# Single Master Modem

# ALL126AM3

# USER MANUAL

# Safety Warnings

For your 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 you to dangerous high voltage points or other risks. ONLY qualified service personnel can service the device. Please contact your vendor for further information.
- **Use ONLY** the dedicated power supply for your device. Connect the power to the right supply voltage (110V AC used for North America and 230V AC used for Europe. ALL126AM3 supports 12 VDC power input).
- **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 your device during a thunderstorm. There may be a remote risk of electric shock from lightning.
- **DO NOT** expose your 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 your 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.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

- **Clean** the device using a 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.**

ALL126AM3 is a VDSL2 Master Modem that leverages the extraordinary bandwidth promise of VDSL2 (max. 100Mbps symmetric) technology, the next step in the delivery of new high-speed Internet applications in commercial environments. Quick, easy, economical to install and maintain, the ALL126AM3 works over existing copper wire infrastructure. ALL126AM3 is a CO(Central Office) device. And compitable with the ALL126AS3 CPE(Customer-premises equipment).
ALL126AM3 will allow operators worldwide to compete with cable andsatellite 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. ALL126AM3 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 ALL126AM3 is for **indoor** applications only. This product does not have waterproof protection, please do not use in outdoor applications.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# Table of Contents

**CHAPTER 1. UNPACKING INFORMATION ..... 6**

1.1 CHECK LIST ..... 6
1.2 PACKAGE CONTENTS ..... 6

**CHAPTER 2. INSTALLING THE MODEM ..... 7**

2.1 HARDWARE INSTALLATION ..... 7
2.2 PRE-INSTALLATION REQUIREMENTS ..... 7
2.3 GENERAL RULES ..... 8
2.4 CONNECTING THE ALL126AS3/AM3 ..... 9
2.5 CONNECTING THE RJ-11 / RJ-45 PORTS ..... 11
**2.6 VDSL2 APPLICATION ..... 12**

**CHAPTER 3. HARDWARE DESCRIPTION ..... 14**

3.1 FRONT PANEL ..... 15
3.2 FRONT INDICATORS ..... 16
**3.3 REAR PANEL ..... 17**

**CHAPTER 4. CONFIGURE THE ALL126AM3 VIA WEB BROWSER ..... 19**

**4.1 BASIC SETUP ..... 20**
***Login webpage ..... 21***
***Display status ..... 21***
**4.2 SYSTEM SETUP ..... 22**
***System–> Configuration Backup ..... 23***

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

***System-> Configuration Restore*** ..... *23*
***System->Update Software*** ..... *24*
***system->Account Management*** ..... *25*
***system->Account Management - Log Level*** ..... *26*
***System->Service control*** ..... *27*
***System->CWNP->TR-069 Settings*** ..... *28*
***System->Internet Time*** ..... *29*
***System->Restore Default Setting*** ..... *30*
**4.3 STATUS SETUP** ..... 31
***Status ->LAN Network*** ..... *32*
***Status->LAN-> Ethernet*** ..... *32*
***Status->WAN Statistics*** ..... *33*
***Status->LAN Statistics*** ..... *34*
***Status->ARP*** ..... *35*
**4.4 XDSL SETUP** ..... 36
***Xdsl ->DSL STATUS*** ..... *37*
***Xdsl-DSL Config*** ..... *37*
***VDSL Config Overview*** ..... *38*
**4.5 LAN SETUP** ..... 40
***LAN >IPV4 Configuration*** ..... *40*
***LAN->IPv6 Configuration:*** ..... *41*
**4.6 QOS SETUP** ..... 42
***Qos ->Qos Queue*** ..... *42*
**4.7 APPLICATION SETUP** ..... 43

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

***Application->Telnet Service Setup*** ..... *43*
***Application-> SSH Service*** ..... *44*
***Application->Printer Share*** ..... *45*
***Application->Multimedia Share*** ..... *46*
***Application->Dynamic DNS*** ..... *47*
***Application->UPnP*** ..... *48*
***Application->multicast IGMP setting*** ..... *49*
***Application->Multicast MLD*** ..... *50*
***APPLICATION->SNMP*** ..... *51*
**4.8 USB SETUP** ..... 54
***USB-Storage Device Info*** ..... *54*
***USB->Samba Service*** ..... *55*
***USB-> FTP Server*** ..... *56*
***USB-> FTP Client*** ..... *57*
***USB-> TFTP Server*** ..... *59*
**APPENDIX A: CABLE REQUIREMENTS** ..... **60**
**APPENDIX B: PRODUCT SPECIFICATION** ..... **63**
**APPENDIX C: TROUBLESHOOTING** ..... **67**
**APPENDIX E: COMPLIANCE INFORMATION** ..... **75**
**WARRANTY** ..... **78**
**GPL & CE** ..... **79**

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# Chapter 1. Unpacking Information

## 1.1 Check List

Carefully unpack the package and check its contents against the checklist.

## 1.2 Package Contents

1. ALL126AM3 VDSL2 Master Modem
2. 1x User manual CD
3. Accessory Kit : 1 x Ehternet Cable, 1 x Phone wire , 1 x DC12V Switching Power Adapter
4. 4x Plastic feet (Pre-installed on the bottom)

**Notes:**

1. Please inform your dealer immediately for 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 ALL126AM3 uses a DC12V/1A or above Switching power supply.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# Chapter 2. Installing the Modem

## 2.1 Hardware Installation

This chapter describes how to install the modem, and establish the network connections. The ALL126AM3 may be installed on any level surface (e.g. a table or shelf). However, please take note of the following minimum site requirements before you begin. **The ALL126AM3 has 2 pre-installed rubber feet.**

## 2.2 Pre-installation Requirements

Before you start the actual hardware installation, make sure you 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.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

- Avoid installing this device with radio amplifying stations nearby or transformer stations nearby.
- Please note that the voice spectrum allowed by the ALL126AM3 internal splitter is 0 KHz ~ 120 KHz.

## 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 use 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 an 6P2C connector, two of which are wired. The modem uses the center two pins. The pin out assignment for these connectors is presented below.

  Please note that the line port is no polarity, therefore user 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** |

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

| 4 | DSL | Used |
|---|---|---|
| 5 | NC | Unused |
| 6 | NC | Unused |

## 2.4 Connecting the ALL126AS3/AM3

The ALL126AM3 can be controlled by a PC. For this purpose, a PC is needed with an Ethernet network interface. Two programs are required: A Web browser is mandatory.
The board has several connectors.

- 4 x Ethernet RJ-45 jack; the Auto MDIX feature of the port switches automatically between MDI and MDI-X (MDI – X = Media Dependant Interface - Crossover). Therefore straight Ethernet cables can be used.
- 2 x RJ-11 jack (Line port is for connecting VDSL CPE side, Phone port is for connecting to phone set or FAX machine).
- USB 2.0 interface : for connecting external dongle device

**Notes:**

1. The RJ11 / Terminal block Line port is combo port, which is only for sharing common line port, do not connect RJ-11 and Terminal block both to two CPE modems
2. The Slave device (CPE) must be connected to the Master device (CO) through the telephone wire. The Slave cannot be connected to another Slave, and the Master cannot be connected to another Master.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

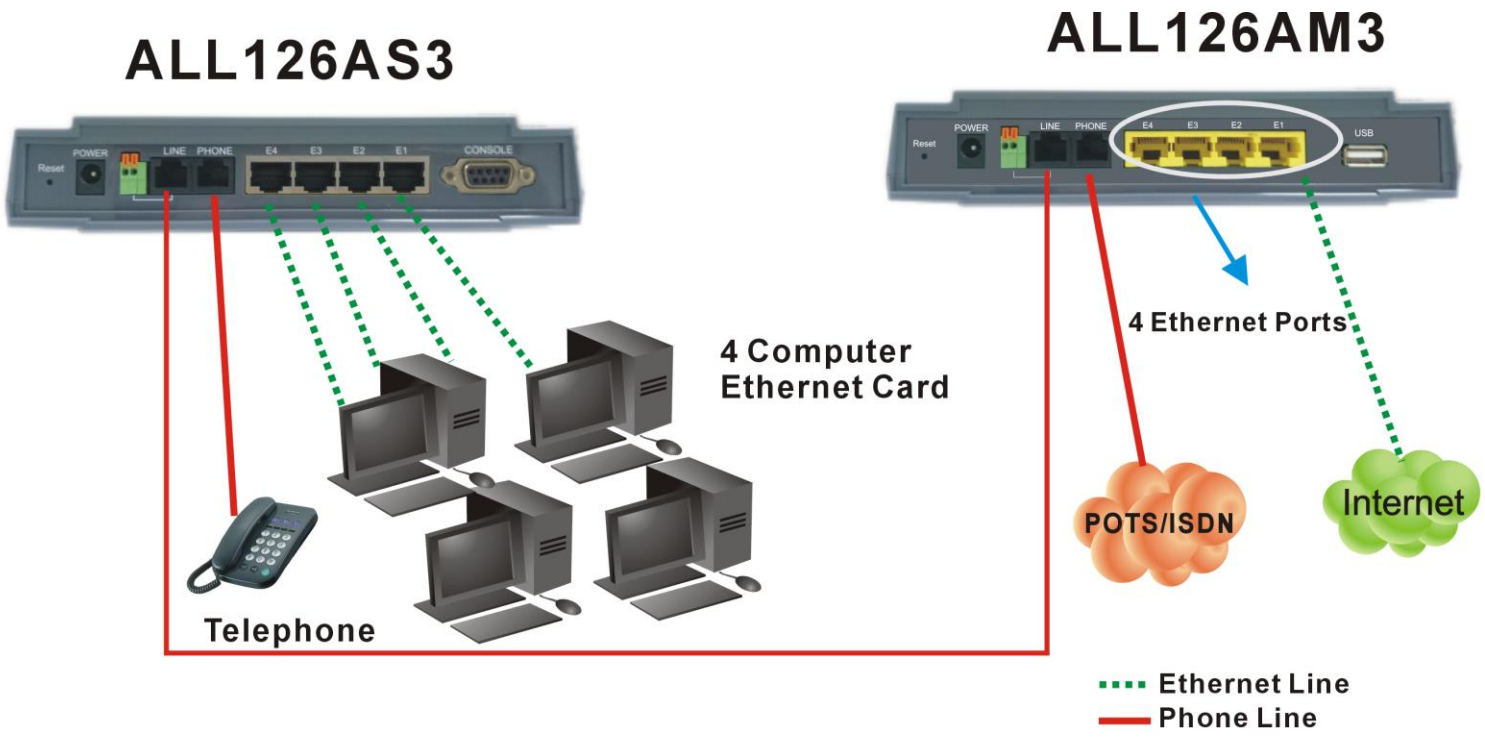



**Figure 2.4 VDSL2 Basic Setup**

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

## 2.5 Connecting the RJ-11 / RJ-45 Ports

- The line port have 2 connectors: RJ-11 and Terminal block. It is used to connect with ALL126AM3 (CO) over a single pair phone wire to ALL126AS3 CPE(Slave) side (point to point application). (Figure 2.1)

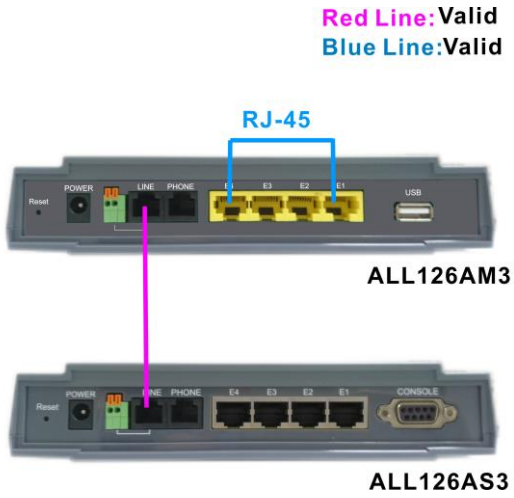



**Figure 2.5 ALL126AM3 line ports straight connection**

- 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 a 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 advise using Category 5~7 UTP/STP cables for making Ethernet connections to avoid any confusion or inconvenience in the future when you 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 ALL126AM3 boot.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

5. Do not connect Line port with RJ-11 and Terminal block to two CPE modem

## 2.6 VDSL2 Application

First a quick overview on a complete setup of VDSL2 CO/CPE Modem.
ALL126AM3/AS3 is a modem leverages the extraordinary bandwidth promise of VDSL2(max 100Mbps Symmetric) technology (Figure 2.2)

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

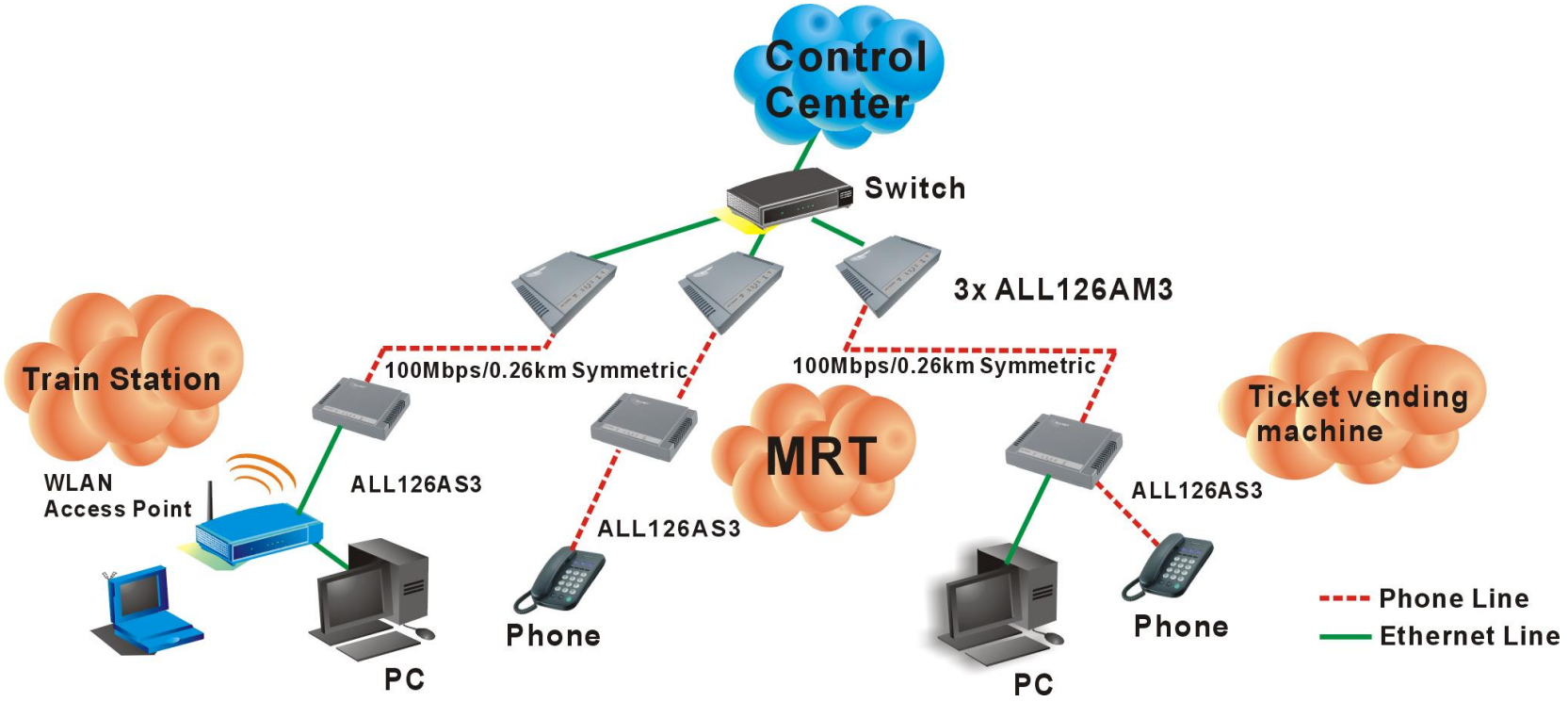



**Figure 2.2 ALL126AM3 application**

### ◆ 2.6.1 Connect the ALL126AM3 and the ALL126AS3 to the Line

The objective for VDSL2 is to pass high speed data over a twisted pair cable. In the setup, connect ALL126AM3 to ALL126AS3 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.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

### ◆ 2.6.2 Connect the ALL126AM3 and the ALL126AS3 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 side.

### ◆ 2.6.3 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 vdsl2 Modem It features the front panel and rear panel.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

**ALL126AM3 Outward**

## 3.1 Front Panel

The figure shows the front panel. (Figure 3.1)

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

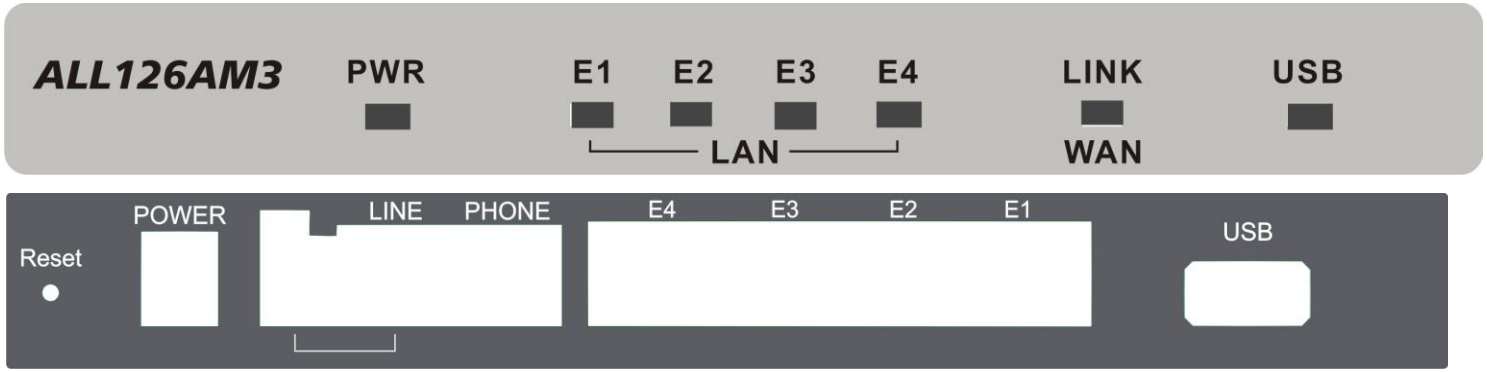



**Figure 3.1 Front Panel(ALL126AM3)**

## 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 the VDSL2 modem had power |
| | | 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. |

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

| | | | |
|---|---|---|---|
| | | Blinking | The device is sending or receiving data. |
| | | Off | The LAN is not connected or has malfunctioned. |
| LINK (VDSL2 LED) | Green | On(Steady) | The Internet or network connection is up. |
| | | Fast Blinking | 1. The CO device has detected a CPE device and ready to connect.<br>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. |

**Note:**

It is normal for the connection between two Modems to take up to 3 minutes, due to ALL126AM3/ALL126AS3 to establish a link mechanism in auto-negotiation, with detects and calculates CO and CPE 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)

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

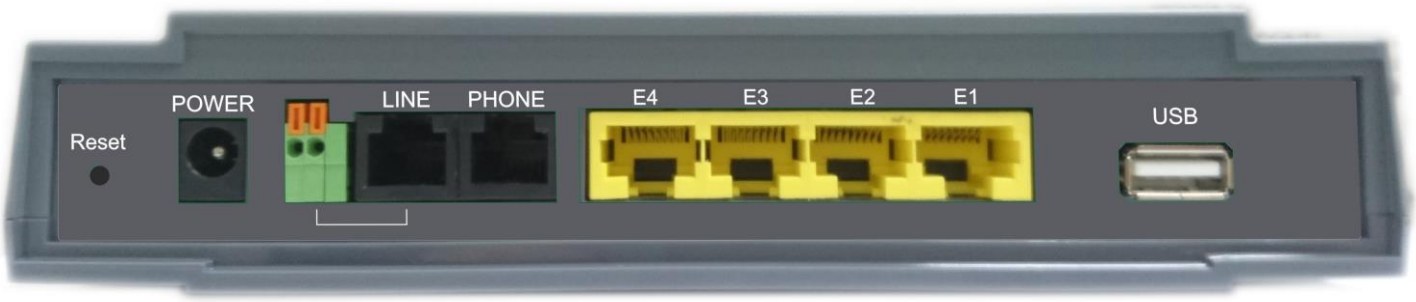



**Figure 3.3 Rear Panel**

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 allows users to reboot the VDSL2 or load the default settings.<br>**Press and hold for 1-5 seconds: Reboot the VDSL2 Modem**<br>**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 VDSL2 device. |
| **Type** | **Connector** | **Description** |
| phone | RJ-11 | For connecting to the POTS equipment or ISDN. |

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

| | | |
|---|---|---|
| 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.

- You 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.
- You should separate input wiring from output wiring.
- We recommend that you mark all equipment in the wiring system.

# Chapter 4. Configure the ALL126AM3 Via Web Browser

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

The ALL126AM3 provides a built-in HTML based management interface that allows configuration of the ALL126AM3 via Internet Browser. Best viewed using Chrome or Firefox browsers.

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

- Web browser pop-up windows from your device. Web pop-up blocking is enabled by default in windows XP SP2 or above.
- Java Scripts. (Enabled by default)
- Java permissions. (Enabled by default)

Launch your web browser and input the IP address 192.168.16.249 (ALL126AM3) in the Web page.
Following section user can find default username and password.

## 4.1 BASIC Setup

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

## Login webpage

The IP address is 192.168.16.249 , username and password are admin.

**Figure 4.1 Login Password**

## Display status

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

The status page displays some information. When the device is running.

For example:

Device Information:

## 4.2 System Setup

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# System–> Configuration Backup

# System-> Configuration Restore

Select “System” ->”Restore Default”

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

If Click “Restore Default Settings”, the device will reboot in 10 seconds.

## System->Update Software

Select “System”->”update software”

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

Choose the newest Firmware file and do upgrading

## system->Account Management

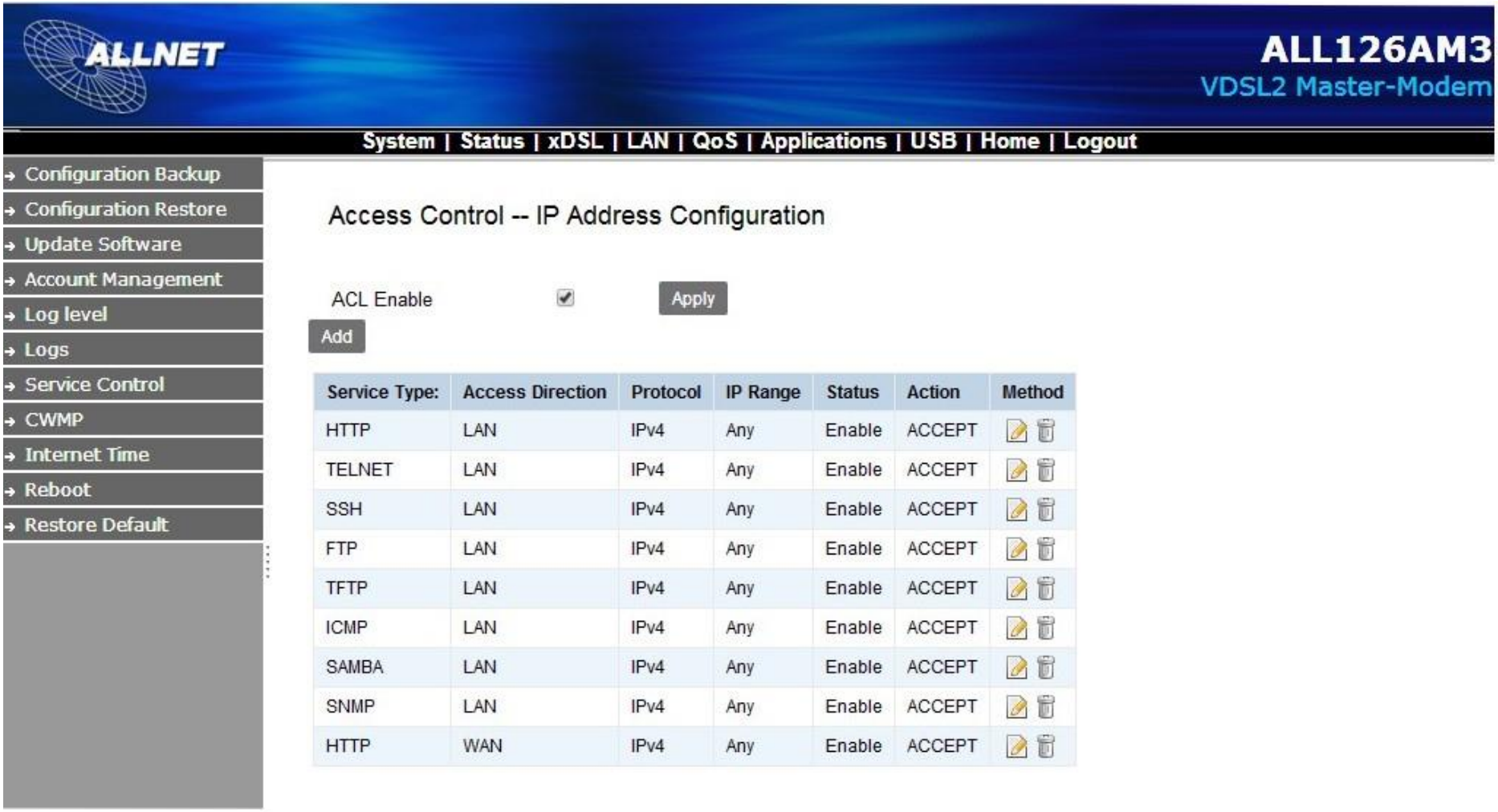
© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# system->Account Management - Log Level

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# System->Service control

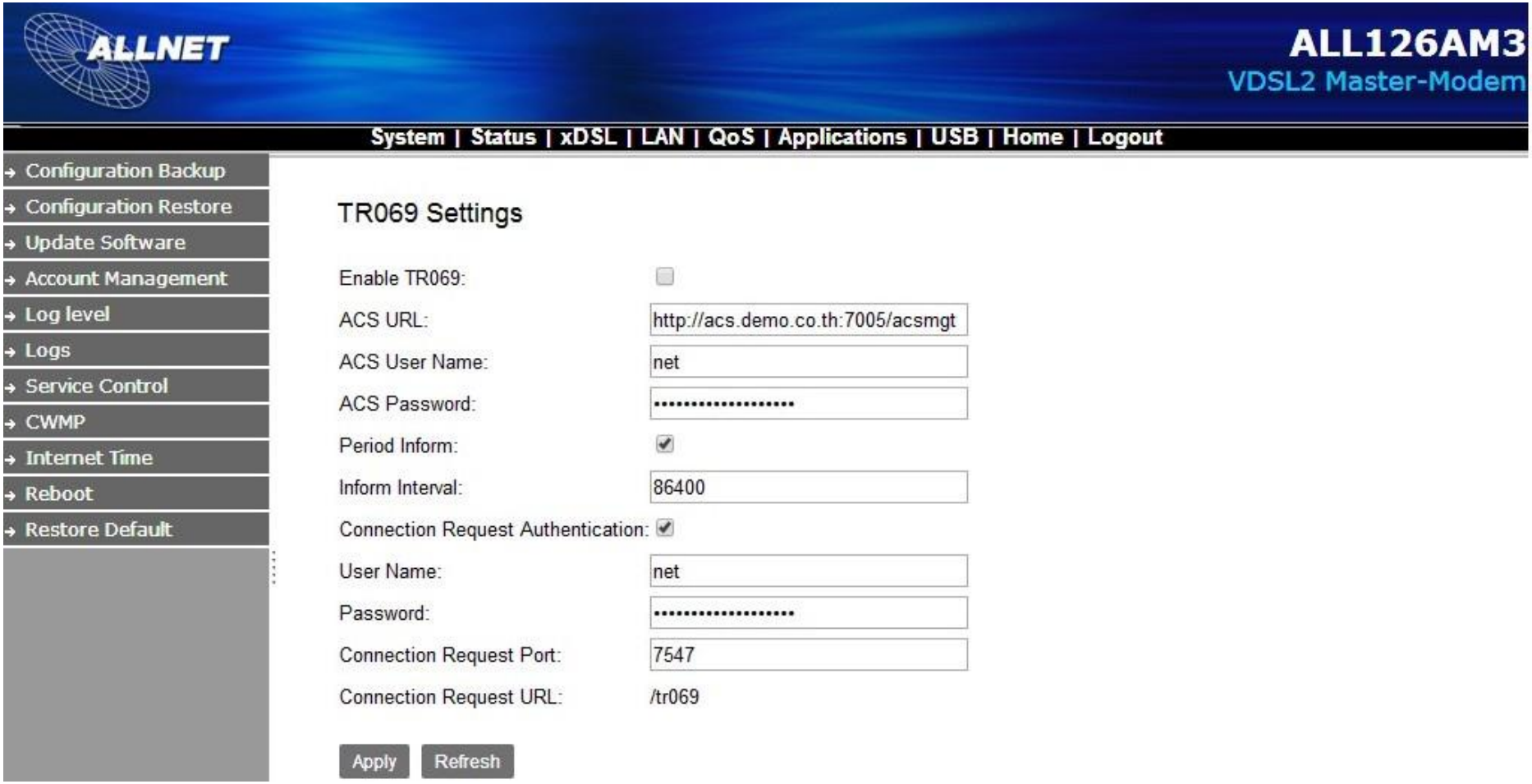
© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten




# System->CWNP->TR-069 Settings

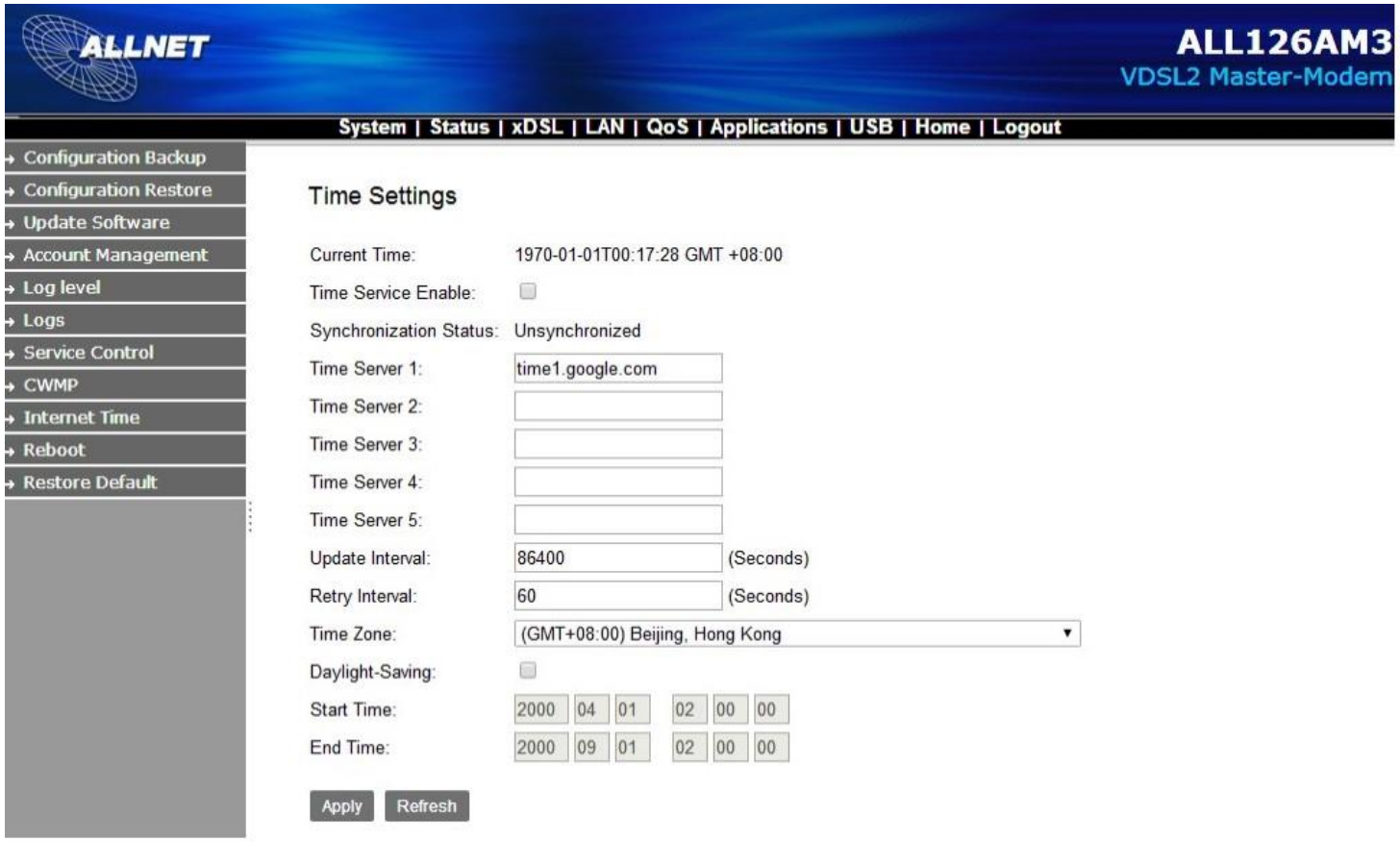
© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

In System/CWMP page setup ACS URL/Username/Password TR069 and basic information.




# System->Internet Time

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten



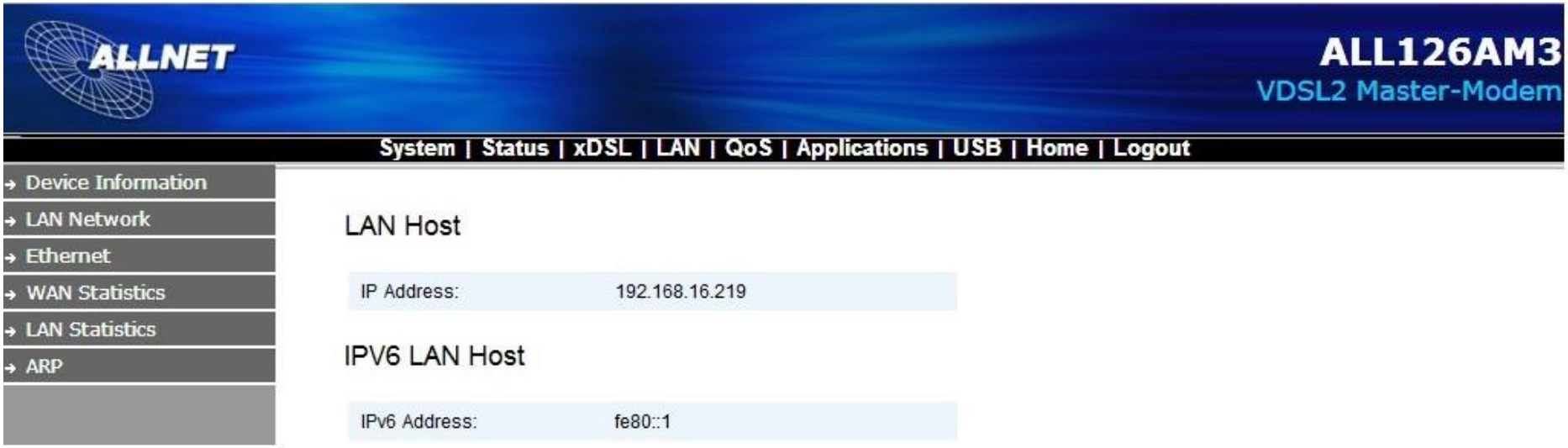

# System->Restore Default Setting

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# 4.3 Status Setup

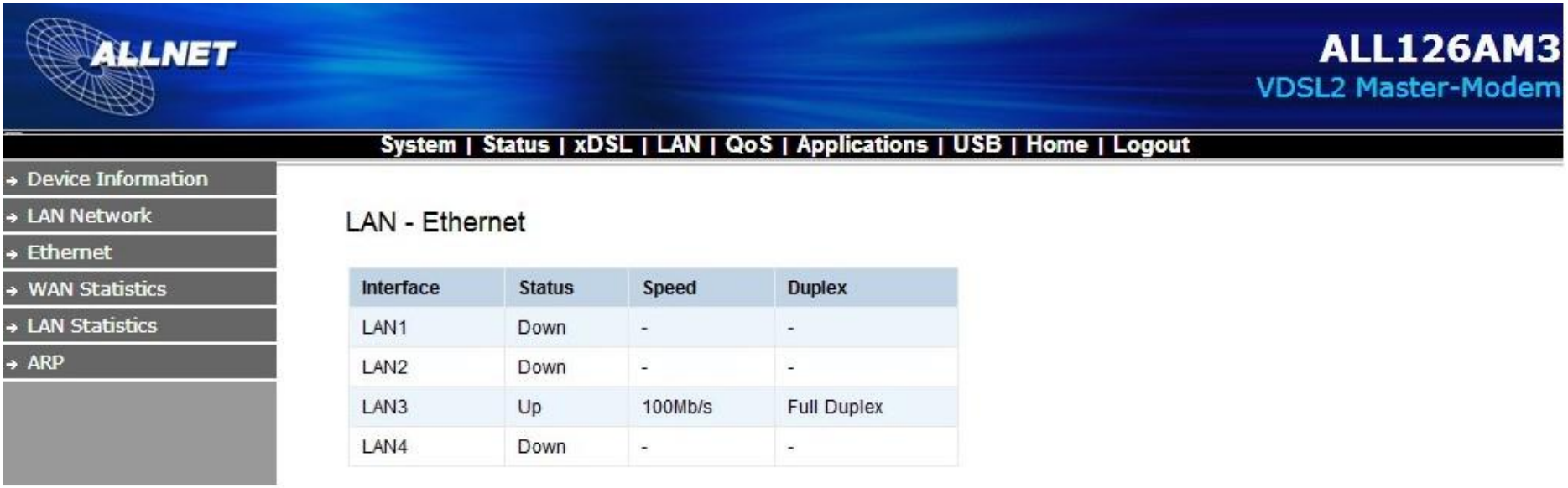
© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# Status ->LAN Network



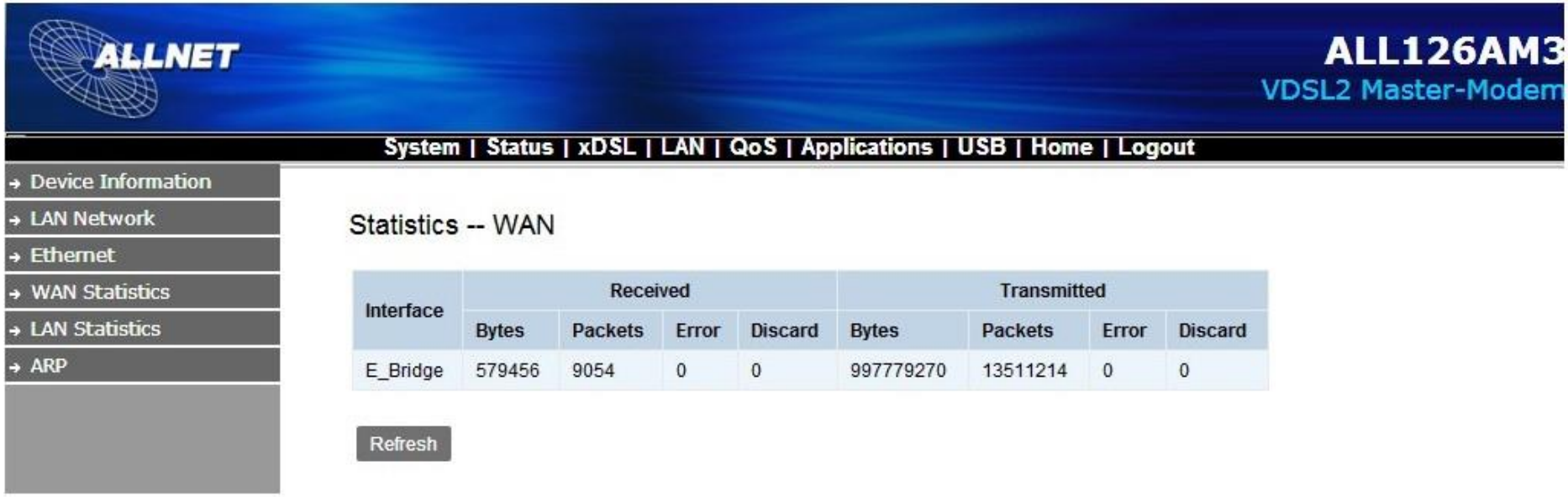

# Status->LAN-> Ethernet

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten



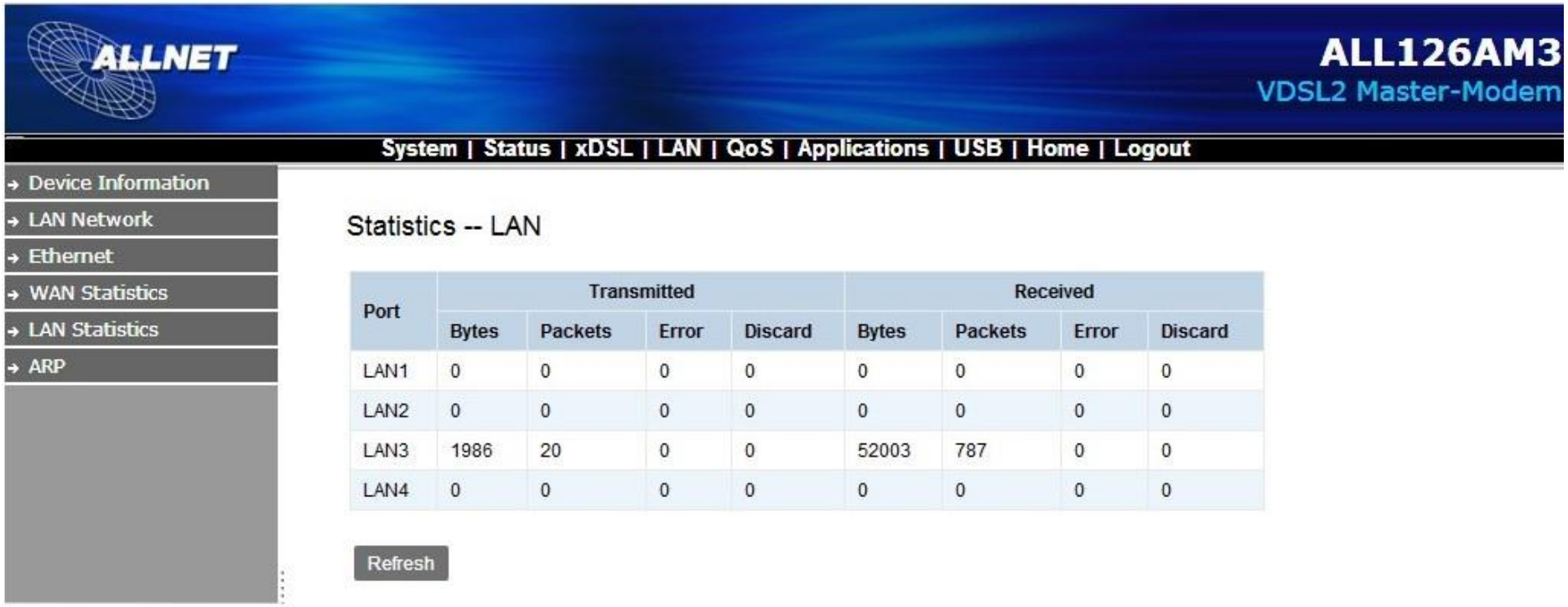

# Status->WAN Statistics

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten



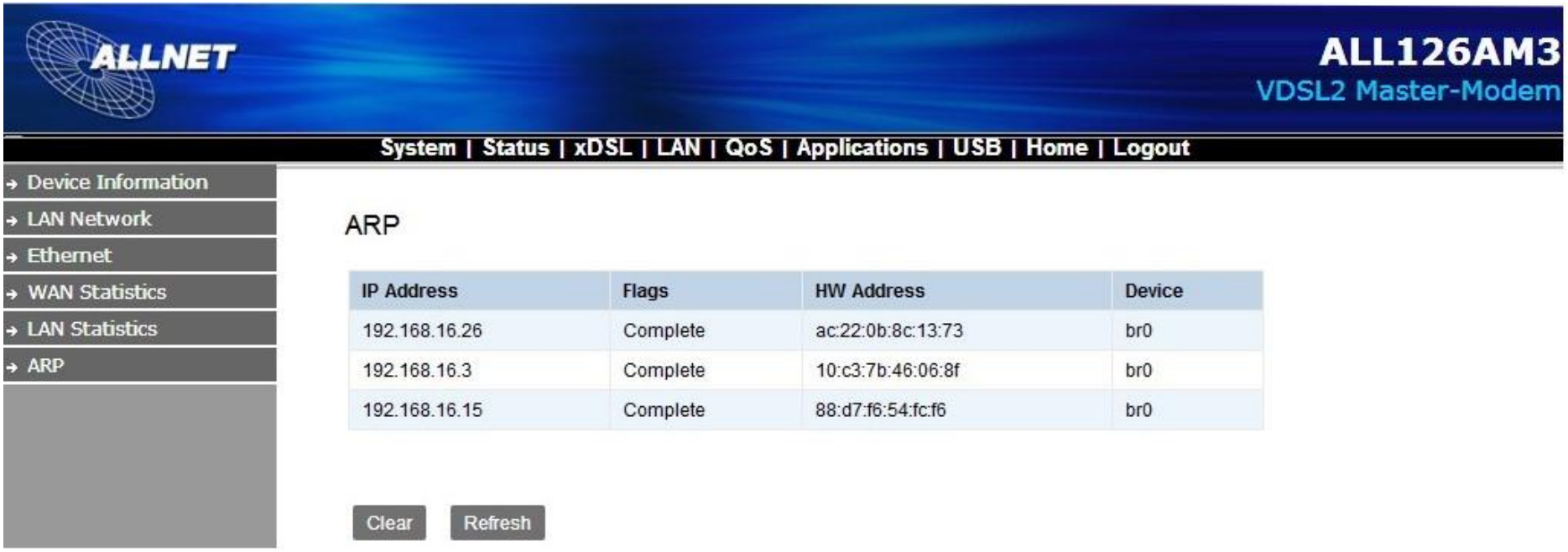

# Status->LAN Statistics

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten




# Status->ARP

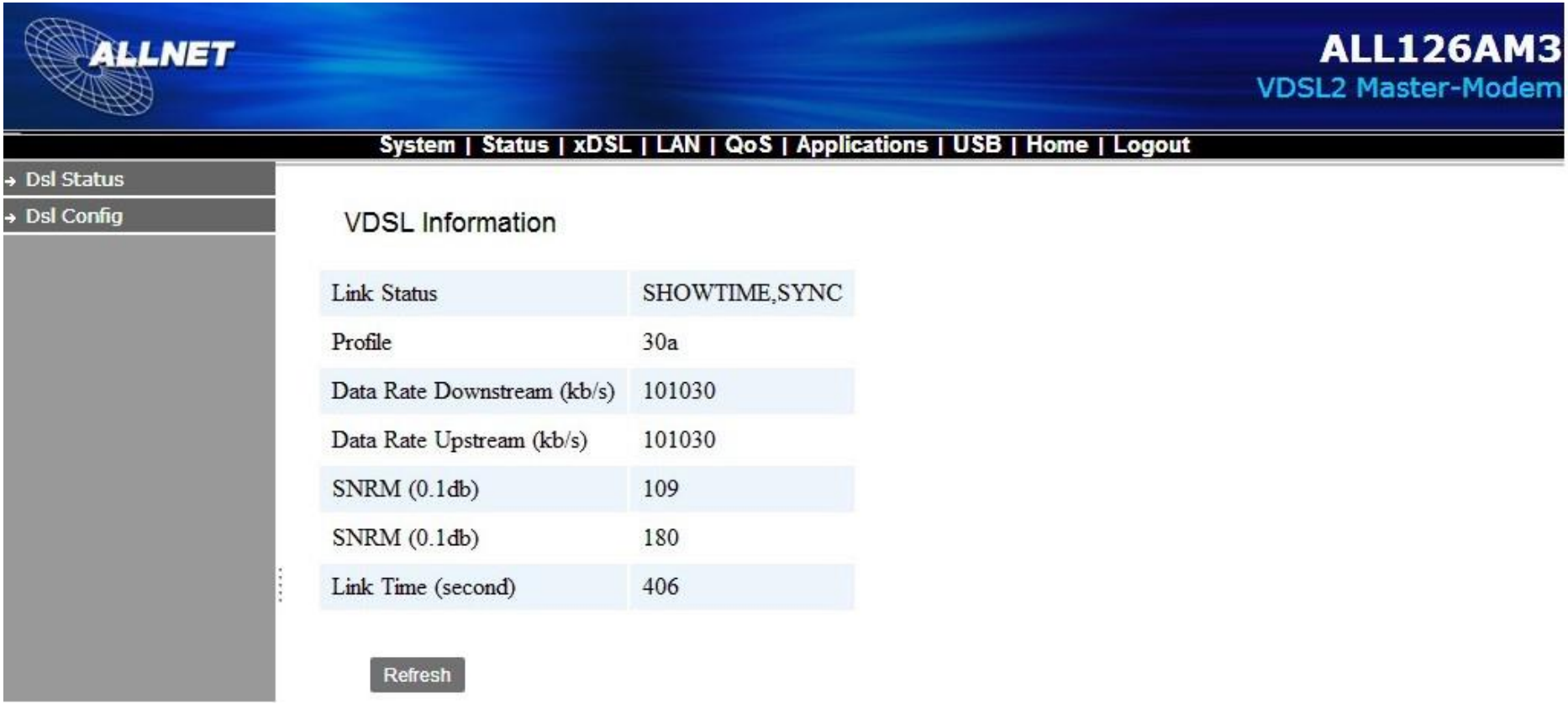
© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten




# 4.4 Xdsl SETUP

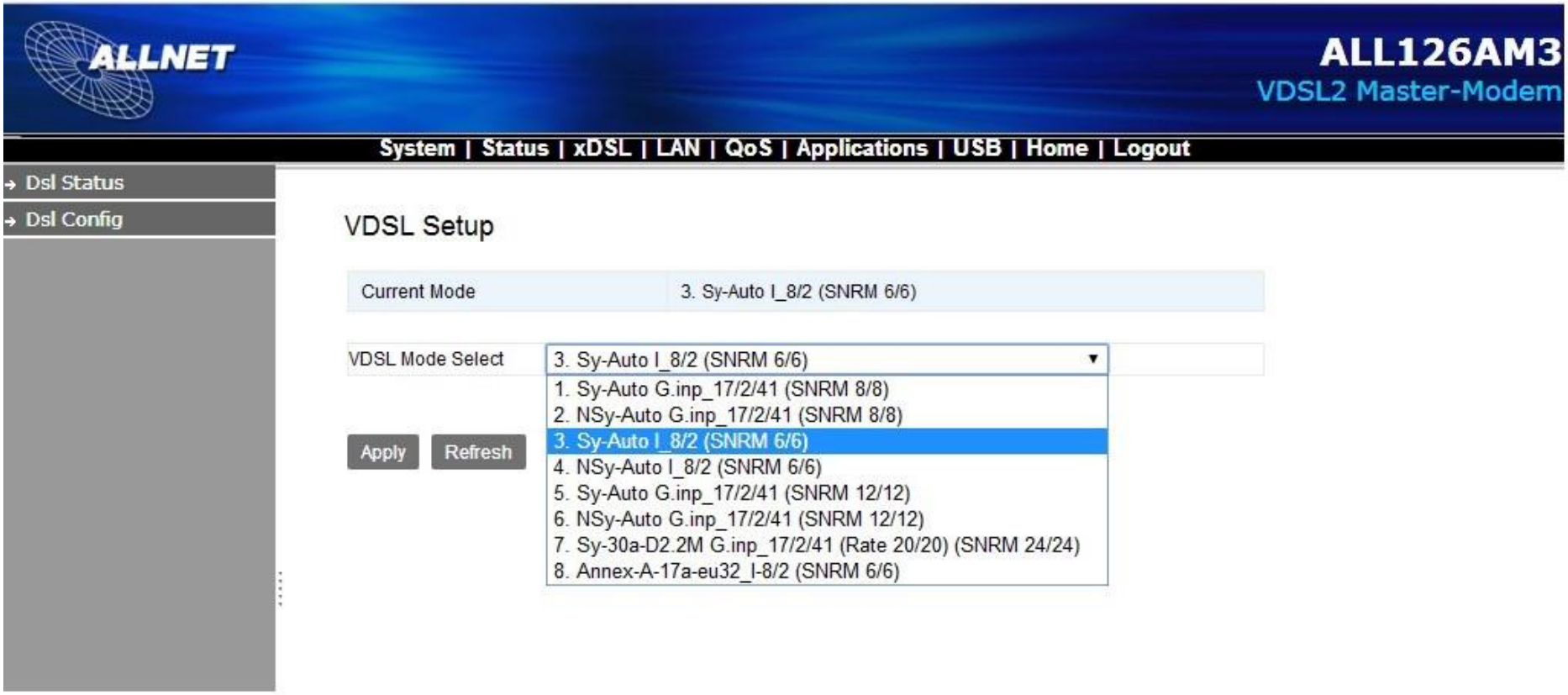
© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# Xdsl ->DSL STATUS




# Xdsl-DSL Config

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten




# VDSL Config Overview

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

## The page to configure VDSL Mode.

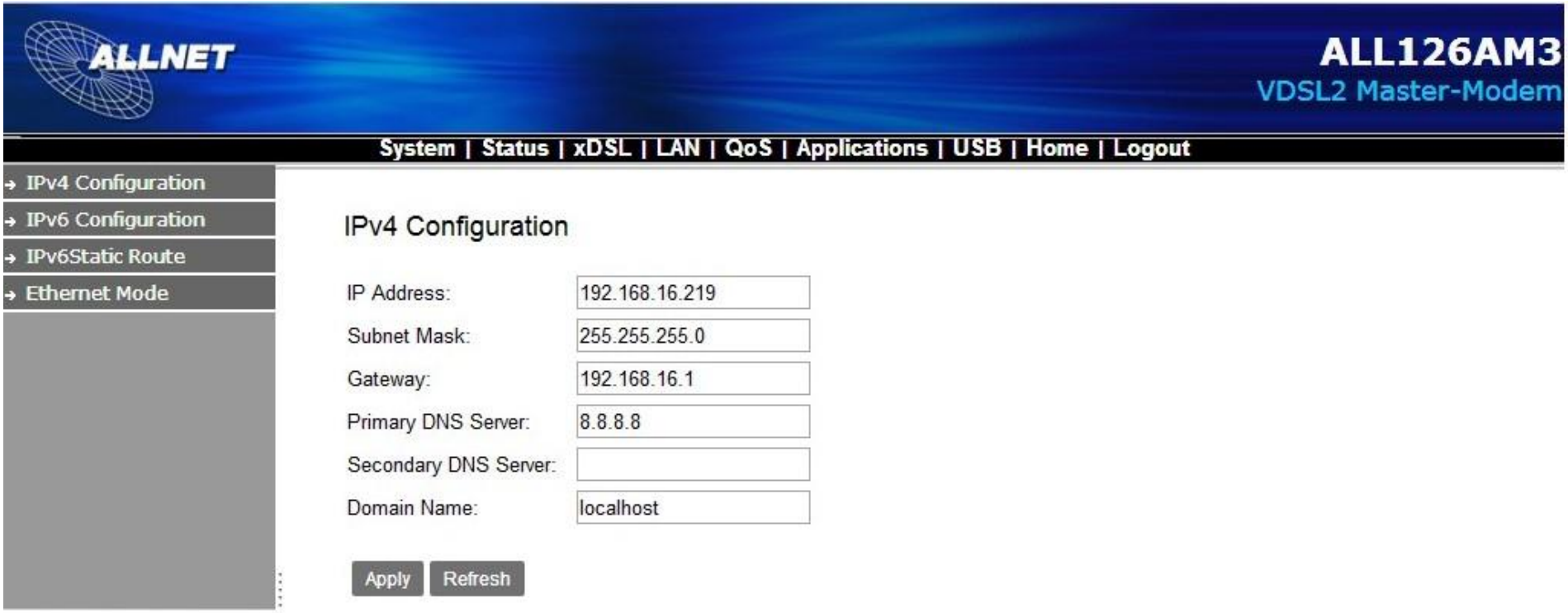
## Support table:

| NO. | Config. | Note |
|---|---|---|
| 1 | Sy-Auto G.INP_17/2/41 (SNRM 8/8) | Symmetric Auto, enable G. INP, enable re-transmition, SNRM=8 |
| 2 | NSy-Auto G.INP_17/2/41 (SNRM 8/8) | non symmetric Auto, enable G.INP, enable re-transmition, 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-transmition, SNRM=12 |
| 6 | NSy-Auto G.INP_17/2/41 (SNRM 12/12) | non symmetric Auto, enable G.INP, enable re-transmition, 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-transmition, 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 |

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

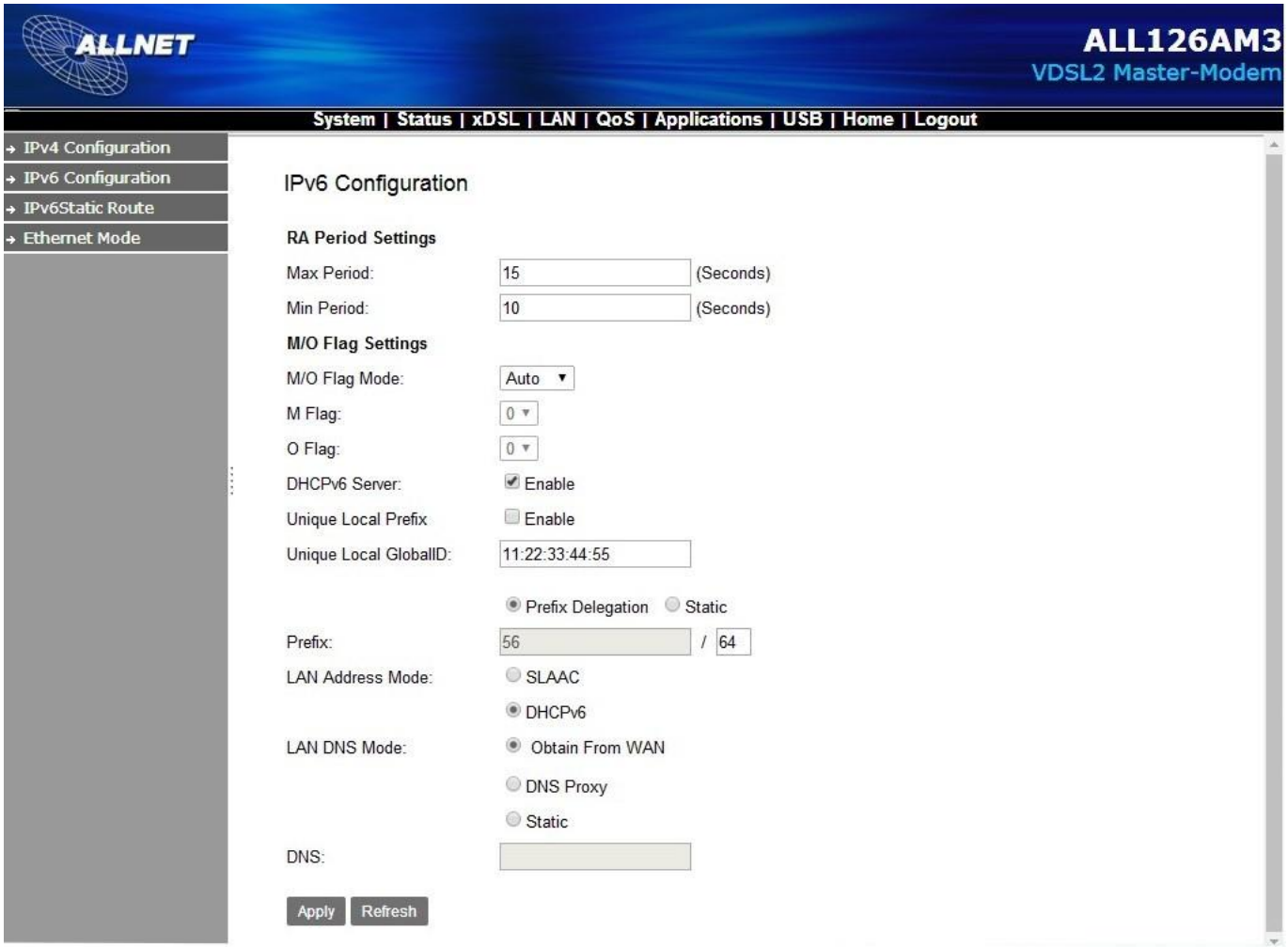
# 4.5 LAN Setup

## LAN >IPV4 Configuration




© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

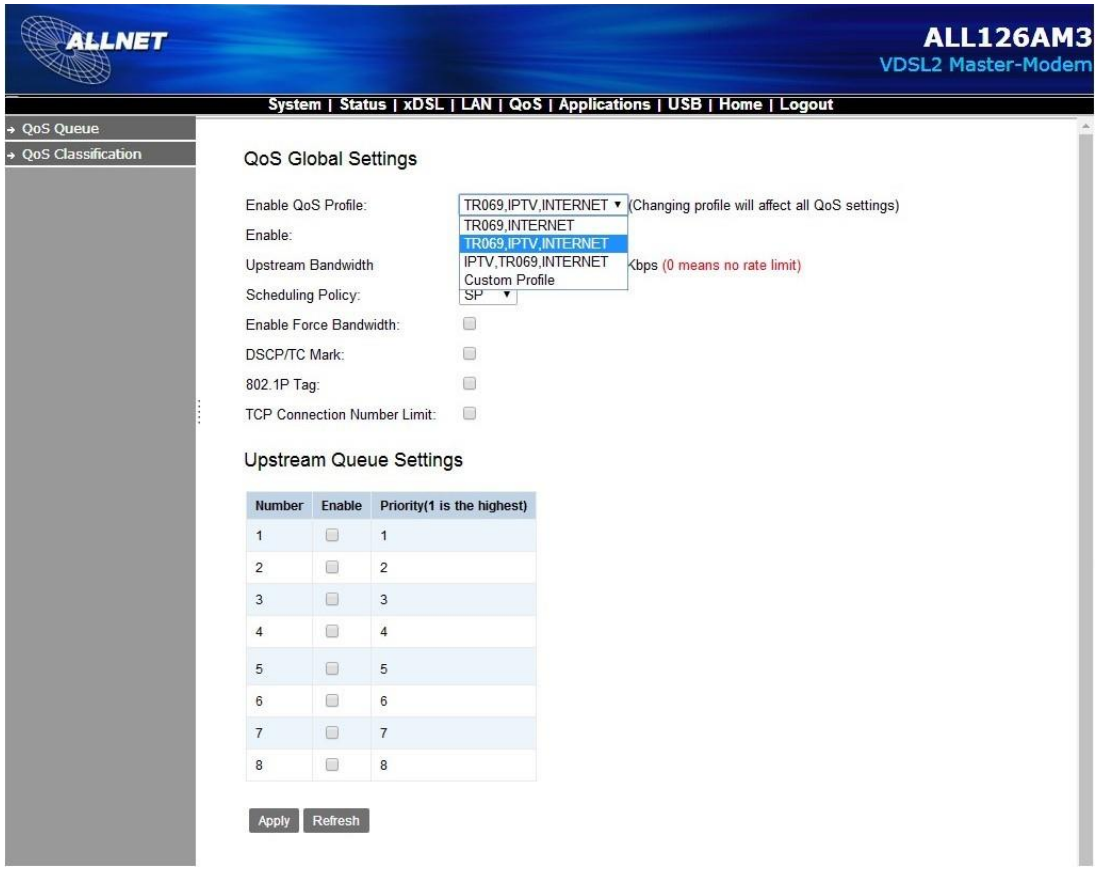
# LAN->IPv6 Configuration:




© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# 4.6 Qos SETUP

## Qos ->Qos Queue




© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# 4.7 Application Setup

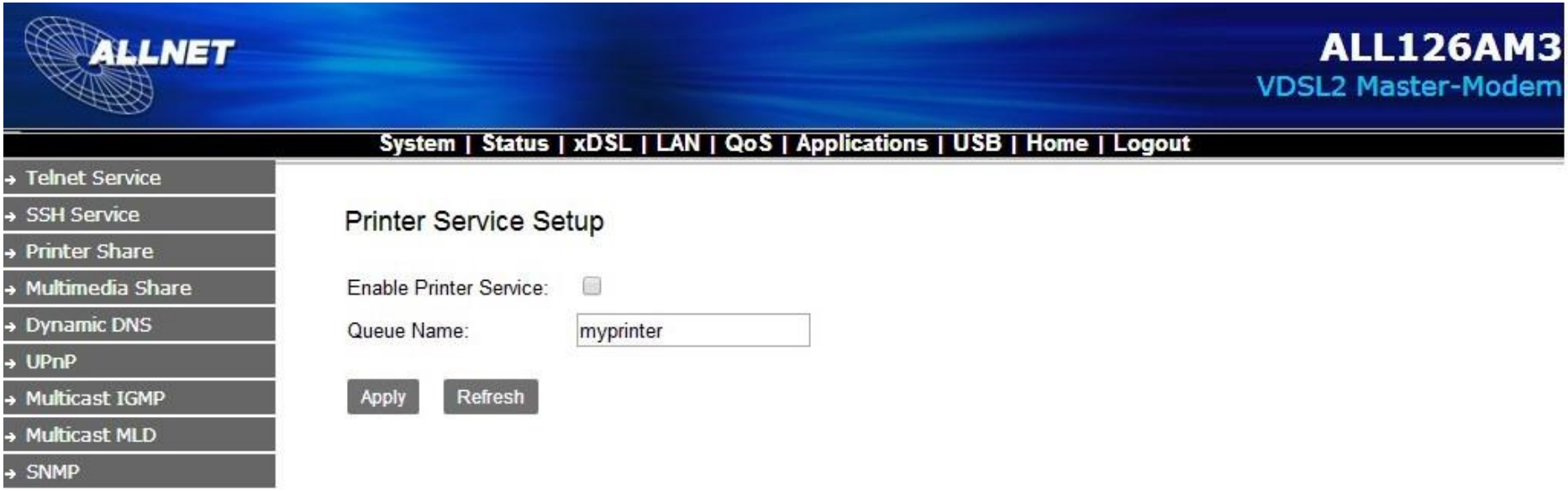
## Application->Telnet Service Setup

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# Application-> SSH Service

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# Application->Printer Share




© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# Application->Multimedia Share

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# Application->Dynamic DNS

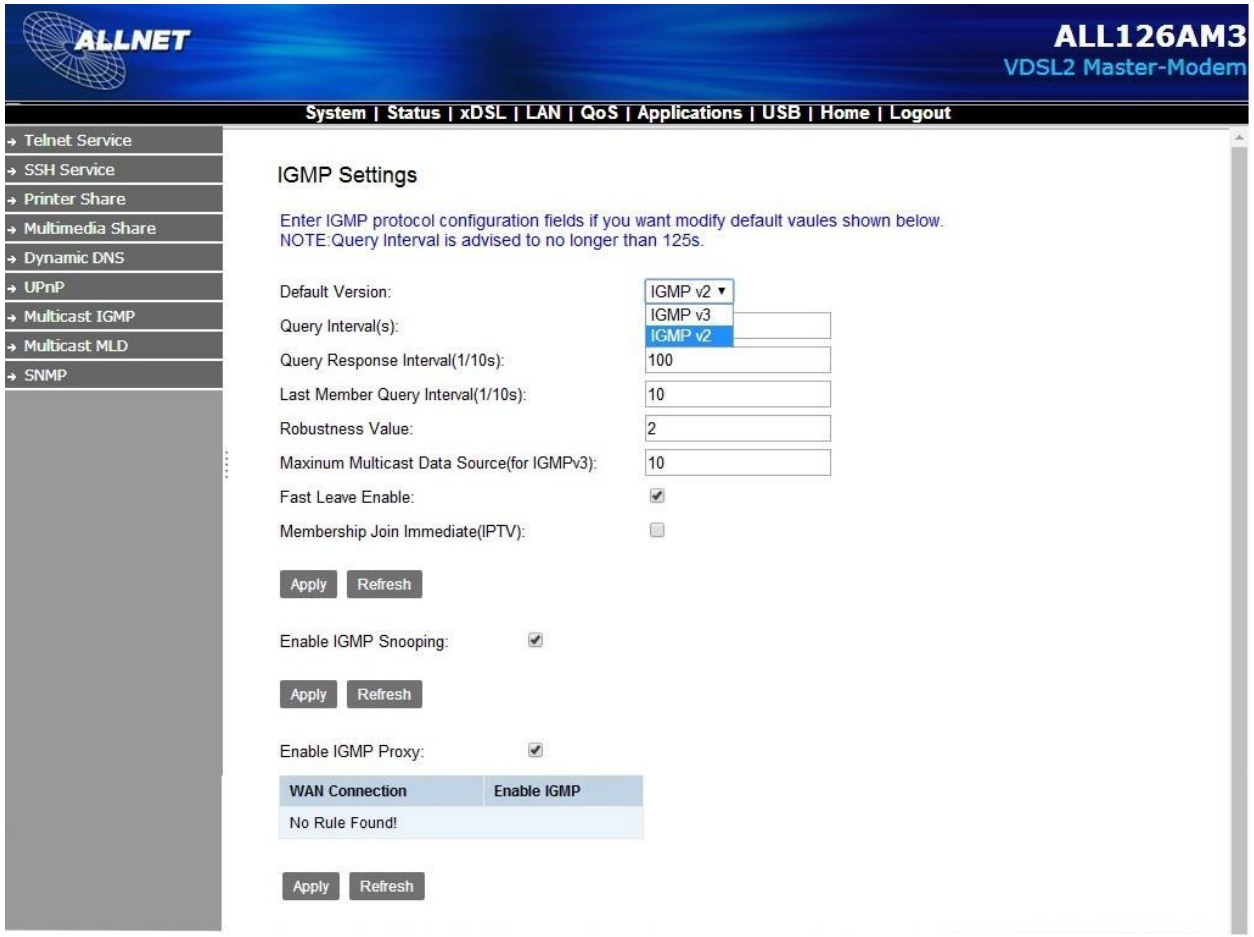
© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# Application->UPnP

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

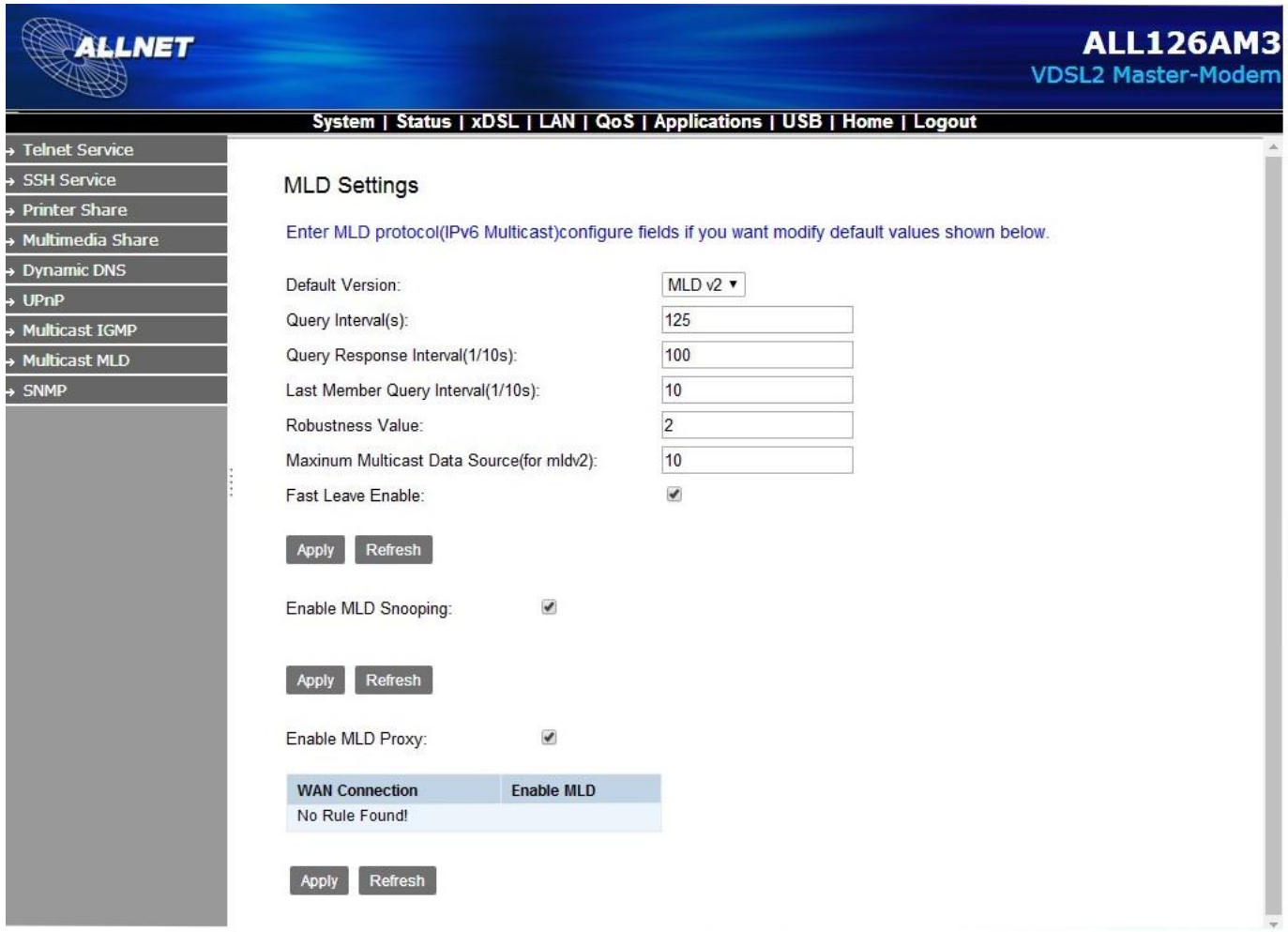
# Application->multicast IGMP setting

According to the setting, if you want to test IGMP function, you only need to enable IGMP function basic on the Application SETUP




© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# Application->Multicast MLD



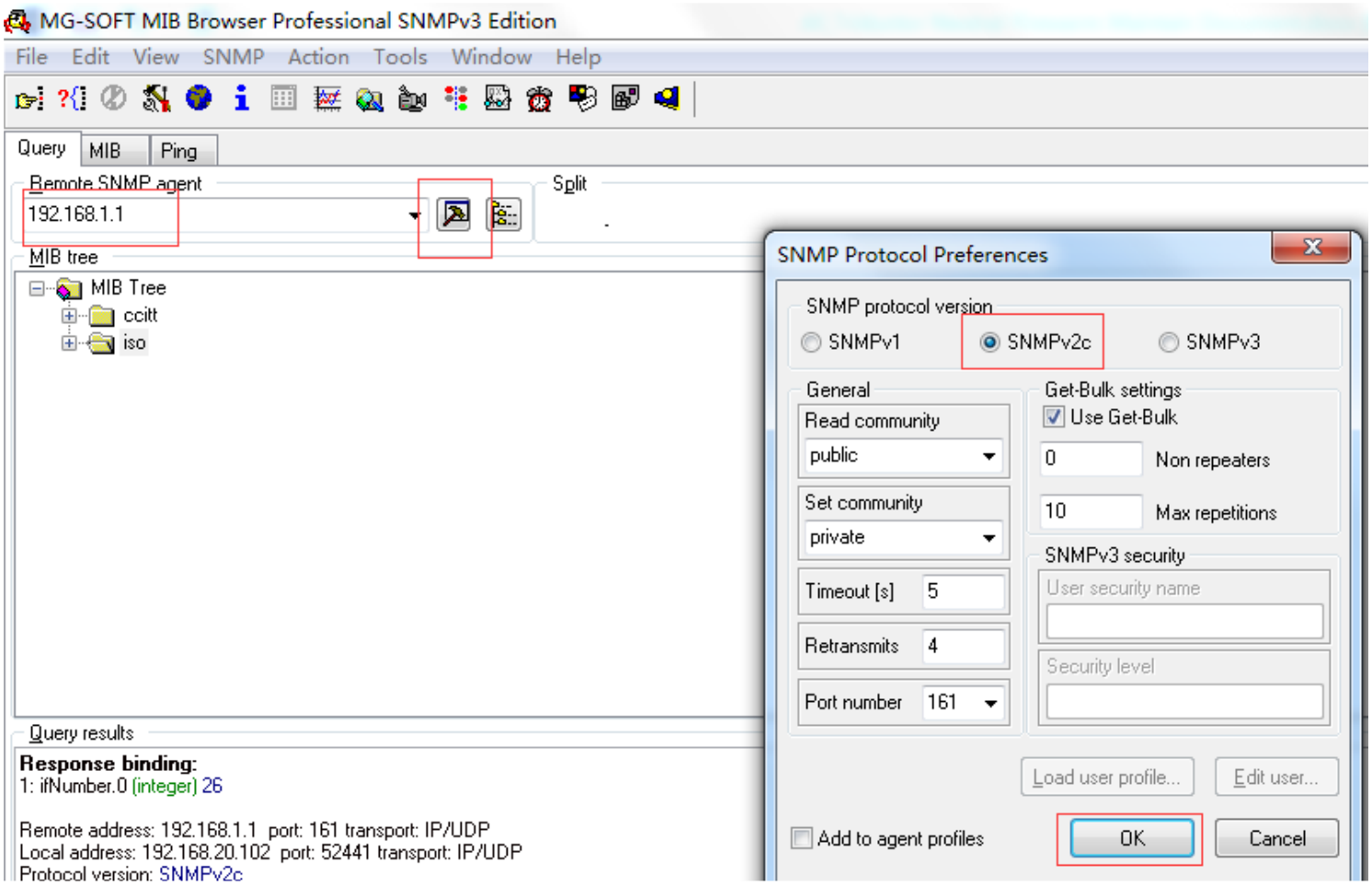

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# APPLICATION->SNMP

Below is picture for how to enable SNMP function, device support SNMP V1/V2

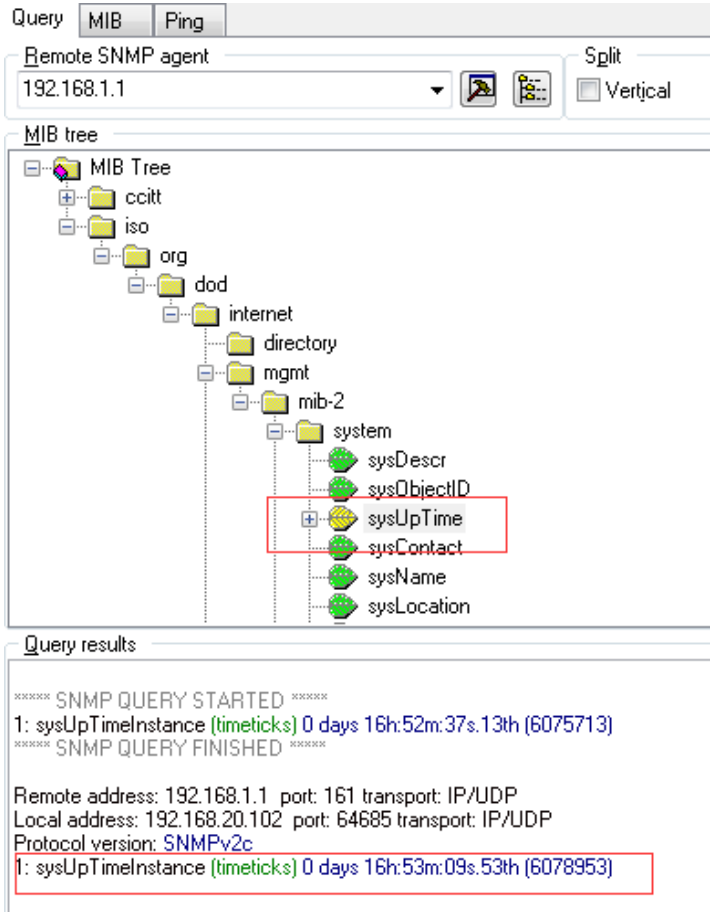
© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

Download “MG-SOFT MIB Browser”. below is picture for how to use the software.
Connect Remote SNMP agant.




© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

Select OID:1.3.6.1.2.1.1.3
System Up Time




© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# 4.8 USB setup

## USB-Storage Device Info

Insert a U disk into the USB interface, then login 192.168.16.249,select “USB”->” Storage Device Info”. Confirm the system has mounted the U disk**.**

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# USB->Samba Service

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

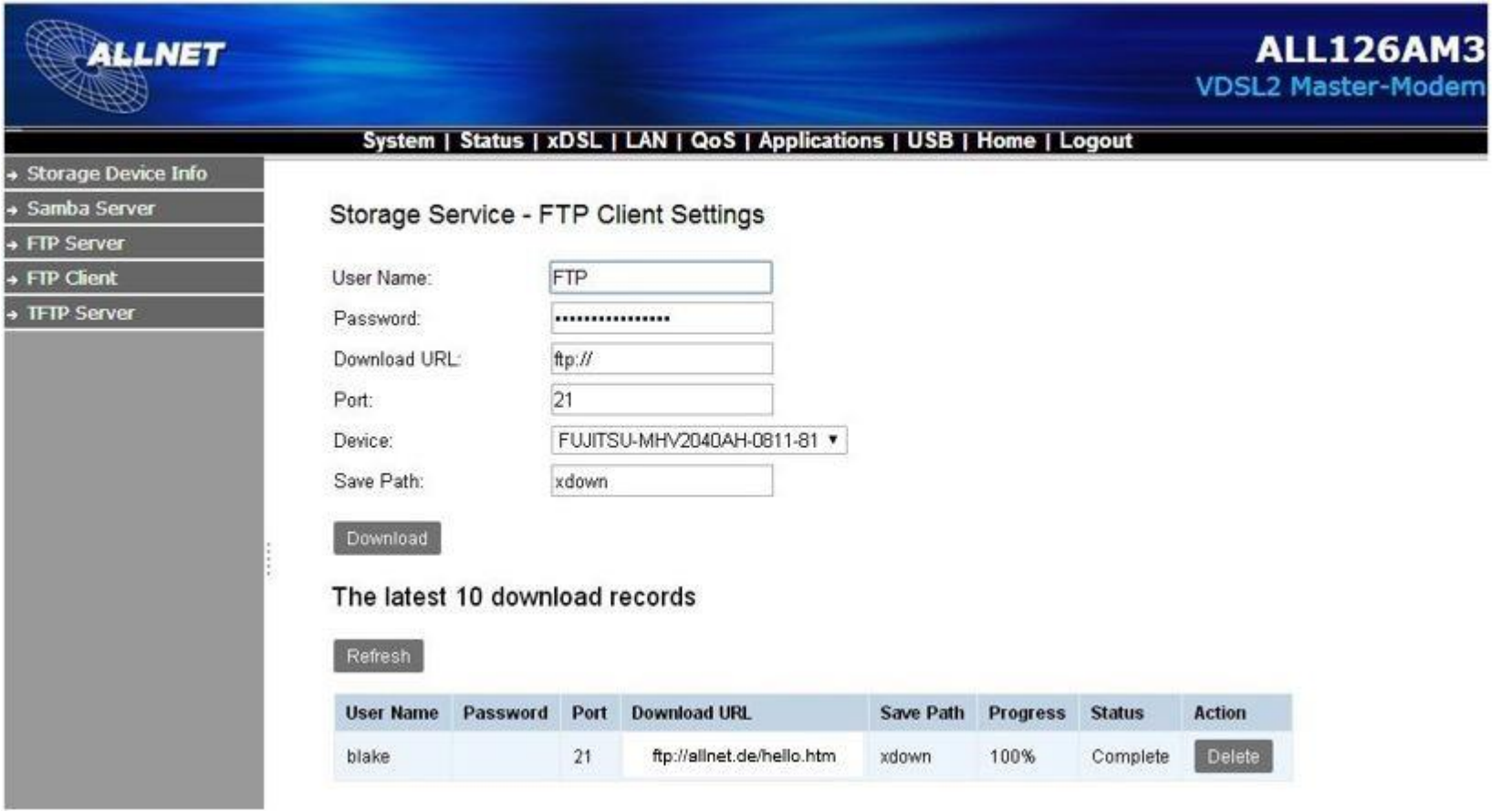
## USB-> FTP Server

Below is picture for how to enable FTP Server function.

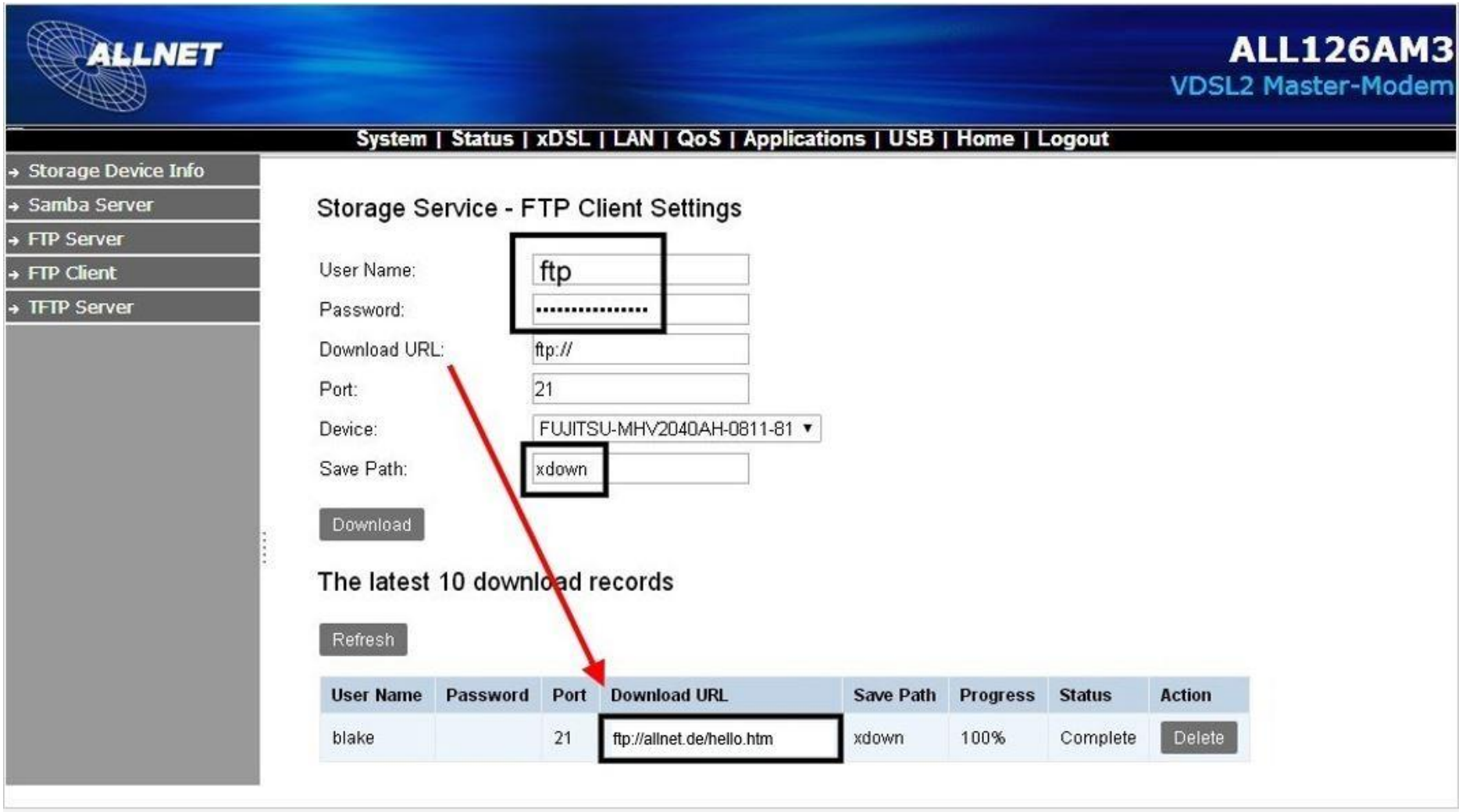
© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

## USB-> FTP Client

Below is picture for how to enable FTP Client function. Input FTP Client Settings, then chick “Download”




© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten




© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

Click “Refresh”, Make sure the status is complete.

## USB-> TFTP Server

Below is picture for how to enable TFTP Server function.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# 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 |

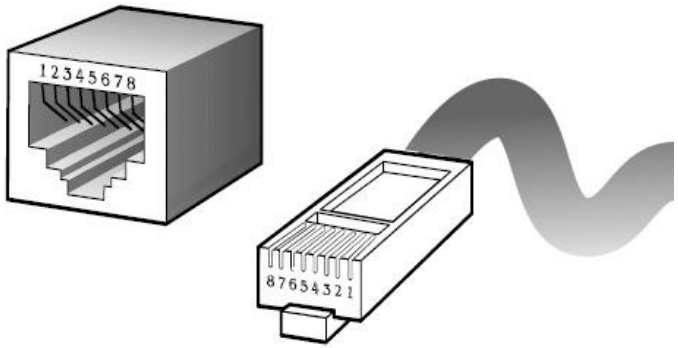



**Figure A-1 Standard RJ-45 repectacle/connector**

**Note:**

Please make sure your connected cables have the same pin assignment as the table above before deploying the cables into your network.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

**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**

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

## 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)

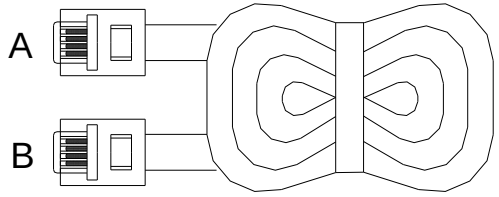



**Figure A-4 Telephone cable**

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 |

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# Appendix B: Product Specification

## Key Features & Benefits

- Adopts ARM Cortex A9 dual-core processor
- 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
- 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
- Compliant with ITU-T G993.2 VDSL2 standard
- Support remote management and monitor
- Support configuration backup and restore
- On board surge protection for Line port

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

- Support CO side bridge mode
- Supports Dual Firmware Image Backup
- Supports SNMP v1/v2
- On board POTS/ISDN splitter
- Supports TR-069

**Note:**

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

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

## Product Specification

| | |
|---|---|
| **Standard:** | IEEE802.3/802.3u standards<br>ITU-T G992.1/G992.3/G992.5/G993.1/ G993.2/G998.4 standards |
| **Physical Interface:** | 4 x RJ-45 10/100 Mbps Ethernet port<br>1 x RJ-11 / Terminal combo for VDSL2 line port<br>1 x RJ-11 connector for POTS/ISDN device<br>1 x Reset Button for resetting to factory default<br>1 x USB2.0 for connecting USB dongle |
| **Flow control:** | Full duplex: IEEE 802.3x<br>Half duplex: Back pressure |
| **LED Indicators:** | 1 x Power LED<br>4 x Link/Active Status for Ethernet port<br>1 x Link LED for VDSL2 port<br>1 x USB LED |
| **Switch method:** | Store and forward |
| **Typical Power Consumption:** | 4.4W (Full load, without USB port) |
| **Power Input:** | Input Voltage: 12 VDC (Commerical-grade power adapter) |
| **EMC Certification:** | EMI Compliant: FCC<br>EMS Compliant: CE mark |
| **Operating Temperature:** | 0°C ~ 50°C (32°F ~ 122°F)<br>Fanless, free air cooling |

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

| | |
|---|---|
| **Storage Temperature:** | -20°C ~ 70°C (-4°F ~158°F) |
| **Humidity:** | 10% to 90% (non-condensing) |
| **Weight:** | About 0.4 kgs |
| **Dimensions:** | 184 x 146 x 40 mm ( 7.2" x 5.74" x 1.57”) |

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# Appendix C: Troubleshooting

## Diagnosing the Modem's Indicators

The mdoem 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 you 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 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 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.<br>2.2 Be sure the cable is plugged into both the switch and corresponding device.<br>2.3 Verify that the proper cable type is used and its length does not exceed specified limits.<br>2.4 Check the modem on the attached device and cable connections for possible defects.<br>2.5 Make sure that the phone wire must be connecting ALL126AM3 first, when powered on.<br>2.6 Replace the defective modem or cable if necessary.<br>2.7 Or try to change band profile as 17a for getting long reach |

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

| **3. Symptom:** | VDSL Link cannot be established. |
|---|---|
| **Cause:** | VDSL 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 ALL126AM3(CO) side and CPE side when both are power on. ALL126AM3(CO) side will do link speed function depending on phone wire length, therefore if ALL126AM3(CO) side can't detect CPE Side over phone wire while both power on, this will cause the link to fail.<br>3.2 Please check phone wire, we recommend use 24-26 gauge with twisted pair and without rust.<br>3.3 Please reinsert power when change cable length or link time over 3 minutes.<br>3.4 Or try to change band profile as 17a for getting long reach. |
| **Note:** | Phone wire must meet CAT 3 standard or above and twisted pair, otherwise will cause more cross talk issue to reduce VDSL power driver. |

| **4. Question:** | What is VDSL2? (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.<br>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 |

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

| | |
|---|---|
| | 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.<br><br>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.<br><br>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.<br><br>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+.<br><br>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. |

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

| | |
|---|---|
| **5. Symptom:** | Connected the CO mdoem with CPE Modem within 300 meters RJ-11 phone cable got only less than 10 Mbit/s. |
| **Cause:** | Some testing program which is base on TCP/IP protocol such as FTP, Iperf, NetIQ, the bandwidth of testing outcome will be limited by TCP window size. |
| **Solution:** | We recommend to test VDSL2 bandwidth best by Smartbit equipment, if you don't have Smartbit, we recommend test that by IPERF program, and TCP window size must be settled max. 64k, the parameter as iperf –c server IP address –i 1 –t 50 –w 65535 for client side. |

| | |
|---|---|
| **6. Question:** | I just bought a ALL126AM3 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 me internet when hooked up. All lights come on but no Link light. Is this the complete wrong application for this unit? |
| **Answer:** | Re: Please note ALL126AM3 is a Master side(CO side), it must be connected to the ALL126AS3(CPE side) to work. Band profile and band plan setting must be compatible to each other . |

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

| **7. Question:** | We need to set up a default gateway on a ALL126AM3 pair 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 or WAN to LAN), you must set up a gateway to connect different network segment.<br>Regarding how to configure a default gateway at switch(bridged) mode for crossing various network segments .<br>Configuration gateway example from static routing:<br>Destination LAN IP: 0-0-0-0<br>Subnet Mask: 0-0-0-0<br>Gateway: 255-255-255-0<br>**Note:** Static Routing functionality is used to define the connected Gateway between the LAN and WAN. |

| **8. Question:** | What can I do if I forgot my password. |
|---|---|

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

| | |
|---|---|
| **Answer:** | If you forgot your password, you must reset your modem. Unfortunately this process will change all your 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 mdoem 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”. |

| | |
|---|---|
| **9. Question:** | What is the maximum Ethernet frame MTU for these modems? |
| **Answer:** | ALL126AM3 maximum Ethernet frame MTU is 1518 bytes. |

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# System Diagnostics

## Power and Cooling Problems

If the POWER indicator does not turn on when the power cord is plugged in, you 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 you still cannot isolate the problem, then the internal power supply may be defective. In this case, please contact your 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 you 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 port are auto-negotiation VDSL. 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 you 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 a power fluctuation. The best way to resolve this problem is to upgrade these devices to a version that support Ethernet and VDSL.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

## 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 you have completed all the preceding diagnoses, then contact your dealer.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# 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 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 void the user's authority to operate the equipment.

If this telephone equipment causes harm to the telephone network, the telephone company will notify you in

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

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, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

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

This equipment may not be used on 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

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

which case the user may be required to take adequate measures.

## 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 crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# 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 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.**

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# GPL & CE

ALLNET GmbH Computersysteme declares that the device **ALL126AM3** is in compliance with the essential requirements and other relevant provisions of Directive 2014/30/EU. The Declaration of conformity can be found under this link: www.allnet.de/downloads.html

ALLNET GmbH Computersysteme
Maistrasse 2
82110 Germering

Tel.: +49 (0)89 894 222 - 22
Fax: +49 (0)89 894 222 - 33
Email: info@allnet.de

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

# GPL Declaration for ALLNET products

**DISCLAIMER_OF_WARRANTY**

This Program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; version 2 of the License.

This Program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this Program; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA.

The full text of the GNU General Public License version 2 is included with the software distribution in the file LICENSE.GPLv2

**NO WARRANTY**

BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

**Written Offer for Source Code**

For binaries that you receive from ALLNET GmbH Computersysteme on physical media or within the download of the offered firmware that are licensed under any version of the GNU General Public License (GPL) or the GNU LGPL, you can receive a complete machine-readable copy of the source code by sending a written request to:

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

ALLNET GmbH Computersysteme

Maistrasse 2

82110 Germering

Your request should include: (i) the name of the covered binary, (ii) the version number of the ALLNET product containing the covered binary, (iii) your name, (iv) your company name (if applicable) and (v) your return mailing and email address (if available). We may charge you a nominal fee to cover the cost of the media and distribution. Your request must be sent within three (3) years of the date you received the GPL or LGPL covered code. For your convenience, some or all of the source code may also be found at:

http://www.allnet.de/gpl.html

**LICENSE.GPLv2**

**GNU GENERAL PUBLIC LICENSE**

**Version 2, June 1991**

Copyright (C) 1989, 1991 Free Software Foundation, Inc. 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

**Preamble**

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

**GNU GENERAL PUBLIC LICENSE**

**TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION**

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

   You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

   a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

   b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

   c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

   These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

   Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

   In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.
5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.
6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.
7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.
9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

   Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.
10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

**NO WARRANTY**

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.
12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

**END OF TERMS AND CONDITIONS**

**How to Apply These Terms to Your New Programs**

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.> Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA

Also add information on how to contact you by electronic and paper mail. If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author

Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.

This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program

`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989

Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Lesser General Public License instead of this License.

**LICENSE.LGPLv2.1**

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

**GNU LESSER GENERAL PUBLIC LICENSE**

**Version 2.1, February 1999**

Copyright (C) 1991, 1999 Free Software Foundation, Inc. 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed. [This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

**Preamble**

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

**GNU LESSER GENERAL PUBLIC LICENSE**

**TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION**

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

   a) The modified work must itself be a software library.

   b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

   c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

    a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

    b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.
9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.
10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.
11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

**NO WARRANTY**

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.
16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

**END OF TERMS AND CONDITIONS**

**How to Apply These Terms to Your New Libraries**

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.> Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990 Ty Coon, President of Vice

That's all there is to it!

© ALLNET GmbH Computersysteme 2015 - Alle Rechte vorbehalten
Irrtum und Änderungen vorbehalten