Universal Broadband Router

Reference Manual 9.1.0
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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 - Universal Access router
- Power supply
- Quick Wizard Guide
- 1 x 2dBi antennas

Additional optional items:

In addition to the items above you 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-XXXXX" or "DOVADO-XXXXX-5GHz", where XXXX 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.

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**
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 Scheduler

Dovado Routers contain a scheduler which can be used to 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 Internet. The router will still be connected to the Internet, however your network devices will be blocked from accessing the Internet. Internet traffic can be forced On or Off by using the Manual Control button on the page. It is also possible to control the Internet access via SMS. In order to use SMS, the router needs to be configured via the SMS sub-menus.

It is possible to create groups of days (for instance weekdays vs. weekends) in order to simplify clustering of events.
3.2.8 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.

3.2.9 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 . 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.

3.2.9.1 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: You 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-XXXXX / -5GHz
Where XXXX 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: You 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.

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**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.

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### 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.

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 automatically 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.

### 3.7 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](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 4670xxxxxxx.
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'

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 its 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

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 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 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

3.8.1 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.

3.8.2 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.

3.8.3 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.

3.8.4 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 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.
3.8.5 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.

3.8.6 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 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.

3.9.1 Info

By defining the geographic location of your router, it will be able schedule events based on what times the sun rises and sets.

To enable Positioning, start by configuring & entering the positioning of the router. A simpler method would be to manually select your location by clicking on the Google Maps™ map.

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

3.9.2 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.

3.9.3 GPS Settings

In order for certain Home Automation features to work (Sunrise/Sunset), the router needs to know its geographic whereabouts. 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

Custom API key: It is possible to enter your own Google Maps key, For further info visit https://
3.10 SYSTEM

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

3.10.1 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.

3.10.2 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>.


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.

3.10.3 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.
3.10.4 **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.

3.10.5 **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.

3.10.6 **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 **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!

3.11.1 **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.

3.11.2 **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.
3.11.3 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.

3.11.4 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.

3.11.5 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.*

3.12 RESTART

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

3.13 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 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
- 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
```

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)

**SMS:**
- **sms list** (returns number of unread/read messages)
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 Tiny
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
SMS_UNREAD=0
SMS_TOTAL=0
CONNECTED_DEVICES=-
```

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 s4612345678)
ENCODING:ISO|UCS (ISO for ascii < 256). Leave blank for autodetection
```

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

```ini
>>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:

```ini
sms send 0791044796400F011000A9270042079330000AA0CC337392C2F83A6CD292804
```

**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 [ID:PDU])

To read a SMS via text use the command sms recvtxt

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

>> sms recvxt 1
From: 46XXXXXXXXX
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 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
1:07916407970900F1040B91640XXXXXXXXF40000217032117263800A

>>

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:
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
<?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: ($result) " . socket_strerror(socket_last_error($so
} 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";
?>

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Version 3, 29 June 2007


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