

Universal Broadband Router

Reference Manual 9.1.0

Table of Contents

Part 1	Introduction	4
1	Package contents.....	4
2	Access the router.....	4
3	Limited Internet Mode (L.I.M.).....	5
4	Direct interface vs PPTP interface.....	5
5	Remote Management and Portforward.....	5
Part 2	Status Overview Bar	5
Part 3	Menu System	7
1	HOME.....	7
2	INTERNET.....	7
3	LAN.....	12
4	WiFi.....	13
5	PARENTAL CONTROL.....	17
6	VPN.....	17
7	SMS.....	20
8	NAS.....	22
9	AUTOMATION.....	23
10	POSITION.....	25
11	SYSTEM.....	26
12	UPGRADE.....	28
13	RESTART.....	29
14	LOGOUT.....	29
Part 4	API	30
1	Enabling the API.....	30
2	Connecting to the API.....	30
3	Logging in to the API.....	30
4	API Syntax.....	30
5	Router info.....	31
6	Upgrade via API.....	32
7	SMS.....	32
8	Check services available.....	34
9	API Coding.....	34
Part 5	Support	36

Part 6	Open Source Notice	36
1	Apache License Applications.....	37
2	GPL v2 Applications.....	39
3	GPL v3 Applications.....	44
4	LGPL Application.....	51
5	BSD 2-Clause Applications.....	57
6	Mixed Licenses.....	57

1 Introduction

Thank you for choosing a Dovado Universal Access Router. Dovado has quickly become the leading, award-winning brand in terms of support for USB modems for 4G & 3G mobile broadband. In order to broaden your options of Internet access, this router is also capable of connecting to fixed broadband as well as other wireless (WiFi) networks. You will soon discover that Dovado is quick to support new modems, implement new software features and provide free firmware updates; all of which are easily accessible with help of the Dovado Live Upgrade feature, located in this menu.



On every page in the router's User Interface, you will see this icon. Click it, and you will be directed to the appropriate chapter in the reference manual automatically for further information and guidance.

1.1 Package contents

Make sure all of the listed items below are included in your package. If something is missing, kindly contact your reseller.

- Router - USB Mobile Broadband router
- Power supply
- Quick Wizard Guide
- 2 x 3dBi antennas

Additional optional items:

In addition to the items above you will may require a mobile broadband USB modem in order to connect to a mobile network.

This modem provides the wireless link to your operator's network and is sold separately.

To use the Internet you need a computer.

1.2 Access the router

To access your router's menu system, connect your computer via WLAN or LAN port (with an Ethernet cable) and access the <http://192.168.254.1>

If you are connecting your computer via Wireless LAN, search for a wireless network called "DOVADO-XXXX" or "DOVADO-XXXX-5GHz", where XXXXX is a unique combination of characters. These details, along with the passphrase, are available on a label on your router.

Once you have reached the login page, the information below is the default settings for your router:

Username: **admin**
Password: **password**

1.3 Limited Internet Mode (L.I.M.)

Dovado routers support most Hi-Link (Huawei) and CWID (ZTE)-based USB modems. However, unlike traditional USB modems, these specific models are designed to act as routers, imposing certain limitations due to the complication of a second private network layer.

Limitations with Huawei Hi-Link modems:

- UPnP, SMS and Bridge Mode cannot be used.
- Port Forwarding is limited to a maximum total of 15 individual rule assignments.

Limitations with ZTE CWID modems:

- UPnP and Bridge Mode cannot be used.
- Port Forwarding does not work (at all) on certain models.
- SMS is limited to certain models.

1.4 Direct interface vs PPTP interface

The Dovado router can have two IP Interfaces connected to the Internet: **Direct Interface** and **PPTP Interface**. It is possible to access the router and clients behind it via both interfaces using their IP addresses

- **Direct Interface** this is the router's own interface which it normally uses to communicate on the Internet
- **PPTP Interface** this interface exists when a VPN PPTP service is used. When PPTP is used the router has two IP addresses to the Internet.

1.5 Remote Management and Portforward

Not all Mobile Broadband operators, ISP and VPN providers allow external access to your router from the Internet. If the provider blocks such access it is not possible to use Remote Management or performing port forwards. Please contact your Internet Service Provider if you are having problems with accessing the router from the Internet.

2 Status Overview Bar

Atop of the user interface, a bar displays an overview of your Internet connection.

This information sits outside the security zone of your router, and does not need to be accessed via an authorized login, thus saving time on checking the connection status.

The Connection Status Overview Bar shows the following information:

Date: Synchronized with a Dovado NTP (Network Time Protocol) server upon each new successful Internet connection.

Signal: The latest measurement gathered by the USB modem upon connection is displayed in a percentage value, along with the technology (2G, 3G or 4G).
The value is only updated after initiating a new connection.

SMS: Shows the number of unread SMS's.

WiFi: The value within the brackets indicates the channel(s) currently used.

Time: Displayed in a 24-hour format (HH:MM). In case the displayed time is incorrect, you can set the time zone in the **System->NTP** page.

Connection: Indicates whether your current Internet connection is via Ethernet WAN, USB modem or via WiFi. This is useful if your router has been configured to perform automated failovers between one dropped Internet connection to a secondary (backup) connection.

IP: Shows the IP address the router has received from your Internet/Mobile-broadband Service Provider.

VPN: Show the IP address that the router has received from your VPN Service Provider

Connection Indicator: Green color indicates that the Dovado router is connected to the Internet via a USB modem. Yellow color indicates that the router is connected Internet, but LAN and WiFi clients is disable to access the Internet due to that scheduled event in the Internet Scheduler. Red color indicates that it is disconnected from the Internet.

Traffic: Quickly displaying this month's Internet consumption in gigabytes (GB) on the downlink and uplink of the USB modem.

New FW: Indicates if there is a new firmware for the router. Click on the text to get to the Live Upgrade page

Position: The router's GPS coordinates are displayed to the far right of the Status Overview Bar. These coordinates can be automatically updated if in a moving vehicle (with help of a GPS dongle in the additional USB port on the router), or are fixed coordinates when entered manually in the POSITION->SETTINGS menu.

Sunrise/Sunset: Based on the geographic position (GPS coordinates); the router will be able to automatically calculate what time the Sun will rise and set each day. This will dynamically shift throughout the year, and will assist you in automatically executing certain Home Automation tasks, for instance the powering off/on the lamps at home in accordance with the rising/setting of the Sun.

3 Menu System

The menu system is structured into sub-categories related to various functions and features. For each topic, there are sub-menus to the right side where you can alter the settings to suit your needs. All changes that are applied must be saved. Regardless of how many changes have been applied throughout the menu, they will only take effect once you have applied a Restart.

3.1 HOME

To view information about your Dovado router, click on the Home button in the menu. This is the first page you will see once logging into your router.

3.1.1 Home

This page displays information such as the router's serial number and also which firmware version it currently operates on.

3.1.2 Start Wizard

The Setup Wizard is a simple walk-through configuration that will ask you which settings you wish to use in order to access the Internet as well as secure your wireless network.

3.1.3 Troubleshooting

By default, the Troubleshooting Wizard is enabled. If it detects during the course of your setup that there is something wrong, the Troubleshooting Wizard will then advise you on what the possible faults may be.

Note: The Troubleshooting Wizard will not operate if either the Connection Tracker, Ethernet WAN port or a CDMA modem is being used.

3.2 INTERNET

Here you can define the role of your Internet interface (USB modem, Ethernet WAN port and WiFi Tethering "SpotBoost®") or if the router should be a WiFi extender instead of a router. This section will also give you the means to access your monthly data consumption.

Bridge Mode (NAT disabled): For usage scenarios where an additional private network (Network Address Translation) would impose difficulties, your Dovado router can be converted from the regular Routed Mode (NAT enabled) to Bridged Mode (NAT disabled). Please note that by selecting Bridge Mode, the Dovado router will not be operating its firewall.

Improvement of connection uptime: If your Internet connection is not holding well in terms of uptime, then please make use of the Connection Tracker™ feature within the sub-menu. This feature will poll the Internet to see if it is responding. If there is no response, the router will take steps to correct the situation.

3.2.1 Connection

This section configures how the router connects to the Internet. There are 3 different ways to connect to the internet.

- USB Modem (If you have a 3G or 4G modem)
- Ethernet WAN Port, If you have a Fixed Internet Connection such as Fiber/ADSL/Cable TV
- WiFi Tethering Client (Spotboost™), if you want the router to connect to another Wireless LAN,

such as a Smartphone or a Mobile Hotspot

After mode is selected go to the corresponding sub-menu (**Modem, WAN or WiFi Tethering**) to further configure the connection

Routed Mode (NAT Enabled)

In this mode the router will do Network Address Translation (NAT), which means it will share it's IP address with all the clients behind it.

The router will by default try to identify if you are using USB modem or using Ethernet as Internet connectivity. It also possible to change internet interface manually.

Bridge Mode* (NAT disabled)

In this mode, the router will be transformed into a converter between USB and LAN or WLAN.

Bridge Mode will disable the NAT/routing functionality. As it will no longer retain any functionality dependent on IP, certain features such as Connection Tracker, PPTP VPN and E-Mail Notifications will not be operational during use of Bridge Mode.

**Please check <http://www.dovado.com/modems> to see which modems support Bridge Mode*

WiFi Mode

It is also possible to configure the router to work as an Access Point or as a WiFi Range Extender.

The WiFi Range Extenders settings is found under the **WIFI** settings in the left menu.

3.2.2 Status

Here you can see the details on your current connections. There are 3 categories.

- **Internet Status** which shows information about your Internet Connection
- **VPN** which shows the PPTP shows information about PPTP Connection
- **USB Modem** shows the details of your USB modem's radio signal. It will also display which network mode the router is connected to (4G, 3G or 2G), along with the USB Modem's unique IMEI number, and the SIM card's unique IMSI number. This information might be useful when dealing with your mobile operator's helpdesk.

3.2.3 Modem

On the **Internet->Modem** page, you will be able to insert all the valid inputs in order to access the Internet via your mobile operator.

APN

There are several relevant bits of information which are necessary in order to complete this task successfully:

- **APN (Access Point Name)**. If you are not sure what your mobile operator's APN is, please contact them or check with your modem manual.

Network Preference

Please select how the modem should connect to the network, In auto mode, the modem tries to connect to the network with the best condition. It is also possible to lock it to either 4G / 3G or 2G. Some 4G modems are also compatible with the additional locking of a certain frequency. In 4G mode is also possible to force it on some modems to a certain frequency.

PIN code

This is your PIN code provided with your SIM card which resides in your USB modem. If you click "Disable PIN code" then the router will disable the PIN-code on the SIM card.

Authentication

Username & Password: Some operators may require you to insert a username and password in order to authenticate towards the mobile network. If you haven't been provided with this, then using

only an APN might be sufficient. If not, then please contact your operator.

My L.I.M modem requires a username and password for its web admin pages

This setting is needed if your USB modem requires Username Password to access its GUI

Enable DMZ settings on ZTE modem to support Port Forwarding

This settings needs to be enable if you have a ZTE modem with WEB GUI support and want to do portforward

Let router set connection options and APN on L.I.M (Mobile hotspot)

If you enable this setting the router will be able to alter settings such as APN and connection mode on your Mobile Hotspot

PPP and Network Settings

Alter advanced PPP and network settings such as timeouts and IP packet transfer size

PPP settings

Here you can fine-tune your mobile Internet connection.

- **PPP Idle Timeout**
- **PPP Echo timeout** The PPP echo timeout value, this value is normally 60 seconds
- **PPP Echo count** The PPP echo counter value, this value is normally 3 seconds
- **Modem Call string** (3G: *99#, CDMA: #777)

Network Settings

Here you can alter the settings regarding your network connection

Load preset Predefined profiles for different networks types.

WAN

- **MTU** Change the Maximum Transmission Unit
- **MRU** Change the Maximum Maximum Receive Unit
- **Enable MSS Clamping** Enabling MSS clamping will force the clients to use a certain MTU

3.2.4 WAN

The default setting is that your operator automatically will allocate you an IP address. Should your operator have given you a static (specific) IP address, then select Manual (Static) settings and fill in the given information in the relevant fields.

WAN IP Configuration

- **Automatic/Dynamic (DHCP)**

Should your operator have given you a dynamic IP addresses, then select the Automatic/Dynamic (DHCP) setting.

- **Manual (Static)**

Should your operator have given you a static (specific) IP address, then select the Manual (Static) settings and fill in the given information in the relevant fields.

- **PPPoE**

Should your operator use PPPoE to give you a IP address, then select the PPPoE settings and fill in the given information in the relevant fields.

Advanced Network Settings

Alter advanced network settings such as timeouts and IP packet transfer size

- **MTU** Change the Maximum Transmission Unit.
- **MRU** Change the Maximum Maximum Receive Unit.

- **Enable MSS Clamping** Enabling MSS clamping will force the clients to use a certain MTU.
- **Enable 802.1Q VLAN tagging** here you add VLAN taggin on the WAN Ethernet port, this is usefully if your ISP uses VLAN to separate traffic. Please contact your ISP to for more info on which VLAN they uses.

Custom WAN MAC Address

Here you can modify your external WAN port Ethernet MAC Address. Enter the MAC Address in hexadecimal, using the formats: "00:11:22:33:44:55" or "00-11-22-33-44-55"

3.2.5 WiFi Tethering

SpotBoost™ uses WiFi-tethering technology to connect to a neighboring 2.4/5GHz WiFi network. Once connected, all of your devices will be shielded within a private network, and can utilize the single IP address provided by the remote WiFi network; be it a public hotspot, hotel lobby, neighbor, mobile phone, mobile hotspot, etc. As an Internet interface, SpotBoost™ can act as primary, secondary or tertiary link depending on your setup within the Connection Tracker; allowing you to specify a fail-over plan in case of any Internet downtime. One such example could be an ADSL line failing over to a WiFi-tethered smartphone.

3.2.6 DNS

Here you can alter the DNS (Domain Name System) settings in the router.

Dynamic DNS Server Settings:

In most cases, the operator which provides the Internet service to your router is handing out a dynamic IP address (constantly-changing). The Dynamic DNS feature allows you to contact your router via an easily accessible hostname, such as myrouter.mydyndns.com

The Following Dynamic DNS provider is supported

- **DynDNS.org**
- **No-IP.com**
- **Loopia.se**
- **freedns.afraid.org**
- **CityNetwork.se**
- **Other Dynamic DNS provider**

The following information needs to be filled in

- **Profile Name** The name of the Dynamic DNS profile
- **Service Provider** Select which provider you want to use
- **Username** The username to your Dynamic DNS provider
- **Password** The password to your Dynamic DNS provider
- **Domain Name** here you enter the Dynamic DNS name that you have registered. e.g example.dyndns.org
- **Interface** Here you can select if you should use the direct IP interface (default) or use the PPTP interface to update the dynamic DNS

Special note for freedns.afraid.org

Hash freedns.afraid.org does not use usernames, instead they use a private hash signature

Special note for Other Dynamic DNS provider

Service URL here you enter the URL to your Dynamic DNS provider that the router should use

when updating your Dynamic DNS. It uses HTTP Basic authentication to authenticate with the server

This is an example of a Service URL: `http://dyndnsprovider.com/update?hostname=customhostname`

Custom DNS:

If your operator's DNS servers are unavailable, or if you wish to use a 3rd party DNS server, then insert the IP address of up to two different servers which the router should use. As a result, all devices on your network will then use those specified DNS servers.

Force router's DNS server:

If you enable this, the router will intercept all DNS traffic and enforce the router's DNS servers.

3.2.7 Connection Tracker

In order to ensure maximum Internet availability you can use the Connection Tracker feature. When inserting a minimum of 2 unique IP addresses, these addresses will be "pinged" with an interval that you specify in minutes in the Interval field. After entering the selected IP addresses, you can test the ping function to these addresses by pushing the Test now button directly below the IP address fields. The result will be shown to the right of each IP address field.

WARNING: Please note that if you are paying for bandwidth usage, activating this function will add data consumption to your monthly bill. An approximate figure for the additional monthly data consumption will be indicated directly to the right of the Interval field. Raising the interval value will lower the monthly consumption.

Should your internet connection drop, you have 3 options on how the router should react:

- Redial only (in WAN Ethernet mode: Reinitialize interface). Default value that attempts to reestablish the broadband connection.
- Redial and Restart (the router restarts itself after 3 failed redial attempts). Using this option, your local area/wireless network will be unreachable for a short while during the restart of the router.
- Auto fail-over between interfaces (USB, Ethernet WAN or WiFi Spotboost™). These interfaces must be properly configured in the event of a fail-over between each other. You can check which interface is your primary connection on the **Internet->Connection** page. If you have configured multiple interfaces then you will have the choice to select fail-over prioritization between them.

If you have configured the router to support two modems on the modem settings page then you will have the choice to select fail-over prioritization between WAN, WiFi WiFi Spotboost™, USB1 and USB2 port

3.2.8 Traffic

It is possible to keep track of how much Internet traffic is consumed each new calendar month. The data from the previous month is also showed. The chart displays how much data has been downloaded via the USB modem, WAN port or via the WiFi tethering interface (SpotBoost™). A total is calculated for the month per interface. These figures are automatically updated every five minute, a forced update can be manually requested by pushing the Update button.

3.2.8.1 Notification of Data Traffic Usage

Upon enabling this feature, the router can send you an SMS and/or E-Mail notification after a certain amount of data has been consumed by your Internet connection. It will then continuously update each time it passes that interval, thus providing you with an overview of your monthly data consumption.

The router can alert you after every a certain amount of data has been of downloaded or totally accumulated bi-directional traffic passed during the calendar month.

Note: By using your USB modem directly in the computer, the router will only be able to display the amount of data the router itself has consumed when the USB modem is inserted into it. It will not display what the USB modem has consumed; therefore, to acquire the most accurate accumulated figures, please contact your Internet service operator.

To enable notification by SMS, go to **SMS->Remote Control**, and select the Traffic Limit Reached, located under Notification SMS.

To enable notification by E-Mail, go to **System->E-Mail**, and enter your E-Mail account configuration. Then proceed to **Internet->Traffic**, and select how often you would like to be notified by SMS and/or E-Mail for an updated total of your calendar month's data consumption. You can also specify which kind of data to keep track of (downloaded only, or downloaded and uploaded; depending on your mobile broadband subscription terms).

For more information, please visit <http://www.dovado.com/features/traffic>

3.3 LAN

Here you can alter the settings that are relevant to your specific network, such as the Local Area Network (LAN) IP addressing, the Dynamic IP address pool (DHCP) as well as the Port Forwarding rules that will allow inbound access to your computers from the outside (Internet).

3.3.1 LAN Settings

Here you can alter the settings of the LAN Interface of your router.

IP address: is the IP address your router has on the local network, default address is 192.168.254.1 all clients will get IP addresses corresponding to this address

Subnet Mask: Here you can alter the Subnet Mask which the router should use on its LAN Interface, the default subnet is 255.255.255.0

Note: If you change the subnet mask the router will reset several settings. Such as VPN, DHCP and Port Forwarding.

3.3.2 DHCP

DHCP Server allows you to enable or disable the built-in DHCP server.

When enabled, all clients on your private network will automatically obtain an IP address from the range specified under Client IP Address Range. When disabled you have to manually enter an IP address into each client.

Client Network Information allows you to set a domain name for the router and specify an additional DNS server.

Static Address Assignment: Can be used when you want a client to obtain the same IP address each time it logs on to your network. Select how you want to identify the client, either by hostname or MAC address. Type in the hostname or the MAC address under Host Identifier and finally, set the desired IP address under Internal Address.

Please make sure not to assign the IP address of the router to any of the clients.

Click on Add and then Save DHCP Settings when you are finished.

View DHCP Table: is a function that shows the IP and MAC addresses of all clients that has got an IP address assigned by the router

3.3.3 Port Forwarding

Port Forwarding to LAN lets you specify which ports clients on the public Internet shall be able to communicate through, to clients on your private network. Reserved Ports is a list of ports that cannot be used to access your private network from the public Internet.

Under Port Range, select a range (any range that does not contain the ports listed under Reserved Ports) from 1-65535. Select the type of traffic that should be let through on these ports, TCP or UDP, or Both. Finally, type in the Destination Address, which is the IP address of the client on your private network that you want to be accessible from the public Internet.

It is possible to select if the router should do the port-forwarding on either the Direct IP Interface or on PPTP connection.

It is also possible to forward incoming GRE (Generic Routing Encapsulation) / IPSEC traffic to a single host.

Note: By default, clients on your private network can always access the public Internet. However clients on the public Internet can not access your private network

3.3.4 UPnP

The router supports Universal Plug and Play. UPnP is a feature that enables client application on devices behind the router to automatically trigger the opening of TCP/UDP ports through the firewall in the router. UPNP will only work on the Direct IP interface, it will not work on PPTP interfaces. As a security precaution, this feature is disabled by default and can be enabled manually.

3.3.5 Hosts

Hosts List

As certain devices on your LAN might require a familiar representation (such as "server.mynetwork.com"), you can pair the LAN IP address of that computer to "server.mynetwork.com". This means that if you try to surf to <http://server.mynetwork.com> from another computer on the same network, the router will redirect you locally to that specific computer. In the host list you will also see the signal strength to your devices.

Show Host on LAN

To view the current list of connected devices, click on "Show Hosts on LAN". The list will present the IP addresses along with their corresponding unique hardware (MAC) addresses.

Actions

In the host list there is an action field where you can do the following

- Configure static IP address assignment, if you click on this you will be able to easy configure static IP address assignment.
- Go to the web interface of an other Dovado product. If the router detects that there is other Dovado products on your network it will give you easy way to access them. For example you may have Dovado WiFi Range Extender enable units on your network.

3.4 WiFi

This menu will provide you the possibility to view/modify the Wireless LAN (WLAN) Settings.

3.4.1 WiFi Settings

Your Dovado router is a dual band router which lets you to connect to it on both 2.4GHz (802.11bgn) and on 5GHz (802.11ac).

Enable 2.4GHz/5GHz Wireless Radio: enables or disables the WLAN. If you do not use any Wireless LAN devices it is recommended that you select disable.

SSID: Your router will have two different SSID's, one is used for the 2.4GHz and the other is used for the 5GHz, you have to individually configure these.

Default value is **DOVADO-XXXXXX / -5GHz**

Where XXXXX is a unique combination, your unique combination you can find on the sticker at the bottom of the router

SSID Broadcast enables or disables transmission of the SSID from the router. When disabled, other Wireless LAN clients will not find the router when they perform a network search.

Wireless Band drop-down menu lets you choose what wireless standard to use in your Wireless networks.

Channel drop-down menu lets you change the radio channel for the wireless communication. This is useful if you experience poor performance that could be as a result of interference from other wireless devices. If Auto is selected, the router will automatically determine which channel it should use.

Bandwidth drop-down menu where you can select how much bandwidth your wireless interface will use.

The 2nd Channel (only 2.4GHz) drop-down menu will be available once the Bandwidth has been manually set to 40MHz. From there, you can appoint the placement of the secondary channel to be located either below or above the primary channel. Please note that when using 40MHz, the gap between two bonded channel points is equivalent to 4 numbered channels. Therefore, if selecting channel 6, the paired channel will either be 2 or 10, depending on your selection of placement.

Data Rate drop-down menu is the setting for the transmission speed at the selected Wireless Band. If you experience problems at high data rates, then we recommend that you select a lower data rate.

The encryption settings for your Wireless LAN.

There are three main types of encryption methods in the Authentication Type dropdown menu, WPA1/WPA2-PSK, WEP Shared Key and WPA1/WPA2-Enterprise.

WPA-PSK is the most secure, and therefore the best recommended method. Choose it from the Authentication Type drop-down menu and then enter a pass phrase between 8 and 63 characters. The key is case sensitive. All Wireless LAN clients must use the exact same pass phrase in order to access your network. The absolute securest setting is to use WPA2 together with AES ciphering.

If you have a device that does not support WPA-PSK authentication, then select WEP Shared Key. Choose a Key Type, either HEX or ASCII. Then choose Key Size; 64 bits (for HEX this is 10 characters and for ASCII 5 characters) or 128 bits (for HEX this is 26 characters and for ASCII 13 characters): the longer the key, the stronger the encryption. The key is case sensitive. You have the possibility to define up to 4 different keys at once so that you can rotate keys in order to randomize your security. WEP is not recommended to use.

WPA1/WPA2-Enterprise is based on the strong WPA-PSK authentication. However, the authentication is done on a RADIUS authentication server. For the router to negotiate with such a server, the server's IP address, communication port and login password must be configured. Such a solution is typically used in an enterprise environment.

Advanced Settings

Fragment length is a setting that affects the quality of the wireless transmissions. If you experience a high packet error rate you can decrease this value in small steps to reduce this problem. Setting the fragment length too low may result in poor performance.
Default value is 2346.

RTS length: is a setting that affects the quality of the wireless transmissions. If you experience inconsistent data flow you can decrease this value in small steps to reduce this problem.

Default value is Off.



QR Code There is a QR code picture in the top menu, If you click on the QR-Code a cheat-sheet with your current WiFi Settings will appear. This sheet can also be printed.

3.4.2 Guest access

The router supports Guest WiFi, If enable an 2nd WiFi network will be created to which your guests can connect. The router will not allow them to access your private network.

Traffic from the guest WiFi is only allowed to the Internet. Guest WiFi can be enabled on both 2.4 and 5 GHz

SSID: Your router will have two different SSID's, one is used for the 2.4GHz and the other is used for the 5GHz, you have to individually configure these.

Default value is **GuestWLAN-24GHz/5GHz**

The encryption settings for your Wireless LAN.

There are three main types of encryption methods in the Authentication Type dropdown menu, WPA1/WPA2-PSK, WEP Shared Key and WPA1/WPA2-Enterprise.

WPA-PSK is the most secure, and therefore the best recommended method. Choose it from the Authentication Type drop-down menu and then enter a pass phrase between 8 and 63 characters. The key is case sensitive. All Wireless LAN clients must use the exact same pass phrase in order to access your network. The absolute securest setting is to use WPA2 together with AES ciphering.

If you have a device that does not support WPA-PSK authentication, then select WEP Shared Key. Choose a Key Type, either HEX or ASCII. Then choose Key Size; 64 bits (for HEX this is 10 characters and for ASCII 5 characters) or 128 bits (for HEX this is 26 characters and for ASCII 13 characters): the longer the key, the stronger the encryption. The key is case sensitive. You have the possibility to define up to 4 different keys at once so that you can rotate keys in order to randomize your security. WEP is not recommended to use.

WPA1/WPA2-Enterprise is based on the strong WPA-PSK authentication. However, the authentication is done on a RADIUS authentication server. For the router to negotiate with such a server, the server's IP address, communication port and login password must be configured. Such a solution is typically used in an enterprise environment.

Network settings Here you can specify the IP subnet of your guest WiFi

Default is 10.10.10.1/24



QR Code There is a QR code picture in the top menu, If you click on the QR-Code a cheat-sheet with your current WiFi Settings will appear. This sheet can also be printed.

3.4.3 WPS

It is possible to enable WPS (by default it is off)

WPS allows you to quickly pair a WiFi client to the router by a push of the WPS soft-button on the top-right part of the menu.

Please note that there is a 3 minute window to pair the WiFi client after pressing the WPS soft-button. Or the the Reset button if you have enable it for WPS, at **System=>Buttons**

The WPS setup will be stopped after a client has been authenticated or the 3 minutes has passed.

3.4.4 MAC Address Control

The settings for restricting access to your private network via white-listing of authorized clients. MAC Address Control enables or disables the MAC address filtering on the MAC addresses under **WLAN->MAC Address Control**.

MAC Address Control is a security function that limits which clients can access your private network and the public Internet through your router. Enter the MAC address of the client that you want to grant access to your network (instructions on how to obtain the MAC address in Windows and Mac OS X are listed below). Click on Add in order to grant access for a new device.

*Note: that the function is enabled or disabled under **WLAN->WLAN Settings**. Disabling the function does not clear the MAC Address Control List.*

Windows

1. Click on the Start button and then Run.
2. Type cmd and press enter.
3. Type ipconfig /all in the command prompt and press enter. The MAC address is found on the physical address line

Mac OSX

1. Click on the Finder icon, followed by System Preferences.
2. Open the Network icon and click on the relevant interface.
3. Click on Advanced, and the hardware ID will be shown. This is your MAC address.

3.4.5 Range extender

The Dovado router offers the possibility to be configured as a WiFi Range extender.

It can either extend a single band (2.4 or 5 GHz) or both 2.4 and 5 GHz bands. To activate this function go to the **Internet->Connection** settings page, and select **WiFi range extender** under the **WiFi mode**.

Either fill in the SSID manually or press the Scan WiFi button and then select the network you would like to extend. Then provide the passphrase for the network. If you extend both a 2.4 and 5 GHz network, you will need to provide an SSID and Passphrase for both.

You should also select which network the LAN port should belong to. The LAN port could be used for wired devices that require access to the WiFi network.

Click **Check WiFi** after SSID and Passphrase has been entered to verify your settings. A green "OK" will be shown if the settings are correct.

Finally, select what the extended network should be named. For most setups, you may want to copy the settings from above. To do so, just click "**Copy Settings**".

It is also possible to configure a totally separate SSID and Passphrase, This is not recommended since devices will have problem when roaming between the networks.

3.5 PARENTAL CONTROL

Create a safer and more secure surfing experience with SafeDNS. Dovado give you a free trial of SafeDNS for safer surf via content filtering (parental control) and malware protection, which protect you from cybercriminals trying to steal important data. SafeDNS is a central managed cloud solutions and there is no need for any additional software or hardware to keep your devices safe.

Parental Control is a service provided by SafeDNS. For more information on service plans, functionality, warranty and disclaimers please visit <http://www.safedns.com/>

- Filter HTTP and HTTPS sites, a feature unavailable in most routers with inbuilt sites blocking option
- Make the websurfing safer by filtering out botnets, malicious and phishing sites
- Manage webaccess application-less by applying an individual filtering policy for every device on the network, even for devices behind NAT – an unrivaled feature available with SafeDNS only
- Protect any and all web-connected devices behind the router– PCs, Macs, iPhones, iPads, Android devices, game consoles, internet of things devices – smart bulb, locks and thermostats, coffee makers refrigerators etc
- Block most of distracting, annoying online ads that sometimes contain inappropriate images and can propagate malware. No more adblock plugins for webbrowsers, any applications and programs on devices behind the router!
- Avoid porn and adult-only content on the most popular video hosting site and in search engines by enabling YouTube Restricted Mode and SafeSearch Mode for Google and Bing
- Enforce necessary internet usage policies by choosing from over 55 content categories limiting online activity of office staff to relevant sites only. Most routers with content filtering options lack a granular per-device filtering.
- Know who surf to which sites from your network. For that SafeDNS provides detailed stats of internet traffic usage per device – sites visited and blocked, the most popular sites and the content categories these sites are classified into, and much more

3.5.1 Settings

To enable SafeDNS select the tick box and then enter your SafeDNS account.

The router will now start initialize the SafeDNS functionality. This could take a minute or two.

PC to profile

It is possible to have up to 5 different content profiles. Every client has a unique mac address which could be connected to a profile.

The content profiles are created at your account page at <https://www.safedns.com/>

For further information, visit <http://www.dovado.com/safedns>

3.6 VPN

The router can be used as a VPN (Virtual Private Network) client. VPN is widely used for connecting to corporate networks from a remote location. The credentials must be given to you by the administrator of the virtual private network.

Note: If your Internet connection should run into any disconnects or strange behavior when using session intensive protocols (such as BitTorrent) during use of VPN tunnels, then please make sure to enforce a low speed cap on the relevant application. VPN encryption/decryption is a CPU-intensive task for the router and offers limited bandwidth throughput. Expect VPN speeds of approximately 30 Mbps

For further information, visit <http://www.dovado.com/features/vpn>

3.6.1 PPTP

For setting up a VPN with PPTP you need to provide the server's IP-address or hostname, along with login credentials. This should have been provided to you by the system administrator or your VPN service provider. It is sometimes optional to use encryption, referred to as MPPE. The usage of encryption will result in lower throughput as well as higher transmission latency (ping), since each data packet must be encrypted/decrypted.

To enable PPTP select the tick box and enter the VPN Server profile and then choose which **Connection option** you prefer.

- **Connect automatically** With this selection the router will always try to connect the VPN connection when it start up
- **Connect Manually** With this selection you will manually have to click the **Connect** button on the page

To create a new VPN Server, click on the drop-down and select **Create New Profile** and fill out the following settings

- **Profile Name** here you enter the name of the profile eg. MyVPN-Service
- **Server** Enter the host-name / IP address to which you want to connect
- **Username** The VPN account username with which you want to connect, if you don't know it please contact your IT administration or your VPN provider
- **Password** The VPN account password with which you want to connect, if you don't know it please contact your IT administration or your VPN provider
- **Echo timeout** The PPP echo timeout value, this value is normally 60 seconds
- **Echo count** The PPP echo counter value, this value is normally 3 seconds
- **MPPE** (encryption) Select if the connection should use encryption or not. Encryption can have impact on the throughput and latency. By default, encryption is Enabled
- **Default profile** Click here if you want that the router automatic should connect with this profile

If VPN goes down Here you select what the router should allow to happen if the VPN disconnects. Either you let the hosts continue to surf on the Internet directly (without VPN), or you decide to block them from accessing the Internet.

Advanced Settings

- **Number of retries** Here you can choose how many attempts the router should try to connect to the VPN. You can also select that it will continue to do unlimited retries. If the router can't connect within the limit, a manual connect or a reboot of the router will be required
- **Routing of internal services** Here you can select how the router's own traffic should be routed to the Internet; either via the Direct connected interface or the PPTP/VPN tunnel. All traffic that originates from the router such as DNS-lookups, NTP, Live Update checks, etc shall use this interface
- **Forced VPN** Here you can designate which hosts on your network should use the VPN connection. By default, all hosts on the network will use the VPN connection. If you only wish to permit specific hosts to use the VPN, then click the Specific Host selection. Once added, all other hosts that haven't been entered shall use the Direct Internet (not VPN).

For debugging any issue with your connection, kindly refer to the the user log (**SYSTEM->Log**). The

log may provide you useful information regarding errors that might occur.

3.6.2 OpenVPN

For setting up a VPN with OpenVPN you need to provide the server's IP-address or hostname, along with login credentials. This should have been provided to you by the system administrator or your VPN service provider. The usage of VPN will result in lower throughput as well as higher transmission latency (ping), since each data packet must be encrypted/decrypted.

To enable OpenVPN select the tick box and enter the VPN Server profile and then choose which **Connection option** you prefer.

- **Connect automatically** With this selection the router will always try to connect the VPN connection when it start up
- **Connect Manually** With this selection you will manually have to click the **Connect** button on the page

To create a new VPN Server, click on the drop-down and select **Create New Profile** and fill out the following settings. It is also possible to configure the settings by using a OpenVPN configuration file usually provided by your VPN provider. Select **Choose file** and then click **Parse OpenVPN** the router will then fill in all settings from the file.

- **Profile Name** here you enter the name of the profile eg. MyVPN-Service
- **Server** Enter the host-name / IP address to which you want to connect
- **Username** The VPN account username with which you want to connect, if you don't know it please contact your IT administration or your VPN provider
- **Password** The VPN account password with which you want to connect, if you don't know it please contact your IT administration or your VPN provider
- **Default profile** Click here if you want that the router automatic should connect with this profile

Advanced Settings

Here you can configure all OpenVPN parameters manually this settings should be provided by your VPN provider.

If VPN goes down Here you select what the router should allow to happen if the VPN disconnects. Either you let the hosts continue to surf on the Internet directly (without VPN), or you decide to block them from accessing the Internet.

- **Number of retries** Here you can choose how many attempts the router should try to connect to the VPN. You can also select that it will continue to do unlimited retries. If the router can't connect within the limit, a manual connect or a reboot of the router will be required
- **Routing of internal services** Here you can select how the router's own traffic should be routed to the Internet; either via the Direct connected interface or the PPTP/VPN tunnel. All traffic that originates from the router such as DNS-lookups, NTP, Live Update checks, etc shall use this interface
- **Forced VPN** Here you can designate which hosts on your network should use the VPN connection. By default, all hosts on the network will use the VPN connection. If you only wish to permit specific hosts to use the VPN, then click the Specific Host selection. Once added, all other hosts that haven't been entered shall use the Direct Internet (not VPN).

For debugging any issue with your connection, kindly refer to the the user log (**SYSTEM->Log**). The log may provide you useful information regarding errors that might occur.

3.7 SMS

Dovado routers support SMS traffic with most USB modems, though not all.
To see a list of supported modems, kindly visit <http://www.dovado.com/modems>

3.7.1 Inbox

This page will display any received messages. It displays the number of the sender along with the message. You can reply to or delete an SMS within this page.

3.7.2 Send

You can compose an SMS message and send it either to a number stored in your router's Phonebook, or to any other number. The telephone number must be entered in the proper international format beginning with a country code; for example 4670xxxxxx.
If you wish to send any messages to a short service number (usually only a few digits long; shorter than a regular telephone number), then tick in the Short Number box above the message.

A regular SMS supports 160 characters, however the Dovado router also supports long text messages, and will display how many messages your inserted text is equivalent to.

3.7.3 Remote Control

A short text command can be sent from your phone to administer certain tasks. The configuration allows a range of authorized mobile phone numbers to be added to the list.
You can specify which number will be allowed for sending commands, receiving notifications, or both. To insert the number, use international dialing format (e.g. 46 for Sweden, followed by the rest). For each number that is inserted with its rights, click on Add to list.

Note: For each number that is added (and tagged with a "Notification" tick mark), an individual SMS shall be sent by the router in case of any notification.

Using SMS functionality may generate an extra cost to your mobile broadband subscription

3.7.3.1 Remote Commands

SMS Commands

Select the commands you want the router to listen to on an incoming SMS.

Send the bold text to the router to trigger the command

- ☐ **Status** - Reports current connection status of the router
- ☐ **Restart** - Restarts the router
- ☐ **Disconnect** - Shut down modem connection *
- ☐ **Connect** - Connect the modem connection *
- ☐ **Reconnect** - Reset connection and connect *
- ☐ **Upgrade** - Upgrade to latest available firmware *
- ☐ **VPN** - Turn on or off VPN access in manual mode by sending 'vpn on' or 'vpn off' *
- ☐ **Internet** - Turn on or off LAN access to Internet by sending 'internet on' or 'internet off'

Home Automation

- ☐ Allow sending SMS (saying eg 'lamp1 on') to trigger a [home automation task](#)

The short text commands are: Status, Restart, Disconnect, Connect (or Reconnect), Upgrade.

Status: The router will reply to you stating that it's either connected or disconnected from the Internet. It will also contain the IP address (if connected) of it's Ethernet WAN / USB Modem along

with signal information.

Restart: The router will restart itself.

Disconnect: The router will disconnect itself from the mobile broadband network. Internet connection will be dropped, though SMS will still be active.

Connect (or Reconnect): The router will connect itself to the mobile broadband network. Internet connection will be enabled.

Upgrade: You can instruct the router to fetch the latest firmware release directly from a Dovado firmware server, without involving your use of a computer.

VPN: Turn on/off VPN by sending a SMS with either "VPN ON" or "VPN OFF"

INTERNET: Turn on/off Internet by sending a SMS with either "INTERNET ON" or "INTERNET OFF"

3.7.3.2 Notification SMS

Notification SMS

Select the events you want the router to send notifications about

- ☐ **New Firmware** - Send SMS when there is a new FW for the router *
- ☐ **Restart** - Send SMS when a restart has happened
- ☐ **Connection Down** - Send SMS when the main connection has gone down *
- ☐ **Connection Up** - Send SMS when the main connection has gone up *
- ☐ **Traffic limit reached** - Send SMS when set traffic limit is reached
- ☐ **Traffic counter reset day** - Send SMS when resetting month for traffic
- ☐ **VPN connection changes** - Send SMS when the VPN connect or disconnect
- ☐ **Switched connection** - Send SMS when the router has switched Internet Access Method * **
- ☐ **Failed Login** - Send SMS when someone fails to login to the router

Enable custom from-field:

☐

Unexpected events which occur in regards to the Internet connection along with the overall status of the router can be reported by SMS to all numbers listed for "Notification". Notification messages can be sent to recipients for the following events:

New Firmware: The router will check the Dovado firmware servers once a day for a new firmware release. As soon as it has identified a newer release, you will be sent an SMS notification from the router.

Restart: In case the router was forced to restart itself after 3 unsuccessful connection attempts (based on the settings located in the Connection Tracker). A restart can also be affected by an unexpected power failure.

Connection down: The Internet connection has been dropped. The router at this point has acknowledged a drop, and is working on resolving this situation by either redialing the connection, restarting itself or switching connection to the secondary Internet interface (depending on what has been defined in the **Internet->Connection Tracker** site)

Connection up: An Internet connection has been established. It is very likely that your router will be handed a new IP address from the operator. The SMS will display the new IP address in case you would like to remotely connect to it for administration purposes.

VPN connection changes: The router will send an SMS when the VPN connection goes up or

down.

Traffic limit reached: More information about this is available in section Notification of Data Traffic Usage.

Traffic Counter Reset Day

The router will send a traffic summary at the day when it resets its traffic counter.

Switched connection: In case your Connection Tracker has been configured to automatically perform a connection fail-over between two interfaces, you will be notified of this change, along with further information pertaining to that new connection.

Enable Custom from-field: Add a prefix in the beginning of the SMS

3.7.4 Settings

To activate the usage of any SMS features, click on Activate the SMS handler. By default, the router will select the Auto method for retrieving the incoming messages. You can also manually select which method it should access the messages, be it either from the SIM card or from the USB modem. Auto mode will attempt both.

Should the router experience any issues in receiving text messages from your phone, then type in the SMS Service Center number that is tied to the SIM card you are using inside the USB modem. If you do not know what it is, then either check the advanced settings within the modem dashboard software (when using modem in computer), or contact your mobile operator for details. Make sure to insert the SMSC telephone number in international dialing format.

SMS Forwarding

It is possible to forward all incoming messages to either an other phone number or to an Email address. If you forward if you forward the SMS to an other phone-number, then your operator may get charge you. Please check your subscription.

Forward SMS to E-Mail

To be able to forward SMS to a E-mail address, then you must have configured the routers Email settings prior to this. This is done under **SYSTEM>E-Mail**

3.7.5 Phonebook

If you are sending frequent SMS texts to a regular list of recipients, then enter those recipients to the router's Phonebook. Once inserted, you can compose a new message and simply select the recipient by name.

All entries into the Phonebook are to be stored in the international number format. It is also possible to store Short Numbers as well.

3.8 NAS

If you insert into a unused USB port an external USB hard drive or thumb drive, you can share out the storage centrally throughout your entire private network.

For further information, visit <http://www.dovado.com/NAS>

3.8.1 Info

The router allows you to insert a USB Hard Drive, Thumb Drive or MicroSD card and act as a centralized storage server for all the shared files within your network.

The NAS functionality supports storage drives that are formatted for NTFS and FAT32 file formats.

The NAS implementation provides two modes of access to these files SMB (Server Message Block) and FTP (File Transfer Protocol).

3.8.2 Shares

In order to share out a storage drive, you must pair the drive together with a unique name. Enter the name you wish to use, and select the drive from the drop-down menu. Make sure to also select which sharing method you wish to use for that specific drive. The SMB method is a regular network share, whereas FTP is a File Transfer Protocol service that requires you to use an FTP client on your computer.

For NTFS formatted disks the 'ISO-8859-1'-encoding for file names will be used by default (shown as NTFS/ISO in the user interface). If you want to use 'UTF-8' instead of 'ISO-8859-1', then check the box labeled "Enable UTF-8 for filename encoding" when adding a new share. The new share will show up as 'NTFS/UTF-8'. When creating multiple shares from the same disk, the encoding must remain the same.

For further information, visit <http://www.dovado.com/NAS>

3.8.3 Users

This page allows you to manage your login account credentials, as well as add additional users along with corresponding privileges. The usernames and passwords can be modified, and services can be enabled/disabled.

For example, if you wish to allow users the possibility to use the SMS API, then add/modify an account and select only the API SMS. Apply all changes by clicking on the Save Settings button, and applying a restart of the router.

Apply all changes by clicking on the Save Settings button, and applying a restart of the router.

3.8.4 SMB

The most common network share which can be accessed by all operating systems (Windows, MAC, Linux, etc). It allows you to map a network drive on your computer, and then drag-and-drop files in/out of that network share. Typical transfer rates are between 6-9MB/s (50-75Mbps).

3.8.5 FTP

This optional method is quite practical for several reasons. It allows certain network devices (other than your regular desktop/notebook computers) to dump/fetch files from the storage server in a simplified manner. In many cases with Ethernet-based security cameras, the video/photo images are typically uploaded to an FTP server.

Transfer rates tend to be somewhat higher with FTP than with the SMB protocol.

3.9 AUTOMATION

This menu covers Home Automation. You can take control of the lighting as well as power up other appliances within your home from your computer or phone. You can also control what time Ethernet LAN and WiFi clients should be able to access the Internet.

For further information, visit <http://www.dovado.com/automation>

3.9.1 Info

The router can be used as a server for Home Automation, allowing you to remotely control automation receivers (containing integrated radio receivers) for powering on/off household appliances, such as lamps.

You can also control what time Ethernet LAN and WiFi clients should be able to access the Internet within the Scheduler sub-menu.

In order to get the Home Automation up and running, the following is required:

1. A TellStick from Telldus Technologies or a Gembird SilverShield/Energenie plugged into a vacant USB port in the router.
2. If using TellStick, you'll require compatible home automation receivers.
3. Configuration of the router.

Begin by configuring **Automation->Aliases** for your devices. The uniquely named receivers (aliases) can then be controlled by:

1. Sending an SMS containing short commands such as "lamp1 on".
2. Using the DOVADO Remote Control app for iOS/Android.
3. Using the DovTelCon Windows desktop application for PC.
4. Setting up a schedule for triggering of events.
5. Manual control from the graphical web user interface (UI).

Visit the relevant pages on <http://www.dovado.com> for further information on this section.

The router can also be used to awaken a computer (that is on standby) if connected to one of the LAN ports on the router by Ethernet cable. The computer itself has to support the Wake-On-LAN (WOL) function.

To do so, you must add your computer as an Alias where you select the Protocol:"Wake on LAN" and enter the MAC address of the computer's Ethernet LAN network card.

3.9.2 Aliases

To enter a home automation receiver into the router configuration, you must first name it in the Alias Configuration page. To do this, name a receiver such as "Test1" (for example) and its corresponding Protocol, along with House and Channel. This is typically adjustable on the receiver device itself. Each entered alias must have a unique name, House and Channel. Upon entering each individual alias, click on Add Alias.

How to configure self-learning wall-plugs:

- Go to Automation>Aliases.
- Insert an Alias lamp1 (for example).
- Select the corresponding protocol.
- Select a Unique ID or hit Random ID (any will do) and Channel (any will do).
- Click on Add Alias.
- On the alias you wish to pair with your wireless receiver, push Learn after having pushed the self-learning button on the wireless receiver you have plugged into the wall. This will then pair the two units together.

3.9.3 Groups

If you wish to cluster several appliances into a group, you can tick in the various alias boxes and label them as a group. This is particularly useful if you have several lamps in a specific room (such as bedroom), or several appliances within the same category; such as lamps.

It is also possible to create groups of days (for instance weekdays vs. weekends) in order to simplify clustering of events.

3.9.4 Scheduler

Allows you to schedule in events to power on/off individual/all devices around the home. Besides applying general daily rules, it also allows you to create specific one-time events.

You can also control what time Ethernet LAN and WiFi clients should be able to access the Internet. For example, specific rules can be created to allow Internet access between Monday to Friday between 08:00 to 17:00, whereas all other times it will not be possible to access the the Internet. The router will still be connected to the Internet, however your network devices will be blocked from accessing the Internet.

It is also possible to separately enable and disable Home Automation scheduling/Internet scheduling.

3.9.5 Manual control

You can manually control the aliases throughout your home via the web interface in the router. To do so, go to the **Automation->Manual control** page and select which device(s) you would like to control. Select the state of operation you'd like each alias to be (ON or OFF) and push Execute.

3.9.6 Z-Wave

Z-Wave (Bi-Directional Home Automation)

The router has support for Z-Wave Home Automation USB controllers & devices.

1. Insert the Z-Wave USB Controller Stick into a vacant USB port of the DOVADO PRO router model.
2. As Z-Wave devices (referred to as "nodes") memorize their former network associations, it is recommended to remove their former associations first in order to pair them to your Z-Wave USB stick's network.
3. First, make sure to place the Z-Wave device close to the router as pairing is done in low-power mode. The reason for is a precautionary one: It's to make sure you don't end up pairing with your next-door neighbor's Z-Wave appliance at the same time.
4. Then click on Remove Node. Immediately thereafter, quickly push the button on the Z-Wave device 3 times within a 2 second period. This should clear the previous association.
5. Finally, click on Add Node and, quickly push the button on the Z-Wave device 3 times within a 2 second period. It will appear on the list below with a Node ID, Type and State of operation.
6. Proceed to the Aliases page and enter a name for your associated Z-Wave node. Then click on the Protocol drop-down menu and select Z-Wave Switches and Dimmers.
7. Click on Add Alias, and it'll appear on the list below.
8. Test that it works by visiting the Manual Control page and pushing On and Off on that node.

3.9.7 USB/IP

With this option you export USB devices to other hosts on the network via Linux USB/IP technology.

With this option you can specify the USB devices to be accessible over the LAN via emulation on the client side. For this to work the command 'modprobe vhci-hcd' needs to be run before trying to attach a device.

USB/IP utilities usually ship with the kernel tools package in Linux; please be aware that an old incompatible package named "usbip" does exist for Ubuntu-based systems and cannot be used!

Currently its only possible to use USB/IP with Linux based clients.

3.10 POSITION

With help of your location coordinates, this router is capable of applying the information into use with several applications, such as knowing what time the sun will rise and set each day when using Home Automation.

3.10.1 Info

The router can be used as a tracking device by showing its positioning e.g. on a Google Map™.

The router support 2 different types of position services:

1. USB-based GPS receiver: As new GPS devices are constantly introduced to the market, go to <http://www.dovado.com> to see if your device is supported.
2. Fixed position: Allows you to manually enter your current position in the Web interface.

For detailed information, go to **Position->Info** and for enabling the function go to **Position->Settings** to select the positioning method you want to use.

If SMS Remote Control is enabled, the STATUS message will include the location of your router.

3.10.2 Map

The map will present the location of your router, based on the coordinates that were either manually applied or automatically gathered from a GPS USB dongle.

3.10.3 GPS Settings

In order for certain Home Automation features to work (Sunrise/Sunset), the router needs to know its geographic whereabouts. There are two methods available within this menu. First option is to use a GPS USB dongle in one of the vacant USB ports on your DOVADO router. The GPS dongle will then periodically update the location if (for instance) in a moving vehicle. The second option is simple as it is intended for fixed environments such as a home or office. All you are required to do is to insert the Latitude and Longitude of the router's location. For further information, visit <http://www.dovado.com/gps>

Activate logging The router supports 2 methods of sending GPS data to an external destination. Either it can upload data to an FTP server or Send to an OsmAnd protocol compatible server such as <https://www.traccar.org/>

Activate FTP logging Fill in the settings to the FTP server. The update interval is how often the router should upload the data. The uploaded log with contains all the position the router has stored for the selected min of minute.

Activate Traccar OsmAnd logging Fill in the URL to the OsmAnd compatible server. The device identifier will be the serial number of the router. The serial number is written on the sticker of the bottom of the router

Custom API key: It is possible to enter your own Google Maps key , For further info visit <https://developers.google.com/maps/documentation/javascript/tutorial>

3.11 SYSTEM

The System sub-menu offers you to alter some of the advanced settings within the router, along with the user management.

3.11.1 Users

This page allows you to manage your login account credentials, as well as add additional users along with corresponding privileges. The usernames and passwords can be modified, and services can be enabled/disabled.

For example, if you wish to allow users the possibility to use the SMS API, then add/modify an

account and select only the API SMS. Apply all changes by clicking on the Save Settings button, and applying a restart of the router.

Apply all changes by clicking on the Save Settings button, and applying a restart of the router.

3.11.2 Remote Management

The settings for enabling remote management of the router from another location.

Web Access Port: Select which port you would like to access the router interface page from the Internet. The Standard port is port 80, which is the regular port for HTTP.

Example: Should you wish to access the settings on your router from elsewhere on the Internet, simply open a browser, type in `http://<ip address of router>:<port>`.

For instance, `http://183.168.0.35:4430`.

Status Bar: It possible to hide the status bar from being showed when connecting to the router from remote location

Hostname lookup interval: Select how often a hostname entered in the Client Access List should be updated. Frequent updates are needed if the IP-address behind the hostname changes often.

Allowed Clients: The router will only allow access for clients visible in the Client Access List. To put a client in the list, enter the corresponding IP-address or Hostname (For instance 217.65.34.12 or myhost.dyndns.org) in the Host/IP-field and click Add to list. Repeat the procedure in order to grant more clients access. Access can be granted from anywhere on the Internet by marking "Any Host" and pressing "Add to List".

Here you can give permission on which interfaces it is allowed to access the router. It is possible to access the router on both the Direct and the PPTP interface

Show Mapping: Displays the router's view of IP-addresses associated with hostnames in the "Client Access List".

All changes will take effect upon restart of the router

GPS API The router uses a software called gpsd (version 2.39) which has a API on TCP port 2947. For more info about the gpsd API please visit <http://catb.org/gpsd/>

3.11.3 Network Settings

Here you can alter ICMP settings for the Internet connection.

ICMP Settings

If enabling "Drop Ping requests" the router will not respond to incoming ICMP packets such as ping request.

3.11.4 Time zone

Dovado routers synchronize their clocks via NTP (Network Time Protocol) servers located out on the Internet. The synchronization occurs upon each new connection with the Internet, be it the initial (when powering up) or even during a redial while the router is on.

For the router to contain the accurate time zone, you may have to manually select your region/country/city to make sure the router will be able to present you with the right time and date. By making this selection, your router will automatically update itself whenever a time change occurs throughout a year, depending on the time zone you're in.

By default, the router will attempt to auto-detect the time zone when using a USB mobile broadband

modem as your primary form of Internet access. Should this fail, then select your location manually.

If you wish to use your own NTP server settings, then activate the Custom NTP option, and fill in up to two different IP/DNS addresses of such servers.

3.11.5 E-Mail

The E-Mail sender will dispatch notifications of your consumed Internet data traffic. Enter the E-Mail address destination along with the SMTP server you wish to use in order to send out the E-Mails. To enable/select the Internet traffic reports, visit the **Internet->Traffic** page and select the notification method for the chosen quota.

If you are unsure of which SMTP server settings your mail service uses, then kindly check with your e-mail service provider. Aside from inserting the correct username and password, it is important to confirm which SMTP port and authentication protocol you should use. After saving these settings, click on Send Test Message to verify.

3.11.6 Log

The log shows what the router has done since powering/booting up. It may provide you a good insight into any problems you may be facing with your mobile broadband connection. The clock (timestamp at the beginning of each line) makes its first synchronization once the router has connected itself to the Internet. The log file is not stored between restarts.

3.11.7 Buttons

Enable or disable the various buttons and switches on your router.

Modem On/Off Switch

If you enable the "Modem On/Off Switch" then you will be able to control the power to the USB modem using the Modem On/Off switch on the router.

WPS

If you enable the "WPS" then you will be able to use the reset button on the back of the router as a WPS button. A quick click on the button will set the WiFi into WPS mode.

Be aware that the factory reset function will still be active if you hold the buttons for 7 seconds.

3.12 UPGRADE

The latest firmware is available on <http://www.dovado.com/firmware>

Warning! Do not remove the power or the USB modem during upgrading as this will break your router!

3.12.1 Firmware Utility Upgrader

The simplest recommended method of firmware upgrade is to visit <http://www.dovado.com/firmware> and download the latest version of Firmware Utility Upgrader. The Upgrader allows you to quickly establish contact with the router, type in the router's password, and perform the upgrade with the click of a button.

3.12.2 HTTP Method

Point a web browser to <http://www.dovado.com/firmware> and download the upgrade file to your computer. Remember where you store the file. Go to **Upgrade->Upgrade HTTP**. Click on the Browse button and select the upgrade file you just downloaded, and then click on Open. Click on

Start HTTP Upload to start the upgrade process.

When the upgrade is done, the router will automatically restart and a login button will appear in the web browser. The router is ready to use once it has been restarted.

3.12.3 Live Upgrade

Live upgrade will keep your router updated with the latest firmware release available on Dovado's servers. It automatically checks for new firmware once a day, however it is also possible to check manually by click on the **Check Firmware** .

3.12.4 FTP Method

If you have an FTP server you have the choice to upgrade the router via FTP.

Once the upgrade file is on the FTP server in the root directory. Go to **Upgrade->Upgrade FTP**.

Then, type in the IP address of the FTP server under FTP Server IP and the filename under Filename, then click on Start FTP Download to start the upgrade process. The text "Restarting..." will appear in your web browser when the upgrade has finished.

Note: In order to use the FTP upgrade option, the FTP server which contains the firmware image must be accessible via an anonymous FTP account.

Close the web browser and wait until the router has restarted. The router is now ready to use.

3.12.5 Configurations

This function allows you to create, as well as restore, the working configuration of your Dovado router. Each backup you save to your computer will contain all the configuration parameters you have entered in your router.

Should you have performed a factory reset to clear out all your settings, you can then restore your settings by uploading your saved configuration file via this interface.

To save the current configuration of your router to your computer, go to Upgrade->Configurations, then simply push the Download button. To restore your configuration, click on Browse (to locate the file on your computer), and then push Upload.

Tip: The configuration file which you download from your Dovado router can also be used on other routers of the same model and firmware revision. This can come in handy if performing a mass-deployment of clone configurations.

3.13 RESTART

Push Restart in order to restart the router and initiate all the settings you have saved within the menu.

3.14 LOGOUT

Normally, the login session will expire after 10 minutes of no activity. Should you wish to manually terminate the login session, then click on Logout

4 API

The Application Programmable Interface (API) allows you to create your own custom interface with the router. You can control certain features such as Home Automation, as well as manage SMS messaging.

4.1 Enabling the API

To enable the API please do the following.

LAN Access:

Go to **System-> Remote Management**

Click **Enable LAN management**

Click **API Over LAN**

Click **GPS Over LAN**

WAN Access:

Go to **System-> Remote Management**

Click **Enable WAN management**

Enter the IP address or hostname of the trusted client or check 'all' to enable WAN access for any client. Tick in the API, HOME and SMS -boxes for Home Automation and SMS access for the client. Do not forget to reboot the router after activating the API.

4.2 Connecting to the API

The API operates on port 6435.

To connect you can for example, type in the following within a console:
telnet 192.168.0.1 6435 (or change 192.168.0.1 to the IP of your router).
If the connection was successful you will receive something similar to:

This is version X.Y of the API

SMS is enabled and HOMEAUTOMATION is enabled for you

Followed by a '>>'-prompt

4.3 Logging in to the API

The API uses the Username and Password as specified in the Web GUI.
To log in as user admin, type:

user admin

When prompted for a password, enter it using the following syntax:

pass password

(The user and password is configured on the SYSTEM->USERS page)
If the login fails, verify & re-enter your credentials until access is granted.

4.4 API Syntax

To display information about the GUI functions and syntax, type **help**.

Commands:

```

help (show this help)
exit|quit|bye (close the telnet session)
user [username] (log in as user)
pass [secret_password] (log in with secret_password)
info (prints general information about the router)
services (lists services)
upgrade (upgrades router to latest available firmware)

```

Tellstick:

```

ts aliases (lists configured aliases)
ts groups (lists configured groups)
ts turn [alias] [on]/[off]
ts dim [alias] [0...100] (Dimming the device to XX%)
ts dims [alias] [0...100] (Turns the device off before dimming to XX%)
ts dimot [alias] [Start level 0...100] [Stop level 0...100] [Duration xx min]
    (Dim from start to stop level over XX minutes)
ts add [alias] [protocol] [house] [channel]
ts add_group [alias] [list_of_device_aliases] (the list is a space separated list of device aliases)
ts remove [alias]
ts remove_group [alias]

```

```

examples: ts add MYLAMP WAVEMAN A 3
          ts turn MYLAMP on
          ts remove MYLAMP

```

SMS:

```

sms list (returns number of unread/read messages)
sms send [PDU]
sms sendtxt NUMBER [ENCODING]
    NUMBER:international format without the leading +. A leading s indicates short SMS
    (eg s4612345678)
    ENCODING:ISO|UCS (ISO for ascii < 256). Leave blank for autodetection
sms rcv [ID] (returns PDU with ID or all PDUs in the inbox if ID is empty [ID:PDU])
sms rcvtxt [ID] (returns cleartext SMS with ID or all cleartext SMS in the inbox
    if ID is empty)
sms del ID

```

4.5 Router info

To display information about the router, execute the command:
info

It will respond with a list of parameters, for example:

```

Firmware_Revision:7.0.0
New firmware available:yes
API_version:1.4
PRODUCT_NAME=Dovado PROAC
SIGNAL_STRENGTH=-
TRAFFIC_MODEM_TX=0
TRAFFIC_MODEM_RX=0
TRAFFIC_WAN_TX=0
TRAFFIC_WAN_RX=0
CONNECTION=modem
MODEM_STATUS=DISCONNECTED
EXTERNAL_IP=-
DATE=2010-04-10
TIME=08:11
GPS_TYPE=FIXED
GPS_LAT=59.2222
GPS_LONG=18.1111
SUNRISE=05:48

```

```
SUNSET=19:50
SMS_UNREAD=0
SMS_TOTAL=0
CONNECTED_DEVICES=TELLSTICK
```

4.6 Upgrade via API

The command **info** will show if there is a new firmware available

```
Firmware_Revision:7.0.0
New_firmware_available:yes
API_version:1.4
```

To start a firmware upgrade of the router, execute the command:
upgrade

4.7 SMS

The router can handle both SMS's in cleartext (UTF-8/UCS encoded) and in PDU mode.

To view the clear-text contents of a PDU you need to convert it either on your own or, preferably, using a third-party software such as SMS Server Tools 3

Below is the API commands available related to SMS

```
SMS:
sms list (returns number of unread/read messages)
sms send [PDU]
sms sendtxt NUMBER [ENCODING]
    NUMBER:international format without the leading +. A leading s indicates short SMS (eg s
    ENCODING:ISO|UCS (ISO for ascii < 256). Leave blank for autodetection
sms rcv [ID] (returns PDU with ID or all PDUs in the inbox if ID is empty [ID:PDU])
sms rcvtxt [ID] (returns cleartext SMS with ID or all cleartext SMS in the inbox if ID is emp
sms del ID
```

4.7.1 Listing the number of SMS/PDUs

```
sms list (returns number of unread/read messages)
```

You can list the number of SMS/PDUs on your router using: **sms list**

The first digit of the response shows the current number of unread SMS / PDU's and the second digit the total amount in the inbox.

4.7.2 Sending SMS

The API can handle two ways of send SMS, either by receiving a PDU or via UTF-8/UCS encoded text messages.

4.7.2.1 Sending an SMS via text

```
sms sendtxt NUMBER [ENCODING]
NUMBER:international format without the leading +. A leading s indicates short SMS (eg s4612)
ENCODING:ISO|UCS (ISO for ascii < 256). Leave blank for autodetection
```

To send a SMS via text use the command **sms sendtxt**

Example:


```
>> sms sendtxt 46791044794 ISO
This is a text message
.
>>
```

4.7.2.2 Sending an SMS via PDU

```
sms send [PDU]
```

To send a SMS, you first have to make a PDU of it. Once you have the PDU, use the following syntax: **sms send <pdu>**

Example:

```
sms send 07910447946400F011000A9270042079330000AA0CC337392C2F83A6CD292804
```

4.7.3 Reading an SMS

The API can handle two ways of reading SMS, either by showing a PDU or via UTF-8/UCS encoded text messages.

4.7.3.1 Reading an SMS via text

```
sms recvtxt [ID] (returns cleartext SMS with ID or all cleartext SMS in the inbox if ID is empty)
```

To read a SMS via text use the command **sms recvtxt**

Example:

```
>> sms list
new/total
1/1
Stored IDs: 1
```

```
>> sms recvtxt 1
From: 46XXXXXXXXXX
Sent: 12-07-23 11:27:36
Alphabet: UTF-8
ID: 1
```

Räksmörgås

End of SMS

```
>>
```

4.7.3.2 Reading an SMS via PDU

```
sms recv [ID] (returns PDU with ID or all PDUs in the inbox if ID is empty [ID:PDU])
```

You can list all the current PDUs in your in the inbox using: **sms recv**

This will list all PDUs using in the format ID:PDU where ID is a unique internal descriptor of that PDU (used for removing PDUs).

Conversion is needed to see the actual contents of the PDU.

Example:

```
>> sms list
```

```
new/total
```

```
1/1
```

```
Stored IDs: 1
```

```
>> sms recv 1
```

```
1:07916407970900F1040B91640XXXXXXF40000217032117263800A
```

```
>>
```

4.7.4 Removing an SMS/PDU

```
sms del ID
```

First you need the ID of the PDU you want to remove. It can be obtained using the **sms recv** command. Then to remove a SMS/PDU, type: **sms del ID**

Example:

```
>> sms list
```

```
new/total
```

```
0/1
```

```
Stored IDs: 1
```

```
>> sms del 1
```

```
>>
```

4.8 Check services available

Services available in current session:

To display which services that are available in current session, execute the command:

```
services
```

It will respond with the services (Home Automation and SMS) that are currently available

Example:

```
HOMEAUTOMATION=enabled
```

```
SMS=enabled
```

4.9 API Coding

The API can easily be extended with a custom front-end. When implementing a front-end, mind the following:

- The router might be behind a high-latency connection. Set a high timeout for your connection.
- When logging in to the API, the password must be encoded either ISO-8859-1 or UTF-8
- When executing a command (for example ts aliases), each line of output from the API is terminated with LF (Line Feed, ASCII character 10d) and the last line of output from the command is ETB (End of Transmission Block, ASCII character 23d).
- Since there can only be one instance of the API running on the Router, a session that has been inactive for more than 60 seconds will be dropped in favor of a new session.

4.9.1 Example code

API example code for different platforms are available on <http://www.dovado.mobi/>

4.9.1.1 PHP

Below is a sample php script that will connect to the router and then send a SMS via the API

```
<?php
error_reporting(E_ALL);

echo "Code example on how to send a SMS via the Dovado router API\n";

/* The following variables are set
   $username= your username to the router with API access
   $password= your password for the above username
   $ipaddress = ipaddress of your router
   $api_port = 6435;
   $smsnr = Number to send SMS to
   $smstxt = Message content for your SMS
*/
$username = "admin";
$password = "password";
$api_port = 6435;
$ipaddress = ('192.168.0.1');
$smsnr = "Enter your phonenumber in international format (4670000000)";
$smstxt = "Enter Text Here";
$readbuf = '';

/* Function to wait for >> answers */
function respons_wait($insocket)
{
do {
    $readbuf = socket_read($insocket, 4096, PHP_BINARY_READ) ;
    }while (strpos($readbuf,'>>') === false);
    $readbuf = '';
}

/* Create a TCP/IP socket. */
$socket = socket_create(AF_INET, SOCK_STREAM, SOL_TCP);
if ($socket === false) {
    echo "socket_create() failed: reason: " . socket_strerror(socket_last_error()) . "\n";
} else {
    echo "OK.\n";
}

echo "Attempting to connect to '$ipaddress' on port '$api_port'...";
$result = socket_connect($socket, $ipaddress, $api_port);
if ($result === false) {
    echo "socket_connect() failed.\nReason: ($result) " . socket_strerror(socket_last_error($socket)) . "\n";
} else {
    echo "\nConnected to router\n";
}

respons_wait($socket);

/* Sending username to the API */
echo "Sending User Name...\n";
socket_write($socket, "user $username \r\n", strlen($username)+8);
echo "OK.\n";

respons_wait($socket);

/* Sending password to the API */
```

```
echo "Sending password...\n";
socket_write($socket, "pass $password \r\n", strlen($password)+8);
echo "OK.\n";

respons_wait($socket);

/* Setting up destination SMS number */
echo "Sending SMS number...\n";
socket_write($socket, "sms sendtxt $smsnr \r\n", strlen($smsnr)+15);

/* Sending text */
socket_write($socket, "$smstxt \r\n", strlen($smstxt)+3);

/* Sending end of message */
socket_write($socket, ".\r\n",3);

respons_wait($socket);

echo "Closing socket...";
socket_write($socket, "bye \r\n",6);
socket_close($socket);
echo "OK.\n\n";
?>
```

5 Support

Should you require any technical support, please visit <http://www.dovado.com/support>
For Frequently Asked Questions (FAQ), please visit <http://www.dovado.com/faq>

6 Open Source Notice

Open source software notice This product includes certain open source or other software originated from third parties that are subject to the GNU General Public License (GPL), GNU General Public License version 2 (GPLv2), GNU Library/Lesser General Public License (LGPL) , and different and/or additional copyright licenses, disclaimers and notices.

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.

3rd parties may obtain a complete corresponding machine-readable copy of the source code of such software under the GPL, GPLv2 or LGPL at <http://www.dovado.com/>

Alternatively;

Dovado offers to provide such source code to you on CD-ROM for a charge covering the cost of performing such distribution, such as the cost of media, shipping and handling, upon written request to:

Dovado FZ-LLC
Dubai Internet City
Al-Thuraya Tower 1, office 504
P.O. Box 500422
Dubai, United Arab Emirates

This offer is valid for a period of three (3) years from the date of the distribution of this product by Dovado.

6.1 Apache License Applications

Apache Cordova.

Version: 4.1.2

License: Apache License 2.0

6.1.1 Apache License 2.0

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition,

"control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems,

and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution." "Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
 - (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
 - (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
 - (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
 - (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed

as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

6.2 GPL v2 Applications

Linux: Copyright by their respective authors.

Version: 2.6.36

License: GPL Version 2 License

Accel-pttp
Version: 0.7.11
Copyright (C) 2006 by Kozlov D. <xeb@mail.ru>
Some cleanup done (C) 2012 by Daniel Golle <dgolle@allnet.de>
License: GPL Version 2 License

Bridge-utils: Copyright (C) 2000 Lennert Buytenhek
Version: 1.1
License: GPL Version 2 License

Busybox: Copyright by their respective authors.
Version 1.20.2
License: GPL Version 2 License

dnsmasq: Copyright (c) 2000-2017 Simon Kelley
Version: 2.78
License: GPL Version 2 License

ebtables: Copyright (C) 1999 Paul 'Rusty' Russell & Michael J. Neuling
Version: 2.0.9
License: GPL Version 2 License

inadyn: Copyright (C) 2003-2004 Narcis Ilisei
Version: 1.99
License: GPL Version 2 License

iptables: Copyright (c) 2000-2001 Netfilter Core Team
Version: 1.4.10
License: GPL Version 2 License

ethtool: Copyright by their respective authors.
Version: 6
License: GPL Version 2 License

haserl: Copyright Nathan Angelacos nangel@users.sourceforge.net
Version: 0.9.35
License: GPL Version 2 License

LZO: Copyright (C) 1996 - 2017 Markus F.X.J. Oberhumer
Version: 2.10
License: GPL Version 2 License

ntpcclient: Copyright 1997, 1999, 2000, 2003 Larry Doolittle
Version:
License: GPL Version 2 License

iproute2: Copyright by their respective authors.
Version: ss110317
License: GPL Version 2 License

OpenVPN: Copyright by their respective authors
Version: 2.4.4
License: GPL Version 2 License

polar_smtp-helper: Copyright (C) 2006-2010, Brainspark B.V.
Version:
License: GPL Version 2 License

polarssl: Copyright (C) 2006-2010, Brainspark B.V.
Version: 0.14.0
License: GPL Version 2 License

usbip:.

Version: 3.10

License: GPL Version 2 License

usb_modeswitch

Version: 0.9.7

License: GPL Version 2 License

wireless_tools: Copyright (c) 1997-2002 Jean Tourrilhes <jt@hpl.hp.com>

Version: 29

License: GPL Version 2 License

smstools: Copyright (C) 2006- Keijo Kasvi

Version: 3.1.14

License: GPL Version 2 License

sunrise: Copyright (GPL) 2004 Mike Chirico mchirico@comcast.net

Version: 0.1.1

License: GPL License

802.1x: Copyright (c) 2002-2003, Jouni Malinen <jkmaline@cc.hut.fi>

Version: 2.6.0.0

License: GPL Version 2 License

sispmotl: (C) 2004-2011 by Mondrian Nuessle, (C) 2005, 2006 by Andreas Neuper, (C) 2010 by Olivier Matheret for the
plannification part"

Version: 3.1

License: GPL Version 2 License

ntfs-3g: Copyright (c) 2005-2007 Yura Pakhuchiy, Copyright (c) 2005 Yuval Fledel, Copyright (c) 2006-2009 Szabolcs Szakacsits, Copyright (c) 2007-2009 Jean-Pierre Andre, Copyright (c) 2009 Erik Larsson

Version: 1.2412

License: GPL Version 2 License

samba: Copyright by their respective authors.

Version: 3.0.24

License: GPL Version 2 License

stupid-ftpd:

Version: 1.0beta, 2001/03/23

License: GPL Version 2 License

rp-pppoe:

Version: 3.11.

Copyright 2000 Michal Ostrowski <mostrows@styx.uwaterloo.ca>,

Jamal Hadi Salim <hadi@cyberus.ca>

Copyright (C) 1999-2001 by Roaring Penguin Software Inc.

Copyright (C) 2004 Marco d'Itri <md@linux.it>

License: GPL Version 2 License

umbim: Copyright (C) 2014 John Crispin <blogic@openwrt.org>

Version:

License: GPL Version 2 License

6.2.1 GPL v2 License

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 Lesser 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 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.

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.

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:

- a) 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; 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 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

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

6.3 GPL v3 Applications

gettext:

Version: 0.19.8.1

License: GPL Version 3 License

iconv: Copyright (C) 2000-2009 Free Software Foundation, Inc.

Version: 1.13

License: GPL Version 3 License

open-zwave-controller: Copyright (C) Conrad Vassallo.
Version: 1.3.532
License: GPL Version 3 License

6.3.1 GPL v3 License

GNU GENERAL PUBLIC LICENSE

Version 3, 29 June 2007

Copyright © 2007 Free Software Foundation, Inc. <<http://fsf.org/>>

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. 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 them 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 that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. 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.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

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

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you".
 "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license

otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey 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; keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

- a) The work must carry prominent notices stating that you modified it, and giving a relevant date.
 - b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".
 - c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.
 - d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.
- A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

- a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.
- b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.
- c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source.

This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

- a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or
- b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or
- c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be

marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and authors.

All other non-permissive additional terms are considered “further restrictions” within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An “entity transaction” is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party’s predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A “contributor” is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor’s “contributor version”.

A contributor’s “essential patent claims” are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, “control” includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor’s essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a “patent license” is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To “grant” such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. “Knowingly relying” means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient’s use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is “discriminatory” if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If 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 convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU 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 that a certain numbered version of the GNU General Public License “or any later version” applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

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.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS 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.

17. Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

6.4 LGPL Application

libiconv: Copyright (C) 2000-2009 Free Software Foundation, Inc.

Version: 1.13

License: LGPL Version 3 License

libintl:

License: LGPL Version 2.1 License

libasprintf:

License: LGPL Version 2.1 License

libusb: Copyright (c) 2000-2003 Johannes Erdfelt <johannes@erdfelt.com>

Version: 0.1.12

License: LGPL License

OpenZWave: Copyright 2010 Mal Lansell <openzwave@lansell.org>

Version: 1.3

License: LGPL Version 2 License

uqmi: Copyright by their respective authors.

Version:

License: LGPL Version 2 License

6.4.1 LGPL License

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.

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.

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.
- 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.

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 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.

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.

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).

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 an 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 tw eaking 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!

6.5 BSD 2-Clause Applications

gpsd: Copyright (c) 1997, 1998, 1999, 2000, 2001, 2002 by Remco Treffkorn. Portions of it are also Copyright (c) 2005 by Eric S. Raymond.

Version: 2.39

License: BSD License

LZ4 Library: Copyright (c) 2011-2016, Yann Collet All rights reserved.

Version: 1.8.0

License: BSD License

6.5.1 BSD 2-Clause License

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the

Redistributions of source code must retain the above copyright notice, this list of

Redistributions in binary form must reproduce the above copyright notice, this list

Neither name of the GPSD project nor the names of its contributors may be used to

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS IS'' AND

6.6 Mixed Licenses

AESCrypt: This software is Copyright 1999,2000 Enhanced Software Technologies Inc.

Version: 0.7

This software is Copyright 1999,2000 Enhanced Software Technologies Inc.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the

following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgment:
This product includes software developed by Enhanced Software Technologies Inc. and its contributors.
4. Neither the name of the Company nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COMPANY AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COMPANY OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 1996 - 2010, Daniel Stenberg, <daniel@haxx.se>.

Version: 7.22.0

License:

COPYRIGHT AND PERMISSION NOTICE

Copyright (c) 1996 - 2010, Daniel Stenberg, <daniel@haxx.se>.

All rights reserved.

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in this software without prior written authorization of the copyright holder.

FingerBank - DHCP fingerprint / signature database: Copyright (C) 2008-2017 Inverse inc.

License:

The FingerBank database is made available under the Open Database License.

See LICENSE.odbl-1.0.txt for the full text or <http://opendatacommons.org/licenses/odbl/1.0/>

Any rights in individual contents of the database are licensed under the Database Contents License. See LICENSE.dbcl-1.0.txt for the full text or <http://opendatacommons.org/licenses/dbcl/1.0/>

Idns 1.7.0 Copyright (c) 2005,2006, NLnetLabs All rights reserved.

Version: 1.7.0

License:

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of NLnetLabs nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

LibreSSL: Copyright (c) 1998-2011 The OpenSSL Project

Version: 2.5.4

License:

Copyright (c) 1998-2011 The OpenSSL Project. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright Notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in The documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgment: "This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (<http://www.openssl.org/>)"
4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact openssl-core@openssl.org.
5. Products derived from this software may not be called "OpenSSL" nor may "OpenSSL" appear in their names without prior written permission of the OpenSSL Project.
6. Redistributions of any form whatsoever must retain the following acknowledgment: "This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>)"

THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT "AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OpenSSL PROJECT OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This product includes cryptographic software written by Eric Young (eay@cryptsoft.com). This product includes software written by Tim Hudson (tjh@cryptsoft.com).

Original SSLeay License

Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)
All rights reserved.

This package is an SSL implementation written by Eric Young (eay@cryptsoft.com). The implementation was written so as to conform with Netscape's SSL. This library is free for commercial and non-commercial use as long as the following conditions are adhered to. The following conditions apply to all code found in this distribution, be it the RC4, RSA, lhash, DES, etc., code; not just the SSL code. The SSL documentation included with this distribution is covered by the same copyright terms except that the holder is Tim Hudson (tjh@cryptsoft.com).

Copyright remains Eric Young's, and as such any Copyright notices in the code are not to be removed. If this package is used in a product, Eric Young should be given attribution as the author of the parts of the library used. This can be in the form of a textual message at program startup or in documentation (online or textual) provided with the

package.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgement: "This product includes cryptographic software written by Eric Young (eay@cryptsoft.com)"
The word 'cryptographic' can be left out if the routines from the library being used are not cryptographic related :-).
4. If you include any Windows specific code (or a derivative thereof) from the apps directory (application code) you must include an acknowledgement: "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"

THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The licence and distribution terms for any publicly available version or derivative of this code cannot be changed. i.e. this code cannot simply be copied and put under another distribution licence [including the GNU Public Licence.]

mini_httpd: Copyright (c) 1999,2000 by Jef Poskanzer <jef@mail.acme.com>
Version: 1.19
License:
Copyright (c) 1999,2000 by Jef Poskanzer <jef@mail.acme.com>.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

minissdpd
Version: 1.4 Copyright (c) 2007-2015, Thomas BERNARD
License:
Copyright (c) 2007-2015, Thomas BERNARD
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- * Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- * Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- * The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

miniupnpd

Version: 1.6

License:

Copyright (c) 2006-2008, Thomas BERNARD

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

miniupnpc: Copyright (c) 2005-2011, Thomas BERNARD

Version: 1.8

License:

Copyright (c) 2005-2011, Thomas BERNARD

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

ppp: Copyright by their respective authors.

Version: 2.4.5

License:

Copyright (c) 1984-2000 Carnegie Mellon University. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The name "Carnegie Mellon University" must not be used to endorse or promote products derived from this software without prior written permission. For permission or any legal details, please contact
Office of Technology Transfer
Carnegie Mellon University
5000 Forbes Avenue
Pittsburgh, PA 15213-3890
(412) 268-4387, fax: (412) 268-7395
tech-transfer@andrew.cmu.edu
4. Redistributions of any form whatsoever must retain the following acknowledgment:
"This product includes software developed by Computing Services at Carnegie Mellon University (<http://www.cmu.edu/computing/>)."

CARNEGIE MELLON UNIVERSITY DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO EVENT SHALL CARNEGIE MELLON UNIVERSITY BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

tcpwrappers: Copyright 1995 by Wietse Venema. All rights reserved. Some individual files may be covered by other copyrights.

Version: 7.6

License:

As of June 1, 2001, the text below constitutes the TCP Wrappers license.

This material was originally written and compiled by Wietse Venema at Eindhoven University of Technology, The Netherlands, in 1990, 1991, 1992, 1993, 1994 and 1995.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that this entire copyright notice is duplicated in all such copies.

This software is provided "as is" and without any expressed or implied warranties, including, without limitation, the implied warranties of