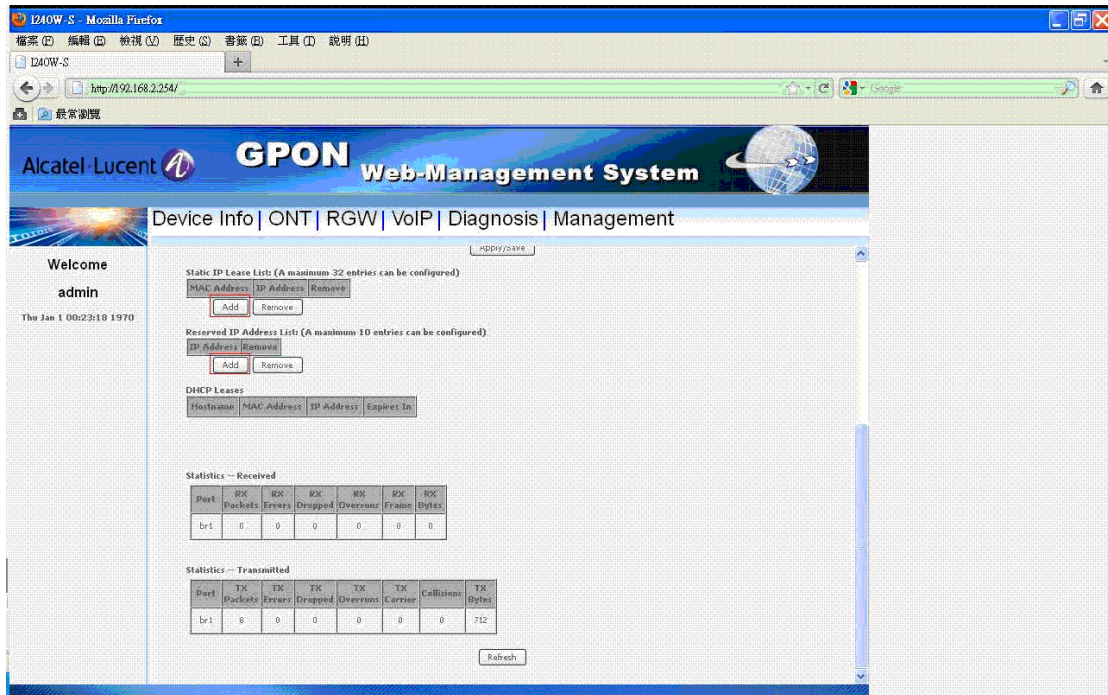


Figure 9-2-2

You can see the statistic of br1.

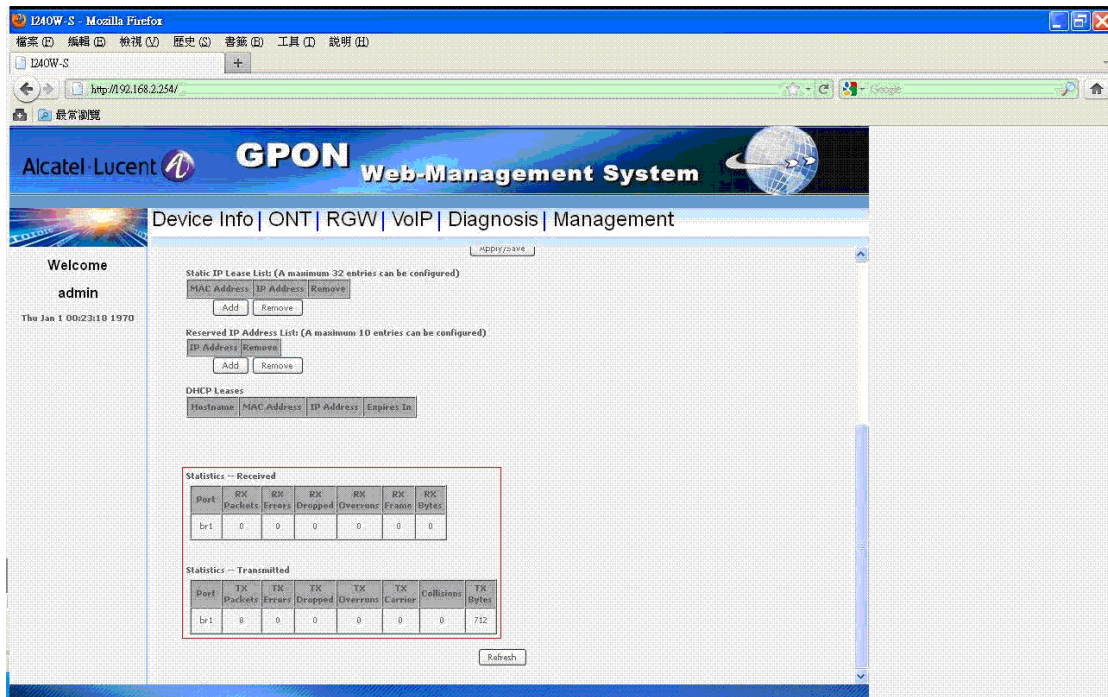


Figure 9-2-3

### 6.3 DNS Proxy

Setting Host name and Domain name, press “Apply/Save”.



Figure 10

### 6.4 NAT

You can set this page if there is at least one wan connection in system which enables NAT. You can set DMZ, press “Apply/Save”.



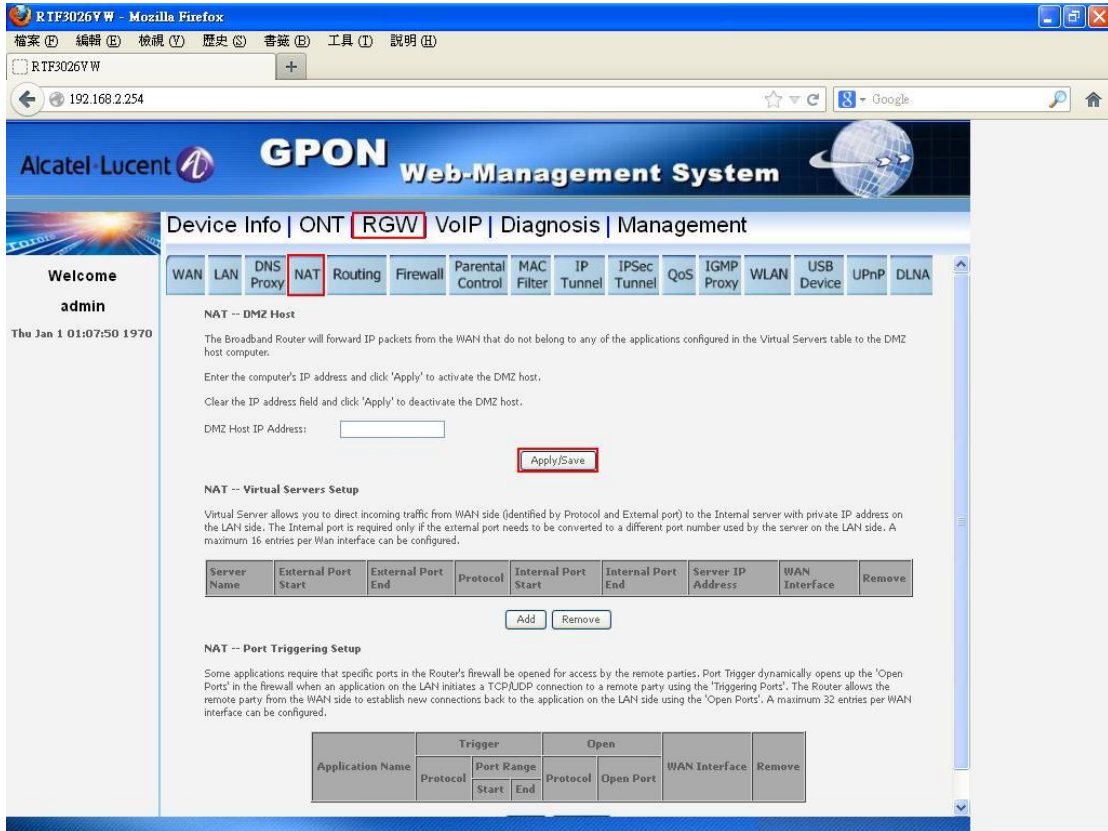


Figure 11-1

Add or remove Virtual Server and Port Triggering.

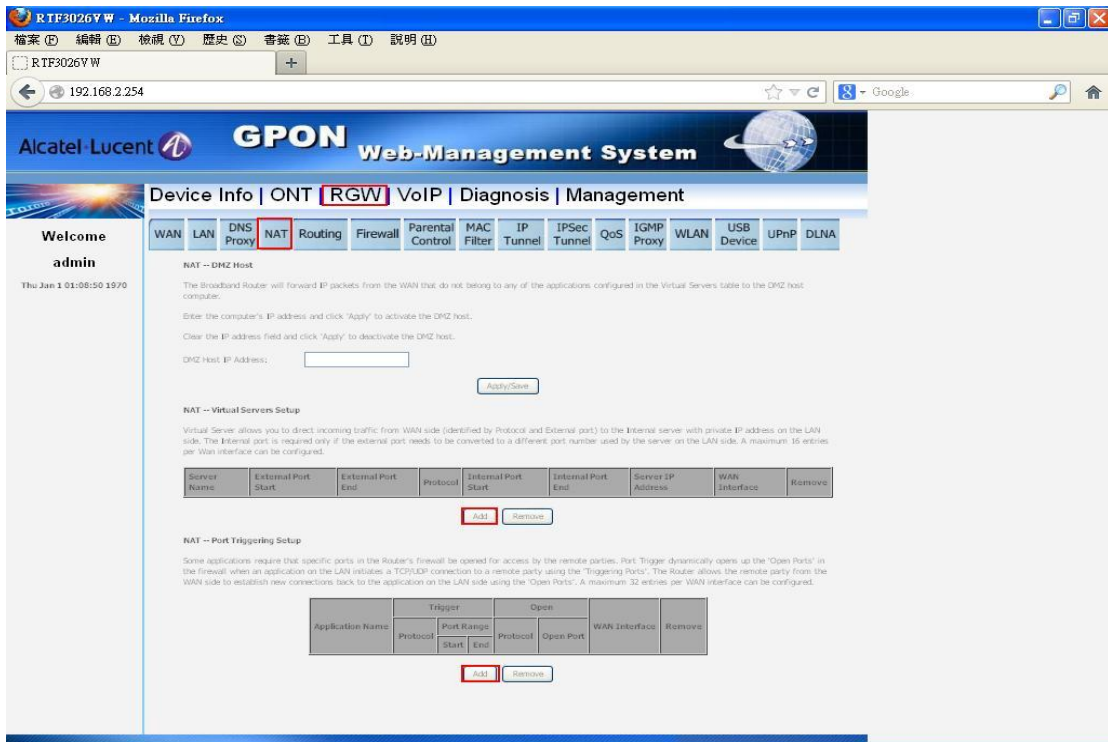


Figure 11-2



## 6.5 Routing

### 6.5.1 Default Gateway

You can select the interface to be default gateway if service type of this connection is HIS or IPTV.

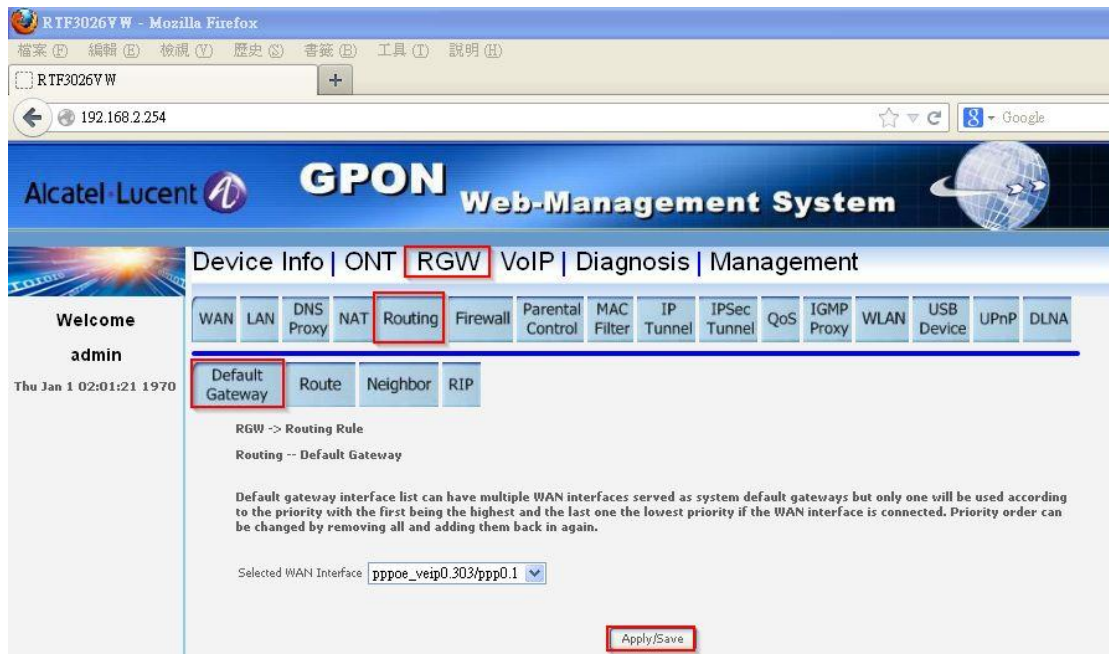


Figure 12

### 6.5.2 Route

In this page, you can add or remove static route.

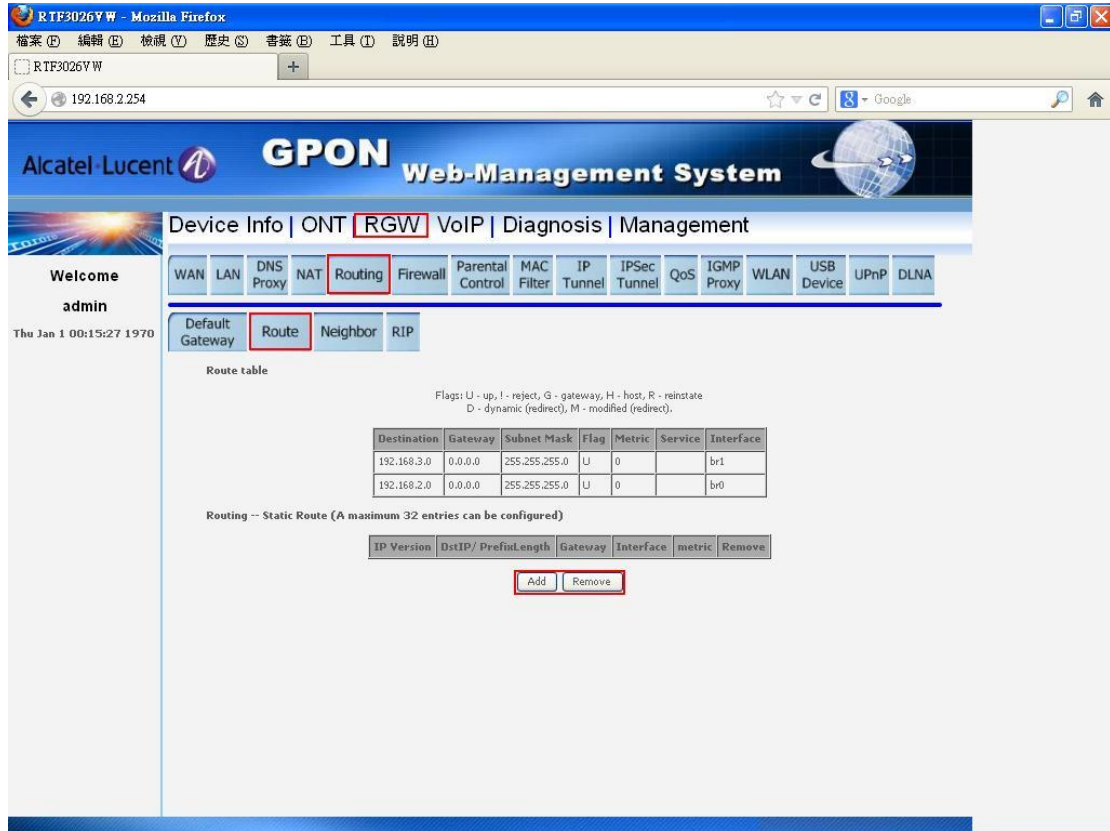


Figure 13

### 6.5.3 Neighbor (IPv6 only)

In this page, you can add or remove neighbor.

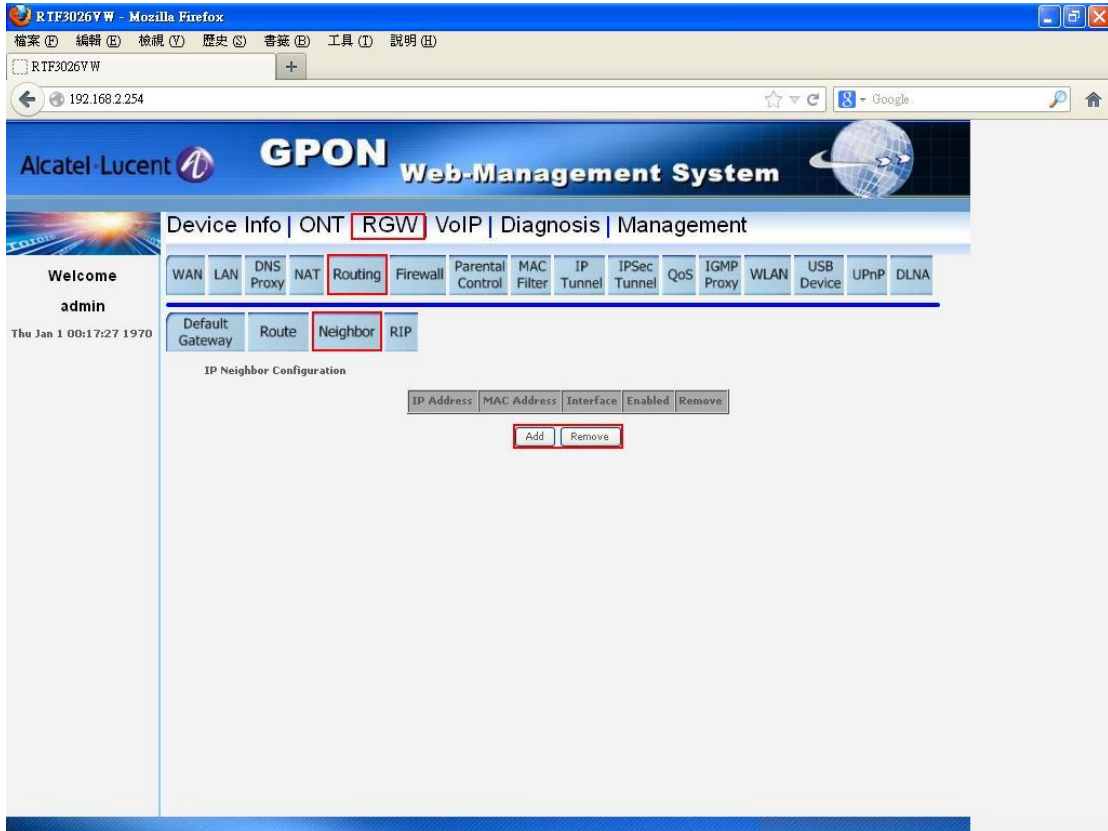


Figure 14

## 6.5.4 RIP

In this page, you can configure IPv4 RIP.

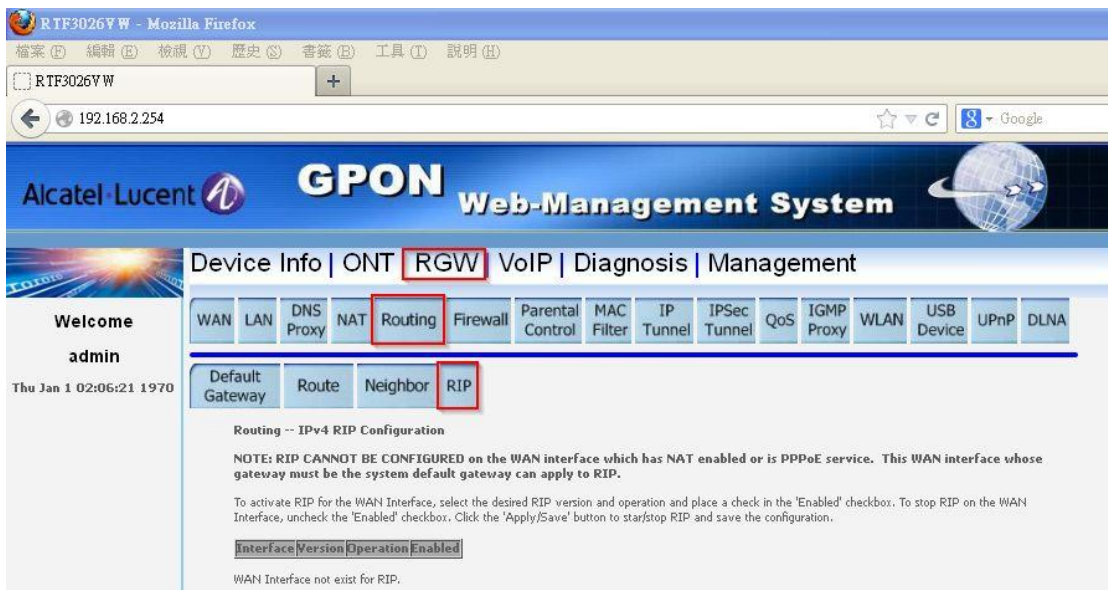


Figure 15

## 6.6 Firewall

### 6.6.1 User Control

In this page, you can add or remove outgoing IP filter. And you can also add or remove incoming IP filter if there is at least one wan connection which enables firewall and service type is HIS or IPTV.

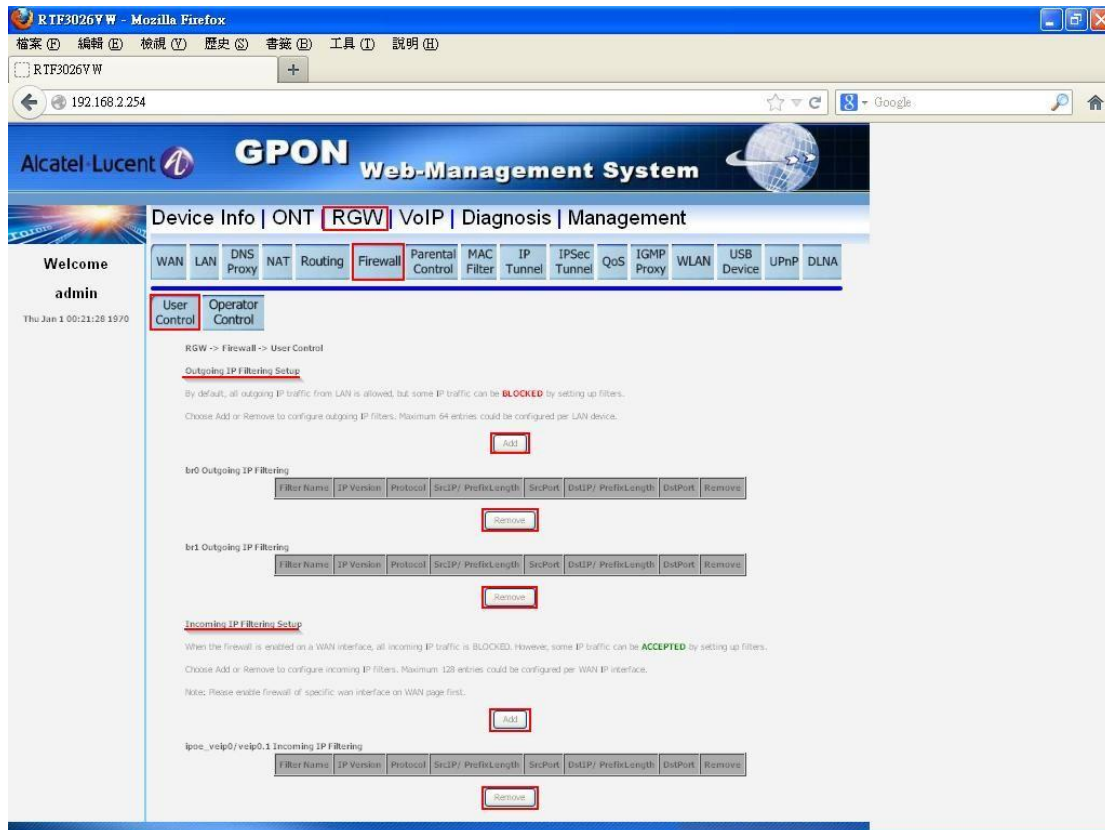


Figure 16

### 6.6.2 Operator Control

In this page, you can see firewall of operator but not support to modify.

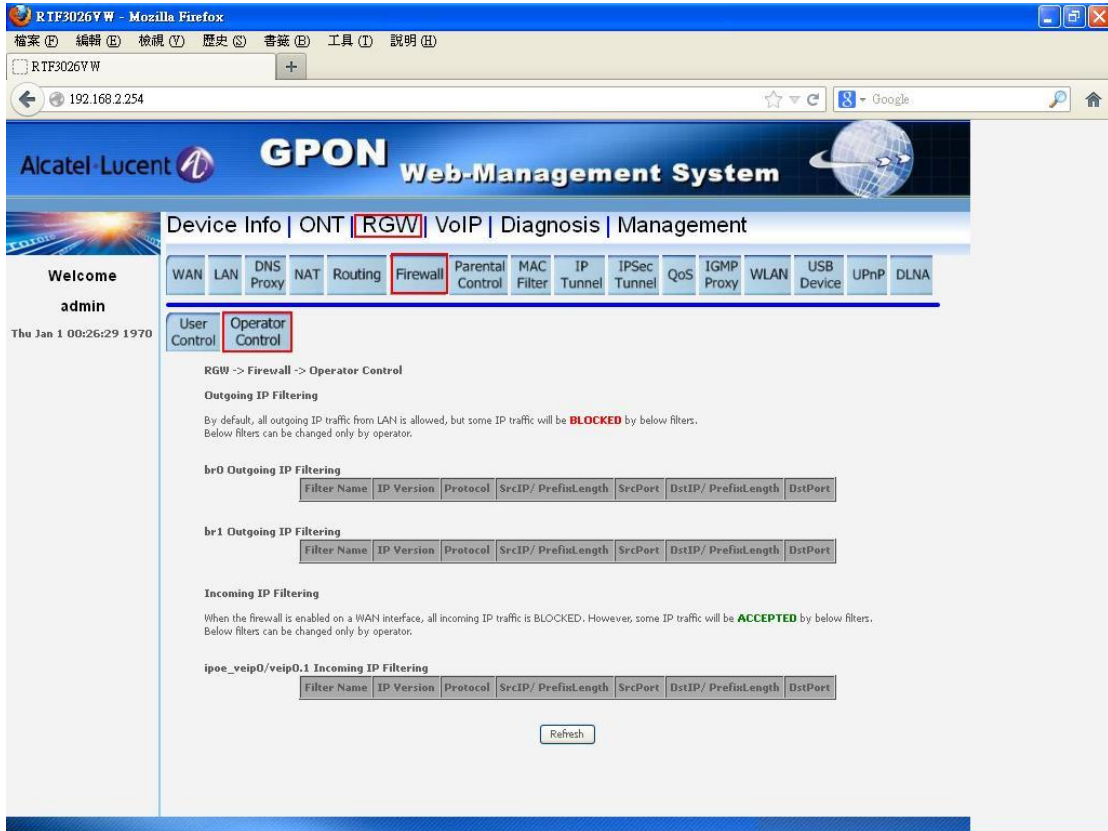


Figure 17

## 6.7 Parental Control

### 6.7.1 Time Restriction

In this page, you can set scheduling of system.

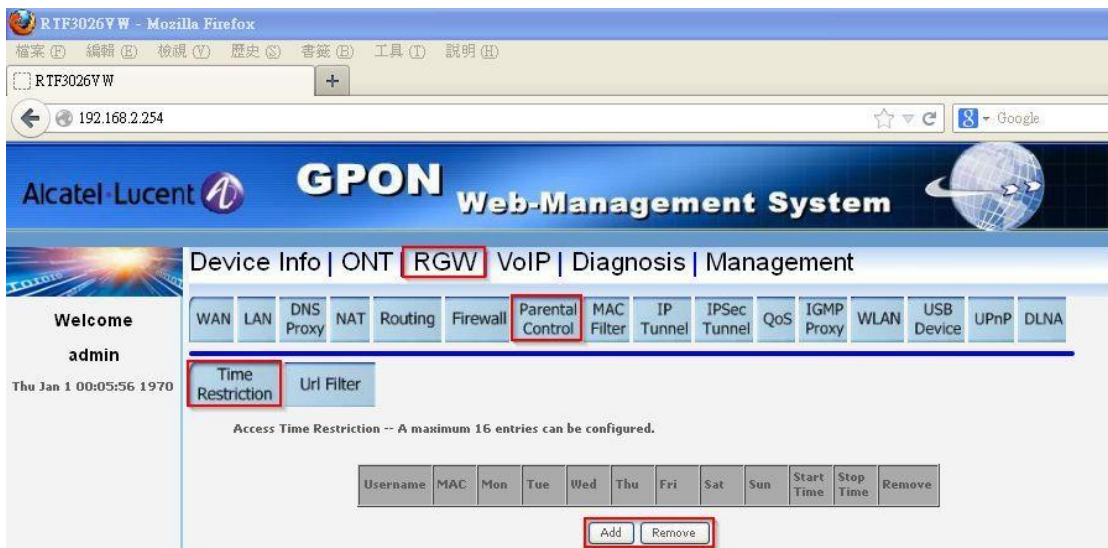


Figure 18



## 6.7.2 Url Filter

In this page, you can set url filter of system.

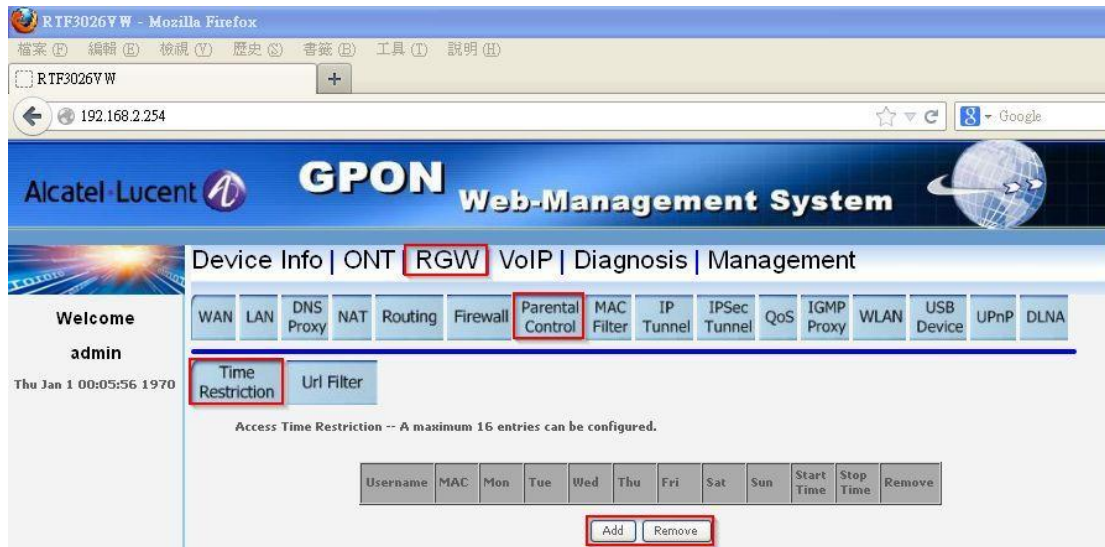


Figure 19

## 6.8 MAC Filter

In this page, you can add or remove allowed MAC for br0 and br1 respectively.

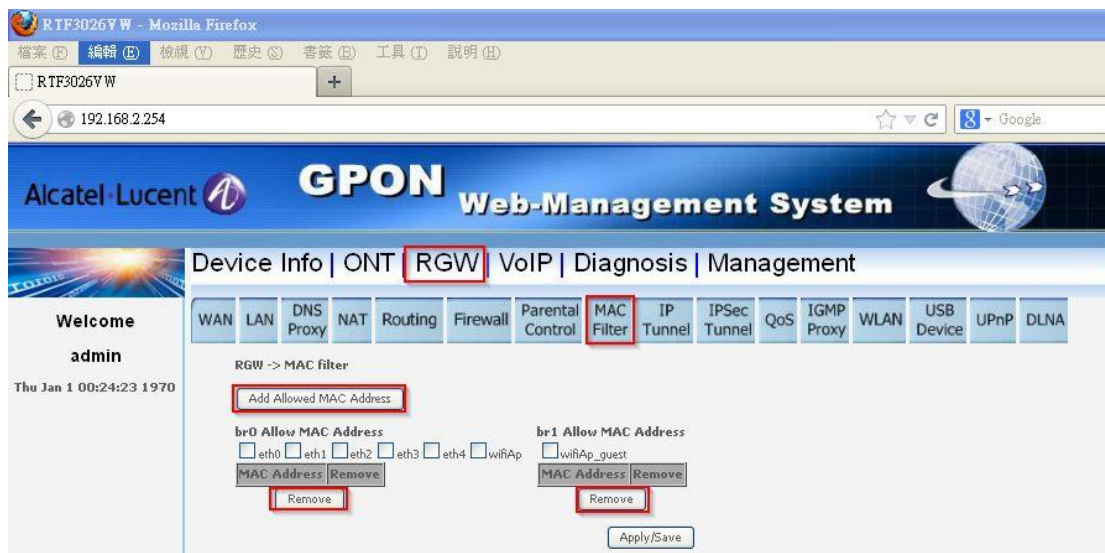


Figure 20-1

Select br0 or br1, input allowed MAC address, press “Add”.



Figure 20-2

Select interface which will refer to allowed MAC address table, press “Apply/Save”.

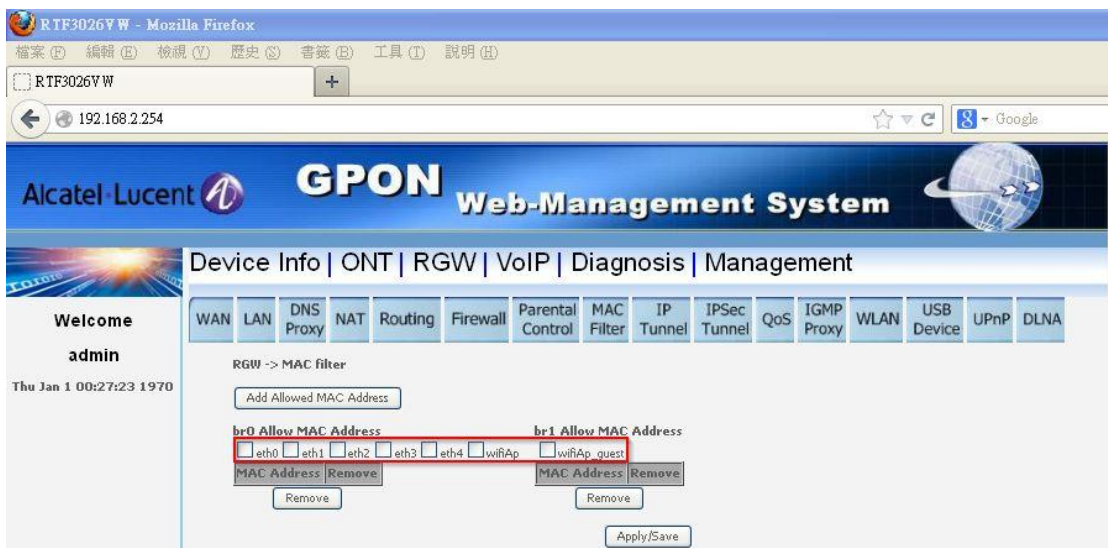


Figure 20-3

## 6.9 IP Tunnel

### 6.9.1 IPv6 in IPv4

In this page, you can add or remove IPv4 in IPv6.