Networking your world

NV-700L

Managed Single Master LAN Extender

USER'S MANUAL

Http://www.netsys.com.tw

Copyright

Trademarks

NETSYS is a trademark of National Enhance Technology Corp.
Other brands and product names are registered trademarks or trademarks of their respective holders.

Legal Disclaimer

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics. With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, National Enhance Technology Corp. hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

Statement of Conditions

In the interest of improving internal design, operational function, and/or reliability, NETSYS reserves the right to make changes to the products described in this document without notice. NETSYS does not assume any liability that may occur due to the use or application of the product(s) or circuit layout(s) described herein.

Maximum signal rate derived from IEEE Standard specifications. Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate. Netsys does not warrant that the hardware will work properly in all environments and applications, and makes no warranty and representation, either implied or expressed, with respect to the quality, performance, merchantability, or fitness for a particular purpose. Make sure users follow in line with the environmental conditions to use this product.

Safety Warnings

For user safety, be sure to read and follow all warning notices and instructions before using the device.

- **DO NOT** open the device or unit. Opening or removing the cover may expose user to dangerous high voltage points or other risks. ONLY qualified service personnel can service the device. Please contact the user's vendor for further information.
- **Use ONLY** the dedicated power supply for user's device. Connect the power to the right plug type (AC support full range between 100Vac and 240Vac input. 12 Vdc / 1A or above output).
- **Place** connecting cables carefully so that no one will step on them or stumble over them. DO NOT allow anything to rest on the power cord and do NOT locate the product where anyone can work on the power cord.
- **DO NOT** install nor use user's device during a thunderstorm. There may be a remote risk of electric shock from lightning.
- **DO NOT** expose user's device to dampness, dust or corrosive liquids.
- **DO NOT** use this product near water, for example, in a wet basement or near a swimming pool.
- **Connect ONLY** suitable accessories to the device.
- **Make sure** to connect the cables to the correct ports.
- **DO NOT** obstruct the device ventilation slots, as insufficient air flow may harm user's device.
- **DO NOT** place items on the device.
- **DO NOT** use the device for outdoor applications directly, and make sure all the connections are indoors or have waterproof protection place.
- **Be careful** when unplugging the power, because it may produce sparks.
- **Keep** the device and all its parts and accessories out of the reach of children.
- **Clean** the device using soft and dry cloth rather than liquid or atomizers. Power off the equipment before cleaning it.
- This product is **recyclable**. Dispose of it properly.

Attention:

Be sure to read this manual carefully before using this product. Especially Legal Disclaimer, Statement of Conditions and Safety Warnings.

NV-700L is a Managed Single Master LAN Extender that leverages the extraordinary bandwidth promise of VDSL2 technology (max. 100Mbps symmetric), the next step in the delivery of new high-speed Internet applications in commercial environments. Quick, easy, economical to install and maintain, the NV-700L works over existing copper wire infrastructure. NV-700L is a Master (CO side) device, which is designed to interconnect with NV-600A(CPE) for point-to-point application.

NV-700L will allow operators worldwide to compete with cable and satellite operators by offering services such as HDTV, VOD, videoconferencing, high speed Internet access and advanced voice services including VoIP, over a standard copper telephone cable. NV-700L is seen by many operators as an ideal accompaniment to a FTTP rollout, where for instance fiber optic is supplied direct to an apartment block and from there copper cable is used to supply residents with high-speed VDSL2.

Caution:

The NV-700L is for **indoor** applications only. This product does not have waterproof protection, please do not use it in outdoor applications.

Table of Contents

Chapter 1. Unpacking Information

1.1 Check List

Thank users for choosing Netsys NV-700L. Before installing the router, please verify the contents inside the package.

Package Contents:

			
1 x VDSL2 CO Modem	1 x QR code for user's manual hyperlink.	Accessory Kit: 1 x Ethernet Cable, 1 x Phone wire, 1 x DC12V Power Adapter	

Notes:

1. Please inform users dealer at once about any missing or damaged parts. If possible, retain the carton including the original packing materials. Use them to repack the unit in case there is a need to return for repair.
2. Do not use sub-standard power supply. Before connecting the power supply to the device, be sure to check compliance with the specifications. The NV-700L uses a DC12V/1A or above Switching power supply.

Chapter 2. Installing the Modem

2.1 Hardware Installation

This chapter describes how to install the modem and set up the network connections. The NV-700L may be installed on any level surface (e.g. a table or shelf). However, please take note of the following minimum site requirements before user begin. **The NV-700L has 2 pre-installed rubber feet.**

2.2 Pre-installation Requirements

Before users start the actual hardware installation, make sure users can provide the right operating environment, including power requirements, sufficient physical space, and proximity to other network devices that are to be connected.

Verify the following installation requirements:

- Power requirements: **DC 12 V / 1A**
- The modem should be located in a cool dry place, with at least **10cm/4in** of space at the front and back for ventilation.
- Place the modem away from direct sunlight, heat sources, or areas with a high amount of electromagnetic interference.
- Check if the network cables and connectors needed for installation are available.
- Do not install phone lines strapped together with AC power lines, or telephone office line with voice signal.
- Avoid installing this device with radio amplifying stations nearby or transformer stations nearby.

2.3 General Rules

Before making any connections to the modem, please note the following rules:

- **Ethernet Port interface: RJ-45**

  All network connections to the modem Ethernet port must be made using Category 5 UTP/STP or above for 100 Mbps, Category 3, 4 UTP for 10Mbps.

  No more than 100 meters of cabling may be used between the MUX or HUB and an end node.

- **VDSL2 Port interface: RJ-11 & Terminal block combo**

  All network connections to the RJ-11/ terminal block (sharing port) must use **24~26** gauge with single **twisted pair** phone wire.

  We **do not recommend** the use of the 28-gauge phone wire or above.

  The RJ-11 is a 6P2C connector, two of which are wired. The modem uses two pins at the center. The pin out assignment for these connectors is presented below.

  Please note that the line port is without polarity, therefore users can reverse the two wires of the phone cable when installed.

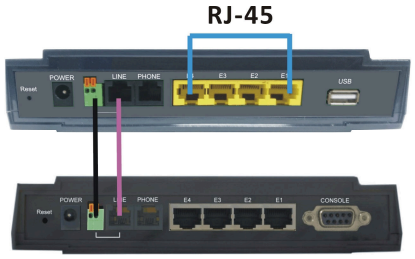
RJ-11 Pin out Assignments

Pin#	MNEMONIC	FUNCTION
1	NC	Unused
2	NC	Unused
3	**DSL**	**Used**
4	**DSL**	**Used**
5	NC	Unused

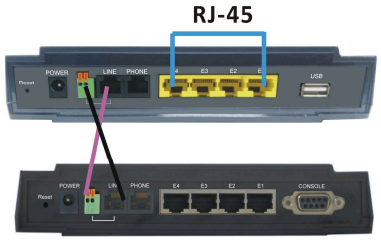
6	NC	Unused

2.4 Connecting the RJ-11 / RJ-45 Ports

- The Line port has 1 connector: RJ-11. It is used to connect with NV-700L Master side over a single pair phone wire to NV-600A Slave side (point to point application). (Figure 2.1)



Black Line: Valid
Red Line:Valid



Black Line: Valid
Red Line:Valid
Black+Red : Invalid

Figure 2.1 NV-700L & NV-600A line ports straight connection

- When inserting a RJ-11 plug, make sure the tab on the plug clicks into position to ensure that it is properly seated.
- **Do not** plug an RJ-11 phone jack connector into the Ethernet port (RJ-45 port). This may damage the modem. Instead, use only twisted-pair cables with RJ-45 connectors that conform to Ethernet standard.

Notes:

1. Be sure each twisted-pair cable (RJ-45 Ethernet cable) does not exceed 100 meters (333 feet).
2. We recommend using Category 5~7 UTP/STP cables for making Ethernet connections to avoid any confusion or inconvenience in the future when user attach high bandwidth devices.
3. Use **24 ~ 26** gauge twisted pair phone wiring, we do not recommend 28 gauge or above.
4. Be sure phone wire has been installed before the device boot.
5. Do not connect Line port with RJ-11 and Terminal block

to two Master / Slave device

2.5 Point to Point Application

First a quick overview of a complete setup of interconnection of NV-700L and NV-600A.
NV-700L is a LAN extender that uses the extraordinary bandwidth promise of VDSL2 technology (max. 100Mbps Symmetric) (Figure 2.2)

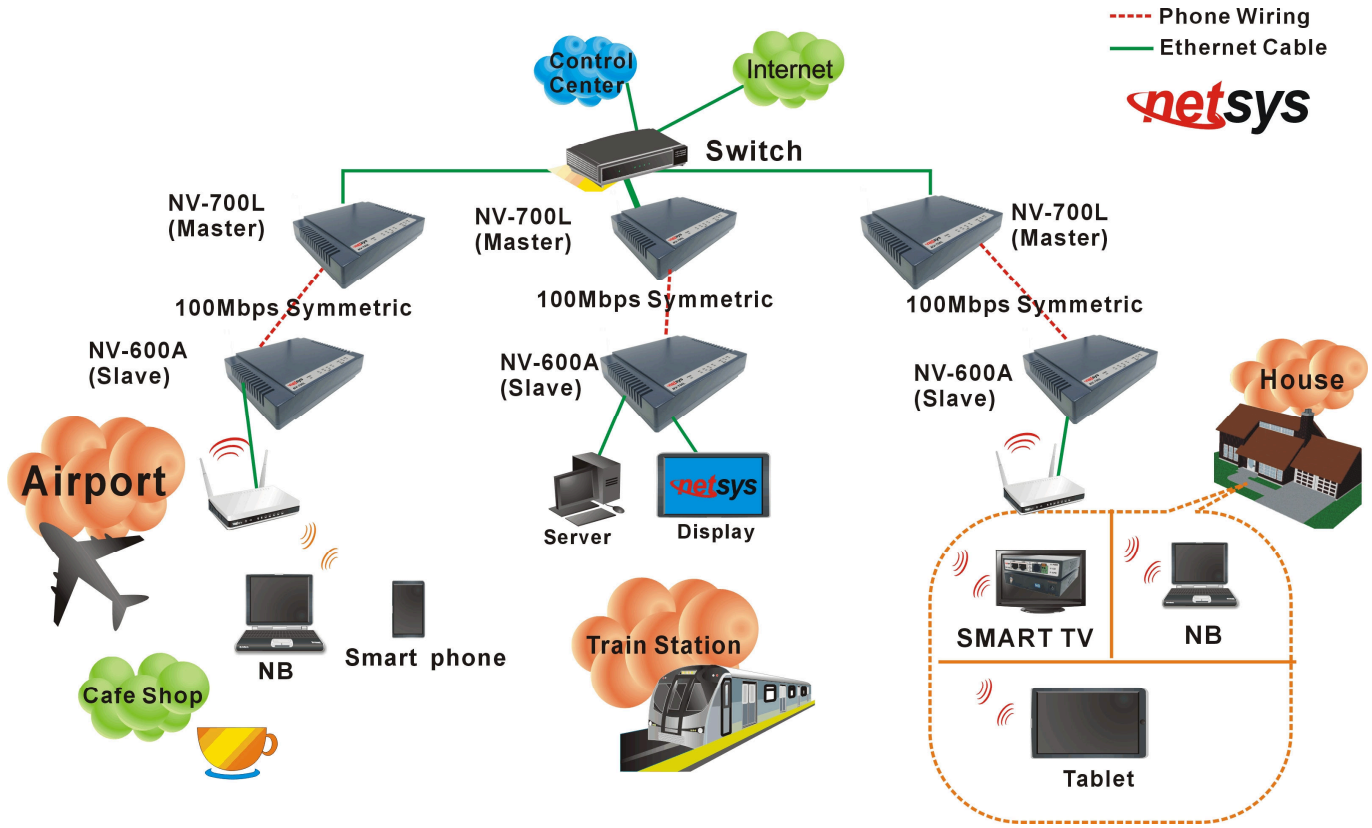


Figure 2.2 NV-700L & NV-600A Point to Point application

◆ 2.5.1 Connect the NV-700L(Master) and the NV-600A(Slave) to the Line

The goal for LAN extender is to pass high speed data over a twisted pair cable. In the setup, connect NV-700L(Master) to NV-600A (Slave) through phone wire (24~26 AWG) or line simulator or any other hardware representation of a cable network, with or without noise injection and crosstalk simulations.

◆ 2.5.2 Connect the NV-700L(Master) and the NV-600A(Slave) to LAN Devices

In the setup, usually an Ethernet tester serves as a representation of the LAN side as well as a representation of the WAN(Line) side.

◆ 2.5.3 Run Demos and Tests

The Ethernet tester may send data downstream as well as upstream. It also receives the data in order to check the integrity of the data transmission. Different data rates can be tested under different line conditions

Chapter 3. Hardware Description

This section describes the important parts of the NV-700L. It features the front panel and rear panel.

NV-700L Outward

3.1 Front Panel

The figure shows the front panel. (Figure 3.1)

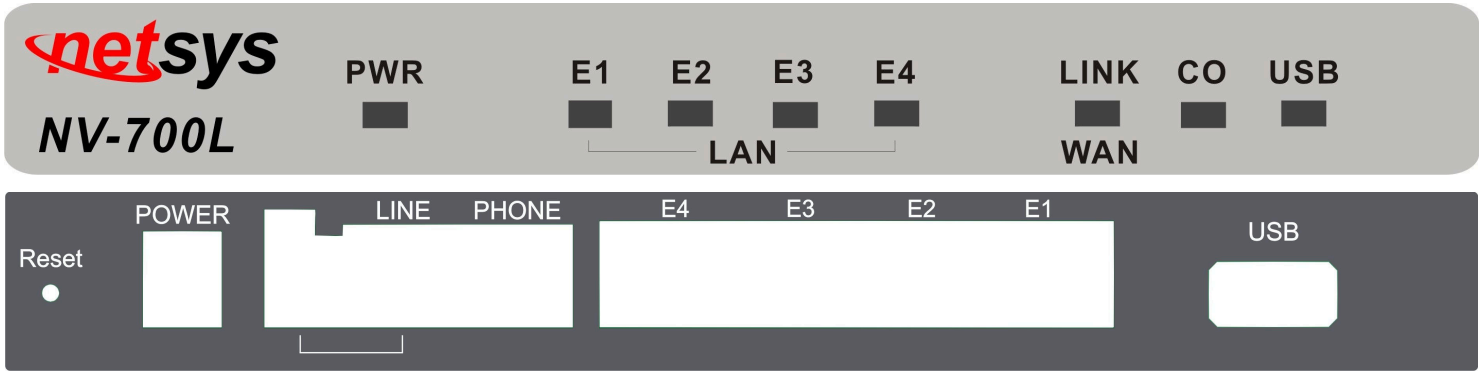


Figure 3.1 Front Panel (NV-700L)

3.2 Front Indicators

The Modem has **Seven** LED indicators. The following Table shows the description. (Table 3-1)

Table 3-1 LED Indicators Description and Operation

LED	Color	Status	Descriptions
PWR (Power LED)	Green	On (Steady)	Lights to indicate that modem had power good
		Off	The device is not ready or has malfunctioned.

LED	Color	Status	Descriptions
E1 ~ E4 (Ethernet LED)	Green	On (Steady)	The device has a good Ethernet connection.
		Blinking	The device is sending or receiving data.
		Off	The LAN is not connected or has malfunctioned.
LINK (Line LED)	Green	On (Steady)	The Internet or network connection is up.
		Fast Blinking	1. The Master device has detected a Slave device and is ready to connect. 2. The device is sending or receiving data.
		Off	The Internet or network connection is down.
USB	Green	On (Steady)	The device has a good USB dongle connection.
		Off	The device is not ready or has malfunctioned.
CO	Green	On (Steady)	NV-700L config on Master mode.
		Off	NV-700L config on Slave mode

Note:

It is normal for the connection between NV-700L and NV-600A to take up to 3 minutes, due to NV-700L(Master) connect NV-600A(Slave) to establish a link mechanism in auto-speed, with detects and calculates Master and Slave both PBO and PSD level, noise levels and other arguments for getting a better connection.

3.3 Rear Panel

The following figure shows the rear panel. (Figure 3.2)

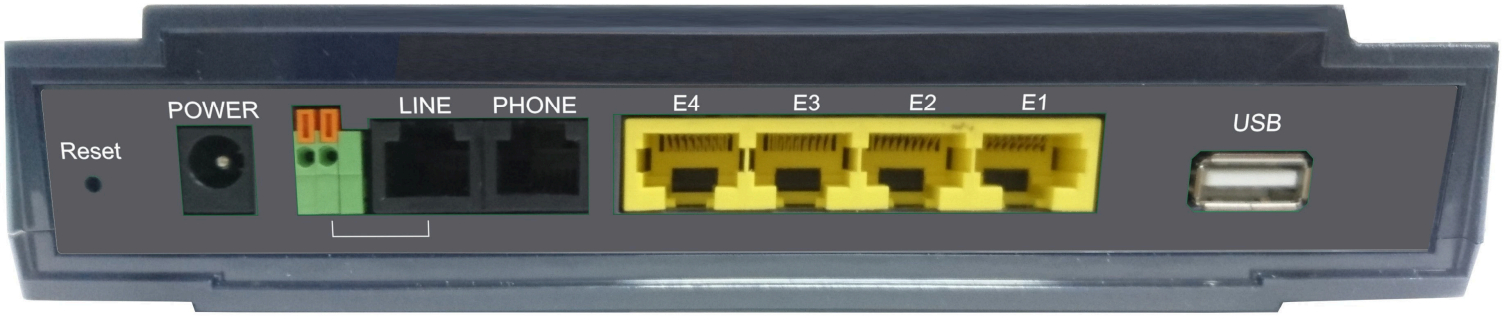


Figure 3.3 Rear Panel

And the table shows the description. (Table 3-2)

Table 3-2 Description of the modem rear connectors

Type	Connector	Description
Reset	Tact Switch Button	The reset buttons allow users to reboot the LAN NV-700L or load the default settings. **Press and hold for 1-5 seconds: Reboot the NV-700L** **Press over 5 seconds: Load the default settings**
Power	DC Jack	External switching Power Adapter: Input: AC 85~240Volts/50~60Hz. Output: DC 12V/1A.

Line	RJ-11	For connecting to a Master/Slave device.
Type	**Connector**	**Description**
phone	RJ-11	For connecting to the POTS equipment or ISDN.
Ethernet (E1-E4)	RJ-45	For connecting to an Ethernet equipped device.
USB	USB2.0 Type A	For connecting to the USB dongle.

Before user installed power and device, please read and follow these essentials:

- Use separate paths to route wiring for power and devices. If power wiring and device wiring paths must cross, make sure the wires are perpendicular at the intersection point.

Note:

Do not run signal or communications wiring and power wiring through the same wire conduit. To avoid interference, wires with different signal characteristics should be routed separately.

- Users can use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is that wiring sharing similar electrical characteristics can be bundled together.
- Users should separate input wiring from output wiring.
- We recommend that the user mark all equipment in the wiring system.

Chapter 4. Configure the NV-700L via Web management menu

The NV-700L provides a built-in HTML based management interface that allows configuration of the NV-700L via Internet Browser. Best viewed using Chrome or Firefox browsers.

In order to use the web browser to configure the device, the user may need to allow:

- Web browsers pop-up windows from user's devices. Web pop-up blocking is enabled by default in windows 7 SP2 or above.
- Java Scripts. (Enabled by default)
- Java permissions. (Enabled by default)

Launch web browser and input the default IP address 192.168.16.249 (NV-700L) on the Web page.
The following section user can find default username and password.

4.1 BASIC Setup

4.1.1 Login Webpage

The default username and password are "admin".

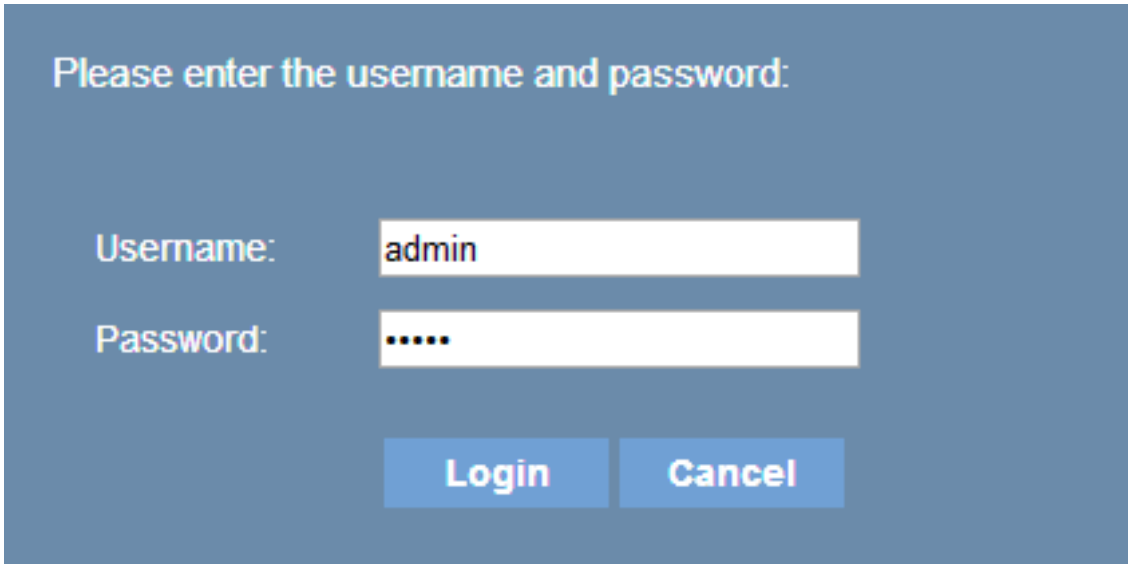


Figure 4.1.1 Login Webpage

4.1.2 Display status

When the device is running, the status page will display the device information (Hardware/Software Version, MAC Address, and System Up Time), as shown in Figure 4.1.2.

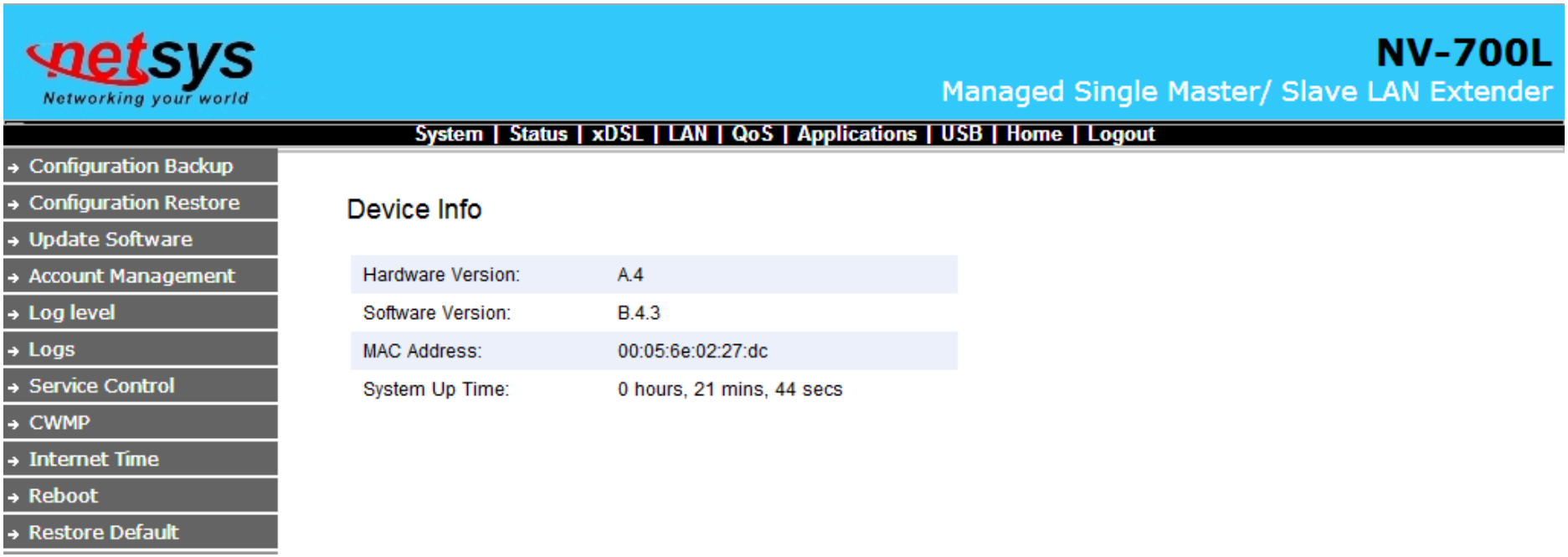


Figure 4.1.2 Device Info

4.2 Select the Menu Level

There is an easy Setup for end users at the setup of NV-700L with **System, Status, xDSL, LAN, Qos, Applications, USB, Home, Logout** for more detail configurations.

Figure 4.2 Select the Menu Level

4.3 System

Select "System". The menu below will be used frequently. It includes the sub-menus of Configuration Backup、Configuration Restore、Update Software、Account Managemant、Log level、Logs、Service Control、CWMP、Internet Time、Reboot、Restore Default. A screen is displayed as shown in Figure 4.3

Figure 4.3 System

4.3.1 Configuration Backup

To backup the configuration setting value, click on the "Configuration Backup" link in the left navigation bar. A screen is displayed as shown in Figure 4.3.1.

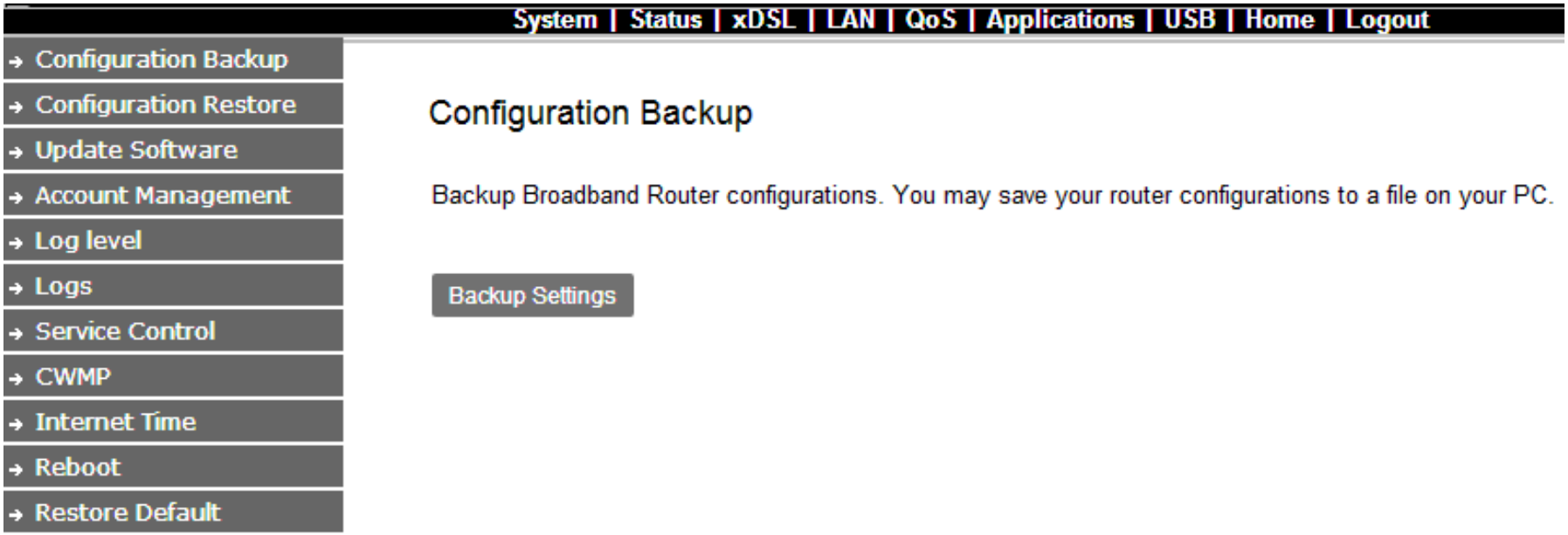


Figure 4.3.1 Configuration Backup

4.3.2 Configuration Restore

To restore user's configuration setting value, click on the "Configuration Restore" link in the left navigation bar. A screen is displayed as shown in Figure 4.3.2.

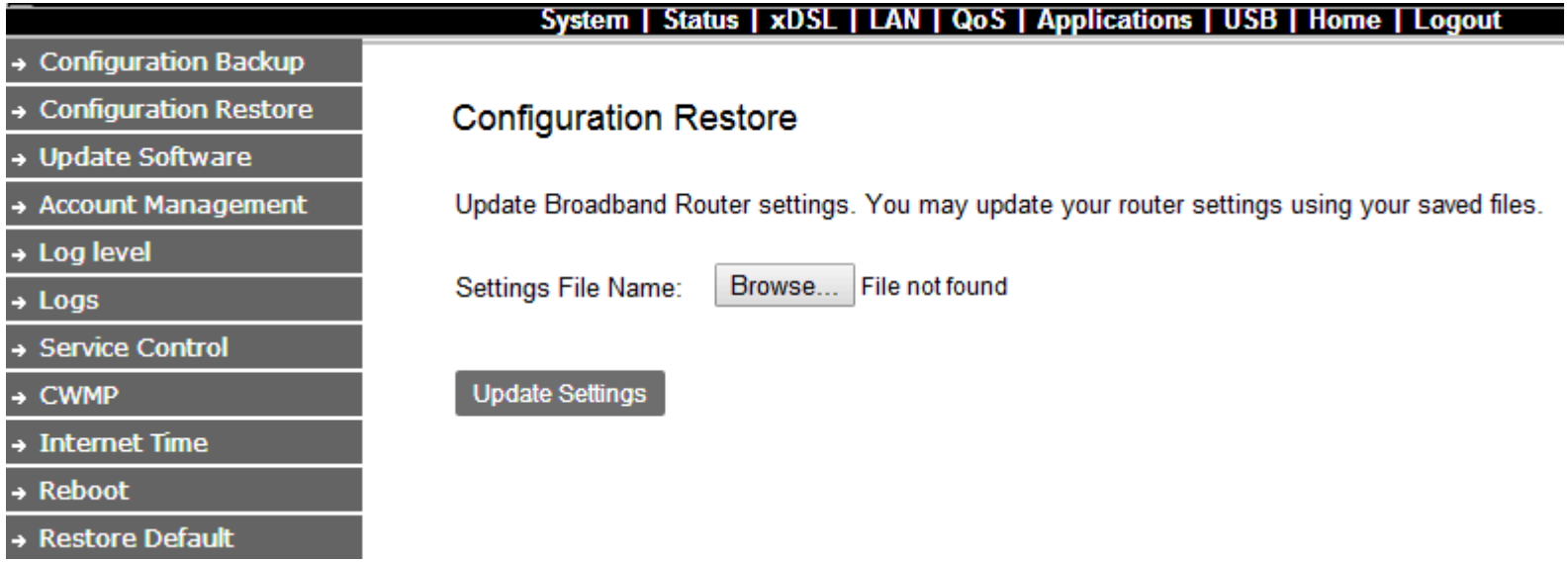


Figure 4.3.2 Configuration Restore

The screen contains the following details:

- Click "Browse" to select a specific file name in preparation for router settings.
- Click "Update Settings" to start updating.

4.3.3 Update Software

To update software, click on the "Update Software" link in the left navigation bar and follow the steps for updating. A screen is displayed as shown in Figure 4.3.3.

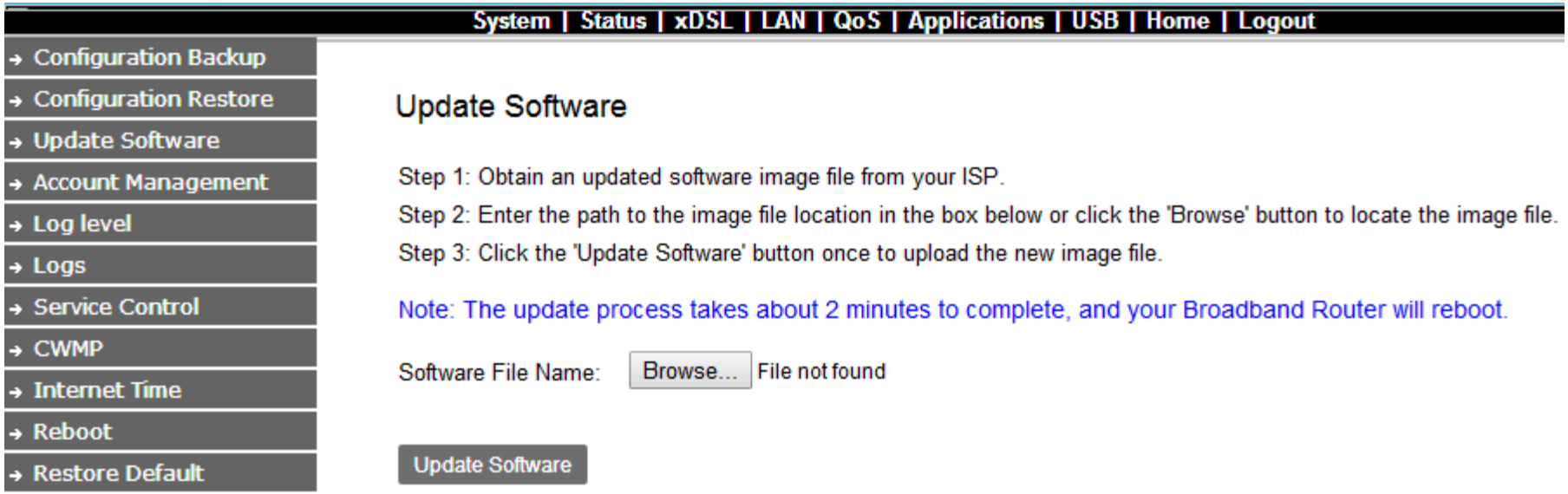


Figure 4.3.3 Update Software

Note:

The update process takes about 12 minutes to complete, and users Broadband Router will reboot.

4.3.4 Account Management

To change or create passwords, click on the "Account Management" link in the left navigation bar. A screen is displayed as shown in Figure 4.3.4.

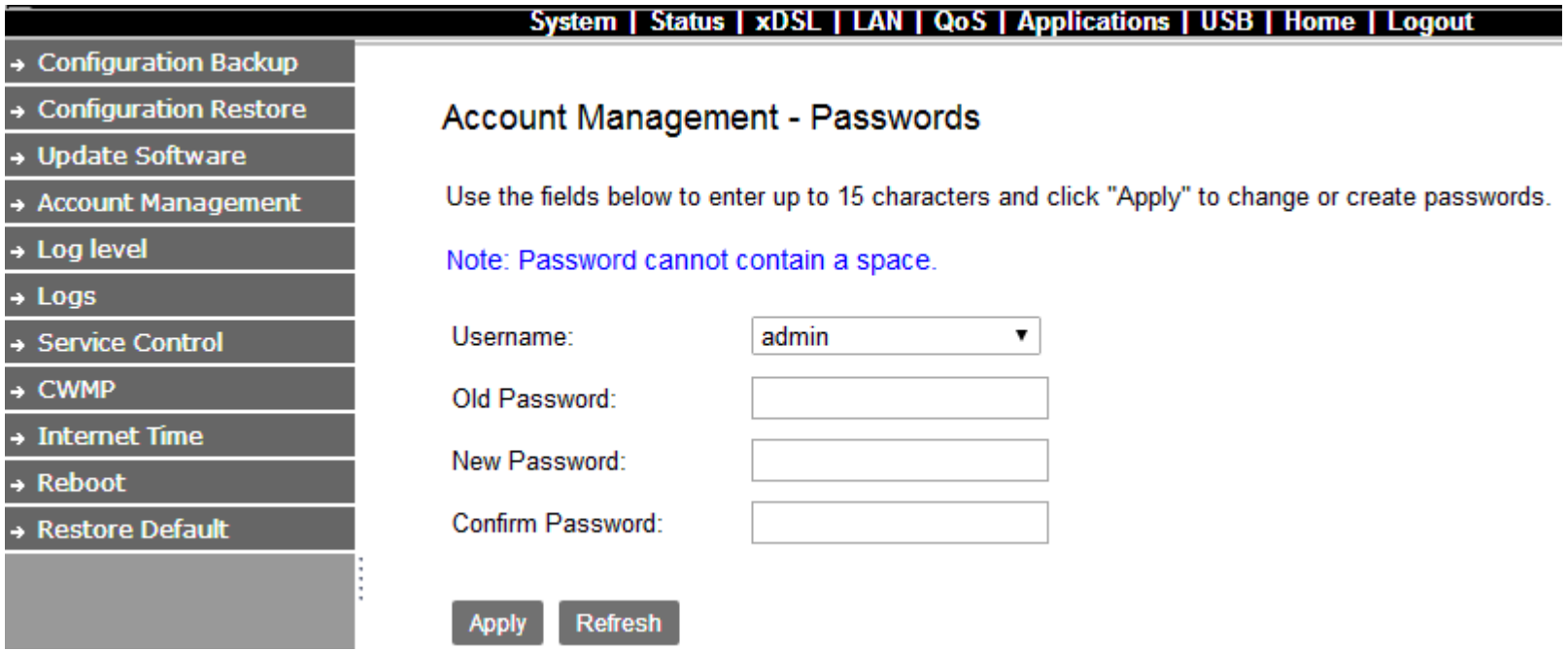


Figure 4.3.4 Account Management-Password

4.3.5 Log Level

Click on the "Log level" link in the left navigation bar, on the right page user will see how to enable Log or Log Server.

A screen is displayed as shown in Figure 4.3.5.

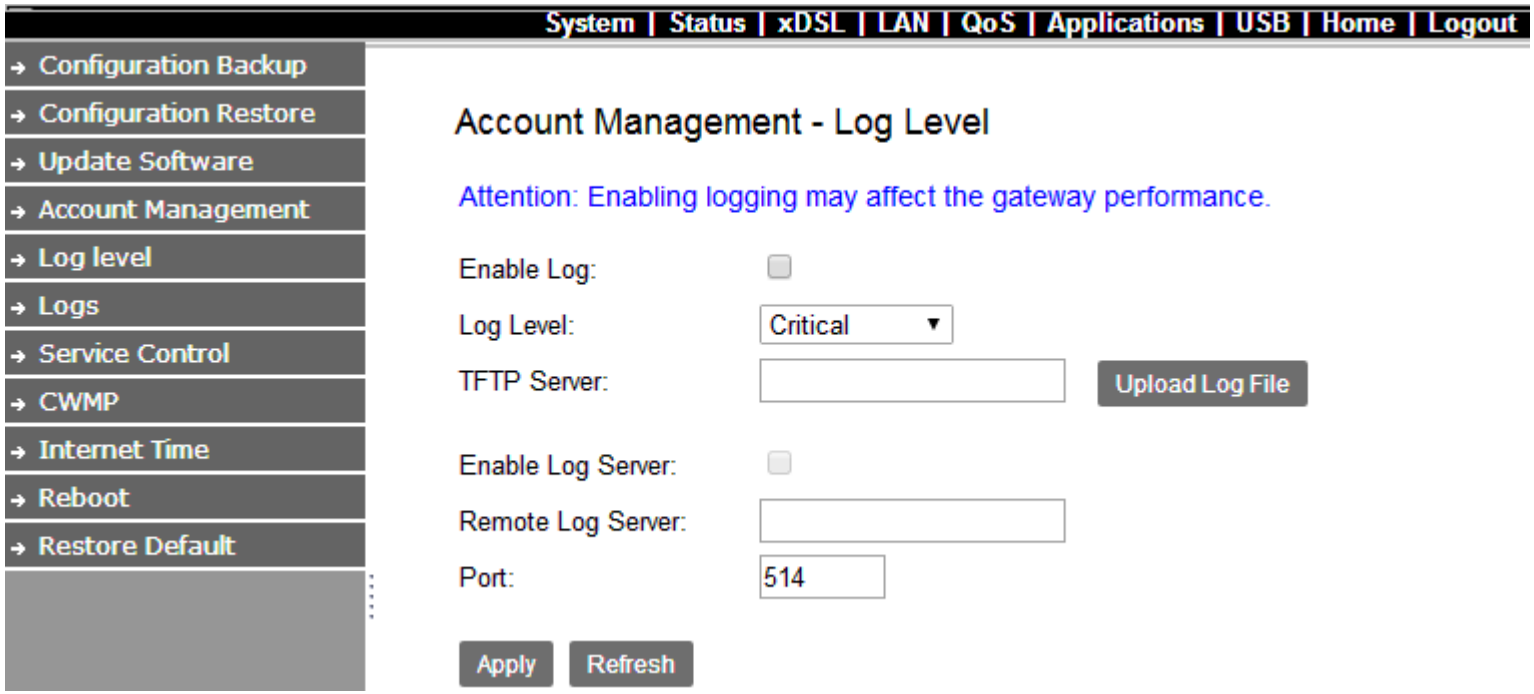
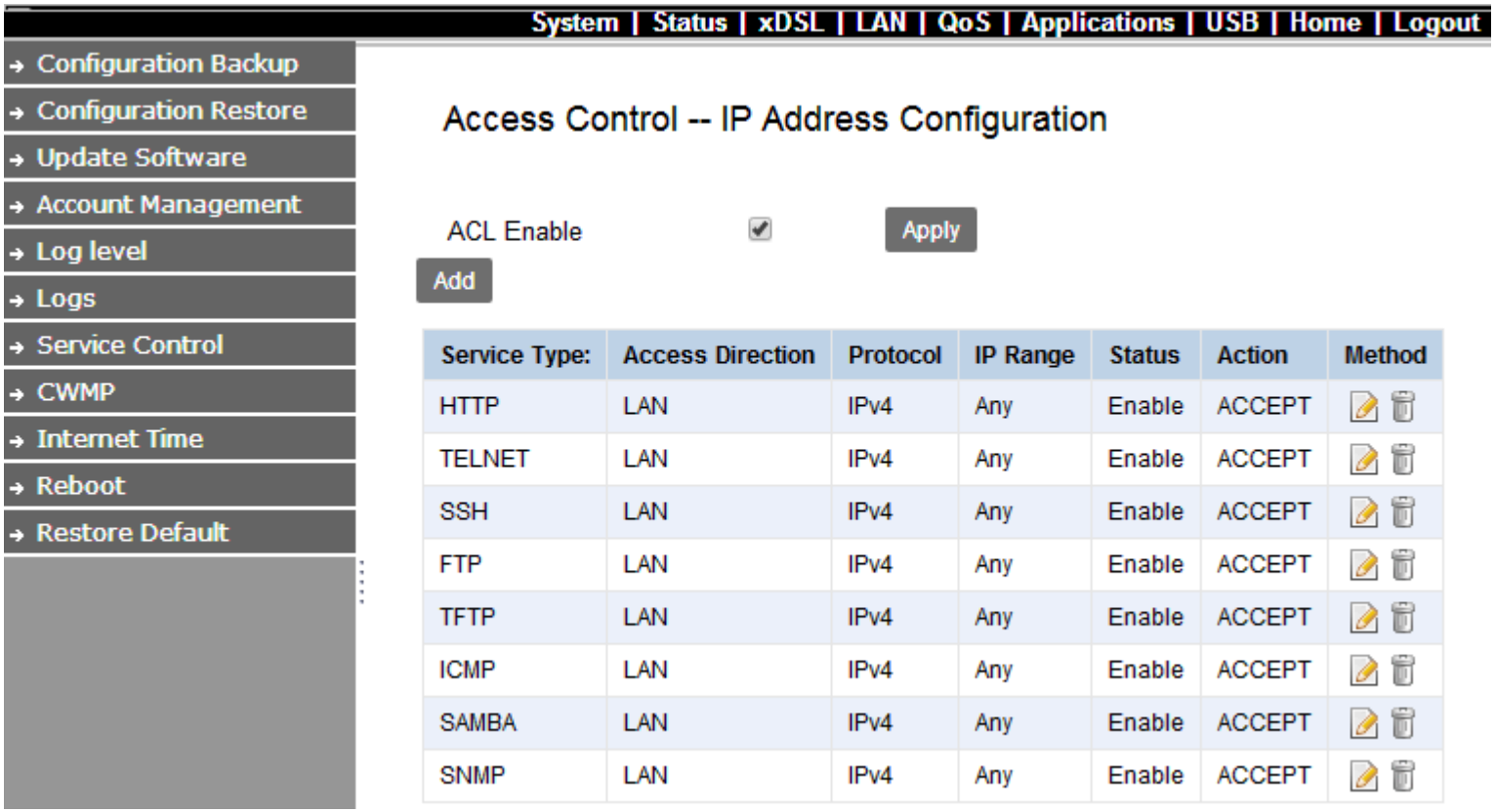


Figure 4.3.5 Account Management – Log Level

4.3.6 Service Control

Click on "Service Control" link in the left navigation bar, on the right page user will see how to enable ACL.
Click "add" to config Protocol / IP Protocol Type / Enable / Action and basic information. A screen is displayed as shown in Figure 4.3.6.



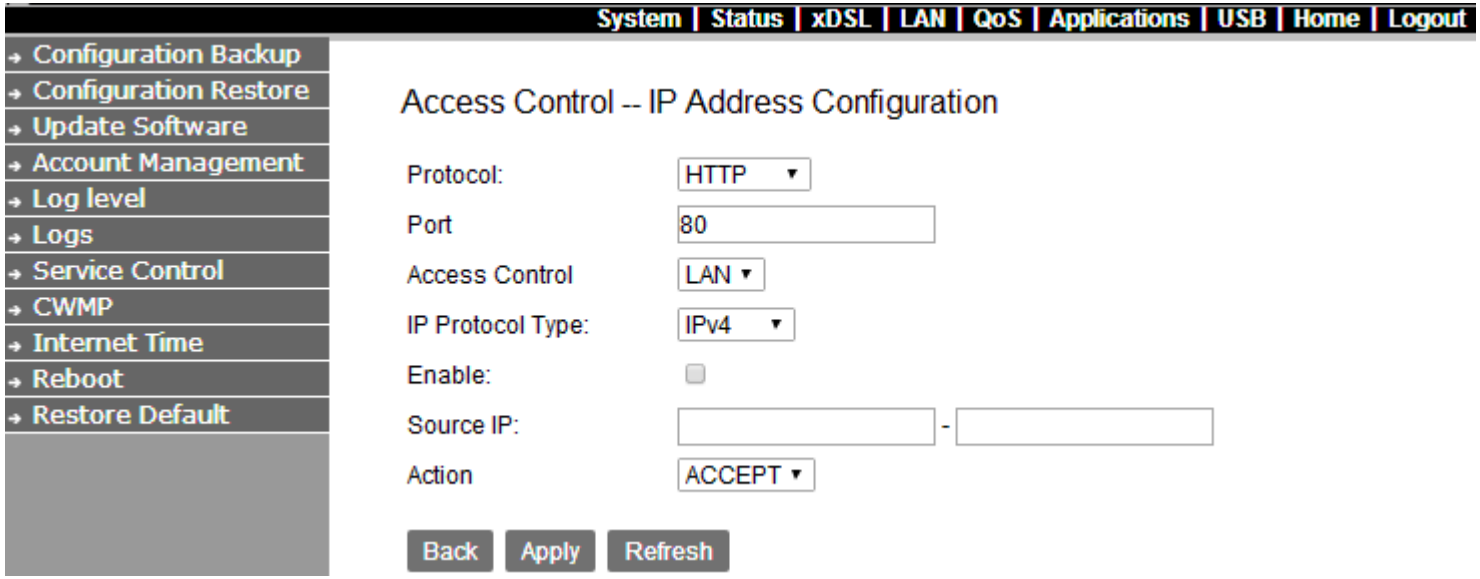


Figure 4.3.6 Service Control – IP Address Configuration

4.3.7 CWNP (TR-069 Settings)

Click on "CWMP" link in the left navigation bar to create TR-069 connection, and setup ACS URL/ ACS Username/ACS Password and basic information. A screen is displayed as shown in Figure 4.3.7.

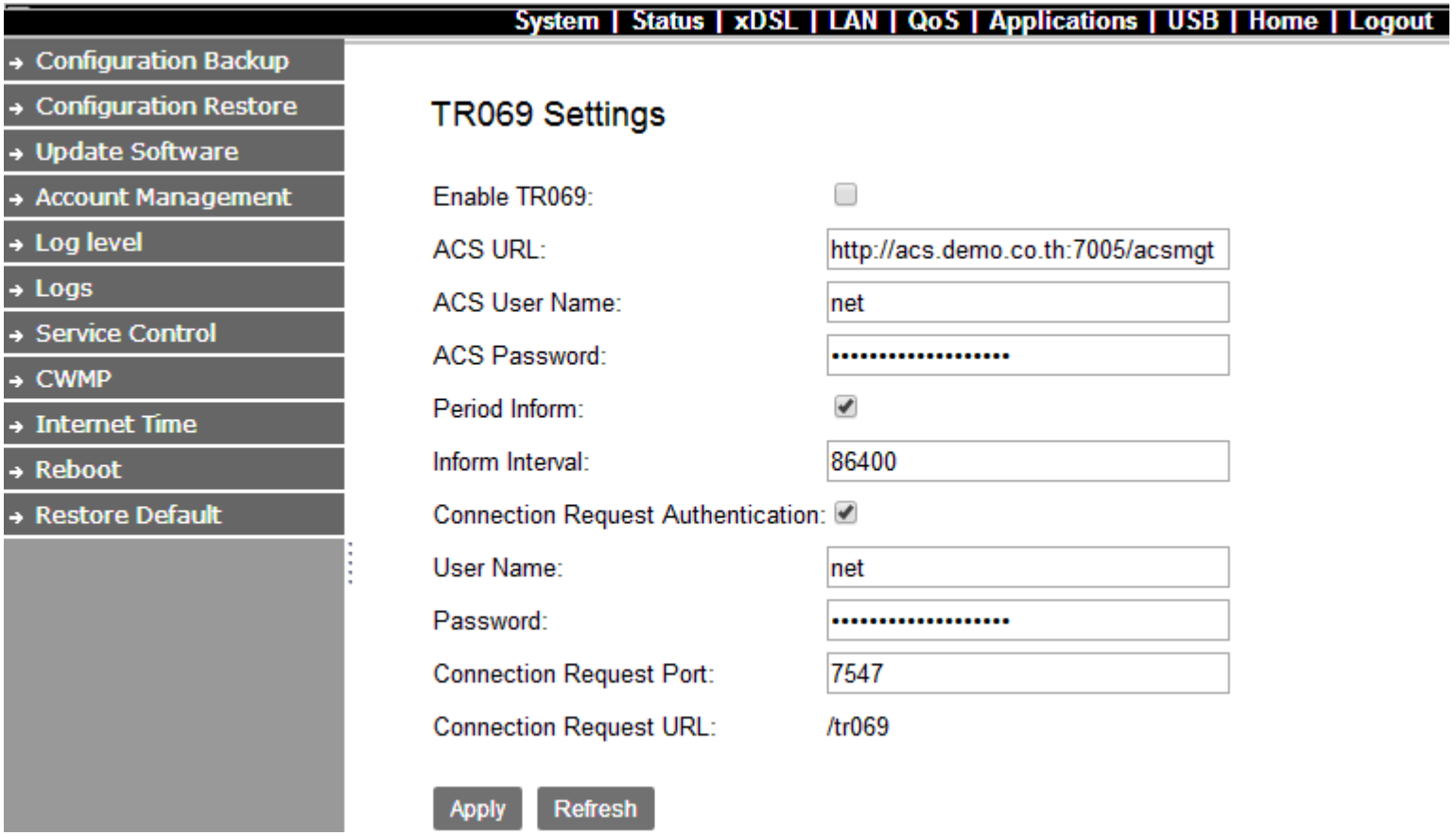


Figure 4.3.7 TR069 Settings

4.3.8 Internet Time

If SNTP server could not be connected to allow the device to synchronize the system clock to the global Internet. Please setup "Internet Time". A screen is displayed as shown in Figure 4.3.8.

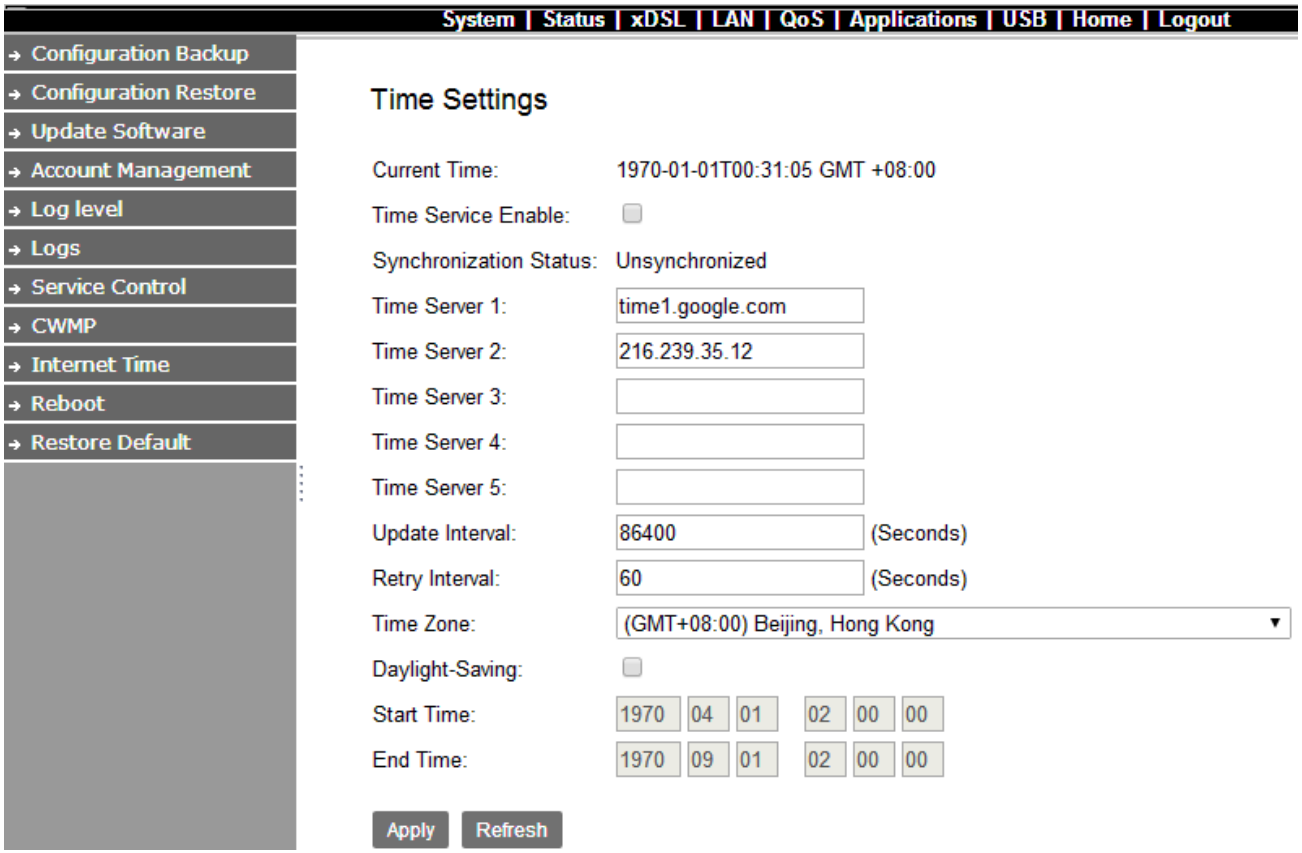


Figure 4.3.8 NTP Settings

4.3.9 Restore Default

Setting to the factory defaults, click on the "Restore Default" link in the left navigation bar, and press "Restore Default Settings", the device will reboot in 10 seconds. A screen is displayed as shown in Figure 4.3.9.

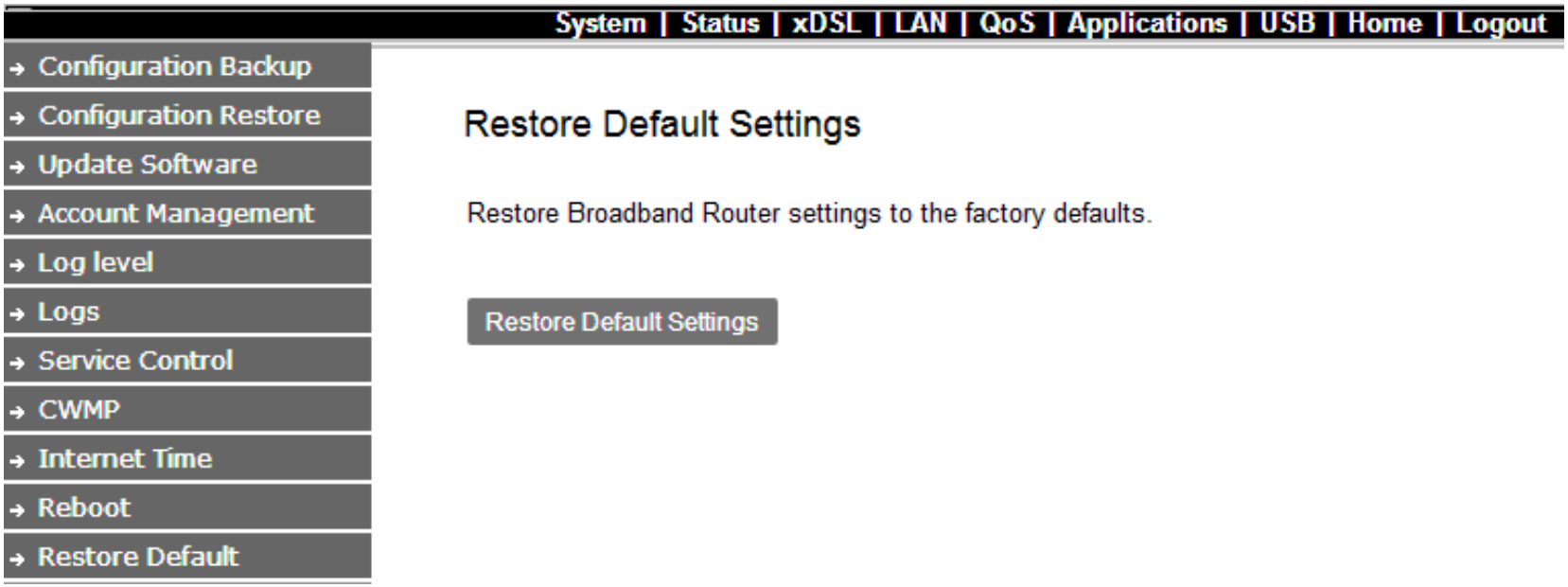


Figure 4.3.9 Restore Default Settings

4.4 Status Setup

Select "Status". It includes the sub-menus of Device Infomation、LAN Network、Ethernet、WAN Statistics、LAN Statistics、ARP. A screen is displayed as shown in Figure 4.4

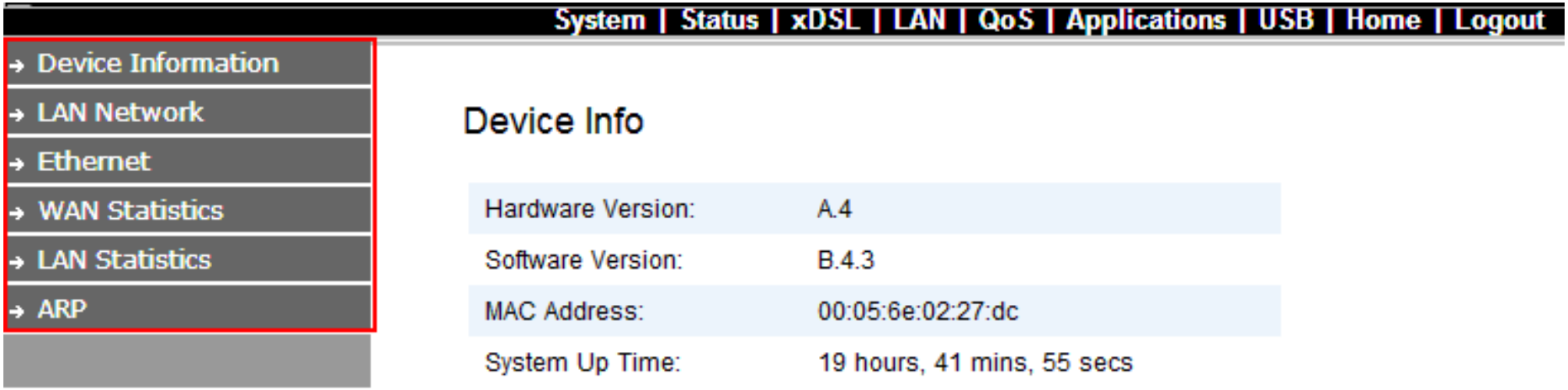


Figure 4.4 Device information

4.4.1 LAN Network

Click on the "LAN Network" link in the left navigation bar, user will see the status of IPv4/IPv6 Address for this device. A screen is displayed as shown in Figure 4.4.1.

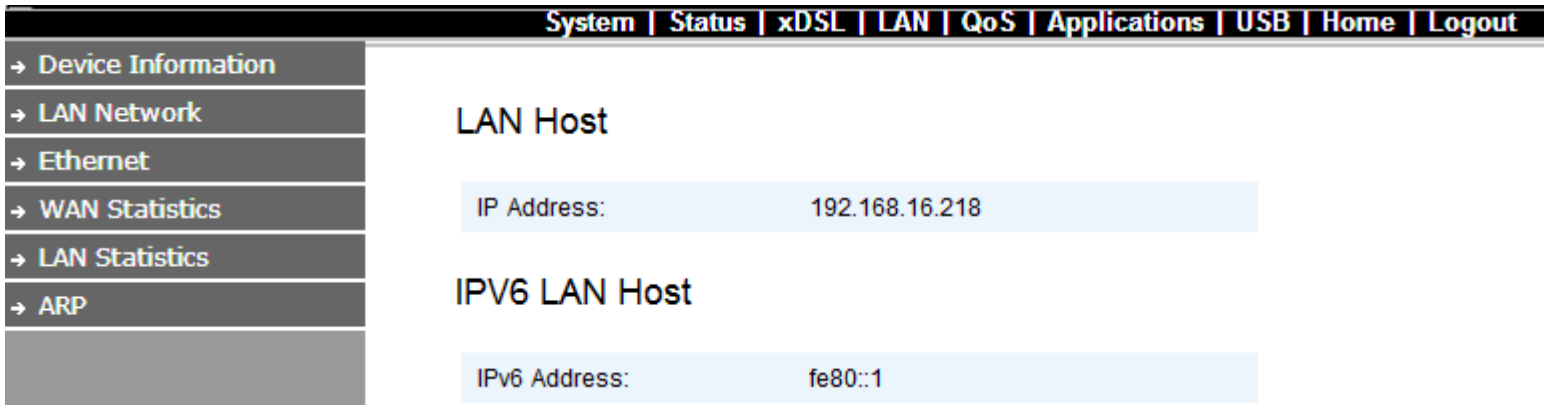


Figure 4.4.1 LAN Network information

4.4.2 Ethernet

Click on the "Ethernet" link in the left navigation bar, user will see the Ethernet Status, Speed, and Duplex of LAN1, LAN2, LAN3, LAN4 for this device. A screen is displayed as shown in Figure 4.4.2.

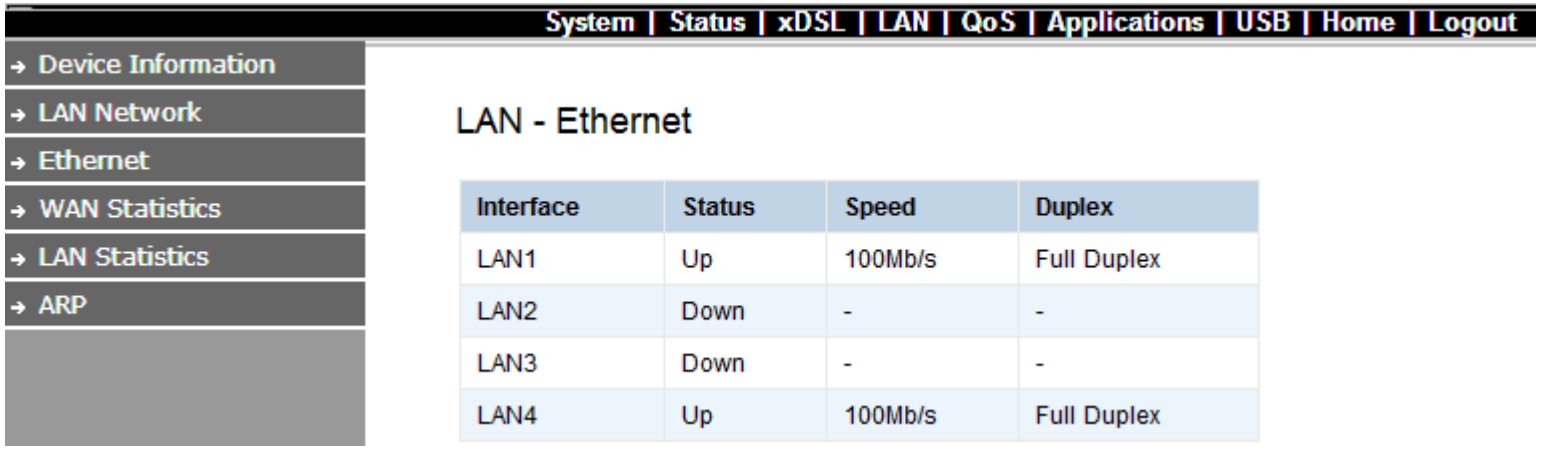


Figure 4.4.2 LAN-Ethernet information

4.4.3 WAN(Line) Statistics

Click on the "WAN Statistics" link in the left navigation bar, user will see the Received and Transmitted status for this device. A screen is displayed as shown in Figure 4.4.3.

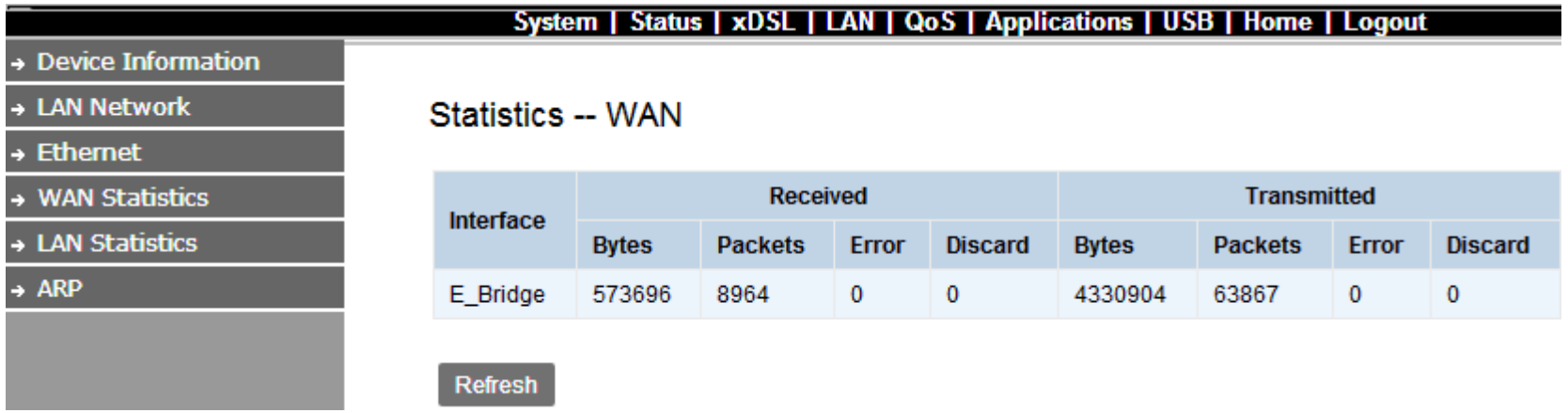
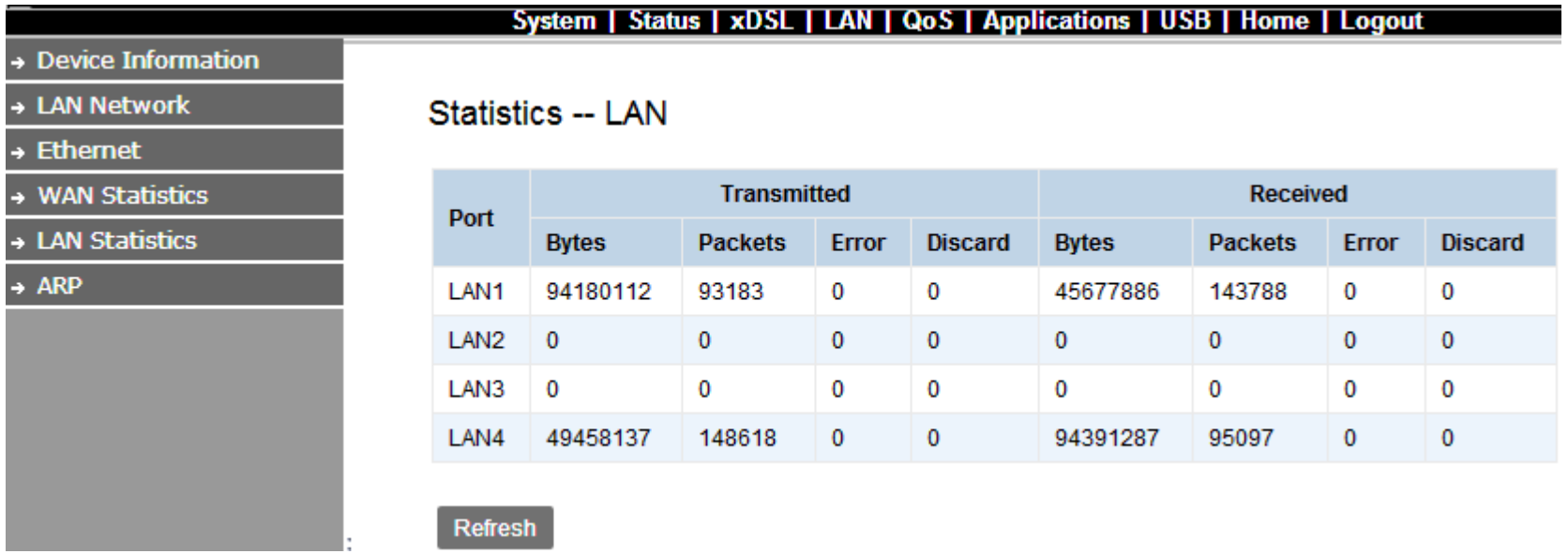


Figure 4.4.3 Statistics—WAN(Line)

4.4.4 LAN Statistics

Click on the "LAN Statistics" link in the left navigation bar, user will see the Received and Transmitted status for LAN1~4. A screen is displayed as shown in Figure 4.4.4.



Port	Transmitted				Received			
	Bytes	Packets	Error	Discard	Bytes	Packets	Error	Discard
LAN1	94180112	93183	0	0	45677886	143788	0	0
LAN2	0	0	0	0	0	0	0	0
LAN3	0	0	0	0	0	0	0	0
LAN4	49458137	148618	0	0	94391287	95097	0	0

Figure 4.4.4 Statistics-LAN

4.4.5 ARP

Click on the "ARP" link in the left navigation bar, user will see the records of Flags, HW Address, and Device status for different IP addresses. A screen is displayed as shown in Figure 4.4.5.

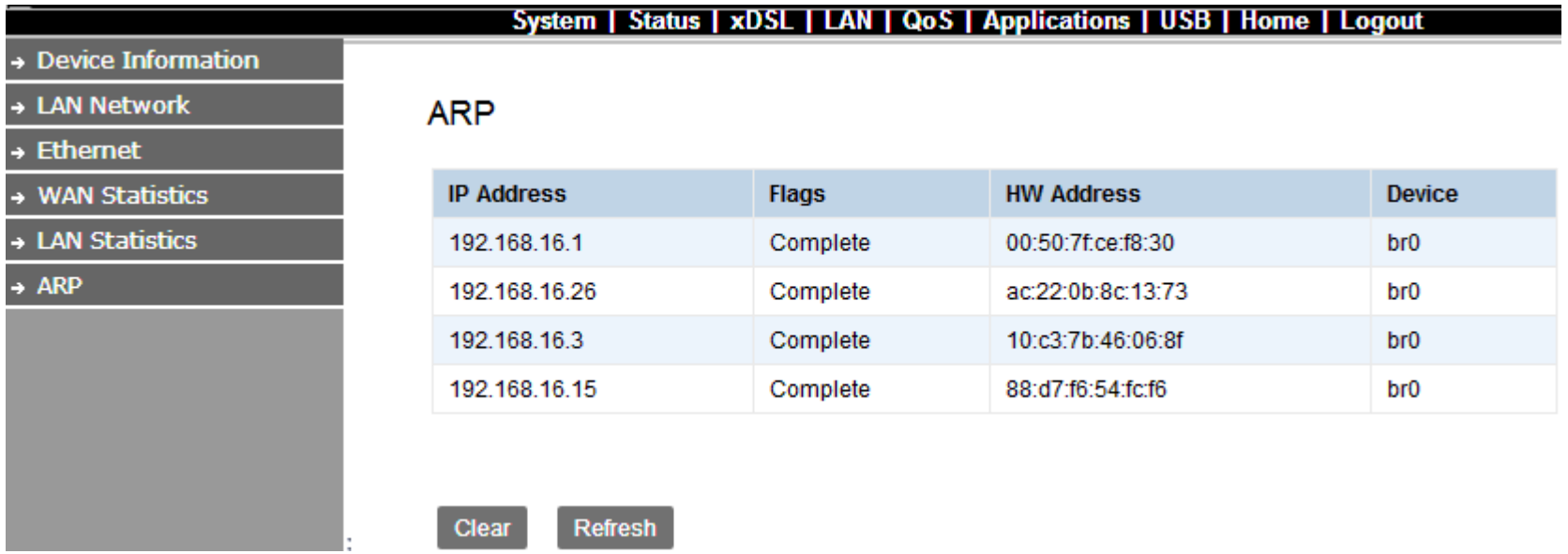


Figure 4.4.5 ARP setting

4.5 xDSL Setup

Select "xDSL". It includes the sub-menus of Dsl Status、Dsl Config.

Click on the "Dsl Status" link in the left navigation bar, user will see VDSL Information for this device. A screen is displayed as shown in Figure 4.5.

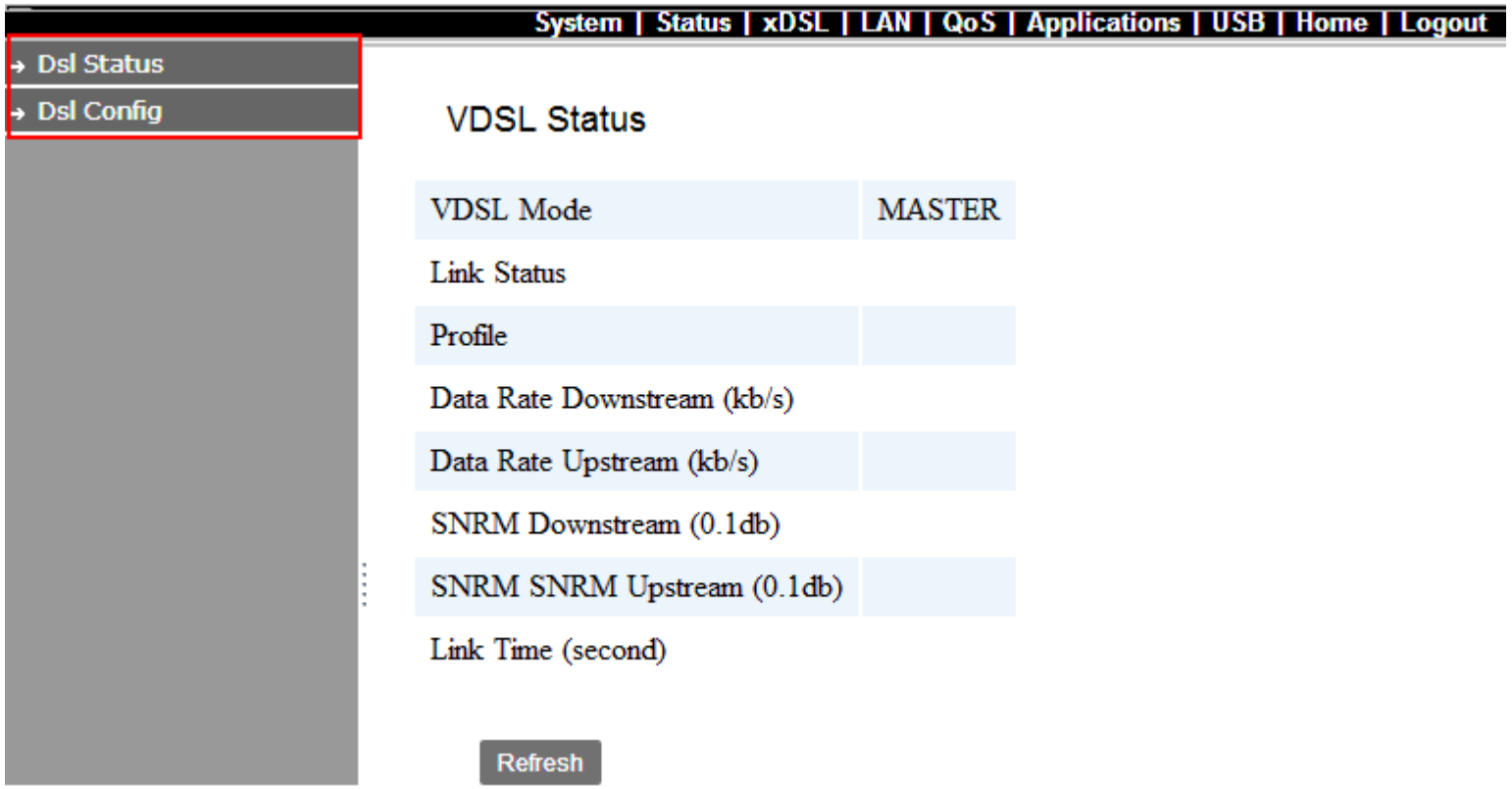


Figure 4.5. VDSL Information

4.5.1 Mode & profile Config

Click on the "Dsl Config" link in the left navigation bar, there are 9 VDSL modes selectable, the default setting is "3. Master Mode, Sy-Auto 1_8/2 (SNRM 6/6)". A screen is displayed as shown in Figure 4.5.1.

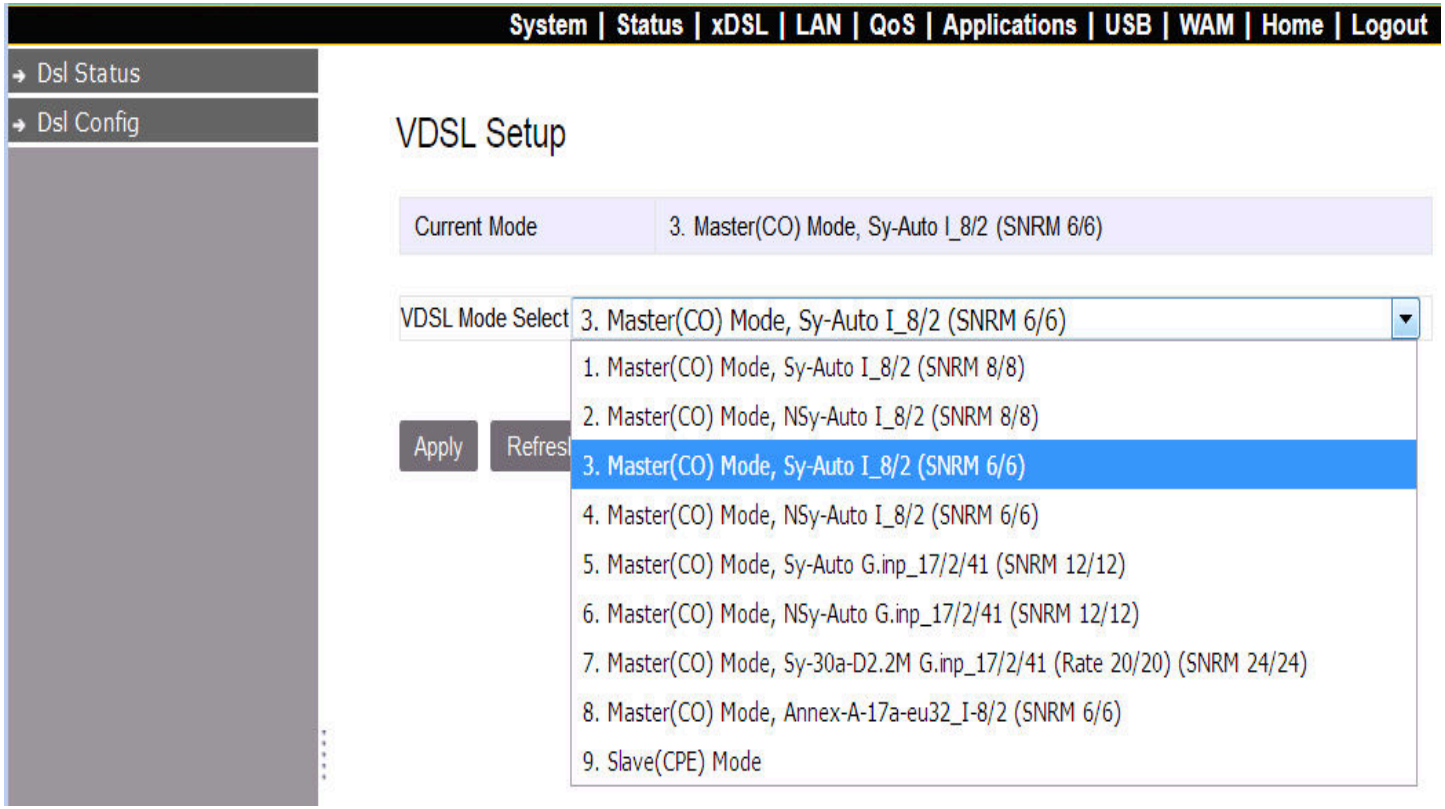


Figure 4.5.1 VDSL Setup

4.5.1.1 VDSL Config Overview

Below table clarify the settings of 9 different VDSL modes.

NO.	Config.	Note
1	Sy-Auto I_8/2 (SNRM 8/8)	Symmetric Auto, Max. Interleave=8, Min.Inp=2, SNRM=8
2	NSy-Auto I_8/2 (SNRM 8/8)	non symmetric Auto, Max. Interleave=8, Min.Inp=2, SNRM=8
3	Sy-Auto I_8/2 (SNRM 6/6)	Symmetric Auto, Max. Interleave=8, Min.Inp=2, SNRM=6 (Default)
4	NSy-Auto I_8/2 (SNRM 6/6)	Non symmetric Auto, Max. Interleave=8, Min.Inp=2, SNRM=6
5	Sy-Auto G.INP_17/2/41 (SNRM 12/12)	Symmetric Auto, enable G.INP, enable re-transition, SNRM=12
6	NSy-Auto G.INP_17/2/41 (SNRM 12/12)	non symmetric Auto, enable G.INP, enable re-transition, SNRM=12
7	Sy-30a-D2.2M G.INP_17/2/41 (Rate 20/20) (SNRM 24/24)	Symmetric 30a, disable 0~2.2MHz, enable G.INP, enable re-transition, Max.Line rate=20Mbps, SNRM=24
8	Annex-A-17a-eu32_I-8/2 (SNRM 6/6)	17A Annex a Eu32, Max. Interleave=8, Min. Inp=2, SNRM=6

9	Slave Mode	Web config for Slave mode is available.

Note：This device is available to select Master (Config 1~8) / Slave (Config 9) mode through web config.

4.6 LAN Setup

Select "LAN". It includes the sub-menus of IPv4 Configuration、IPv6 Configuration、IPv6Static Route、Ethernet Mode.

A screen is displayed as shown in Figure 4.6.

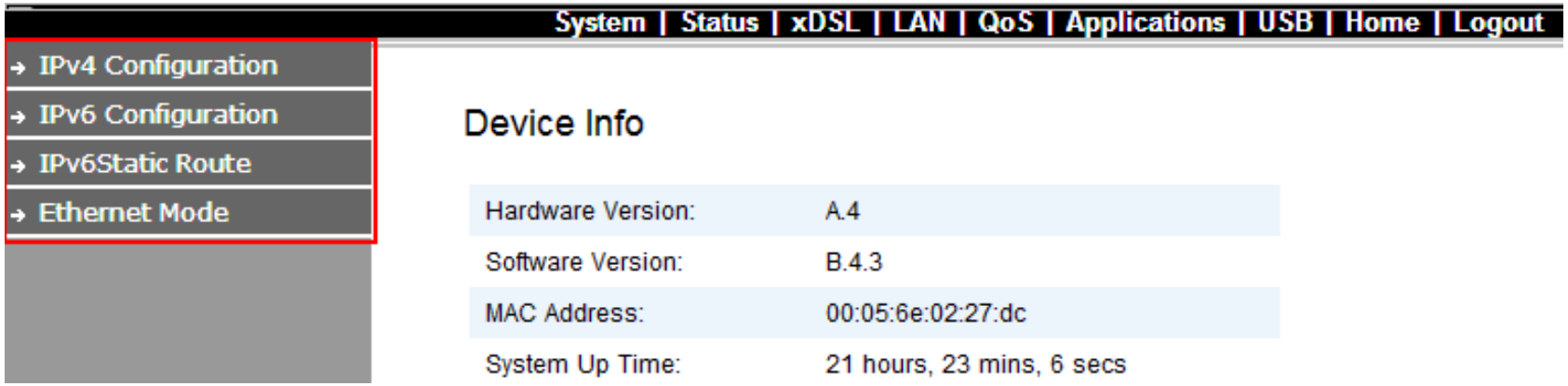


Figure 4.6 LAN

4.6.1 IPv4 Configuration

Click on the "IPv4 Configuration" link in the left navigation bar. Click **"**Apply" at any time during configuration to save the information that user has entered. A screen is displayed as shown in Figure 4.6.1

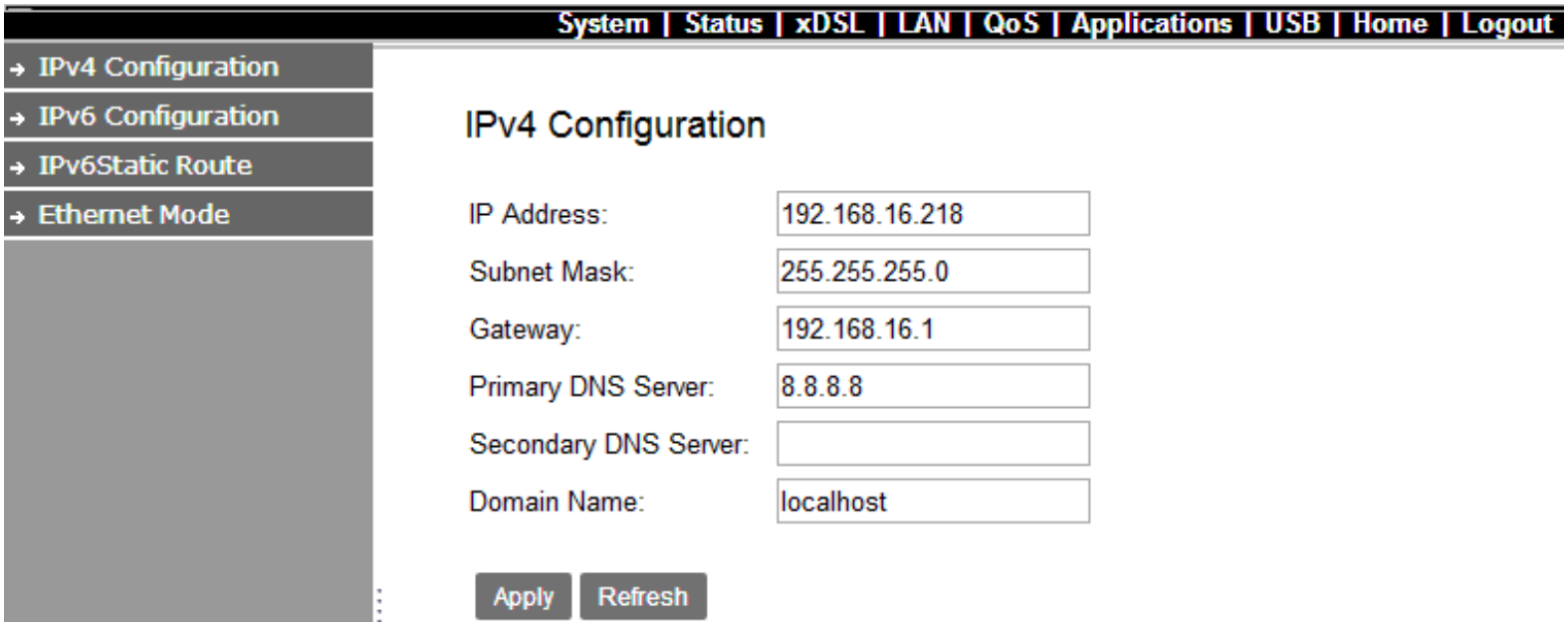


Figure 4.6.1 IPv4 Configuration

4.6.2 IPv6 Configuration:

Click on the "IPv6 Configuration" link in the left navigation bar. Click **"**Apply" at any time during configuration to save the information that user has entered. A screen is displayed as shown in Figure 4.6.2

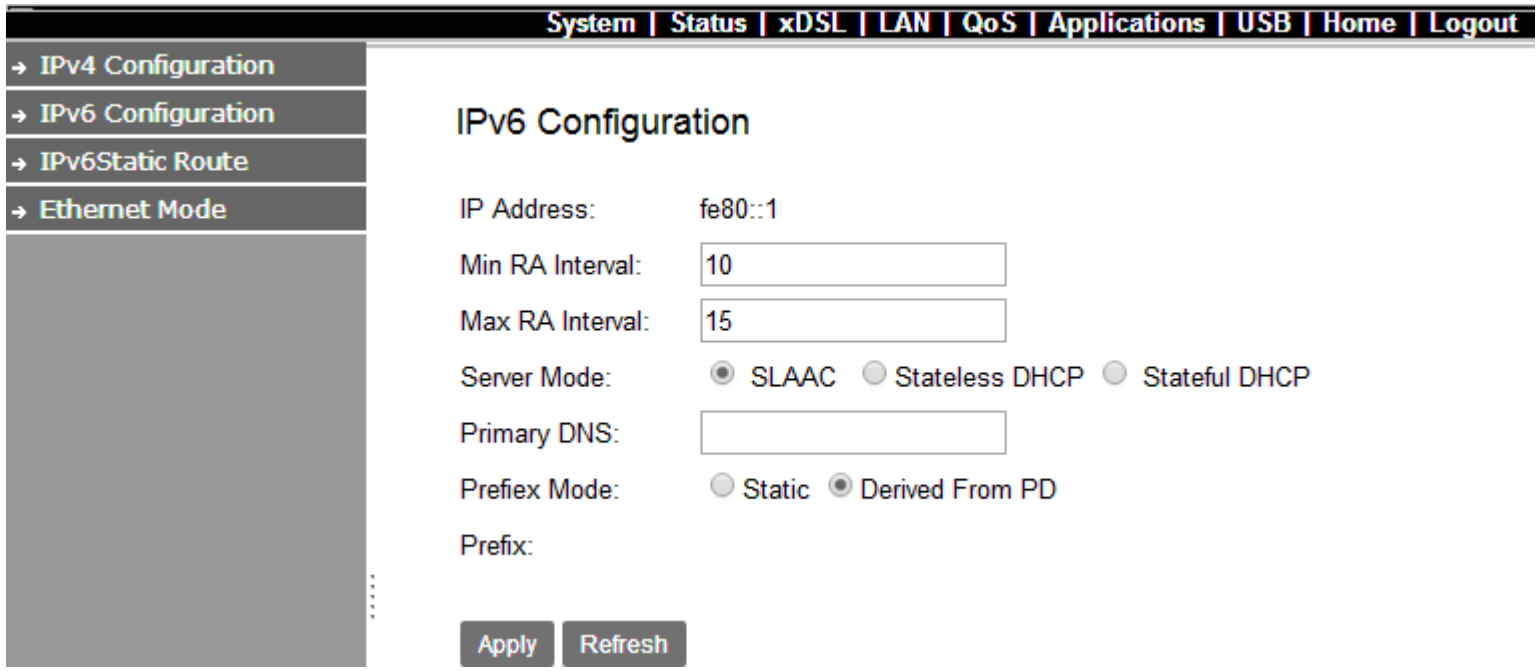
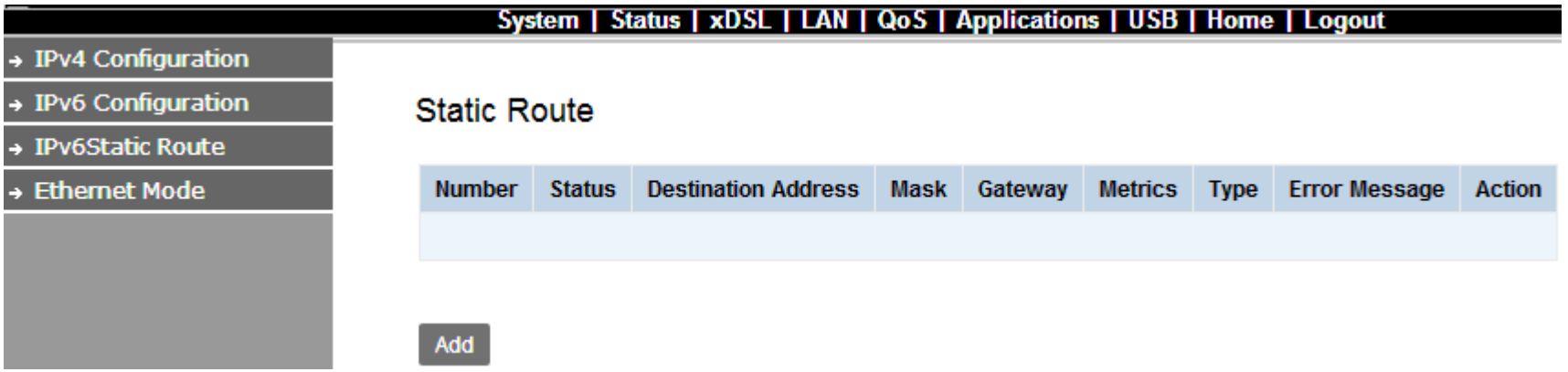


Figure 4.6.2 IPv6 Configuration

4.6.3 IPv6Static Route

Click on the "IPv6Static Route" link in the left navigation bar. Click **"**add" to a new page and setup Static Route. A screen is displayed as shown in Figure 4.6.3



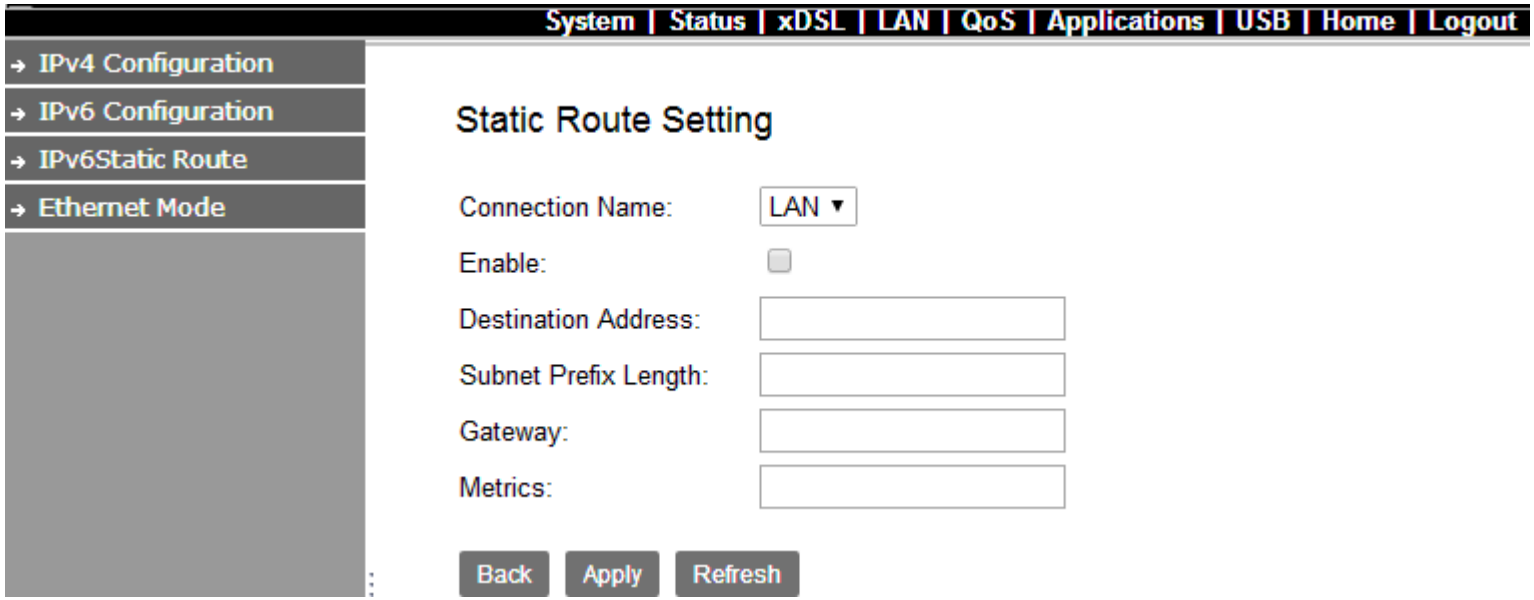


Figure 4.6.3 IPv6Static Route

4.6.4 Ethernet Mode

Click on the "Ethernet Mode" link in the left navigation bar. Choose the speed (Auto, 10Mb/s, 100Mb/s) of LAN1~4, and click "Apply" to setup.

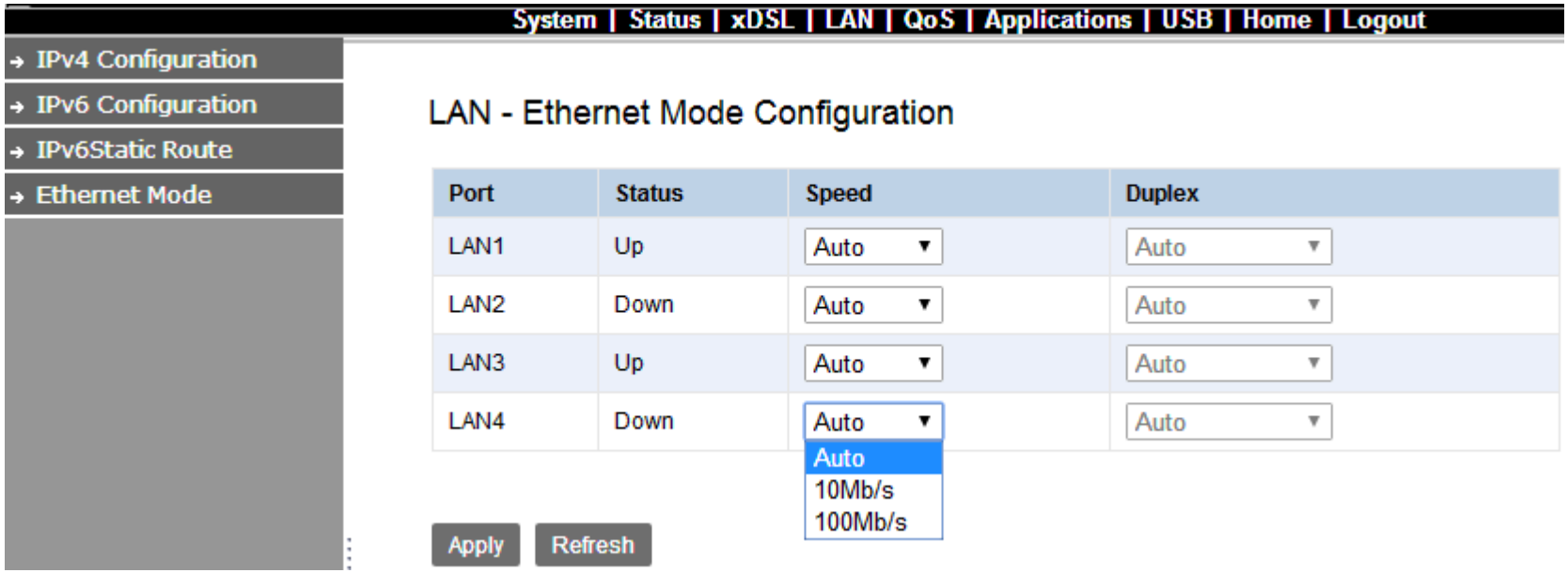


Figure 4.6.4 LAN-Ethernet Mode Configuration

4.7 Qos Setup

Select "Qos". It includes the sub-menus of Qos Queue、Qos Classification. A screen is displayed as shown in Figure 4.7.

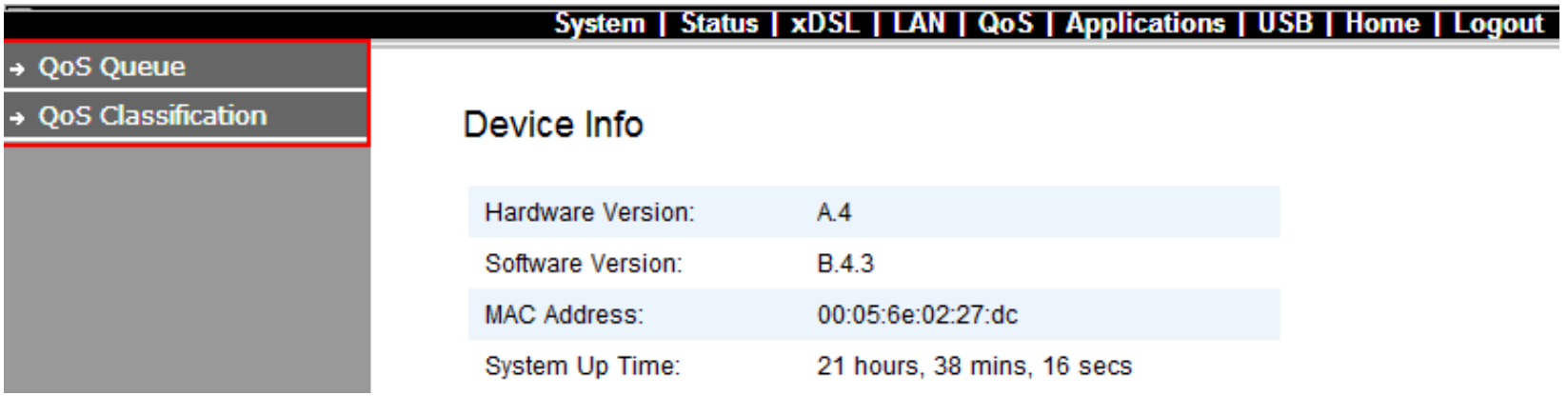


Figure 4.7 Qos

4.7.1 Qos Queue

Click on "Qos Queue" link in the left navigation bar, on the right page user will see how to enable Qos, and Upstream Queue Settings. There are four models of Qos profiles. A screen is displayed as shown in Figure 4.7.1.

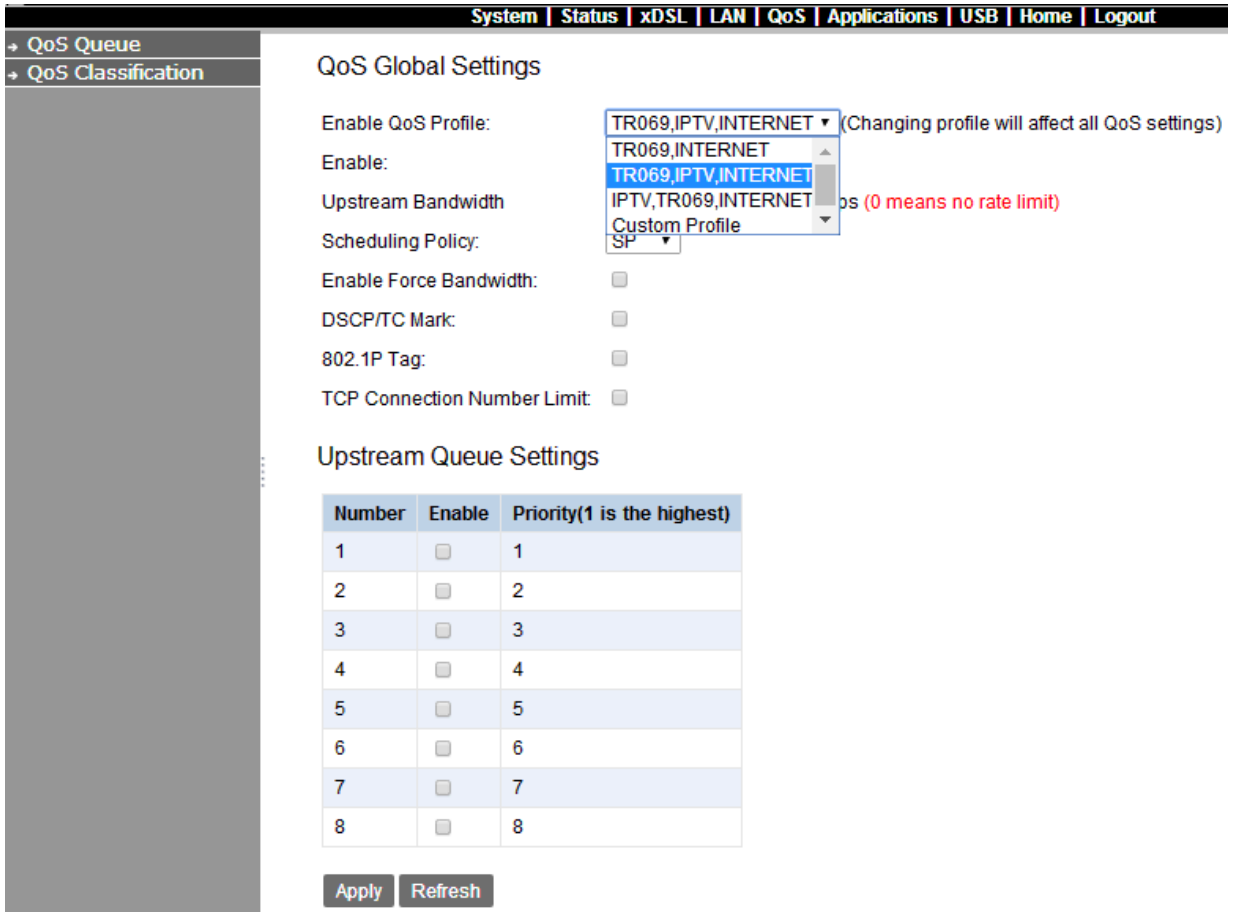


Figure 4.7.1 Qos Global Settings

4.8 Applications

Select "Applications". It includes the sub-menus of Telnet Service、SSH Service、Printer Share、Multimedia Share、UPnP、Multicast IGMP、Multicast MLD、SNMP. A screen is displayed as shown in Figure 4.8.

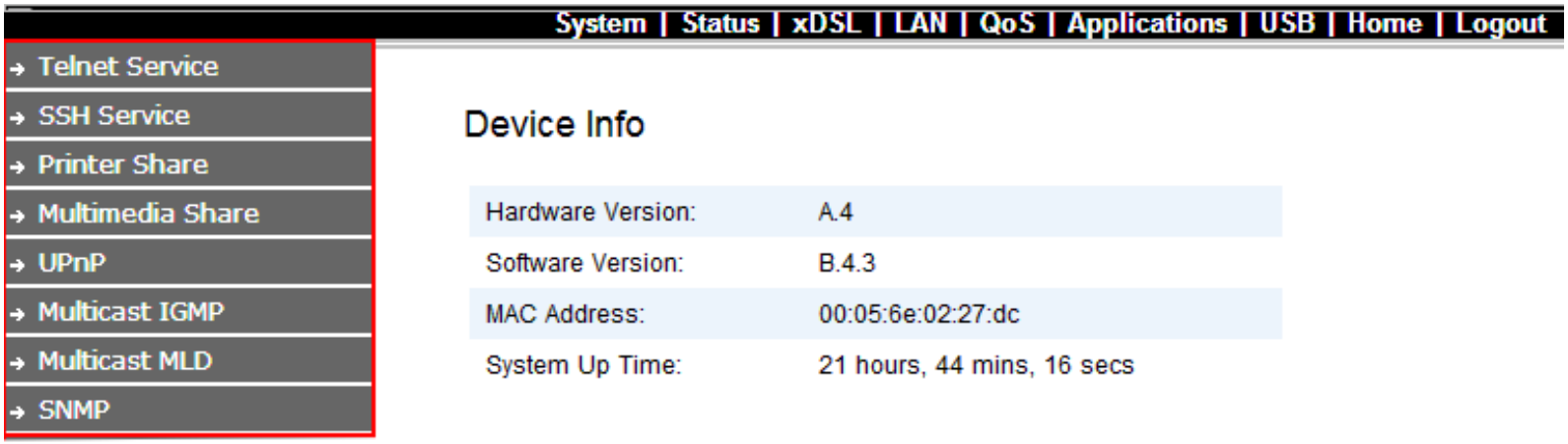


Figure 4.8 Applications

4.8.1 Telnet Service Setup (for Security)

Click on "Telnet Service" link in the left navigation bar, on the right page user will see how to enable Telnet Service. A screen is displayed as shown in Figure 4.8.1

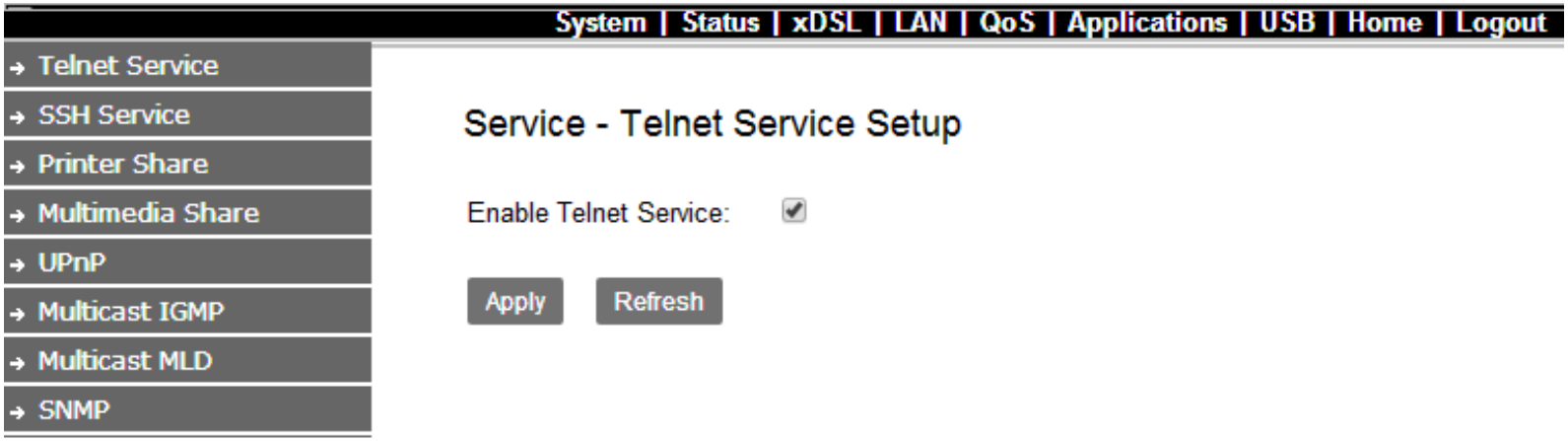


Figure 4.8.1 Service-Telnet Service Setup

4.8.2 SSH Service (Telnet Encryption)

Click on "SSH Service" link in the left navigation bar, on the right page user will see how to enable SSH Service.
A screen is displayed as shown in Figure 4.8.2

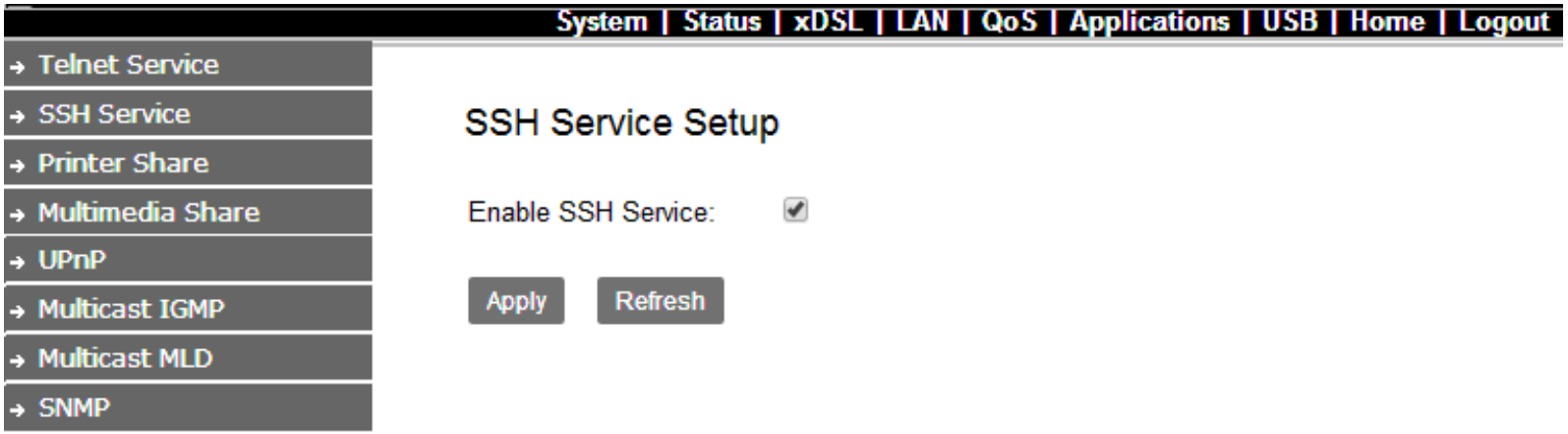


Figure 4.8.2 SSH Service Setup

4.8.3 Printer Sharing

Click on "Printer Share" link in the left navigation bar, on the right page user will see how to enable Printer Service, and type Queue Name. A screen is displayed as shown in Figure 4.8.3.

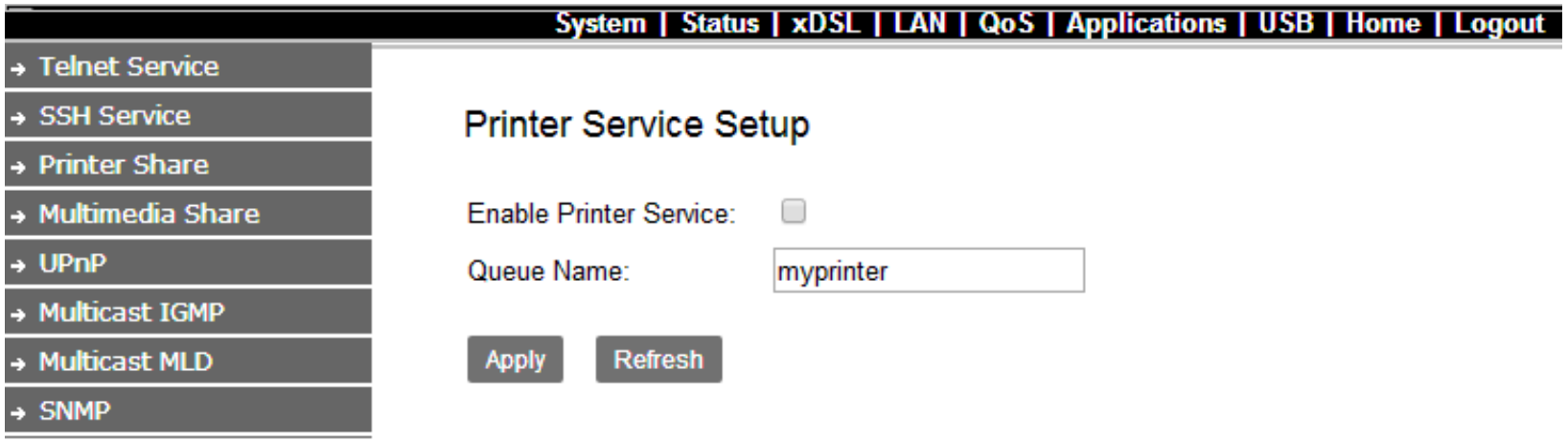


Figure 4.8.3 Printer Service Setup

4.8.4 Multimedia Sharing

Click on "Multimedia Share" link in the left navigation bar, on the right page user will see how to enable DMS and select Share Folders. A screen is displayed as shown in Figure 4.8.4.

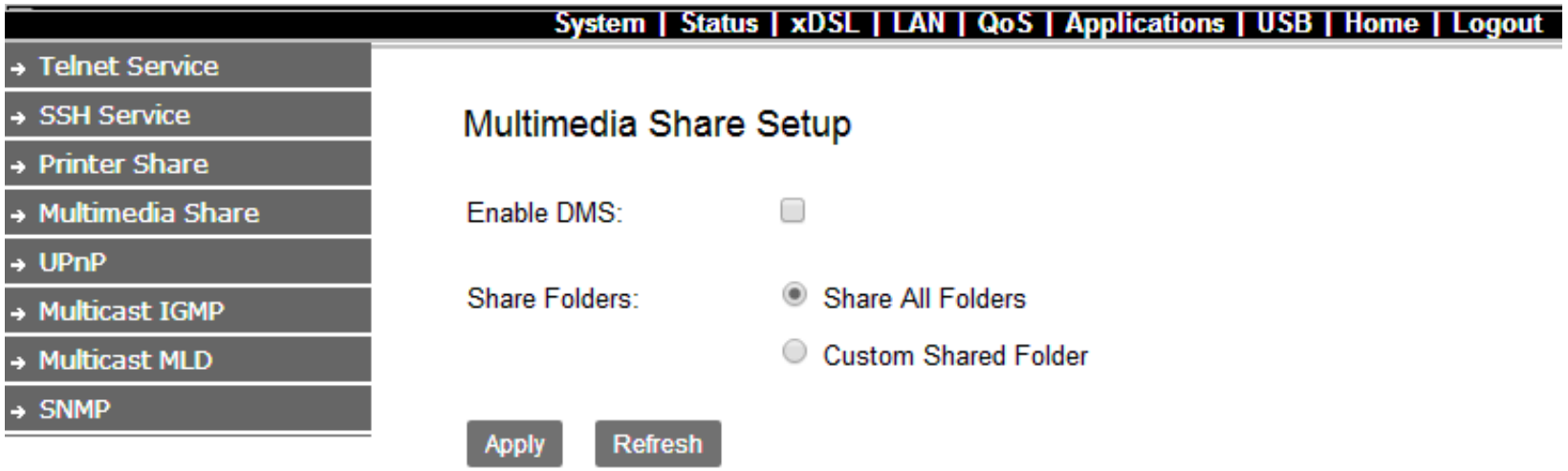


Figure 4.8.4 Multimedia Share Setup

4.8.5 UPnP

Click on "UPnP" link in the left navigation bar, on the right page user will see how to enable UPnP and add Blacklist. A screen is displayed as shown in Figure 4.8.5.

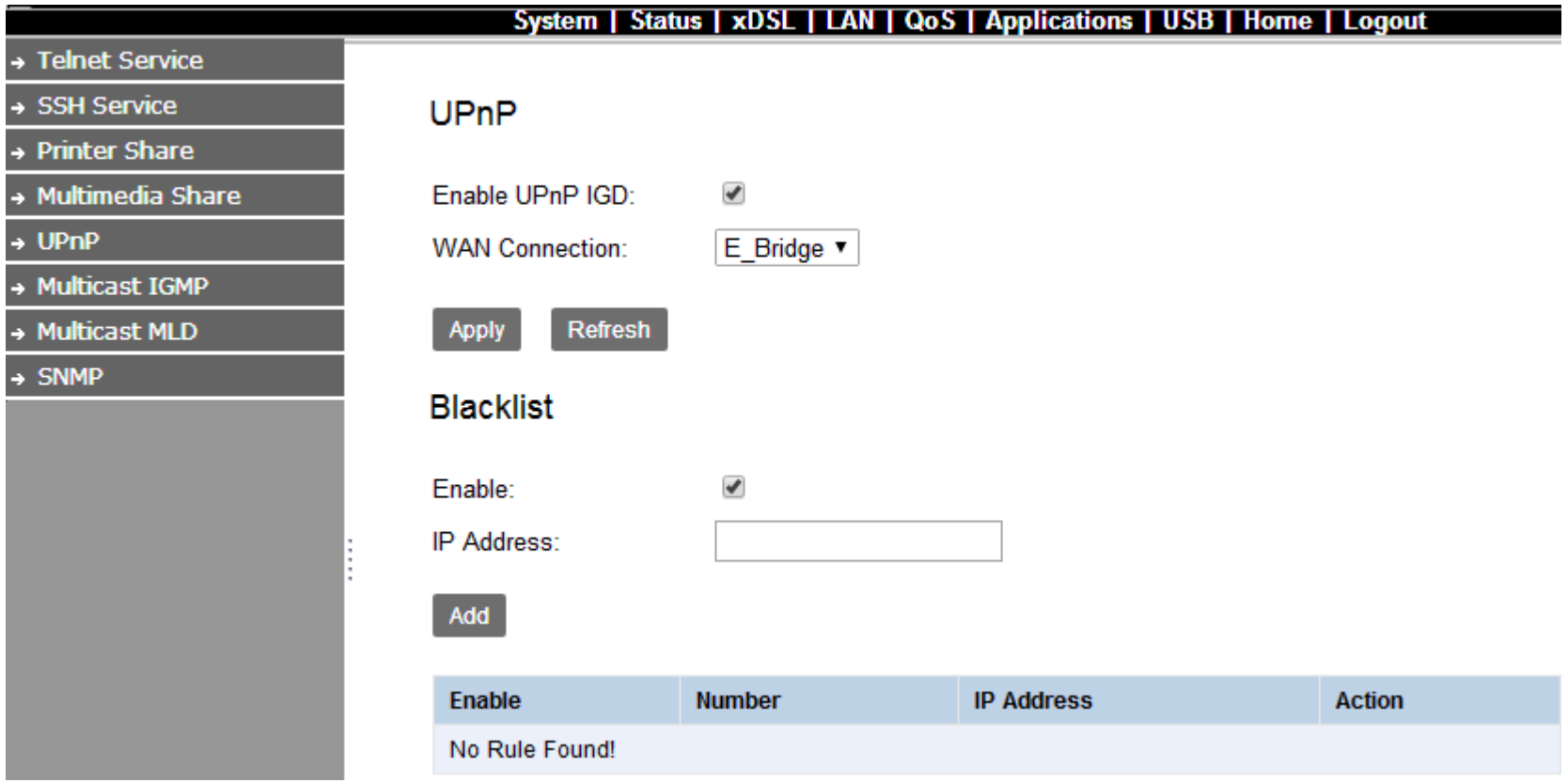


Figure 4.8.5 UPnP

4.8.6 Multicast IGMP

Click on "Multicast IGMP" link in the left navigation bar. According to the setting, if user wants to test the IGMP function, user only needs to enable IGMP function basic on the Application setup.

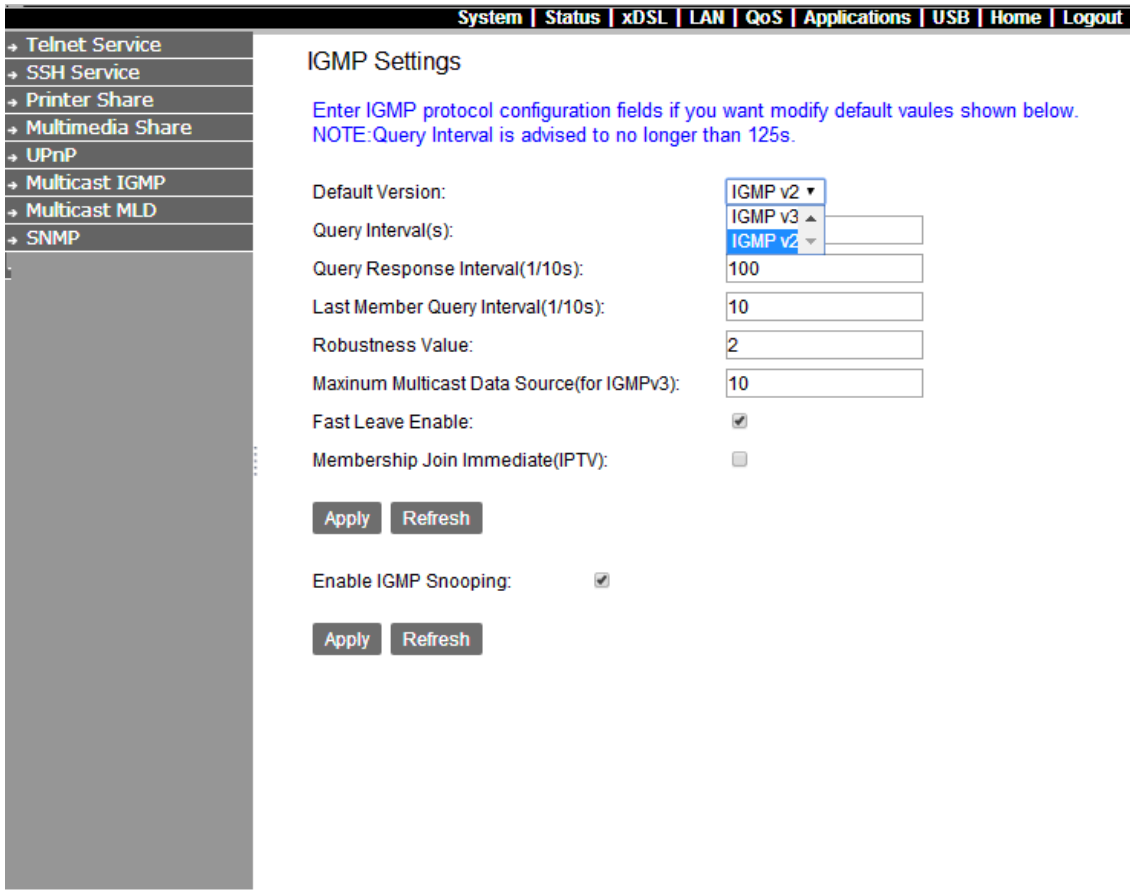


Figure 4.8.6 IGMP Settings

4.8.7 Multicast MLD (IPv6)

Click on "Multicast MLD" link in the left navigation bar. According to the setting, if users want to test MLD function, users only need to enable MLD function to be basic on the Application setup.

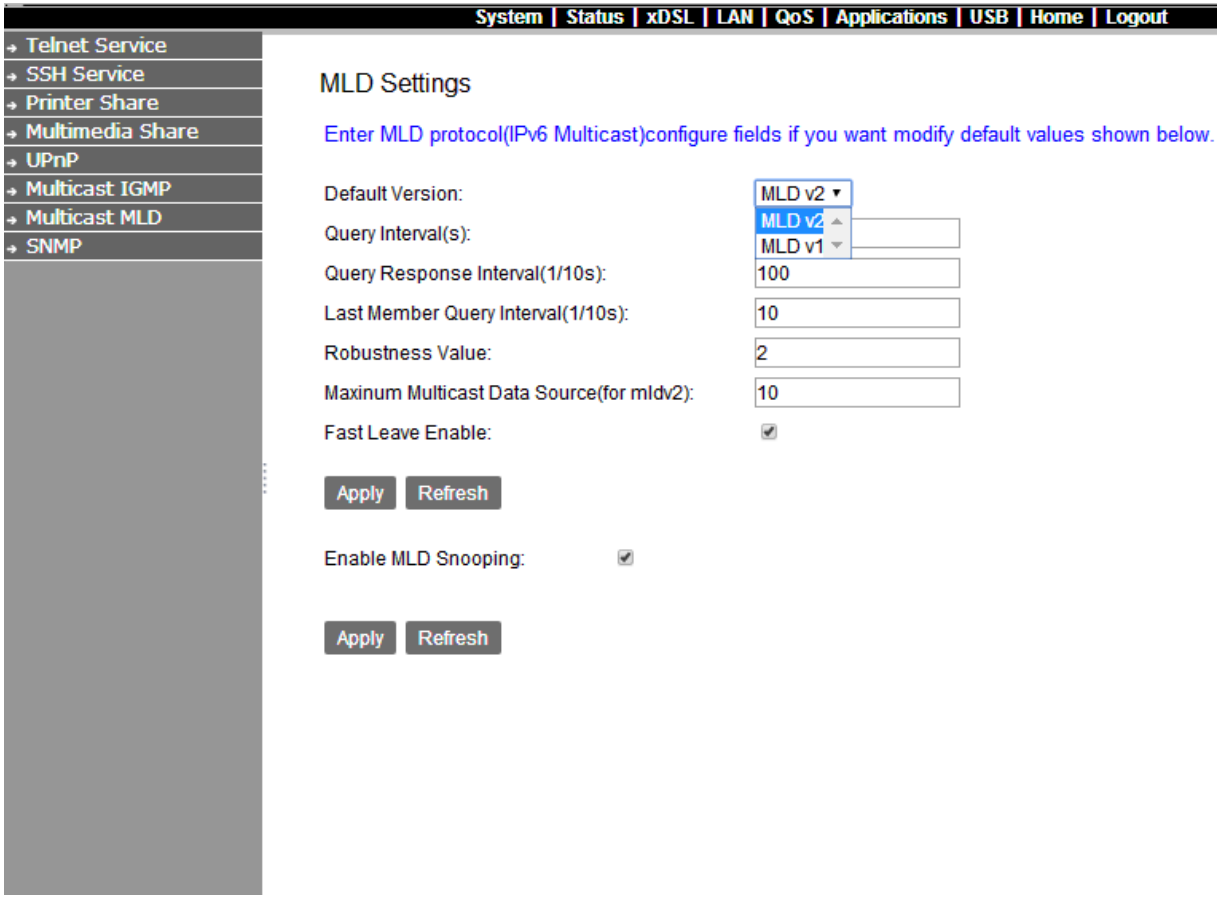


Figure 4.8.7 MLD Settings

4.8.8 SNMP

Click on "SNMP" link in the left navigation bar, on the right page user will see how to enable SNMP function. NV-700L supports SNMP V1/V2.

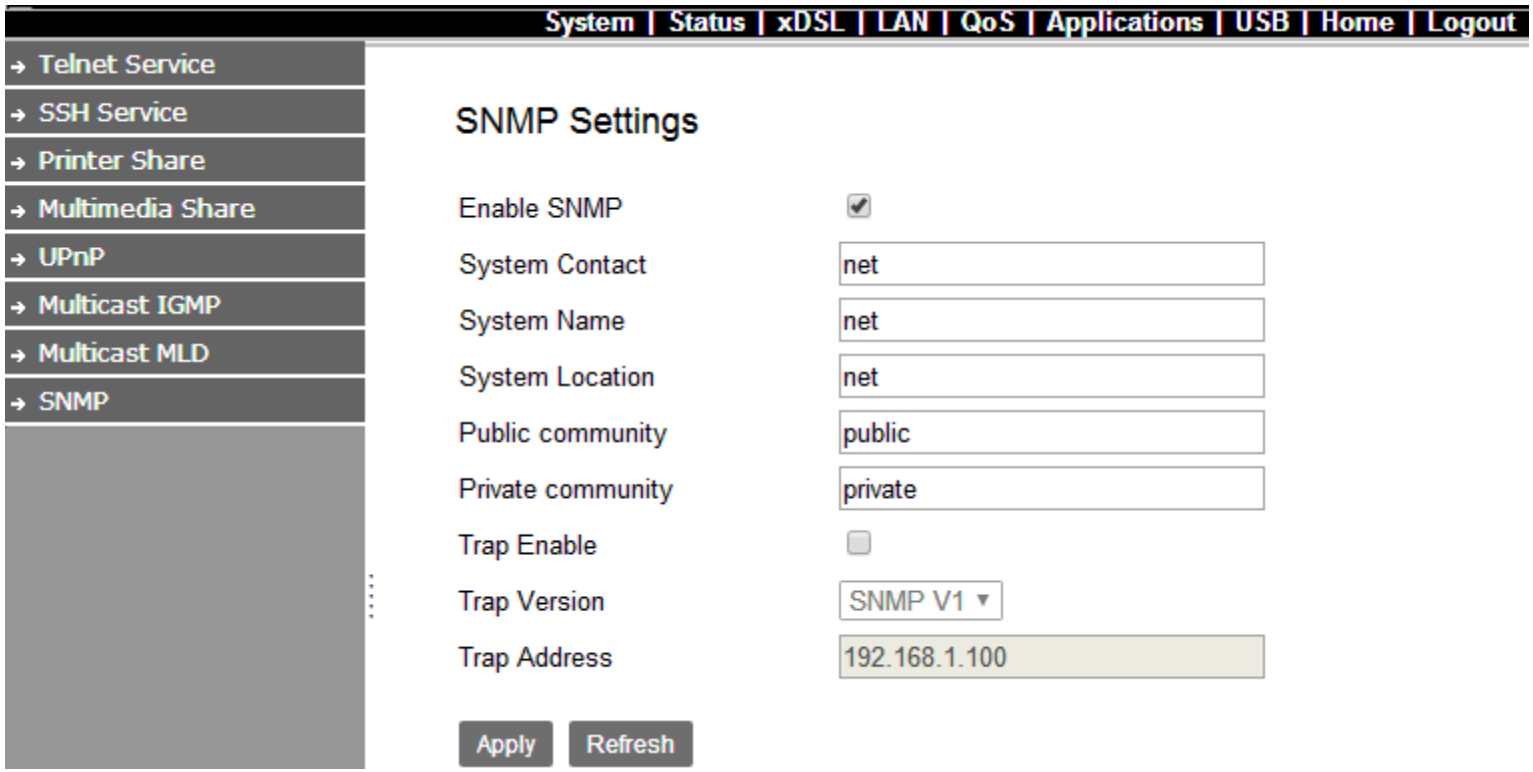
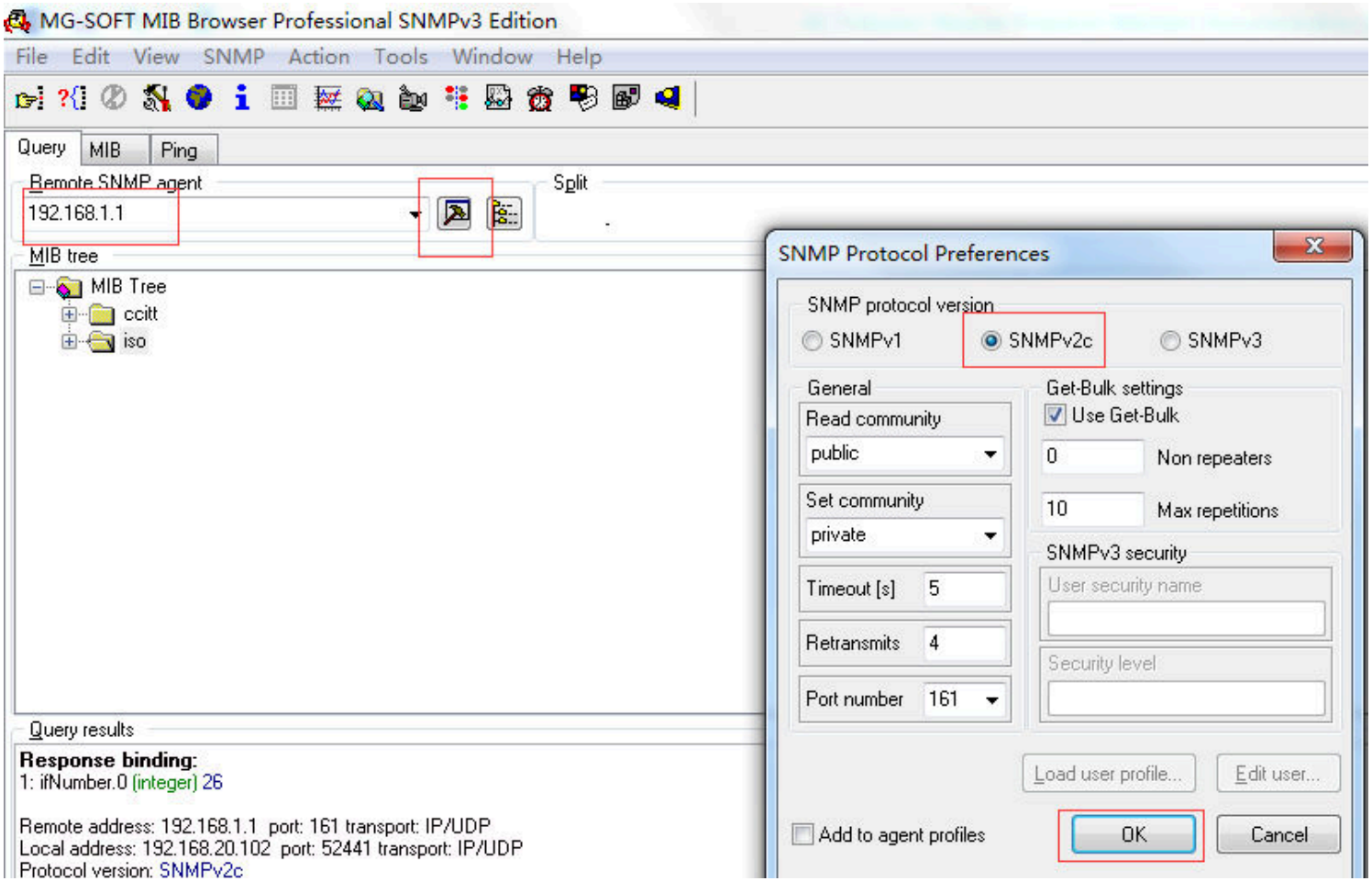
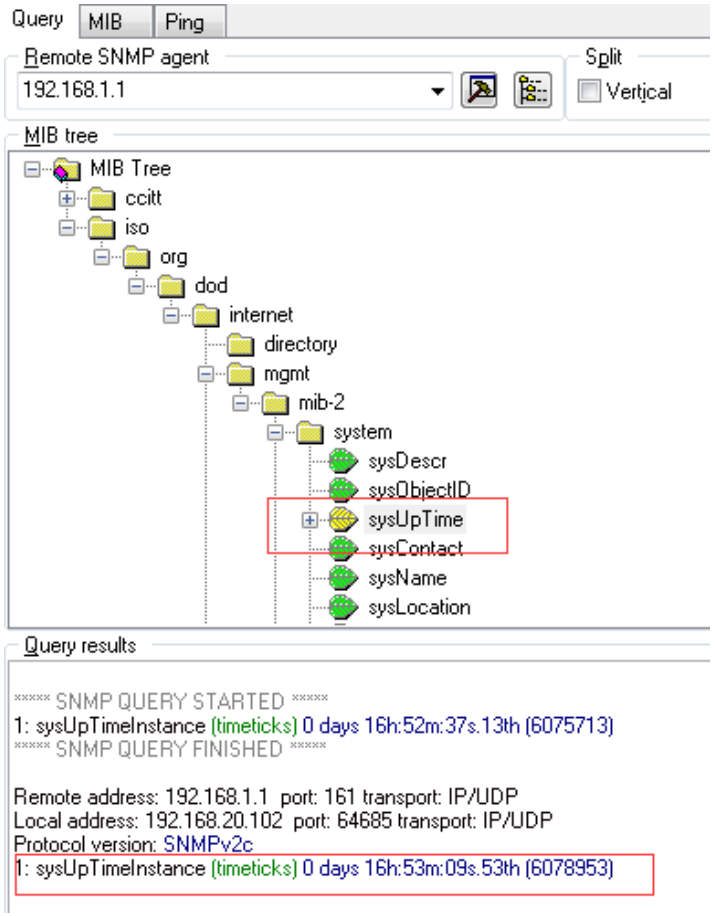


Figure 4.8.8 SNMP Settings

Download "MG-SOFT MIB Browser". Below picture indicate how to use the software and connect remote SNMP agent.



Select OID:1.3.6.1.2.1.1.3
SysUp Time



4.9 USB setup

Select "USB". It includes the sub-menus of Storage Device Info、Samba Server、FTP Server、FTP Client、TFTP Server.

A screen is displayed as shown in Figure 4.9.

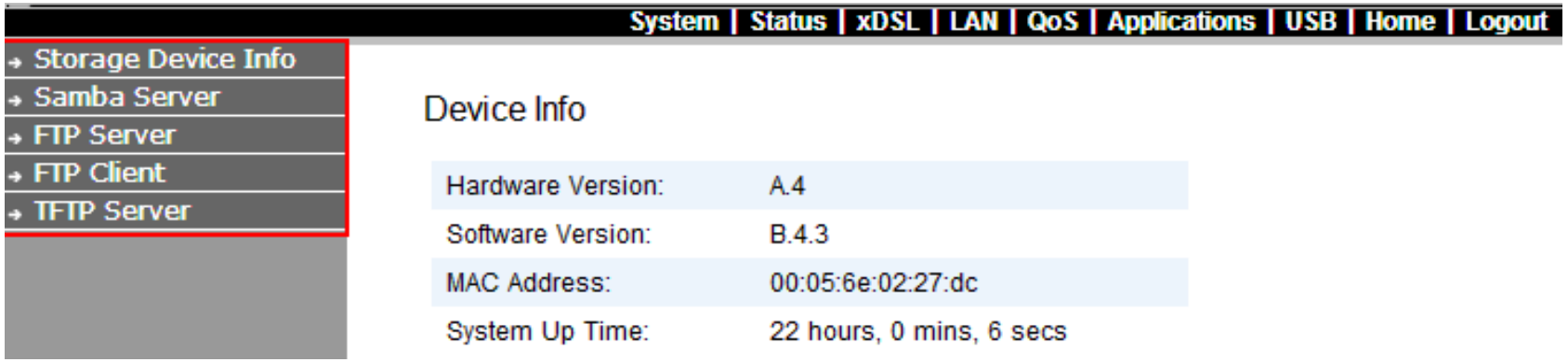


Figure 4.9 USB

4.9.1 Storage Device Info

Insert a U disk into the USB interface, then login 192.168.16.249, click on "Storage Device Info" link in the left navigation bar. Confirm the system has mounted the U disk**.** A screen is displayed as shown in Figure 4.9.1

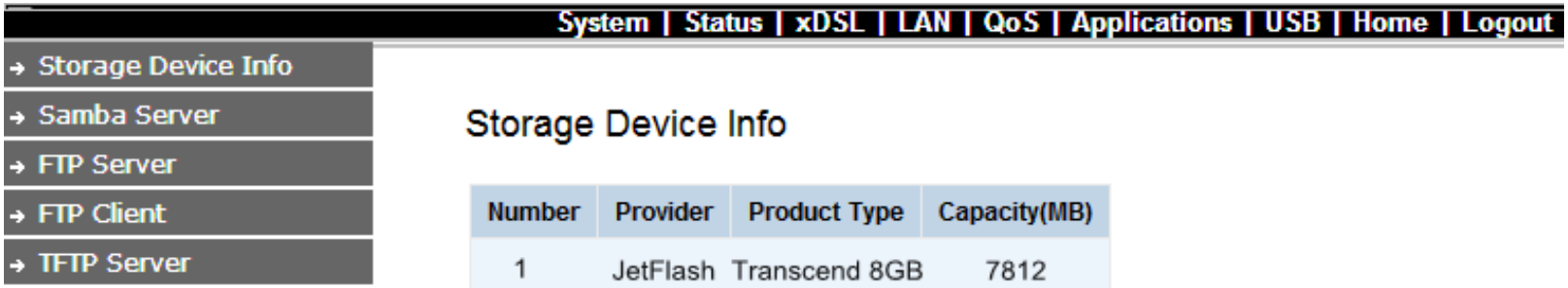


Figure 4.9.1 Storge Device Info

4.9.2 Samba Service

Click on "Samba Service" link in the left navigation bar, on the right page user will see how to enable Samba Service.

A screen is displayed as shown in Figure 4.9.2.

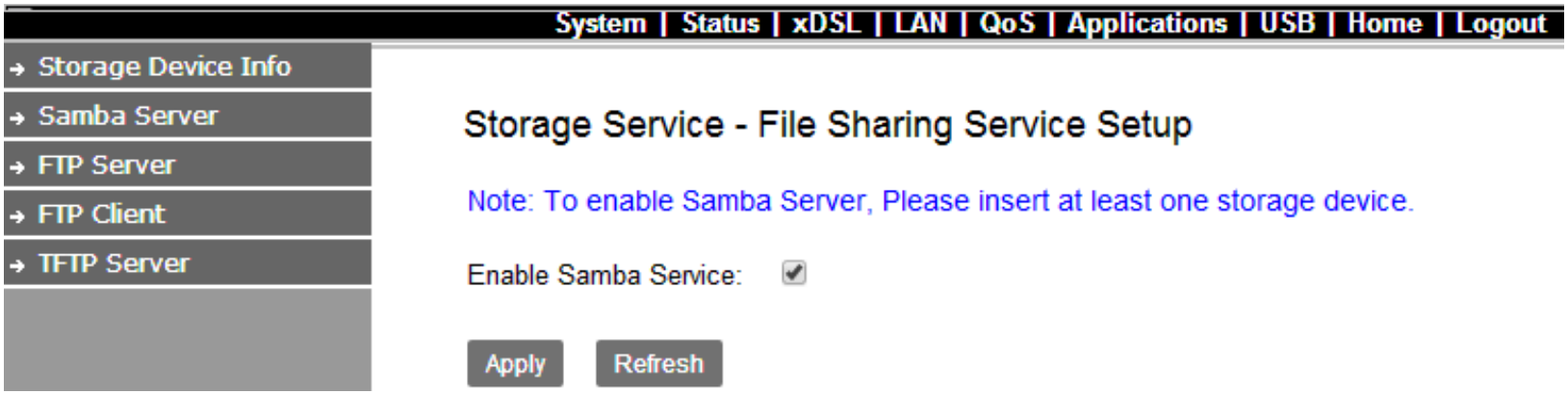


Figure 4.9.2 File Sharing Service Setup

Note: To enable Samba Service, please insert at least one storage device.

4.9.3 FTP Server

Click on "FTP Server" link in the left navigation bar, on the right page user will see how to enable FTP Service function. A screen is displayed as shown in Figure 4.9.3.

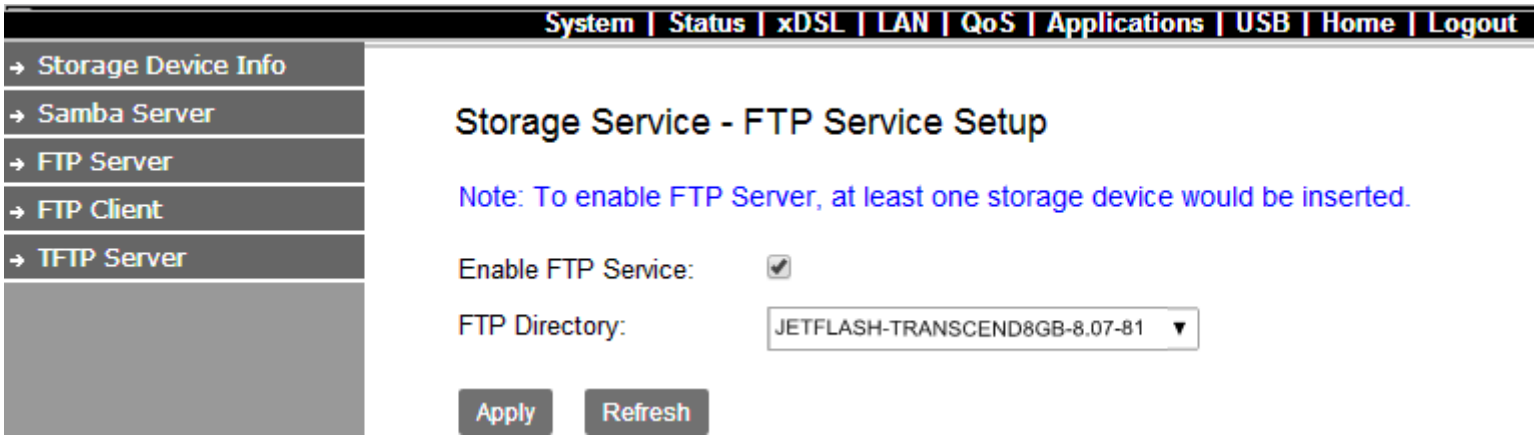
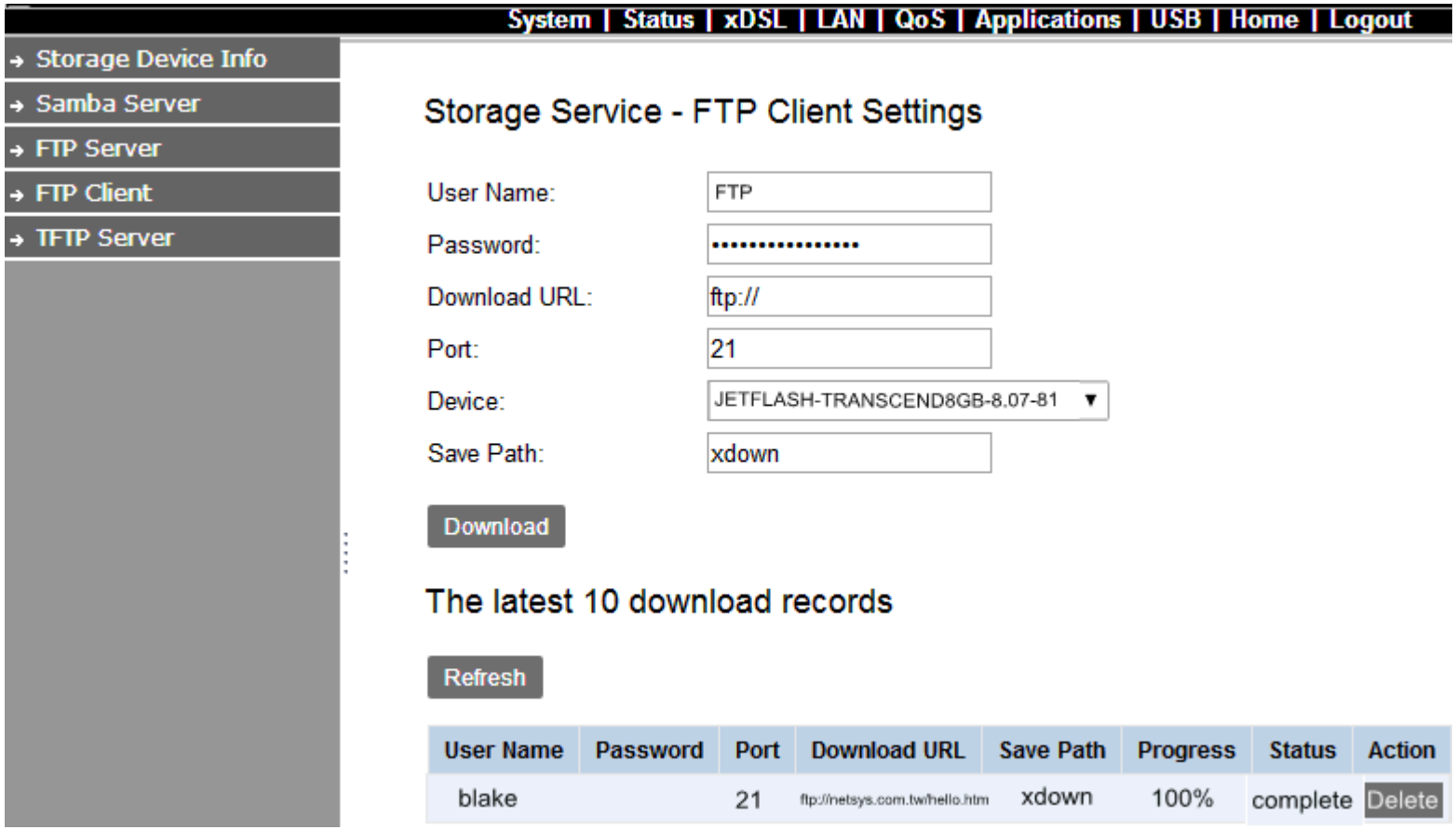


Figure 4.9.3 FTP Service Setup

Note: To enable FTP Server, at least one storage device will be installed.

4.9.4 FTP Client

Click on "FTP Client" link in the left navigation bar, on the right page user can input FTP Client Settings, and click "Download". A screen is displayed as shown in Figure 4.9.4.



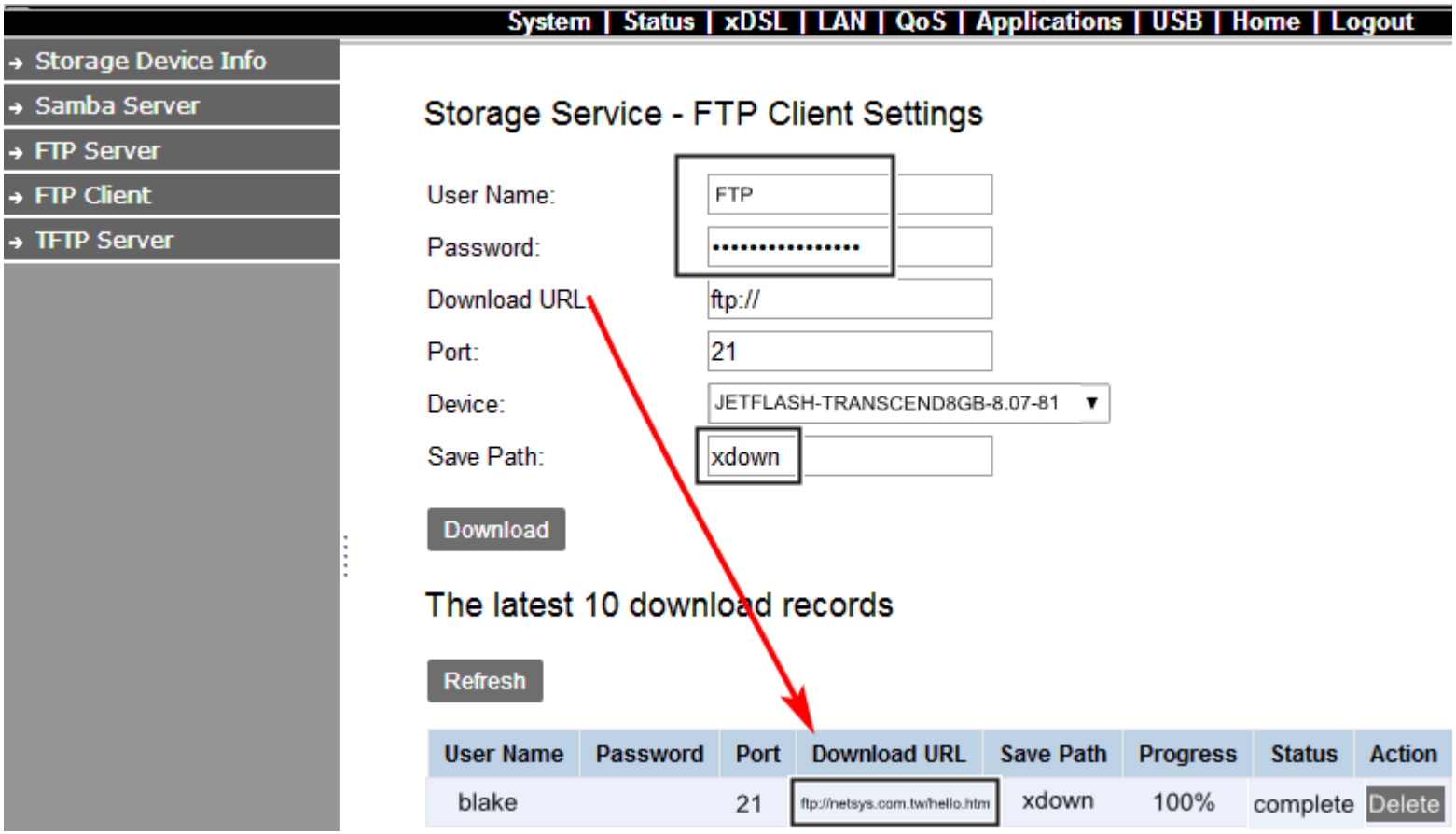


Figure 4.9.4 FTP Client Settings

Click "Refresh", and make sure the status is complete.

Figure 4.9.4 FTP Client Settings

4.9.5 TFTP Server

Click on "TFTP Server" link in the left navigation bar, on the right page user will see how to enable TFTP Server function. A screen is displayed as shown in Figure 4.9.5.

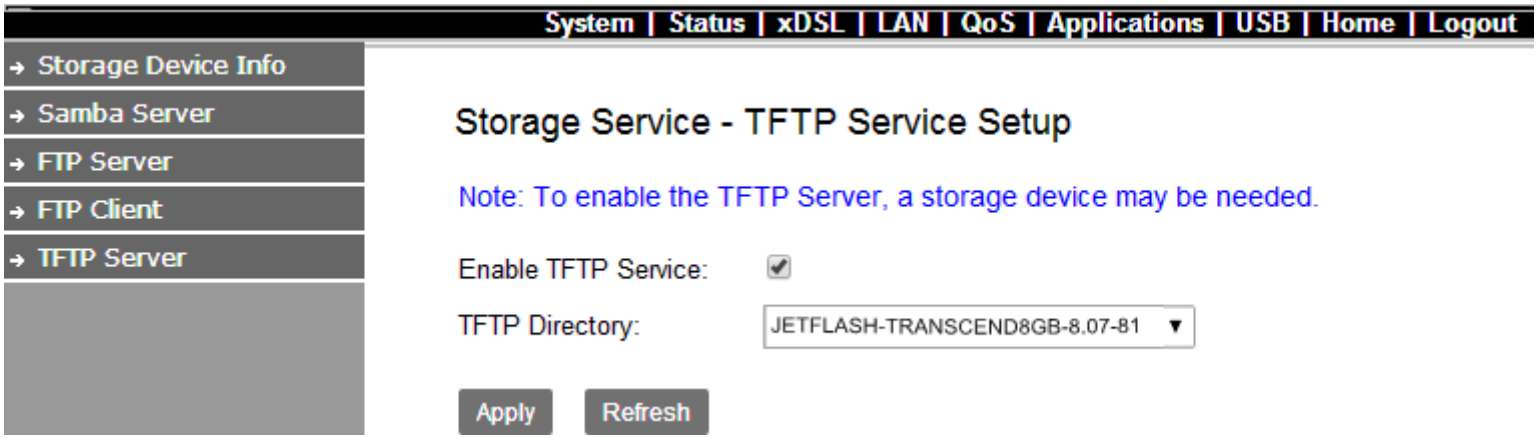


Figure 4.9.5 TFTP Service Setup

Appendix A: Cable Requirements

A.1 Ethernet Cable

A CAT 3~7 UTP (unshielded twisted pair) cable is typically used to connect the Ethernet device to the Modem. A 10Base-T cable often consists of four pairs of wires, two of which are used for transmission. The connector at the end of the 10Base-T cable is referred to as an RJ-45 connector and it consists of eight pins. The Ethernet standard uses pins 1, 2, 3 and 6 for data transmission purposes. (Table A-1)

Table A-1 RJ-45 Ethernet Connector Pin Assignments

PIN #	MDI		MDI-X	
	Signal	Media Dependant interface	**Signal**	Media Dependant interface-cross
1	TX+	Transmit Data +	RX+	Receive Data +
2	TX-	Transmit Data -	RX-	Receive Data -
3	RX+	Receive Data +	TX+	Transmit Data +
4	--	Unused	--	Unused
5	--	Unused	--	Unused
6	RX-	Receive Data -	TX-	Transmit Data -
7	--	Unused	--	Unused
8	--	Unused	--	Unused

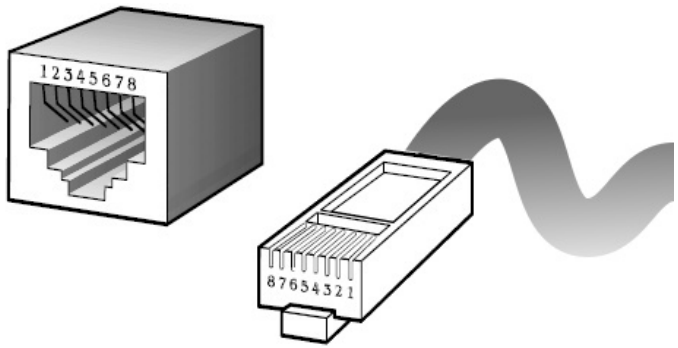


Figure A-1 Standard RJ-45 repectacle/connector

Note:

Please make sure users connected cables have the same pin assignment as the table above before deploying the cables into the user's network.

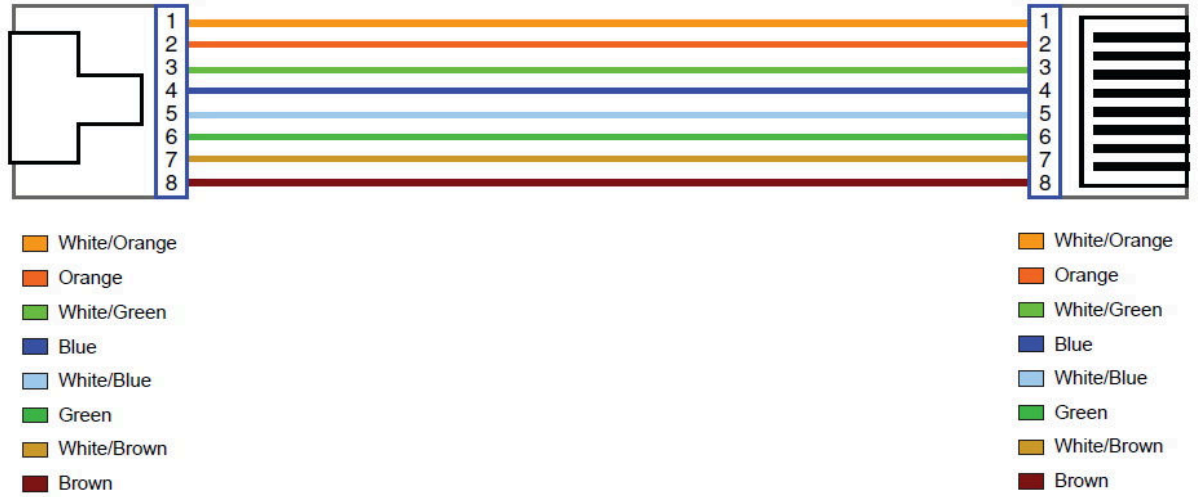


Figure A-2 Pin Assignments and Wiring for an RJ-45 Straight-Through Cable

Figure A-3 Pin Assignments and Wiring for an RJ-45 Crossover Cable

A.2 Telephone wire

Standard telephone wire of any gauge or type-flat, twisted or quad is used to connect the Modem to the telephone network. A telephone cable typically consists of three pairs of wires, one of which is used for transmission. The connector at the end of the telephone cable is called an RJ-11 connector and it consists of six pins. POTS (plain old telephone services) use pins 3 and 4 for voice transmission. A telephone cable is shown below. (Figure A-4)

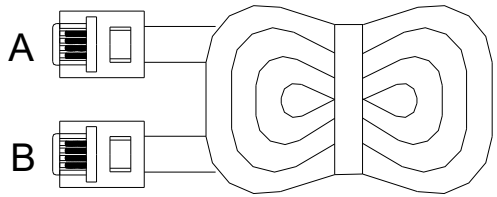


Figure A-4 Telephone cable

The A and B connectors on the rear of the Modem are RJ-11 connectors. These connectors are wired identically. The RJ-11 connectors have six positions, two of which are wired. The Modem uses the center two pins. The pin out assignment for these connectors is presented below. (Table A-2)

Table A-2 RJ-11 Pin out Assignments

Pin#	MNEMONIC	FUNCTION
1	NC	Unused
2	NC	Unused
3	**TIP**	**POTS**
4	**RING**	**POTS**
5	NC	Unused
6	NC	Unused

Appendix B: Product Specification

Key Features & Benefits

- Adopts ARM Cortex A9 dual-core processor
- ~~Supports Master/Slave Mode selectable by Web config menu~~
- Supports G.998.4 G.INP
- Supports up to 100 Mbps symmetric
- Support 8 bands selectable
- Support USB 2.0 for connecting USB Dongle
- Supports IPv4/IPv6 NTP Client
- Support static routing for IPv4 and IPv6 forwarding
- Mac Address based filtering
- Http/https Web-based management
- Support IGMP snooping v2/v3
- Compliant with IEEE 802.3 & 802.3u Ethernet Standard
- Support VLAN Tag pass through
- Compliant with ITU-T G993.2 VDSL2 standard
- Support 8 queue MFC/DSCP both type QoS
- Supports HTTP/HTTPS web management
- Support SSL / SSH security
- Support remote management and monitor
- Support configuration backup and restore
- On board surge protection for Line port

- Supports bridge mode only
- Supports Dual Firmware Image Backup
- Supports SNMP v1/v2
- On board POTS/ISDN splitter
- Supports TR-069
- Supports Jumbo frame (MTU) up to 2k bytes

Note:

1. Features and specifications in this manual are subject to change without prior notice.
2. (*) Firmware is upgradable for future enhancement.

Product Specification

Standard:	IEEE802.3/802.3u standards ITU-T G993.2/G998.4 standards
Regulatory Compliance:	FCC CE RoHS Compliance
Physical Interface:	4 x RJ-45 10/100 Mbps Ethernet port 1 x RJ-11 / Terminal combo for line port 1 x RJ-11 connector for POTS/ISDN phone device 1 x Reset Button for resetting to factory default 1 x USB2.0 for connecting USB dongle
LED Indicators:	1 x Power LED 4 x Link/Active Status for Ethernet port 1 x Link LED for VDSL2 port 1 x USB LED 1 x CO(Master) LED
Switch method:	Store and forward
Flow control:	Full duplex: IEEE 802.3x Half duplex: Back pressure
Typical Power Consumption:	4.4W (Full load, without USB port)
Power Supply:	Input Voltage: 12 VDC (Commercial-grade power adapter)

Operating Temperature:	0°C ~ 50°C (32°F ~ 122°F) Fanless, free air cooling
Storage Temperature:	-20°C ~ 70°C (-4°F ~158°F)
Humidity:	10% to 90% (non-condensing)
Dimensions:	184 x 146 x 40 mm (7.2" x 5.74" x 1.57")
Weight:	approX.0.4 kg
EMC Certification:	EMI Compliant: FCC EMS Compliant: CE mark

Appendix C: Troubleshooting

Diagnosing the Modem's Indicators

The modem can be easily monitored through its comprehensive panel indicators. These indicators assist the network manager in identifying problems the hub may encounter. This section describes common problems users may encounter and possible solutions.

1. Symptom:	POWER indicator does not light up (green) after power on.
Cause:	Defective External power supply
Solution:	Check the power plug by plugging in another that is functioning properly. Check the power cord with another device. Check the terminal block and make sure to fasten the power cord. If these measures fail to resolve the problem, have the unit power supply replaced by a qualified distributor.
Note:	Please refer to the power status table to check power input status. Section 3.3

2. Symptom:	Link indicator does not light up (green) after making a connection.
Cause:	Network interface (ex. a network adapter card on the attached device), network cable, or switch port is defective.
Solution:	2.1 Verify that the switch and attached device are power on. 2.2 Be sure the cable is plugged into both the switch and corresponding device. 2.3 Verify that the proper cable type is used, and its length does not exceed specified limits. 2.4 Check the modem on the attached device and cable connections for possible defects. 2.5 Make sure that the phone wire must be connecting NV-700L first, when powered on. 2.6 Replace the defective modem or cable if necessary. 2.7 Or try to change band profile as 17a for getting long reach

3. Symptom:	Line Link cannot be established.
Cause:	NV-700L and NV-600A setting failure or phone cable length is over the specification limit.
Solution:	3.1 Please make sure that the phone wire must be connected between NV-700L (Master side) and NV-600A (Slave side) when both are power on. NV-700L Master side will do link speed function depending on phone wire length, therefore if NV-700L Master side can't detect NV-600A over phone wire while both power on, this will cause the Link to fail. 3.2 Please check phone wire, we recommend using 24-26 gauge with twisted pair and without rust. 3.3 Please reinsert power when changing cable length or link time over 3 minutes. 3.4 Or try to change band profile as 17a to get long reach.
Note:	Phone wire must meet CAT 3 standard or above and twisted pair, otherwise will cause more cross talk issues to reduce Line power driver.

4. Question:	What is VDSL2 technology? (Only reference)
Answer:	Very-high-speed digital subscriber line 2 (VDSL2) is an access technology that exploits the existing infrastructure of copper wires that were originally deployed for traditional telephone service. It can be deployed from central offices, from fiber-optic connected cabinets located near the customer premises, or within buildings. It was defined in standard ITU-T G.993.2 finalized in 2005. VDSL2 was the newest and most advanced standard of digital subscriber line (DSL) broadband wireline communications. Designed to support the wide deployment of triple play services such as voice, video, data, high-definition television (HDTV) and interactive gaming, VDSL2 was intended to enable operators and carriers to gradually, flexibly, and cost-efficiently upgrade existing xDSL infrastructure.

	The protocol was standardized in the International Telecommunication Union telecommunications sector (ITU-T) as Recommendation G.993.2. It was announced as finalized on 27 May 2005,[1] and first published on 17 February 2006. Several corrections and amendments were published in 2007 through 2011. VDSL2 is an enhancement to very-high-bitrate digital subscriber line (VDSL), Recommendation G.993.1. It permits the transmission of asymmetric and symmetric aggregate data rates up to 200 Mbit/s downstream and upstream on twisted pairs using a bandwidth up to 30 MHz. VDSL2 deteriorates quickly from a theoretical maximum of 250 Mbit/s at source to 100 Mbit/s at 0.5 km (1,600 ft) and 50 Mbit/s at 1 km (3,300 ft), but degrades at a much slower rate from there, and still outperforms VDSL. Starting from 1.6 km (1 mi) its performance is equal to ADSL2+. ADSL-like long reach performance is one of the key advantages of VDSL2. LR-VDSL2 enabled systems are capable of supporting speeds of around 1–4 Mbit/s (downstream) over distances of 4–5 km (2.5–3 miles), gradually increasing the bit rate up to symmetric 100 Mbit/s as loop-length shortens. This means that VDSL2-based systems, unlike VDSL1 systems, are not limited to short local loops or MTU/MDUs only but can also be used for medium range applications.

5. Question:	I just bought an NV-700L to replace my Quest DSL modem for my home. I was told any VDSL2 modem would replace and give me higher communication speeds. It doesn't get users on the internet when hooked up. All lights come on but no Link light. Is this the completely wrong application for this unit?
Answer:	Re: Please note NV-700L is a Master (CO side), it must be connected to the NV-600A (CPE side) to work. Band profile and band plan setting must be compatible with each other.

6. Question:	We need to set up a default gateway on NV-700L & NV-600A connection, which are in Bridge mode, as they want to manage the units from a different network.
Answer:	When the application is used within the LAN, the switch(bridged) mode is not necessary to set up a gateway .However, if the application crosses various network segments (LAN to WAN(Line) or WAN(Line) to LAN), user must set up a gateway to connect different network segment. Regarding how to configure a default gateway at switch(bridged) mode for crossing various network segments. Configuration gateway example from static routing: Destination LAN IP: 0-0-0-0 Subnet Mask: 0-0-0 Gateway: 255-255-255-0 **Note:** Static Routing functionality is used to define the connected Gateway between the LAN and WAN.

7. Question:	What can I do if I forgot my password.

Answer:	If user forgot user password, user must reset user modem. Unfortunately, this process will change all user settings back to the factory defaults. To reset the modem, locate the reset on the rear panel of the unit. With the modem powered on, use a paperclip to hold the button down for over 5 seconds. Release the button and the modem will go through its reboot process. The default ip is 192.168.16.249. When logging in, the default username and password both are "admin".

8. Question:	What is the maximum Ethernet frame MTU for NV-700L?
Answer:	NV-700L maximum Ethernet frame MTU is 1522 bytes.

System Diagnostics

Power and Cooling Problems

If the POWER indicator does not turn on when the power cord is plugged in, user may have a problem with the power outlet, power cord, or internal power supply as explained in the previous section. However, if the unit power is off after running for a while, check for loose power connections, power losses or surges at the power outlet. If users still cannot isolate the problem, then the internal power supply may be defective. In this case, please contact user local dealer.

Installation

Verify that all system components have been properly installed. If one or more components appear to be malfunctioning (e.g. the power cord or network cabling), test them in an alternate environment where users are sure that all the other components are functioning properly.

Transmission Mode

The default method of selecting the transmission mode for RJ-45 ports is 10/100 Mbps ETHERNET, for RJ-11-line port are auto-speed VDSL2 PTM transmission. Therefore, if the Link signal is disrupted (e.g. by unplugging the network cable and plugging it back in again, or by resetting the power), the port will try to reestablish communications with the attached device via auto-negotiation. If auto-negotiation fails, then communications are set to half duplex by default. Based on this type of commercial-standard connection policy, if users are using a full-duplex device that does not support auto-negotiation, communications can be easily lost (i.e. reset to the wrong mode) whenever the attached device is reset or experiences power fluctuation. The best way to resolve this problem is to upgrade these devices to a version that supports Ethernet and VDSL.

Physical Configuration

If problems occur after altering the network configuration, restore the original connections, and try to track the problem down by implementing the new changes, one step at a time. Ensure that cable distances and other physical aspects of the installation do not exceed recommendations.

System Integrity

As a last resort verify the switch integrity with a power-on reset. Turn the power to the switch off and then on several times. If the problem still persists and the user has completed all the preceding diagnoses, then contact the user's dealer.

Appendix E: Compliance Information

FCC Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a computing device, pursuant to Part 15 of FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to the radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. The equipment and the receiver should be connected to outlets on separate circuits.
4. Consult the dealer or an experienced radio/television technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could prevent the user's authority to operate the equipment.

If this telephone equipment causes harm to the telephone network, the telephone company will let the user know in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, users will be advised of the right to file a complaint with the FCC if users believe it is necessary.

The telephone company may make changes to its facilities, equipment, operations or procedures that could affect the proper functioning of user equipment. If they do, the user will be notified in advance in order for user to make necessary modifications to maintain uninterrupted service.

This equipment may not be used on the coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

FCC Warning

This equipment has been tested to comply with the limits for a **Class A** digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment can generate, use, and radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at owner's expense.

CE Mark Warning

This is a class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

RoHS Mark Warning

RoHS stands for Restriction of Hazardous Substances and impacts the entire electronics industry and many electrical products as well. The original RoHS, also known as Directive 2002/95/EC, originated in the European Union in 2002 and restricts the use of six hazardous materials found in electrical and electronic products. All applicable products in the EU market from July 1, 2006, must pass RoHS compliance. Directive 2011/65/EU was published in 2011 by the EU, which is known as RoHS-Recast or RoHS 2. RoHS 2 includes a **CE-marking directive**, with RoHS compliance now being required for CE marking of products. RoHS 2 also added Categories 8 and 9 and has additional compliance recordkeeping requirements. Directive 2015/863 was published in 2015 by the EU, which is known as RoHS 3. RoHS 3 adds four additional restricted substances (phthalates) to the list of six.

WEEE Warning

To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the cross-out wheeled bin symbol. Do not dispose of WEEE is unsorted municipal waste and has to collect such WEEE separately.

ErP Power Usage

This device is an Energy Related Product (ErP) with High Network Availability (HiNA). If it is not needed during certain periods of time, it can be unplugged to save energy.

Network Standby: 4 watts

Warranty

The original product that the owner delivered in this package will be free from defects in material and workmanship for one-year parts after purchase.

There will be a minimal charge to replace consumable components, such as fuses, power transformers, and mechanical cooling devices. The warranty will not apply to any products which have been subjected to any misuse, neglect or accidental damage, or which contain defects which are in any way attributable to improper installation or to alteration or repairs made or performed by any person not under the control of the original owner.

The above warranty is in lieu of any other warranty, whether express, implied, or statutory, including but not limited to any warranty of merchantability, fitness for a particular purpose or any warranty arising out of any proposal, specification or sample. We shall not be liable for incidental or consequential damages. We neither assume nor authorize any person to assume for it any other liability.

WARNING:

1.DO NOT TEAR OFF OR REMOVE THE WARRANTY STICKER AS SHOWN, OR THE WARRANTY IS VOID.

2.WARRANTY VOID IF USE COMMERCIAL-GRADE POWER ADAPTER IS USED AT HARSH ENVIRONMENTS.

Chinese SJ/T 11364-2024

部件名称	有毒有害物质或元素									
	铅(Pb)	汞(Hg)	镉(Cd)	六价铬[Cr(VI)]	多溴联苯(PBB)	多溴二苯醚(PBDE)	邻苯二甲酸二(2-乙基己基)酯(DEHP)	邻苯二甲酸丁酯苯甲酯(BBP)	邻苯二甲酸二丁酯(DBP)	邻苯二甲酸二异丁酯(DIBP)
结构壳体	○	○	○	○	○	○	○	○	○	○
电路组	○	○	○	○	○	○	○	○	○	○
电源供应器	○	○	○	○	○	○	○	○	○	○
线材	○	○	○	○	○	○	○	○	○	○
包装及配件	○	○	○	○	○	○	○	○	○	○

○：表示该有毒物质在该部件所有均质材料中的含量均在 GB/T 39560 标准规定的限量要求以下。

╳：表示该有毒物质至少在该部件的某依均质材料中的含量超出 GB/T 39560 标准规定的限量要求。

上述规范仅适用於中国法律